Effects of cotton market liberalization on the smallholder farmer s' livelihoods: A CASE STUDY OF TWO DISTRICTS IN SHINYANGA REGION, TANZANIA

BY

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A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY OF THE SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

2010

ABSTRACT

Market liberalization has been one of the most important and widely implemented aspects of the Structural Adjustment Programmes (SAPs) in sub –Saharan Africa (SSA). The general objective of the study was to investigate the effect of cotton market liberalization on the smallholder cotton farmers' livelihoods in two districts in Shinyanga region, Tanzania. Specificically the study sought to assess cotton production and marketing, examine income change, and establish wellbeing of smallholder cotton farmers and their coping strategies resulting from the cotton market liberalisation. Data were from smallholder cotton farmers using a questionnaire and checklist directed to key informants. Furthermore Focus group discussions (FGDs) and observation were conducted in two districts Maswa and Bukombe, in which two villages were involved in the study. Furthermore 50 smallholder cotton farmers were randomly selected in each village making a sample of 200. The collected data were analysed using SPSS computer programme. The study found that there was a change in production and marketing after the cotton market liberalisation. Before the cotton market liberalisation there was a single channel of marketing and after the cotton marketing liberalisation there were multiple systems. It was also found out that there was an increase in smallholder cotton farmers' income by 100% at an average of 8.3% per year from the sale of cotton after the cotton market liberalisation. There was improvement on the farmers' wellbeing as smallholder farmers had more assets than before the cotton market liberalisation. Due to the problems confronting the co-operative as a coping strategy, smallholder cotton farmers were in the process of forming farmers associations that will enable producers to access required and affordable inputs, reduce costs through supply chain linkages and improve competitiveness**.** After the cotton market liberalization, the percentage of farmers who engaged in cultivativation of other crops for cash earning in addition to cotton increased from 11% before the cotton market liberalisation to 72% after the cotton market liberalization. It is therefore concluded that there was a significant improvement on

smallholder farmers' livelihoods resulting from market liberalisation. In view of the problems in the co-operative sector, it is recommended that smallholder farmers should form groups and associations to support their farming activities. On the part of the government, it should invest in rural infrastructure particularly rural roads and communication as they are among the major fundamentals to stimulating agricultural growth.

DECLARATION

I, Iluminatus Bonaventura Mwelase Kamile, hereby declare to the Senate of Sokoine University of Agriculture, that this thesis is my own original work and has not been submitted to a higher degree award in any other University.

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ACKNOWLEDGEMENTS

In undertaking this study several institutions and individuals have contributed to its successful completion. In the first place, I express my gratitude to Sokoine University of Agriculture for allowing me to pursue the study.

I am especially thankful to my supervisors: Profs. M.R.S. Mlozi and E.M.M. Senkondo for their intellectual challenges, professional guidance and constructive criticisms throughout the course of this study. Critical comments from Dr. J. Hella of the Department of Department of Agricultural Economics and Agribusiness, Dr. S. M. Simon and Dr. E. Chingonikaya of the Development Studies Institute of Sokoine University of Agriculture on the research draft report helped me see the gaps which assisted me in moulding the thesis. I am very thankful for their comments.

Prof. G. K. Mbassa from the Department of Anatomy, Sokoine University of Agriculture hosted me in his Department during the whole period of my study and gave me full encouragement to carry out the study. I cannot also forget the support of Dr. M. J. Kipanyula and Dr. M.M. Kichuki from the Department of Anatomy, Sokoine University of Agriculture who helped me become computer literate.

It would be unbecoming not express my sincere gratitude to Mr. W. Mlenge, the manager of HASHI and his family for moral and material support extended to me during my fieldwork. Thanks also to Mr. A. Mlenge (the driver) who tirelessly managed to drive me in remote areas with poor roads during fieldwork. I also thank enumerators who helped in conducting interviews and PRA. I also extend my thanks to Tanzania Cotton Board officials, in

particular Mrs I. Mirenge at Pamba House, Dar es Salaam who devoted her valuable time to discuss with me on matters pertaining to cotton production and marketing.

The completion of my study was a result of assistance from many people including some who persistently discouraged me believing that I will not be successful. Their discouragement made me stronger and made me put more effort to prove that I can. To all of them I say thank you.

Finally my thanks should go to Mr. K. Malima, Mr. P. L. Mateleka of Sokoine University of Agriculture, Morogoro, Mr. M. Mbosa, the Principal of Songea Teachers College for their encouragement. My grateful thanks to Ms. Fatuma Mwingilahela in the Dean's Office, Faculty of Science, Sokoine University of Agriculture, Morogoro for the laborious secretarial work. To all, I say "*Tuhongiche*" (thanks). Lastly, any mistakes and errors which may be found in this work are solely mine.

DEDICATIONS

This work is dedicated to my parents, my father Mr.Bonaventura Mwelase Kamile and my mother Mrs Dukuduku Mwelase Kamile who opened my mind by sending me to school.

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LIST OF ABBREVIATIONS AND ACRONYMS

AID	-	Acquired Immune Deficiency Syndrome
ASDP	-	Agricultural Sector Development Programme
CDF	-	Cotton Development Fund
CFSP	-	The Comprehensive Food Security Programme
CRDB	-	Cooperative Rural Development Bank
ECGA	-	East Cotton Growing Area
EU	-	European Union
FAO	-	Food and Agriculture Organisation
FGDs	-	Focus Group Discussions
HASHI	-	Hifadhi Ardhi Shinyanga
IFM	-	International Monetary Fund
MAFC	-	Ministry of Agriculture, Food and Co-operatives
MDG	-	Millennium Development Goals
MKUKUTA	-	Mkakati wa Kuinua Uchumi na Kupunguza Umasikini Tanzania
NFS	-	National Food Strategy
NMC	-	National Milling Company
NPES	-	National Poverty Eradication Strategy
NSGRP	-	National Strategy for Growth and Poverty Reduction
PRA	-	Participatory RuralApproach
PRSP	-	Poverty Reduction Strategy Paper
RIDEP	-	Region Integrated Development Programme
SACCOS	-	Savings and Credit Cooperative Societies
SAPs	-	Structural Adjustment Programme
SGR	-	Strategic Grain Reserve

SNAL	-	Sokoine National Agricultural Library
SSA	-	Sub-Sahara Africa
TALP	-	Tanzania Agricultural and Livestock Policy of 1997
TCB	-	Tanzania Cotton Board
TCMB	-	Tanzania Cotton Marketing Board
TDV	-	Tanzania Development Vision 2025
UNDP	-	United Nations Development Programme
URT	-	United Republic of Tanzania
USA	-	United States of America
WCGA	-	West Cotton Growing Area

CHAPTER ONE

1.0 INTRODUCTION

1.1 Overview

This chapter provides an introduction, by highlighting the importance of agriculture in Tanzania, and then cotton marketing system from colonial time till the period of the Structural Adjustment Programs (SAPs). Thereafter, the chapter highlights the problem statement, justification, objectives, hypotheses, framework analysis, theoretical framework and the limitation of the study and ends with an overview organization of the thesis.

1.2 Importance of Agriculture in Tanzania

Tanzania is an agricultural based economy and currently 77% of Tanzania's population makes their living out of agriculture. The share of agriculture sector within GDP was 49% in 1970, dropped to 46% in 2002 and 26.5% in 2007. The gradual decrease of the share of agriculture sector in GDP is a result of investments and growth in other sectors of the economy such as services, manufacturing, mining, and others. Also there is a decreasing trend of the contribution of export earning by the agricultural sector from 60% in the 1990s to 14.3% in the year 2007. This is a result of a fall in prices of traditional export crops (coffee, cotton, tobacco and sisal) (URT, 2000; NBS, 2006).

Smallholder cotton farmers dominate the agricultural sector with their farm sizes ranging from 0.9 to 3.0 hectares (Amani, 1992; Mkapa, 2005). Statistics show that the majority of Tanzanian households (99%) live in rural areas and are involved in crop production (URT, 2006) implying that agriculture is the main source of livelihood to the majority of the rural population.

