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COTTON AND ITS BY-PRODUCTS

in Zimbabwe

BACKGROUND PAPER

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Zimbabwe cotton
(Cotton Ginners Association (CGA), Zimbabwe)

COTTON AND ITS BY-PRODUCTS SECTOR IN ZIMBABWE

Background Paper

Prepared by Godfrey Buka (Consultant)

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LIST OF ACRONYMS

ACTIF .....African Cotton and Textiles Industry Federation
ACVAZ .....Association of Cotton Value Adders of Zimbabwe
AGRITEX .....Department of Agricultural and Technical Extension
AMA.....Agricultural Marketing Authority
CGAZ .....Cotton Ginners Association of Zimbabwe
CMB .....Cotton Marketing Board
COMESA .....Common Market for Eastern and Southern Africa
COTTCO .....Cotton Company of Zimbabwe
CTC .....Cotton Training Centre
CRI .....Cotton Research Institute (Zimbabwe)
ESA .....Eastern and Southern Africa
EU.....European Union
FAO.....Food and Agriculture Organization of the United Nations
FFS Farmer Field School
GAP.....Good Agricultural Practices
GOT.....Ginning Outturn
GoZ.....Government of Zimbabwe
ICAC .....International Cotton Advisory Committee
MAMID.....Ministry of Agriculture, Mechanisation and Irrigation Development
MoFED.....Ministry of Finance & Economic Development
NACGMB.....National Association of Cotton Ginners, Merchants and Buyers
NCC.....National Cotton Council
UNCTAD .....United Nations Conference on Trade & Development
ZCFU .....Zimbabwe Commercial Farmers Union
ZCMA .....Zimbabwe Clothing Manufacturers Association
ZFU .....Zimbabwe Farmers Union
ZIMASSET.....Zimbabwe Agenda for Sustainable Socio Economic Transformation
ZITMA .....Zimbabwe Textile Manufacturers Association
ZNFU .....Zimbabwe National Farmers Union
ZTWU .....Zimbabwe Textile Workers Union

1. Abstract

This paper provides a historical background of the cotton value chain in Zimbabwe (farm to fashion), written at the behest of UNCTAD. It highlights the developments that have taken place over the years in the production of seed cotton and it's by-products in the country and it also identifies and analyses impediments that are retarding growth in the industry. In the analysis, the major stakeholders and their roles are identified with suggestions on areas in which UNCTAD should focus its technical assistance activities.

2. Introduction

The study note includes a detailed evaluation of current arrangements in the production and marketing of cotton and its by-products in Zimbabwe. The key issues examined are weaknesses and strengths with particular respect to production and marketing against the background of shrinking crop production and the value chain which is operating below capacity. It also examines some of the issues raised in the Zimbabwe Cotton to Clothing Strategy launched by stakeholders in September 2014 such as the promotion of the processing, utilisation and consumption of cotton lint by-products which is in line with the Government's economic blueprint, Zimbabwe Agenda for Sustainable Socio Economic Transformation (ZimAsset).

There are five major stakeholders in the cotton industry namely, *cotton growers, ginners, oil expressers, spinners and clothing manufacturers*. The involvement of a broad range of value-adders makes cotton one of the most versatile crops with probably the widest range of by-products on record. Although it is the third biggest agricultural export crop after tobacco and sugar cane, cotton has always surpassed tobacco in terms of the volume of domestic value addition of its range of products and by-products.

The ideal situation is to achieve optimum utilisation of all cotton by-products from the cotton fibre to seed so that value chain actors as well as the country can maximize benefit in this competitive arena where other substitutes for the by-products do exist. However, while potential markets are readily available, it is also critical to guarantee a sustainable supply of raw material. For the supplies to remain sustainable, continuous efforts have to be made to competitively improve productivity.

Cotton's products play a huge role in import substitution that cannot be made up from other sources of raw materials. The crop contributes about 70% of the raw material for locally expressed oil and 100% of locally spun cotton and cotton blend yarns. The commonly known cotton products include yarn, clothing, blankets, industrial textiles, and cotton wool. Other less conspicuous by-products are from ginned seed, which is the primary source of ingredients used in the manufacture of cooking oil, fats, margarine and livestock feed as well as cosmetics and soap.

3. Historical Overview

Production and marketing of seed cotton has evolved from control by a state monopoly in the 1930s, to being deregulated in the mid-90s, taking a full circle with the re-introduction of legislation in 2009 albeit in a multi-competitor environment. The market reforms which took place in the 90s were as a result of the Government of Zimbabwe (GoZ) embarking on the World Bank's Economic Structural Adjustment Programme (ESAP), which encouraged deregulation of agricultural marketing among other sectors. This was also meant to address issues to do with foreign currency shortages, depressed investment which led to low levels of employment. There was a shift towards a more market driven economy.

From 1950 up to 1994, a parastatal body known as the Cotton Marketing Board (CMB) controlled and regulated the cotton industry from the delivery of production inputs to farmers to purchasing of seed cotton and selling of lint and ginned seed.

However, the advent of the ESAP saw CMB's statutory monopoly in purchasing, ginning, marketing and export of cotton being removed in 1994 and replaced by a new company called the Cotton Company of Zimbabwe (Cottco). Although initially 100% government owned, the company became privatised in October 1997 and listed on the Zimbabwe Stock Exchange in December 1997.

Meanwhile, the GoZ had adopted a strategy of export promotion by introducing Export Processing Zones (EPZ). These offered investors a tax holiday for five years and a flat corporate tax rate of 15% thereafter. This meant value addition activities which created employment in the EPZs. To qualify, investors had to export at least 80% of annual sales.

From 1995 to August 2009, the cotton industry operated in a near-free market with very little direct GoZ involvement other than ensuring that local industrial raw material needs have been met and the issuance of permits to exporters.

Following market liberalization, the first competitor to Cottco was Cargill which brought in a duopoly until the arrival of more competitor companies owned by Asian investors and some locals who also jumped on to the cotton band wagon mostly in the new millennium. There was a proliferation of cotton merchant companies which had a negative impact on the input credit scheme as cotton marketing became disorderly.

Having gone through a period of challenges associated with a deregulated operating environment, industry stakeholders saw it necessary to form an umbrella body in 2006, the National Cotton Council {NCC}, at which matters of mutual interest were discussed.

All the cotton sub-sectors had their own representative associations which had been established to further the interests of their members and in the case of ginners, to maintain self-regulation at primary production level.

The NCC had representatives from the Zimbabwe Farmers Union (ZFU), the National Association of Cotton Ginners, Merchants and Buyers (NACGMB), the Zimbabwe Textile Manufacturers Association (ZITMA), the Oilseed Expressers Association and the Zimbabwe Clothing Manufacturers Association (ZCMA). It embraced all the relevant stakeholders in the country, including Government Ministries such as the Ministry of Agriculture and Ministry of Industry & Commerce.

With the opening up of the economy, the manufacturing sector, particularly the textile manufacturing, was the hardest hit by company closures. This was due to a sudden influx of cheap finished goods, clothing items mainly from China which overwhelmingly crowded-out the local manufacturers. This exacerbated the already worsening foreign currency shortage as more forex was going towards imports. GDP dropped by more than 30% and unemployment shot up beyond 70%.

In the period beginning in 2007, the industry saw more merchants moving in and out of the cotton industry for various economic reasons. At peak in 2007/08 there were up to 30 companies involved in contract growing, buying and ginning of seed cotton. During this period, self-regulation by the NCC had become ineffective and the primary market was characterised by indiscipline which prompted cotton merchants to lobby Government for the re-introduction of legislation in 2009.

The re-introduction of cotton legislation by government was aimed at creating an environment contributory to the restoration of investor confidence in the seed cotton contract production business which is the starting point for all value addition.

The promulgation of Statutory Instrument 142 of 2009 saw a return to a regulated environment which ushered in a new era in cotton production in Zimbabwe in terms of transparency in the financing and buying of seed cotton. Be that as it may, by 2013, there were 15 companies left in the ginning industry and this number has since dwindled to only eight.

