



Feasibility study for a
cotton spinning mill
in 11 sub-Saharan African countries



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



GHERZI

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**A study undertaken by Gherzi
on behalf of UNIDO**



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
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Foreword



Cotton plays a significant role in the economy of sub-Saharan Africa. However, merely 15 per cent of the cotton grown in the subregion is processed locally; the bulk of it is exported as a raw material.

The United Nations Industrial Development Organization (UNIDO) has undertaken a variety of initiatives in support of the African cotton industry. At a high-level session on cotton organized by the World Trade Organization in Geneva on 15 and 16 March 2007, UNIDO presented a paper entitled “Support for the cotton industry and industrialization issues”. The present study has been carried out with the aim of building productive capacities in the cotton/textile/garment value chain in 11 cotton-producing sub-Saharan African countries. The objective of UNIDO is an increase of the volume of cotton processed within the subregion to at least 25 per cent in the near future.

The spinning of cotton yarn represents the first stage of the industrial transformation of raw cotton into an intermediate textile product (yarn), and results in significant added value. The promotion of this activity is in line with the global trend towards “task-based” production, which is predicated on specialization in some stages of a value chain rather than in final products, as highlighted in the *Industrial Development Report 2009*. World trade in cotton yarn is estimated at 7 billion United States dollars; as such, the market represents an interesting niche for cotton-producing African countries. From a development perspective, promoting the spinning industry would help to integrate the African cotton economy into the world trade in manufactured products.

The present study includes a technological-economic feasibility analysis for setting up a cotton yarn spinning mill based on the factor costs prevailing in the 11 sub-Saharan African countries that were selected. A comparative analysis of economic returns has revealed that because energy is scarce and expensive, only

a few African countries can meet the investment criteria. A strategic research finding was that Government support in the form of policies and incentives is essential for attracting foreign direct investment to the capital-intensive spinning industry, especially in Africa.

The present study is intended to be used as a template based on a set of given premises and parameters. However, any decisions taken by a particular company should take into account several factors, including cotton and yarn prices, exchange rates, interest rates, type of technology and equipment, product mix, location, market access and Government support measures.

In addition, the study provides an opportunity for policymakers in African countries to learn from the experiences gained by cotton and textile-producing Asian countries in strengthening the value chain.



Kandeh K. Yumkella
Director-General, UNIDO

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I. OBJECTIVES

The objective of the present study is to determine the potential for manufacturing cotton yarn by adding value to the cotton produced in 11 countries in sub-Saharan Africa.

The aim of the study is to prepare a feasibility report for setting up an export-oriented spinning mill based on the specific factor costs in each of the selected 11 sub-Saharan African cotton-growing countries.

The factor costs and Government policies prevailing in the selected countries are then compared with those in the six major cotton textile-producing countries selected as benchmarks (see figure I).

Figure I. The 11 sub-Saharan African countries selected for the study and the six benchmark countries

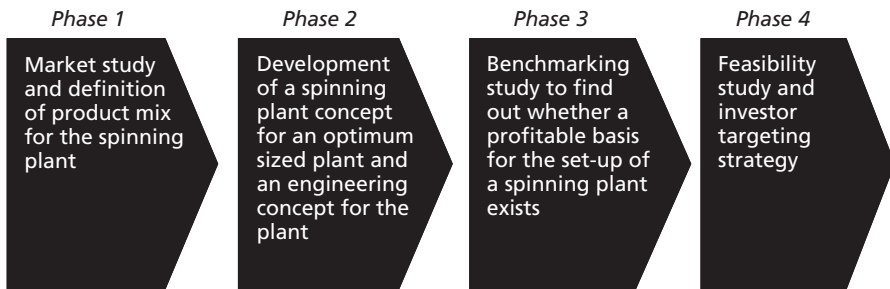


The study is expected to result in a useful tool to evaluate the competitiveness of individual sub-Saharan African countries and provide a guideline for appropriate Government policy intervention for generating investment in the cotton yarn spinning industry.

II. METHODOLOGY

The study was divided into four phases and contains the findings of phases 1 to 4 (see figure II).

Figure II. The four phases of the study



Eleven sub-Saharan African countries were selected and an evaluation of their competitiveness for setting up a cotton spinning mill was carried out. The countries were selected because they are major cotton-producing and exporting countries. An additional six major cotton and textile-producing countries were selected for analysing their factor costs and Government policies for the promotion of textile industry for the purpose of benchmarking the same with those obtainable in the 11 sub-Saharan African countries.

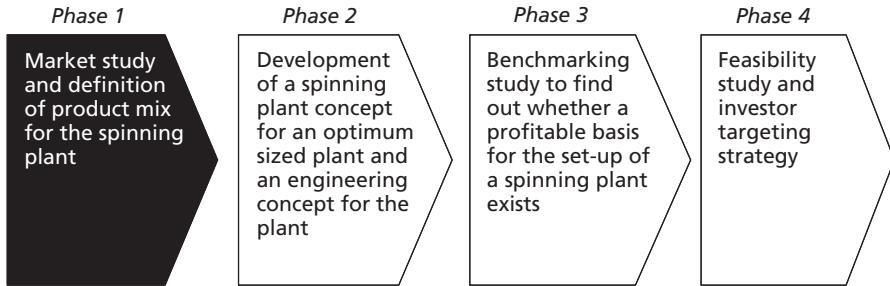
During phase 1, an analysis of the market dynamics was carried out. This included assessing trends in the world cotton and yarn trade, spinning capacity, product mix and organizational capability as prerequisites for the establishment of a spinning mill.

While carrying out the field work, 8 of the 11 sub-Saharan countries were visited to collect data on factor costs and Government policies. Five of the six benchmark countries (China, Egypt, India, Pakistan and Turkey) were visited to collect benchmarking data on up-to-date factor costs and Government policies.

Meetings were held with reputable international cotton traders and yarn buyers in Europe to gather relevant information on the market dynamics of the cotton and yarn trade with the sub-Saharan African countries.

The consultants met with reputable textile machinery suppliers in countries in Europe, as well as in China and in India, to obtain quotations for the supply of the plant and machinery for the spinning mill, in line with the technical concept and product mix envisaged under phase 2.

During phases 3 and 4, and on the basis of previously gathered data and information, a feasibility plan was prepared for each of the 11 sub-Saharan African countries; the plans were benchmarked against the data for the six cotton and textile-producing countries.



III. THE SOCIAL AND ECONOMIC IMPACT OF THE COTTON SECTOR IN AFRICA

Cotton is an engine of economic development in Africa, where an estimated 20 million people depend on cotton for their livelihood. Cotton is also a crucial source of income for millions of small farmers and their families, as well as being a source of foreign exchange earnings in more than 15 countries on the continent.

African cotton has two competitive advantages in the world market: the intrinsic quality of its fibre and the fact that it is hand-picked. Most African cotton is suitable for spinning medium-count yarns. The quality of many of African cottons has worsened due to contamination with foreign matter.

At the same time, cotton is a source of major concern in Africa because of declining production, compounded by unfair external factors such as exchange rates and market distortions. It is estimated that subsidies for the production and export of cotton reduce the world average prices for cotton lint by 10-15 per cent, resulting in lost revenue for African countries.

Only about 15 per cent of the cotton produced in the 11 sub-Saharan African countries studied in this report is processed into textiles; most of it is exported in the form of primary raw material. In the cotton belt in the CFA (Coopération financière en Afrique centrale) franc zone in West Africa, the share is even smaller, at about 5 per cent. This situation has deteriorated further with the decline of textile manufacturing activity in Africa due to an erosion in manufacturing competitiveness and an influx, largely illegal, of imported textiles.

Notably, according to the International Cotton Advisory Committee, direct total assistance to the cotton industry in the form of Government subsidies in major cotton-producing countries was estimated at US\$ 3 billion, covering 57 per cent of global cotton production in the period 2007-2008.

Cotton has been at the centre of the multilateral trade negotiations held in the framework of the Doha Development Round. The sectoral initiative was tabled by Benin, Burkina Faso, Chad and Mali in 2003. In 2004, it was established that the mandate for cotton was to be addressed by focusing on two aspects: (a) the trade policy aspect and (b) the development assistance aspect. With regard to the trade policy aspect, ministers agreed that cotton would be treated ambitiously, expeditiously and specifically, on the basis of market access, domestic support and export competition.

Progress has been made on aspects of market access and export subsidies, but domestic support is an area in which World Trade Organization members have not yet reached a consensus.

However, the cotton question is tied up with the conclusion of the Doha Development Round, which is further complicated by the current global financial crisis.

IV. THE RATIONALE FOR SPINNING

Spinning is the first stage of a vertical textile manufacturing process whereby fibres, such as cotton, are converted into yarn.

The 11 sub-Saharan African cotton-growing countries selected for the present study have been taken as a “homogeneous” group that produces about 810,000 tons of cotton lint per annum. The fact that only about 15 per cent (and only 5 per cent in the CFA franc zone) of that cotton is transformed into yarn or other value-added textiles, while the rest is exported as raw material in the form of cotton lint, shows how vast the scope is for processing cotton into yarn. The following points explain the rationale for developing the spinning sector:

(a) Spinning is an agro-allied industry that directly links indigenous cotton producers with textile manufacturers. It is clear that the spinning industry is shifting closer to the source of raw material;

(b) Significant value is added during the process of transforming cotton into yarn;

(c) Cotton yarn is an industrial commodity that is widely traded on the world market. Over 30 countries participate in the international trade in cotton yarn;

(d) Unlike finished textile articles, yarn is not influenced by changes in fashion and style because it is an intermediate product in the textile production chain. Yarn can be stored for long periods. The cotton yarn market is highly sensitive to shifts in demand for and supply of cotton at the international level;

(e) The trade in cotton yarn offers a unique competitive opportunity with regard to China because China does not compete as much with other yarn-producing countries as it does with countries that produce other fabrics and garments. In fact, China is the largest importer of cotton yarn in the world and could therefore become an important importer of cotton yarn from sub-Saharan African countries;

(f) For landlocked cotton-growing African countries such as Uganda, spinning provides an opportunity to transform local raw material and ship it out. This is in contrast to attempts by some landlocked African countries to set up

apparel factories that rely on imported fabrics and involve high freight costs on inward and outward transportation as well as an increased delivery time;

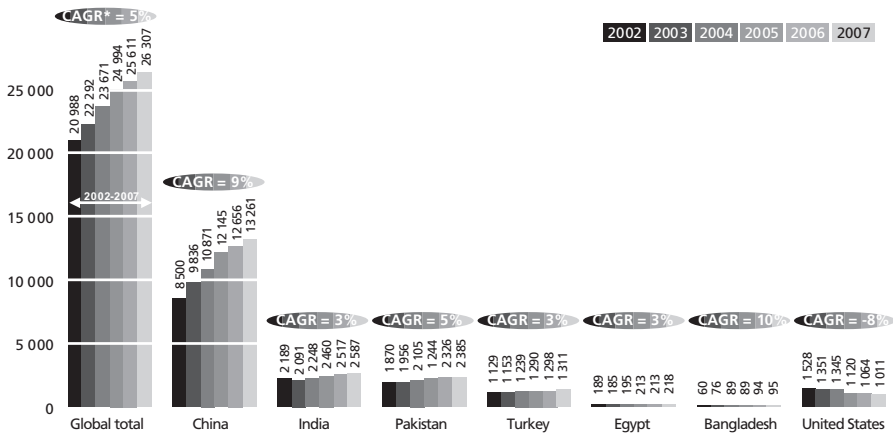
(g) Since spinning is a highly capital intensive industry with backward linkages with the cotton economy, favourable Government policies are needed for its development.

V. THE GLOBAL MARKET FOR COTTON YARN

A. Trends in the global production of cotton yarn

During the period 2002-2007, global cotton yarn production registered a significant compound annual growth rate among all leading textile-producing countries except the United States of America (table 1).

Table 1. Trends in cotton yarn production in selected countries, 2002-2007—major countries (mn kg)



Source: Gherzi analysis based on research from Textile Commissioner’s Report—India.

*CAGR stands for compound annual growth rate.

B. Characteristics of the global cotton yarn trade

The global trade in cotton yarn is characterized by the following four major trends:

Maturity: The global market for cotton yarn is estimated at over 2.7 million tons and is valued at US\$ 7-8 billion per annum.

Shift: Trends in the production and export of cotton yarn have shifted to the benefit of cotton-producing developing countries.

Consolidation: As a result of the phasing-out of the Multi-Fibre Arrangement in 2005, a massive consolidation of the textile industry is taking place in countries that have the necessary raw materials and textile manufacturing capabilities. In that context, there has been a significant expansion in spinning capacities in China, India, Pakistan and Turkey to cater to the internal demand for yarn for transformation into fabrics.

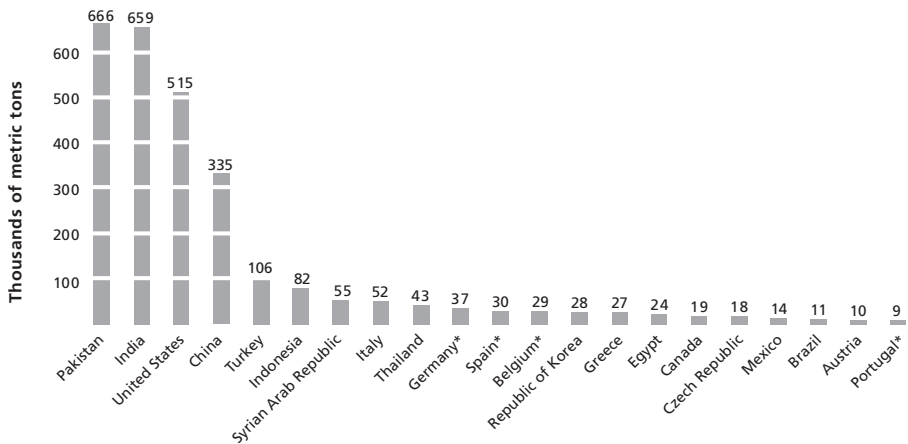
Competitiveness: Cotton yarn is a highly competitive commodity for which there are many importers and exporters.

VI. MAJOR EXPORTING AND IMPORTING COUNTRIES

A. Leading exporters of cotton yarn

In terms of volume, Pakistan is the leading exporter of cotton yarn (table 2).

Table 2. Major cotton yarn exporters, 2007



*Volume estimation.

Source: Gherzi analysis based on Comtrade, APTMA, CTEI, TXCINDIA.

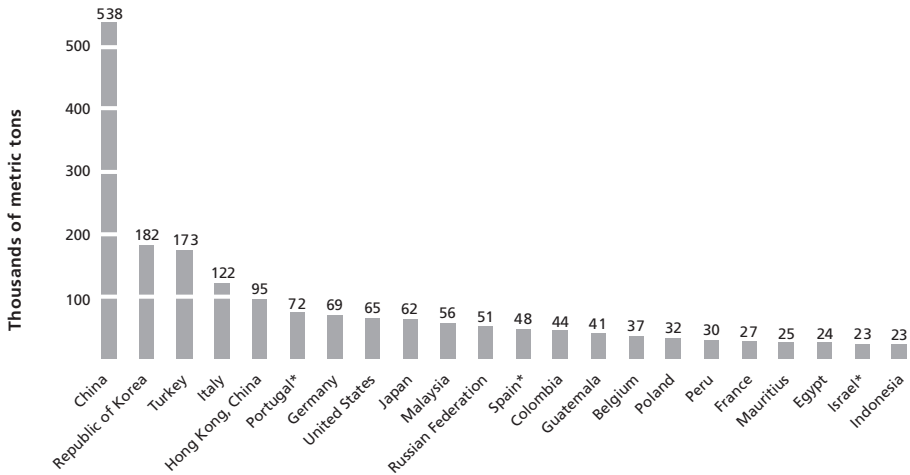
Different markets are served by different suppliers. In 2007, the following picture emerged: Pakistan targeted China (including Hong Kong), which accounted for 52 per cent of Pakistan's export market for cotton yarn, mainly in the form of coarse yarn counts (Ne 16-20s). In contrast, India exported to various countries; its biggest cotton yarn export partner was Bangladesh, which accounted for about 14 per cent of Indian yarn exports. India dominated the world trade

in fine and superfine yarns (Ne 60-120). Indonesia was a strong challenger in some Asian markets: 15 per cent of its exports were targeted at Japan, 24 per cent to China (including Hong Kong) and 12 per cent to the Republic of Korea. Turkey's major markets were Italy (28 per cent), Portugal (16 per cent) and Poland (12 per cent). Of the total yarn exported by the United States (worth US\$ 790 million), over 55 per cent was destined for Honduras and other Central American countries.

B. Leading importers of cotton yarn

In 2007, China was by far the most important importer of cotton yarn (table 3).

Table 3. Major importers of cotton yarn, 2007



*Weight estimation.

Source: Gherzi analysis based on Comtrade, APTMA, CTEI, TXCINDIA.

Several countries, including Guatemala and the Russian Federation, have recently emerged as potentially attractive destinations for cotton yarn exports while others, such as Turkey, which had been exporting cotton yarn, have emerged as net importers of the commodity.

Between 2000 and 2007, the amount of cotton yarn imported into China increased from 349,000 metric tons to 538,000 metric tons. The average price realization during that period was of about US\$ 2/kg (tables 4 and 5).

Table 4. Imports and price realization, 1997-2007

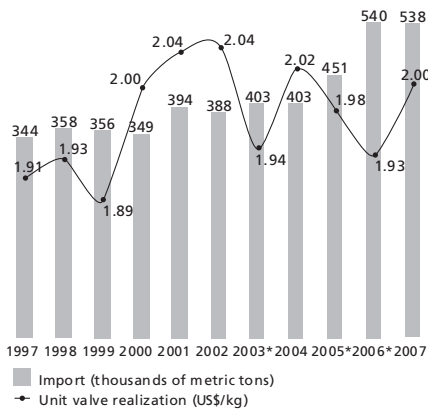
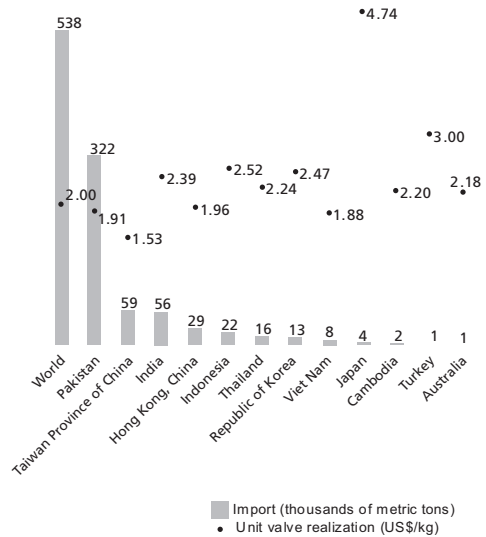


Table 5. Best import partners, 2007



Source: Gherzi analysis based on Comtrade.
*Estimate of weight.