The Tanzania Agricultural and Livestock Policy (TALP) (1997), the Agricultural Sector Development Strategy (ASDS) (2001), the Poverty Reduction Strategy Paper (PRSP) (URT, 2002); the Tanzania Development Vision (TDV) (2005), and the National Strategy for Growth and Poverty Reduction (NSGPR) (URT, 2005) also known as MKUKUTA in Kiswahili, emphasise the importance of agriculture in the improvement of smallholders' livelihoods. Furthermore, agriculture has contributions to the growth of the industrial sector since it produces raw materials for textle and related industries. For example, textile mills need cotton produced from farms while fertilizer factories produce chemical fertilizers used to increase farm productivity (Kashuliza *et al.,* 2002; URT, 2002). This implies that agriculture remains the single most important component of most smallholder cotton farmers' economic activities and plays an important role in the lives of many people. Therefore, improvement in the performance of the sector has a potential of increasing rural incomes and purchasing power of a large number of smallholder cotton farmers, hence improving their livelihoods. The instituted reforms are expected to increase smallholder cotton farmers' income, improve their shelter, enable them acquire more assets, and afford to meet health and education expenses.

1.3 Overview of Tanzania Cotton Marketing System

Cotton was introduced in Tanzania by the Germans in 1904. Since then and up to the 1940s, cotton marketing was dominated by Asian traders, who bought it directly from farmers. These traders made huge profits through weighing scales cheating (Maghimbi, 1992) and probably due to this African farmers formed cooperatives in 1940s to avoid Asian exploitation (Kakwemeire 1999; Banturaki, 2002). It is also claimed that cooperatives came as a result of spontaneous discontent against traders' exploitation of smallholder cotton farmers in the cash crop growing areas (Chambo, 2001).

Between 1950s and 1960s, many developing countries including Tanzania intervened heavily in crop production and marketing. For example, Tanzania set up centralized agricultural marketing organizations, which were entrusted with the responsibility of providing farm inputs and credit to farmers at subsidized prices. In addition, the marketing orgarnisations purchased, stored and processed the crop outputs. The marketing organizations were highly protected by the state; consequently cooperatives became government institutions that followed government directives rather than the members who formed them. As a result, Tanzania had an inflexible economic system that was characterized by monopolistic and heavily regulated production (Volker, 2005). Due to state protection many of the cooperatives became inefficient and their operation costs became very high, which were transferred to smallholder cotton farmers (McColluch *et al.,* 2001). Due to this, marketing organizations (cooperatives) failed to deliver the intended services i.e crop purchase, input and credit provision.

In the late 1970s, Tanzania and other countries in Sub-Saharan Africa (SSA) had an acute economic crisis and persistent economic problems (Ponte, 2002). Factors which contributed to the economic crisis included firstly, a rigid economic system under state policies which paid more attention in building industries requiring excessive foreign currency, thus constraining the agricultural sector (Svendsen, 1986), secondly, crop pricing and marketing policies benefited state sectors more than the smallholder cotton farmers (Ellis, 1982), thirdly, there was lack of consumer goods and extreme inflationary pressure, which reduced the smallholder cotton farmers' morale to produce (Collier, 1989) and fourthly, the natural calamities, particularly severe droughts in 1973 to 1974, 1981 to 1982 and 1983 to 1984 contributed to the crisis on a population which depended on subsistence farming. Furthermore, the 1998 Tanzania and Uganda war exacerbated the crisis more. To cope with

the crisis, the government increased price controls, which intensified the crisis further to acute levels during the early 1980s.

The World Bank and IMF directed African states to disengage from managing its economy in order for them to get financial assistance. This was based on the belief that: (a) pre-liberalisation marketing practices may have constrained agricultural production, producer incomes and consumer welfare and (b) that there was a bias in development of economics towards production and a consequent under estimation of the role of marketing (Scarborough and Kydd, 1992). The distortions of agricultural marketing system brought about the following effects: (a) the economic costs to agricultural and other sectors resulting from pricing and marketing intervention; (b) unsuitable financial losses for parastatals and marketing agencies; and (c) the failure of traditional forms of interventions to achieve their objectives (Duncan and Jones, 1993). It was anticipated that the intervention (market liberalisation) would promote the development of the agricultural sector, increase government revenue, support the incomes of smallholder cotton farmers, increase export earnings, help achieve economics of scale and provide quality control. Faced with the economic crisis and the pressure from the World Bank and the IMF, the Tanzania government succumbed and signed an accord to adopt the Structural Adjustment Programs (SAPs) in 1986 in which one of the major issues in the program was to liberalise the agricultural marketing system (Lugalla, 1997; Ashimogo and Mbiha, 1999; Ponte, 2002).

Market liberalisation was a widely implemented program under SAPs, in which agricultural marketing and the country's overall trade were liberalized. In 1993/1994 season following market liberalization, the Government eliminated the monopoly of the Boards and Unions for coffee, cotton and cashew, and allowed the private sector to compete with these institutions. Cooperative unions and private traders were allowed to buy crops from

smallholder cotton farmers and sell domestically or exported. Tanzania transformed its economy from a centrally planned pursued character since independence to a market oriented economy. Despite the implementation of the market liberalisation, for more than a decade Tanzania still witnesses production fluctuations in both food and cash crops and some have declined (URT, 2005, 2006). Worse still, the quality of export crops has remained low relative to export crops produced by neighbouring countries (URT, 2005). In addition, the improvement on cotton farmers' income, shelter, food security, education expenses and leisure is questionable. Cotton farmers are among those affected by market liberalisation.

1.4 Problem Statement

Prior to the market liberalisation, production and export of traditional cash crops had declined due to the absence of a stable system of providing inputs, lack of production incentives by crop boards and limited access to markets. Market liberalisation policies aimed at transforming the economy from an inefficiently supply constrained system into a competitive export oriented economy. One, among the major objectives of market liberalisation was to increase the profitability of cash crops by introducing multiple channels for marketing to enable smallholder cotton farmers to receive higher prices as a benefit from market competition (Kannan, 2000). Market liberalisation process was expected to enhance private sector development that would lead into improved efficiency in crop production and marketing processes. This transformed economy was expected to be responsive to integration and participation in the global economy, and act as an incentive for smallholder cotton farmers to produce more and increase their income. The anticipated increase in income would consequently improve smallholder cotton farmers' livelihoods.

Previous studies have focused on marketing quality of smallholder cotton farmers' produce and value chains (Kamuzora, 1997; Gibbon, 1998; Kakwemeire, 1999; Temu, 1999; Mkude, 2003; Shao, 2002; Larsen, 2003; Itika, 2006). Besides, literature has also focused on the examination of macroeconomic indicators such as GDP, crop production figures, areas planted, input use and other aggregated indicators. However, little has been done on the effects of market liberalisation on smallholder cotton farmers' livelihoods at household levels. Ponte, (2002) has asserted that the earlier studies do not show the effects of market liberalisation on smallholder cotton farmers' livelihoods. In view of this, there is a need to fill the research gap and provide solutions to the problem. This study investigated the effects of market liberalisation on smallholder cotton farmers' livelihoods at household level in Shinyanga region. Among the most important criteria that were used in selecting the sector include the sectors' contribution to the GDP and that out of the total land under cash crop, 77 percent is under cotton cultivation (URT, 2006). Likewise, the cotton sector is one of the important sectors in the economy and is one among those heavily affected by market liberalisation (Kabelwa and Kweka 2006).

1. 5 Justification of the Study

Study results generated from this study will help policy makers, local authorities, agricultural extension officers and input suppliers to improve production by providing the right expertise and services to smallholder cotton farmers. The study results will aid in institutional improvements and reduce constraints from benefiting under the market liberalisation for smallholder cotton farmers. Results will also assist in understanding how smallholder cotton farmers can organize themselves and plan their farming activities to obtain maximum benefits from market liberalisation. Further, the market liberalisation policy has been under implementation for more than a decade and therefore there is a need to have a follow up to find out whether the intended effects have been achieved or

otherwise. Thus results from the study will also help in identifying any negative effects, so that corrective measures can be taken.

