ACT
Agricultural Council of Tanzania

EFFECTIVE REGULATION OF THE COTTON INDUSTRY IN TANZANIA

DRAFT REPORT

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LIST OF ACRONYMS AND ABBREVIATIONS

AMA	Agricultural Marketing Authority
BAU	Business as Usual
BCR	Benefit Cost Ratio
BSTF	Brown, Stern and Tenenbaum Framework
CCC	Cash Conversion Cycle
CDTF	Cotton Development Trust Fund
CIRU	Colonial Insecticides Research Unit
COTTCO	Cotton Company of Zimbabwe
CTC	Cotton Training Centre
DCs	District Councils
DUS	Distinctiveness, Uniformity and Stability
EANCB	Equivalent Annual Net Cost to Business
EIRR	Economic Internal Rate of Return
EMA	Environmental Management Act
EWURA	Energy and Water Utilities Regulatory Authority
FOB	Free on Board
GDP	Gross Domestic Product
GFMPs	Good Food Manufacturing Practices
GOT	Ginning Out Turn
HVI	High Volume Instrument
ISTA	International Organizational Seed Testing Association
KACU	Kahama Cooperative Union
kVA	Kilo Volt Amps
LGAs	Local Government Authority
LHDV	Division of Livestock and Human Diseases
MALF	Ministry of Agriculture Livestock and Fisheries
MIS	Marketing Information System
MIT	Ministry of Trade and Industries
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MSDS	Material Safety Data Sheets
NEMC	National Environment Management Council
NHT	National Herbarium of Tanzania
NPGRC	National Plant Genetic Resource Centre
NPQS	National Plant Quarantine Station
NPT	Neomycin Phosphotransferase
NPV	Net Present Value
OECD	Organisation for Economic Cooperation and Development
OSHA	Occupational Safety and Health Authority
PDSS	Participatory Decision and Systems Support
PEMC	Pesticides and Environment Management Centre
PPD	Plant Protection Division

PRC	Principle Response Curves
PVNCV	Present Value of Net Costs to Business
RCC	Councils and Regional Consultative Committees
REA	Rural Energy Agency
RIA	Regulatory Impact Assessment
SAGCOT	Southern Agricultural Corridor of Tanzania
TADB	Tanzania Agricultural Development
TANSEED	Tanzania National Seed Company
TCA	Tanzania Cotton Association
TCB	Tanzania Cotton Board
TCC	Total Compliance Cost
TCLSB	Tanzania Cotton Lint and Seed Board
TFDA	Tanzania Food and Drug Authority
TFRF	Tanzania Fire and Rescue Force
TGT	Tanzania Gatsby Trust Fund
TIB	Tanzania Investment Bank
TOSCA	Tanzania Official Seed Certification Agency
TOSCI	Tanzania Official Seed Certification Institute
TPRI	Tropical Pesticides Research Institute
TZS	Tanzanian Shilling
URT	United Republic of Tanzania
US	United States
USAID	United States Agency for International Development
USD	Unites States Dollar
VAT	Value Added Tax
WACC	Weighted Average Cost of Capital
WMA	Weights and Measures Agency

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The cotton textile industry is one of the key economic sectors that have contributed significantly to the economic growth in Tanzania. However, the industry is generally suffering from several bottlenecks. Of importance in this case is the poor regulatory and taxation system in the cotton and textile industry. Together with the basic characteristics common to nearly all countries producing cotton in Africa, such as the predominance of undercapitalized smallholder farmers, widespread failure of input and credit markets, the regulatory and taxation framework in which farms and firms operate has generally led to poor performance of the cotton and textile industry in the country.[1]

The institutional bottlenecks that relate to the existence of weak regulatory bodies and poor taxation systems demoralize individual cotton farmers and other potential investors to venture into the industry. Very often, farmers and private cotton buyers and traders have complained about the high taxes and levies charged in the cotton industry. These added to other regulatory costs result in high production, processing and trading costs which limit the ability of both the public sector institutions and small private enterprises to improve cotton production and productivity.

It goes without saying that regulations are an essential part of the "toolkit" of policy instruments that governments use to achieve their objectives, but regulations usually have widespread effects: they affect many different groups in society and their effects may be of many different types. The regulatory costs may also be very high.

In the cotton industry high regulatory costs may result to extra direct expenditures that are made to comply with the regulations. Others are opportunity costs of the benefits foregone due to delays while the crop products (e.g. seed cotton, lint, seed cotton oil, seed cotton cake, fabrics, dyed drill, linen and bed sheets just to mention few) advance through the regulatory process. It is important that the magnitude of these costs are understood by both the policy makers, in the process of reforming their regulatory processes, and by those implementing them. This can be achieved by carrying out a Regulatory Impact Assessment (RIA) which helps to ensure that regulations are as efficient and effective as possible. Effective regulation is the

[1] The regulatory framework is the set of rules, regulations, and other legal instruments that are imposed on participants in the sector to enable it to operate and limit conflicts (Tschirley *et al*., 2009).

one that achieves the policy objective that led to it being made. Efficient regulation achieves these objectives at the lowest total cost – to all members in the society.

Efficiency and effectiveness are important because there are limits to the amount and type of regulation able to be absorbed within economies and enforced effectively by governments. Regulation has costs as well as benefits, and inappropriate regulation can stifle economic growth by putting obstacles in the way of doing business and by creating perceptions of a negative environment. As well, making and enforcing regulation places large demands on government administrations. It is important therefore that it is well designed and enforced.

1.2 Objectives of the Study

1.2.1 Main objective

The main objective of the study was to develop a clear understanding of the causes and impacts of existing inefficiencies in the regulatory and taxation systems in the Tanzanian cotton industry. An understanding which will assist the government and regulatory bodies in the industry as well as other stakeholders to address the challenges that face the industry and rationalize the regulatory and taxation systems in the industry.

1.2.2 Specific objectives

Specifically the study aimed at:

i. Reviewing all relevant documents, laws and regulations to identify all regulatory bodies in the cotton industry
ii. Identifying all the regulatory authorities and regulations affecting the cotton subsector
iii. Identifying bottlenecks in the remits, functions and activities that the regulatory bodies perform in the cotton subsector
iv. Calculating businesses costs of compliance with the regulations, and compare these with other cotton producing countries, at least in Africa
v. Assessing the impact and costs caused by an inefficient regulatory system that exists in the cotton industry
vi. Assessing the implications of these costs on the businesses, investment and employment in the cotton value chain
vii. Making recommendations for an effective regulation model in the cotton industry in Tanzania
viii. Projecting the potential benefits and/or otherwise to the businesses and Government/regulatory bodies if the recommended model is put in place, over time taking into account the likely investment, business growth, loss and gains in Government revenue and reductions in the cost of tax and levy collection.
ix. Making recommendations for reform to strengthen the regulatory authorities and improve their regulatory performance, based on best practices.

CHAPTER TWO

2.0 THEORETICAL AND CONCEPTUAL FRAMEWORK FOR THE STUDY

2.1 Conceptual framework for the study

The conceptual framework for the study was adopted from the OECD's taxonomy of regulatory costs shown in Figure 1.[2]

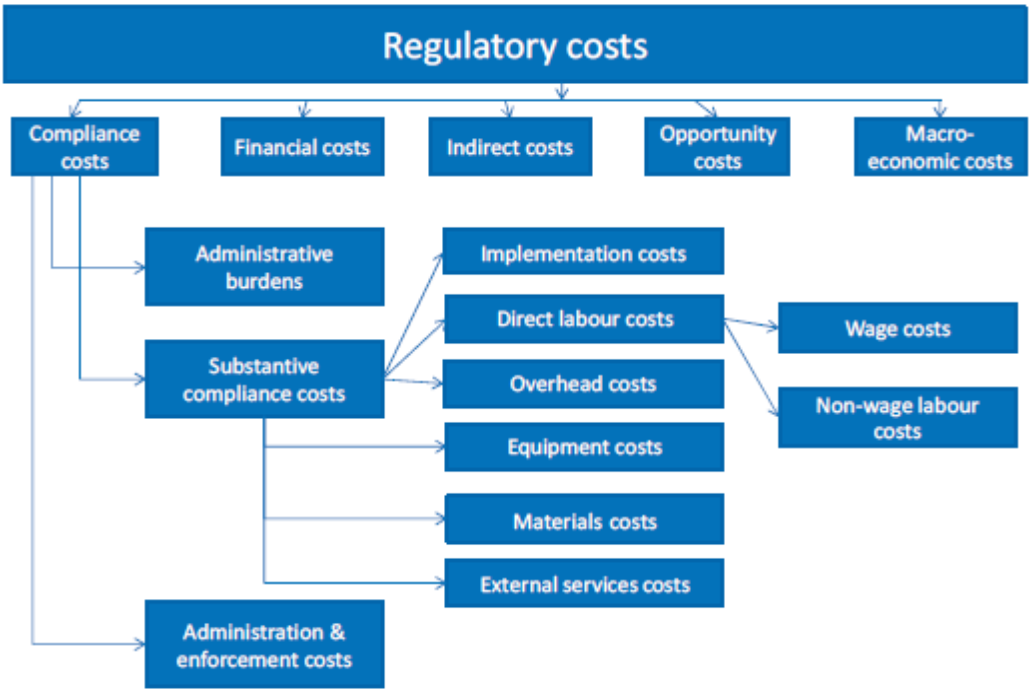


Figure 1: Taxonomy of regulatory costs (OECD, 2014)

The major part of the cost information were compliance costs focusing specifically on substantive compliance costs that are incurred by business or other regulatory target groups, together with the costs to government of regulatory administration and enforcement. These costs represent the majority of total regulatory costs in most circumstances and provide soundly based estimates of regulatory compliance costs to inform the analysis and recommendations for effective regulatory system (OECD, 2014). A detailed description of regulatory costs gathered for this study is given in the following sections.

[2] Regulatory costs are considered as embracing all of the costs attributable to the adoption of a regulatory requirement, whether direct or indirect in nature and whether borne by business, consumers, government and its respective authorities (i.e. taxpayers) or other groups

2.1.1. Compliance costs

Compliance costs are the costs that are incurred by businesses or other parties at whom regulation may be targeted in undertaking actions necessary to comply with the existing regulatory requirements, as well as the costs to government of regulatory administration and enforcement (OECD, 2014). Compliance costs can further be divided into administrative burdens, substantive compliance costs and administration and enforcement costs.

2.1.2. Administrative burdens

Administrative burdens can be defined as the costs of complying with information obligations stemming from government regulation (*ibid*).[3] It is important to note that an information obligation does not necessarily mean that information has to be transferred to the public authority or private persons, but may include a duty to have information available for inspection or supply on request. A regulation may contain many information obligations.

2.1.3. Substantive compliance costs

Substantive compliance costs are the incremental costs to the target group of complying with a regulation, other than administrative costs. They include only the direct costs borne by those upon whom the regulation imposes compliance obligations. Substantive compliance costs include the following broad categories: implementation costs, direct labour costs, overheads, equipment costs, materials costs and the costs of external services.

2.1.4. Administrative and enforcement costs

Administrative and enforcement costs are the costs incurred by government in administering and enforcing the regulatory requirements. They can be considered to fall into the category of compliance costs since they are directly related to the achievement of the underlying regulatory objective and are an unavoidable part of the cost of regulation. However, they are borne by government entities, rather than by the businesses or other groups that are the target of the regulatory requirements. Hence, they are distinct from the category of "substantive compliance costs" described above.

The administrative and enforcement costs include the costs of publicizing the existence of the new regulations, developing and implementing new licensing or registration systems, assessing and approving applications and processing renewals. They also include devising and implementing inspection and/or auditing systems and developing and implementing systems of regulatory sanctions to respond to non-compliance.

[3] Information obligations are regulatory obligations to provide information and data to the public sector or third parties (OECD, 2014).

2.1.5. Other costs

The total cost of regulation includes both the compliance costs, discussed above, and the costs that fall outside the definition of compliance costs as presented in the following subsections.

2.1.5.1. Financial costs

Financial costs constitute the costs of capital deployed in meeting regulatory compliance obligations. That is, where investments must be undertaken (i.e. equipment purchased, etc.) in order to comply with regulations the cost to the firm includes both the purchase price of these items and the cost of financing the purchase – whether from debt or equity.

The concept of the industry "Weighted Average Cost of Capital" (WACC) was considered relevant here by the study especially when it is useful to determine financial costs with a high degree of precision. However, benchmark interest rates provide a simpler and generally adequate alternative. Note that the term "financial costs" is sometimes used to describe regulatory fees paid by firms. However, these fees are adopted in order to recover the costs of government administration and enforcement of the regulations, with the goal of ensuring that product prices reflect the full costs of production, including those of regulation. Changes in the size of these regulatory fees have no impact on the overall cost of the regulations, affecting only the distribution of those costs. Thus, these regulatory fees cannot be considered to be costs in the economic sense. Rather, it is the costs incurred by government in undertaking its administration and enforcement roles that should be the primary focus.

Nonetheless, the distribution of regulatory costs is an important policy concern, so that compliance cost assessments should appropriately include reference to these regulatory fees. However, it should be made clear that these amounts represent partial transfers of the costs of regulatory administration and enforcement from government to industry, rather than economic costs per se.

2.1.5.2. Indirect costs

Indirect costs are also called "second round" costs, indirect costs are incidental to the main purpose of the regulations and often affect third parties. They are likely to arise as a result of behavioural changes prompted by the first round impacts of the regulations. Dynamic costs – i.e. costs caused by negative changes in market conditions over time – may be included in this category. For example, if cotton ginners are required to use high tech moisture control devices (which prevent the fiber from becoming brittle and breaking), the cost of ginning and therefore the price of products made of cotton fibers will increase, relative to other products. This will lead to a degree of consumer substitution toward other products that are now relatively cheaper to increase. The lower level of consumer surplus that results from substitution to the less preferred products constitutes an indirect cost of the regulations.

2.1.5.3. Opportunity costs

Opportunity costs are the costs incurred due to the need to divert expenditures to regulatory compliance away from preferred (i.e. more productive) uses. For example: a) a textile industry may be unable to undertake a planned expansion to productive capacity because it is required to install quality control equipment to its existing facilities in order to comply with new regulatory standards; b) staff time spent on compliance activities at the expense of other productive activities.

Opportunity costs are closely related to the financial cost concept highlighted above. However, the opportunity cost is the difference between the return to the business (if any) from its regulatory expenditures and the best available alternative of those resources (i.e. that with the highest expected return). Thus, opportunity costs are determined by the business' return on capital, whereas financial costs are determined by its cost of capital. This implies that opportunity costs are not a separate category of cost, but rather represent a different frame of reference for measuring the cost of capital employed in achieving regulatory compliance, with financial costs representing the other option in this.

2.1.5.4. Microeconomic costs

These are cost impacts on key macroeconomic variables such as GDP and employment caused by regulatory requirements. Few specific regulatory measures have discernible macroeconomic costs. However, they constitute a highly significant cost item in some cases.

2.2. Factors Affecting Sector Performance and Regulatory Credibility

The framework depicted in Figure 2 facilitates the identification of links between conditions of an industry (including economies of scale and scope), market structure (including vertical integration), institutional constraints, regulatory policies, and sector performance. Quantitative analyses of trends are facilitated when decisions can be placed in their legal and institutional context.

The Brown, Stern and Tenenbaum Framework (BSTF) is particularly useful for characterizing the elements of the regulatory system that are more easily quantifiable. The framework emphasizes three meta-principles: *Credibility*, *Legitimacy*, and *Transparency*. In addition, Brown *et al*. (2006) implicitly recognize *Efficiency* as a fourth meta-principle. After all, if policy can create a positive-sum game, then it is easier to get buy-in from stakeholders. Just as important, increased efficiency in the sector means that more resources can be devoted to economic growth without creating new fiscal burdens.

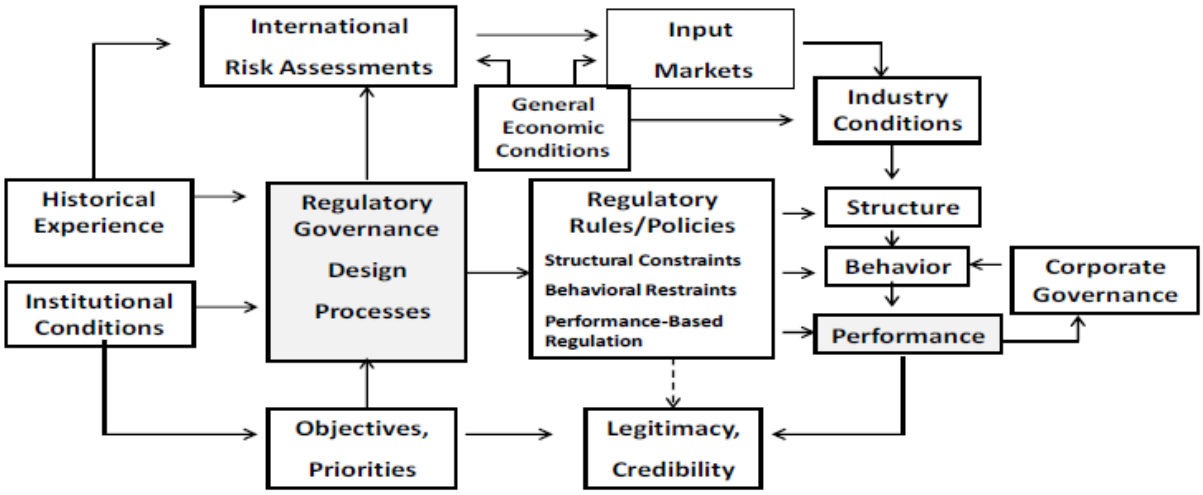


Figure 2: Factors affecting sector performance and regulatory credibility (Berg, 2000)

The credibility and legitimacy of a government agency depend on the acceptance and understanding of the regulatory process by the consumers and other stakeholders. The population that is expecting to receive services is directly affected by tariffs and quality of service. The impact of regulatory reform depends on national circumstances, income distribution and growth, and the legal system. Legitimacy, and some degree of social acceptance, will only be achieved on a record of accomplishments. Staff expertise, learning from regulatory experiences elsewhere, and the use of regulatory instruments like benchmarking are the basis for the future regulatory improvements and economic growth in emerging markets.