Source: Gherzi analysis based on Comtrade.

The bulk of the cotton yarn imported by China in 2007 came from Asian neighbours, with major sources being India and Pakistan.

China is the world’s largest producer of cotton; it also has the greatest spinning capacity of any other country. China imports cotton yarn mainly to bridge the gap between demand and supply, particularly of coarse and medium yarn (Ne 16-30s). As the local cotton is suitable for producing medium and fine yarn (Ne 40-60s), Chinese spinning mills tend to rely on imports for meeting the demand for coarse and medium yarn of up to Ne 30s.

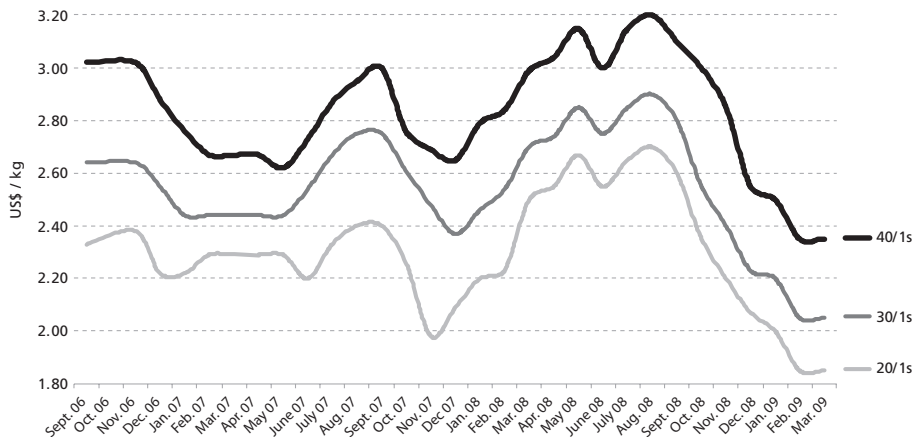
The opportunity for the spinning industry in sub-Saharan Africa lies in tapping into the demand for coarse to medium yarn (Ne 20-30s) in China. Moreover, several sub-Saharan African countries are recognized as least developed countries and thus enjoy duty-free access to the vast Chinese market.

VII. COTTON YARN: PART I

A. Trends in the price of cotton yarn

Usually, the price of yarn changes in tandem with the price of cotton, clearly showing that the spinning industry is driven by the need for raw material (table 6).

Table 6. Price of cotton yarn from India

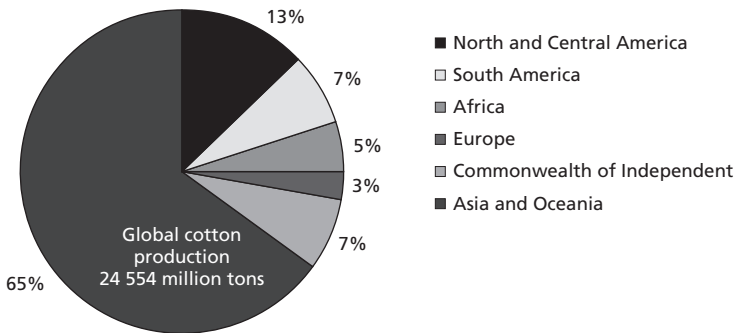


Source: Gherzi analysis based on Emerging Textiles.

B. Production of cotton and spinning capacity worldwide

The International Cotton Advisory Committee estimated global cotton production in 2008-2009 at 24.5 million tons; Africa's share of the total was 1.2 million tons (equal to 5 per cent) (figure III).

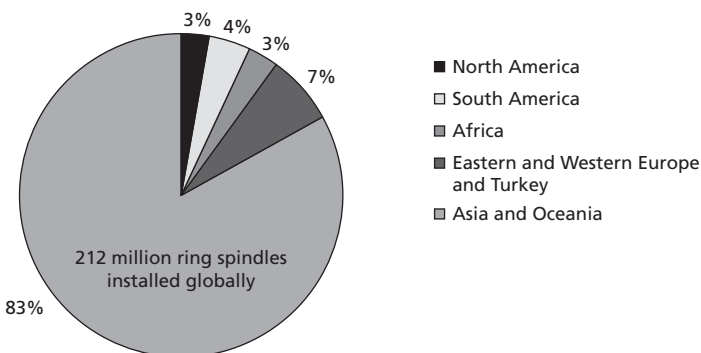
Figure III. Global cotton production, 2008-2009



Source: Gherzi analysis based on ICAC vol. 62-2 Dec. 2008.

In terms of ring spinning capacity, of the 212 million ring spindles that were installed globally as at December 2007, only 6.4 million were installed in Africa, representing less than 3 per cent of the global total. Eighty-three per cent of all spindles were installed in Asia and Oceania (figure IV). Such a situation presents a significant opportunity for African countries to address the gap between raw material production and transformation of the raw material into cotton yarn in the future.

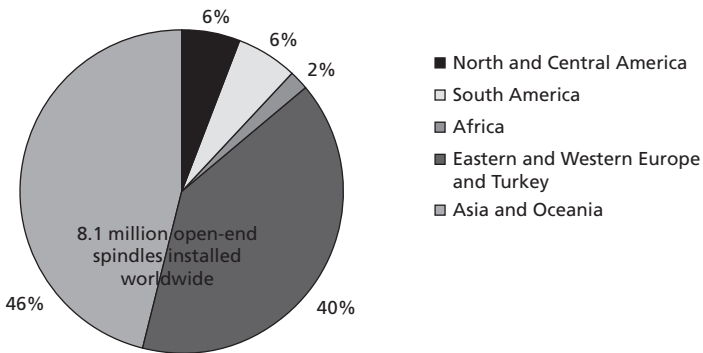
Figure IV. Global ring spinning capacity, 2006



Source: Gherzi analysis based on ITMF.

With regard to open-end spinning technology, the global installed capacity stood at about 8.1 million rotors in 2007. In Africa, 183,000 rotors had been installed (equal to a little more than 2 per cent of the global rotor spinning capacity). In this case too, Asia and Oceania dominated the market, representing 46 per cent of global capacity. Europe accounted for about 29 per cent and Turkey for about 11 per cent of the total installed rotor spinning capacity (figure V).

Figure V. Global open-end spinning capacity, 2007



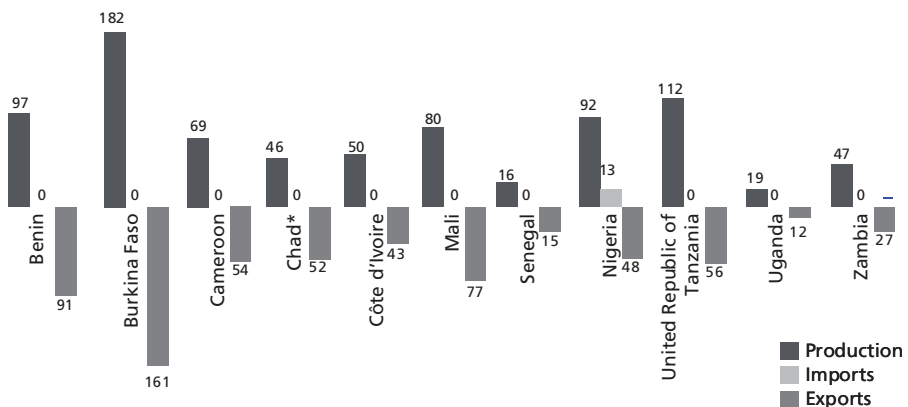
Source: Gherzi analysis based on ITMF.

VIII. RECENT TRENDS IN THE PRODUCTION AND CONSUMPTION OF COTTON IN 11 SUB-SAHARAN AFRICAN COUNTRIES

On a broader level, cotton is produced in 34 of 42 countries in sub-Saharan Africa. Although the subregion produces 4 per cent of the world's cotton, it is a marginal player in terms of processing, accounting for less than 1 per cent of global cotton processing.

Production of cotton in Africa declined from over 2 million tons in 2004-2005 to 1.2 million tons in 2008-2009 despite the fact that, during that period, the global production and export of cotton had increased significantly (figure VI).

Figure VI. Production and utilization of cotton fibre in the 11 sub-Saharan African countries, 2008-2009 (thousands of tons)



Source: Gherzi analysis based on ICAC vol. 62-2 Dec. 2008.

Sub-Saharan Africa exports 85 per cent of its cotton; only 15 per cent is consumed locally. Furthermore, the countries of the CFA franc zone in West Africa, which grow half of the about 1.1 million tons of cotton grown in sub-Saharan Africa, transforms only 5 per cent of their cotton.

Nigeria has recorded the highest transformation rate, at over 60 per cent; that is based on the fact that Nigeria's textile industry, which has backward integration in spinning, adds value to locally grown cotton. Before 2000, when the Nigerian textile industry started to decline, the transformation rate in Nigeria was much higher, at over 90 per cent.

IX. SPINNING CAPACITY IN 11 SUB-SAHARAN AFRICAN COUNTRIES AND SIX BENCHMARK COUNTRIES

Of the approximately 1.5 million ring spindles installed in the 11 sub-Saharan African countries as at 31 December 2007, only 8 per cent (119,400 units) are no more than 10 years old (modern) (table 7), while in the benchmark countries 42 per cent of the spindles installed were no more than 10 years old (table 8). In open-end spinning, 23 per cent of the rotors being used were no more than 10 years old (modern) in the sub-Saharan African countries (table 9); in the competing benchmark countries, 43 per cent of the ring frames and 68 per cent of the open-end spinning rotors were no more than 10 years old (modern).

Table 7. Ring spindles and open-end spinning rotors installed in the 11 sub-Saharan African countries, as at 31 December 2007

Country	Spindles installed 2007	Rotors installed 2007	Shipments 1999-2008		No more than 10 years old	
			Spindles (unit)	Rotors (unit)	Spindles (percentage)	Rotors (percentage)
Benin	60 000	-	21 000	5 988	33	-
Burkina Faso	7 000	-	-	-	-	-
Cameroon	55 000	-	-	-	-	-
Chad	8 000	35 000	18 000	-	100	-
Côte d'Ivoire	120 000	3 000	-	-	-	-
Mali	40 000	-	10 500	-	26	-
Nigeria	600 000	15 000	21 100	7 300	4	49
Senegal	25 000	-	-	-	-	-
Uganda	50 000	1 200	11 000	1 112	22	93
United Republic of Tanzania	400 000	-	26 900	-	7	-
Zambia	100 000	7 400	10 900	-	11	-
Total	1 465 000	61 600	119 400	14 400	8	23

Source: Gherzi analysis based on ITMF.

The age of the machine reflects the level of technology employed. In other words, the younger the machine, the higher the productivity and the quality, and the lower the cost per unit.

Table 8. Ring spindles and open-end spinning rotors installed in the 6 benchmark countries, as at 31 December 2007

Country	Spindles installed 2007	Rotors installed 2007	Shipments 1999-2008		No more than 10 years old	
			Spindles (unit)	Rotors (unit)	Spindles (percentage)	Rotors (percentage)
Bangladesh	6 300 000	159 900	3 500 000	68 000	56	43
China	99 000 000	2 037 000	36 600 000	1 700 000	37	83
Egypt	2 500 000	22 000	335 000	1 200	13	5
India	34 900 000	447 000	15 400 000	169 000	44	37
Pakistan	10 500 000	150 000	5 600 000	10 000	53	7
Turkey	6 600 000	600 000	2 900 000	390 000	44	65
Total	150 800 000	30 425 900	64 335 000	2 338 200	43	68

Source: Gherzi analysis based on ITMF.

Table 9. Installed ring spindles and open-end spinning rotors: capacity, as at 31 December 2007

Country	Spindles installed 2007	Rotors installed 2007	Shipments 1999-2008		No more than 10 years old	
			Spindles (unit)	Rotors (unit)	Spindles (percentage)	Rotors (percentage)
All 11 sub-Saharan African countries	1 465 000	61 600	119 400	14 400	8	23
All African countries	6 385 000	183 000	882 000	31 800	14	17
All 6 benchmark countries	150 800 000	3 425 900	64 335 000	2 338 200	43	68
World	212 214 000	8 122 000	74 554 000	3 194 000	35	39

Source: Gherzi analysis based on ITMF.

Notably, the 11 sub-Saharan African countries represent only 0.7 per cent of the installed global ring spinning capacity. Merely 0.16 per cent of the new investments made in ring spinning worldwide and 0.4 per cent in rotor spinning

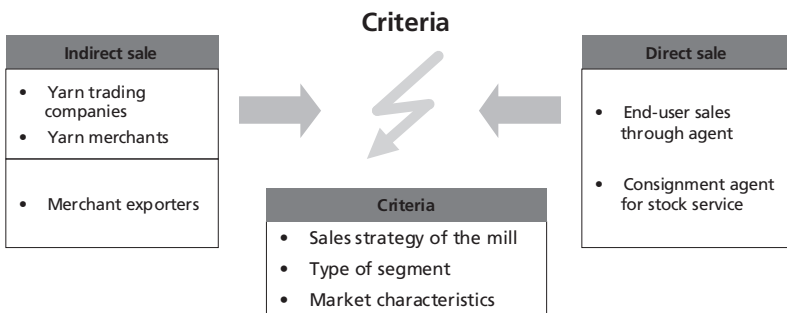
worldwide, during the period 1999-2008, went to the 11 sub-Saharan African countries, further widening the technological divide between cotton and textile-producing countries in Africa and Asia.

X. METHODS OF SELLING YARN

A. Direct and indirect sale

Yarn, being an intermediate industrial product, needs to be sold using specialized methods. Typically, yarn is sold either through direct or indirect sale methods (see figure VII).

Figure VII. Methods for conducting a direct or indirect sale



Direct sale

Yarn can be sold directly to end-users or to small and medium-sized customers. In the first case, a spinning mill sells yarn directly to an end-user such as a knitter or weaver, who transforms the yarn into fabric. These end-users tend to be buyers of large quantities of yarn and have well-organized purchasing departments. In turn, spinning mills usually appoint an agent to work in the buyer's country whose role includes linking up buyers and sellers of yarn, bridging language barriers, facilitating payment and resolving any differences arising from the non-fulfilment of contractual obligations. The agent is paid a commission on sales equal to 2-3 per cent of the value of the invoice.

In large markets, such as China and India, spinning mills set up consignment selling arrangements to cater to small and medium-sized customers. Under that type of arrangement, stock service is offered through a consignment agent in close proximity to a yarn consuming cluster and payment is remitted to the mill after the goods have been sold.

Indirect sale

There are several ways of selling yarn indirectly through traders. Traders are intermediaries who facilitate the supply of yarn to end-users by dealing with a range of issues, including the following:

- (a) Catering to small and medium-sized customers who cannot afford to purchase in bulk;
- (b) Logistics (for example, warehousing and shipping);
- (c) Financing;
- (d) Exchange rate risks;
- (e) Credit risks;
- (f) Exchange or replacement of substandard goods.

There are three types of yarn traders: large trading companies, yarn merchants and merchant exporters.

Large yarn trading companies: Mostly located in Europe and the Far East, large yarn trading companies import yarn from major yarn-producing countries and distribute to end-users in various countries. Some of the companies are large multinational trading conglomerates that have been dealing in textile raw materials for several decades.

Yarn merchants: Yarn merchants operate at the national level only, catering to the local market. The advantage they offer is proximity to the customer and a quick rate of response. There are several such yarn merchants in Belgium, Portugal and Spain.

Merchant exporters: Merchant exporters are traders who provide a service to spinning mills that want to focus on manufacturing and prefer to leave selling arrangements to a yarn trading company. Merchant exporters offer a sourcing advantage to large international buyers by offering a “one-stop shop” in their country of origin. They offer guarantees on behalf of smaller spinning mills that lack international marketing expertise.

The choice of an appropriate selling method depends on the size of the spinning mill and on the buying methods prevalent in the target market. For instance, in South American markets end-users require long credit periods ranging from 90 to 180 days after delivery and pay in their local currency; thus, it would be advisable for a spinning mill in Africa to export to a yarn trader willing to bear all local commercial risks arising from fluctuations in credit and exchange rates.

In order to sell in the European market, African spinners typically sell through a combination of agents targeting large end-users and yarn merchants catering to small and medium-sized customers who want a local stock service.

B. Terms of sale

Delivery

Shipments of yarn exports are made on a “cost and freight” basis whereby a spinning mill arranges delivery up to the port of destination and ocean freight is included in the price.

Payment

Payment by an irrevocable letter of credit payable either at sight or on a deferred basis involving a credit period of up to 90 days is widely accepted. For local sales, delivery is typically “ex-mill”, which means that the customer arranges to pick up the goods from the spinning mill. Credit-worthy customers may be given a credit of up to 30 days, whereas smaller customers must abide by “cash and carry” terms of sale.

Contract

For export orders, a contract is entered into between the spinning mill (the seller) and the importer (the buyer). The contract contains a clear description of the goods being sold, the quantity and value of those goods and the specifications of the quality of the yarn, details regarding the delivery schedule, etc.

C. Sales organization

A spinning mill must have an organized sales department, headed by an experienced sales manager who is well versed in the technical and commercial aspects of yarn spinning and its applications (such as knitting, weaving and dyeing). Being familiar with those aspects is important due to the fact that yarn is an intermediate industrial product.

The key functions of a yarn selling department in a spinning mill include:

- (a) Sales (procuring orders by, for example, regularly visiting prospective customers/markets);
- (b) Distribution (appointing agents and stockists to work in different markets);
- (c) Production, planning and control;
- (d) Quality assurance;
- (e) Customer service (involves providing support to users of yarn);
- (f) Sales administration (logistics and documentation);
- (g) New market development;
- (h) Product development.

XI. PROPOSED PRODUCT MIX FOR THE PLANT

The product mix in a spinning mill involves the constant fine tuning of technical and commercial factors in order to make the most of the technical capability of the plant to maximize profitability.

Technical factors include the optimum balancing of various pre-spinning and post-spinning processes, raw material quality and operator skills. Commercial factors include the raw material prices and inter-count price differentials prevailing in the market at a given time. Ninety per cent of global cotton yarn production is coarser than Ne 60s; the bulk of it is in a count range of Ne 20-30s (figure VIII).

Based on the availability of raw material and market demand, it is foreseen that a given spinning mill will produce medium yarn counts in the range of Ne 24/1-40/1 with an average count of Ne 30/1, combed for the weaving and knitting industries. Combed yarn is proposed since it faces less intense competition from Pakistan and other countries in Asia and because it is in demand for use in the manufacture of higher value added products. Combed cotton yarns are used in the knitting and weaving of apparel, underwear, outerwear and home textiles.