1.6 Objectives

1.6.1 General objective

The general objective of this study was to investigate the effects of cotton market liberalisation and its effect on the livelihood of smallholder cotton farmers in Shinyanga region.

1.6.2 Specific objectives

Specifically the study intended to:

1. Assess cotton production and marketing before and aftter the cotton market liberalisation
2. Examine income changes of smallholder cotton farmers under the cotton market liberalisation.
3. Examine the wellbeing of smallholder cotton farmers before and after the cotton market liberalisation
4. Identify smallholder cotton farmers' coping strategies under the cotton market liberalization.

1.7 Hypotheses

Hypothesis I: There are no differences in production and marketing structures before and after the cotton market liberalisation.

Hypothesis II: There are no differences in the improvement of the wellbeing of smallholder cotton farmers after the cotton market liberalization.

1.8 Framework of Analysis

1.8.1 Conceptual framework

The basic assumption is that smallholder cotton farmers' ability to alleviate poverty depends on factors inherent in government, institutions and smallholder cotton farmers themselves. The government liberalisation policy resulted in the financial and marketing institutions' reforms. These reforms were expected to improve smallholder cotton farmers' access to credit, market access, and improve input supply, agricultural extension and research services. All these improvements in turn lead to smallholder cotton farmers increased area under cotton cultivation, improvement in productivity and increase in cotton buyers. These would raise smallholder cotton farmers' incomes, hence alleviating their poverty. Figure 1 presents the conceptual framework.

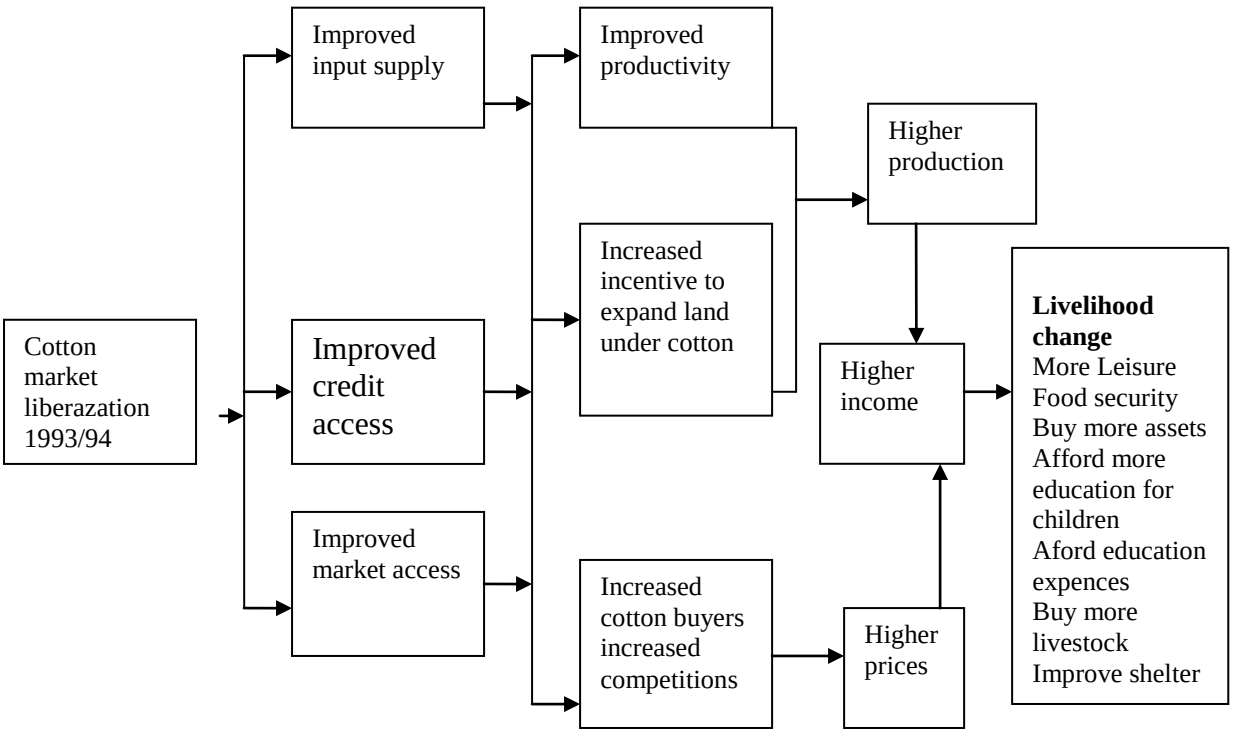

Figure 1: Conceptual framework examining cotton market liberalisation and livelihoods changes

1.8.2 Theoretical Framework

According to Neuman (2000), theories provide ideas, concepts and general information on various issues on which researchers base their research. Theoretical review specifically served two purposes to this study. First, it assisted the researcher to understand both the past and present theoretical and practical contexts of markets. Secondly, information obtained from literature helped in linking together various concepts of marketing and pricing. The theoretical framework on which this study is based includes the theory of the agricultural household, the role of marketing in the development process and the supply and demand theory. According to Colman and Young (1989) and Maning (1993), the agricultural household is a form of economic organization in developing countries.

The household members jointly make decisions and performs activities regarding production and consumption. In this study, the theoritical orientation is premised on the fact that a household is a unit of production owning land, depend on family labour, using production technology that is very simple and agricultural production is characterised by mixed economy for own consumption and for marketing the surplus. Households in the study villages cultivate maize, sweet potatoes, sorghum, cassava and rice for food and the surplus for marketing. Cotton is cultivated purely for marketing. The central role of marketing is to integrate the farming community into the market economy through communication and exchange, and provision of secured markets which encourage producers to increase production. The integration created along market channels open the way to speed up the diffusion of modernization to traditional rural areas (Lorenzi, 1978).

Marketing of the household produce after the cotton market liberalization under free economy is associated and based on the theory of supply and demand. The theory behind the supply and demand model is contingent on the idea that in a free market economy, the

amount of an item that the producer supplies and the amount that the customer demands both depend on the item's market price (Chuck, 2008). According to the law of supply, supply and price are proportional that is, the higher the item's price, the more will be supplied by the producer. According to the law of demand, demand is inversely proportional to price, that is the higher the item's price, the less demand there will be among customers. The market price of a good, according to theory of supply and demand, should be at the intersection of customer demand and producer supply. The assumption is that with market liberalization there was an increase in the number of cotton buyers and consequently an increase in the demand of cotton hence an increase in cotton price.

1.9 Limitation of the Study

The study compared the situation before and after the cotton market liberalisation. In most cases, smallholder cotton farmers do not keep records. Therefore, the accuracy of data depended on ones' ability to recall and good memory. Records from the district offices helped in verifying the accuracy of some data. Despite these limitations, the information provided was useful in assessing the effects of cotton market liberalisation on smallholder cotton farmers' livelihoods. Due to resource limitations, the study focused only on villages which depended highly on cotton for cash.

1.10 Thesis Organisation

The thesis has five chapters. Chapter one covers the introduction, the role of agriculture in the economy of Tanzania, highlights the importance of agriculture in Tanzania and then the Tanzania cotton marketing system from colonial times up to the time of the introduction of SAPs in Tanzania. Thereafter, the chapter highlights the problem statement, justification, objectives, hypotheses, framework analysis, theoretical analysis and limitation of the study. It ends by giving an overview of the organization of the thesis. Chapter Two reviews the

related literature to the study covering definition of key terms, market liberalisation challenges, opportunities, the implementation and its implication to smallholder cotton farmers' agricultural farming activities. Chapter Three is about methodology describing the study area, and presents information on methodology of data collection and analysis. Chapter Four presents the results and discusses findings based on the objectives of the study. Chapter Five gives the conclusion and recommendations of the study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter reviews literature on major issues of the effects of market liberalisation on smallholder cotton farmers since its evolution in the 1980s in SSA. The chapter has nine sections and each section covers a specific topic. Section 2.2 defines smallholder cotton farmers' household, livelihoods; cash and food crops while section 2.3 looks at some of the challenges and opportunities inherent in the market liberalisation process and revisits the focus of previous studies in relation to this study. Section 2.4 provides a brief overview of cotton in the international markets. Section 2.5 is on the role of the government and TCB in the cotton industry, while section 2.6 discusses the history of cotton marketing in the West Cotton Growing Areas (WCGA). Section 2.7 provides a brief review of the implementation of market liberalisation in Tanzania, and section 2.8 looks at direct or indirect effects of liberalisation on smallholder cotton farmers' agricultural farming activies after its implementation. Section 2.9 is about cotton production and marketing under cotton market liberalisation. Section 2.10 summarizes key issues and links it with the findings of this study.