The return of a regulatory authority saw the NCC's self-regulatory functions being overtaken by the Agricultural Marketing Authority. However, in a further development, the cotton industry stakeholders once again formed another umbrella body, established in 2014, known as the Association of Cotton Value Adders in Zimbabwe (ACVAZ). This is the cotton sector's apex representative body at which matters of mutual interest are discussed. Just like its predecessor the NCC, ACVAZ also embraces relevant Government Ministries (Agriculture and Industry & Commerce), the three farmers' unions, ZCFU, ZFU and ZNFU; the merchants and ginners body, CGAZ (successor to the NACGMB); the spinners, weavers and textile manufacturers, ZITMA; the edible oil expressers, OEA and the clothing manufacturers; ZCMA. Representatives chosen by these subsidiary associations sit on the board of ACVAZ. This apex body is affiliated to the regional African cotton industry organisation called ACTIF.

In 2013, the GoZ crafted a new blue print strategy document going by the moniker, ZIMASSET or Zimbabwe Agenda for Sustainable, Socio- Economic Transformation in a bid to achieve sustainable development and social equity anchored on indigenisation, empowerment and employment creation.

Sadly, the economic challenges which led to the decline in textile industrial activity are still to be addressed. The country, among many others in the region, remains a dumping ground for cheap clothing from Asia, both new and second hand items.

4. Economic Importance of Cotton

In line with Government aspirations as espoused in ZimAsset, cotton offers a lot of scope for value addition. ZimAsset is a strategy developed by GoZ to achieve sustainable development and social equity anchored on indigenisation empowerment and employment creation. Among its four pillars, there is value addition and beneficiation which resonates well with aspirations of stakeholders in the cotton value chain.

The cotton industry plays a very important role in the country's economy as it generates employment across its numerous sub-sectors thus being a tool for poverty alleviation. The cotton crop supports thousands of livelihoods in the smallholder farming communities around the country.

It is estimated that, at peak about 300,000 smallholder households *(B. Hunyani-Mlambo et al 2008)* were involved in the growing of seed cotton. This represents cash income to between one and two million people with an average household size of 5.5 persons.

The cotton crop plays an important role in poverty alleviation as it provides income to the rural people who are directly dependent on cotton for their livelihoods. Most cotton growing areas have limited economic opportunities as these are semi-arid and cotton production is the only viable option.

About a quarter of a million cotton farmers directly support close to two million people in their households and at peak there were more than 300,000 cotton growers. The ginning industry which can potentially employ 10,000 workers currently employs around 5,000 workers in the frontline of value addition. Installed ginning capacity is 600,000 metric tonnes but industries are currently operating at 15% due to low production. *(See Appendix 5)*

The advantages of this crop to the front-line value adder are numerous and among them are the following:

a) There is low investment for any start up farmer wishing to grow the crop;

b) Inputs are readily available on credit terms from contractors;

c) Farmers have a ready market which guarantees cash on delivery; and

d) Technical know-how is readily available for free from both public and private sector extension services.

However, the continuous decline in production which has been registered over the last three seasons is cause for concern to the stakeholders.

At its peak in the late nineties, the cotton industry created employment for close to a million people in the main value chain and in downstream industries such as retail, transport, insurance and security. The country benefits from the direct employment creation across a wide spectrum of cotton industries namely, buying, ginning, spinning, weaving, oil expressing and stock feed manufacture.

According to the CGAZ, the ginning industry employed 10,000 people in its better days but in the last decade, this number has come down to less than half due to a shrinking crop size and collapsed ginning companies.

In addition, the country's formal textile sector at its peak used to employ 24,000 people but the number has also since withered to 4,000. Major textile industries which are vertically integrated from spinning to weaving have the potential to engage up to 35 000 employees but have over the years been decimated from 100 companies to only eight. The demand from spinning mills has been equally declining although largely being affected by other factors such as high production cost and outdated machinery other than depleting production. Installed spinning capacity is 39,000mt compared to 160,000mt at the height of its operations.

5. Seed Cotton Production

5.1 Contract Farming

Contract farming gained popularity in communal lands because there are no banks prepared to lend smallholder farmers without collateral. Smallholder farmers enter into ginner driven contracts for seed cotton production due to availability of funding and inputs from the contractors which are provided on credit. The

cotton crop in Zimbabwe is mostly grown under contract arrangements with ginners providing inputs and buying the seed cotton so produced.

Growth in cotton production witnessed soon after 2009 was premised on the effectiveness of SI 142/2009 because in its absence merchants would have had no basis on which to continue with the contract growing model. Under contract farming arrangements, the ginners are required to supply a minimum input support package to contracted farmers, through an input credit scheme. This system removes the burden of financing the crop from the farmer. There is scope for developing this sector to achieve maximum potential through the contract farming scheme. However, the farmer in turn can only continue producing the crop if returns are favourable.

5.2 Production Highlights

The seed cotton crop has been produced in Zimbabwe for about a century now. The majority of the farmers are smallholder communal area producers who, due to the small size of their operations *(half a hectare to five hectares)*, have managed to maintain good quality standards renowned worldwide. The major advantage of smallholder production is that the seed cotton is handpicked resulting in minimal contamination.

Smallholder cotton farm

Cotton Bales in transit

Cotton Ginnery

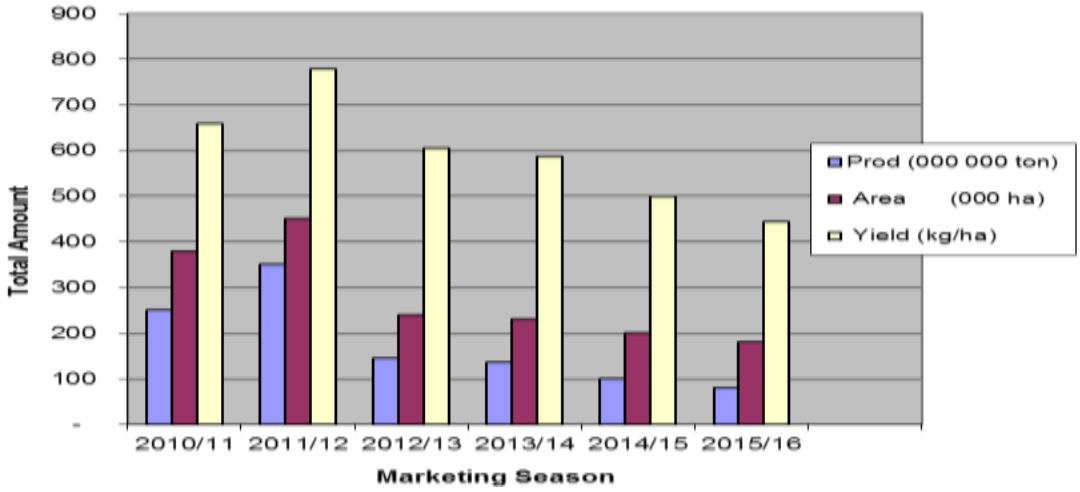
Source: Photo courtesy of CGA

From a record high of 353,000 metric tonnes (MT) seed cotton produced in 2000, the national cotton crop dwindled to 207 000 tonnes in 2009. However, as a result of organised input support given through a regulated distribution system, the long term average national production increased to 250,000 MT from 2009 onwards. Production once again went beyond 350,000 MT in 2012.

Of late, the crop has been on a free fall, dropping to 145 000 metric tonnes in 2012/13 and to 134 000 MT in 2013/14 and in 2014/15 there was a further downward spiral to 104 000 MT. This was largely due to a variety of factors such as, climate change, low producer prices, side-marketing, inputs diversion and knowledge gap. The expectation for the 2016 marketing season is about 40,000mt which will be the lowest on record (See Appendix 3). The severe knock down on production was largely due to the effects of the El Nino induced weather conditions which were inclement to crop production in the 2015/16 growing season.

The graph below shows the national production trend for the last six seasons:

Table 1. National seed cotton production



Source: Graph drawn from CGA Statistics

5.3 Government Intervention

Despite the fact that inputs are readily available through contract farming arrangements, the current average yield, at approximately 500 kg per hectare is very low compared to the average world seed cotton yield of 1700 kg/ha or the 3000 kg/ha achieved in Australia through the application of better technology. The long term (20 year) average annual cotton production has since come down to 200,000mt which is now cause for concern to the industry stakeholders.