CHAPTER THREE

3.0 STUDY APPROACH AND METHODOLOGY

3.1. The Study Area

3.2. Deskwork Review

The study started with a comprehensive review of relevant literature to collect information relevant to the study, including laws and regulations. This enabled the identification of all regulatory bodies in the cotton industry and regulations affecting the cotton subsector. Information on the regulatory framework of the cotton industry in other selected African countries were also reviewed and documented. This included the best practices and businesses costs of compliance. The desk review also helped to identify documented bottlenecks in the remits, functions and activities that the regulatory bodies perform in the cotton subsector.

3.2.1. Selections of representative actors to be interviewed

The starting point for the field survey was selection of representative actors to be interviewed. These included among others input suppliers, farmer groups, cooperative societies and unions, associations, supporters, buyers, ginners, oil millers, and textile industries in Mwanza and Shinyanga regions. The list of consulted stakeholders is provided in Appendix 1.

Specifically the representative stakeholders were selected using the snowball sampling technique. Snowball sampling or Chain-referral-sampling is one of the most well-known forms of non-probability sampling, which is particularly suitable when the population of interest is hard to reach and compiling a list of the population poses difficulties for the researcher (Etikan *et al*., 2016). It begins with a convenience sample of initial subject which serve as "seeds," through which wave 1 subject is recruited; wave 1 subject in turn recruit wave 2 subjects; and the sample consequently expands wave by wave like a snowball growing in size as it rolls down a hill (Heckathorn, 2015).

In particular, the respondent-driven sampling method was adopted. This allows the researcher to make asymptotically unbiased estimates from snowball samples under some conditions (Etikan *et al*., 2016; Jonhston and Keith, 2010). Snowball sampling and respondent-driven sampling allow participants to make estimates about the social network connecting the hidden population. The idea is to ensure that different actors and nodes of the cotton value chain (Figure 3) are covered.

As with random sampling, the snowballing method is not as uncontrolled as its name implied. The researcher is deeply involved in developing and managing the origination and progress of

the sample, and seeks to ensure at all times that the chain of referrals remains within limitations that are relevant to the study.

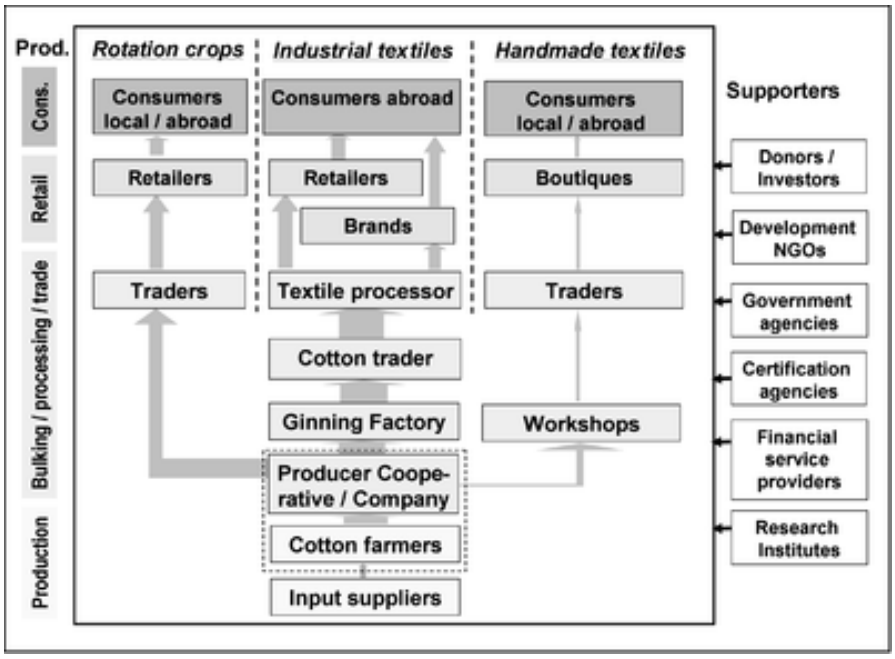


Figure 3: Actors of the cotton value chain[4]

3.2.2. Field interviews

After the selection of representative actors, the next step was to carry out the actual interview exercise using an interview guide prepared a prior to the commencement of field interview. Both the list of representative interviewees and interview guide were reviewed and discussed together with participants of an inception meeting which was held in Mwanza on 28th October 2016. A trial interview was conducted with a very small number of representatives before the start of actual field interviews. The idea was to pre-test the interview guide and identify problems.

The interview guide was used to gather information that enabled the estimation of business costs of compliance with the regulations; the comparison of these costs with those of other cotton producing countries and the assessment of the impact of existing regulatory and taxation systems. The idea was to gather information that enabled quantification of the impacts of existing regulatory and taxation systems. Where quantitative information were lacking, especially for the "second round" effects of regulation (i.e. indirect costs and macro-economic costs), qualitative information were gathered.

[4] https://en.wikibooks.org/wiki/Organic_Business_Guide/Developing_organic_value_chains

The interview guide was carefully designed to guard against the problem of biased answers (e.g. the tendency of over-stating the costs of compliance among those who must comply). To address the issues of bias from individual interviews, the study used multiple sources of data including the government statistical collections; cotton industry associations; academic research; information from other government departments; licensing or registration data; information from regulators in other, comparable jurisdictions; insurance claims data (where available); and surveys of potentially affected actors (either existing survey-based data or the results of surveys undertaken as part of the compliance cost assessment process available).

The primary data collected using the interview guide were complemented with data and information gathered using direct observations and shared experiences and lessons as well as secondary data gathered as part of consultation visits and deskwork reviews.

3.2.3. Data analysis

The effectiveness of the regulatory system of cotton industry was analyzed using the Regulatory Impact Analysis (RIA) approach. Various categories of regulatory costs were estimated, including compliance costs, administrative burdens, substantive compliance costs, as well as the administration and enforcement costs. Other costs included, financial costs, indirect or "second round" costs, opportunity costs, and macroeconomic costs.

All the data sources and assumptions that were used in making the assessment of regulatory costs were identified. It is important to note that transparency is helpful as it protects against bias in the analysis by acting as an accountability mechanism.

RIA entails a broader analysis of all of the benefits and costs of a proposed regulatory initiative or of existing regulations (APEX/Mexican Government, 2013). The approach can be used to develop both *ex ante* estimates of the costs associated with adopting new regulatory proposals; and *ex post* estimates of the costs currently being incurred in complying with existing regulation. In both cases the conduct of high-quality, quantitative and qualitative compliance cost assessment is instrumental. RIA is a process of systematically identifying and assessing the effects of regulatory action, using a consistent analytical method, such as benefit/cost analysis (OECD, 2008). It is a comparative process based on determining the underlying regulatory objectives and identification of all the policy interventions to achieve them. These must all be assessed, using the same method, to inform decision-makers about the effectiveness and efficiency of different options and enable the most effective and efficient options to be systematically identified and chosen.

In this study RIA was used as an *ex post* analysis where the regulated parties have already the practical experience in taking the required actions to conform to the regulatory requirements. The regulated parties were considered as essentially better placed to provide cost estimates. The different costs gathered from regulated parties were analyzed. These included among others the wage costs (direct labour costs) determined by the amount of time taken to complete the required compliance activities and the hourly wage rate of the relevant staff.

Particular attention was paid to the estimation of the time taken, since this is particularly challenging and likely to be subject to a wider margin of error than the estimation of hourly wage rates.

Where external data were limiting or unavailable, the time required to complete compliance tasks was estimated by conducting a **process analysis**. This involved developing a breakdown of the specific tasks that must be completed in order to comply with regulatory requirements and estimating the time taken to complete each task. The non-wage labour costs were estimated using a benchmark figure, based on a percentage of the direct wage cost.[5]

For overhead costs,[6] the use of a benchmark figure was preferable, in part because it simplifies the overall cost calculation significantly. One benchmark figure proposed in the literature is that overheads should be assumed to be equal to 50% of the direct wage costs attributable to regulatory compliance (Department of Treasury and Finance of the Victorian Government, 2011). Where regulatory compliance activities are undertaken as a discrete activity of the firm – i.e. where a unit is largely devoted to regulatory compliance, the overhead costs were estimated directly. However, a common problem is that the scope of the costs included under the heading of overhead costs tends to vary widely (OECD, 2014). This means that estimates derived from sources such as surveys are often not comparable across respondents. It is however, important to note that while most guidance material recommends accounting for overheads as part of regulatory compliance costs, there are circumstances in which it may be appropriate to exclude these costs, particularly where regulation with limited impacts is concerned (New Zealand Treasury, 2005).

Businesses may have purchased items of capital equipment to comply with many kinds of regulations, with such expenditures constituting a very large proportion of total compliance costs. This means that care should be taken in the estimation of these costs. The appropriate treatment of capital equipment costs differed according to the specific regulatory circumstances. In some circumstances, the regulatory requirement might have caused future expenditures to be brought forward. In such cases, the analysis entailed the provision of a separate accounting of the gross and net costs as part of the compliance cost assessment. This necessitated the estimation of total cost of new equipment purchases which were prompted by the need to comply with the regulation, and discounting this cost by an appropriate discount rate. Where regulation required business to purchase additional equipment solely for the purposes of regulatory compliance and there is little or no other benefit to the business, the full cost of the equipment was attributed to the regulation.

[5] The non-wage labour costs are the additional costs of employing labour, beyond the payment of direct wages. They include pension contributions, sick leave, annual leave, payroll taxes, personal injury insurance and the like.

[6] Overhead costs include the costs of rent, office equipment, utilities and other inputs used by staff engaged in regulatory compliance activities, as well as corporate overheads, such as management inputs that are attributable to compliance activities.

Equipment costs may also arise indirectly when existing machinery are modified following a regulation-induced change. In such a case the both the gross and net costs of upgrading the capital equipment were estimated.

The one-off costs and on-going costs for the time period over which the policy is active were calculated to obtain a Present Value of Net Costs to Business (PVNCB. This was then be divided by an annuity rate to give the Equivalent Annual Net Cost to Business (EANCB) which made it possible to compare average regulatory costs across different actor categories. Specifically, the following formula was used:

$$EANCB = \frac{PVNCB}{a_{t,r}}$$

$$a_{t,r} = \frac{1+r}{r} + (1 - \frac{1}{(1+r)^t})...$$

Where:

EANCB = Equivalent Annual Net Cost to Business
PVNCB = Present Value of Net Costs to Business
$a_{t,r}$ = Annuity Rate
t = Time period over which the policy or regulation is active in the appraisal
r = Discount rate

The Net Present Value (NPV), Benefit Cost Ratio (BCR) and Economic Internal Rate of Return (EIRR) were projected using the following equations.

$$NPV = \sum_{t=0}^{n} \frac{(B_t - C_t)}{(1+r)^t}$$

$$BCR = \frac{\sum_{t=0}^{n} \frac{(B_t)}{(1+r)^t}}{\sum_{t=0}^{n} \frac{(C_t)}{(1+r)^t}}$$, and

EIRR which is the discount rate, r*, at which:

$\sum_{t=0}^{n} \frac{(B_t - C_t)}{(1+r*)^t} = 0$, which was calculated using the following formula:

$$EIRR = r_1 + \left[(r_1 - r_2) * \left(\frac{NPV_1}{NPV_1 - NPV_2} \right) \right]$$

Where B_t = benefits accrued at period t, C_t = the costs incurred at period t, r = the discount rate, n = the time horizon (number of years) considered in the analysis (about 30 years from 2013/14 – 2044/45).

It is worth noting that some potentially significant costs are likely to be intangible in nature, that is, they cannot be quantified – or at least expressed in monetary terms – directly.[7] These costs may, nonetheless, constitute an important element of the overall cost impact of a regulation and were estimated quantitatively through indirect valuation methods. Where this was not possible, the compliance cost assessment included a qualitative discussion of these costs – including evidence of their importance – and integrated into the broader analysis.

In addition, sensitivity analyses were done in the calculations of compliance costs. This was important because the processes of cost estimation allow the identification of key variables that are both subject to significant uncertainty and likely to substantially change the overall compliance cost estimate if different estimated values of this variable are used.

[7] Some costs are considered intangible in nature and are difficult or impossible to quantify.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Regulatory Authorities in the Cotton Subsector

The cotton sub-sector in Tanzania involves a long value chain which in turn involves several actors, regulators and regulations. Located upstream of the value chain are the input suppliers and cotton farmers who supply agricultural inputs and produce seed cotton respectively. At the middle of the value chain are the cotton buyers, ginners and exporters of the cotton lint. The extreme downstream actors include the textiles industries, traders and exporters of processed cotton products. All these are regulated by different regulators as presented in the following subsections.

4.1.1 The Tanzania Cotton Board (TCB)

TCB serves as the main regulator charged with the role of regulating and controlling the quality of cotton and cotton by-products. TCB is also responsible for issuing seed cotton buying and exporting licenses, undertaking inspections of ginneries and granting permission for ginners to operate. TCB also intercedes in the market core function as service provider for inputs (seeds, chemicals).

The board was formed in 2001 and came into operations in July 2004 with its operations governed by the Cotton Industry Act No.2 of 2001. TCB is empowered by the Act to carry out regulatory functions and such other activities which are necessary, advantageous or proper for the benefit of the cotton industry. It also serves as an advisory body to the Government on policies and strategies related to the development of the cotton industry in Tanzania. The activities of the board are funded by three major sources of income namely; the Government subventions, internal revenue from rental on investment property, and contributions from cotton stakeholders through the Cotton Development Trust funds (CDTF) and the Tanzania Gatsby Trust fund (TGT). The regulatory activities of the Board are 100% funded by the Government, therefore, the services provided by the board to the sub-sector are free of charge.

Specifically, TCB is charged with the duties of:

- Registration of growers, traders, processors, exporters, importers and ginners for the purposes of monitoring contract of farming; regulating cotton quality; establishing a basis for planning and controlling import and export of cotton; making appropriate estimates of inputs; and dealing with any other relevant matters in the cotton industry.
- Issuing of license to buyers, processors, and exporters of seed cotton, cotton lint and cotton by-products upon approval of terms and conditions provided for in the regulations.

- Quality control, weighing and inspection: Control of packing of seed cotton and lint, setting conditions for drawing samples and sample drawing for quality assessment and classification, ensure quality maintenance, and to ensure that weights used to weigh cotton are inspected and approved in accordance with the requirements prescribed by the authority responsible for weights and measures (the Weights and Measures Agency - WMA). According to the Cotton Industry Regulations of 2011, the Board is required to charge a classification fee per bale where a high volume instrument machine is used as the Board may determine from time to time.
- Control and guide the cotton buying process: In consultation with stakeholders announce the date on which the buying season may commence. Make administrative guidelines which will govern the buying and selling of cotton during the season, and penalize the buyers who contravene or fail to comply with the regulation a fine of not less than two million shillings or imprisonment for a term not exceeding three years or to both.
- In consultation with stakeholders, announce indicative price before commencement of seed cotton buying season. The announced price takes into consideration the prevailing world market prices and relevant costs for ginners and growers.
- Convene a stakeholders' meeting to adjust the indicative price of cotton in the event of change of market conditions.
- Convene an annual stakeholders' meeting composed of key stakeholders from the cotton industry.

4.1.2 Tanzania Official Seed Certification Institute (TOSCI)

TOSCI is charged with the role of regulating seed production, multiplication and distribution. The institute was established following the emergence of private seed producing agents and failure of seed quality control agency which were established before. Prior to the 1970s Tanzania didn't have a vibrant seed sector hence the formal seed sub-sector was established in the 1970's as a seed project under the assistance of USAID. Along with it the following were established: Research in developing new varieties, seed farms, and formation of the National Seed Company (TANSEED) in 1973. During its operations, TANSEED faced several problems resulting in its collapse. These have included the general poor reputation due to delivery of poor quality seeds, inadequate marketing promotion and managerial skills. In the same year the Seed Act No. 29 of 1973 was enacted and the Tanzania Official Seed Certification Agency (TOSCA) was launched, with three laboratories to regulate the quality of seeds. In 1989, the Government launched the National Seed Industry Development Program in line with the World Economic Reform Agenda which emphasized the need to move from state-controlled economy to free market economy. Private seed companies were therefore allowed to operate in the country and the Plant Protection Act (1997), Plant Breeders Rights (2002) and Seed Act (2003) were enacted to replace the Seed Act of 1973. The big change in the new law was the empowerment of TOSCI, which replaced TOSCA to license/authorize individuals or laboratories along with the encouragement of more international participation.

Specifically TOSCI is responsible for:

- Registering seed dealers
- Release, registration and deregistration of crop varieties
- Seed certification
- Seed field inspection
- Seed sampling and testing
- Seed inspections
- Inspection of seed storage warehouses
- Accrediting seed sampling and seed testing laboratories
- Training of seeds producers, seed inspectors and seed analysts
- Liaising with other International Organizational Seed Testing Association (ISTA) on seed related issues
- Carrying out variety performance tests and conducting pre- and post control tests.