2.2 Definition of Households, Livelihoods, Cash and Food Crops

Narayanan and Gulati (2002) defines smallholder cotton farmers' households as members of a family who are characterized as farmers (crop and or livestock) practicing a mix of commercial and/or subsistence production, where the family provides the majority of the labour requirement and the farm is the principle source of livelihoods. The definition of a household does not refer only to people who work on land and sea, but to any household that has to make decisions about how much to produce, how much to consume and how

many hours to work. In this study, a smallholder cotton farmers' household refers to several members of the family living together in one compound who depend on agriculture as the major source of their livelihoods and share a common cooking pot of food. This group of people could be occupying part of or a whole building or necessarily living in the same building (Tanzania Commission for Aids (TCA) (2005). It should also be noted that a household is considered to be the smallest decision making unit.

According to Chambers and Conway (1991) livelihood includes the capabilities, assets and activities required for earning a living. Livelihood is also defined as the relationship between assets and activities at the household or family level for securing a living. Livelihoods could also be associated with what people seek and strategize to achieve through their activities which are sometimes referred to as livelihood strategies (Carswell, 1997; Hussein and Nelson, 1998; Scoones, 1989; Ellis, 2002). These livelihood strategies could easily be understood by answering a simple question such as; what do smallholder cotton farmers strive to achieve when they cultivate cotton? The answers might include getting income, shelter, clothing, food, water, security, health, physical security, independence, knowledge, status, and many others. The major focus of this study was on whether cotton market liberalisation had assisted smallholder cotton farmers in meeting some of these needs. Cotton market liberalisation was considered as a factor of livelihood improvement or impoverishment.

Some food crops referred to either cash crops or food crops are also used for generating income. For example, in Shinyanga, Morogoro, and Mbeya regions, paddy is cultivated first for income generation and second to meet household food requirements. In this case, rice in Shinyanga region is considered as a cash crop (Ngailo *et al.,* 2007).

2.3 Challenges and Opportunities in Market Liberalisation

Market liberalisation is sweeping across nations bringing challenges and opportunities in production and marketing of agricultural products (Shivji, 2002; UNDP, 2003; Mkapa and Halonen, 2004). There are countries such as India, Indonesia and the Pacific that have been integrated into the global economy and hence transformed from being the poorest to becoming extensive global exporters, and subsequently reducing the level of poverty. The Asian countries' move improved food and cash crops production through market liberalisation policies. Although it is argued that in Africa, market liberalisation came at the right time (Jayne and Jone, 1999; Shepherd and Foloji., 1999), the gap between Africa and Asia has widened. This has happened though the two regions began with similar conditions as far as natural resources and climatic conditions are concerned (APO, 1990; Hussein, 1995; Thomas and Jones, 1995; IFM, 2002; Stiglitz, 2003; Mkapa and Halonen, 2004; Glenn, 2007). In this regard, several questions can be posed: (i) How important is cotton liberalisation to the livelihoods of smallholder cotton farmers? (ii) Is market liberalisation the most appropriate form of intervention for the improvement of smallholder cotton farmers' livelihoods? **(**iii) What are the factors that should be addressed by smallholder cotton farmers to compete and benefit from market liberalisation? (iv) How can these communities be helped from adverse outcomes of market liberalisation process? and (v) How does cotton market liberalisation affect smallholder cotton farmers livelihoods? These are the major issues which this study seeks to address and consequently illuminate clearly the aspects of livelihood which is central to the lives of many people especially those in the rural areas of Tanzania.

Most studies on cotton have concentrated on change in the marketing system, credit, input supply system, quality, prices, yields, research and taxation (Kamuzora, 1997; Gibbon, 1998; 1999; Kakwemeire, 1999; Temu, 1999; Shao, 2002; Baffes, 2002; Larsen, 2003;

Mkude, 2003; World Bank; 2005; Volker, 2005; Kabelwa and Kweka, 2006; Itika, 2006). In most of these studies, focus was at regional, national and international level with little attention at the household level. This study strived to investigate how cotton market liberalisation improved production and increased smallholder cotton farmers' incomes at household level hence improvement in their livelihoods.

2.4 Overview of Cotton in the International Market

Developing countries account for more than three-quarters of the world's cotton output (URT and WB, 2002). China and the United States of America (USA) each produce 20 percent, Pakistan eight percent and Uzbekistan five percent of the world production. Other producers include seven Francophone countries, while Turkey, Brazil, Australia and Greece, jointly produce 20 percent of cotton world output. Costs of cotton production show that West Africa, Uganda and Tanzania are among the lowest cost producers, while high cost producing countries include the USA, Israel, Syria, Greece and Spain (URT, 2002; WB, 2002).

Cotton's share in textiles has declined over time in favor of synthetic fiber. However, cotton remains by far the world's most important fiber, with a market share of about 40 percent (UNCTAD, 2005). Getting ahead in international cotton markets thus requires consistently good-quality cotton, high average crop yields and high ginning ratios. West African countries have managed to increase their market share with a four-fold increase in cotton production since 1980.

Data shows that real cotton prices have declined considerably during the last half century; they are currently one-fifth of their 1950 levels. It is reported that the decline has been

characterized by considerable year-to-year variability, especially during the last quarter of the century. This problem did not affect the cotton crop only but almost all traditional export crops. Difference in cotton price may be caused by a number of factors. First, fluctuations in production and export from India, Pakistan, and China. These three countries are major cotton producers, but also major consumers of their own cotton, therefore lint is only exported when cotton harvest is higher than the domestic demand. Another factor which may affect the price the farmers receive is subsidization to cotton farmers by group of governments. For example, subsidies given to farmers in USA and European Union (EU) paid to domestic cotton farmers were 90% and 154% above world prices in 2001/02 in USA and EU, respectively (Badiane *et al.*,2002). It is reported that Africa is losing US$ 200 million a year because of export subsidies, especially those of USA (Oxfarm, 2003). Also, it said that the removal of US subsidies would lead to a fall in USA production, resulting in a rise in international price in the short term by as much as 12 cent per pound (Badiane *et al.,* 2002). It is suggested that price prospects and consequently market share of low cost producers could be considerably improved if developed nations reduced or eliminated their subsidies. The World Trade Organization (WTO) charged with mandate to ensure fair trade has failed to influence the USA and EU to stop providing subsidies to their farmers (URT, 2002; WB, 2002)

2.5 The Role of the Government and TCB in the Cotton Industry

The role of government is to provide services such as telecommunication and roads. In the study villages like in other areas in Tanzania, rural infrastructure development is inadequate and coverage is generally limited. Poor and in some cases impassable roads greatly affect farmers as they tend to increase transport costs. Also, the inadequacy of communication facilities constrains farmers' access to market information.

Likewise, in marketing, the government has to intervene in the market by providing a legal framework to ensure that firms operate within the accepted framework. It intervenes to regulate the behavior of companies so that they cannot unfairly manipulate prices and gain excessive levels of profit that disadvantage producers. To provide a legal framework, the government formed the Tanzania Cotton Board (TCB) in the early 1990s to replace the monopoly Marketing Boards. TCB was expected to continue with many of the regulatory, reporting, and service activities of the former Marketing Boards, but was not to be actively involved in the marketing and production of cotton**.** The TCB left the price activities to be determined by market forces, but was involved greatly in quality control, organization and distribution of cotton inputs.