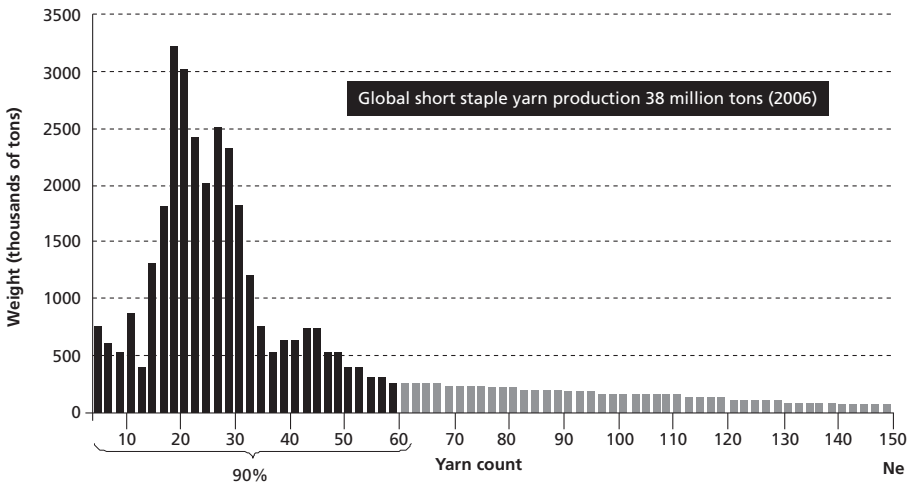
In the medium term, once a mill has attained a certain standing in the market, it could enrich its product mix by producing the following types of niche yarns to further add value:

- (a) Organic cotton yarn: organic cotton yarn is produced from cotton grown without the use of chemical fertilizers. Uganda is known for growing such cotton, which fetches a premium in the world market due to consumer demand;
- (b) Fair trade cotton yarn: certified fair trade cotton yarn is produced in certain countries in West and Central Africa, including Burkina Faso, Cameroon, Mali and Senegal.¹ Such yarn and apparel produced from it have attained the status of a niche market, especially in Europe;

¹Fairtrade cotton label claims to safeguard the interests of cotton growers through the value chain of cotton and textiles. For more information, go to www.fairtrade.net.

- (c) Multifold yarns: in countries where energy is relatively cheap, spinning mills could devote a small part of their business to the production of two- or multifold yarns, which are used in towelling, socks and industrial applications. Such a decision would, however, require making additional investments in order to purchase doubling and twisting machines.

Figure VIII. Global yarn production in effective tons per yarn count, 2006



Source: Industry.

XII. SPINNING YARN MANUFACTURING PROGRAMME WITH REGARD TO COUNTS AND QUANTITIES TO BE PRODUCED

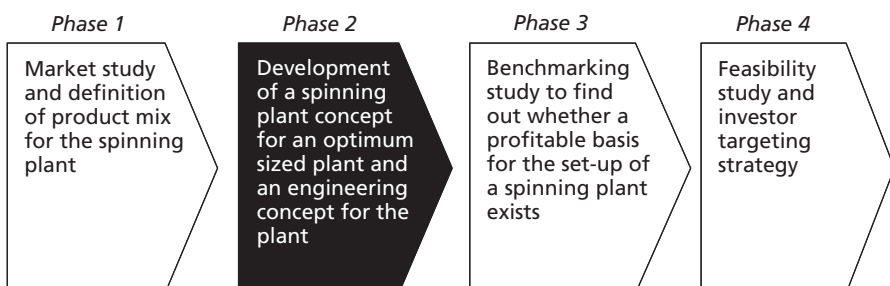
Sub-Saharan African cottons are medium staple (25-29mm) and therefore suitable for spinning into medium coarse yarn (Ne 24-40s), both carded and combed.

Depending on the market demand, it is envisaged that a mill will produce medium coarse yarn in the count range of Ne 24-40s, with an average yarn count of Ne 30s, combed.

In order to maximize the value added locally, the mill should produce combed yarns, as such yarns fetch a premium over basic carded cotton yarns because they are used for higher-end applications in knitting and weaving.

The waste generated in carding and combing could be partly recycled in the spinning mill. However, the bulk of the waste produced in combing would be sold locally or exported through established market channels. In the next phase, a mill may consider expanding into open-end spinning, which would enable the transformation of waste produced by combing into open end-yarns in coarse yarn counts (Ne 6-12s) for which there is an established market for the manufacture of denim and industrial fabrics. Such an expansion would require an additional capital outlay, but it would also help to maximize revenue.

Approximately 11-12 tons of yarn would be produced per day, based on standard machine productivity parameters.



XIII. DEVELOPMENT OF A SPINNING MILL PLANT CONCEPT FOR AN OPTIMUM-SIZED PLANT AND AN ENGINEERING CONCEPT FOR A PLANT

Spinning is a manufacturing process by which fibre is converted into yarn. The capacity of a spinning mill is determined by the number of spindles it has installed. The spinning process is divided into three phases: the pre-spinning or preparatory phase, the spinning phase and the post-spinning phase. The pre-spinning and spinning phases include using a blowroom, carding, draw frame combing (optional) and using a speed frame, and ring frame. The post-spinning phase consists of winding (single yarns) and twisting and doubling (plied yarns).

A. Size and capacity

In spinning, the smallest viable unit is based on two key factors: yarn counts to be produced and blowroom capacity. The yarn counts to be produced depend on demand and on the amount of raw material available. The capacity of the blowroom determines how much yarn can be further processed.

For the proposed count range, the smallest viable plant is based on a capacity of about 21,000 spindles with an output of about 12 tons per day. At such a scale, the entire process (from pre-spinning to post-spinning) is optimally balanced on an average yarn count of Ne 30/1, combed.

B. Engineering aspects

The engineering concept of the spinning mill comprises the following aspects involving civil, electrical and mechanical engineering:

- (a) Constructing the building in which the spinning plant will be housed;
- (b) Ensuring the availability of water, energy and other utilities;
- (c) Constructing external facilities consisting of buildings for the storage of raw materials, consumables and finished goods, the housing of administrative quarters and the housing of the workers' training room, canteen, gate house, etc.

C. Utilities

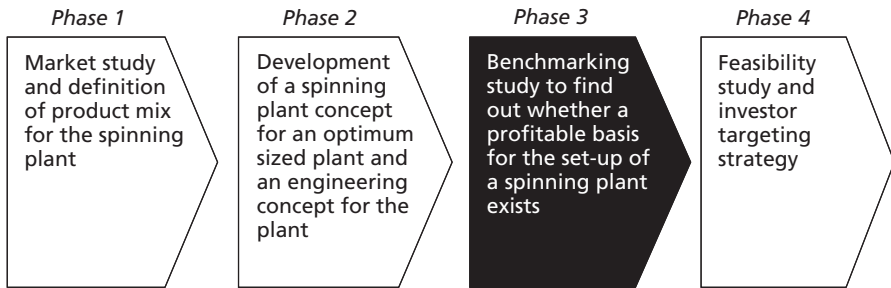
The following utilities are required in a spinning mill: compressed air, electrical energy, a humidification mechanism and water (and a method for draining waste water).

XIV. MOST APPROPRIATE SPINNING TECHNOLOGY TO MEET FORESEEN YARN PRODUCTION SPECIFICATION AND QUALITY

There are two main technologies for spinning cotton yarns: ring spinning and open-end spinning. It is proposed that spinning mills be based on conventional ring spinning technology for the following reasons:

- (a) Medium staple cotton (25-29 mm), which is considered ideal for ring spinning, is available in most sub-Saharan African countries;
- (b) Sub-Saharan African cotton is suitable for spinning medium coarse yarn (Ne 24-30s), which could ideally be produced on a ring spinning system;
- (c) For use in knitting, ring spun yarns are preferred to open-end yarns because they are made softer and stronger by the combing process, which removes short fibres;
- (d) Ring spinning is a versatile process suitable for a wide range of yarns, from coarse to fine and super-fine yarn;
- (e) Open-end spinning is generally only used to produce coarse and medium coarse yarns (up to Ne 30s);
- (f) By virtue of their greater softness and strength, which make them suitable for higher-end applications, ring spun yarns generally command higher prices than open-end yarns.

XV. BENCHMARKING OF GOVERNMENT POLICIES AND INCENTIVES ADOPTED BY THE BENCHMARK COUNTRIES FOR THE PROMOTION OF THE TEXTILE INDUSTRY AND EXPORTS: PART I



In most developing countries, the textile industry receives significant support from the Government. This is due to the large economic footprint of the sector in terms of its employment potential, backward linkages to the agricultural sector, especially in the case of cotton textiles, and contribution to exports.

The support measures given to the textile industry in the six benchmark countries covered in the present study have been examined. It should be noted that Governments try to promote the industrial development of economically backward regions by attracting prospective investors to those areas.

A comparative analysis of the incentives offered by different States will help to identify where the proposed spinning mills might be set up and provide guidelines for policymakers in the 11 sub-Saharan African countries studied in this report.

The textile industry, and its spinning component in particular, is highly capital intensive. Therefore, providing an enabling environment accompanied by a package of incentives is a prerequisite for attracting new investment in the textile industry.

The support measures employed in the six benchmark countries can be grouped according to the following six issues: (a) vision for a textile policy; (b) investment incentives; (c) fiscal incentives; (d) concessional export finance; (e) infrastructure; and (f) other non-fiscal benefits.

A. Vision for a textile policy

At the macro level, most textile-producing countries, some of which (e.g. India and Pakistan) have a ministry dedicated to textiles, have formulated a textile policy that provides the vision for developing the sector in all its aspects.

The National Textile Policy 2000 of India provides long-term vision for the textile sector. The Policy covers various aspects, such as quantitative targets (for production and exports), cotton productivity through the Technology Mission on Cotton, cluster development through the creation of special integrated textile parks and human resource development through the creation of several branches of the National Institute of Fashion Technology.

The Bangladesh Garment Manufacturers and Exporters Association recently formulated a vision to achieve US\$ 25 billion worth of exports by 2013.

XVI. BENCHMARKING OF GOVERNMENT POLICIES AND INCENTIVES ADOPTED BY THE BENCHMARK COUNTRIES FOR THE PROMOTION OF THE TEXTILE INDUSTRY AND EXPORTS: PART II

A. Investment incentives

Investment incentives are aimed at building the capacity of the industry for the long term. The following three examples of such incentives were given by the benchmark countries:

- (a)* In 1999, the Ministry of Textiles of India introduced the Technology Upgradation Fund Scheme. Through the measure, which has been extended until 2012, the Government of India aims to make a massive new investment in order to expand capacity and modernize the industry. The main instrument of the Scheme is a 5 per cent interest rate reimbursement and a capital subsidy of up to 20 per cent for specified textile machinery for technical textiles and processing. The funds are to be repaid within 8-10 years, with an initial moratorium of 1-2 years. As per the statistics published by the Textile Commissioner of India, about US\$ 12 billion had been disbursed under the Scheme as at 30 September 2008;
- (b)* A long-term finance facility has been provided by the State Bank of Pakistan to export-oriented units. Loans are extended at concessional rates of interest and are repayable within 10 years;
- (c)* Nigeria has envisaged making available US\$ 400 million for a textile revival fund that, when implemented, is expected to provide concessional, long and short-term funds to encourage new investment for modernizing and expanding the textile industry;

- (d) In Bangladesh, an export rebate of 5 per cent is given to exporters of fabric and garments provided they use locally produced yarn. This is aimed at encouraging investment in spinning.

B. Fiscal incentives

The following fiscal incentives have been given in the benchmark countries:

- (a) The Government of China provides tax rebates against exports. The rates vary from 11 to 17 per cent of the free-on-board value;
- (b) In India, a duty drawback is given on various export products. On textile products, the drawback rates vary from 4 per cent of the free-on-board value of cotton yarn to 9.8 per cent of the free-on-board value of garments. This measure, like the one implemented by the Government of China (see subpara. (a) above) aims at neutralizing the incidence of taxes paid on inputs used in export production;
- (c) In Nigeria, a “pioneer status incentive” is given to new spinning mills, which enjoy a five-year tax holiday;
- (d) Nigeria also provides other kinds of attractive incentives, such as an Export Expansion Grant to boost non-oil exports. The incentive is given on the basis of company-based ratings and provides a larger incentive to manufacturers of value-added products than it does to merchant exporters of commodities. The incentive is paid in the form of negotiable duty credit certificates that can be freely transferred to third parties on the secondary market. After considering time delay in disbursement of incentive and discounting of duty credit certificates, a spinning mill exporting yarn could earn an effective export expansion grant rate of 20 per cent of the free-on-board value (nominal rate 30 per cent maximum);
- (e) Pakistan gives a research and development incentive equal to 3-6 per cent of the free-on-board value of added value textiles and garments for export.

C. Concessional export finance

Many countries provide working capital funds to exporters at a concessional rate of interest to improve the competitiveness of their products in the international market.

For example, the Reserve Bank of India provides concessional funds to textile exporters in the framework of “rupee export credit interest rates” by giving an interest subvention of 4.5 per cent on the bank prime lending rate. Therefore, based on a bank prime lending rate of 12 per cent, a yarn exporter could borrow working capital funds at an effective rate of 7.5 per cent per annum. Under that scheme, the funds are provided for pre-shipment (270 days) and post-shipment (180 days).

Similarly, the State Bank of Pakistan provides, under its export refinance scheme, funds to exporters of high value-added textiles (processed fabrics and garments) at a concessional rate of 7.5 per cent per annum.

D. Infrastructure

China has focused on providing an efficient infrastructure to make its textile industry competitive. Such an infrastructure includes the following:

- (a) Special economic zones;
- (b) Adequate supply of power and water;
- (c) Efficient roads and railways;
- (d) Efficient ports with a quick turnaround of vessels and containers.

India has also embarked on schemes to set up textile clusters such as the special integrated textile parks that have been set up as part of a public-private partnership to provide enterprises with dedicated infrastructure with common facilities.

E. Other non-fiscal benefits

Several other factors favour the development of a textile industry, including the following:

- (a) A large domestic market;
- (b) Investment in research and development and human resources;
- (c) Preferential market access to subregional and international markets.

XVIII. BENCHMARKING OF GOVERNMENT POLICIES AND INCENTIVES ADOPTED BY THE BENCHMARK COUNTRIES FOR THE PROMOTION OF THE TEXTILE INDUSTRY AND EXPORTS: PART III

Under the Cotonou Agreement and the economic partnership agreements entered into with the European Union, yarn exported from sub-Saharan African countries to the European Union would be duty free. Likewise, a trade agreement between China and African countries allows China to import yarn from least developed countries such as Uganda duty free. Garment exporters that are members of certain qualifying industrial zones are allowed to import duty-free fabrics and accessories used in the production of garments meant for export to the United States.

In Uzbekistan, a cotton-producing country, the Government provides discounted cotton to local spinning mills in order to encourage the local processing of cotton into yarn. Export-oriented spinning mills get a discount of 15 per cent on local cotton. The policy has led to renewed investments in the Uzbek spinning industry.

A. Summary of comparative incentives and benefits applicable in six benchmark countries

Tables 10 and 11 summarize the incentives given in six benchmark countries.

Table 10. Incentives and benefits given in six benchmark countries: investment incentives, fiscal incentives and concessional export finance

<i>Country</i>	<i>Investment incentives</i>	<i>Fiscal incentives</i>	<i>Concessional export finance</i>
Bangladesh	No special investment incentive	5 per cent rebate rate on net value addition if local yarn is used Tax holiday for backward areas	Back-to-back letter of credit arrangement for working capital funding
China	No special incentive	Export tax rebate of 16 per cent Tax holiday in special economic zone(s) to foreign enterprises	No special funds as interest rate is low
Egypt	No special investment incentive	6 per cent incentive on free-on-board value of exports	None
India	5 per cent interest rebate under Technology Upgradation Fund Scheme and capital subsidy	Duty drawback on export 10-year tax holiday Lower energy cost tariffs in certain states	4.5 per cent interest subsidy on pre- and post-shipment credit
Pakistan	Long-term finance facility for export-oriented units at concessional interest rates for up to 10 years	Research and development support on processed fabrics and garments (3-6 per cent), removed in 2008 No duty on export companies for accessories and raw materials	Export refinance scheme at 7.5 per cent per annum on export of fabrics, "made-ups" and garments
Turkey	No special incentive	Low corporate tax at 20 per cent Workers' social charges are subsidized by 25 per cent Lower energy cost tariffs in backward areas	None

Source: Gherzi analysis.

Table 11. Incentives and benefits given in six benchmark countries: infrastructure, textile policy and vision and other non-fiscal benefits

<i>Country</i>	<i>Infrastructure</i>	<i>Textile vision/policy</i>	<i>Other non-fiscal benefits</i>
Bangladesh	Availability of natural gas Constant investment in ports	Textile sector development plan International institutional cooperation through the Bangladesh Institute of Fashion and Textiles and the National Institute of Technical Textile Research and Design	High productivity Duty-free export to the European Union, Canada and Norway Highly trainable work force
China	Special economic zone(s) and general infrastructure is first class	Sectoral targets set in five-year plans	Big home market Own textile machinery industry, low machine and spare part costs Low wages, no unionization Low freight rates Efficient dry and wet ports
Egypt	No special provision	Textile vision for 2010-2015	QIZ programme allows preferential market access to the United States
India	Special economic zone(s) and special textile parks set up by Government to promote cluster development	Textile Policy 2000 Sectoral targets set in five-year plans	Big home market Own textile machinery industry, low spare part and machinery costs Relatively low wages
Pakistan	Natural gas supply to textile industry at competitive rates Captive power plants generate power at 50 per cent lower cost than from national grid	Dedicated Ministry of Textiles and Textile Commissioner's Office	Strong tradition of textile production Low wages Favourable exchange rate
Turkey	Power at a concessional rate of US¢ 4 below prevailing tariff in priority areas	-	Proximity to the European Union market Duty-free export to the European Union

Source: Gherzi analysis.

B. Textile sector development plan and major incentives in India

India, the second largest exporter of textiles and clothing, has formulated a very comprehensive textile development plan. The main components of that plan are summarized in tables 12 and 13.