According to the Seed Act of 2003 and its Regulations of 2007, a seed dealer has to comply with the following before is permitted to produce and supply seeds:

- Submit to the Director an application for the registration as seed dealer on Form SR I.
- Pay application fees as set out in the Regulations
- Submit an application for variety release and procedure for conducting NPT (Neomycin Phosphotransferase) in case of a release of new variety. Specifically a seed dealer submits to TOSCI an application for DUS (Distinctness, Uniformity and Stability) test and NPT. An application for DUS test should be made one season prior to the application for NPT, supported by the following sufficient seed sample for the first season DUS test; variety description; application fees and DUS testing fees as set out in the regulations; and on-farm trial and farmers' assessment data.

Upon receiving the application and sample materials, TOSCI conducts a DUS test, reports the results to the applicant and issues the DUS test certificate for the qualified application on Form SR IV as set out in the regulations.

The application for NPT test should be supported with the following:

- A minimum of two recent previous seasons advanced yield trial data from not less than three recognized testing sites in Tanzania or any other country which is in agreement for harmonization of seeds policy and legislations with Tanzania
- Sufficient seed sample for conducting NPT and second DUS test
- Fees for the NPT and second DUS test, and
- Any other additional information that may be required for determination of the merits of the candidate variety.

TOSCI will then conduct NPT for a minimum of one season in at least three sites, and will conduct a second DUS test and submit the report to NPT-TC for review. Thereafter, the seed variety will be registered and its information entered in the national catalogue after approval by the minister pursuant to Section 21 of the Act.

The next requirement is to submit an application for seed labelling and comply with its requirements. Every package of seed, offered for sale, of the plant species specified should be labelled with the following information:

- The name and address of the seed dealer
- The name of the plant species
- The name of the variety of the seed
- Seed class
- Lot number
- Weight of the package
- Month and year of germination test
- In the case of seed that is imported, the name of the country of production; and in the case of seed that is a blend of two or more varieties, the name of each of the component varieties.

The next requirement is to apply for field seed crop inspection. Every seed grower or his/her agent is required to apply for field inspection within thirty days after a seed crop is planted.

Lastly but not least the seed dealer has to pay fees for the services provided. The fee is paid at the time when the application for a particular service is launched.

4.1.3 Tropical Pesticides Research Institute (TPRI)

TPRI was established by the Act of Parliament No. 18 of 1979 with a mandate to undertake, promote, evaluate and disseminate findings on the management of pests, pesticides and biological diversity. The institute was established in 1945 under the colonial government and named Colonial Insecticides Research Unit (CIRU). TPRI is currently engaged in research and services on management of pests, pesticides and biodiversity to enhance food security, safeguard human health and facilitate internal and external trade for sustainable development. The institute is a semi autonomous body operating under the Ministry of Agriculture Livestock and Fisheries (MALF) of the United Republic of Tanzania.

The general duties of TPRI are:

- To conduct research on management of pests, pesticides and biodiversity: This is done via the Division of Livestock and Human Disease Vectors Control (LHDV); Plant Protection Division (PPD); National Plant Quarantine Station (NPQS); Pesticides and Environment Management Centre (PEMC); National Herbarium of Tanzania (NHT); and The National Plant Genetic Resources Centre (NPGRC).
- To train and carry out outreach activities related pest and pesticide management; plant biological diversity; insect arthropods diversity; carrying out tailor-made courses; academic training; and participatory decision and systems support (PDSS)
- To register imported pesticides, and
- To issue licenses to pesticides importers

The pesticide importers are required to:

a) Acquire pesticides importation licenses – They have to pay $ 150 to obtain a pre-business license fee
b) Fill and submit PRC-2 importation permit application forms and pay a cess or fee of 0.5% of pesticides' FOB value and a fee of $ 150 for analysis of the pesticides.
c) Submit samples of the pesticides to TPRI for inspection to see if the consignment meets the specification and packaging.
d) Submit to the registrar a pesticide registration dossier in triplicate, including
    - Dully filled PRC-1 forms (Application for Pesticides Registration)
    - Technical, toxicological, environmental data, analytical method for the formulated products and residues
    - MSDS (Material Safety Data Sheets) and six copies of the specimen labelled in English and Swahili
    - Product samples for laboratory analysis and field tests, and
    - Pure standards for sample analysis.
e) Effect payment of the following:
    - $ 50 as application fee (PRC1)
    - $ 1000 as experimental registration fee (payable once)
    - $ 2000 - $ 6000 as field test fee to cover field expenses. The final amount will depend on the nature and extent of the field tests to be done
    - Registration fee which can either be for FULL registration ($ 1,000), which is renewable after five years; PROVISIONAL registration ($ 1,500), which is renewable after two years; or RESTRICTED registration fee ($ 1,000), renewable after two years.

4.1.4 Occupational Safety and Health Authority (OSHA)

OSHA was established under the Executive Agency Act No. 30 of 1997 of the Public Service Reform Program (PSRP) to replace the Factories Ordinance Cap 297 of 1950, which operated since independence in 1961.[8] According to the Occupational Health and Safety Act No. 5 of 2003 and its subsidiary legislations, OSHA's services are extended to all workplaces with its primary objective being to ensure the creation and maintenance of ideal work environments which are free from occupational hazards that may cause injuries or illness to employees. The authority has employed inspectors, whose duties include the inspection of health and safety in workplaces, preparation of inspection reports which are submitted to the Chief Inspector for relevant actions, including the provision of advisory services to employers; issuance of improvement and prohibition notices, as well as referring the matter to court.

[8] OSHA was officially launched on 31st August, 2001.

Specifically OSHA is responsible for:

a) Carrying out the examination of pressure vessels
b) Examining lifting equipment
c) Undertaking electrical inspections
d) Provision of occupational health services
e) Evaluation of occupational hygiene
f) Investigation of workplace accidents
g) Assessment of occupational safety and health impact
h) Qualification of occupational safety and health post-tenders
i) Ergonomics inspection
j) Carrying out specific medical tests
k) Approval of training manual in occupational safety and health
l) Conducting training in occupation safety and health
m) Provision of any other occupational safety and health service as approved by the authority.

All these services are provided at a cost depending on to the company's business line. The companies have to comply with the OSHA's requirements and they have to pay the service fees within thirty days from the date of issues of the bill, failure of which a penalty of 5% is charged.

With an exception of ergonomics inspection all these requirements are applicable to the cotton industry. The factory owners for example, are required to:

a) Register their factories or workplace/business with the OSHA and acquire the certificate of registration of the factory or workplace and other certificates issued by the chief inspector for factories or workplaces under the provision of the Act of 2003. These include prescribed particulars such as type of washing (e.g., white-washing, colour washing), painting or vanishing of the factory, and the prescribed particulars for every accident and occupational disease occurring at the factory or workplace of which notice is required to be sent to the chief inspector under the provision of any law in the United Republic of Tanzania
b) Conduct regular medical examinations of their employees in accordance with the Act
c) Choose health and safety representatives (not less than four) in a workplace.
d) Ensure that the workplace is safe and healthy, and must not allow any worker to do work that is potentially dangerous
e) Inform workers of any possible dangers in the workplace
f) Reduce any dangers to a minimum level before issuing protective clothing and gears
g) Issue protective clothing/gears where required
h) Provide the necessary training to workers who use dangerous machines and materials, and ensure they are familiar with safety precautions
i) Prevent workers from using or working with dangerous materials or machines, unless all safety rules have been followed
j) Ensure that dangerous machines are in good working order and are safe to work with.
k) Make sure that dangerous machinery carries warnings and notices (safety sign materials).

l) Make sure that skilled staff supervises the operations which are potentially dangerous to ensure the safety of workers.
m) Keep the workplace open so that workers can escape from danger when happens.

4.1.5 Tanzania Food and Drug Authority (TFDA)

TFDA is a regulatory body under the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC), which is responsible for controlling the equality, safety and effectiveness of food, drugs, cosmetics and medical devices. It was established under Section 4(1) of the Tanzania Food, Drugs and Cosmetics ACT, Cap. 219 after repealing the Pharmaceutical and Poisons Act No. 9 of 1978 (which established the then Pharmacy Board) and Food Control of Quality Act No. 10 of 1978 – (which established the then National Food Control Commission). TFDA became operational on 1st July 2003.

The cotton subsector is one of the subsectors that are directly regulated by TFDA because seed cotton produces edible cooking oil which is used as food. Edible cooking oil is produced from cotton seeds as the major product and seed cakes as a by-product. Operators of cotton oil mills have therefore to comply with regulations administered by TFDA, especially which relate to the quality and safety of food for the purpose of protecting the public from health hazards associated with the consumption of food. Specifically TFDA is responsible for:

- Registering factories and firms which are processing agricultural products into food products
- Conducting inspections of Good Food Manufacturing Practices (GFMPs) to foster voluntary compliance
- Collecting fees for inspection services provided to food processors.

The general duties of operators or owners of food processing firms are to:

- Register the firms
- Ensure that the firm implements GFMPs and is inspected accordingly
- Pay the GFMP inspection fees as required
- Display the certificates of compliance in the firm's place of operation

4.1.6 Tanzania Fire and Rescue Force (TFRF)

TFRF is a government agency entrusted with regulating the industry and providing professional services in the areas of disaster prevention and taming. Tanzania The purpose of the Force is to enhance community safety, quality of life and confidence by minimizing the impact of hazards. The general duties of the Force are to prevent and minimize death rates, injury to the people, and damage to properties arising from fire, floods, earthquakes, road traffic accidents and other disasters.

Specifically the functions of the Force are to:

- Extinguish fire
- Grade cities, municipalities, townships and villages into various fire and rescue services levels
- Conduct fire inspection and investigations for purposes of obtaining information relating to the causes of fire and loss inflicted by fire
- Conduct studies on investigation of arson and accidental fire
- Conduct training for fire department personnel, other officers and voluntary fire fighters
- Prepare fire statistics and fire service information
- Conduct fire tests on protection facilities, equipment and materials
- Conduct tests and experiments regarding fire services
- Give guidance and assistance in the re-enforcement of fire equipment and facilities
- Raise public awareness on fire prevention and fire services
- Prepare test standards for hazardous materials' handling
- Prepare standards of equipment and facilities necessary for provision of fire and rescue services by various persons
- Prepare fire prevention plans based on disaster prevention plans
- Study and plan standards for rescue activities done by various operators
- Plan inspection and security of construction of industrial facilities petro-chemical facilities, petroleum and gas pipelines
- Act as a liaison of various levels of fire and rescue services, including private ones
- Assist on preparation of curricula, materials and information relating to fire and rescue services which may be used by any training institution; and
- Perform any other functions as may be directed by the Minister.

4.1.7 National Environment Management Council (NEMC)

The National Environment Management Council (NEMC) was established in 1983 when the Government of Tanzania enacted the National Environment Management Act No. 19 of 1983. The council was instituted with a broad mandate in response to the national need for such an institution to oversee environmental management issues and also implement the resolutions of the Stockholm conference (1972), which called upon all nations to establish and strengthen national environmental councils to advise governments and the international community on environmental issues.

The enactment of Environmental Management Act No. 20 of 2004 by the Parliament in October 2004 repealed the National Environmental Management Act No.19 of 1983 and re-established NEMC. EMA 2004 provides for a legal and institutional framework for sustainable management of the environment, prevention and control pollution, waste management, environmental quality standards, public participation, environmental compliance and enforcement. Furthermore, it gives NEMC the mandates to undertake enforcement, compliance, review and monitoring of environmental impacts assessments, research, facilitate public participation in

environmental decision-making, raise environmental awareness and collect and disseminate environmental information.

Relevant to the cotton sub-sector NEMC is charged with the role of:

- Foreseeing the use of pesticides
- Management of both hazardous, solid, liquid, and litter waste
- Conducting inspection to ensure compliance with environmental standards
- Conducting environmental impact assessment
- Setting environmental quality standards, and
- Advising the government on issues related to environmental management.

In the cotton sub-sector, firms (e.g. dealers of cotton pesticides, ginners and processors of cotton seeds and other cotton by-products) are required to comply with the NEMC regulations, including:

- Compliance with all environmental standards
- Acquisition of environmental compliance certificate
- Conducting environmental impact assessments, monitoring and inspections
- Paying fines and penalties in case of any violation of NEMC regulations
- Paying damage compensations in case of damage.

4.1.8 Local Government Authorities (LGAs)

The Local Government Authorities (LGAs) were re-established 1983 by the Act of 1982 and reformed between 1996 and 2005 following the amendments of the Act in 1993. The operations of the board are governed by the Cotton Industry Act No.2 of 2001. LGAs are empowered by the Act to carry out regulatory functions to economic activities that are carried out in their areas of jurisdiction. Specifically, they are responsible for issuing licenses, collecting levies and ensuring peace and order. In cotton sector, LGAs are responsible for issuing buying permits, collecting levy and cess and other contributions, providing extension services to the farmers, and enacting bylaws.

The LGAs have powers to formulate their own by-laws within their area of jurisdiction. These powers are guaranteed by the Local Government (District Authorities) Act CAP 287 and Local Government (Urban Authorities) Act CAP 288. The acts also provide the procedures under which District councils and urban authorities can make by-laws.[9]

[9] Under the local government (District Authorities) Act No. 7 of 1982, the procedure to make by-laws is provided under section 150(1), (2), (3), (4) and (5) of the law.

In the cotton subsector, seed cotton buyers are required to:

- Collect the cotton cess on behalf of the LGAs.
- Pay all the contributions and costs involved in the process of approval of the buying permit, and
- Comply with all the by-laws enacted by the LGAs.

4.2 Regulations Affecting the Cotton Subsector

The key regulations affecting the cotton subsector are stipulated in the Cotton Industry Regulations of 2011. A summary of respective regulations for each actor category is presented in the following subsections.

4.2.1 Regulations for cotton growers

According to the Cotton Industry Regulations of 2011 cotton growers are required to comply with the following:

- Not intercropping cotton with other crops within the same field.[10]
- Not grow or market ratooned cotton.[11]

For the purpose of conserving the environment, cotton growers are also required:[12]

- To use agrochemicals in an appropriate manner so as not to pose danger to the environment.
- Not to burn farms or field for the purpose of weeding.
- Grow cotton using good agricultural practices; and
- Take any other appropriate measures to ensure environmental protection.

In addition, cotton growers are required to ensure that premises used for processing, storage and transportation of cotton should be kept in a clean and hygienic condition prescribed by TCB or any relevant authority.[13]

[10] Any person who contravenes or fails to comply with this regulation, commits an offence and upon conviction, he/she is liable to pay a fine of not less than one hundred thousand shillings or to imprisonments for a period of three months or to both.

[11] Where a person fails to comply with the provision of this regulation, TCB should order the destruction of such cotton at the expense of that person. TCB is also required to issue guidelines for uprooting, disposal or burning of whole cotton plants after harvesting. A grower who fails to comply with this Regulation commits an offence and, upon conviction, he/she is liable to a fine of not less than one hundred thousand shillings or imprisonment for a period of not less than three months or to both such fine and imprisonment.

[12] TCB may issue environmental guidelines for adherence by growers.

[13] TCB is required to provide guidelines in respect of cotton collection bags for harvesting before the beginning of harvesting season.

4.2.2 Regulations for cotton buyers

To qualify for obtaining seed cotton buying license:[14]

a) The firm or company must possess a valid trading license.
b) The firm/company must show financial ability with the support of a reputable bank or financial institution.
c) The application should be supported by certification by TCB or its agent that the intended buying posts have been inspected and passed for cotton buying for that season.
d) The firm/company must be a member of Tanzania Cotton Association (TCA) and not blacklisted by any local or international recognized institution.

Specifically, the procedure for application of seed cotton buying license requires the applicant to:

- Visit the area where he/she intends to buy cotton.
- Register with the Regional and District Authorities of the respective areas and abide by directions of such authorities.
- Visit and obtain confirmation from a ginnery that the seed cotton purchased will be ginned at that designated ginnery.

In addition, cotton buyers are required to observe the following:

a) Buy cotton from registered growers unless provided otherwise by TCB.
b) Issue produce receipts to farmers for cotton purchased.
c) Purchase seed cotton in two grades, that is, **Grade A and Grade B**.
d) Engage a qualified cotton grader at every buying post.
e) Display, in an easily accessible place and conspicuous manner, the following:
   - Standard grade sample box approved by TCB at the beginning of every buying season
   - Producer price to be offered for each grade.
   - Weighing scale properly inspected and passed by Weights and Measure Agency (WMA) of Ministry of Trade and Industries (MIT).
   - Buying license issued by TCB.
f) Purchase seed cotton from a designated buying/auction post only.
g) Use jute, cotton or any other material approved by TCB to pack seed cotton at designated buying post.
h) Ensure that, all purchased seed cotton is insured with a reputable insurance company.
i) At any buying post, ensure that:
   - All grass within five meters of the seed cotton store is removed.
   - All cotton refuse is burnt.
   - Stores are properly repaired, cleaned and fumigated before the beginning of the season.
   - Floor should be well surfaced.