Also, TCB aimed at improving and developing the cotton industry by promoting, facilitating and monitoring the entire production, marketing, and processing and export chain of cotton business (Appendix 8). Later TCB formed the CDF, which organized seed distribution, imported plant protection chemicals and their sale at subsidized prices through the districts' administration. Cotton regulations involved grading for quality assurance, which was implemented by cotton inspectors at each rural buying post. Cotton inspectors were placed in all ginneries as another level of quality control. TCB also increased coordination among seed cotton buyers for them to collectively take measures to prevent buying of un-graded seed cotton.

2.6 The History of Cotton Marketing in the West Cotton Growing Area (WCGA)

During the colonial period (1920s to 1950), Asian traders bought cotton directly from farmers, and were accused of offering low prices through cheating. To avoid this exploitation, African farmers formed marketing cooperatives (Maghimbi, 1992;

Kakwemeire, 1999; Chambo, 2001; Banturaki, 2002; Maro and Poulton., 2002). The formed cooperatives took over the cotton purchasing activities from Asian traders.

The rapid expansion of marketing cooperatives forced the British administration in the 1950s to give cooperatives a monopoly in marketing cash crops. It is reported that by the mid 1950s, a total of 400 co-operative societies and 20 co-operative unions had been established in different parts of the Lake Province including the apex, Victoria Federation of Co-operative Unions (VFCU) (Maro and Poulton, 2002; Banturaki, 2002; Baffes, 2002). In 1952 the Lake Province Ginners Association was registered for the marketing of seeds locally and abroad. The established Lake Province co-operative societies and the Unions managed to conduct cotton business profitability using share capital contributions from its members. It should be noted these cooperatives were formed following cooperative formation and organization principles. Additionally, they were owned and controlled by the members on democratic principles. As a result, VFCU became one among the strongest unions in Africa. Maro *et al.* (2002) gives a detailed account of VFCU power. The VFCU power came to an end in 1967 after the Arusha Declaration with its villagelisation policy and partly because VFCU had became large and too bureaucratic; hence it failed to pay adequate attention to the cotton sector (Baffes, 2004; Maro and Poulton, 2002).

In 1968, the Nyanza Cooperative Union (NCU) was superimposed by the government to replace VFCU. Farmers were discontent with NCU due to its administrative set up, which was bureaucratic and not created and owned by the cotton farmers themselves forcing it to split into Mara Region Cooperative Union (MRCU) and Shinyanga Region Cooperative Union (SHIRECU) in 1971 and 1972, respectively. In order to manage crop purchasing and export, the government established the Tanzania Cotton Authority (TCA). This took all cooperatives assets under a specific government decree/Act; hence the cotton industry came

under the direct management of the central government. However, following the poor performance of TCA in 1984, cooperative unions were re-introduced and the Tanzania Cotton Marketing Board (TCMB) was formed to replace TCA. (van Cranenburgh, 1990). After the re-introduction of cooperative unions, in the Lake Province, NYANZA (1984) (Ltd) and SHIRECU (1984) co-operatives were established. Then cotton marketing was organized in a three-tier system consisting of the primary cooperative societies, regional cooperative unions and the parastatal Tanzania Cotton Mareting Board (TCMB). Under this system, TCMB was responsible for all regulatory functions of the crop and the sale of cotton lint on domestic and export markets. Regional cooperative unions (RCUs) had a legal monopoly of purchasing and ginning all cotton seed. Primary societies purchased cotton from smallholder cotton farmers on behalf of RCUs.

In the 1993/94 season, cash crops market liberalisation became effective. The Government eliminated the monopoly held by the boards and unions for coffee, cotton and cashew, and allowed the private sector to compete with these institutions. Cooperative unions and private traders were allowed to buy cotton from smallholder cotton farmers and sell domestically or export it.

2.7 Implementation of Market Liberalisation in Tanzania and its Implications

2.7.1 Measures taken by Tanzania government

Measures undertaken by the government of Tanzania to implement market liberalisation have been (i) devaluation of its currency**,** (ii) removal of price subsidies on export crops, staple foods and agricultural inputs with the aim of promoting efficiency in resource allocation and distribution (iii) liberalise the cooperative marketing system at the farmers' level by removing restrictions, which hitherto hindered private traders from purchasing crops, in this case cotton directly from smallholder cotton farmers and (iv) restructure the

crop marketing system involving the re-definition of the roles of regional cooperative unions and crops marketing boards (Turuka, 1995; Kashuliza *et al.*, 1995; Minot, 2006). All these measures have had profound influence on the performance of major traditional export crops including cotton. Authors argue that these reforms have removed price guarantees, input subsidies and neglected farmers living in remote areas. Furthermore, the reforms created more markets and destroyed the existing ones (Winters *at al.*, 2004). In the case of Tanzania, cooperative unions, TCMB and private traders were allowed to buy cotton from smallholder cotton farmers and sell domestically or export it. The opening of cotton marketing liberalisation witnessed many private cotton buyers into this market. At the same time, it has been observed that these changes led to dismantling or death of parastatal marketing boards or cooperatives, which previously had effective monopolies in primary purchase, ginning and sales of lint and supply of cotton inputs to smallholder cotton farmers (Ngailo and Towo, 2004).

It was expected that market liberalisation would increase producer prices through market competition and that farmers would be able to sell their produce to several alternative cotton markets of their choice (Oda and Kashuliza, 1999; Ngailo and Regina, 1997). However, the expected competition did not occur due to collusion among private buyers, who decided as a group on prices to be offered to smallholder cotton farmers. In some cases, private traders agreed among themselves on the geographical area each trader will buy cotton. In addition, it has been pointed that the reforms in the marketing system have had a mixed impact on prices and eventual incomes. This shows that the government failed in guiding the cotton market liberalization process. Although the government entrusted the Cotton Board with the responsibility of overseeing the whole process, one wonders how comes that traders can collude and thus undermining the farmers'expectations of getting good returns from their cotton sale. There is a need for the Cotton Board to shoulder its responsibilities as stipulated

in TCB functions. One among its functions is to encourage free competition and establishment of prices by market forces. There are cases where competitive private traders have replaced public institutions and smallholder cotton farmers have benefited by either getting high prices from the sale of their crops or cost reduction. For instance, the removal of the state monopoly of milling services in Zambia in the early 1990s, led mills providing milling services at much lower cost than the state run mills (Winters, 2000). In Zimbabwe, aftter the cotton market liberalisation smallholder cotton farmers received high prices from the sale of their cotton and the three emerged cotton buyers also competed in the provision of extension and input services (Winters, 2000). In the early 1990s, China liberalised the grain marketing, encouraging smallholder cotton farmers to increase production so as to benefit from high prices from the free market (Scular, 1995).

In Tanzania, findings show that there are weaknesses in the operations of the open market system due to collusion among private buyers. Traders decided as group on prices to be offered to smallholder cotton farmers and this resulted in the absence of competition and unfair trading practices (Chambo and Ngailo, 1997; Ngailo and Regina,, 1997; Kilima *et al.*, 1999; Ponte, 2002). Therefore, the expectations that market liberalisation would increase producer prices through market competition did not materialize (Rweyemamu, 2007).

Despite the above mentioned weakness, market liberalisation has led to more efficient crop marketing through the private sector, increased cotton farm gate price, an increase on the share of export price received by producers, and farmers are now promptly paid in cash compared to the pre- liberalisation period where payments were often delayed for several months (Gibbon and Raikes, 1995; Temu, 1999; FAO, 1999; Temu *et al.*, 2001; Baffes, 2004). However, others have argued that the programme led to sharp increases in input

prices that eroded the profit margin of the smallholder cotton farmers (Kabisa *et al.,* 2000; Temu,and Myaka, 2001)

2.7.2 Private traders involvement in cotton industry and coordination

Prior to market liberalisation, the governments' control of production and marketing of cotton had been crucial in most cotton producing countries. However, since the 1990s, the role of governments in these activities sharply changed in many countries. With the exception of India and Pakistan, the production and marketing was taken by private enterprises under the umbrella of cotton market liberalisation policy. In Tanzania, cotton market liberalisation allowed engagement of private traders in buying crops and supplying inputs to smallholder cotton farmers. Private traders were to compete with cooperatives. In 1994/95, some 22 private companies started trading in cotton (Maro and Poulton, 2002; Baffes, 2004; World Bank, 2005). The ginning capacity in the WCGA of Tanzania rose from the monthly capacity of 19 148 tons during the pre- liberalisation period to A monthly capacity of 36 115 tons after liberalisation. The increase in ginning capacity was caused by private traders' initiatives to build their own ginneries. Private traders were forced to build their own ginneries because cooperative unions refused to allow them to gin their cotton in their ginneries on contract basis. Also the charges offered by cooperatives for private traders to gin their cotton in unions' ginneries were prohibitive (Shepherd and Farolfi, 1999). Although there was ginning overcapacity, capacity utilization was low in both the private and the unions' ginneries: 9 983 tons or 59 % for the private ginneries and 6 471 tons or 34% for unions' ginneries (Baffes, 2004).