Table 12. Textile sector development plan in India

<i>Item</i>	<i>Description</i>
Importance of textile sector to the economy	<ul style="list-style-type: none"> Textiles is India's foremost industry accounting for 14 per cent of the total industrial production, 4 per cent of gross domestic product and 17 per cent of merchandise exports. The industry directly employs 35 million people Cotton accounts for 57 per cent of domestic fibre consumption and 90 per cent of its exports India has a mere 4 per cent share of global textiles and 3.3 per cent of clothing trade worth US\$ 450 billion in 2007 Domestic market accounts for 61 per cent of the industry's total sales volume
Textile vision 2010	<p>National textile policy 2000 contains the vision for the textile industry. The key features and milestones of the vision are:</p> <ul style="list-style-type: none"> Increase in the size of the textile sector to US\$ 85 billion by 2012, with exports worth US\$ 55 billion to represent one third of the country's exports Increase India's share in world trade to 6 per cent by 2010 at compound annual growth rate of 19.85 per cent (2004-2010) Creation of 12 million new jobs in the textile sector Incentives for upgrading equipment
Production capacity	<p>Capacity (as of December 2007)</p> <p>Spinning: 34.87 million spindles Weaving: 2 million shuttle looms 457,000 open-ended rotors Over 56,000 shuttle-less looms</p> <p>Production (2007-2008)</p> <p>Yarn 4,000 million kg Fabric 57,491 million m²</p>
Infrastructure facilities available	<p>The Government of India is in the process of setting up 25 textile parks under the Scheme for Integrated Textile Parks to provide the infrastructure required by textile manufacturers</p> <p>A huge investment is being made in special economic zone(s) by the private sector. These zones get attractive tax breaks to build world-class infrastructure</p>

Table 12. (continued)

<i>Item</i>	<i>Description</i>
Other advantages	Cumulative rules of origin of South Asian Association for Regional Cooperation to export to the European Union under a generalized system of preference

Source: Textile Commissioner of India.

Some of the key incentives are explained in greater detail in the following pages.

Textile Upgradation Fund Scheme

The Textile Upgradation Fund Scheme was introduced in 1999 for a period of five years; it was later extended to March 2012.

The major objective of the Scheme is to provide concessional long-term funds to encourage textile mill owners to modernize and expand production capacity.

The key element of the Scheme is the interest reimbursement of 5 per cent and the capital subsidy of up to 20 per cent, towards which the Government has disbursed a sum of about 12 billion dollars between 1999 and 2008.

The salient features of the Scheme can be grouped under the following issues: incentives, scope, operation and duty drawback.

Incentive

The Government would provide five percentage points on the interest rate actually charged by the financial institutions on the sanctioned projects:

- (a) Small-scale textile enterprises have been provided with the option of availing themselves of a credit-linked capital subsidy of 15 per cent in lieu of an interest reimbursement of 5 per cent;
- (b) For power loom units, the credit-linked capital subsidy is of 20 per cent;
- (c) A credit-linked capital subsidy of 10 per cent over and above the interest reimbursement rate of 5 per cent has been provided for the specified

processing machinery and technical textiles in order to encourage investment in value adding processes and non-conventional textiles.

Scope

The Scheme covers the whole integrated textile supply chain, including:

- (a) Cotton ginning and pressing;
- (b) Textile industry, garment making and made-ups;
- (c) Technical textiles.

The total investment eligible for the Scheme also covers investment in land and buildings (including renovation), utilities and cost of labour rationalization through schemes such as the voluntary retirement scheme.

Imported second-hand machinery is also eligible under the Scheme. Such machinery should be no more than 15 years old and have a residual life of at least 10 years.

Operation

The Government has appointed five nodal agencies and 12 banks to work on implementing the Scheme. Implementation is monitored by the Office of the Textile Commissioner. The subsidy fund is kept with the nodal agencies, which reimburse the lending banks on a quarterly basis.

Lending agencies release the loan directly to the machinery manufacturer once the machinery is ready for dispatch. In case of imported machinery, the capital subsidy is released directly to the bank after receiving an installation certificate.

The capital subsidy of 20 per cent is released by the Office of the Textile Commissioner to the machinery manufacturer after the inspection team has issued certification. For the power loom units that opt for capital subsidy in lieu of an interest reimbursement of 5 per cent, the ceiling on the loan is 10 million rupees, thereby restricting the amount of capital subsidy to 2 million (20 per cent).

Duty drawback

The purpose of giving duty drawbacks on various exports is to neutralize the effect of taxes paid on inputs used in the production of the goods to be exported.

The prevailing rates on major textile products since August 2008 are contained in table 14.

Table 14. Duty drawback in India, by product

<i>Category</i>	<i>Export product</i>	<i>Drawback rate percentage of free-on-board value</i>	<i>Value cap in rupees (maximum rate)</i>
Yarn	Cotton yarn	4	8 per kilo
Fabric	Grey cloth	4.7	14 per kilo
	Dyed cloth	5.5	20 per kilo
Made-ups	Bed sheets	8.2	99 per kilo
Garments	Cotton T-shirts	8.8	42 per unit

Source: Central Board of Customs and Central Excise of India.

XVIII. MAJOR INCENTIVES IN CHINA

A. Tax refund for exporting companies

In China, there are six levels for calculating export tax rebates, ranging from 5 per cent to 16 per cent depending on the product. Companies that export textile products get an export tax rebate of 16 per cent (during 2008 and 2009, that percentage was increased four times: from 11 per cent to 13 per cent, then to 14 per cent, then to 15 per cent and, in April 2009, to 16 per cent). It is likely that the rebate will be increased further to 17 per cent under the new three-year textile plan for the period 2009-2011. Tax holidays are given to exporting companies for up to three years, on a declining scale.

Apart from the fiscal incentives described above, the export industry in China is supported by the following factors:

- (a) Favourable exchange rates for exports;
- (b) Relatively cheap capital (see table 15);
- (c) Use of local textile machinery;
- (d) The high productivity of labour combined with relatively low wages;
- (e) The willingness of companies to work with small margins;
- (f) Economies of scale in most plants;
- (g) Production of large volumes to supply large global companies;
- (h) A highly efficient infrastructure;
- (i) Efficient loading and unloading in harbours;
- (j) Low container costs;
- (k) A supportive Government;
- (l) A clear vision for the textile industry.

Table 15. Cost of capital in China

<i>Description of loan</i>	<i>Rate (percentage)</i>
Foreign currency long-term loan	6
Local currency long-term loan	5.5
Short-term local currency loan for working capital	5.5

XIX. BANGLADESH: 2006 TEXTILE SECTOR DEVELOPMENT PLAN

In Bangladesh, the textile industry is driven by the garment sector. The ready-made garment sector in Bangladesh accounts for 75 per cent of the country's total export earnings, which in 2007-2008 stood at 10.7 billion dollars and accounted for 6 per cent of the gross domestic product. Exports have been increasing at a rate of over 20 per cent annually over the past five years. It is possible that Bangladesh has taken some market share from India and Pakistan, especially in the area of woven garments. About 3.5 million people are employed directly in the textile sector.

Table 16. Textile sector development in Bangladesh

<i>Period</i>	<i>Value of exported ready-made garments (millions of US\$)</i>	<i>Value of export of Bangladesh (millions of US\$)</i>	<i>Ready-made garments' share of total exports (percentage)</i>	<i>Increase (percentage)</i>
2001-2002	4 583.75	5 986.09	76.57	
2002-2003	4 912.09	6 548.44	75.01	7.16
2003-2004	5 686.09	7 602.99	74.79	15.76
2004-2005	6 417.67	8 654.52	74.15	12.87
2005-2006	7 900.80	10 526.16	75.06	23.11
2006-2007	9 211.20	12 184.86	75.60	16.60
2007-2008	10 699.80	14 155.83	75.80	16.20

Source: Bangladesh Garment Manufacturers' and Exporters' Association.

Backward linkages are still very weak. The domestic textile industry supplies only about 30 per cent of the ready-made garment sector's fabric requirements for export. The sector is similarly dependent on imports for accessories.

Thus, the sector's added value is significantly less than the export performance would suggest. In order to develop a stronger backward linkage, Bangladesh has installed about 2 million spindles, 3,200 shuttleless looms and about 40,000 rotors in the last 10 years.

A. Market position

Bangladesh is still mainly positioned at the low-price, high-volume end of the international market (i.e. at the so-called “commodity” end). A number of the larger exporters in Bangladesh have nevertheless successfully developed higher value businesses.

B. Sector strengths

Bangladesh’s ready-made garment sector possesses the following two distinct competitive advantages that have contributed to the sector’s overall export success:

- (a) A preferential tariff treatment in Canada and Norway, as well as the European Union, under a generalized system of preferences scheme;
- (b) A comparatively cheap, highly trainable workforce.

XX. SUMMARY OF COMPARATIVE INCENTIVES AND BENEFITS APPLICABLE IN THE 11 SUB-SAHARAN AFRICAN COUNTRIES

The following policies and incentives adopted by the 11 sub-Saharan African countries considered in this study have an impact on the cotton-textile industry in those countries.

A. Policies

Although most of the 11 sub-Saharan African countries encourage investment in industries with agro-allied linkages and in industries that generate employment, a coherent vision is missing, as are the kinds of policies supportive of the textile and garment industry that exist in the six benchmark countries, where such a vision has been built into the countries' long-term plans.

B. Investment promotion

Investment promotion agencies have been set up in most countries to offer one-stop-shop solutions to prospective investors, particularly for those making foreign direct investments.

Significant investment incentives, which might include the allotment of land and fiscal incentives (see below), are typically negotiable.

C. Fiscal incentives

The major fiscal incentives are tax holidays that last between 5 years (in Nigeria) and 10 years (in the United Republic of Tanzania). In some countries, such as

Zambia, however, the tax exemption is given on a declining scale: 100 per cent exemption for the first 5 years and 50 per cent exemption during the following two years.

Tariffs are, as per the common external tariff, adopted by subregional entities such as the Economic Community of West African States (ECOWAS) and the Common Market of Eastern and Southern Africa (COMESA). In some cases, as in Mali, duties on plant and machinery are waived from 5 to 0 per cent.

D. Export incentives

Nigeria, in particular, has recognized the need to boost non-oil exports in order to diversify its economy. The Export Expansion Grant is an important incentive, duly legislated under the Export (Incentives and Miscellaneous Provisions) Decree, aimed at helping exporters of non-oil products. Exporters of value-added manufactured products enjoy an incentive up to 30 per cent of the free-on-board value, which is disbursed in the form of negotiable duty credit certificates; the grant works in a way similar to that of the Duty Credit Certificate Scheme prevalent in Southern Africa Customs Union (SACU) countries. However, taking into account the time delays and discounting of the certificates, the effective rate assumed in our calculations is only 20 per cent. The aim of the Export Expansion Grant is to cushion the impact of infrastructural deficiencies faced by manufacturers in order to make Nigerian exports competitive at the international level.

Other export promotion schemes include the duty drawback and export processing zones. However, these may not be relevant to spinning, which uses local raw materials.

E. Financial incentives

In some countries, funds at concessional rates are given to the textile and other industries. The Bank of Industry in Nigeria provides funds for investment in the textile and garment industry—both existing and new units. The Nigerian Export-Import Bank also provides funds to exporters at concessional rates. In addition, a special textile revival fund has been created by the Government of Nigeria to provide cheap funds to the cotton-textile industry. However, due to lack of funds and red tape, the schemes have not been effective.

F. Preferential market access

Sub-Saharan African countries enjoy the following benefits:

(a) Duty-free exports of textiles and clothing to the European Union, under the economic partnership agreement, and the United States, under the Africa Growth and Opportunity Act;

(b) Duty-free exports to China and India, as a result of being least developed countries;

(c) Duty-free trade within ECOWAS, SACU and COMESA countries.

Tables 17 and 18 give an overview of the major incentives granted in each of the 11 sub-Saharan African countries included in this study.

Table 17. Incentives and benefits for the textile sector in 11 sub-Saharan African countries

<i>Country</i>	<i>Investment</i>	<i>Fiscal incentives</i>	<i>Concessional export finance</i>
Benin	5 per cent import duty on plant and machinery under a common external tariff (usually 20-30 per cent)	Exemption of tax on profits	None
Burkina Faso	5 per cent import duty on plant and machinery under a common external tariff (usually 20-30 per cent)	If exports are higher than 80 per cent, tax holidays are implemented during the first seven years. After that period, taxes are reduced permanently by 50 per cent	None
Cameroon	5 per cent import duty on plant and machinery under a common external tariff (usually 20-30 per cent)	Negotiable	None
Chad	5 per cent import duty on plant and machinery under a common external tariff (usually 20-30 per cent)	Negotiable	None

Table 17. (continued)

<i>Country</i>	<i>Investment</i>	<i>Fiscal incentives</i>	<i>Concessional export finance</i>
Côte d'Ivoire	5 per cent import duty on plant and machinery under a common external tariff (usually 20-30 per cent)	Tax exemption on a declining scale over the first eight years, depending on location	None
Mali	No import duty on plant and machinery under a common external tariff	Exemption from company tax and licence fees for eight years	None
Nigeria	None/negotiable	Export Expansion Grant of up to 30 per cent. Tax holiday for five years	None/ineffective
Senegal	5 per cent import duty on plant and machinery under a common external tariff	Tax holiday for up to 10 years	None
Uganda	Investment goods are exempted from import taxes	None/negotiable	None
United Republic of Tanzania	None/negotiable	Tax holiday for up to 10 years	None
Zambia	Investments worth over US\$ 10 million may be subjected to specific additional incentives granted by the Minister for Finance in consultation with the Minister for Commerce, Trade and Industry Duty on selected machinery used in textile and clothing manufacturing has been reduced from 5 to 0 per cent	For investments higher than US\$ 500,000 No tax on profits for a period of five years from the first year in which profits are made Between the sixth and eighth years, only 50 per cent of the profits should be taxed and for the ninth and tenth years, 75 per cent of the profits should be taxed Dividends should not be taxed for a period of five years from the year in which dividends are first declared No duty on capital goods and machinery, including trucks and specialized vehicles, for five years	None

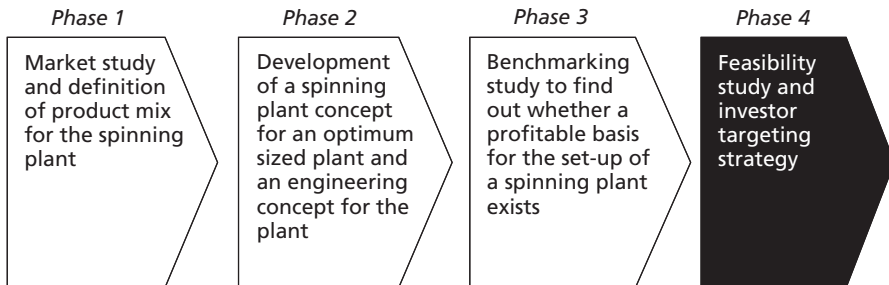
Table 18. Vision, infrastructure and other support factors in 11 sub-Saharan African countries

<i>Country</i>	<i>Textile policy vision</i>	<i>Enabling infrastructure</i>	<i>Other support measures</i>
Benin	None	Seaport advantage	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China
Burkina Faso	None	Deficient	Duty-free exports to the European Union and the United States Negotiable
Cameroon	None	Deficient	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China
Chad	None	Deficient	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China
Côte d'Ivoire	None	Average	Duty-free exports to the European Union and the United States Negotiable
Mali	None	Deficient	Duty-free exports to the European Union and the United States Negotiable
Nigeria	Gherzi Blue Print 2003 Gherzi Blue Print 2008	Deficient	Duty-free exports to the European Union and under the Africa Growth and Opportunity Act of the United States Large ECOWAS market
Senegal	None	Average	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China
Uganda	None	Average	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China
United Republic of Tanzania	Effective steps to encourage investment since 2002	Seaport advantage	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China

Table 18. (continued)

<i>Country</i>	<i>Textile policy vision</i>	<i>Enabling infrastructure</i>	<i>Other support measures</i>
Zambia	None	Deficient	Duty-free exports to the European Union and the United States Advantageous status of least developed countries with China

The incentives enabling factors that exist in the 11 sub-Saharan African countries do not seem very appealing for new investments in the textile sector compared with the incentives and enabling factors that exist in the six benchmark countries. Tax holidays, low duty on investment goods and bilateral trade agreements are the main incentives that the 11 sub-Saharan African countries offer to investors. Except Nigeria, which grants an export incentive of up to 30 per cent of the value of exported goods, none of the countries provides investors with a remarkable incentive. The present study clearly shows that Nigerian exporting companies have a notable advantage compared with their competitors in the subregion. It also shows, however, that the advantage largely functions to cushion the impact of infrastructural deficiencies and the high cost of doing business in Nigeria.



XXI. BENCHMARKING OF COMPETITIVENESS WITH FACTOR COSTS

The following section contains an analysis of the competitiveness of the 11 sub-Saharan African countries vis-à-vis the six benchmark countries. The data are used in the master feasibility study and sensitivity study.

Table 19 contains information on the key manufacturing costs relevant to the spinning mill. While the wages for unskilled workers in most sub-Saharan African countries range between US\$ 75 and 140 per month, there are significant differences in the cost of energy.

The cost of energy is highest in countries of the CFA franc zone and in the United Republic of Tanzania, at 8-17 cents/kWh. Based on a combination of grid and captive power, the cost of energy in Nigeria is assumed to be 14 cents/kWh, a figure that has been adopted to represent the cost of energy in all 11 sub-Saharan African countries. Zambia is where the cost of energy is lowest, at 4 cents/kWh.

The interest cost in sub-Saharan African countries ranges from 8 to 17 per cent based on local currency loans (see table 19).

Table 19. Cost of wages, power and construction, interest rate and corporate tax in 11 sub-Saharan African countries

<i>Country</i>	<i>Wages, including all benefits (US\$/month)</i>	<i>Power (US cents/kWh)</i>	<i>Construction (US\$/m²)</i>	<i>Interest rate for local currency loan (percentage)</i>	<i>Corporate tax (percentage)</i>
Benin	75	0.14	250	9	35
Burkina Faso	150	0.17	350	8.5	17.5 (from year 8)
Cameroon	300	0.08	300	10	35
Chad	75	0.30	350	9.5	40

Table 19. (continued)

Country	Wages, including all benefits (US\$/month)	Power (US cents/kWh)	Construction (US\$/m ²)	Interest rate for local currency loan (percentage)	Corporate tax (percentage)
Côte d'Ivoire	120	0.12	280	8	35 (from year 9)
Mali	95	0.13	260	9	35 (from year 9)
Nigeria	140	0.14	250	17	30 (from year 6)
Senegal	85	0.19	300	9	15
Uganda	100	0.11	400	13	30
United Republic of Tanzania	75	0.08	250	12	30
Zambia	100	0.04	300	15	35
Adopted cost representing the 11 sub-Saharan African countries	105	0.14	300	-	-

The interest rates indicated in table 19 are mainly for short-term working capital loans, as African banks do not offer long-term facilities. For that reason, foreign currency loans have been considered at 10 per cent per annum.

As this is an export-oriented project with foreign exchange earnings, the exchange rate risk is minimal.

The following are the significant differences between the situation in the 11 sub-Saharan African countries and the six benchmark countries (see table 19 above and table 20 below):

- (a) The cost of energy in all benchmark countries (ranging from 4 cents/kWh in Egypt to 10 cents/kWh in India) is lower than it is in most of the sub-Saharan African countries;
- (b) In terms of financing, interest costs are significantly lower in the benchmark countries. In China, India and Pakistan, funds in local currency are available at single digit interest rates;

- (c) The cost of construction in the six benchmark countries is also lower than in the sub-Saharan African countries, by about 32 per cent. In the sub-Saharan African countries, it ranges between US\$ 250/m² and US\$ 400/m², while in the six benchmark countries it ranges between US\$ 150/m² and US\$ 250/m².