[14] TCB is required to process every application for a license within fourteen days upon receipt of the application and a license is valid for a period of one year and may be renewed for another period of one year.

j) Keep **Grade A** cotton separate from **Grade B**
k) TCB has power to inspect any buying post at any time without notice, to ensure compliance with these regulations.
l) Abide by regulations issued by Councils and Regional Consultative Committees (RCC)
m) Produce standard weekly reports to the Board showing weekly purchases and deliveries of seed cotton by grade for every buying post, and producer price offered for each grade.
n) Deliver seed cotton directly from buying post to ginneries designated for the area, unless instructed otherwise by the Board in writing.
o) Retain at the buying post book copies of produce receipts and delivery notes throughout the buying season.
p) Contribute to the CDTF as agreed by stakeholders from time to time on a weekly basis for seed cotton purchased during the week on or before Friday the following week.
q) TCB may exercise its powers under Section 35 (1) of the Cotton Industry Act No. 2 of 2001 to cancel or suspend a license if the Licensee fails to comply with terms and conditions of the license. Where a license is cancelled, the buyer will have to re-apply upon payment of shillings one million and where a license is suspended, the buyer should pay Tanzanian shillings five hundred thousand after complying with the conditions of this license.
r) In addition, any person who contravenes any one of these regulations is guilty of an offence.
s) A person aggrieved by the decision of TCB cancelling or suspending his/her license may appeal to the Minister.

4.2.3 Regulations for ginners

As for cotton buyers, a ginner is required to apply for ginning license prior to ginning and TCB is charged with the role of issuing the license after being satisfied that the applicant has met all the requirements for the issuance of such license. The requirements for obtaining a ginning license are:

a) An applicant must own a ginnery or must have hired/leased one from a ginnery owner. Proof of hiring/leasing must be shown.
b) The ginnery concerned must have been inspected and approved by the TCB's Ginnery Inspectors.
c) The applicant must be a member of TCA and not blacklisted by any local or international recognized institutions.
d) It is the responsibility of the ginner to cause the inspectors from TCB to inspect and certify the ginnery for issuance of a ginning license.
e) Holders of ginning licenses are bound to observe the rules and regulations governing the operation of ginnery.

The conditions for cotton ginning license are:

a) Every ginner must be a member of TCA and not blacklisted by any local or international recognized institution.
b) The ginner must obtain and display a valid ginning license issued by TCB.
c) The ginner must maintain and work the ginnery in a proper manner and in such a way as to maintain cotton quality standards.
d) The ginner must ensure that all raw cotton delivered to the ginnery is correctly graded and must keep all Grade A cotton and the lint there-from and all Grade B cotton and the lint there-from separate from the other.
e) The ginner should separate disease-infected cotton from non-infected cotton.
f) The ginner should keep seed cotton, cotton seed and cotton lint which may be salvaged from damage by fire or water, separate from other seed cotton, cotton seed and cotton lint and should gin the seed cotton and bale the cotton lint in accordance with conditions of the license.
g) Every ginner should ensure that, the ginnery and all raw seed cotton or cotton lint in the premises are insured with a reputable insurance company.
h) Ginners should produce correct weekly reports.
i) The ginner should not later than 15th April of each year produce annual reports to TCB in the prescribed form.
j) The ginner is prohibited from buying and/or ginning improperly graded cotton.
k) The ginner should ensure that lint bales are labelled with lot numbers as issued by the Board.
l) The ginner should ensure that lint bales are stored in proper conditions.
m) The ginner should deliver samples to TCB within one week after drawing the relevant samples. Upon receipt of the samples TCB should classify them and issue a report. Copy of the classification report should be made available to the owner. Each sample should weigh not less than two hundred grams (200g).
n) Samples classed using the instrument based machine should be charged a fee to be determined by TCB from time to time.
o) The ginner should ensure that all bales produced are properly weighed and the same is clearly indicated in bale specification forms.
p) The ginner should draw one sample from each bale that is 100% representative of the entire bale.
q) Ginners should use cotton or any other material approved by TCB to pack lint bales, cottonseeds and cotton samples.
r) TCB may exercise its powers under Section 35 (1) of Cotton Industry Act, Act No. 2 of 2001 to cancel or suspend a license if the licensee fails to comply with terms and conditions of the license. Where a license is cancelled, the ginner should have to re-apply upon payment of US Dollars two thousand one hundred and where the license is suspended, the ginner should pay US Dollars one thousand after complying with the conditions of the license.
s) A person aggrieved by the decision of TCB cancelling or suspending his license may appeal to the Minister.

t) Authorized internal test production should not exceed 100 bales for Roller gins and 150 bales for sow gins. In the event there is a need to produce more bales for testing above the rated bales, the ginner should seek TCB approval.
u) Any person who contravenes the condition for ginning license is guilty of an offence.

In addition, no person should expand and register a ginnery unless the following particulars are submitted and approved by the TCB:

a) An applicant for expansion of a ginnery must be the owner of the ginnery to be expanded. Proof of hiring/leasing or ownership must be shown.
b) The expansion of the ginnery concerned must be inspected and approved by the Board's Ginnery Inspectors on completion.
c) The applicant must not have been blacklisted by any local or international recognized institutions.
d) It is the responsibility of the ginner to have the ginnery Inspected and certified for issuance of a ginning license by TCB.

4.2.4 Regulations for lint exporters

The requirements for lint export license are:

a) The exporter should show financial ability endorsed by a reputable Bank/Financial Institution
b) The applicant must be a member of TCA and not blacklisted by any local or international recognized institution
c) An applicant for cotton lint export license should be the owner of the cotton lint
d) No exporter should export cotton lint without a valid export permit issued by the Board for every consignment.

The conditions for cotton lint export license are:

a) Every exporter should be a member of TCA and not blacklisted by any local or international recognized institution.
b) Tanzania cotton should be sold on the basis of regions grades and staples. The grade should be equal to the standard boxes i.e. GANY and DARS for Lake and Coastal prepared by the Board from time to time. The staple length should be at least 1-1/8" for type one, 1-3/32" for type two and 1-1/16" for type three. Premiums and discounts for grade and staple should be as per Boards Terms and Conditions of cotton sale.
c) Exporters should perfect the export permit issued for each consignment and return to the Board within fourteen days from the date of shipment.
d) All lint exporters must register every sale of cotton lint with the Board within seven days from the date of sale. The information should include the buyer's name, number of bales sold, the type, price and delivery period.
e) All applications for export permit must be accompanied by both the manual and High Volume Instrument (HVI) lint quality certificates issued by the TCB.
f) The Board may exercise its powers under Section 35 (1) of the Cotton Industry Act No. 2 of 2001 to cancel or suspend a license if the Licensee fails to comply with terms and

conditions upon which the license is issued. Where a license is cancelled, the exporter should have to re-apply US$ 2,100 and where a license is suspended, the exporter should pay US Dollars one thousand (US $ 1,000) after complying with the conditions of this license.

g) In addition, any person who contravenes any one of the conditions will be guilty of an offence.

h) A person aggrieved by the decision of the Board cancelling or suspending his license may appeal to the Minister.

Conditions for cotton lint export permit

a) Cotton lint exporters should have valid trading licenses, evidence of agency for seed cotton buyer or ownership of lint.
b) Exporters should perfect the export permit issued for each consignment and return to the Board within fourteen days from the date of shipment, failure of which no export permit will be issued.
c) Exporters must not exchange or barter cotton lint.
d) Forwarding agents or representatives should be required to quote the Sellers' Export License Numbers when requesting for export permits to effect shipment of cotton lint on behalf of their principals.
e) Lint quality certificate issued by the Board to be provided for every consignment.
f) All lint exporters must register every sale of cotton lint with the Board within seven (7) days from the date of sale. The Board will not issue any export permit for any contract not registered.

4.2.5 Regulations for seeds/cake exporters

Conditions for cotton seeds/cake exporter permit

a) Cotton seeds/ cake exporters should have valid trading licenses.
b) Exporters should perfect the export permit issued for each consignment and return to the Board within fourteen days from the date of shipment, failure of which no export permit will be issued.
c) Exporters must not exchange or barter cotton seeds/ cake.

4.3 Bottlenecks in the Remits, Functions and Activities of Regulatory Bodies

In general, the existing regulatory framework in the cotton industry can best be described as too expensive, too time consuming, too arbitrary, highly politicised and poorly enforced. Importantly, the current regulators have little capacity to enforce their regulations. TCB as the key regulator of the industry, for example, lacks both the human and financial resources to effectively conduct its full range of regulatory activities. Currently, the board is staffed with only 25 District inspectors who cover about 5,500 to 8,500 buying posts located in 33 districts.[15] This

[15] Some districts have more than 700 buying posts. Currently some district inspectors are covering more than 120 buying posts.

bottleneck in turn contributes to the problems of poor seed cotton quality and unfair competition among actors.

Some of the key areas and services that were identified to be inefficiently regulated and remitted include the supply of quality of inputs. There have increasing concerns about existence and supply of counterfeit inputs. In 2013/14 growing season, for example, a total of 13,952 farmers were supplied with 339,460.8 kg of cotton seeds (worth about TZS 204.17 million) which were planted on 54,994.3 acres and did not germinate. While the exact causes of this were not clear, the management of Quton indicated that there were many reasons for the seeds not to germinate well.[16] Some of these reasons included the method of processing the seed, the type of soil, transportation method, handling, distribution and storage means. According to the discussion with TCB staff, elsewhere in Mara and Singida regions, where the varieties were adopted they germinated well and some farmers have achieved higher yields of up to 1,700 – 2,000 kg per acre. Other regulations which are not adequately enforced include:

- Part III of The Cotton Regulations of 2011 (regulations 12 – 17) which provides restrictions related to cotton cultivation and husbandry. Some farmers are intercropping cotton with other crops within the same field and some were reported to be mixing their new produce with ratooned cotton
- Weight cheating (Regulation 30, weighing of seed cotton): Farmers complained that some agents who purchased seed cotton were still cheating on weights though the regulations require the buyers to ensure that the weighing scales used for the purchase of cotton are inspected and approved in accordance with the requirements prescribed by WMA
- Poor quality of seed cotton: Regulation 27 requires growers, traders, processors, exporters, importers and ginners to maintain quality of cotton at all levels of production, processing and marketing.
- Ungraded seed cotton: Regulation 29 requires cotton growers to grade seed cotton into **grade A and B** and ginners to grade seed cotton on the basis of International cotton classification grades approved by the TCB and TCB to downgrade any cotton pack which contains more than one grade of seed cotton.
- Cotton packing standards: Regulation 25 requires the cotton packs to contain only one grade of seed cotton, to be free of any feathers, grass, sticks, twine, sand, stone or extraneous matter, and that the material of the cotton pack should not contain or consist of polypropylene, and a person should not purchase seed cotton in any cotton pack contrary to the provision of sub regulation [Regulation 25 (1)].

Currently the enforcement of these regulations has been at most scrawny resulting into falling quality of produced seed cotton and declining volume which in turn threaten the viability of the industry. TCB is mandated to inspect not only cotton farms but also premises used for processing, storage and transportation of cotton for the purpose of quality control (regulation 28). To perform these functions TCB should appoint adequate number of qualified persons who

[16] Quton is the seed company owned by COTTCO which has established an operation to produce certified seed in Tanzania (see http://allafrica.com/stories/201411030650.html).

may, at any reasonable hour of the day, enter upon any cotton premises, inspect and examine the premises for the purpose of ensuring compliance of these regulations.

Due to the failure to enforce the various quality control regulations the proportion of lower grade cotton has almost certainly increased since liberalization. The proportion of upper grades, for example, fell from 45% in the early 1990s to a low of 17% in 1994/95 after trade liberalization, and rebounded to about 80% in 2005/06 (Salm *et al*., 2011).

Unfortunately, the declining quality of cotton is also contributed by deliberate contamination of seed cotton with trash and foreign matter by some stakeholders. The motive behind this is to cheat on weight and income. There are counter accusations, with farmers blaming buying agents and buying agents blaming farmers regarding the acts of contamination. Meanwhile, the consequences are disastrous for the industry and country which is blacklisted as a risky source of cotton with which buyers should engage with extra care, if they must. This is fateful because Tanzania was one of the biggest producers of roller ginned cotton (30%) for which it earned a premium of up to 6 U.S. cents per pound (Tanzania Cotton Lint and Seed Board - TCLSB, 2002). Another premium of 7 US cents per pound was achieved due to its cleanliness as it is hand-picked. Both premiums have now been lost but are achievable if corrections are instituted in its handling. Until 1993, another 2 cents per kg premium would also be achievable if cotton was delivered to the market in the third quarter of the year. It is unfortunate that Tanzania's cotton has lost all these premiums and it is actually discounted some 10 cents per pound due to the decline in its quality.

Between 1984/85 and 1994/95 the Tanzanian component of the A Index averaged $1.63/kg while the overall world market A Index averaged $1.48/kg, implying a premium of 15 US cents (*ibid*). According to TCLSB (2002)'s analysis, prior to 1993 Tanzania enjoyed a premium of 13 US cents per pound, equivalent to 29 cents per kilogram. Between 1995/96 and 2001/02 the Tanzanian component of the A Index averaged 1.57/kg while the A Index averaged $1.45/kg, implying a premium of 12 U.S. cents (*ibid*).

It is also worth noting that about half of cotton production in Tanzania is saw ginned and the other half roller ginned (Salm *et al*., 2011). Roller ginned cotton fetches a premium of 1% per pound over saw ginned, with the same grade and type. Yet, other aspects of Tanzania's system have presented it from building on this structural quality advantage. Theoretically buyers and ginners are obliged to purchase seed cotton on the basis of two grades. In practice, grading has disappeared at the first point of purchase and different grades are purchased and ginned together. Due to ginning overcapacity, buyers and ginners give priority to volume and purchase seed cotton regardless of quality.

Cotton farmers, buyers and ginners and textile industries are also charged high taxes and levies. LGAs (the District Councils), for example, are charging a levy of between 3% and 5% of the farm gate price of seed cotton, which is paid over to the local government. Unfortunately, revenues from this source are very often diverted away from the cotton industry leaving the regulating bodies and providers of support services in the industry reliant on the central government

funding and donations from other stakeholders like the ginners. This is contrary to the regulation 43 of the Cotton Industry Regulations of 2011 which requires the LGAs, in the implementation of the shared functions agreed by stakeholders, to take into consideration the following:

a) increase in production of cotton in their respective areas
b) proper husbandry of cotton
c) maintenance of quality of cotton from production to market levels
d) proper and maintenance of infrastructure, and
e) any other matter for the development of the cotton industry.

4.4 Business Costs of Compliance with Regulations

The business costs of compliance (salaries excluded) were analysed for different actors in the cotton value chain and the results of analysis are presented in Table 1 through Table 4. The compliance costs for seed producer, and agrochemical suppliers amounted to about TZS 106.8 million and 19.7 million respectively (Table 1 and Table 2).

The compliance costs for seed cotton buyers and ginners (excluding salaries) were calculated using three categories of dealers namely; small-scale, medium-scale and large-scale distinguished by their number of permanent workers or employees (Table 3). The details on compliance costs for each regulator are provided in Appendix 2. The compliance costs for small-scale, medium-scale, and large-scale seed cotton buyers and ginners amounted to about TZS 669.9 million; TZS 1.36 billion; and TZS 3.4 billion respectively with prominent regulators being TRA (85.7%), TFRF (5.9%), LGAs (3.9%), OSHA (3.7%), and NEMC (0.7%). The proportions (%) of compliance costs for cotton buyers and ginners by type of regulator are shown in Figure 4.