Larsen (2003) has noted that despite the increase of the number of cotton traders during the 1993/94 season when cash crops were liberalized in 1999, there was no mechanism developed to coordinate the activities of a large number of private traders who bought cotton

from smallholder cotton farmers and later processed it. That situation created a vacuum because before market liberalisation, identifiable and known institutions provided inputs, credits, marketing services and extension services to smallholder cotton farmers. Also, in some remote areas, smallholder cotton farmers were paid very little for their cotton, in part due to smallholder cotton farmers' unwareness of market prices and in part due to high transport costs (Boyon *et al., 1*992; Banda, 1995; Mwakaje, 1999; Baffes, 2004; Ponte, 2002). As a result, smallholder cotton farmers in remote areas were demoralized and saw no point in increasing production when profit margins were low or non-existent (Hammond, 1999).

2.8 Smallholder Cotton Farmers' Agricultural Services

2.8.1 Research and extension services

Before market liberalisation, governments in most cotton producing countries were involved in the agricultural research and research services through their ministries of agriculture. Funding for research and extension was obtained from the central governments, through farmers levy, ginneries and textile mills. Regardless of who provides funding on agricultural extension services and research, the general purpose is to improve productivity, quality and quantity of crops, which will result into increasing the income of the smallholder cotton farmers (URT, 2003; Kileo *et al.,* 2003; Rutatora and Rewenyagira, 2005). The implementation of market liberalisation policy led to the decline of government spending on agricultural services and research (Shepherd and Farolfi., 1999; Hammond, 1999; Hyden, 2004). With the reduction of government expenditure on the agricultural sector, a number of problems arose such as shortages of trained personnel and inadequate financial support for extension services and research. Consequently, smallholder cotton farmers including those involved in cotton production were rarely visited by extension officers during the market liberalisation period (URT, 2003).

For example, one of the key activities of the Ukiriguru and Ilonga Cotton Research Stations is to research on new cotton varieties. The Ukiriguru Cotton Research Station in Mwanza conducts cotton research for WCGA while Ilonga Cotton Research Station in Morogoro conducts cotton research for ECGA. Different varieties have been developed for specific agro-climatic conditions for each zone. During the pre- market liberalisation period, cotton could be sold only to ginneries in that particular zone. After the cotton market liberalisation, the number of private traders involved in the purchase of cotton increased enormously, resulting in the abandonment of zoning and mixing of seed varieties hence reducing production and quality of cotton lint (Baffes, 2004; World Bank, 2005). The most affected in this confusion have been the smallholder cotton farmers, who ended up getting less and poor cotton quality per hectare because of mixed varieties from the two agro-climatic zones. Although Tanzania has reduced the role of government in economic intervention in the cotton industry, certain aspects such as research and extension services must remain the functions of the government.

2.8.2 Credit facilities

Availability of credit is crucial in cotton production, and most studies conducted in SSA show that lack of credit is a major impediment to increasing cotton production after the cotton market liberalisation (Bigsten, and Mugerwa, 1995; Ellis, 2002; Boughton *et al.*, 2002). Before the cotton market liberalisation, cooperative unions did provide credit to smallholder cotton farmers for purchase of farm implements such as ploughs and supplied pesticides on credit. After the cotton market liberalisation smallholder cotton farmers found it difficult to access credit to finance farming activities from formal financial instistutions. This was the case because the parastatals and cooperatives which used to offer credit were dismantled and the financial institutions functions' changed their focus from serving smallholder farmers to traders.

Smallholder cotton farmers need credit to buy inputs (seeds, pesticides, and fertilizers), equipments such as ploughs, tractors, ox-carts, to pay labourers (for planting, weeding, and picking) and transporting crops to buying post. What is known is that the rapid development in Europe and Asia was highly due to the availability of credit to the majority of farm population (Gilla and Lassalle, 1994). Unfortunately, in African countries smallholder cotton farmers' access to credit from formal financial institutions is low (Mlambiti *et al.*, 1990; 1998; Kashuliza, 1994; Temu, 1995; Majule, 2002; Mkapa, 2005). Before the market liberalization, smallholder cotton farmers' access to credit through cooperative system was a common feature (Banturaki, 2000; Shepherd and Farolfi., 1999). Smallholder cotton farmers received farm inputs on credit at the beginning of farming season and the amount loaned plus interest and other cooperative marketing charges were deducted when selling their crops. This was a common feature to smallholder cotton farmers too who were obliged to sell their cotton to a cooperative which provided farm services on credit (Shepherd *et al.*, 1999).

The impact of liberalisation on the financial sector has led to the collapse of the financial services in rural areas (URT, 2003). The privatized financial institutions do not give easy access to smallholder cotton farmers to borrow money from these institutions. Commercial banks provide loans, but have very strict regulations which smallholder cotton farmers cannot meet (Due, 1993; Majule, 2002; Mkapa, 2005). The Rural Development Bank (CRDB) that was privatized in 1996 is more geared towards export trade, manufacturers and big farmers. Smallholder cotton farmers are left at the mercy of rural moneylenders. Co-operative Unions that used to provide financial assistance to smallholder cotton farmers were unable to fulfill their duties due to financial problems that were rampant. Lack of credit to finance the purchase of inputs was identified as a major constraint to increasing production by 90 percent of the villages surveyed (Kashuliza *et al.*, 1998; World Bank,

2005). Only 55% out of 1 177 cotton growers in WCGA reported that they used credit to finance their farming activities, and the sources of credit were largely informal sources particularly, money lenders, family and friends (Gonzalez-Vega, 1993; World Bank, 2005). In Zanzibar, it was found that the credit from formal financial sources availed to agricultural sector accounted for only 9.9 percent of the total credit and the remaining 90.1 percent was from informal sources (Krain, 1998).

Although in the WCGA the extent of access to credit from formal institutions is small, there are a number of programs which supply inputs and credit to cotton growers. In 2006, some companies attempted to offer credit and extension services to smallholder cotton farmers on agreement that cotton was sold to the lending company. Some ginneries planned to offer tractor services on credit to groups of smallholder cotton farmers (World Bank, 2005). However, some smallholder cotton farmers breached the contracts and sold their cotton to other traders to avoid loan repayments. The government is encouraging smallholder cotton farmers to form SACCOS to assist them in accessing credit to finance their agricultural production. The success of these programs in assisting smallholder cotton farmers in improving their livelihoods by increasing cotton productivity need also to be assessed.

2.8.3 Cotton input supply

Studies show that since the colonial periods, cooperative unions provided inputs to peasants (Gonzalez-Vega, 1993; Banturaki, 2000; World Bank, 2005)**.** Input supply had been a major problem to smallholder cotton farmers involved in cash crop production after the cotton market liberalisation (Dorwad *et al.,* 1998; Shepherd and Farolfi, 1999). Before the cotton market liberalisation, cooperatives unions were the main farm input suppliers to smallholder cotton farmers. In the cotton sector, the input supply (chemicals and seeds) were integrated into a single cotton marketing channel ie cooperatives unions collected cotton from primary

cooperatives and these collected cotton from smallholder cotton farmers. Chemicals and seeds reached smallholder cotton farmers through the same channel. Aftter the cotton market liberalisation, the identifiable and known institutions which used to provide inputs were dismantled.