Table 20. Cost of wages, power and construction, interest rate and corporate tax in six benchmark countries

Country	Wages including all benefits (US\$/month)	Energy US\$/kWh	Construction (US\$/m ²)	Interest rate for local currency loan (percentage)		Corporate tax (percentage)
				Long-term	Short-term	
Bangladesh	50	0.07	200	9.3	12.75	15 (from year 8)
China	150	0.08	150	5.5	6	30
Egypt	100	0.04	220	12	14	20
India	100	0.10	170	7	8	30
Pakistan	80	0.06	180	7.5	15	35
Turkey	870	0.09	250	8	9	20

Source: Gherzi research.

XXII. MASTER FEASIBILITY STUDY

A. Methodology

The results of the master feasibility study done for this report shows in detail core financial, production and resource numbers and is based on data gathered during research on the 11 sub-Saharan African countries.

The study was undertaken to assess the viability of setting up a spinning mill for the manufacture of cotton yarn in the 11 cotton-producing countries in sub-Saharan Africa.

The study was based on the collection of data and information from relevant sources and the formulation of assumptions based on experience with similar projects in other developing textile-producing countries.

The major factors (cotton price, yarn price, costs of the plant and the machinery, and the financial cost) are considered as uniform for all the 11 sub-Saharan African countries, although there could be a significant local variation in the electricity tariff. In view of this, a master feasibility report was developed based on standard factors for all the 11 sub-Saharan African countries. However, in order to take into account the local variation in certain factors and incentives where applicable, a separate analysis has been done for each country/subregion.

Raw material

All the local raw material, including cotton, will be sourced in sub-Saharan Africa.

Product

All the cotton yarn will be produced from the above-mentioned cotton. Although the spinning mill should be capable of producing coarse to medium yarn (Ne

16/1-Ne 40/1), an average yarn count of Ne 30/1 was considered for analysing the financial feasibility of the project. It should be possible to use the yarn in knitting and weaving applications. The yarn should meet international quality standards.

Market

It is expected that the spinning mills will be export-oriented units and that almost the entire output will be sold in Europe and to several other yarn-importing countries.

Plant and machinery

For the master feasibility plan, state-of-the-art machinery based on ring spinning technology from internationally reputed suppliers was considered.

Land and building

The land cost was considered to be neutral, which means that it is assumed that it will either be allotted by the State to the private enterprise at a nominal cost or that it may be added at a later stage based on the exact location of the plant. Since this is a greenfield project, the cost of constructing a new building has been considered on the basis of the prevailing construction cost of an industrial building in sub-Saharan Africa.

Capacity

The spinning mill will be based on a minimum economical size of 21,216 spindles and is expected to produce about 4,000 tons of cotton yarn per annum.

Operational parameters

The operational parameters of the spinning mill (such as machine productivity, efficiency, workforce requirement, power consumption and inventory norms) have been calculated on the basis of empirical evidence gathered from similar plants and on the recommendations of machinery suppliers.

Fiscal measures

It is assumed that there will be no duty on the plant or on imported machinery.

Funding

The project shall be privately funded by the promoting enterprise through local or international financial institutions. Although it has been assumed that the entire amount of long-term funds will be borrowed in US dollars at a commercial rate of interest of 10 per cent, such a rate puts sub-Saharan African countries at a significant disadvantage vis-à-vis the benchmark countries. Therefore, in best-case scenarios, the possibility of getting the project funded by a development institution at a concessional interest of between 5 and 7 per cent could be considered.

B. Key assumptions

Price of raw material

The price of cotton is based on the international price of cotton prevailing in December 2008 as per the universally accepted Cotlook A Index. The Index, which is based on the cost of cotton delivered at a port in the Far East (in other words, the cost of cotton in the country of origin plus the cost of insurance and freight), was calculated on free-on-board West African port basis after subtracting shipping costs.

Price of yarn

The price of yarn is based on the international price of yarn prevailing in Europe in November/December 2008, based on yarn originating in India and Pakistan.

Capital outlay

The project involves a capital outlay of US\$ 23 million, of which US\$ 19 million is to be spent on the plant, the machinery and the buildings. The master feasibility plan, as explained above, assumes that state-of-the-art equipment

from internationally renowned suppliers will be used in the spinning plant; however, an alternative based on an optimized configuration of machinery is also included as an option.

Workforce

The proposed spinning mill will require a workforce of 190 people, of which 9 will be experienced expatriate personnel responsible for carrying out technical and commercial functions.

Factor costs and assumptions for the 11 sub-Saharan African countries

The data in table 21 has been used for the calculations in the master feasibility study and is based on data collected during the field visits and the assumptions made by Gherzi.

The master feasibility study must be considered as a base case model. The sensitivity study analyses and evaluates separately each of the 11 sub-Saharan African countries.

Table 21. Factor costs and assumptions for the sub-Saharan African countries

<i>Description</i>	<i>Rate</i>
Export incentive (percentage)	0
Yarn sales price (Ne 30/1 combed) [US\$/kg free-on-board]	2.47
Interest rate (long and short-term) (percentage-US\$)	10
Corporate tax (percentage)	0
Electricity cost (US\$/kWh)	0.14
Water cost (US\$/m ³)	1.00
Labour costs (US\$/month per local worker)	105
Salary costs for supervisors (US\$/month per local worker)	187
Administrative salary costs (US\$/month per expatriate manager)	2 816
Import duty on machinery	0

Table 21. (continued)

<i>Description</i>	<i>Rate</i>
Cost of constructing buildings (US\$/m ²)	300
Cost of constructing external facilities (US\$/m ²)	240
Operating parameters (days; shifts/day; hours/shift)	350; 3; 8
Local cost of cotton (US\$/kg)	1.03
Plant and machinery (US\$)	12 000 000

Source: Gherzi analysis.

C. Results

The master feasibility study was carried out in the following five main parts:

- (a) Project at a glance and proposed product mix;
- (b) Project assumptions;
- (c) Capital investment;
- (d) Operating costs;
- (e) Yarn sales.

The following figures do not appear promising due to the high cost of electricity and the lack of incentives.

The sensitivity study shown after the master feasibility study indicates that the incentives and the low factor costs prevailing in some of the 11 sub-Saharan African countries have a positive impact on the value of the internal rate of return.

Project at a glance and proposed product mix

Project at a glance

Table 22 provides the main data on the project.

Table 22. Data on the project

Installed capacity	
Ring spindles (Number)	21 216
Average count (Ne) combed	30s
Production capacity	
Ring spinning (kg/day)	11 261
Production (metric tons)	3 941
Cotton Consumption (metric tons)	5 145
Basis for planning	
Working days per annum	350
Number of shifts per day (eight-hour shifts)	3
Project cost (thousands of US dollars)	
Ratio of debt to equity	2.9 :1
Equity capital	5 899
Term loans - long-term loan	16 950
Total project cost	22 849
Sales realization (thousands of US dollars)	9 735
Cost of production	8 434
Gross operating profit	-447
Gross operating profit to sales (percentage)	-4.6
Break-even point	149.90
Cash break-even point	79.80
Internal rate of return	-3.28
Employees (Number)	190
Of which technical and supervisory staff (Number)	40
Administrative staff (Number)	9
Total installed load (kW)	1 760
Total space required (m ²)	13 217

Product mix

It is envisioned that the spinning mill will be dedicated to producing only ring spun yarn of an average yard count Ne 30s. It is expected that 11,261 kg of such yarn will be produced per day (equivalent to 3,941,350 kg per year).

Project assumptions

Table 23 contains information with regard to assumptions made about the project.

Table 23. Project assumptions

Number of working days per annum	350 (three shifts)
Number of working hours per shift	Eight
Capacity utilization: First year	75 per cent
Second year	85 per cent
Third year and onwards	97 per cent
Cost of land (per acre)	
Site development cost	Not available
Cost of construction (thousands of US dollars)	
- For hall with return air ducts and utilities	1 998
- For external development and other utilities	1 574
Contingencies:	
- On indigenous goods	10 per cent
- On imported goods	10 per cent
- For currency fluctuations	10 per cent
Insurance against all accidents	0.40 per cent
Duties/charges applicable for imports of machinery:	
- Cost Insurance Freight charges (US\$)	
- Import duty	3 800 per 40-foot container of Cost Insurance Freight
- Clearing, forwarding, local transport, insurance and delivery charges (US\$)	3 000 per 40-foot container
Duties/charges applicable for indigenous machinery:	
- Excise duty	-
- Sales tax	-
- Transport, insurance and erection	-
Discount level on imported machinery ¹	33 per cent
Raw material costs:	
- Local cotton ² (US\$/kg)	1.03

¹Assumed by Gherzi based on similar projects.

²Assumed on the basis of international price prevailing in December 2008.(US\$ 0.55/LB CNF Far east or USD 0.47/LB Ex Mill after reducing export costs)

Local transport, loading/unloading charges for cotton (US\$/kg)	0.05
Cost of packing materials for yarn:	
- Export sale (US\$/kg)	0.05
- Domestic sale (US\$/kg)	0.05
Consumable stores and spares (US\$):	
Spares for ring spinning - First year	134 196
- Second year	201 295
- Seventh year and onwards	402 509
Consumables for ring spinning - First year	18 750
- Second year	19 394
- Fifth year and onwards	24 250
Cost of energy (US\$/kWh)	0.14
Cost of water (US\$/m ³)	1.00
Wages and salaries:	
- Average labour wages (unskilled) (US\$/month)	105
- Administrative and supervisory staff salaries (US\$/month)	187
- Increments from third year onwards after every two years	Assumed constant in US\$ terms
Repairs and maintenance:	
- For utility and other equipment	0.50 per cent of utility cost
- For buildings and infrastructure	0.60 per cent of building cost
Administrative expenses	2.0 per cent of sales turnover
Selling expenses (included above)	0.3 per cent of sales turnover
Selling commission – export yarn (included in price)	3.0 per cent of sales turnover
Transport cost for yarn (factory to port)	US\$ 2 100 per 40-foot container
Sales volume:	100 per cent of production volume
Export sale	0 per cent of production volume
Domestic sale	0 per cent of production volume
Interest on term loans:	
Long-term loan (US\$)	10 per cent per annum
Short-term loan for working capital (US\$)	10 per cent per annum
Repayment schedule for long-term loan:	
Moratorium period	2 years
Instalments	10 six-monthly instalments
Guarantee commission, up-front fee and letter-of-credit charges payable to financial institution	1 per cent of total value
Corporate tax (after tax holiday)	35 per cent
Exchange rates: (December 2008)	1US\$ = 0.78 euro 1US\$ = 1.14 Swiss franc
Sales price cotton yarn Ne 30 (US\$/kg free-on-board)	2.47

Capital investment

Assumed capital structure

Table 24 contains information about the assumed capital structure of the project.

Table 24. Assumed capital structure of the project

<i>Description</i>	<i>Total (thousands of US dollars)</i>
Equity capital	
Share capital	5 899
Loans	
Long-term loan	14 320
Working capital	2 630
Grand total	22 849

Debt to equity ratio: 2.6 : 1

Summary of capital requirements

Table 25 summarizes the capital requirements of the project.

Table 25. Summary of the capital requirements of the project

<i>Description</i>	<i>Total (thousands of US dollars)</i>
Land	0
Buildings and infrastructure	6 663
Plant and machinery	
- Production machinery – imported (including machinery installation cost and potential discounts)	10 697
Miscellaneous fixed assets	
- Imported	
- Indigenous	0
Preliminary and pre-operative expenses	1 126
Contingencies	1 733
Working capital required	2 630
Total project cost	22 849

Capital to be invested in factory and non-factory construction

Table 26 shows how much money will be needed for various factory and non-factory construction work.

Table 26. Capital to be invested in factory and non-factory construction

<i>Description</i>	<i>Scope</i>	<i>Total area (m²)</i>	<i>Unit price (US\$/m²)</i>	<i>Total (thousands of US dollars)</i>
Civil work and utilities	Civil work for construction of the production hall	6 660	300	1 998
Technical installation	Electrical installation – HT equipment including earthing Electrical installation – LT equipment including earthing Air compressor Water plant Fire protection Humidification Workshop equipment			2 592
External development	Roads Storm water drainage External electrical supply External painting, fencing and security Cotton warehouses and stores	6 557	240	1 574
Infrastructure	Parking area			500
Contingency (10 per cent)				666
Grand total				7 330

Capital for machinery

Table 27 shows how much money will be needed for machinery.

Table 27. Capital for machinery

<i>Description</i>	<i>Number of units</i>	<i>Total price (Swiss francs)^a</i>	<i>Total price (US dollars)</i>
Blowroom installations:			
Rieter cotton blowroom line with Unifloc System and various accessories	1	883 440	774 947

Table 27. (continued)

<i>Description</i>	<i>Number of units</i>	<i>Total price (Swiss francs)^a</i>	<i>Total price (US dollars)</i>
Preparatory Machines:			
• High production cards			
Type C-60 with chute feed system and accessories	8	1 480 136	1 298 365
• Draw frame			
Type SB-D40	3	604 891	530 607
• Combing equipment			
Type E-65 with Unilap E-32	8	2 015 786	1 768 234
• Roving frame			
Type F-15	4	903 981	792 966
• Various equipment and accessories			
- Accessories for cards			
- Pneumatic fibre conveyance and waste removal			
- Electric control for blowroom and card		1 108 074	971 995
Subtotal		6 996 308	6 137 114
Ring spinning machines			
Type Rieter G-35; 1,632 spindles	13	6 483 451	5 687 238
Page Total		13 479 759	11 824 352
Post-spinning machines:			
Murata winder equipment	7	418 100	2 567 000
Other:			
Set of spare parts/erection/training	1	260 000	228 000
Surcharge: material price increase	1	348 578	306 000
Grand total		17 014 037	14 925 352

^aBased on quotation for spinning plant received from M/s Rieter AG, Switzerland.

Auxiliary capital items

Tables 28 and 29 show how much money is needed for auxiliary capital items, in other words items that are not used directly in the production process but that are nonetheless necessary for the operation of a plant.

Table 28. Auxiliary capital items (laboratory instruments)

<i>Description</i>	<i>Unit price (Swiss francs)</i>	<i>Total price</i>	<i>Total (thousands of US dollars)</i>
Laboratory equipment:			
- Uster/Zweigle			
- Uster evenness tester UT-5			
- Uster Tensorapid			
- Uster Autosorter			
- Uster Fibrograph			
- Others	545 000	545 000	478
Material handling cans:			
Included under machinery above			
Weighbridge			30
Total auxiliary capital items			508

Table 29. Auxiliary capital items (office equipment and transportation)

<i>Description</i>	<i>Unit price (US\$)</i>	<i>Number of units</i>	<i>Total price (thousands of US dollars)</i>
Furniture and office equipment, computers with software, miscellaneous tools and equipments, etc.	40 000	1	40
Vehicles	15 000	7	105
Forklifts	25 000	2	50
Racks and pallets	10 000	1	10
Grand total			205

Preliminary and pre-operative expenses

Table 30 shows how much money is needed to cover a variety of preliminary expenses.

Table 30. Preliminary expenses

<i>Description</i>	<i>Total price (thousands of US dollars)</i>
Various pre-operative costs	350
Insurance during construction	100
Interest during construction	471
Auxiliary assets	205
Total	1 126

Provision for contingencies

Table 31 shows how much money is needed to cover the cost of contingencies.

Table 31. Provision for contingencies

<i>Description</i>	<i>Total cost (thousands of US dollars)</i>
Land ^a	
Buildings and infrastructure	0
Plant and machinery:	6 663
- Imported machinery	10 697
- Not imported machinery	0
Preliminary and pre-operative expenses	1 126
Total	18 486
Contingencies on indigenous goods at 10 per cent (building and infrastructure)	666
Contingencies on imported goods and pre-operative expenses at 10 per cent	1 067
Contingencies for currency fluctuations at 0 per cent	0
Grand total (except working capital)	20 219

^aAssumed to be neutral for all 11 sub-Saharan African countries to be allotted by the respective Government.

Working capital requirements

Tables 32-34 show how much working capital is required during the first, second and third years of the project's implementation.

Table 32. Working capital requirements, first year

<i>Particulars</i>	<i>Inventory level</i>	<i>First year (thousands of US dollars)</i>			
		<i>Amount</i>	<i>Percentage</i>	<i>Bank finance</i>	<i>Margin money</i>
Cash	30 days	34	100	34	0
Receivables – export	30 days	645	100	645	0
Raw material (cotton fibre)	120 days	1 292	80	1 034	258
Finished goods (cotton yarn)	30 days	645	80	516	129
Work in progress	15 days	161	80	129	32
Other operating materials	30 days	15	80	12	3

<i>Particulars</i>	<i>Inventory level</i>	<i>First year (thousands of US dollars)</i>			
		<i>Amount</i>	<i>Percentage</i>	<i>Bank finance</i>	<i>Margin money</i>
Current liabilities					
Accounts payable (cotton fibre)	30 days	323	100	323	0
Accounts payable (other items)	30 days	142	100	142	0
Total		2 327		1 905	422

Interest on working capital at 10 per cent

Table 33. Working capital requirements, second year

<i>Particulars</i>	<i>Inventory level</i>	<i>Second year (thousands of US dollars)</i>			
		<i>Amount</i>	<i>Percentage</i>	<i>Bank finance</i>	<i>Margin money</i>
Cash	30 days	42	100	42	0
Receivables – export	30 days	731	100	731	0
Raw material (cotton fibre)	120 days	1 464	80	1 171	293
Finished goods (cotton yarn)	30 days	512	80	410	102
Work in progress	15 days	183	80	146	37
Other operating materials	30 days	16	80	13	3
Current liabilities					
Accounts payable (cotton fibre)	30 days	366	100	366	0
Accounts payable (other items)	30 days	180	100	180	0
Total		2 402		1 967	435

Interest on working capital at 10 per cent

Table 34. Working capital requirements, third year

<i>Particulars</i>	<i>Inventory level</i>	<i>Third year (thousands of US dollars)</i>			
		<i>Amount</i>	<i>Percentage</i>	<i>Bank finance</i>	<i>Margin money</i>
Cash	30 days	55	100	55	0
Receivables – export	30 days	834	100	834	0
Raw material (cotton fibre)	120 days	1 670	80	1 336	334
Finished goods (cotton yarn)	30 days	417	80	334	83
Work in progress	15 days	209	80	167	42
Other operating materials	30 days	19	80	15	4

Table 34. (continued)

Particulars	Inventory level	Third year (thousands of US dollars)			
		Amount	Percentage	Bank finance	Margin money
Current liabilities					
Accounts payable (cotton fibre)	30 days	418	100	418	0
Accounts payable (other items)	30 days	229	100	229	0
Total		2 557		2 094	463

Interest on working capital at 10 per cent

Operating costs

Cost of raw materials

Table 35. Plant utilization, third year of operation

Yarn counts (Ne)	Ring frame production/ annum (kg) at 97 per cent utilization	Fibre mix used	Fibre component in yarn (kg/a)	Raw material realization (percentage)	Raw material required (kg/a)	Cost per kg (US\$)	Cost per annum (thousands of US dollars)
30/1 combed	3 941 390	100 per cent local cotton	3 941 390	72	5 474 152	1.03	5 638

Cost of packing materials

Table 36 shows the cost of packing materials, calculated at 5 US cents per kilogram, during the first three years of the mill's operation.