The GoZ has made a move to reverse the decline in production by issuing free inputs (seed, fertiliser and crop chemicals) to cotton farmers for three seasons starting in 2015/16. However, much of this was not planted due the effects of the El Nino which influenced the worst drought season ever experienced in the country.

According to observers, the point at which the GoZ has chosen to assist the cotton industry is unlikely to make an impact to cotton production as this is fraught with bureaucratic inefficiencies. Most of the time inputs are delivered late and being free inputs, some farmers divert these to crops of their choice and there is no guarantee that they will be used to grow cotton. To some extent, free inputs have sometimes been exchanged for cash by hungry farmers wanting to satisfy immediate needs. Generally, the issuance of free inputs is fueling side marketing because nobody wants to repay credit if there is a conduit to sell to a buyer who does not deduct sales proceeds to recover input cost.

5.4 Crop Production Funding

Low yields are rendering cotton production unrewarding as farmers are increasingly unable to make a living out of cotton farming. The major cause is that farming goes on with soils being mined albeit without sufficient nutrient replenishment which may be attributed to lack of adequate inputs. In some cases, where inputs are available on contract some farmers divert them to other crops especially food crops since there is no other source of readily available inputs except at times when the GoZ issues free inputs.

As depicted in Table 2 below, there has been a decline in crop production and a simultaneous reduction in inputs investment in contract production of seed cotton by ginners from a high of US$42 million in 2011/12 to US$20 million in recent seasons. In recent years, contractors have tended to scale down their investment in production inputs because of rampant side marketing. However, the 2015/16 season saw an injection of inputs worth $26m given for free by the Government.

Table 2. Investment in contract cotton production, 2010 -16

Season	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cost of Inputs (USD)	$36m	$ 42m	$22m	$32m	$20m	$21m
Hectares	380,000	450,000	240,000	250,000	200,000	180,000
Prod (metric tonnes)	250,000	350,000	145,000	136,000	104,000	80,000
Yield (kg/ha)	**658**	**770**	**604**	**540**	**500**	**400**

Source: Compiled from AMA statistics

The above table clearly shows that declining productivity needs to be addressed if the cotton industry is to survive. According to the CRI, the cotton varieties being currently grown have the potential to yield around 2,500 kg per hectare under dryland cropping conditions and 4,000 kg per ha under irrigation conditions. However, in the past, farmers have achieved yields which are more than double the current long term average. Low productivity is induced by poor performance hence the need for urgent action to avoid total collapse of the industry.

The following are the reasons attributable to low productivity:

- Soil nutrients depleted and farmers apply inadequate inputs due to high cost.
- Knowledge gap as older generation of farmers has retired.
- Management of climate change - late onset of rains and uneven distribution.

5.5 Production Areas

In Zimbabwe, cotton is grown in rural provinces which are mostly situated in marginal rainfall areas. Cotton is a drought tolerant crop that is grown in areas of the country where temperatures are high and rainfall is low thus in natural regions three, four and five. The bulk of the cotton crop is grown in the Midlands and Mashonaland West Provinces (about 70%) followed by Mashonaland Central and Masvingo (25%). The cotton produced in Manicaland, Mashonaland East and Matabeleland North is very negligible (5%).

Figure1. Map of Zimbabwe administrative boundaries

Source: Wikipedia – Administrative divisions of Zimbabwe

Zimbabwe is a landlocked country situated in Southern Africa. It is separated to the north from Zambia by the Zambezi River. To the south, the Limpopo River forms part of the border with South Africa, it is also bordered in the eastern side by Mozambique, and in the western side by Botswana.

6. Cotton Grading & Quality Control

6.1 Grading

Merchants provide farmers with picking bags and wool packs to minimize contamination with foreign matter and to ensure proper handling and packaging of seed cotton from the field up to the point of sale. They are required by law to buy seed cotton using official grades and pay differential prices based on these grades: A, B, C and D. All seed cotton is classified in a grade whose moisture content must not exceed twelve *per centum.* All seed cotton packaging should contain only one grade of seed cotton, and any cotton pack containing more than one grade of seed cotton is downgraded to grade D.

Cotton merchants dedicate special premises ("grading rooms") for grading seed cotton. Seed cotton is ginned in accordance with the respective seed cotton grades. On the other hand, merchants must ensure that all lint packaging does not contain or consist of polypropylene and that the twine used to stitch the packaging for lint is entirely made of cotton.

To ensure that good ginning practices are followed, ginners provide training for graders and this in turn improves lint quality. All seed cotton is ginned in accordance with the seed cotton grades specified in the table below.

Table 3. Standards of Classification

	Hand-picked cotton
Grade A	White or slightly grey seed cotton, which is moderately soil-stained, insect-stained, or plant-stained. Small amounts of cotton-leaf trash are tolerated. No other impurities are permitted. Slight but not obvious amounts of weak or immature fibres are permissible.
Grade B	Seed cotton containing obvious but not substantial amounts of weak or immature soil-stained, insect-stained, or otherwise discoloured fibres or leaf trash. Small amounts of cotton-leaf trash are tolerated. No obvious stick or other plant parts are permitted.
Grade C	Seed cotton containing substantial but not excessive amounts of weak or immature soil-stained or insect-stained or otherwise discoloured fibres, leaf and other trash, and damaged seed.
Grade D	Seed cotton, which cannot be classified as grade A, B or C, but which has a value for the production of lint. No seed cotton which, by reason of excess moisture content, is likely to cause the development of mould or heating in storage, or seed cotton by itself or mixed with any other matter or thing which is likely to cause damage to ginning-machinery is permitted.

Source: Statutory Instrument 142/2009

Cotton Grading Room

Sorting Seed Cotton

Source: Photo courtesy of CGA

6.2 Contamination Control

In Zimbabwe there is generally good management of crop production, which results in improved quality due to readily available agronomic advice from Agritex and private extension services provided by contractors. High quality standards of pest control are maintained to prevent the build-up of pest resistance to commonly used pesticides.

When packing, farmers ensure that cotton packs do not contain any feathers, grass, sticks, twine, sand, stones or extraneous matter not commonly found together with packaged seed cotton. As a country, Zimbabwe aims at maintaining high quality standards in order to have a competitive edge on the international market. However, quality begins at farm level where farmers are encouraged to avoid all forms of extraneous matter as well as destroying stalks soon after harvesting. This all enhances quality and will ensure a good product after ginning and in the whole value addition process.

6.3 Cotton Classing

The classing of cotton lint is the process of measuring fiber characteristics against a set of standards using scientific instruments to determine the characteristics of the lint. Most standards applied in the industry were developed by the U.S. Department of Agriculture. Every bale of cotton is classed from a sample taken after its formation. The quality of the cotton bale (lint) determines the price.

Lint Sampling, Grading & Quality Control

Source: Photo courtesy of CGA

7. Research, Extension & Training

7.1 Research

The Department of Research and Specialist Services (DR&SS) under MAMID, is responsible for overall research in crop and livestock production in the country. The Cotton Research Institute (CRI), which falls under the Crops Research Division of the DR&SS, was established by government as a specialist cotton research institute.

Acting Head of CRI, Mr Washington Mubvekeri says the institute has a mandate to disseminate viable, practical and sustainable cotton production technologies that meet the needs of the cotton industry as well as to provide research based technologies which promote viable and sustainable cotton production in Zimbabwe. CRI is responsible for breeding the parent seed crops used for seed multiplication.

Quton Seed Company, one of the two private cotton seed suppliers, also operates its own research station. Some stakeholders feel that research efforts have for long been focused on lint quality and there is need to also look into the oil and meal content issues as these are equally important by-products.

7.2 Extension

The Department of Agricultural, Technical & Extension Services (Agritex) also under the Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID), is responsible for giving farmers

technical advice on crop production and conducting training demonstrations on the farms where they run practical oriented, Farmer Field Schools (FFS).

However, according to Agritex the ratio of extension adviser to farmer is 1:600 which is very high for effective monitoring. Ginners also employ cotton specialists who provide extension services to their contracted farmers.