Table 1: Compliance costs for cotton seed producer (TZS)

Type of charge	Unit Cost	Total Cost
Seed field inspection/ha	20,000	4,000,000
Seed field inspection certificate/ha (paid by multiplier)	3,000	600,000
Seed sampling/lot	10,000	800,000
Seed germination, purity and moisture content testing/lot	15	1,200
Seed health testing	20,000	20,000
Registration of seed/variety (paid by breeder)	2,500	2,500
Variety registration/variety (paid by breeder)	10,000	10,000
Certificate of seed testing/lot (paid by multiplier)	1,000	80,000
Certified copy of a seed testing certificate/lot (paid by multiplier)	500	40,000
Label seal (for each label)/6kg (paid by multiplier)	300	100,000,000
DUS test certificate/variety (paid by breeder)	5,000	5,000
Registration as a seed dealer (paid by breeder, multiplier and supplier)	2,000	6,000
DUS test /variety (paid by breeder)	2,000	2,000
NPT/variety (paid by breeder)	2,000	2,000
Seed transport order/lot (paid by multiplier)	2,000	160,000
Notice to import/export seed/lot (paid by supplier)	2,000	-
Conducting DUS test for two seasons/variety (paid by breeder)	500,000	500,000
Conducting NPT for one season/variety (paid by breeder)	600,000	600,000
Licensing seed sampler or analyst/license (paid by seed sampler)	20,000	-
Total Cost		**106,828,700**
Calculations		
Total seeds produced (Tons/kg) for 333,333 packs	2,000	2,000,000
Area (Ha) needed to produce the seeds	200	
One lot (25 tones)	80	
Cotton seed variety (UKM 08)	1	
Certified seed packaging (in kg)	6	

Table 2: Compliance costs for agrochemical suppliers (TZS)

Tropical Pesticides Research Institute (TPRI)	
Pesticides importation licenses fee	300,000
Importation application fee	100,000
Experimental registration fee	2,000,000
Pesticide field test fee	12,000,000
Paying 0.5% FOB value	
Pesticide analytical fee	300,000
Company Registration Fees	
Full registration fee for five years (USD 1,000 for 5yrs)	400,000
Provisional registration fee (USD 1,500 for 2yrs)	
Restricted registration fee (USD 1,000 for 2 yrs)	
Tanzania Fire and Rescue Force (TFRF)	
Fire levy	1,000,000
Warehouse/godown levy	100,000
Vehicle (lories 7 tons and above) levy	
Training per person	10,000
National Environment Management Council (NEMC)	
Fee for environmental compliance and audit	1,500,000
Registration and review of compliance	1,000,000
Annual fee for pollution permit	1,000,000
Application fee	
Excessive noise levels for factory or workshop	
Excessive whole body vibration (day)	
Excessive whole body vibration (night)	
Total Costs	**19,710,000**

Table 3: Compliance costs for seed cotton ginners and buyers (TZS)

Regulator	**Type of Cotton Ginner/Buyer**		
	Small (workers =100)	**Medium (workers = 150)**	**Large (workers = 300)**
Local Government Authorities (LGAs)	24,475,000	69,650,000	98,500,000
Tanzania Revenue Authority (TRA)	619,915,000	1,242,265,000	2,478,995,000
Occupational Safety and Health Authority (OSHA)	12,630,000	22,480,000	259,480,000
Tanzania Fire and Rescue Force (TFRF)	4,300,000	13,500,000	546,000,000
National Environment Management Council (NEMC)	8,550,000	8,550,000	8,550,000
Total Compliance Costs (TCC)	**669,870,000**	**1,356,445,000**	**3,391,525,000**
Proportion to TCC	**%**	**%**	**%**
LGAs	3.65	5.13	2.90
TRA	92.54	91.58	73.09
OSHA	1.89	1.66	7.65
TFRF	0.64	1.00	16.10
NEMC	1.28	0.63	0.25
TCC	**100**	**100**	**100**

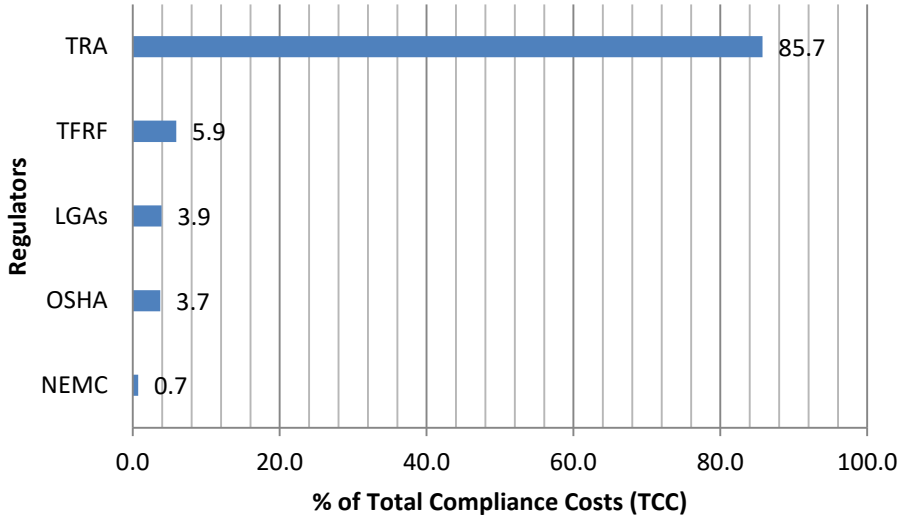


Figure 4: Percentage of compliance costs for seed cotton buyers and ginners by type of regulator

The compliance costs (salaries excluded) for large scale oil miller and textile industry amounted to TZS 628.9 million and TZS 334.7 million (Table 4). The proportions of compliance costs by type of regulator are presented in Figure 5.

Table 4: Compliance costs for large scale cotton seed oil mills and textile industries (TZS)

Regulator	Oil Mills	Textile Industries
Occupational Safety and Health Authority (OSHA)	12,700,000	12,850,000
Tanzania Food and Drug Authority (TFDA)	2,330,000	0
Tanzania Revenue Authority (TRA)	600,015,000	305,755,000
Tanzania Fire and Rescue Force (TFRF)	5,110,000	5,110,000
National Environment Management Council (NEMC)	8,700,000	10,950,000
Total Compliance Costs	**628,855,000**	**334,665,000**

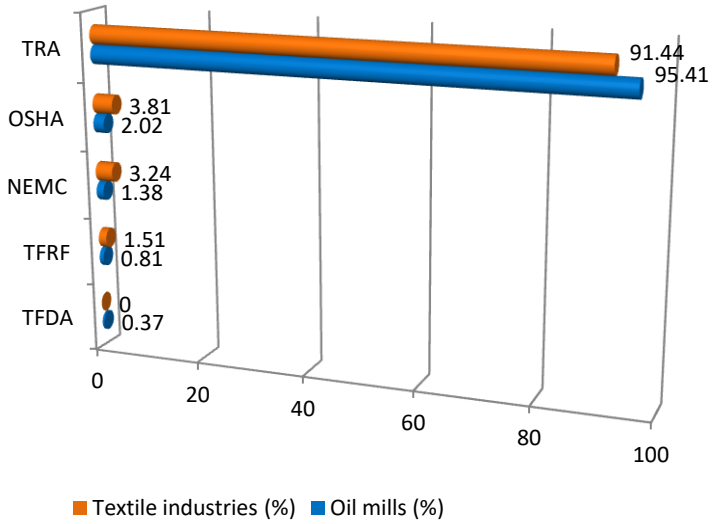


Figure 5: Percentages of compliance costs for oil mills and textiles by type of regulator

Overall, the different taxes imposed by TRA constituted the largest proportion of compliance costs for ginners, cotton seed oil millers and textile industries. This is in line with the complaints raised by most ginners who were consulted during the survey held between October and December 2016. The key concerns were specifically directed to the poor implementation of the VAT Act of 2014. According to registered cotton seed oil millers who were interviewed during the survey, the VAT which is charged on locally produced edible oil and cake results in high prices for locally produced oil and cake making them less competitive both at the local and domestic markets.[17] Oil millers reported to have incurred losses as they had to sell oil mill products at low prices.

Due to high prices of cotton seed cake, livestock keepers have also resorted to relatively cheaper substitute feeds as they cannot afford to buy the cotton seed cake for their animals. As such, oil millers find themselves accumulating huge stock of cotton seed cake which in turn causes leads to negative effects on their accrued bank loans and interests. Consequently, this has spill over effects not only to the ginners who end up accumulating huge stocks of cotton seeds which cannot be sold to oil millers or sold at a giveaway price but also to the farmers who will receive low farm gate prices for the seed cotton sold in the subsequent growing season.

[17] Value Added Tax means the tax imposed on taxable supplies or taxable imports, and includes an interest, fine or penalty pay able in accordance with the provisions of the national Value Added Tax Act, 2014. Registered persons normally account for VAT on the invoice or sales basis. This means that they become liable for VAT by reference to invoices issued and sales made by them irrespective of whether payment has actually been received, and hence, the "value added tax return" which is a return that a taxable person is required to file with the Commissioner General, in which required information concerning that person, or other person's is provided. Note that VAT is not charged for cotton seeds but the same is charged for cotton seed oil, which makes difficult for taxable oil miller to claim for VAT return.

Concerns were also raised against the duty charged on deemed capital goods like land, building, plant and machineries, motor vehicles, furniture and fittings, generators, tools and equipment which are highly required in the business establishment. Fleets for example, can only serve for a short time as they operate in rural areas where roads are rough and hardly passable. Contrary to other vehicles, the ginnery's vehicles, like trucks and light duty vehicles were purchased or imported for use in the collection of seed cotton from the villages; distribution of inputs to farmers, and disbursement of fund in paying posts. These vehicles are currently categorised as "luxury goods" and taxed accordingly at a tune of 20% to 45%, both in term of excise duty and custom duty. These taxes lead to unnecessarily high costs of operation for ginners.

Equally important also was the concern against "non-claims" on VAT paid on small field operation vehicles used for crop service. These vehicles include the imported Double cabin pickups, Toyota Rav4s, Suzuki Escudos, and Hard tops just to mention few and are also categorized as luxury vehicles. According to the VAT Act, 2014, the VATs paid on such fleets are non-refundable though the fleets are used for provision of crop services.

The LGA's contributions and licensing arrangements also constitute another burden to seed cotton buyers and ginners. The District Councils (DCs) have instituted their bylaws to solicit revenues from crop cess and levies. Interviews with cotton buyers and ginners showed that the DCs have from time to time, increased the district trade licence to as much as 200% annually besides the other contributions made during the process of application and issuance of the trade licence.

In addition, seed cotton buyers and ginners are required to make advance cess payments prior to the start of buying season and in most cases they are compelled to pay an advance cess of 100% of what they project to purchase. This arrangement frustrates cotton buyers and ginners and cripples their cash flows making it difficult for them to secure a loan facility for advance seed cotton cess payment. This also compels them to buy seed cotton from farmers on credit which is contrary to the law as stipulated in the Cotton Industry Act (Cap. 201) and its Regulations of 2011. These costs erode the profit margin of buyers and ginner and are added in the computation of final seed cotton prices. They are ultimately borne by seed cotton farmers as they receive low farm gate prices.

Other areas of concern relate to unnecessarily high land rates and tariffs of utilities like electricity, water, and petroleum just to mention few. The lands owned by actors like ginners, oil millers and operators of textile industries are charged on the per square meter basis resulting into unnecessarily high costs of doing business. Before the recent land rates reform a fixed rate of TZS 300,000 per annum was adopted.

Leave alone the problem of unreliable power supply the current electricity tariffs are so high. In addition, ginners have to pay 75% of their peak monthly electricity bill when their gins are idle or not operational. For example, an "average ginner" would pay a monthly electricity bill of as much as TZS 17 million when the gin mill is idle. If the ginner operates only for nine months in a year this would result into a total electricity bill of TZS 51 million for the three months when the

ginner was idle or not ginning (i.e. TZS 17 million x 3 months). Most ginners are unable to sustain such a high bill without significantly eroding the profit margins from the business. Importantly, all these costs are ultimately transferred to seed cotton farmers in the form of low producer prices. This in turn has forced farmers to shift from cotton production to growing of other crops, such as rice, other grains and crops which are relatively paying better than cotton.

4.5 Impact of High Compliance Costs and Inefficient Regulatory System

4.5.1 Impacts on business

High compliance costs erode net incomes which in turn has forced some actors to switch from cotton to other businesses.[18] To illustrate this we carry out a financial analysis of the 2013/14 seed cotton growing, buying and ginning information for an average grower and middle-scale cotton buyer and ginner.

A summary of the key parameters used in the projection of costs and benefits of cotton growing were based on an average farmer for 2013/14 (Table 5). The farmer was estimated to earn revenues amounting to TZS 1.5 million and net income of about TZS 334,475 (Table 6).

The ginner is assumed to have bought and ginned a total of 5,790,000 kilograms of seed cotton and produced 11,196 bales of cotton lint and about 3.65 million kilograms of cotton seed. Other core assumptions for the ginner are:

a) Farm-gate price for seed cotton of TZS 800
b) An ex-ginnery price of US$ 0.74/lb for cotton lint
c) An ex-ginnery price of TZS 300.00/kg for cotton seed
d) TZS 1,600/US$ exchange rate
e) The ginnery operating at about 80% capacity for 6 months
f) Ginning out turn (GOT) of 34.5% for lint cotton; 63% for cotton seed and 2.5% for waste, and
g) Proportions of cotton products and byproducts flows as shown in Appendix 4 for UK 91 cotton variety.

A summary of the key parameters used in the projection are based on a medium scale ginner for 2013/14 as given in Table 7. The output from the operations was estimated to generate revenues amounting to TZS 6,308 million and net income of about TZS 356 million (Table 8). The results of analysis show that the ginner could only make marginal profits with ex-ginnery price of US$ 0.70. The ginner would incur losses when the ex-ginnery price was below US$ 0.69.

[18] KACU for example, has stopped buying and ginning cotton since 2014/15 and is currently dealing with tobacco and cereals.

Table 5: Production and price information for an average farmer, 2013/14 base year

Item	Value
a) Productivity	
Lint (%)	33.5
Seeds (%)	63.5
Waste (%)	3.0
Yield (kg/ha)	750.0
Average farm size (ha)	2.5
b) Production costs	
Council levy	3.0%
CDTF levy (TZS/kg)	36.0
TACOGA contribution (TZS/kg)	3.0
Grading costs (TZS/kg)	90.0
Buying cost (TZS/kg)	40.0
Transport costs (TZS/kg)	35.0
Loan interest (TZS/kg)	16.0
Total production cost of seed cotton (TZS/kg)	438.0
Investment cost (10% of total cost)	43.8
c) Prices, exchange rate and weight conversion	
Lint export price (US$/lb)	0.74
Cotton seed price (TZS/kg)	300.00
Exchange rate (TZS/US$)	1,600.00
Weight conversion ratio (kg to lbs)	2.20462
Amount of seed cotton required to produce 1 kg LINT (kg)	3
Amount of cotton seeds produced from 1 kg LINT (kg)	2
Farm gate price for farmers (TZS/kg)	800

Table 6: Revenues, costs and net income for an average seed cotton grower, 2013/14 prices

Item	Unit Value	Total Value
a) Revenue		
Average seed cotton yield (kg/ha)		750.00
Seed cotton selling price (TZS/kg)		800.00
Average farm size (ha)		2.50
Total Revenue		**1,500,000.00**
b) Costs (TZS/kg)		
Buying cost	40.00	30,000.00
Transport costs	35.00	26,250.00
Sorting and grading costs	90.00	67,500.00
CDTF levy	36.00	27,000.00
Council levy	37.00	27,750.00
TACOGA contribution	3.00	2,250.00
Loan interest	16.00	12,000.00
Sub-Total	**257.00**	**192,750.00**
Investment cost (10% of total cost)	25.70	19275.00
Production/growing costs (TZS/kg)	438.00	328,500.00
Total Costs	**720.70**	**540,525.00**
Net Income (excluding crop land value) (TZS)		**959,475.00**
Average value of land (TZS)		625,000.00
Net Income (including crop land value) (TZS)		**334,475.00**

Table 7: Indirect/ginning costs for an average ginner, 2013/14 base year

Item	Value
a) Ginning facilities and productivity	
Lint (%)	34.5
Seeds (%)	63.0
Waste (%)	2.5
Number of installed stands	16.0
Number of operational stands	14.0
Maximum ginning output (kg/gin/hour)	80.0
Average ginning efficiency (kg/gin/hour)	70.0
Average shift duration (hours)	8.0
Number of shifts per day	3.0
Ginning duration (months)	6.0
Ginnery running workable time (days per season)	130.0
Weight of a standard lint bale (kg)	181.0
b) Prices, exchange rate and weight conversion	
Lint export price (US$/lb)*	0.74
Cotton seed price - to Oil millers (TZS/kg)	300.00
Exchange rate (TZS/US$)	1,600.00
Weight conversion ratio (kg to lbs)	2.20462

Note: *The world cotton prices fluctuated between USD 80 and 95 cents per pound during the October 2012 to April 2013 period. The monthly volatility of world cotton prices has an important implication: there is a risk of selling at a low price during a given cotton marketing season if the companies dealing with cotton in the country do not have appropriate selling strategies. Forward selling of some of the cotton can reduce the risk of getting low price during a given market season.

Table 8: Indirect/ginning revenues, costs and net income for an average ginner, 2013/14 prices

Item	Value (TZS)
Sales Revenues	
Lint cotton	5,214,144,998.30
Cotton seed - to Oil millers	1,094,310,000.00
Total Revenues	**6,308,454,998.30**
Direct Costs	
Purchase of seed cotton	4,632,000,000.00
Primary society levy	173,700,000.00
Union levy	125,932,500.00
Council levy	231,600,000.00
CDTF levy	28,950,000.00
Transport from villages	57,900,000.00
Allowance for cash distribution	3,763,500.00
Allowance for security guards	2,895,000.00
Transport costs for cash distribution	46,320,000.00
Jute bags	15,054,000.00
Fumigation costs	3,879,300.00
Off loading seed cotton	81,060,000.00
Cash insurance	4,516,200.00
Crop & storage insurance	4,863,600.00
Primary society insurance	5,790,000.00
Supervision costs	4,805,700.00
Total Direct Costs	**5,423,029,800.00**
Ginning Costs	
Balling materials	164,381,113.70
Consumable spares	43,946,100.00
Utilities (electricity and water)	69,223,682.50
Ginnery administration expenses (Overheads)	95,882,400.00
Total Ginning (indirect) Costs	**373,433,296.20**
Other/Indirect/Apportioned Costs (Total)	**155,512,140.59**
Total costs	**5,951,975,236.79**
Net Income	**356,479,761.51**

A comparison of direct costs (TZS/kg) for seed cotton between medium and large scale ginneries and the indirect/ginning costs of lint cotton are given in Table 9 and Table 10 respectively. Due to the economies of scale effects, the direct costs of seed cotton were relatively smaller for large scale ginners (averaging at TZS 928.78) than that of medium scale ginners (TZS 928.78). As shown in Table 9, the average costs for most cost items were the same

except for transport, allowances, supervision, packing, loading and off-loading of seed cotton which were relatively higher for medium than large scale ginners.