Table 36. Cost of packing materials

Year	Kg exported	Cost of packing materials (5 US cents/kg)
First	3 047 466	152 374
Second	3 453 795	172 690
Third	3 941 390	197 069

Cost of energy

Table 37 shows the cost of energy, calculated at 14 US cents per kilowatt-hour, during the first three years of the mill's operation.

Table 37. Cost of energy

<i>First year at 75 per cent plant utilization</i>	
Energy units consumed per year (kWh)	6 856 799
Energy charges per annum (US\$ 0.14/kWh)	959 952
<i>Second year at 85 per cent plant utilization</i>	
Energy units consumed per year (kWh)	10 361 385
Energy charges per annum (US\$ 0.14/kWh)	1 450 594
<i>Third year at 97 per cent plant utilization</i>	
Energy units consumed per year (kWh)	14 336 805
Energy charges per annum (US\$ 0.14/kWh)	2 007 153

Quantity and cost of water

Table 38 shows the quantity of water needed for the production of cotton yarn and the cost of that water.

Table 38. Quantity of water needed and cost of that water

<i>Description</i>	<i>Quantity (m³/day)</i>	<i>Cost (US\$/day)</i>	<i>Cost (thousands of US dollars/year)</i>
Water for air conditioning	144 m ³ /day	144	50 400
Water for human consumption	25 litres/day, per person	4.75	1 663
Total	148.75	148.75	52 063

Cost of water per cubic metre = US\$ 1

Cost of unskilled labour

Table 39 shows the cost of unskilled labour by category of employee and by shift.

Table 39. Cost of unskilled labour

Department and categories	Shift			Total
	First	Second	Third	
Mixing and blowroom	2	1	1	4
Card tender	2	1	1	4
Sliver preparation (draw frame, lap former and comber tender with relievers and helpers)	4	4	4	12
Speed frame (tender, doffer boys, bobbin carriers, jobbers etc.)	3	3	3	9
Total	11	9	9	29
Ring frame tenders and yarn doff carriers	10	10	10	30
Total	10	10	10	30
Auto cone winding machine tenders	8	8	8	24
Packers and inspectors	5	4	3	12
Total	13	12	11	36
Maintenance department from blowroom to packing	12	9	6	27
Engineering department and miscellaneous (peons and drivers)	8	6	5	19
Total	19	15	11	46
Grand total				141
Total number of workers (unskilled)				141
Average monthly salary per person (US\$)				105
Total monthly salary (US\$)				14 805
Annual wages (US\$)				177 660

Cost of skilled labour

Table 40 shows the cost of skilled labour by category of employee and by shift.

Table 40. Cost of skilled labour

Department and categories	Shift				Total
	General	First	Second	Third	
Production department	2	2	2	2	8
Quality control department	2	3	2	2	9
Engineering department	2	3	3	2	10
Computer department	2	1	1	1	5
Time office	1	1	1	1	4
Clerical staff for stores and warehouses	1	1	1	1	4
Total	10	11	10	9	40
Total number of persons				40	
Average monthly salary per person (US\$)				187	
Total monthly salary (US\$)				4 480	
Annual salaries (US\$)				89 760	

Cost of administrative staff

Table 41 shows the cost administrative staff by category and shift.

Table 41. Cost of administrative staff

Description	Number of persons
Chief Executive Officer (expatriate)	1
Managers (finance, marketing) (expatriate)	2
Production/Maintenance Managers (expatriate)	4
Research and development manager (expatriate)	1
Personnel and administration manager	1
Total	9
Average monthly salary per person (US\$)	2 816
Total monthly salary (US\$)	25 344
Annual salaries (US\$)	304 128

Summary of salaries and wages

Table 42 summarizes data on the cost of paying all personnel employed in the spinning mill for the first five years of the mill's operation.

Table 42. Summary of salaries and wages

<i>Description</i>	<i>First year</i>	<i>Second year</i>	<i>Third year</i>	<i>Fourth year</i>	<i>Fifth year</i>
Labour wages per annum	177 660	177 660	177 660	177 660	177 660
Supervisory and other staff salary per annum	89 760	89 760	89 760	89 760	89 760
Administrative staff salaries per annum	304 128	304 128	304 128	304 128	304 128
Subtotal	571 548	571 548	571 548	571 548	571 548
@ personnel needed	70 per cent	80 per cent	100 per cent	100 per cent	100 per cent
Grand total	400 084	457 238	571 548	571 548	571 548

Factory overheads

Table 43 provides information on the cost of factory overheads during the first three years of the spinning mill's operation.

Table 43. Factory overheads

<i>Description</i>	<i>Cost</i>
Cost of repairs and maintenance (ring spinning)	
First year at 75 per cent utilization (cost per annum):	US\$ 134 196
Second year at 85 per cent utilization (cost per annum):	US\$ 201 295
Third year at 97 per cent utilization (cost per annum):	US\$ 268 393
Cost of repairs and maintenance (building infrastructure and utilities)	
Cost of repair and maintenance of utilities	0.6 per cent of capital expenses
Cost per annum, third year onwards	US\$ 43 978

Yarn sales: total revenue from sales

Table 44 provides information on the total revenue expected from the sale of yarn during the first three years of the spinning mill's operation.

Table 44. Total revenue from sales

<i>First year (60 per cent plant utilization)</i>	
Description	Realization (thousands of dollars/per annum)
Export yarn sales	
3 047 466 kg at US\$ 2.47/kg (Cost Insurance Freight)	7 527
Total	7 527
<i>Second year (80 per cent plant utilization)</i>	
Description	Realization (thousands of dollars/per annum)
Export yarn sales	
3 453 795 kg at US\$ 2.47/kg (Cost Insurance Freight)	8 531
Total	8 531
<i>Third year and onwards (97 per cent plant utilization)</i>	
Description	Realization (thousands of dollars/per annum)
Export yarn sales	
3 941 390 kg at US\$ 2.47/kg (Cost Insurance Freight)	9 735
Total	9 735

XXIII. BREAK-UP OF MANUFACTURING COSTS

Table 45 shows the manufacturing costs of spinning in the 11 sub-Saharan African countries considered in the present study. The purpose of presenting the data in a table is to show, at a glance:

- (a) The cost of manufacturing, per kilogram of cotton yarn;
- (b) The relative importance of various factor costs in the total manufacturing cost;
- (c) The differences that exist between countries.

The countries have been benchmarked according to an index, according to which the number 100 represented the average. The following conclusions can be drawn from the data contained in table 45:

- (a) Significant differences exist among sub-Saharan African countries with regard to manufacturing costs. Cameroon and Côte d'Ivoire ranked eighty-ninth and ninety-sixth on the index, which means that manufacturing costs in those countries were, respectively, 11 and 4 per cent lower than the overall average or "master cost". Chad ranked 122nd, which means that manufacturing costs in that country were 22 per cent higher than the "master cost" adopted for the 11 sub-Saharan African countries;
- (b) Most of the six benchmark countries ranked between eightieth and eighty-fifth, which means that manufacturing costs in those countries were 15-20 per cent lower than the average (see table 46).

Table 45. Manufacturing costs in the 11 sub-Saharan African countries

Factors	Master		Benin	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	35.66 (50.55) ^b	0.8900	36.69 (51.16) ^b
Personnel	0.1451	5.81	0.1257	5.18
Electricity	0.5092	20.40	0.5093	20.99
Water	0.0128	0.51	0.0128	0.53
Insurance of assets	0.0205	0.82	0.0199	0.82
Spare parts	0.0681	2.73	0.0681	2.81
Building/installation maintenance	0.0112	0.45	0.0102	0.42
Other operating materials	0.0558	2.24	0.0558	2.30
Total variable cost	1.7126	68.62	1.6917	69.74
Overheads (administrative expenses)	0.0478	1.92	0.0494	1.67
Total operating cost	1.7604	70.54	1.7394	71.70
Fixed costs				
Depreciation	0.392	15.79	0.3887	16.02
Interest (short and long-term)	0.3410	13.66	0.2978	12.28
Total manufacturing cost	2.4956	100	2.4259	100.00
Index (master=100)		100		97
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	-0.1056	-4.41	-0.0371	-1.55
Net price	2.3900		2.3888	
Cost Insurance Freight	0.0800		0.0812	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	Burkina Faso		Cameroon	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	34.26 (46.83) ^b	0.8900	36.99 (53.34) ^b
Personnel	0.1741	6.70	0.2713	11.28
Electricity	0.6184	23.80	0.2910	12.10
Water	0.0128	0.49	0.0128	0.53
Insurance of assets	0.0212	0.82	0.0205	0.85
Spare parts	0.0681	2.62	0.0681	2.83
Building/installation maintenance	0.0122	0.47	0.0112	0.46
Other operating materials	0.0558	2.15	0.0558	2.32
Total variable cost	1.8526	71.31	1.6207	67.36
Overheads (administrative expenses)	0.0494	1.84	0.0478	1.99
Total operating cost	1.9002	73.15	1.6685	69.35
Fixed costs				
Depreciation	0.3999	15.39	0.3942	16.39
Interest (short and long-term)	0.2979	11.47	0.3432	14.26
Total manufacturing cost	2.5980	100.00	2.4059	100.00
Index (master=100)		104		96
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	-0.2092	-8.76	-0.0170	-0.71
Net price	2.3888		2.3888	
Cost Insurance Freight	0.0812		0.0812	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	Chad		Côte d'Ivoire	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	29.14 (38.28) ^b	0.8900	40.20 (57.37) ^b
Personnel	0.1257	4.12	0.1548	6.99
Electricity	1.0913	35.73	0.2910	13.14
Water	0.0128	0.42	0.0128	0.58
Insurance of assets	0.0212	0.69	0.0203	0.91
Spare parts	0.0681	2.23	0.0681	3.08
Building/installation maintenance	0.0122	0.40	0.0108	0.49
Other operating materials	0.0558	1.83	0.0558	2.52
Total variable cost	2.2770	74.55	1.5035	67.91
Overheads (administrative expenses)	0.0478	1.56	0.0478	2.16
Total operating cost	2.3247	76.11	1.5513	70.07
Fixed costs				
Depreciation	0.3998	13.09	0.3920	17.70
Interest (short and long-term)	0.3299	10.80	0.2707	12.23
Total manufacturing cost	3.0544	100.00	2.2140	100.00
Index (master=100)		122		89
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	-0.6656	-27.86	0.1748	7.32
Net price	2.3888		2.3888	
Cost Insurance Freight	0.0812		0.0812	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

<i>Factors</i>	<i>Mali</i>		<i>Nigeria</i>	
	<i>Value (US\$/kg)</i>	<i>Percentage of total manufacturing cost</i>	<i>Value (US\$/kg)</i>	<i>Percentage of total manufacturing cost</i>
Variable costs				
Raw materials ^a	0.8900	36.99 (51.85) ^b	0.8900	32.56 (49.96) ^b
Personnel	0.1386	5.76	0.1677	6.14
Electricity	0.4729	19.65	0.5093	18.63
Water	0.0128	0.53	0.0128	0.47
Insurance of assets	0.0200	0.83	0.0199	0.73
Spare parts	0.0681	2.83	0.0681	2.49
Building/installation maintenance	0.0104	0.43	0.0102	0.37
Other operating materials	0.0558	2.32	0.0558	2.04
Total variable cost	1.6685	69.35	1.7337	63.43
Overheads (administrative expenses)	0.0478	1.99	0.0478	1.75
Total operating cost	1.7163	71.33	1.7814	65.18
Fixed costs				
Depreciation	0.3898	16.20	0.3887	14.22
Interest (short and long-term)	0.2999	12.46	0.5630	20.60
Total manufacturing cost	2.4060	100.00	2.7331	100.00
Index (master=100)	96		110	
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.4940	20.00
Profit before tax	-0.0171	-0.71	0.1497	6.27
Net price	2.3888		2.3888	
Cost Insurance Freight	0.0812		0.0812	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	Senegal		Uganda	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	33.85 (46.13) ^b	0.8900	35.22 (53.89) ^b
Personnel	0.1321	5.03	0.1419	5.62
Electricity	0.6911	26.28	0.4001	15.84
Water	0.0128	0.49	0.0128	0.51
Insurance of assets	0.0205	0.78	0.0218	0.86
Spare parts	0.0681	2.59	0.0681	2.70
Building/installation maintenance	0.0112	0.42	0.0132	0.52
Other operating materials	0.0558	2.12	0.0558	2.21
Total variable cost	1.8817	71.56	1.6037	63.47
Overheads (administrative expenses)	0.0478	1.82	0.0477	1.89
Total operating cost	1.9294	73.38	1.6514	65.36
Fixed costs				
Depreciation	0.3942	14.99	0.4053	16.04
Interest (short and long-term)	0.3058	11.63	0.4700	18.60
Total manufacturing cost	2.6295	100.00	2.5297	100.00
Index (master=100)		105		101
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	-0.2406	-10.07	-0.1429	-5.99
Net price	2.3888		2.3838	
Cost Insurance Freight	0.0812		0.0862	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	United Republic of Tanzania		Zambia	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	38.55 (58.51) ^b	0.8900	38.67 (63.90) ^b
Personnel	0.1257	5.44	0.1419	6.16
Electricity	0.2910	12.61	0.1455	6.32
Water	0.0128	0.56	0.0128	0.56
Insurance of assets	0.0199	0.86	0.0205	0.89
Spare parts	0.0681	2.95	0.0681	2.96
Building/installation maintenance	0.0102	0.44	0.0112	0.48
Other operating materials	0.0558	2.42	0.0558	2.42
Total variable costs	1.4734	63.82	1.3458	58.47
Overheads (administrative expenses)	0.0477	2.07	0.0470	2.04
Total operating cost	1.5211	65.89	1.3927	60.51
Fixed costs				
Depreciation	0.3887	16.84	0.3942	17.13
Interest (short and long-term)	0.3987	17.27	0.5148	22.36
Total manufacturing cost	2.3084	100.00	2.3017	100.00
Index (master=100)		92		92
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	0.0754	3.16	0.0471	2.01
Net price	2.3888		2.3488	
Cost Insurance Freight	0.0812		0.1212	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Table 46. Manufacturing costs in the six benchmark countries

Factors	Bangladesh		China	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	43.49 (63.83) ^b	0.8900	44.22 (59.73) ^b
Personnel	0.0522	2.55	0.1116	5.55
Electricity	0.2546	12.44	0.2910	14.46
Water	0.0013	0.06	0.0023	0.11
Insurance of assets	0.0176	0.86	0.0170	0.85
Spare parts	0.0662	3.24	0.0662	3.29
Building/installation maintenance	0.0081	0.40	0.0073	0.36
Other operating materials	0.0556	2.72	0.0556	2.76
Total variable cost	1.3456	65.75	1.4410	71.60
Overheads (administrative expenses)	0.0487	2.38	0.0490	2.43
Total operating cost	1.3943	68.13	1.4900	74.04
Fixed costs				
Depreciation	0.3543	17.31	0.3497	17.38
Interest (short and long-term)	0.2978	14.55	0.1728	8.58
Total manufacturing cost	2.0464	100.00	2.0124	100.00
Index (master=100)		82		81
Export incentive on Cost Insurance Freight (if applicable)	0.0741	3.00	0.2717	11.00
Profit before tax	0.4632	19.02	0.7073	28.89
Net price	2.4355		2.4480	
Cost Insurance Freight	0.0345		0.0220	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	Egypt		India	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	41.99 (66.43) ^b	0.8900	42.14 (57.47) ^b
Personnel	0.1030	4.86	0.0939	4.45
Electricity	0.1455	6.86	0.3638	17.22
Water	0.0004	0.02	0.0055	0.26
Insurance of assets	0.0191	0.90	0.0172	0.82
Spare parts	0.0681	3.21	0.0662	3.13
Building/installation maintenance	0.0091	0.43	0.0076	0.36
Other operating materials	0.0558	2.63	0.0556	2.63
Total variable cost	1.2910	60.91	1.4998	71.01
Overheads (administrative expenses)	0.0488	2.30	0.0489	2.31
Total operating cost	1.3398	63.21	1.5486	73.32
Fixed costs				
Depreciation	0.3827	18.05	0.3516	16.65
Interest (short and long-term)	0.3971	18.74	0.2118	10.03
Total manufacturing cost	2.1196	100.00	2.1120	100.00
Index (master=100)		85		85
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0988	4.00
Profit before tax	0.3224	13.20	0.4298	17.59
Net price	2.4420		2.4430	
Cost Insurance Freight	0.0280		0.0270	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^aIncludes waste.

^bRaw material cost as a percentage of total variable cost.

Source: Gherzi research.

Factors	Pakistan		Turkey	
	Value (US\$/kg)	Percentage of total manufacturing cost	Value (US\$/kg)	Percentage of total manufacturing cost
Variable costs				
Raw materials ^a	0.8900	44.24 (64.89) ^b	0.8900	35.12 (46.34) ^b
Personnel	0.0655	3.31	0.4926	19.44
Electricity	0.2183	10.85	0.3274	12.92
Water	0.0004	0.02	0.0130	0.51
Insurance of assets	0.0181	0.90	0.0181	0.72
Spare parts	0.0662	3.29	0.0662	2.61
Building/ installation maintenance	0.0081	0.40	0.0089	0.35
Other operating materials	0.0556	2.77	0.0556	2.20
Total variable cost	1.3232	65.78	1.8718	73.87
Overheads (administrative expenses)	0.0482	2.40	0.0489	1.93
Total operating cost	1.3715	68.15	1.9206	75.80
Fixed costs				
Depreciation	0.3682	18.30	0.3589	14.16
Interest (short and long-term)	0.2720	18.52	0.2544	10.04
Total manufactur- ing cost	2.0117	100.00	2.5339	100.00
Index (master=100)		81		102
Export incentive on Cost Insurance Freight (if applicable)	0.0000	0.00	0.0000	0.00
Profit before tax	0.4003	16.60	-0.0909	-3.72
Net price	2.4120		2.4430	
Cost Insurance Freight	0.0580		0.0270	
Selling price (Cost Insurance Freight)	2.4700		2.4700	

^(a)Includes waste.