7.3 Specialist Training

The Cotton Training Centre in Kadoma (CTC) was established in 1979 as a private sector initiative for technical cotton production knowledge transfer. According to Duncan Kennaird, Chairman of the institution, the major objective of the CTC is to ensure the future development of cotton production in the country, and to promote the expansion of local cotton production. Specifically, CTC has the mandate to facilitate the provision of high quality training and advisory services to cotton producers. However, due to lack of financial support, the centre is failing to fulfil its objectives.

The smallholder farmer is now defined by falling productivity due to changing demographics in the farming areas. The older generation of farmers who received their Master Farmers Training from Agritex and specific cotton training at the CTC has since been replaced by a younger generation with less experience and little knowledge of cotton farming. To compliment Government efforts, cotton agronomy training is also provided through outreach programmes to farmers by CTC.

8. The Cotton Value Chain

8.1 Overview

The Zimbabwean story of the cotton value chain starts with planting seed breeding conducted at the CRI followed by mass production of planting seed by the two suppliers, Quton Seed Company and Alliance Ginneries. The next stage is the production of seed cotton by farmers followed by the separation of seed from fibre which is done at the ginneries *(See Appendix 4).* This then triggers the beginning of complex value addition processes of the numerous seed cotton by-products as outlined below:

Lint Processing

Source: Photo courtesy of CGA

8.2 Seed cotton Ginning

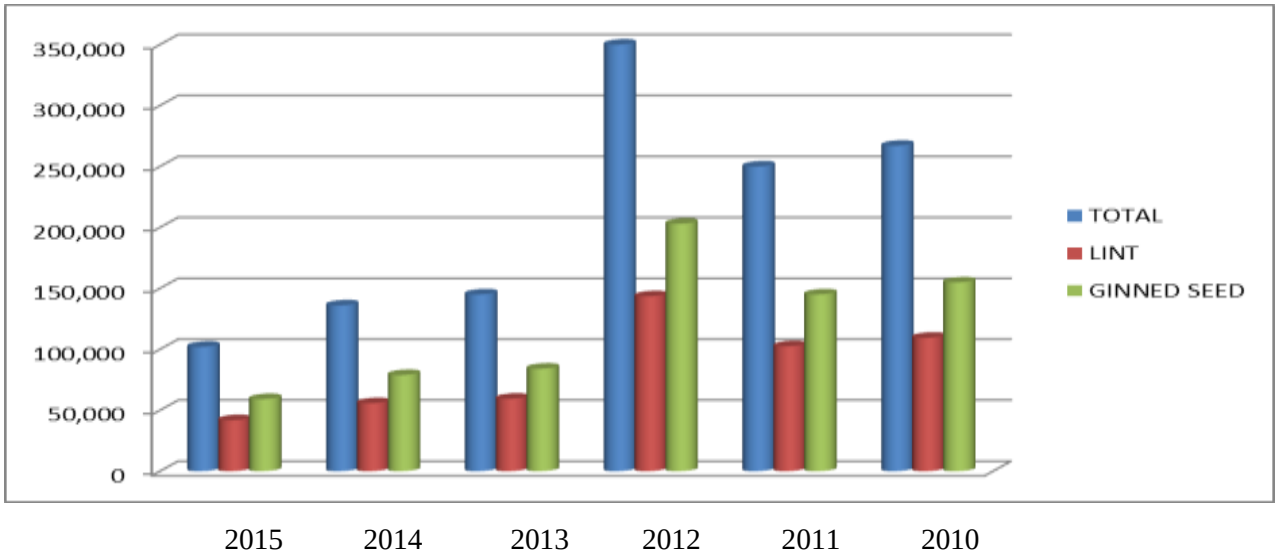
Seed cotton is ginned into cotton lint (fibre) and by Zimbabwean industry standards, up to a maximum 41% yield is obtained depending on the type of ginnery and seed cotton quality and cotton seeds make up to a maximum of 58%. The remaining 1% constitutes processing trash. Cotton lint is sold to local and foreign spinners who normally process it into yarn and textiles.

This is further processed into household linen, sheets, towels, curtains and bedspreads as well as personal clothes. It is interesting to note that, as a rule of thumb, a standard bale of lint (100kg) carries enough cotton to make 325 pairs of denim jeans (Wikipedia).

Apart from clothing, lint is also used in the manufacture of industrial products such as ropes, bags, lining for tyres, canvas tents and medical bandages.

The graph below shows the lint and ginned seed production trend over the past six years revealing a worrisome decline in production.

Table 4. Lint & Ginned Seed Production



Source: CGA.

Cotton seed can be further processed into crude cotton seed oil which will be refined into edible cooking oil. The residual meal is processed into stock feeds and the remaining hulls can also be used for stockfeeds, fertiliser, bran or pulp. The short fibres or linters are processed into various by-products such as pulp, paper, viscose, yarns, felts for furniture and automobile upholstery, pads and cushion material. The cotton waste can also be processed into medical grades of absorbent cotton wool.

Zimbabwe boasts of 21 ginneries belonging to 13 companies out of the 250 ginneries in Africa. *(See Appendix 5)* However, it is sad to note that currently, half the gins are non-functional due to a decline in crop production. The country, which a few years ago ranked fifth top lint exporter in Africa after Burkina Faso, Mali, Tanzania and Benin has now been overtaken by countries like Zambia which were trailing behind. There are 37 cotton producing countries in Africa (out of 55) where cotton is considered as a vital cash crop whose exports go to various destinations around the world; among these are the Far East, Asia, Europe and America. (D. Tschirley et al, 2009)

8.3 Ginned seed Products

Cotton seed, which makes up more than half the weight of the picked cotton, is generally used either to plant a new crop or crush cotton seed oil. According to processors, one metric tonne of cotton seed yields approximately 200kg of oil, 500kg of cotton seed meal and 300kg of hulls. Cotton seed oil is cholesterol free, high in polyunsaturated fats and contains high levels of anti-oxidants (vitamin E) which contribute to its long shelf-life. The oil can be used for deep frying, and for some margarines and salad dressings. Cotton seed oil is also used to make products such as soap, emulsifiers, cosmetics, pharmaceuticals, rubber, paint, water proofing agents and candles.

An Executive Director of one of the major oil expressers, Surface Wilmar Investments, Mr Narottam Somani, is quoted in the local press as saying his company required 150,000 metric tonnes of cotton seed to produce 30 million litres of oil per annum. Given the seed cotton production of 100,000metric tonnes in 2015, the potential ginned seed from this crop was a mere 58,000 metric tonnes. This is nowhere near the capacity at Surface and yet the company is only one of the big five cooking oil processors. With a rising middle class and expanding population in Zimbabwe, the potential of expanding markets is not a far-fetched dream.

Bigger opportunities also exist as world market demand for vegetable oils and protein is said to be on the increase. In a report by John Baffes & Gerald Estur it is noted that all seed cotton oil produced in Eastern and Southern African countries is consumed domestically and all ESA countries are net edible oil importers. In Zimbabwe, current cotton production is not sufficient to meet the edible oil needs and retailers have to import some cooking oil from South Africa in order to meet demand. Judging by the raw material requirements of the oil expressers, it will take a number of years to meet domestic demand. There is an

insatiate domestic market as well as the regional markets in South Africa, which produces very little cotton and yet has a huge population, and the rest of the COMESA countries which are net importers of cooking oil.

Ginned Seed

Margarine

Cooking Oil

Soap

Therefore, ginned seed has a ready domestic market and might not need to be exported in any case. The ginned cotton seed value adders, majoring in oil-expressing are; Surface-Wilmar Investments, National Foods, United Refineries, Olivine Industries and Pure Oil. There are also other smaller expressers who have emerged within the cotton ginning fraternity namely, Alliance Ginneries and Grafax Cotton. This development is following a similar trend in Tanzania where more than a third of the ginners have integrated oil processing business with ginning.

In Zimbabwe, National Foods, Novatek and Agrifoods are major processors of the by-product of the oil-extraction process known as meal, which is used as stock feed. The meal is also bought by individual livestock producers throughout the country. Cotton seed meal is a high protein meal that can be fed to most animals especially ruminants.