Table 9: Comparison of direct costs for ginneries, TZS per kg 2013/14 prices

Cost item	Medium-scale	Large-scale
Seed cotton purchase price	800.00	800.00
Primary society levy	30.00	30.00
Union levy	21.80	21.80
Council levy	40.00	40.00
CDTF levy	5.00	5.00
Transport from villages	10.00	8.00
Allowance for cash distribution	0.65	0.55
Allowance for security guards	0.50	0.35
Transport costs for cash distribution	8.00	5.00
Jute bags	2.60	2.60
Fumigation costs	0.67	0.65
Packing, loading & Off loading seed cotton	14.00	12.50
Cash insurance	0.78	0.78
Crop & storage insurance	0.84	0.84
Primary society insurance	1.00	0.00
Supervision costs	0.83	0.65
Total direct costs	**936.67**	**928.72**

Table 10: Indirect/ginning costs for a medium-scale ginner, 2013/14 prices

Cost item	TZS/Kg of LINT cotton
a) Balling Materials	
Hessian Grey Cloth	43.62
Quick Links	38.67
Sub-Total	**82.29**
b) Consumable Spares	
Repair and Services of Machines	14.00
Ginnery Services	8.00
Sub-Total	**22.00**
c) Utilities (Electricity and Water)	
Service Unit Charge	8.00
KVA Charge	15.00
VAT, REA & EWURA (18% + 1% +2%)	3.15
Water	5.00
Sub-Total	**31.15**
Ginnery Administration Expenses (Overheads)	
Salaries and Allowances	28.00
Wages - All shifts	8.00
Wages (General Shift)	5.00
Other Overhead charges	7.00
Sub-Total	**48.00**
Total Ginning (indirect) Costs	**183.44**
Grand Total (Direct + Indirect) per kg of seed cotton	**999.91**

Besides eroding net incomes of businesses, high compliance costs also diminish the opportunity and ability of cotton firms to obtain and retire bank overdrafts and may also affect their willingness to comply with regulations and attract tax evasion. Our analysis of cash-flows for an average ginner shows that over a period of 12 months (April 2013 – March 2014), the ginner who bought and ginned a total of 5,790,000 kg of seed cotton and produced 11,196 bales of cotton lint and about 3.65 million kg of cotton seed needed an overdraft facility of about TZS 2.2 billion in tranches of varying amounts between June and September 2013.

The ginner could be able to retire the overdraft in varying amounts between October 2013 and February 2014 with an assumed interest rate of 15% with the interest accruing and cumulating monthly. To qualify for the bank overdraft facility of 2.2 billion, the ginner had to have a good base to offer as collateral. The net fixed assets of the ginner amounted to only about TZS 1.695 billion which was far below the bank overdraft facility disqualifying him/her for the loan. In addition to the requirement of positive net current assets, the ginner was supposed not to have debt burdens that the potential lenders would handle before advancing new funds.

4.5.2 Impacts on investment and employment

Expensive and inefficient regulation impacts investments and ultimately the creation and sustainability of jobs. Expensive regulations create regulatory compliance jobs at the expense of jobs that are more highly valued by the market (i.e., consumers). This is referred to as the misallocation of resources—capital and labor are directed to less productive or unproductive uses and can have very real consequences for the economy.

There are several possible avenues for expensive and inefficient regulations to affect investment and, employment in the cotton industry. Firstly, expensive regulations create uncertainty.[19] Investment may be temporarily withheld when there is uncertainty about the size and scope of regulations. This is particularly true for irreversible investments or investments that cannot be easily reversed (i.e., reselling capital for its purchase price).[20] Investment in new capital is inevitably accompanied by the hiring of new labor. Uncertainty in investment will also result in uncertainty in employment.

It is also important to note that uncertainty about access to credit has a greater impact on firms, small firms in particular, that need continuous access to credit in order to finance investments. On the other hand, the national banks, like Tanzania Investment Bank (TIB) and the new Tanzania Agricultural Development Bank Limited (TADB) and their financial services may create a new kind of uncertainty for both small and large firms with any financial activities. If they designated as "too big to fail," government oversight may control their operations. This might generate uncertainty about future business operations and potential profits.

To the extent that the investors are uncertain about upcoming changes in the legal and regulatory environments, they are unable to assess the likelihood of positive returns on investment and react by either holding assets in cash, at least temporarily, or finding other, more certain investment environments.

Secondly, expensive and inefficient regulations also can affect jobs by forcing new investment to move to other places where the investment is subject to less expensive regulations (competitiveness).

Thirdly expensive and inefficient regulations that impose large start-up costs on businesses, such as licensing and permitting, may create a "wedge" that prevents new firms from entering an existing industry, which can reduce competition in that industry (competition and entry).

Fourthly, firms must reallocate resources, including new hires, in order to comply with regulations (direct creation of jobs). The resources utilized to comply with expensive and inefficient regulations will not be utilized for other productive activities. It is worth noting that

[19] Two types of uncertainty can affect decisions by firms to invest: (a) uncertainty about demand for their products (demand uncertainty) and (b) uncertainty about factor costs (labor and capital) (factor uncertainty). Major regulations—such as those which relate to financial services, health care, or environmental rules—can affect both demand and factor uncertainty.

[20] Irreversible investments are those investments in capital whose resale value will be less than the price paid

data to assess the net effect on employment was not readily available rendering the estimation of impact of individual regulation difficult.

4.6 Proposed Model for Effective Regulation of the cotton industry in Tanzania

To address the various regulatory bottlenecks that are currently inherent in the cotton subsector we propose a regulatory model which deals with the real causes of declining cotton productivity and quality; builds a strong base for investor-farmer synergies, and helps farmers to intensify cotton production.

Similar models are already piloted elsewhere in Africa and other developing countries. In Tanzania, examples include the Rutuba Farm and Silverlands' Intensification Models for other agricultural value chains in the Southern Agricultural Corridor of Tanzania (SAGCOT) region (Kadigi *et al*., 2017). The Rutuba farm undertakes training of farmers in good agricultural practices through the Clinton Foundation Program at Gongwa area. Early lessons from this model suggest that small farmers can triple their yields if helped to intensify they agricultural practices (*ibid*). Smallholder farmers can harvest more crops per unit area provided that they are helped to access right seeds and other inputs at the right time, given the right education and assisted to access competitive markets (*ibid*).

Silverlands is a private company which has invested in a big poultry project at Ihemi village that produces three poultry breeds namely the Highland brown, Cobb 500, Sasso – French bird breeds (*ibid*). The company has a hatchery unit and produces vegetarian and high quality; scientifically formulated poultry feeds and buys crops (maize, soybeans and sunflower) from smallholder farmers in the cluster and in other areas outside Iringa and Njombe regions. The company normally buys the produce through NGOs who work for the interest of small-scale farmers by so doing bypassing the middlemen node and shortening the value chain or marketing channels of these crops (*ibid*). In addition the company has established a poultry training college for farmers and other entrepreneurs.

Elsewhere in Africa, the Cotton Training Centre (CTC) in Zimbabwe undertakes production training and in-season extension. The centre offers production and field courses for the ginning companies in areas of operation. CTC also offers a regional course each year which is open to agricultural graduates who need more specialized training in cotton production.

Zimbabwe has of recent also established a Presidential Inputs Scheme or the Agricultural Marketing Authority (AMA)[21] model of "free inputs to farmers." The bulk of the cotton produced in Zimbabwe during the 2016/17 season has been grown under the support of this scheme. Cotton farmers were sponsored by the Government and at least seven private companies, including Grafax, China Cotton, Sino Zim and Alliance Ginners also providing seed to plant about 255,000 ha.

[21] AMA is a statutory body established in terms of an Act of Parliament (CAP 18:24) with a broad mandate to regulate the participation in production, buying and processing of agricultural products in Zimbabwe.

In an attempt to address the issue of side marketing AMA registered buyers to purchase cotton from areas which they supported growers with inputs.[22] In addition, each dealer (cotton buyer and/or ginner) supplies its own brand name pack (jute bag) to a farmer who states the quantity of packs required.[23] On cotton delivery the farmer is charged a user fee – small amount for each pack returned and full cost recovery on all packs not returned. Buyers also supply their growers with polyethylene picking bags to minimize the effect of polypropylene contamination from grain bags which would otherwise be used.

During the 2016/17 seed cotton price was negotiated between individual farmers and buyers instead of the farmer representatives, and farmers paid according to grade or quality of their seed cotton.[24] The Cotton Company of Zimbabwe (COTTCO),[25] which is the largest cotton processing and marketing organizations in Zimbabwe, has bought cotton in different parts of the country at a minimum US$ 45 cents per kg while regionally cotton was sold at around 30 cents per kg in the 2016/17 growing season. The price of US$ 45 cents per kg was more of a subsidy and not the final price as it was a minimum price. After grading, farmers were paid the actual price.

Last but not least, the proposed model is based on the key assumption that the capacity of TCB as an overall regulator of the cotton industry is strengthened. Currently the Board lacks both the human and financial resources to effectively conduct its full range of regulatory activities, which in turn contributes to the problems of poor seed cotton quality and unfair competition among actors. Alternatively, where necessary TCB will use or appoint agents as stipulated in the provision of Regulation 47 which allows the Board to appoint an agent to perform its functions. The projections of benefits and costs of the model together with the specific recommendations are presented and discussed in the remaining sections of this report.

4.7 Projections of Economic Returns for the BAU Scenario and Proposed Model

The costs and benefits of proposed model are projected using the CBA approach and compared against that of the business as usual (BAU) scenario using the yardsticks of Net Present Value (NPV), Benefit Cost Ratio (BCR), and Economic Internal Rate of Return (EIRR).

4.7.1 Economic returns of an average farmer under BAU scenario

Using a discount rate of 15%, time horizon of 30 years (2013/14 – 2044/45) and the annual costs and benefits structure presented in Table 6 the NPVs for an average seed cotton farmer were negative projected at about TZS -6.034 million. The BCR for the BAU was 0.62 (Figure 6).

[22] The respective areas and quotas were as reflected on the buyers' licenses.

[23] One cotton pack can hold 200 – 250 kg of seed cotton.

[24] http://www.herald.co.zw/ama-approves-106-buying-points-for-cotton/

[25] COTTCO is listed on the Zimbabwe Stock Exchange and its stock index, the Zimbabwe Industrial Index.

Table 11: Projected economic returns for an average farmer, BAU scenario-2013/14 base year

Discount rate	Benefit Cost Ratio (TZS)	Net Present Value (TZS)
5%	0.66	-12,114,819.35
10%	0.64	-8,009,302.96
14%	0.63	-6,467,498.75
15%	0.62	-6,033,987.15
40%	0.54	-3,226,243.45
45%	0.41	-3,034,415.60
100%	0.41	-2,190,525.00

4.7.2 Economic returns of medium scale ginner under BAU scenario

The projection of economic returns for ginner took into consideration the depreciation on property, plant and equipments which was calculated using the Straight Line Method (SLM) so as to allocate the cost or revalue amounts to their residual values over their estimated useful lives from the time the asset was brought into use to the time of its de-recognition (see Table 12 and Table 13).

Table 12: Calculation of depreciation on assets for medium-scale ginner, base year 2013/14

Asset description	Rate per Annum
Land and building (%)*	5
Plant and machinery (%)	10
Trucks (%)	33
Furniture, fittings & equipment (%)	20
Motor cycles (%)	25
Small mot vehicles & tractor (%)	25
Total value of asset – current market value (TZS)	2,760,000,000
Depreciation (TZS)	30,289,576

*Land was not depreciated

Table 13: Calculation of depreciation on assets for medium-scale ginner, base year 2013/14

Asset description	Current Market Values (TZS)	Forced Sale Value (TZS)
Land and building	1,695,000,000	1,190,000,000
Ginnery plant	797,000,000	579,000,000
Motor vehicle	261,000,000	183,000,000
Motor cycles	7,000,000	4,900,000
Total current market value (TZS)	**2,760,000,000**	**1,956,900,000**

The results of projection using a discount rate of 15% and time horizon of 30 years (2013/14 – 2044/45) show that the NPV for a medium-scale ginner under BAU was negative (TZS -773.75 Million) indicating that a medium-scale ginner who was solely relying on cotton ginning and sale of cotton oil seeds eroded his/her capital assets and was making loses and would ultimately not be able to continue with the business under the BAU scenario. The BCR and EIRR for the BAU scenario were estimated at 0.98 and 12.18% (Figure 6). The EIRR is far less than the interest rates charged by many banks in Tanzania which again support the assertion that high compliance costs denies firms their opportunities to access loans.[26]

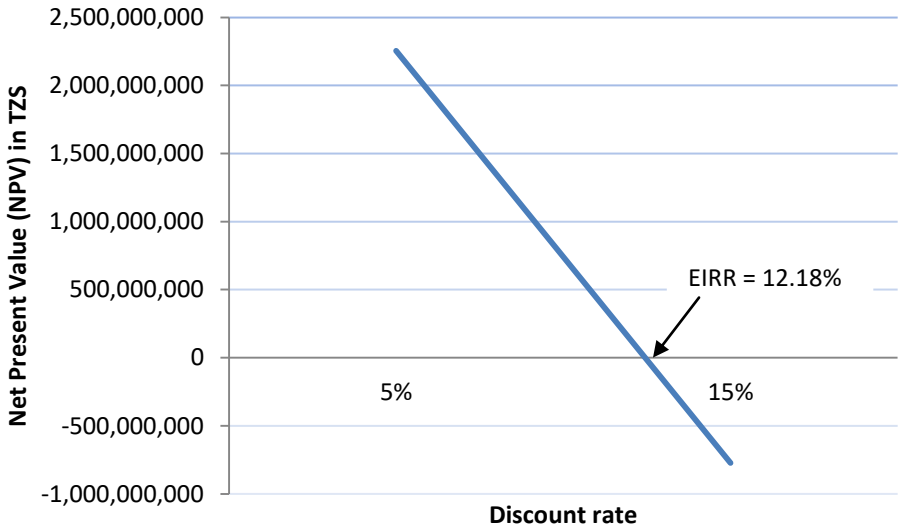


Figure 6: NPVs plotted against discount rates for medium ginner, BAU scenario (t = 30 years)

[26] Some banks charge interests of as high as 23%.

4.7.3 Economic returns of an average farmer under the proposed model

The following assumptions were used in projections of economic returns under the proposed model:

a) Time horizon of 30 years (2013/14 – 2044/45)
b) A discount rate of 15%
c) A 50% presidential input scheme and 25% company support model is adopted
d) LGA levy of TZS 2.5 per kg of seed cotton
e) Average yield of seed cotton of 1,500 kg per ha[27]
f) Average area under cotton cultivation of 2.5 ha with average value of land equal to TZS 600,000 per ha
g) Average ginner with 150 permanent workers
h) Current regulatory fees and taxes charged by different regulators (notably OSHA, TOSCI, NEMC, TFRF, TPRI, and TFDA) as well as TRA are reviewed and reduced by at least 50% to revive the cotton industry in Tanzania
h) Farm-gate price for seed cotton of TZS 1,000/kg
i) An ex-ginnery price of US$ 0.83/lb (equivalent to US$ 1.87/kg or TZS 2,988/kg) of cotton lint, 2013/14 prices [28]
j) An ex-ginnery price of TZS 350.00/kg of cotton seed
k) TZS 1,600/US$ exchange rate, 2013/14 prices
l) The ginnery operating at about 80% capacity for 6 months
m) Ginning out turn (GOT) of 37.8% for lint cotton; 61.2% for cotton seed and 1.0% for waste

Using a discount rate of 15%, time horizon of 30 years (2013/14 – 2044/45) the NPVs for an average seed cotton farmer were projected to increase from TZS 1.16 million for the BAU scenario to TZS 5.257 million for the proposed model. The BCR and EIRR for the proposed model were estimated at 1.27 and 47.3 (Figure 7).

[27] If a farmer in Geita Region (Mr. Masudi Mtole) could obtain yields of up to 1,600 kg per acre (equivalent to 3,953.68 kg/ha) of seed cotton we then assume that an average yield of 1,500 kg per ha is achievable when the model is adopted (i.e. farmers are able double their current yield of 750 kg/ha.

[28] See the trend of cotton lint at the world market at: https://www.statista.com/statistics/259431/global-cotton-price-since-1990/

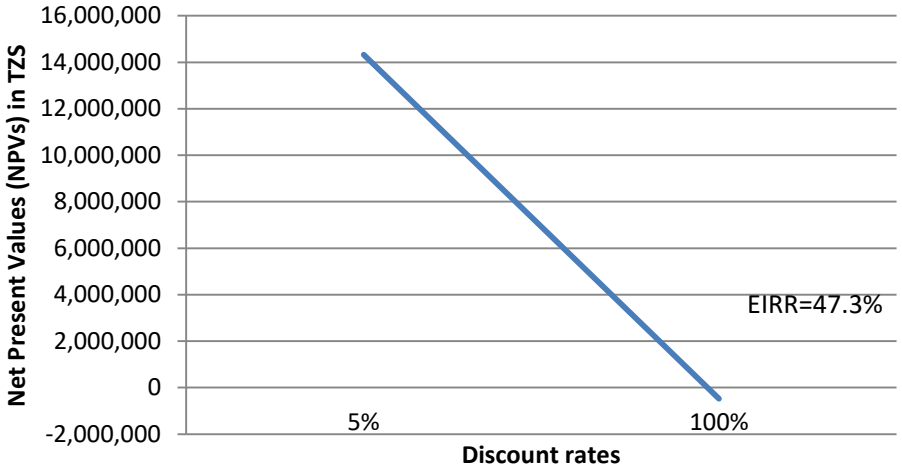


Figure 7: NPVs plotted against discount rates for an average farmer, proposed model (t = 30 years)

4.7.4 Economic returns for medium-scale ginner under the proposed model

The proposed model yields positive NPV (at r = 15%, t = 30 years) amounting to about TZS 4.19 billion for medium-scale ginner. The EIRR and BCR also improve significantly to 39.5% (see Figure 8) and 1.09 respectively. The results of comparisons of NPV and BCR between the business as usual and proposed model for a medium scale ginner are presented in Figure 11 and Figure 12 respectively.