^(b)Raw material cost as a percentage of total variable cost.

Source: Gherzi research.

XXIV. SENSITIVITY ANALYSIS

Four alternative scenarios have been analysed to evaluate how attractive the project would be to prospective investors (for an overview, see table 47).

A. Scenario A

In scenario A, state-of-the-art-equipment is available and current Government policies in the 11 sub-Saharan African countries prevail. The master feasibility study is based on this scenario.

B. Scenario A+

In scenario A+, the following two key assumptions are made:

- (a) State-of-the-art plants and machinery are available;
- (b) An incentive package exists that has been developed along the lines of similar incentives successfully implemented by other cotton textile-producing countries that would include the availability, in the long term, of funding by development institutions at an interest rate of 7-8 per cent per annum and an export incentive on a declining interest rate of 12 per cent/8 per cent/6 per cent over 10 years (in Nigeria, the export incentive given through the Export Expansion Grant is of 20 per cent).

C. Scenario B

In scenario B, considering that the plant is likely to produce yarns for medium to high-end applications, an optimized level of technology could be appropriate. This would help to reduce the project outlay. Scenario B is therefore based on a combination of fully and partially automated plants and machinery, and on prevailing Government policies in the 11 sub-Saharan African countries.

D. Scenario B+

In scenario B+, an optimized level of technology (as in scenario B) would be combined with export incentives funded by development institutions. The two key assumptions in such a scenario would be the following:

- (a) Optimized, state-of-the-art plants and machinery are available;
- (b) An incentive package exists that has been developed along the lines of similar incentives successfully implemented by other cotton textile-producing countries that would include the availability, in the long term, of funding by development institutions at an interest rate of 7-8 per cent per annum and an export incentive on a declining interest rate of 12 per cent/8 per cent/6 per cent over 10 years (in Nigeria, 20 per cent).

Table 47. Summary of assumptions for the four scenarios

<i>Description</i>	<i>Option A</i>	<i>Option A+</i>	<i>Option B</i>	<i>Option B+</i>
Technology	State of the art US\$ 12 million	State of the art US\$ 12 million	Optimized US\$ 9 million	Optimized US\$ 9 million
Export incentive	Not available, except in Nigeria at 20 per cent	On a declining scale, except in Nigeria (at 20 per cent)	Not available, except in Nigeria at 20 per cent	On a declining scale, except in Nigeria (at 20 per cent)

The development funding at an interest rate of 7-8 per cent is not shown in table 46 because it has no impact on the internal rate of return.

Notably, the objective of the incentive package would be to make sub-Saharan Africa an attractive destination for investment in primary textiles, an industry in its infancy that is very capital intensive, and to mitigate the infrastructural disadvantages likely to be faced by mills in sub-Saharan African countries vis-à-vis mills in other countries.

As already observed, supportive Government measures have been a requisite for the development of the textile industry in the six benchmark countries.

As shown in chapter XXIII on the break-up of manufacturing costs in spinning, the highest factor costs for a cotton yarn spinning mill are the costs of the raw material and of energy. Therefore, the effects of a drop of 5 per cent in the cost

of raw materials and a drop of 10 per cent in the cost of energy have been taken into account in the sensitivity analysis presented below (see table 48).

Table 48. Summary of assumptions with regard to factor costs

<i>Description</i>	<i>Option A (energy)</i>	<i>Option A (raw materials)</i>	<i>Option B (energy)</i>	<i>Option B (raw materials)</i>
Technology	State of the art US\$ 12 million	State of the art US\$ 12 million	Optimized US\$ 9 million	Optimized US\$ 9 million
Factor cost	-10 per cent on cost of local energy	-5 per cent on cost of raw materials	-10 per cent on cost of local energy	-5 per cent on cost of raw materials

A. Explanation of the sensitivity analysis

The results on internal rates of return² for the 11 sub-Saharan African countries and the six benchmark countries shown in table 49 clearly demonstrate that drops in the cost of raw materials and energy and the availability of export incentives do have an impact.

Table 49. Internal rates of return for the 11 sub-Saharan African countries and the six benchmark countries, percentage

<i>Country</i>	<i>Option A</i>	<i>Option A+</i>	<i>Option A (energy)</i>	<i>Option A (raw materials)</i>	<i>Option B</i>	<i>Option B+</i>	<i>Option B (energy)</i>	<i>Option B (raw materials)</i>
Benin	-2.7	3.4	-1.4	-1.1	0.6	7.2	2.0	2.3
Burkina Faso	-6.9	-0.9	-5.3	-5.3	-4.0	2.4	-2.3	-2.3
Cameroon	-1.1	4.3	0.4	0.5	2.2	8.3	2.9	3.8
Chad	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Côte d'Ivoire	1.8	7.4	2.5	3.3	5.3	11.3	6.0	6.8
Mali	-2.1	3.85	-0.9	-0.5	1.2	7.7	2.4	2.9

²The internal rate of return is the annualized effective compounded rate of return that can be earned on a capital investment. A project is a good investment if its internal rate of return is greater than the rate of return that could be earned by alternative investments with equal risks (including keeping money in the bank).

Country	Option A	Option A+	Option A (energy)	Option A (raw materials)	Option B	Option B+	Option B (energy)	Option B (raw materials)
Nigeria	8.2	-	9.3	9.6	12.3	-	13.4	13.8
Senegal	-7.8	-1.5	-5.9	-6.1	-4.8	1.9	-2.9	-3.0
Uganda	-0.9	4.4	-0.1	0.5	2.1	7.8	3.0	3.6
United Republic of Tanzania	2.5	8.2	3.2	4.0	6.1	12.3	6.8	7.7
Zambia	4.3	9.7	4.6	5.7	7.8	13.7	8.2	9.3
Master feasibility study	-3.3	2.6	-2.0	-1.7	-0.1	6.2	1.2	1.5
Bangladesh	10.5	-			15.0	-		
China	13.9				18.9			
Egypt	8.2				12.3			
India	7.8				12.2			
Pakistan	8.1				12.3			
Turkey	-5.5				-2.3			

Note: The internal rate of return was used to evaluate the project's financial feasibility over a period of 10 years.

The results for Burkina Faso, Chad and Senegal highlight the worst case scenarios, while those for Nigeria and Zambia represent the best case scenarios among the 11 sub-Saharan African countries analysed in the present study.

Burkina Faso has a negative internal rate of return in all of the scenarios except for one. This is due to the high costs of electricity (17 US cents/kWh), labour (US\$ 150/month) and construction (US\$ 350/m²). Only the export incentive, combined with the optimized machinery (scenario B+), is able to turn the internal rate of return into a positive, although unfeasible, result.

Côte d'Ivoire, Nigeria, the United Republic of Tanzania and Zambia achieve double-digit internal rates of return in one or more of the calculated scenarios, indicating that a cotton spinning mill in those countries would be profitable. However, such a result would only be achieved in scenario B+, which includes the availability of an optimized machinery set-up, the main factor for achieving a better internal rate of return due to the lower investment burden.

The Export Expansion Grant (20 per cent) granted in Nigeria would have a positive impact on the outcome of the project. It would mitigate the high costs of energy (14 US cents/kWh) and labour (US\$ 140/month). In Zambia, cheap

energy (4 US cents/kWh) and the moderate cost of labour (US\$ 100/month) clearly demonstrate the positive impact of low factor costs. Combined with the proposed export incentive, Côte d'Ivoire, Nigeria, United Republic of Tanzania and Zambia turn out to be the best locations among the 11 sub-Saharan African countries in which to set up a spinning mill.

The following picture emerges from a summary of the scenarios:

- (a) **Scenario A:** In scenario A, internal rates of return are unsatisfactory in all countries. Only Nigeria shows a positive (yet unacceptable) result, but that is due to the Export Expansion Grant. The internal rate of return of Zambia (4.3 per cent) reflects the low cost of energy in that country;
- (b) **Scenario A+:** In scenario A+, the export incentive on a declining scale improves the internal rates of return of most countries except Nigeria, which already has such an incentive (at 20 per cent) through the Export Expansion Grant;
- (c) **Scenario A (energy) and scenario A (raw materials):** In scenario A (energy) and scenario A (raw materials), lowering the cost of electricity by 10 per cent and the cost of cotton by 5 per cent would improve the internal rates of return of each of the 11 sub-Saharan African countries by an average of 1 per cent;
- (d) **Scenario B:** In scenario B, lower capital costs due to optimization of equipment would improve the internal rates of return of all countries; only in Nigeria, however, are they considered to be close to an acceptable level;
- (e) **Scenario B+:** In scenario B+, which includes optimized machinery and an export incentive, the internal rates of return only reach acceptable levels in Zambia (where the cost of energy is lowest), in Nigeria (thanks to the export incentive provided through the Export Expansion Grant) and in Côte d'Ivoire and the United Republic of Tanzania (both of which also enjoy low energy costs);
- (f) **Scenario B (energy) and scenario B (raw materials):** In scenario B (energy) and scenario B (raw materials), reducing the cost of electricity by 10 per cent and the cost of cotton by 5 per cent would improve the internal rate of return of each of the 11 sub-Saharan African countries by an average of 1 per cent, where optimized machinery is available.

B. Energy: the key factor driving up costs

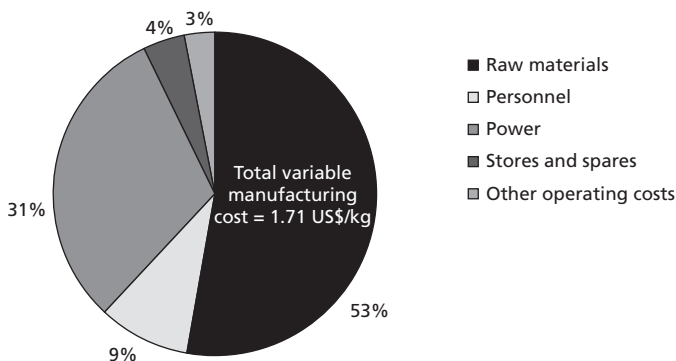
The present study has shown that the two main factors driving up costs in cotton spinning are raw materials and energy.

Of the 11 sub-Saharan African countries considered, four show favourable internal rates of return, mainly due to the low costs of energy in those countries. In two of the benchmark countries, namely India and Turkey, lower tariffs on energy are offered in remote areas to promote investment. If authorities in the sub-Saharan African countries where energy is expensive charged about 6 US cents/kWh, all the countries would achieve an acceptable internal rate of return.

If Governments recognized the impact that the costs of cotton and energy had on the feasibility of the project, they could come up with an incentive package built around those two factors to attract potential investments in the spinning industry.

Figure IX shows the importance of the costs of raw material (in this case, cotton) and energy with regard to the total variable manufacturing cost.

Figure IX. Variable costs for manufacturing 1 kg of yarn (Ne 30, combed)

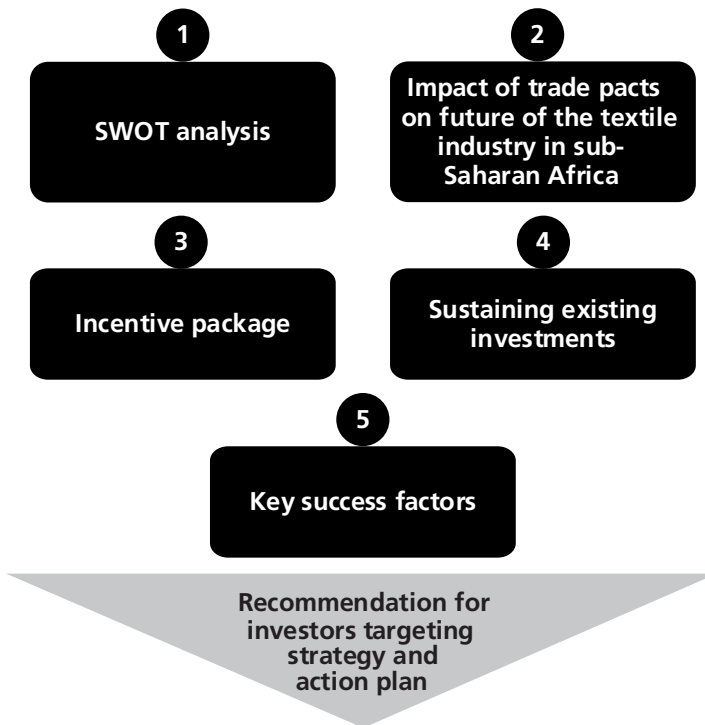


Source: Gherzi analysis.

XXV. BUILDING BLOCKS FOR DEVELOPING A STRATEGY THAT TARGETS INVESTORS

Any strategy targeting investors should be comprehensive. It should be based on an analysis of each country's strengths (including its comparative advantages), weaknesses, opportunities and threats (also known as a SWOT analysis) (figure X). The most critical ingredient of such a strategy is the package of incentives to be offered to prospective investors.

Figure X. Steps for developing a strategy that targets investors



A. SWOT analysis in the textile and garment industry in the 11 sub-Saharan African countries

Table 50 provides an overview of the strengths, weaknesses, opportunities and threats that exist in the textile and garment industry in the 11 sub-Saharan African countries considered in the present study.

Table 50. Strengths, weaknesses, opportunities and threats in the textile and garment industry in the 11 sub-Saharan African countries

<i>Strengths</i>	<i>Weaknesses</i>	<i>Opportunities</i>	<i>Threats</i>
<ul style="list-style-type: none"> • Availability of abundant raw material (cotton) 	<ul style="list-style-type: none"> • Infrastructural deficiencies and high cost of energy 	<ul style="list-style-type: none"> • Future integration of spinning mill into weaving and finishing 	<ul style="list-style-type: none"> • Inconsistent Government policies
<ul style="list-style-type: none"> • Preferential trade agreements with the European Union, China, India, the United States, and States members of subregional customs unions 	<ul style="list-style-type: none"> • Non-availability and high cost of funds 	<ul style="list-style-type: none"> • Large domestic market 	<ul style="list-style-type: none"> • Declining textile industry, discouraging prospective investors
<ul style="list-style-type: none"> • Competitive wages 	<ul style="list-style-type: none"> • Lack of sufficiently attractive incentives 		<ul style="list-style-type: none"> • Political instability in the region
	<ul style="list-style-type: none"> • Lack of skilled labour 	<ul style="list-style-type: none"> • Potential to increase cotton production and improve quality 	
	<ul style="list-style-type: none"> • Lack of vision and policies on the textile industry at common/regional level 		

The status of some relevant preferential trade agreements is the following:

- (a) **Economic partnership agreements:** Economic partnership agreements between States members of the European Union and States in Africa, the Caribbean and the Pacific replaced the Cotonou Agreement

in January 2008. Most sub-Saharan African States, however, have yet to sign an economic partnership agreement due to apprehensions about reciprocal market access to European products at low tariffs. Once the agreement has been implemented, textile products from sub-Saharan Africa would have duty-free access to the vast European Union market. Notably, the tariffs applicable to other countries are shown in table 51;

- (b) **African Growth and Opportunity Act:** Under the African Growth and Opportunity Act, apparels made in sub-Saharan African countries are allowed duty-free access to the United States market. As per the flexible rules of origin, these apparels could be made with fabrics originating in third countries. However, the third-country clause expires in 2012, after which there will be an opportunity for the apparel exporters to source locally produced yarn and fabrics;
- (c) **Least developed countries:** Both China and India allow the duty-free import of textile products originating in least developed countries in sub-Saharan Africa. As such, cotton yarn exported from a least developed country such as Uganda can be imported duty free into China, the world's largest importer of cotton yarn.

B. Impact of evolution of trade pacts on the profile of future contributors to foreign direct investment

Historically, preferential trade agreements have had a significant impact on the global textile and clothing industry. 2005 is regarded as the watershed year for the global textile and clothing industry, as it is when the 40-year old system based on the Multi-Fibre Arrangement was phased out. That system protected the textile and clothing industry in the developed countries, particularly in States members of the European Union and in the United States. As per the prevailing system, the global trade is governed by the WTO Agreement on Textile and Clothing, which replaced the Multi-Fibre Agreement.

The tariff rates shown in table 51 show the extent of the duty advantage enjoyed by sub-Saharan African countries vis-à-vis other textile-producing countries on account of zero duty under the Economic Partnership Agreement with the European Union and under the African Growth and Opportunity Act with the United States.

Table 51. Tariff rates on cotton yarn, cotton fabrics and cotton apparels under the Economic Partnership Agreement of the European Union and the Africa Growth and Opportunity Act of the United States, percentage

<i>Destination</i>	<i>Economic Partnership Agreements (European Union)</i>		<i>African Growth and Opportunity Act (United States)</i>	
	<i>Sub-Saharan Africa</i>	<i>Other</i>	<i>Sub-Saharan Africa</i>	<i>Other</i>
Cotton yarn	0	4	0	5.8-9.9
Cotton fabrics	0	4	0	7-9
Cotton apparels	0	4	0	15.9

Source: Gherzi analysis, United States International Trade Commission, European Commission.

C. Incentive package

As already indicated, supportive Government measures have played a crucial role in the development of the textile industry in most cotton textile-producing countries. Even in sub-Saharan Africa, preferential market access led to the creation of a successful textile and clothing industry in Mauritius in the 1990s and more recently the apparel exports from Southern and East Africa have benefited from the Africa Growth and Opportunity Act.

The availability of an enabling environment complemented by an attractive incentive package is necessary for attracting foreign direct investment in the spinning industry in countries in sub-Saharan Africa.

The major incentives for attracting investment for the establishment of spinning mills consist of the following: funding, fiscal measures and export incentives.

Spinning is a very capital intensive industry. A small plant needs a capital outlay of US\$ 23 million and has a long gestation period. The lack of funds in the long term and the high interest rates prevailing in sub-Saharan Africa have been major impediments to reinvestment, even in the existing textile industry. Having recognized the importance of those factors, India introduced the Technology Upgradation Fund Scheme, which makes funds available at a concessional interest rate, repayable in 10 years. Nigeria too has embarked on a similar scheme that has not, however, been implemented yet.

Prospective investments should be based on funds being available at an interest rate of 7-8 per cent per annum. Governments would have to get their central or development banks to make that happen.

Tax exemption measures that ensure, for example, duty-free import of machinery, including spare parts and tax holidays for a period of 5-10 years, should also be implemented. Some of these measures are already available in some sub-Saharan African countries.

Export incentives are required at least for the next 5-10 years to mitigate the infrastructural deficiencies and to train unskilled labourers in sub-Saharan African countries. Most States provide such incentives, albeit in different forms. In sub-Saharan Africa, duty credit certificates are given in Nigeria and SACU countries.