Cotton seed hulls are also a valuable feed source for livestock as these can be blended with the meal to provide roughage. As a protein rich stock feed, cotton seed meal is a common source of protein in the dairy industry where it is used as a substitute for soya bean meal. According to Wikipedia, the value of cottonseed oil and cake is 20 to 25% of the value of lint. Cotton meal is 45% of the mass of seed cotton but 38% of the value; cotton hulls are 27% of the weight and 13% of value and linters are 8% of weight and 15% of value.

A paper from COMESA titled "*Value Addition Vital for African Cotton" June 12, 2008,* notes that value addition to Africa's cotton is vital if the continent is to benefit from its exports. While Africa produces only 3 million tonnes out of 26 million tonnes of seed cotton produced globally, the report emphasises on the need to invest in both production and value addition in the African cotton industry in order to get maximum benefit.

In Zimbabwe, one of the specific areas identified in the cotton industry strategy for the development of the cotton to clothing value chain is the promotion of the processing, utilisation and consumption of cotton by-products.

8.4 Cotton linters

There is a fair amount of small scale processing of cotton linters in the country which provide the widest range of by-products. These are the fuzz, fine, very short fibres, which remain on the cottonseed after the ginning process. They are curly fibres, typically less than 3mm long. Linters are commonly used for medical supplies such as bandages, cotton, ear buds, and cotton balls.

They are also used in the manufacture of paper (such as securities, archival paper and bank notes) and as a raw material in the manufacture of cellulose plastics. The shorter fibre is used in the manufacture of gun powder and x-rays. The numerous home industries in Harare also use linters in furniture upholstery.

8.5 Cotton Stalks

These are not considered to be of value in Zimbabwe but in a paper titled *Cotton Gin Trash Now Valuable Product*, Robertson makes a very valuable observation drawing attention to what has for long been discarded as worthless material from the cotton plant. The general practice in many countries in Africa is to cut the cotton stalks after harvesting and either burn or plough them under.

These are considered to be of very little or no commercial value. However, these can be chopped and densified into briquettes which are used for domestic heating. They can also be processed into pulp and paper. The waste, including that from hulls can be used as manure.

Should there be an increase in the cotton crop, it would be an opportunity for more investment in the stalks subsector which remains untapped. Therefore there is need to explore the economic potential of cotton stalks and other waste which is currently being thrown away in order to fully bring in more value to the chain.

8.6 Lint Exports

Zimbabwe being a land locked country tends to have high export costs among other costs of production and processing which include utilities such as water and electricity and labour. The Government has a deliberate policy of supporting domestic value addition which requires that 30% of lint be reserved for local spinners. They in turn are also required to reserve 50% of the yarn produced for the local market. However, whatever is not taken up through domestic consumption ends up being exported.

The value of cotton lint exports, before seed cotton production took a downward trend, averaged USD $190 million annually.

8.7 Textile Industry

The local spinning industry has a lot of scope for growth as it currently consumes less than 10% of lint production (down from 30% based on a long term average production of 200,000 MT seed cotton) while the bulk of the lint is exported.

The textile and clothing sub-sectors face very stiff competition from imports of finished second hand clothing. The low cost second hand clothing is finding its way into many African producing countries such as Zimbabwe thus negatively impacting on domestic demand for locally manufactured fabrics.

Spinning Mill

Yarn

Textile mill

Photo courtesy of CGA

The textile manufacturing segment of the cotton value chain is a potentially huge employer of labour, going by past performance when giant textile manufacturers such as David Whitehead, Cone Textiles, Modzone, Zimbabwe Spinners, Merlin Ltd, Karina Textiles and many others which are now moribund were operating. The majority of companies closed down due to working capital shortages and high production costs among other problems. However, there are now numerous small to medium spinning companies amongst the surviving giants but operating on low capacity

8.8 Clothing Manufacturing

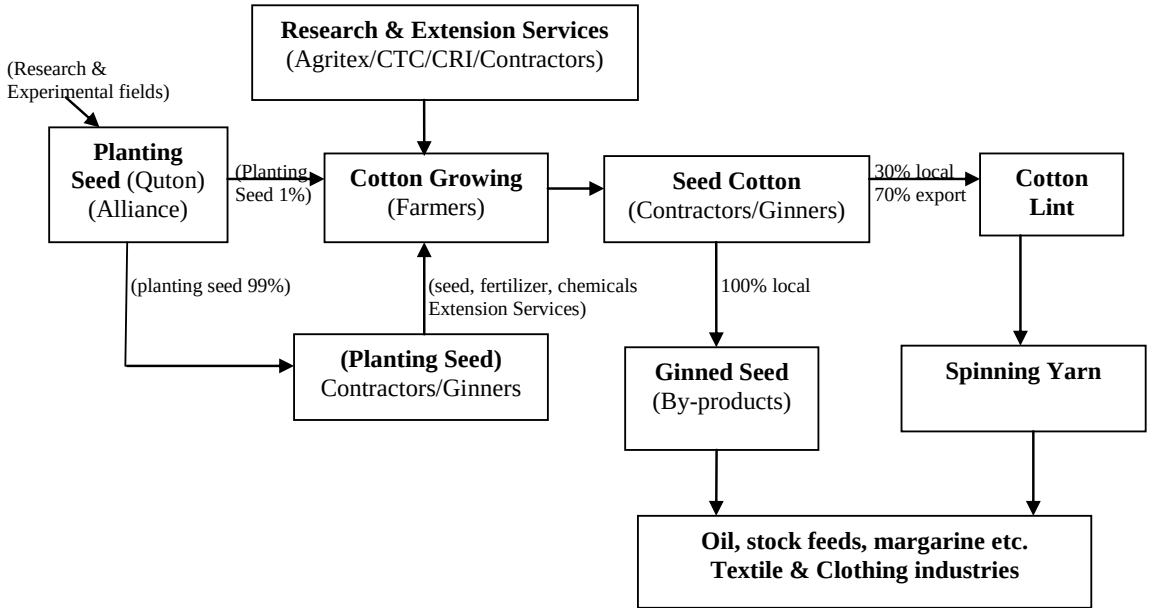
Due to challenges posed by competition with cheap clothing imports, the ZCMA has been calling the GoZ to strictly enforce the control of imports that have negatively impacted on growth in the industry. At peak in 1996, the industry employed more than 30,000 workers but this number is now down to less than half of the booming period. The biggest threat to the survival of the clothing industry is the authorities' inability to control illegal imports and the customers' culture of preference for imported goods which are in most cases cheaper than domestic products.

Photos courtesy of ZCMA

According to the ZTWU, in the 1990s the textile and clothing manufacturing industry employed more than 50,000 workers. However, by the year 2005, the numbers had tumbled to less than 25,000 workers.

The ZCMA database shows a decline in clothing manufacturers' from 495 in 2000 to 296 by 2011 and currently 104. The major reasons are both economic and social which the GoZ is trying to arrest through ZIMASSET followed by the ten point plan both of which seek to revitalize the agro-processing value chain.

Figure 2: The cotton industry value-chain at a glance



Source: Author

8.9 Potential Areas for Value Addition

Economic growth forecast in 2016 has been reduced from 3.2% to a mere 1.5% largely due to the negative impact of drought given that Zimbabwe's economy is agro-based. The question that begs an immediate answer is whether we should start with rebuilding the textile and garment manufacturing industry or start at the bottom with the production of raw material.

Starting at the top end of the value chain, while it sounds logical, might take some time as there is need to re-capitalise factories and creating markets at competitive prices. Access to working capital might be difficult vis-à-vis the current cash shortages at the banks.