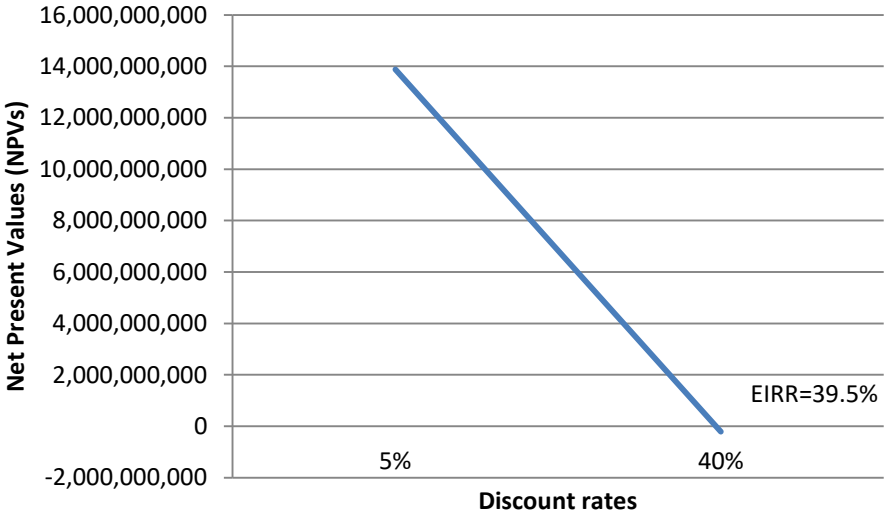


Figure 8: NPVs plotted against discount rates for medium ginner, proposed model (t = 30 years)

4.8 Comparison of Projected Economic Returns between BAU and Proposed Model

4.8.1 Comparison of economic returns of average farmer

The results of comparison of projected economic returns for average farmer are presented in Figure 9 (NPV) and Figure 10 (BCR).

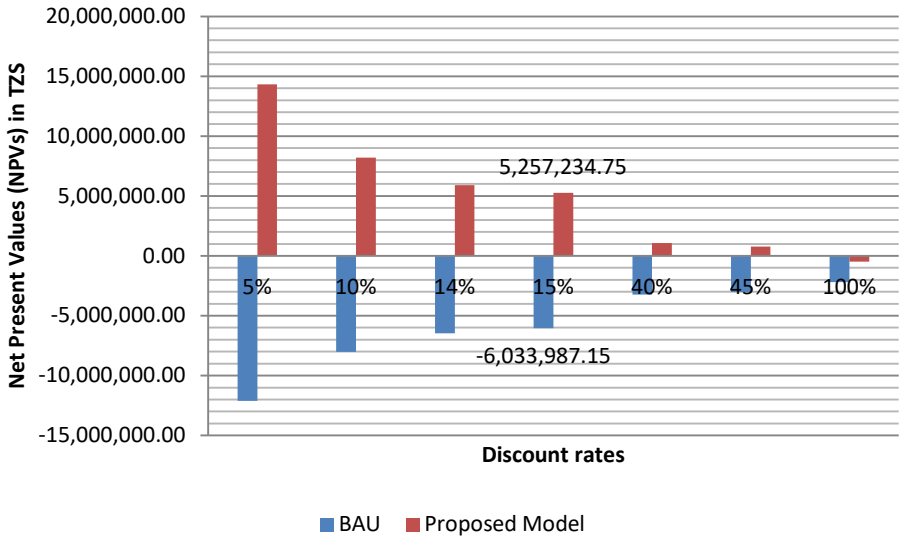


Figure 9: Comparison of projected NPVs for average farmer, BAU versus proposed model (t = 30 years)

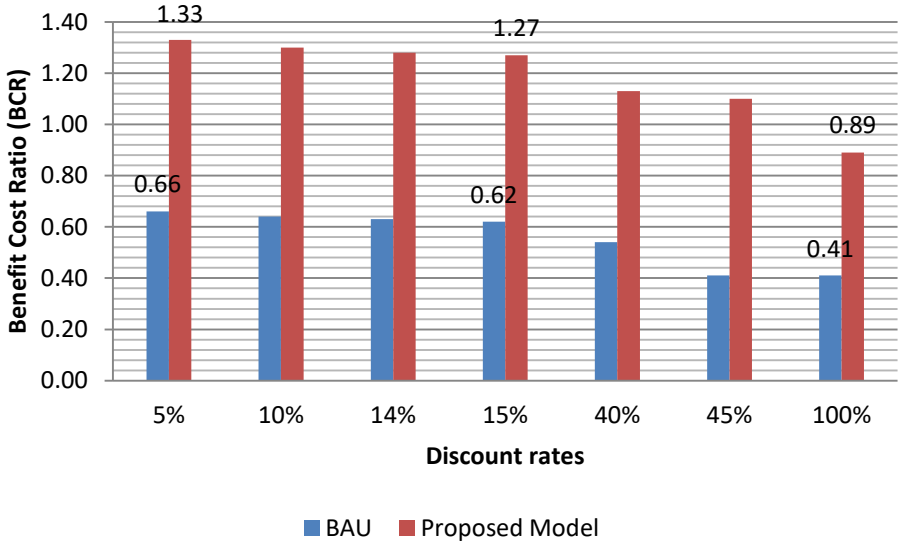
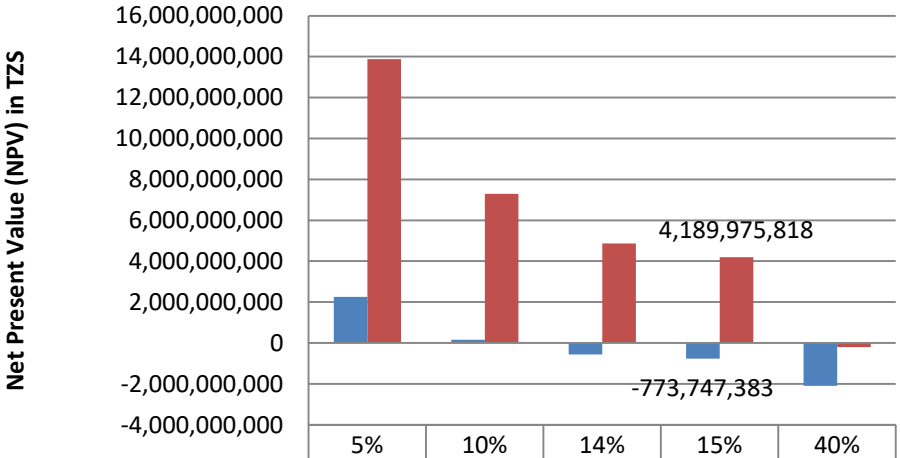


Figure 10: Comparison of projected BCRs for average farmer, BAU versus proposed model (t = 30 years) (t = 30 years)

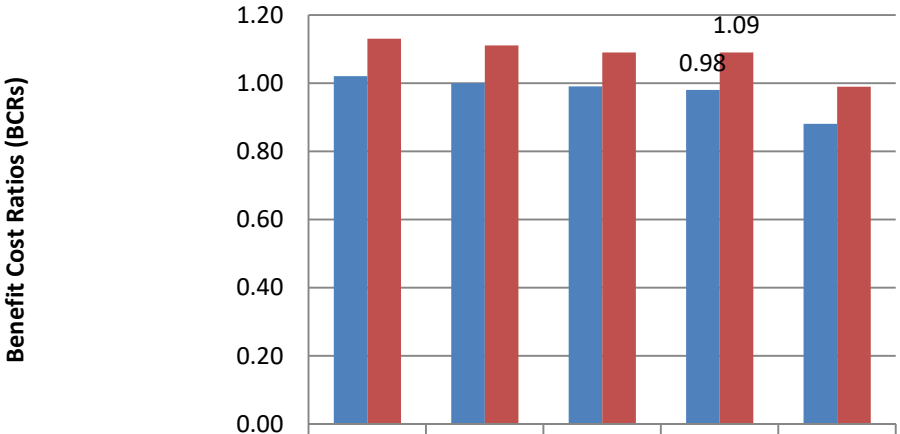
4.8.2 Comparison of economic returns of medium-scale ginner

The results of comparison of projected economic returns for medium ginner are presented in Figure 11 (NPV) and Figure 12 (BCR).



	5%	10%	14%	15%	40%
Business As Usual (BAU)	2,254,228	159,352,2	-568,965,	-773,747,	-2,100,06
Proposed Model	13,875,13	7,285,613	4,869,358	4,189,975	-210,210,

Figure 11: Comparison of projected NPVs for medium ginner, BAU versus proposed model (t = 30 years)



	5%	10%	14%	15%	40%
Business As Usual (BAU)	1.02	1.00	0.99	0.98	0.88
Proposed Model	1.13	1.11	1.09	1.09	0.99

Figure 12: Comparison of projected BCRs for medium ginner, BAU versus proposed model (t = 30 years) (t = 30 years)

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The existing regulatory framework in the cotton industry is too expensive, too time consuming, too arbitrary, highly politicised and poorly enforced. Just as important, the current regulators have little capacity to enforce their regulations. For example, TCB as the key regulator of the industry lacks both the human and financial resources to effectively conduct its full range of regulatory activities, which in turn contributes to the problems of poor seed cotton quality and unfair competition among actors. Currently, the board is staffed with only 25 District inspectors who are supposed to inspect about 5,500 to 8,500 buying posts located in 33 districts.

More accurately would be to say the inefficient regulatory framework and high compliance costs have generally acted to deter the potential investors in the subsector. This is particularly important understanding that in recent years there have been growing evidences of efficient regulatory systems that charge reasonable tax rates and provide adequate economic incentives to influence the decisions of investors. We identify the inefficient regulations and propose an efficient model which will maximize the incentives to invest in the industry. This is a model which aims to strengthen the seed cotton farmer-investor synergies, provide adequate incentives for sustainable and inclusive economic growth in the Tanzanian cotton industry. The specific recommendations are presented in the subsequent section.

5.2 Recommendations

a) **Strengthen the capacity of TCB as the main regulator of the cotton industry**. To effectively oversee and enforce the different requirements and conditions, as stipulates in the Cotton Industry Act (Cap. 201) and its Regulations of 2011, TCB requires adequate manpower. More inspectors should be employed and ensure that at least each of the 33 cotton growing districts has a cotton inspector. Obviously, this requires adequate resources and may take some time to materialize. Yet TCB may also use or appoint agents as per provision of Regulation 47 which permits the Board to appoint an agent to perform its functions.

b) Intensify cotton production by **building up a strong base for investor-cotton farmer synergies**. These synergies have to be autonomous and free from **excessive political interference** or **influence by political elites** who use farmers, buyers and ginners and their associations or cooperatives for their own interests. Good examples of investor-farmer synergies in other agricultural value chains include the **Rutuba Farm and Silverlands Intensification Models** which are well described in this report.

c) Ensure that **multipliers or producers of improved cotton seeds**, like Quton and others are enabled to **grow the seeds on their own farms** rather than current model of relying on the farmer-ginners arrangements. Ginners should not produce recycled cotton seeds.

d) Establish a **special presidential input fund** to revive the cotton industry in Tanzania **by borrowing a leaf from the current Presidential Input Scheme or AMA model** of "free inputs to farmers" in Zimbabwe. The AMA presidential input scheme covers the total cost of inputs by 100%. An alternative could be for the special presidential fund to cover 50% of the total costs of cotton seeds, fertilizers and pesticides wile buyers and ginners covering 25% and farmers covering the remaining 25% advanced as loan and deducted from their cotton sales. For the second option to work well **cotton buyers, ginners and farmers have to be facilitated to engage in working and effective contractual arrangements** to ensure that cotton buyers and ginners supply input to farmers who in return should sell the cotton seeds to them at pre-agreed price and recover the 25% advanced to farmers to top up the purchase of inputs. In both options the amount of inputs to be given to a farmer will depend on the area declared by the farmer for growing cotton in a particular season and the amount of inputs recommended by agronomists. The second option is in essence a slightly modified form contract farming only that the buyers and ginners are enabled to become more committed to own farmers and Regulations 31 – 36 of contract farming are effectively enforced. In this regard TCB, which is entrusted with promoting growth of production, processing and marketing of Tanzania cotton has a role to play. Outside cotton, **tobacco contract farming arrangements in Zimbabwe and Tanzania do provide some learning curve models** that may be worth duplicating or adapting in a change process for development of the cotton industry.

e) The **process of allocating ginners to zones**, **should be done in a more transparent and fair manner**, so that ginners will have confidence in the proposed model of a special presidential input fund.

f) **Reduce compliance costs by either subsidizing or reviewing some service charges and taxes.** Specifically, the VAT Act, 2014 has to be reviewed to create a **regulatory framework which will make the locally produced cotton products to become more competitive both at local and cross-border markets**.

g) Trucks and small operations vehicles for ginners, oil mills and textile industries **be categorized as "tax free" goods**. They **are capital goods which deserve tax exemption** as it was before the recent tax reforms.

h) **VAT charged on small field operation vehicles used for crop service be refunded** just like any other VATs on purchased commodity meant for business purpose.

i) **Land rates to be charged using a fixed rate** rather than square metre basis. The current land rates are gratuitously too high adding to the production costs of actors who own lands for cotton related business.

j) The **tariffs for utilities** like electricity, water, petrol, and others to be reviewed to attract more investment in the cotton processing and textile industry. The tariffs must reflect the actual costs of production and must compete with the world tariffs.

k) **Cotton cess and levies charged by DCs to be rationalized to the maximum of 2.5%** of the farm gate price. Where charged above this rate the difference has to be ploughed back to the industry for implementation of shared functions, as required by **Regulation 43** of the Cotton Industry Regulations of 2011.

l) Seed cotton buyers should be treated by DCs as merely seed cotton cess collection agents. They **should not be forced to pay the crop cess in advance**.

m) Revive the cotton cooperative unions. Key to this is to restructure them and dismantle the current **centralized organization structure**. The coops have to decentralize their activities at zonal levels. The **management at the zonal level should be empowered to perform its duties as an autonomous and rational decisional maker**. The **Board of Directors and management at the headquarters should only serve to oversee and provide backstopping support** to facilitate smooth and efficient operations at the zonal level. This has to go along with the **improvement of the unions' reporting and information system for quick and efficient decision making**. Most decisions related to the activities and operations at the zonal level have been solely handled by the Head office which causes delays and creates a room for inefficiencies, lack of creativity and irresponsibility for some staff at the zonal level. It is important also to **rationalize the number of primary societies to deal with**. Currently the cooperative unions are not able to purchase from all their member primary societies partly because they are too many to be effectively handled by the unions.

n) Adoption of a **ring-fencing business model** for ginners, cotton oil mills, spinning and textile industries. For example, financial institutions, like TIB and TADB, can inject funds for installation of more efficient machines, gin stands and for working capital. Under this model, the Bank and borrower have to enter into an agreement of a business which ensures that the two entities are benefiting from mutual engagement and recruitment of qualified staff for the management and operations of the business with repayment being operation – dependent and the management operations and cash flows closely monitored by the financier till when the project pays back for the loan facility.

o) **MIT to strengthen its Marketing Information System (MIS)** and disseminate information that will help ginners to **secure forward contract** early in order to **minimize risk** and establish the **threshold minimum price for forward contract** (**ex-ginner price**

per kg) and secure markets for seed cotton and lint and dispose the products early to reduce storage costs and improve **Cash Conversion Cycle (CCC).**

REFERENCES

APEC/Mexican Government (2013), *Regulatory Impact Evaluation Guide*, Volume 1: Methods and Methodologies, www.cofemermir.gob.mx/mir/documentos/Ingles_Guide_Vol%201_26112013.pdf, Published by CoFeMer/Secretaria di Economia/APEC.

Berg S. (2000). Sustainable Regulatory Systems: Laws, Resources, and Values, *Utilities Policy,* 9 (4): 159-70.

Brown, A., J. Stern and B. Tenenbaum with D. Gencer (2006). *Handbook for Evaluating Infrastructure Regulatory Systems*. World Bank, Washington, D.C. xx-397.Department of Treasury and Finance (2011), "Victorian Guide to Regulation", Government of Victoria, Melbourne.

Etikan I., R. Alkassim, S. Abubakar (2016). Comparison of Snowball Sampling and Sequential Sampling Technique. *Biom Biostat Int J* 3(1): 00055. DOI: 10.15406/bbij.2016.03.00055

Heckathorn D.D. (2015). Snowball Versus Respondent-Driven Sampling. *Sociol Methodol* 41(1): 352-366.

Jonhston L.G., S. Keith (2010). Sampling hard to reach population with respondent-driven sampling. *Methodological Innovations Online* 5(2): 38-48.

New Zealand Treasury (2005), "Cost Benefit Analysis Primer", www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis/primer

Kadigi, R.M.J., J.J. Kashaigili, A. Sirima, F. Kamau, A. Sikira, W. Mbungu (2017). Land fragmentation, agricultural productivity and implications for agricultural investments in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Region, Tanzania. *Journal of Development and Agricultural Economics*, 9(2):26-36 (Available online at: http://www.academicjournals.org/journal/JDAE/article-full-text-pdf/E25274D62552)

OECD (2008). *Introductory Handbook for Undertaking Regulatory Impact Analysis (RIA*). Organisation for Economic Co-operation and Development (OECD).