In Bangladesh, it was found that agricultural producers benefited from market liberalisation for increased availability of inputs (Gisselquuist and Harun-ar-Rashid, 2000). In Tanzania, the situation has been different because after liberalisation smallholder cotton farmers did not have easy access to farm inputs because they were required to pay in cash. The government strategy and consequent actions leading to the removal of agricultural input subsidies, devaluating the shilling, abolishing price control, and reducing the monopoly power and authority of co-operatives, drastically increased the prices of inputs required for agriculture (Gibbon and Raikes, 1995; Turuka, 1995; Hawassi, 1997; Hawassi, *et al.*,1997; Ponte, 2002; Larsen, 2003; URT, 2003). For example, the average cost for pesticides rose from 1,600 Tanzania shillings (Tshs.) a kilogram in 1993/94 to Tshs. 5000 in 1998/99 (Kabisa and Myaka, 2000). Pesticides use in the WCGA had fallen by two thirds since 1994/95 (Gibbon and Raikes, 1995; Gibbon, 1998; Ponte, 2002). Low use or none use of inputs in WCGAs by smallholder cotton farmers led to low yields and poor quality of the produce (Baffes, 2004; World Bank, 2005). Obviously, this resulted to poor returns for smallholder cotton farmers' labour. In 1995, an agricultural Input Trust Fund was introduced by the government in cotton growing areas, but due to poor credit recovery the fund was stopped in 1997. In 2002, the Cotton Development Fund (CDF) was introduced as a major source of input. However, there were a number of problems in implementing the CDF such as late delivery of inputs, fraud, and lack of understanding of the program (Maro, 2002; Shao, 2002; World Bank 2005).

2.8.4 The importance of price information

Smallholder farmers in most cases do not possess an up-to-date information about market prices for their produces. Cosequently, the prices they receive are too low and hence they lose out a lot of income. Farmers need to have information on price of their cotton well in advance to assist them in making decisions on whether to plant cotton or other crops or invest in plant protection or do other activities, and when to sell. World Bank (2005) found that only 50 percent of cotton producers indicated that they got information from extension officers, while 50 percent compared to 70 percent indicated to have trust in the information that come through radios. The practice of announcing prices a few days before the buying season starts does not provide timely information to smallholder crop farmers. World Bank (2005) recommends regular dissemination of information on price movements in the country and elsewhere. Taking the 2002 season as an example, the farmer who sold cotton at the beginning of 2002 season received 40 percent of the World market price whereas one selling at the end of the season received 60 percent (Maro and Poulton, 2002). Therefore, price information is important in enabling crop producers to make informed decisions on what and how to plant and about when to sell their crops so that they get good prices from their crops. Poulton (1998) stressing the importance of advance information in Tanzania, says that the gains of liberalisation on cashew nut sector have been appropriated primarily by private traders due to poor flow of price information available to smallholder cashew nut farmers.

A project known as The First Mile project was lunched in May 2005 to disseminate market information. This is part of a nationwide Tanzanian Government programme (Agricultural Marketing Systems Development Programme AMSDP) to support poor farmers with the marketing of their produce. The First Mile project is designed to help correct this disadvantageous situation and give farmers faster access to appropriate market information

by improving communication along the added-value chain, from producers to traders and processors, and ultimately to consumers. New information and communication technologies such as Internet, e-mail and mobile phones play a vital role in disseminating market information to farmers. In implementing the project Local liaison officers, or “Information Board Managers” as they are known have been located in districts and are the ones responsible for updating this information. Using their mobile phone, they get information on the prices currently being paid in the district, which have been gathered by a central broker. Farmers can consult the notice boards to find out at what price their produce are selling in the district, or to see which traders are looking for their produces and in what quantity.

This project aims at helping in to reduce the digital divide between people with and without ICT. A caution should be made that the project has been very effective to farmers who are engaged in cultivation of consumer crops known as food crop. These crops include maize, rice, sorghum, millet, banana and vegetables. The project is yet to benefit smallholder farmers who are engaged in cultivation of export crops such as cotton coffee, tea, tobacco and cashew nut because prices for the crops depend on world market prices which is not a case for food crops. Farmers of cash crops are unable to access information on world market prices prevailing at a particular time because they do not possess the expertise and technologies for knowing world market prices of their produce hence they fall under the disadvantageous group. On the other hand, traders who have the expertise and technologies for knowing world market prices utilize it in their favor.

2.9 Cotton Production and Marketing under Cotton Market Liberalisation

2.9.1 Cotton yield and quality

Cotton was fully liberalized during the 1993/94 season and seed cotton output in Shinyanga region almost doubled from 125 570 to 221 280 tons the year following the market liberalisation (TCB, 2005). Then, gradually cotton production declined below pre-reform levels to five-year averages of 198 214 before the reform, and 181 382 tons after the reform (Larsen, 2003). Subsequently, cotton production declined at an average of 23 percent from 1999 to 2003 (Larsen, 2003; World Bank, 2005). Also the quality of cotton declined from the mid 1990s due to the decline in input use, transmission of diseases and mixing of cotton varieties from different zones (World Bank, 2005). It was noted that the transfer of export, quality control and input supply from public institutions to the private sector after the market liberalisation had negative effects on yield and the quality of cotton because before the market liberalization, state institutions or cooperatives imposed relatively homogeneous quality standards and paid premium at primary marketing level (Shepherd and Farolfi, 1999). After the cotton market liberalization there was no effective established institutions at the national level, which were responsible for quality control. Private traders were less interested or reluctant to perform such functions. The poor cotton quality output due to lack of quality control mechanism means less income from cotton. The decreasing incomes from cotton have an effect on smallholder cotton farmers' livelihoods.

2.9.2 Cotton producer's price

A direct effect of market liberalisation on smallholder cotton farmers is the change in cotton prices, since a price rise of the farm produce makes farmers better off (McCulloch *et al.,* 2001; Winters *et al.,* 2004). Therefore, producer price plays an important role in determining production and area allocated to cotton. Boughton *et al., (*2002) found that for about 15 years there was an increase or decrease on the cotton cultivated area depending on

the price changes in China. In Tanzania, policy reforms in cotton marketing were due to enormous gap between world market prices and prices that Tanzanian cotton producers received. Before the market liberalisation, prices of cotton were set and announced by the government before the crop harvesting season (Amani and Ndulu, 1987; Ellis, 1982). During that period, smallholder cotton farmers received producer prices which were lower than the world market prices. There was the pan territorial pricing method, which meant that all smallholder cotton farmers received the same price regardless of the location. The restructuring of marketing system and the abolition of price control resulted into differentiation in the prices of crops based on location. The abolition of price control made rich farmers negotiate with private traders on the price, while the smallholder cotton farmers were forced to sell their products at lower prices (World Bank, 2005). Smallholder cotton farmers in remote areas received less price from cotton compared to those near urban centers. This situation strangled the efforts of smallholder cotton farmers in remote and low cotton producing areas which in turn made it impossible for them to increase their income. On the other hand, changes in the marketing system after liberalisation led to considerable competition at the farm gate level and to more efficient flows within the seed cotton marketing channel (Larsen, 2002). Market liberalisation increased the share of the world price received by smallholder cotton farmers. For cotton, the average growers' share of export prices increased from 41% in six seasons prior to the reform to 61% in six seasons after liberalisation (World Bank, 2005; Temu, 1999; Shepherd and Farolfi, 1999**).** Although this can be seen as an improvement on the part of producers in Tanzania, it is far below compared to what the Ugandan and Zimbabwean farmers received from the cotton sector. For example, three buyers emerged and started to compete in the purchase of cotton in Zimbabwe after market liberalisation, as a result the smallholder cotton farmers received high prices. This encouraged smallholder cotton farmers to increase production in order to benefit from high prices provided by the free market (Scular, 1995). Furthermore, it has

been pointed out that after the cotton market liberalisation farmers' returns were generally higher and payments were prompt. However, the shilling depreciation, inflation and high costs of inputs due to removal of government input subsidies wiped out all the gains and reduced smallholder cotton farmers' purchasing power (Gibbon and Raikes, 1995; Temu, 1999).