D. Sustaining existing investments in the textile industry in sub-Saharan Africa

The declining state of the existing textile industry in sub-Saharan Africa poses the biggest threat to attracting new investment in this vital industry. While pursuing new sources of foreign direct investment in the textile industry in general and in spinning mills in particular, policymakers should not lose sight of safeguarding existing investments.

Cotton-producing countries such as Nigeria, the United Republic of Tanzania and Zambia received significant investments in spinning, some of which have been renewed since 2000. However, those investments are being undermined by several constraints, including the smuggling of foreign textiles into local markets and infrastructural deficiencies (specifically, the lack of adequate infrastructure and the high cost of energy).

It is important to recognize that the existing industry already receives significant amounts of fixed investments, utilizes indigenous raw materials such as cotton and can tap into a pool of skilled labour. It is easier for existing investors to increase their contributions than it is for them to set up greenfield projects (in other words, projects where no previous facilities exist).

Government measures for nurturing existing investments include:

- (a) Reducing or taking control of the smuggling of foreign textiles, particularly into the ECOWAS area;
- (b) Rationalizing tariffs on imported yarns and fabrics to provide a level playing field for local producers;
- (c) Making available funds in the long term for retooling equipment at concessional interest rates.

Notably, a healthy industry will attract new foreign direct investment.

E. Key success factors for attracting foreign direct investment

Foreign direct investment is critical for the development of the textile industry in sub-Saharan Africa. Investors will give a lot of weight to the success factors outlined in table 52, all of which are in the hands of those Governments that could benefit from a decision to invest.

Governments need to intervene in a number of areas in order to attract investment from abroad.

Table 52. Key success factors

<i>Factors</i>	<i>Ability to ...</i>	<i>Determined by ...</i>	<i>Rating given to sub-Saharan Africa</i>	<i>Action required</i>
Cost competitiveness	Provide cost advantage to investor	Cost of labour Cost of energy Cost of water Cost of finance Cost of transport Productivity level achieved	XX X XX X X X	Improvement of infrastructure in the long run
Quality	Consistently provide globally acceptable quality	Level of technology Labour and staff skills	XX	Consistent upgrading of technology and skills

Table 52. (continued)

<i>Factors</i>	<i>Ability to ...</i>	<i>Determined by ...</i>	<i>Rating given to sub-Saharan Africa</i>	<i>Action required</i>
Business climate	Attract foreign direct investment to boost growth	Profitability of firms Challenges of starting a business Labour laws Incentives Taxes	X XX XX X XX	Improving the enabling environment
Political stability	Provide confidence to investors	Past record and perceived future development	XX	Good governance
Trade pacts	Have preferential treatment	Duty concessions	XXX	Economic Partnership Agreement (EPA) with the EU
Predictability of time frame for incentives	Provide investors with confidence for making long-term investments	Stable policy framework	X	Legislate on incentives for the long term (10 years)
Functioning infrastructure	Provide reliable supply of power, fuel and water Provide roads and efficient and safe handling of merchandise to ports	Priority given by Governments to infrastructural budget	X	Improved infrastructure in the long run

Rating: XXXX excellent XXX good
 XX average X unsatisfactory/doubtful

Source: Gherzi

XXVI. FORMULATING A STRATEGY TO ATTRACT INVESTMENT

Attention should be paid to the following aspects in formulating a strategy for attracting investment into the spinning mills: policy and vision; an incentive package; investment promotion; and a regional approach.

A. Policy and vision

There is a need for the ministry charged with trade and industry to formulate a policy for attracting investment into spinning mills for the development of the textile industry.

Such a policy should recognize the need to add value to locally produced cotton by transforming the cotton into yarn. Governments must be committed to putting into place measures for achieving that objective.

In a vision statement, Governments should lay down the desired output, which could be expressed in terms of the percentage of cotton to be converted into yarn at the end of a given period (which could be further divided into a short term (3-5 years) and a long term (10 years)).

The policy should be formulated with the participation of key stakeholders, including other relevant ministries and agencies, as well as the private sector.

B. Incentive package

Each State needs to critically review its existing incentive package and address any gaps. It is vital that incentive packages be approved by the executive branch of Government for a clear mandate to be secured.

C. Investment promotion

Investment should be solicited for existing and greenfield spinning projects. Efforts made to promote investment should involve existing players and prospective investors.

The relevant ministry should prepare communication material such as brochures containing information on Government policies, project highlights and the incentive package in order to attract parties willing to take advantage of offered opportunities.

Various forums for investment promotion should be utilized, including workshops aimed at promoting foreign direct investment, the commercial wings of embassies, international forums and focused visits to target countries where prospective investors are likely to be found.

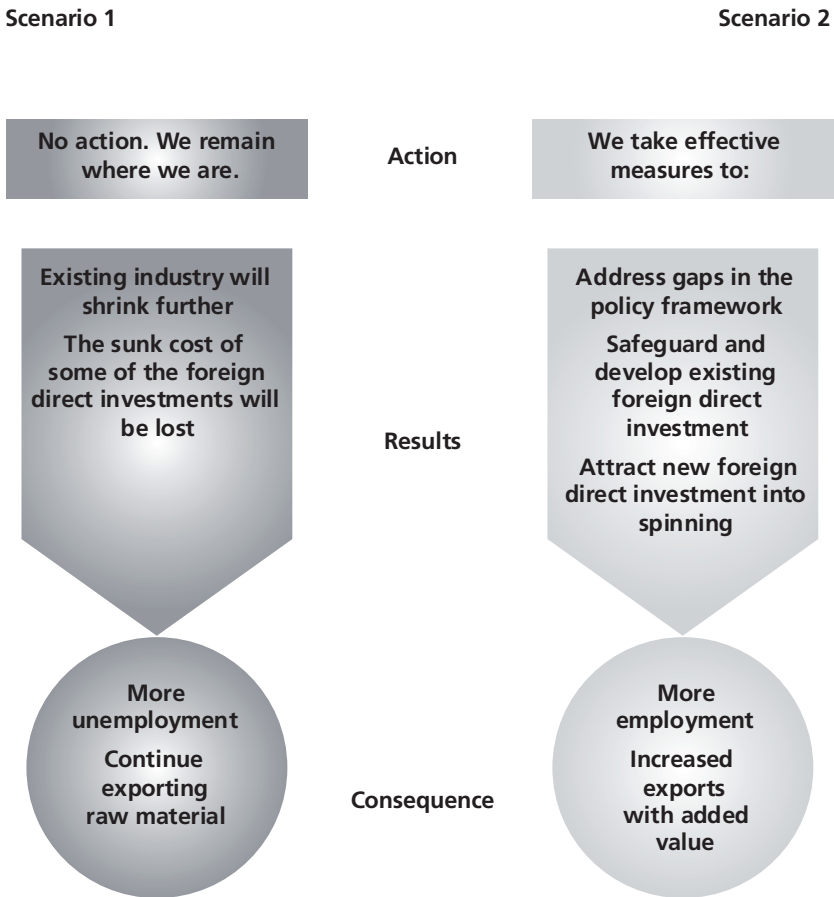
D. Regional approach

There is a need to leverage the synergies available in each region by identifying the specific advantages and opportunities of different countries. For example, in the ECOWAS area, Nigeria is in a relatively good position to attract investment for spinning because of the relevant experience it has already accumulated. The spinning mills in Nigeria should be able to utilize local cotton for coarse yarn of up to 24 counts and CFA franc zone cottons for producing medium yarn in the range of 30-40 counts.

XXVII. CONCLUSION

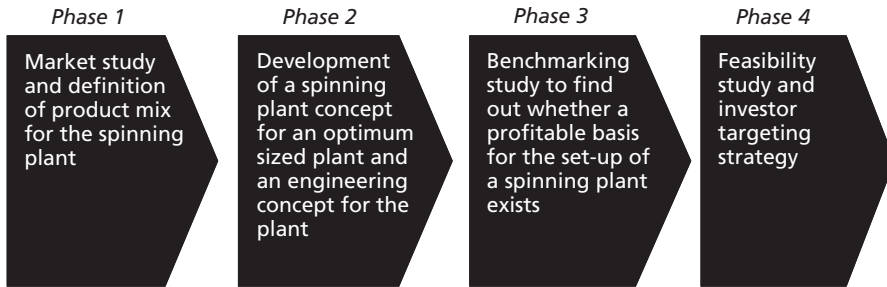
Sub-Saharan African States have the potential to add value to a raw material, cotton, that is indigenous to them. Two scenarios exist for the textile and garment industry (see figure XI).

Figure XI. Two scenarios for the textile industry in sub-Saharan Africa



To summarize: the present study was divided into the four phases illustrated in figure XII.

Figure XII. Four phases of the study



The 11 sub-Saharan African countries produce about 810,000 tons of cotton, of which only 15 per cent is transformed into textiles; the rest is exported as basic raw material. With the unchecked decline of the textile manufacturing activity in sub-Saharan Africa, the rate of transformation is likely to decline even further.

It will be an uphill task to reverse the trend and regain the entire value chain of textiles from spinning to finished cloth production and garment making. However, there is an opportunity to at least make the first important step of forward integration by transforming cotton into yarn by spinning.

The present study has established that there is a large demand for cotton yarn in the world market (worldwide exports are estimated to be worth US\$ 7 billion), much of which is currently being supplied by major cotton-producing countries such as India and Pakistan.

The study covered 11 cotton-producing sub-Saharan African countries with a view to evaluating the feasibility of setting up a profitable spinning industry in those countries. Data on the costs of factors such as energy, wages, building construction and financing were collected together with information regarding Government policies and incentives given to promote investment.

In order to carry out a comparison of the sub-Saharan African countries and major cotton textile-producing developing countries, a benchmark analysis was carried out. The factor costs and investment incentives prevailing in the

sub-Saharan African countries were compared with those of six benchmark countries (Bangladesh, China, Egypt, India, Pakistan and Turkey). The analysis revealed that the six benchmark countries benefited from Government policies and incentives designed to encourage the production and export of textiles. The measures consisted of the following:

- (a) A clear vision and policy for the textile industry;
- (b) The availability of an incentive package comprising investment incentives, fiscal incentives, the availability of export finance at concessional interest rates, efficient infrastructure and skilled labour.

The financial feasibility study was based on an optimum-sized spinning mill with a capacity of 21,216 ring spindles capable of producing 3,941 tons of yarn of an average count of 30/1 Ne, combed, annually. The total capital outlay needed for such a spinning mill would be US\$ 23 million, which clearly shows the capital intensive nature of the textile industry.

The feasibility study is based on state-of-the-art ring spinning technology (scenario A) worth US\$ 12 million (including contingencies). An alternative scenario based on a combination of reliable but not necessarily the most sophisticated equipment, worth US\$ 9 million (including contingencies) was also analysed.

Further, the base case master feasibility study was prepared on the basis of given cost factors to evaluate the feasibility on the basis of the status quo. However, three additional scenarios were constructed to evaluate alternatives.

The incentive package comprised the availability of funds for the long term at a concessional rate of interest in foreign currency of 7-8 per cent and export incentives up to 12 per cent of free-on-board value on a declining scale over a 10-year period.

The feasibility study revealed the following:

- (a) It would not be financially viable to set up a spinning mill based on state-of-the-art technology given current factor costs and existing incentives (scenario A);
- (b) Including the proposed incentives would only make the spinning mill viable in Côte d'Ivoire, Nigeria, the United Republic of Tanzania and Zambia due to the fact that those States provide export incentives and

that the cost of energy in those countries is competitive. The high cost of energy (15 US cents/kWh) in most countries in the CFA franc zone render such an investment unviable (scenario A+);

- (c) In order to make an investment in a spinning mill viable in all cotton-producing sub-Saharan African countries, there would have to be a combination of optimum technology, an incentive package consisting of long-term funds at an interest rate of 7-8 per cent and export incentives of up to 12 per cent of the free-on-board value (scenario B+) and/or cheaper energy and/or raw material;
- (d) In the long run, improvements in infrastructure would have to be made in order to improve competitiveness.

Developing an investor targeting strategy to attract foreign direct investment to the spinning industry requires a clear understanding of the sector, the formulation of a sustainable incentive package based on the recommendations made above, the safeguarding of existing investments in the textile industry and the communication of the Government's intent towards present and prospective investors.

The establishment of spinning mills in sub-Saharan African countries would bring several benefits, including:

- (a) Added value to indigenous raw materials;
- (b) Increased foreign exchange earnings;
- (c) The generation of employment;
- (d) Laying the foundation of a textile value chain.

A. Selection of countries in which to promote the spinning industry

Based on the results of the study on financial feasibility and subject to the formulation of an incentive package, it is proposed that the spinning industry be further developed in Côte d'Ivoire, Nigeria, the United Republic of Tanzania and Zambia.

That proposal is based on the following criteria:

- (a) Those countries show double-digit internal rates of return;

- (b) Nigeria already has the industrial base that would enable the development of a textile industry, even if that base is currently facing challenges; the country has also had a successful spinning industry, including for exports, in the past. Furthermore, Nigeria has implemented the Export Expansion Grant to promote non-oil exports. In the long run, and as improvements in terms of infrastructure and, especially, in terms of energy, materialize, the spinning industry will attain global competitiveness;
- (c) Energy in Côte d'Ivoire is relatively cheap compared with energy in other CFA franc zone countries. Moreover, Côte d'Ivoire could take advantage of its geographical position to use the cotton produced in neighbouring Burkina Faso and Mali. Finally, Côte d'Ivoire has developed a small but efficient textile industry exporting to Europe that could be revived;
- (d) In Zambia too the cost of energy is relatively cheap, a fact that should be leveraged for making the spinning industry in that country viable. Also like Côte d'Ivoire, Zambia had a highly modern spinning mill that could be upgraded. In addition to having exports, Zambia has access to the market for yarn in Southern and East Africa. (For information on investment incentives available in Zambia, see annex I to the present report.)

It is suggested that the next priority for the United Nations Industrial Development Organization should be to encourage countries with significant cotton production, even if they might not appear particularly attractive today, to consider developing an incentive package based on different costs of energy and raw materials in order to encourage new investment in spinning.

ANNEX I. INVESTMENT INCENTIVES AVAILABLE IN ZAMBIA

Zambia

There is no limit to the amount of investment that could be made, but the Zambia Development Agency Act of 2006 provides for the following limits for special purposes:

- (a) US\$ 250,000 for a self-employment permit;
- (b) US\$ 500,000 for special tax incentives in a priority sector or product (such as cotton yarn spinning);
- (c) US\$ 10,000,000 for promoting major investment in an identified sector or product. The finance minister may, by statutory instrument and in consultation with the minister for commerce, trade and industry, specify additional incentives for investment in an identified sector or product, in new assets that qualify for those incentives.

The following non-fiscal incentives should be considered:

- (a) Investment guarantees and protection against State nationalization;
- (b) Free facilitation for application of immigration permits, secondary licences, land acquisition and utilities.

The following fiscal incentives should be considered for those investing US\$ 500,000 or more in a priority sector (such as cotton yarn spinning):

- (a) Profits should not be taxed for a period of five years from the first year in which profits are made. Between the sixth and eighth years, only 50 per cent of profits should be taxed and for the ninth and tenth years, 75 per cent of the profits should be taxed;
- (b) Dividends should not be taxed for a period of five years from the year in which dividends are declared;

- (c) There should be no import duty on capital goods and machinery, including trucks and specialized vehicles, for five years.

The following incentives could be extended to investment licence holders:

- (a) Dividends declared by a company listed on the Lusaka Stock Exchange should be exempted from tax;

- (b) Duty on the following inputs used in the textiles and clothing manufacturing has been reduced from 15 to 0 per cent: grey fabric, woven fabric, sewing threads and sewing machine spares;

- (c) Duty on selected machinery used in textile and clothing manufacturing has been reduced from 5 to 0 per cent;

- (d) Unrestricted externalization of “after-tax” income shall be allowed.

ANNEX II. SOURCES FOR THE CALCULATION OF FACTOR COSTS

Table 1 contains information on the sources used to calculate the cost of electricity in the 11 sub-Saharan African countries and the six benchmark countries considered in the present study.

Table 1. Sources for calculating the cost of electricity in the 11 sub-Saharan African countries and the six benchmark countries, April 2009

<i>Country</i>	<i>Value (US cents/kWh)</i>	<i>Source</i>
Eleven sub-Saharan African countries		
Benin	14	Société béninoise d'énergie électrique and Gherzi research
Burkina Faso	17	Société nationale d'électricité du Burkina, Filature du Sahel and Gherzi research
Cameroon	8	Cotonnière industrielle du Cameroun and Gherzi research
Chad	30	Industry sources, based on 50 per cent grid and 50 per cent captive (diesel generator) and Gherzi research
Côte d'Ivoire	12	Uniwax and Gherzi research
Mali	13	Énergie du Mali, industry sources and Gherzi research
Nigeria	14	Industry sources, based on 50 per cent grid (National Electric Power Authority) and 50 per cent captive (diesel generator) and Gherzi research
Senegal	19	Société nationale d'électricité du Sénégal, industry sources and Gherzi research
Uganda	11	Umeme (energy distribution network company), Madhvani Group and Gherzi
United Republic of Tanzania	8	Tanzania Electric Supply Company Ltd., Sunflag Textile and Knitwear Mills Ltd. and Gherzi research
Zambia	4	Zesco and Gherzi

<i>Country</i>	<i>Value (US cents/kWh)</i>	<i>Source</i>
Six benchmark countries		
Bangladesh	7	Gherzi research
China	8	Gherzi research
Egypt	4	Gherzi research
India	10	Gherzi research
Pakistan	6	Gherzi research
Turkey	9	Gherzi research

Table 2 contains information on the cost of labour in the 11 sub-Saharan African countries and the six benchmark countries considered in the present study.

Table 2. Sources for calculating the cost of labour in the 11 sub-Saharan African countries and the six benchmark countries

<i>Country</i>	<i>Cost of labour (US\$/month)</i>	<i>Source</i>
Eleven sub-Saharan African countries		
Benin	75	Gherzi research
Burkina Faso	150	Filature du Sahel and Gherzi research
Cameroon	300	Cotonnière industrielle du Cameroun and Gherzi research
Chad	75	Gherzi research
Côte d'Ivoire	120	Uniwax, industry sources and Gherzi research
Mali	95	SMC and Gherzi research
Nigeria	140	Nigerian Textile Manufacturers Association and Gherzi research
Senegal	85	Gherzi research
Uganda	100	Eladam Enterprises, the Cotton Development Organization and Gherzi research
United Republic of Tanzania	75	TEDSKOR, Board of External Trade and Gherzi research
Zambia	100	Alliance Cotton Ginneries and Gherzi research
Six benchmark countries		
Bangladesh	50	Gherzi research
China	150	Gherzi research
Egypt	100	Gherzi research
India	100	Gherzi research

<i>Country</i>	<i>Cost of labour (US\$/month)</i>	<i>Source</i>
Pakistan	80	Gherzi research
Turkey	870	Gherzi research

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