OECD (2014), *OECD Regulatory Compliance Cost Assessment Guidance*, OECD Publishing. *http://dx.doi.org/10.1787/9789264209657-en*

TCLSB (Tanzania Cotton Lint and Seed Board) (2002). *Cotton Sector Development Strategy: Final Draft*, Dar es Salaam, Tanzania.

Tschirley D., C. Poulton and P. Labaste (eds) (2009). Organization and Performance of Cotton Sectors in Africa: Learning from reform experience. The International Bank for Reconstruction and Development /The World Bank, DC, Washington. Available online at: http://www.coton-acp.org/docs/study/Organization_and_Performance_of_Cotton_Sectors_in_SSA_9780821377703.pdf

APPENDICES

Appendix 1: List of consulted individuals

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Appendix 2: Compliance costs for seed cotton by types of ginner and buyer (TZS)

Regulator/Item	Unit Charge	Type of Cotton Ginner/Buyer		
		Small (workers ≤ 100)	Medium (workers 101 - 150)	Large (workers 151 - 300)
1. Local Government Authorities (LGAs)				
a) Cotton buying permit fee (per buying post)	200,000	20,000,000	60,000,000	80,000,000
b) Uhuru torch contribution	350,000	2,450,000	5,250,000	10,500,000
c) School laboratory construction contribution	500,000	1,225,000	2,625,000	5,250,000
d) Cotton buying permit meeting allowance	150,000	150,000	150,000	150,000
e) Penalties	325,000	650,000	1,625,000	2,600,000
Sub-total (1)		**24,475,000**	**69,650,000**	**98,500,000**
2. Tanzania Revenue Authority (TRA)				
a) Business registration fee	15,000	15,000	15,000	15,000
b) Road license (small vehicles)	290,000	2,900,000	7,250,000	12,180,000
c) Road license (larger vehicles)	400,000	8,000,000	14,000,000	18,800,000
d) Skill and development levy (5% of gross salary)	0.05	7,500,000	17,500,000	40,000,000
e) CWF (1% of gross salary)	0.01	1,500,000	3,500,000	8,000,000
f) Cooperate tax (30% annual turnover)	0.30	600,000,000	1,200,000,000	2,400,000,000
Sub-total (2)		**619,915,000**	**1,242,265,000**	**2,478,995,000**
3. Occupational Safety and Health Authority (OSHA)				
a) Medical examination	20,000	2,000,000	3,000,000	6,000,000
b) Audiometry	15,000	1,500,000	2,250,000	4,500,000
c) Lung function test	25,000	2,500,000	3,750,000	7,500,000
d) Vision test	15,000	1,500,000	2,250,000	4,500,000
e) Peak expiratory flow test	10,000	1,000,000	1,500,000	3,000,000
f) Allergy test	25,000	2,500,000	3,750,000	7,500,000
g) Noise measurement per point	60,000	240,000	240,000	240,000
h) Noise measurement per person	100,000	Not done	Not done	Not done
i) Heat stress measurement per point	60,000	Not done	Not done	Not done
j) Dust sampling per work point	120,000	Not done	Not done	Not done
k) Dust sampling per person	60,000	Not done	Not done	Not done
l)Light measurements per point	60,000	240,000	240,000	240,000
m) Vibration test per point	200,000	Not done	Not done	Not done
n)Air current test per point	60,000	Not done	Not done	Not done
o) Toxic gas emission measurement per source	200,000	Not done	Not done	Not done
p)Indoor air quality	200,000	Not done	Not done	Not done

Regulator/Item	Unit Charge	Type of Cotton Ginner/Buyer		
		Small (workers ≤ 100)	Medium (workers 101 - 150)	Large (workers 151 - 300)
q) Polarity test per point	50,000	50,000	50,000	50,000
r) Continuity test per point	50,000	50,000	50,000	50,000
s) Earth resistance test per point	150,000	450,000	450,000	450,000
t) Insulation test per point	200,000	Not done	Not done	Not done
u) Electromagnetic field (EMF) test	300,000	Not done	Not done	Not done
v) Duplicate certificate	50,000	50,000	50,000	50,000
w) Workplace general register	50,000	50,000	50,000	50,000
x) Over 100 tons capacity	300,000	300,000	300,000	300,000
y) Safety signs material	15,000	150,000	4,500,000	225,000,000
z) Abstract	50,000	50,000	50,000	50,000
Sub-total (3)		**12,630,000**	**22,480,000**	**259,480,000**
4. Tanzania Fire and Rescue Force (TFRF)				
Fire levy	3,000,000	3,000,000	3,000,000	3,000,000
Fire extinguisher inspection fee, paid to dealers	30,000	300,000	9,000,000	540,000,000
Training per person	10,000	1,000,000	1,500,000	3,000,000
Sub-total (4)		**4,300,000**	**13,500,000**	**546,000,000**
5. National Environment Management Council (NEMC)				
Registration and review of compliance	1,000,000	1,000,000	1,000,000	1,000,000
Annual fee for pollution permit	1,000,000	1,000,000	1,000,000	1,000,000
Application fee	50,000	50,000	50,000	50,000
Excessive noise levels for factory or workshop	500,000	500,000	500,000	500,000
Excessive whole body vibration (day)	2,000,000	2,000,000	2,000,000	2,000,000
Excessive whole body vibration (night)	4,000,000	4,000,000	4,000,000	4,000,000
Sub-total (5)		**8,550,000**	**8,550,000**	**8,550,000**
6. TPRI				
Warehouse/godown fumigation fee	7,000	700,000	210,000,000	84,000,000,000
Sub-total (5)		**700,000**	**210,000,000**	**84,000,000,000**
TOTAL COMPLIANCE COSTS		**670,570,000**	**1,566,445,000**	**87,391,525,000**
Calculations				
Fire extinguishers		10	30	60
Number of workers		100	150	300
Number of small cars		10	25	42
Number of large cars		20	35	47
Number of buying posts		100	300	400

Regulator/Item	Unit Charge	Type of Cotton Ginner/Buyer		
		Small (workers ≤ 100)	Medium (workers 101 - 150)	Large (workers 151 - 300)
Number of contributions		7	15	30
Penalties		2	5	8
Annual turnover		2,000,000,000	4,000,000,000	8,000,000,000
Annual salary paid per ginner		150,000,000	350,000,000	800,000,000
Number of safety sign materials		10	30	50
Noise measurement per point		4	4	4
Noise measurement per person		Not done	Not done	Not done
Heat stress measurement per point		Not done	Not done	Not done
Dust sampling per work point		Not done	Not done	Not done
Dust sampling per person		Not done	Not done	Not done
Light measurements per point		4	4	4
Vibration test per point		Not done	Not done	Not done
Air current test per point		Not done	Not done	Not done
Toxic gas emission measurement per source		Not done	Not done	Not done
Indoor air quality		Not done	Not done	Not done
Polarity test per point		1	1	1
Continuity test per point		1	1	1
Earth resistance test per point		3	3	3
Insulation test per point		Not done	Not done	Not done
Electromagnetic field (EMF) test		Not done	Not done	Not done

Appendix 3: Compliance costs for cotton seed oil mills and textile industries (TZS)

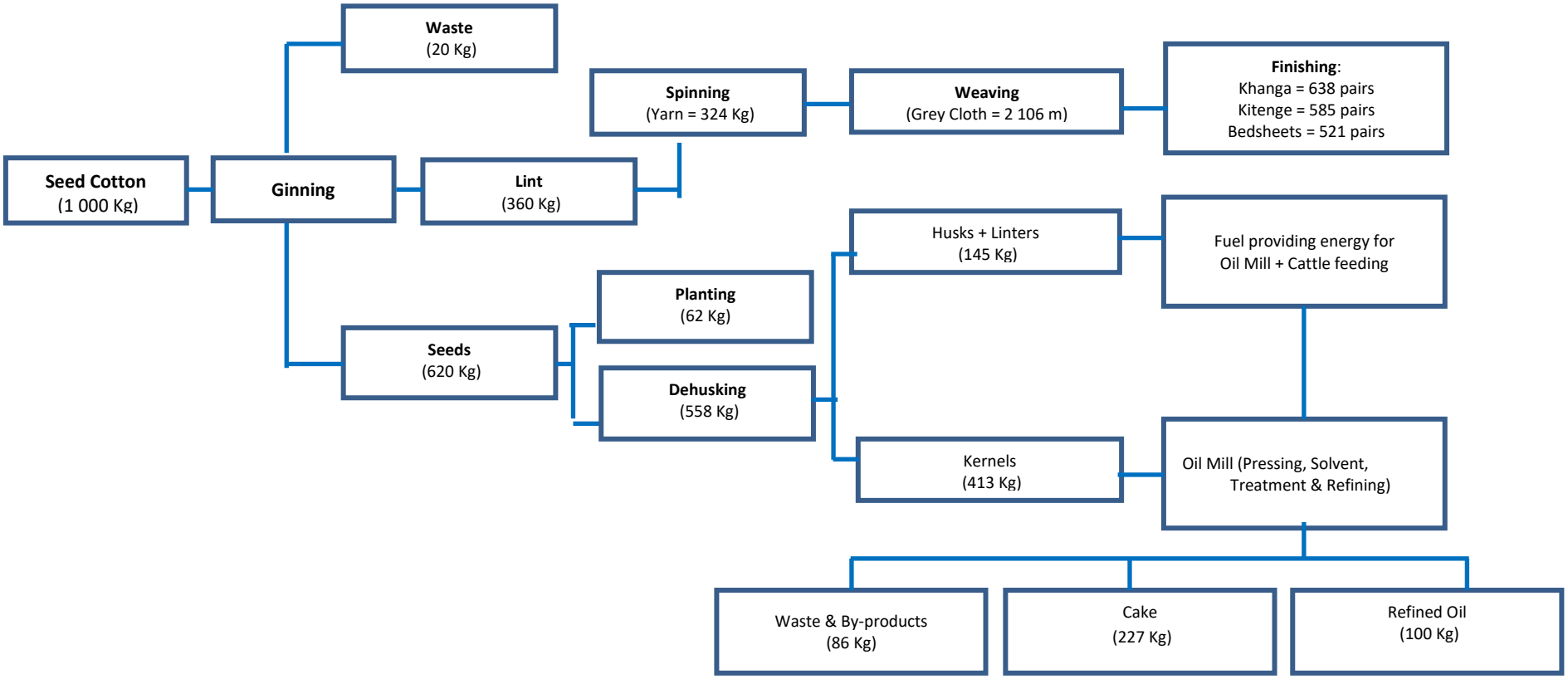
Regulator/Cost Items	Oil Mills		Textile Industries	
	Unit Cost	Large-scale	Unit Cost	Large-scale
1. Occupational Safety and Health Authority (OSHA)				
Workplace registration fee	300,000	300,000	450,000	450,000
Medical examination	20,000	2,000,000	20,000	2,000,000
Audiometry	15,000	1,500,000	15,000	1,500,000
Lung function test	25,000	2,500,000	25,000	2,500,000
Vision test	15,000	1,500,000	15,000	1,500,000
Peek expiratory flow test	10,000	1,000,000	10,000	1,000,000
Allergy test	25,000	2,500,000	25,000	2,500,000
Industrial hygiene measurement				
Noise measurement per point	60,000	240,000	60,000	240,000
Noise measurement per person	100,000	Not done	100,000	Not done
Heat stress measurement per point	60,000	Not done	60,000	Not done
Dust sampling per work point	120,000	Not done	120,000	Not done
Dust sampling per person	60,000	Not done	60,000	Not done
Gas detection per point per gas type	350,000	Not done	350,000	Not done
Light measurements per point	60,000	240,000	60,000	240,000
Vibration test per point	200,000	Not done	200,000	Not done
Air current test per point	60,000	Not done	60,000	Not done
Toxic gas emission measurement per source	200,000	Not done	200,000	Not done
Indoor air quality	200,000	Not done	200,000	Not done
Electrical tests fees				
Polarity test per point	50,000	50,000	50,000	50,000
Continuity test per point	50,000	50,000	50,000	50,000
Earth resistance test per point	150,000	450,000	150,000	450,000
Insulation test per point	200,000	Not done	200,000	Not done
Electromagnetic field (EMF) test	300,000	Not done	300,000	Not done
Inspection of powered operated crane				
Over 100 tons capacity	300,000	300,000	300,000	300,000
Manually operated equipment				
Over 5 tons capacity	20,000	20,000	20,000	20,000
Abstract	50,000	50,000	50,000	50,000
Sub-total		**12,700,000**		**12,850,000**

Regulator/Cost Items	Oil Mills		Textile Industries	
	Unit Cost	Large-scale	Unit Cost	Large-scale
2. Tanzania Food and Drug Authority (TFDA)				
Oil processing building registration fee	300,000	300,000	NA	NA
Vegetable cooking oil tests				
Usaponifable matters test(%w/w)	100,000	100,000	NA	NA
Iodine content test (mg/L)	100,000	100,000	NA	NA
Poly bromide test (%w/w)	20,000	20,000	NA	NA
Arachidic Acid test	20,000	20,000	NA	NA
Viscosity test	40,000	40,000	NA	NA
Density test	20,000	20,000	NA	NA
Flash point test	20,000	20,000	NA	NA
Acid value test	50,000	50,000	NA	NA
Ash test	90,000	90,000	NA	NA
Chlorides content test	50,000	50,000	NA	NA
Free fatty acid test	50,000	50,000	NA	NA
Gossypol test	80,000	80,000	NA	NA
Insoluble impurities test	50,000	50,000	NA	NA
Moisture content test	60,000	60,000	NA	NA
Peroxide value test	100,000	100,000	NA	NA
Refractive index test	20,000	20,000	NA	NA
Relative density test	20,000	20,000	NA	NA
Saponification value test	100,000	100,000	NA	NA
Soap content test	20,000	20,000	NA	NA
Starch content test	80,000	80,000	NA	NA
Antioxidant tests				
Vitamin E content test	130,000	130,000	NA	NA
Heavy metal tests (each one)				
Mercury content test	110,000	110,000	NA	NA
Lead content test	110,000	110,000	NA	NA
Arsenic content test	110,000	110,000	NA	NA
Mycotoxin tests				
T. Toxin test	240,000	240,000	NA	NA
Total Aflatoxin test	240,000	240,000	NA	NA
Sub-total		**2,330,000**		**0**
3. Tanzania Revenue Authority (TRA)				

Regulator/Cost Items	Oil Mills		Textile Industries	
	Unit Cost	Large-scale	Unit Cost	Large-scale
Business registration fee	15,000	15,000	15,000	15,000
Road license				5,740,000
Skill and development tax (6% of the salary paid)		6,000,000		2,400,000
Cooperate tax (30% of the annual turnover)		600,000,000		300,000,000
Sub-total (excluding skills and development tax)		**600,015,000**		**305,755,000**
4. Tanzania Fire and Rescue Force (TFRF)				
Fire levy	5,000,000	5,000,000	5,000,000	5,000,000
Warehouse/godown levy	100,000	100,000	100,000	100,000
Vehicle (lories 7 tons and above) levy	10,000	10,000	10,000	10,000
Sub-total		**5,110,000**		**5,110,000**
5. National Environment Management Council (NEMC)				
Fee for environmental compliance and audit	150,000	150,000	2,250,000	2,250,000
Tie and dye		NA	150,000	150,000
Fee for environmental quality standards (air, water, and soil pollution)				
Registration and review of compliance	1,000,000	1,000,000	1,000,000	1,000,000
Annual fee for pollution permit	1,000,000	1,000,000	1,000,000	1,000,000
Noise and vibrations				
Application fee	50,000	50,000	50,000	50,000
Excessive noise levels for factory or workshop	500,000	500,000	500,000	500,000
Excessive whole body vibration (day)	2,000,000	2,000,000	2,000,000	2,000,000
Excessive whole body vibration (night)	4,000,000	4,000,000	4,000,000	4,000,000
Sub-total		**8,700,000**		**10,950,000**
TOTAL COMPLIANCE COSTS		**628,855,000**		**334,665,000**
Calculations				
Noise measurement per point	4		4	
Noise measurement per person	Not done	Not done	Not done	Not done
Heat stress measurement per point	Not done	Not done	Not done	Not done
Dust sampling per work point	Not done	Not done	Not done	Not done
Dust sampling per person	Not done	Not done	Not done	Not done
Light measurements per point	4		4	
Vibration test per point	Not done	Not done	Not done	Not done
Air current test per point	Not done	Not done	Not done	Not done
Toxic gas emission measurement per source	Not done	Not done	Not done	Not done

Regulator/Cost Items	Oil Mills		Textile Industries	
	Unit Cost	Large-scale	Unit Cost	Large-scale
Indoor air quality				
Polarity test per point	1		1	
Continuity test per point	1		1	
Earth resistance test per point	3		3	
Insulation test per point	Not done	Not done	Not done	Not done
Electromagnetic field (EMF) test	Not done	Not done	Not done	Not done
Large scale	100	100,000,000	40,000,000	
Number of vehicles	30	2,000,000,000	1,000,000,000	

Appendix 4: The flow of processed cotton



Notes

- Ginning Out – Turn Test for 1 000 Kg of seed cotton: Lint = 36%; Seed = 62%; and Waste = 2% for **UK 91** variety
- Milling Out – Turn Test for 558 Kg of seed: Refined oil = 18%; Cake = 40.68%; Husks & Linters = 26%; and Waste & By-products = 15.32%
- 1 pair of Khanga = 3.3 m; 1 pair of Kitenge = 3.6 m; and 1 pair of bed sheet = 5.0 m.