Should the crop production situation return to normal and the economic situation improve in Zimbabwe there is potential in exploiting the following cotton by-products:

Table 5. Potential value addition & markets

Item	By-product	Markets
1. Seed cotton	Lint/ Yarn / Textiles - Revitalisation of old Spinning mills which have gone out of business.	LOCAL & EXPORT MARKETS – mainly **Asia**.
2. Cotton meal	Stockfeeds - Domestic supplies to the livestock industry (mainly ruminants).	Not enough ginned seed to meet DOMESTIC demand. EXPORT Potential is subject to an increase in the production of raw materials. **China & Germany** are traditional markets.
3. Oil	Edible cooking oil, margarine	LOCAL & EXPORT sales have taken place to **India, China, Singapore and South Africa** when raw material was adequate.
4. Linters	1. Yarns for Twine, Rugs, Mops and Candle Wicks 2. Medical Grade Cotton 3. Absorbent cotton wool, earbuds & Pads 4. Special high quality paper for currency & securities – Reserve Bank is a potential market. 5. Paper for filters – used in the motor industry. 6. Felts for mattresses, comforters, furniture & automotive upholstery. 7. Food casings for sausages and frankfurters 8. Cellulose acetate for plastics , film, X-ray Tapes packaging material and yarns 9. Cellulose Nitrate for dynamite smokeless gun powder, fingernail polish, and solid rocket propellant. 10. Cellulose Esters for ethers for pharmaceutical's, cosmetics, paints, toothpaste, ice-cream, lacquers and salad dressing.	Linters have potential for both DOMESTIC AND EXPORT MARKETS depending on quantity produced. - A number of companies in **South Africa** have traded in linters and cotton meal from Zimbabwe and have every year made trade enquiries with CGA. However they have found it difficult in the last two years due to declining production. - Enquiries for linters have recently been made to CGA for linters by other international companies such as Spads Red Fields of India. Sadly there was no product to offer. - Potential Markets for linters have been identified in **China, Singapore, India** and the **SADC Region** for most of the other by-products.
5. Fibre waste	1. Recoverable good lint 2. Willow Dust – manure	DOMESTIC MARKET - Industrial, medical & domestic cotton wool
6. Hulls	1. Roughage mixed with cotton meal for stockfeeds & waste for organic fertiliser and for growing mushroom	DOMESTIC MARKET - Agricultural Sector for use by farmers and fertiliser manufacturers such as Nico Orgo.
7. Stalks	2. Pulp & paper 2. Particle boards & boxes 3. Wood Pallets 4. Waste for growing mushrooms	DOMESTIC MARKET - Industry & Commerce - Agricultural Sector - Quantities might not support viable operation.

Source: Author

8.10 Potential Markets

All the above mentioned activities have readily available domestic markets which have considerable scope for development.

Zimbabwean markets for cotton by-products remain untapped and it takes the efforts of the whole industry to assess how it has performed and how it should proceed.

Globally, it is estimated that five million tonnes of cotton seed oil is produced and only less than 10% of this is traded. The World Bank, in a World Development Report 2008, indicated a five year average cotton seed oil production in Zimbabwe at 27% of national consumption while in neighbouring Zambia it was 20%. This shows that there is still a long way to go. With a rising middle class and expanding population in these countries, the potential of expanding markets is huge. One can take an example of simple items like ear buds that were being imported from Asia as having a huge market potential.

Bigger opportunities exist as world market demand for vegetable oils and protein is on the increase. In a report by John Baffes & Gerald Estur it is noted that all seed cotton oil produced in Eastern and Southern African countries is consumed domestically and all ESA countries are net edible oil importers. In Zimbabwe, current cotton production is not sufficient to meet the edible oil needs.

It is however encouraging to note from the Newsday of 27 August 2015 that imports of cooking oil had declined from a peak of $200 million in 2012 to $42 million in 2014 and $20 million up to June 2015.

The cotton industry is a key sector in Zimbabwe with potential to contribute significantly to the economic growth of the country. This study reveals that the country is still very far from realizing the full benefits of cotton value addition. Efforts are being made by stakeholders through the Cotton Value Chain Strategy and Government through its ten point plan to make sure there is more investment in production so as to provide the products required in the proper functioning of the value chain.

8.11 Transport and Logistics

Zimbabwe is a land locked country with road, rail and air services as the means of transport. Railway and road links with adjacent countries namely South Africa, Botswana, Mozambique and Zambia are in existence.

Air-cargo is through the main airports in Harare and Bulawayo. Most agricultural and other exports and imports are normally transported by road and shipped through South Africa to Durban and Mozambique to Beira for onward transmission to overseas export markets.

9. Impediments Facing the Industry

9.1 Macro-Economics

The GDP growth rate is in reverse mode having risen from 5.4% in 2009, 11.4% in 2010; to peak at 11.9% in 2011 it started to slide downwards in 2012 to 10.6% and to 3.4% in 2013. According to the MoFED, the revised target growth rate was 6.5% in 2016 and 7.9% in 2017 but sadly it is actually less than 2%. The point at which the industry is failing to achieve its goals is the implementation due to resource shortages and falling productivity. This has a negative impact on value addition and employment creation.

In Zimbabwe, there is lack of domestic price support and inadequate subsidies as happens in the major cotton producing countries and therefore distorts trade prices on the international market. The subsidies offered to producers by other countries are either on the cost of inputs to the farmer or minimum guaranteed price by the government where the government pays the difference between the producer price and the guaranteed producer price. *(See Appendix 6)*

The ICAC, in its report Production and Trade Policies Affecting the Cotton Industry, December 2015, indicated that *"*Subsidies to the cotton sector, including direct support to production, border protection, crop insurance subsidies, and minimum support price mechanisms are estimated at a record $10.4 billion in 2014/15, up from a record of $6.5 billion in 2013/14. Twelve countries provided subsidies in 2014/15, and the subsidies averaged 22 cents per pound, up from 15 cents per pound in 2012/13. Given low international prices and high production costs, many governments of large cotton-producing countries are taking measures

to help growers. China in 2014 announced that it would provide a cotton subsidy of 2,000 yuan/ton to growers in nine inland provinces.

Table 6. Value of global support

Marketing Season	Production 000 m/t	Ave. Support US c/kg	Total Support US $m
2010/11	25,453	9	1,477
2011/12	27,847	8	4,886
2012/13	26,667	13	7,351
2013/14	26,283	8	6,525
2014/15	26,209	18	10,353

Source: ICAC.

The level of support varies from year to year and is also in different forms depending on the performance of the international lint market.

The cost of production inputs is too high and does not match regional parity. The cost of production normally determines the ultimate crop to be established. In Zimbabwe the minimum cost of production per hectare is around USD $150 whereas in Zambia it is USD70 while in Mozambique and Malawi it is less than USD100. Fertiliser takes the biggest share of input costs.

9.2 Institutional Issues

Cotton farmers had in the early 2000s maintained a long term national average production of 250,000 metric tonnes of seed cotton. However, in recent years, production has taken a downward spiral and stakeholders cite numerous factors, among them, climate change, side-marketing, declining international lint prices and knowledge gap.

An increase in the crop yields can tremendously push the national cotton crop size to reach the desired levels and would result in more seed cotton by-products. This is achievable as Zimbabwe used to be the leading producer in the ESA region. According to the International Cotton Advisory Committee (ICAC), *"From 2012/13, Tanzania cotton production exceeded Zimbabwe to become the largest cotton producer in the Eastern and Southern African region (ESA) when cotton lint output reached 90,000 MT."*

9.3 Capacitation

The industry in general is operating below capacity with most of the value chain levels operating at below 30% of installed capacity. This is due to obsolete machinery and equipment on one hand and lack of affordable finance to recapitalize. As a result the cost of production remains high.

9.4 Business Environment

The ban, among other goods, of importation of secondhand clothing is hard to implement as we have numerous porous borders with neighbouring countries which are also flooded with cheap imports of these goods. Recent measures through Statutory Instrument 64 of 2016 to curb the influx of goods which are locally available are likely to bear fruit.

This therefore calls for a regional approach to solve the problem of second hand imports escalating it to COMESA and other bodies such as SADC in order to ensure maximum cooperation from other members in the control of their porous border posts. On the domestic scene it may be rather difficult as there are more unemployed people than those gainfully employed. Naturally, those out of work cannot afford to buy expensive locally manufactured new clothing items. It therefore becomes a vicious cycle when more people chase after the low cost clothing items which are illegally imported.

10. Technical Assistance Activities

10.1 Macro-economics

Zimbabwe's economy is agro-based and focus should be on boosting agricultural productivity in order to turn around the economy. Macro-economic instability can be reversed by creating more raw materials for industry to utilise its potential capacity. There is therefore need to take farming as serious business; an activity that needs to be done to earn a living and make profit. An increase in crop production will ensure that market demand is satisfied with the whole value chain meeting its capacity. Every cog in the wheel driving the value chain will fall in place. Support is therefore required in structuring finance for crop production.

Institutional Issues

The stakeholder commodity associations need support in order to function properly. Whilst there are three main farmers unions representing the interests of farmers in general, the farming sector lacks a well-structured association of cotton growers such as exists in neighbouring Zambia. A properly constituted cotton body will assist to co-ordinate the rebound of production which will spill into the next level of value addition.

Most trade associations in the cotton value chain tried to establish a fully functional secretariat for their organisations but this has not been sustainable because of inadequate financial resources. As spelt out in the national strategy for cotton, there is need to look into restructuring and capacitating these organisations.

10.2 Capacitation

The biggest challenge in Zimbabwe at the moment is low productivity and there would therefore be no point in talking about value addition if this is not addressed. In addition to finance, a panacea to this problem is capacity building which starts from the primary level of production.

Training is an on-going exercise and with the passage of time trained persons will exit the scene hence the need to continuously train farmers so that they are fully equipped for the tasks. With support in training of farmers, this will be the starting point to combating the numerous challenges the cotton sector is currently facing.

The CTC has performed tremendously in trying to address the situation however, in recent years it has fallen on hard times as the financial support for training which it used to receive from the EU is no longer available.

10.3 Business Environment

There is need to focus on value addition which can be done at the farm level or something that will motivate farmers to grow more cotton and realise higher profit. This could be processing of by-products at a lower level such as establishing small scale edible oil processing units where cooking oil and soap can be produced for consumption at the local level.

This can possibly be economically profitable if there is start-up capital of setting up small processing units in decentralised locations to bring the market closer to vulnerable communities with affordable goods using appropriate technology.

Farmers can enter into contract with ginners to buy seed cotton and return ginned seed after ginning. The farmers can then process their cooking oil and soap and thus receive additional income from their cotton.

11. Conclusions

This report has revealed that the country is still very far from realizing the full benefits of cotton value addition. There is no doubt that Zimbabwe can rebound its production of cotton and its by-products as evidenced by the historical production performance records.

With the volatility of international lint prices, cotton farming has become a more and more challenging business as viability is threatened. However, there is no doubt that value addition is the answer as it not only

improves incomes but also creates the much needed employment. Optimum utilisation of all ingredients of cotton has become a necessity for survival in the competitive field of cotton growing and processing.

The Government needs to consult stakeholders before embarking on programmes to resuscitate the industry as these could have the opposite effect if players at various levels of value addition are not consulted.

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13. Appendices

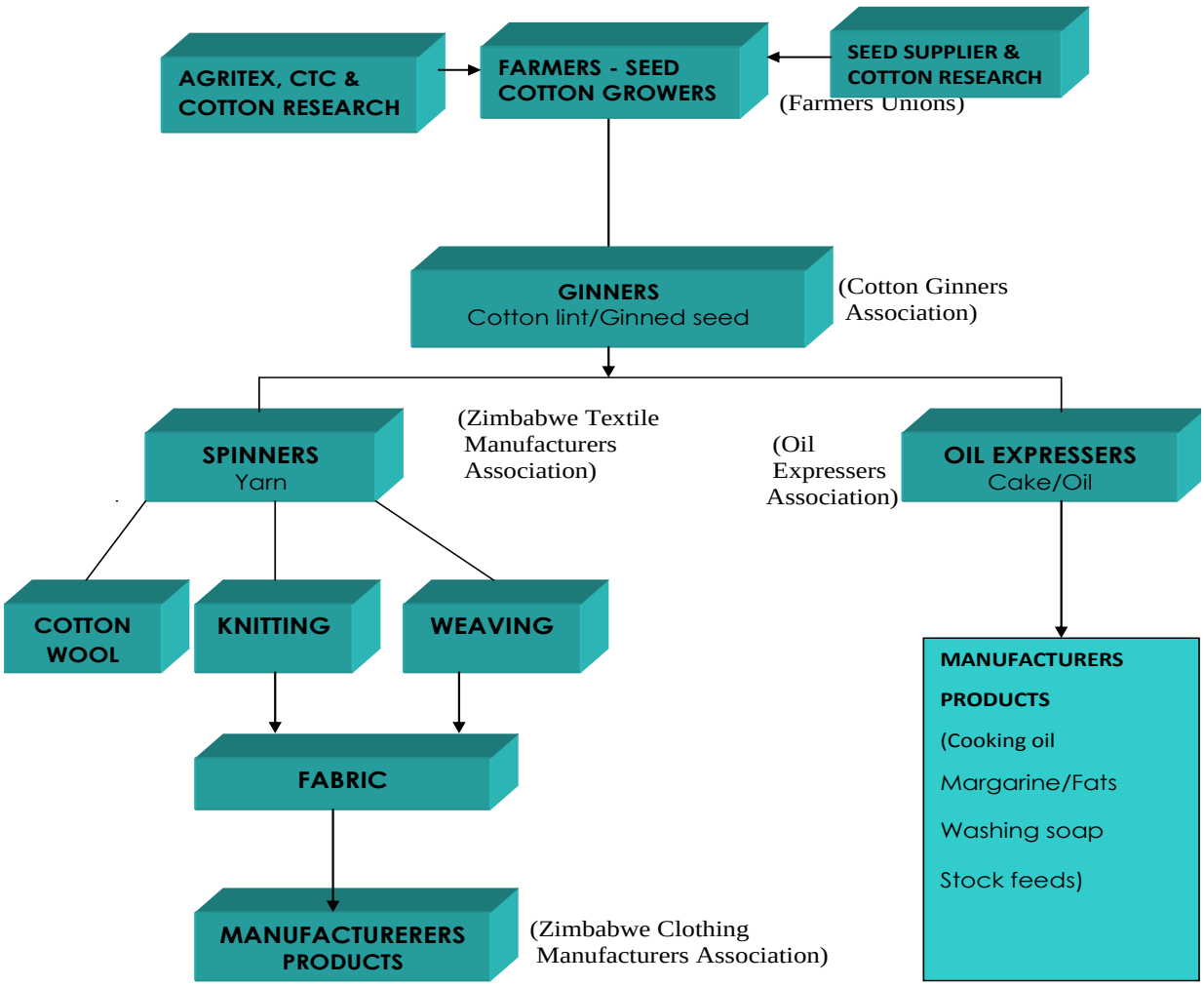
Appendix 1

Questions

1. What do you think should be done to promote value addition of cotton by-products locally?
2. What support structures do you think are required for the success of the cotton value chain in Zimbabwe?
3. Is it necessary to control the importation of cotton by-products through statutory instruments?
4. What do you consider to be the limiting factor in the growth of the cotton industry in Zimbabwe?
5. What is the biggest threat to growth of the cotton value chain in Zimbabwe?
6. How should the Government support the cotton value chain to facilitate growth?
7. What is the future of textile and clothing and retail businesses in Zimbabwe?
8. How can the textile and clothing industries be capacitated to return to normal production?
9. What specific capacities need to be built up in the value chain in Zimbabwe?
10. What is the biggest impediment that restricts growth of the cotton industry?

Appendix 2

The cotton industry in Zimbabwe



Source: CGA

Appendix 3

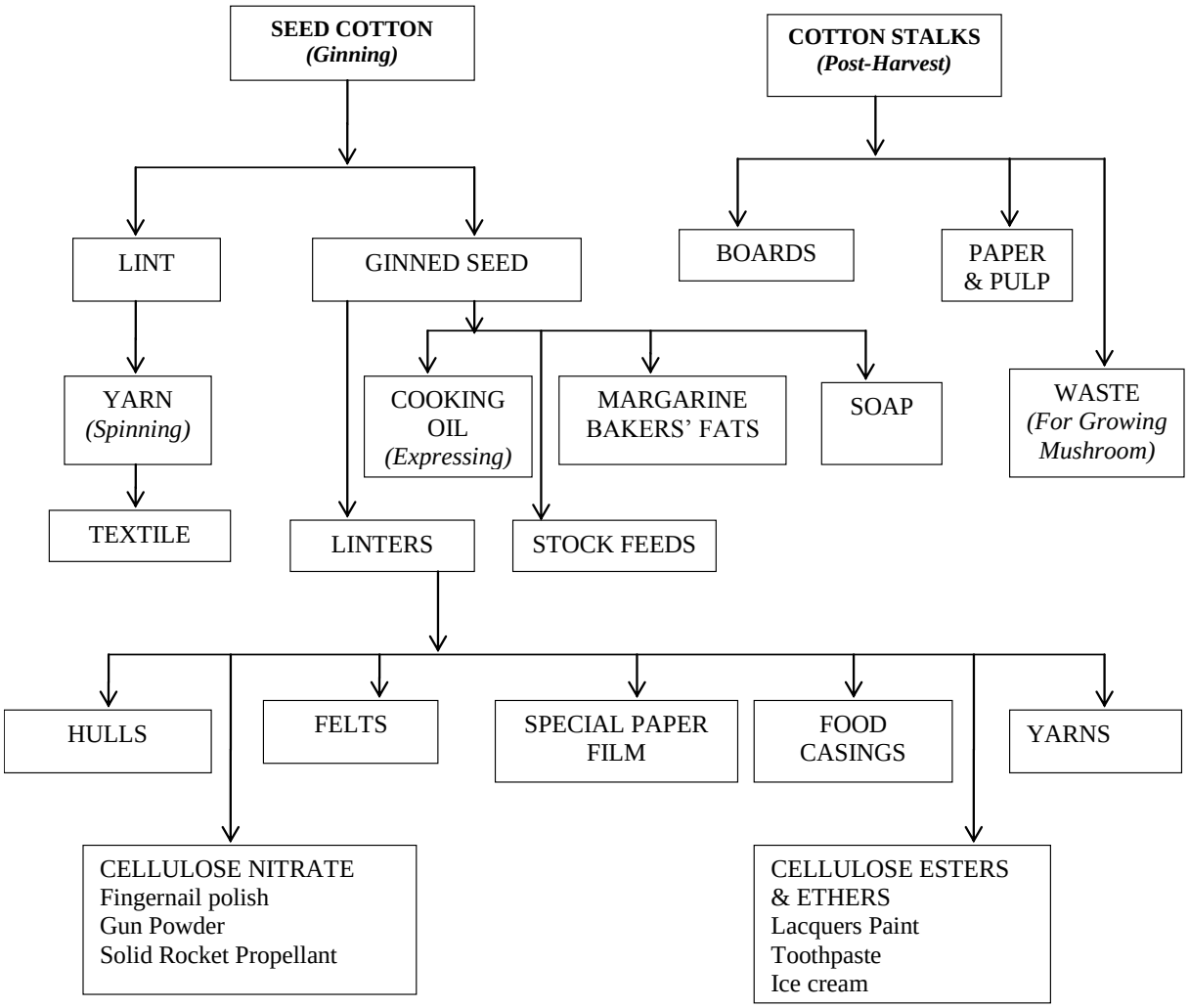
Production Trends 1985 - 2015

Marketing Year	Production (MT)	Area (hectares)	Ave. yield (kg/ha)
2016			
2015	104,000	200,000	520
2014	143,100	201,678	710
2013	143,849	241,849	595
2012	350,703	432,901	810
2011	250,000	379,689	658
2010	267,000	315,000	848
2009	207,000	370,000	559
2008	223,746	390,000	574
2007	253,000	398,000	636
2006	263,000	331,249	794
2005	198,000	300,000	660
2004	333,000	391,000	852
2003	253,380	329,470	769
2002	195,670	398,600	491
2001	335,245	398,071	842
2000	353,000	369,000	957
1999	303,000	329,500	920
1998	272,850	286,000	954
1997	278,184	313,255	888
1996	284,000	257,620	1,102
1995	100,100	213,560	469
1994	181,480	221,300	820
1993	214,300	246,300	870
1992	60,000	235,777	254
1991	261,151	274,222	952
1990	205,241	217,486	944
1989	261,000	240,571	1,085
1988	323,000	271,787	1,188
1987	240,000	240,086	1,000
1986	248,000	191,617	1,294
1985	295,000	209,658	1,407

Source: CGAZ

Appendix 4

The Seed Cotton Value Chain Process



Source: Author

Appendix 5

Ginning Capacity (MT) 2016

Ginner	Ginnery	Capacity	Total
Alliance	Norton	44000	44000
China Africa	Gweru	50000	
	Glendale	20000	
Cottco	Gokwe	30000	70000
	Muzarabani	25000	55000
ETG Parrogate	Glendale	25000	
	Checheche	18000	43000
Grafax	Sanyati	29160	
	Mt Darwin	19440	48600
Olam	Nembudziya	30000	30000
Sinotex	Kadoma	25000	25000
Sinozim	Harare	25000	25000
TOTAL			**226600**
MOTHBALLED GINS			
Cottco	Chinhoyi	40000	
	Chiredzi	25000	
	Kadoma	25000	
	Sanyati	20000	110000
Romsdal	Triangle	35000	35000
Cottzim	Karoi	25000	25000
Insing	Rushinga	14000	14000
New Cabview	New Ardbennie	5000	5000
Southern Cotton	Shamva	25000	25000
TOTAL			**214000**

Source: CGA

Appendix 6

Cotton Price Fixing in Key Producing Countries

Countries	%	Price Fixing
China	29.8 %	Free cotton seed price; indirect support (protection at the border)
India	17.8 %	Cotton seed minimum purchase price is guaranteed by the State.
U.S.A	17.6 %	Loan rate and fibre target price are guaranteed by the State.
Pakistan	7,8 %	Cotton seed minimum purchase price is guaranteed by the State.
Brazil	5.7 %	Fibre minimum price is guaranteed by the State (intervention level)
Uzbekistan	4.4 %	Cotton seed purchase price is set and guaranteed by the State.
Turkey	3.1 %	Cotton seed purchase price is subsidised by the State.
Greece	1.2 %	Cotton seed purchase price is guaranteed by EU (partial well-proportioned)
Australia	1.1 %	Cotton fibre market price
Turkmenistan	1.0 %	Cotton seed purchase price is set and guaranteed by the State
Syria	0.8 %	Cotton seed purchase price is set and guaranteed by the State.

Source: CCIC - Gerald Estur

Note: The table above shows that among the eleven main producing countries outside Africa, only Australia doesn't provide any protection to its cotton growers.

To mitigate effects of low prices, most of the major cotton producing countries have introduced a number of highly variable state intervention programmes in cotton seed purchase price fixing. However, the smaller producing countries are at a disadvantage as they do not have capacity to subsidise cotton producer prices. Government support to cotton is to avoid prices going down below the cost of production.

Global Subsidies/price support - The major factor that influences the producer price of seed cotton is the international price of lint over which Zimbabwe has no influence. This international price is based on supply and demand for lint and most of the major countries which supply cotton to the world markets subsidize production.

Appendix 7

Oilseed Expressors in Zimbabwe

Company	Products	Capacity (MT)
Surface wilmar	Oil, Fats & Cake	150,000
Olivine	Oil, Fats & Cake	120,000
National foods	Oil, Fats & Cake	120,000
Pure oil	Oil, Fats & Cake	110,000
United refineries	Oil, Fats & Cake	88,000
Alliance	Oil & Cake	24,000
Grafax	Oil & Cake	24,000
Others	Oil & Cake	50,000
Total	Oil, Fats & Cake	686,000

Source: Oilseeds Expressers Association

Appendix 8

Top Textile & Clothing Manufacturers in Zimbabwe

Textiles	Clothing
Zimbabwe Spinners & Weavers	Paramount Garments
Twine & Cordage	Carousel
David Whitehead	Archer Clothing
Twine & Allied	Bravette Manufacturing
Sumburero	Escapades
Porshe Investments	Bernstein

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