2.9.3 Food security

Food security is not simply about its availability, but involves accessibility, sufficient, security and time (Mlambiti and Isinika, 1998). Kauzeni (2000) mentioned four factors which can cause food insecurity at the household level: (1) food availability which entails the ability of the household to produce the harvest produce; (2) Stability which refers to the constant supply of food; (3) Accessibility, which is the households' ability to get food either by purchasing. Sustainability means food is available throughout the year. In order to be food secure, a country has to do the following: (a) accelerate domestic agricultural production and (b) increase imports. Where agricultural growth is limited, commercial imports become an alternative way of ensuring food security. Given that Tanzania is an agricultural based economy, it is logical to meet its food security and attain food self sufficiency by accelerating domestic agricultural production.

Since independence in 1961, the government of Tanzania has come up with a number of policies, plans and strategies to ensure food security for its people. These policies include: the reduction of economic inequalities; fighting hunger; reducing malnutrition and increasing agricultural production by accessing subsidized farm inputs. All these food security programs in Tanzania have been through a number of campaigns and programs which include: the Strategic Grain Reserve (SGR), Early Warming System, the National

Maize Program, the National Food Strategy (NFS) and the Comprehensive Food Security Program (CFSP).There is a general consensus that these programs and campaigns did increase gross food production. However, Tanzania is yet to be food self sufficient despite of all these efforts.

Before the trade liberalisation, the government controlled markets for food crops. There was a strict administration of prices, subsidies for consumers, producers' subsidies through easy access to credit and input subsidies, single-channel marketing management, storage, food security stocks and control over import of food crops (Ponte, 2002). Specific grain marketing boards were established such as the National Milling Company (NMC). The poor performance of grain marketing boards necessitated the liberalisation of the grain market (Jayne and Jones, 1999). Trade liberalisation led to greater food insecurity due to the fact that previously most agricultural activities focused on subsistence and it has currently shifted to cash crops. Women who principally used to farm for household consumption and market the surplus, they have changed their focus. They now farm not only for household consumption but also for markets and sell most of their harvest. Furthermore, during the cotton marketing season traders went around cotton selling posts to buy not only cotton but also food crops such as millet, cassava, sweet potatoes which were specifically meant to meet household food requirements.

2.10 Summary

Before the market liberalisation, many developing countries in SSA set up centralized agricultural marketing organizations. These organizations were responsible for the provision of inputs and credit to smallholder cotton farmers and purchased, stored and processed farm products. Due to the organizations' high protection from the state, compounded by their

monopoly powers, most became inefficient. In the 1980s and 1990s, developing countries were faced with pressure from the World Bank and IMF and eventually agreed to adopt SAPs, which resulted in the dismantling of state marketing organizations and allowed private traders to engage in crop marketing. It has been observed that with the engagement of private traders in crop marketing a few smallholder cotton farmers benefited while the majority suffered. Therefore, substituting private monopoly for public monopoly perhaps does not necessarily benefit the smallholder cotton farmers.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Overview

This chapter covers the description of the study areas, study design, sampling procedures, sample size, and villages involved in the study. Also, data collection procedures, tools, and data analysis are provided.

3.2 Description of the Study Area

Shinyanga region is one of the 21 regions of Tanzania mainland lying between 31^{o} and 35^{o} East and Latitude 2^{o} 30' and 4^{o} 25' South. The region covers nearly 500 kilometers East to West and 200 kilometers North to South. Shinyanga region is bordered to the North by Mwanza, Mara, and Kagera regions and to the South by Tabora and Singida while on its West, it is bordered by Kigoma region. In the East it is bordered by Arusha and Manyara regions. The region covers an area of 50 781 square kilometers, which is about 5.7 percent of the total area of Tanzania mainland. The region has seven administrative districts namely; Bariadi, Bukombe, Kahama, Maswa, Meatu, Shinyanga Rural and Shinyanga urban (Figure 2).

The region has more than 2 193 500 hectares of arable lands, out of which 5 078 100 are suitable for crop production. The region ranks first in the country in having the largest area of land (estimated at 1 250 000 hectares) under cultivation. The major land use in the region is crop production (RIDEP, 1999). Figure 3 shows the region land use distribution.

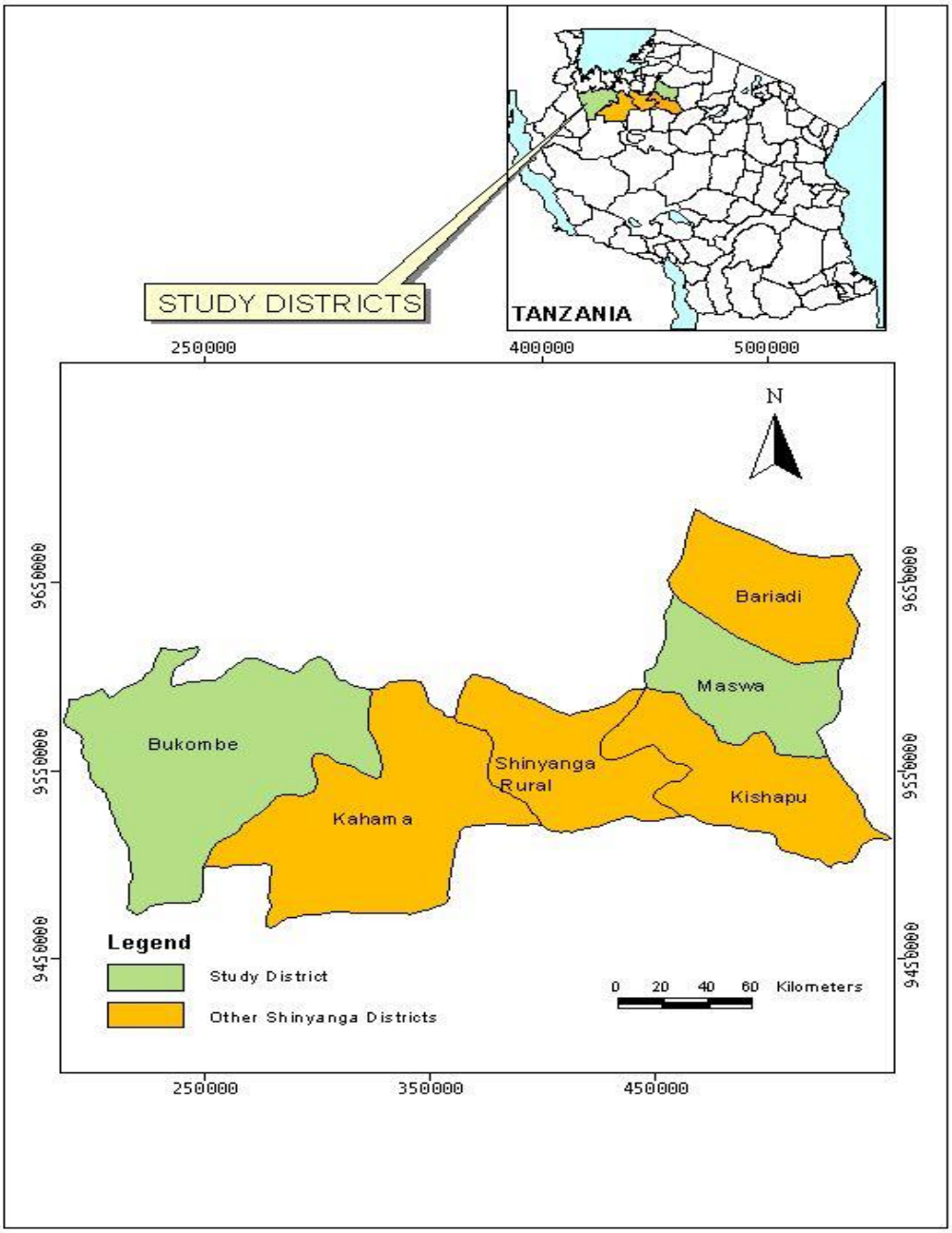

Figure 2: Map of Tanzania showing location of Shinyanga region and the districts involved in study

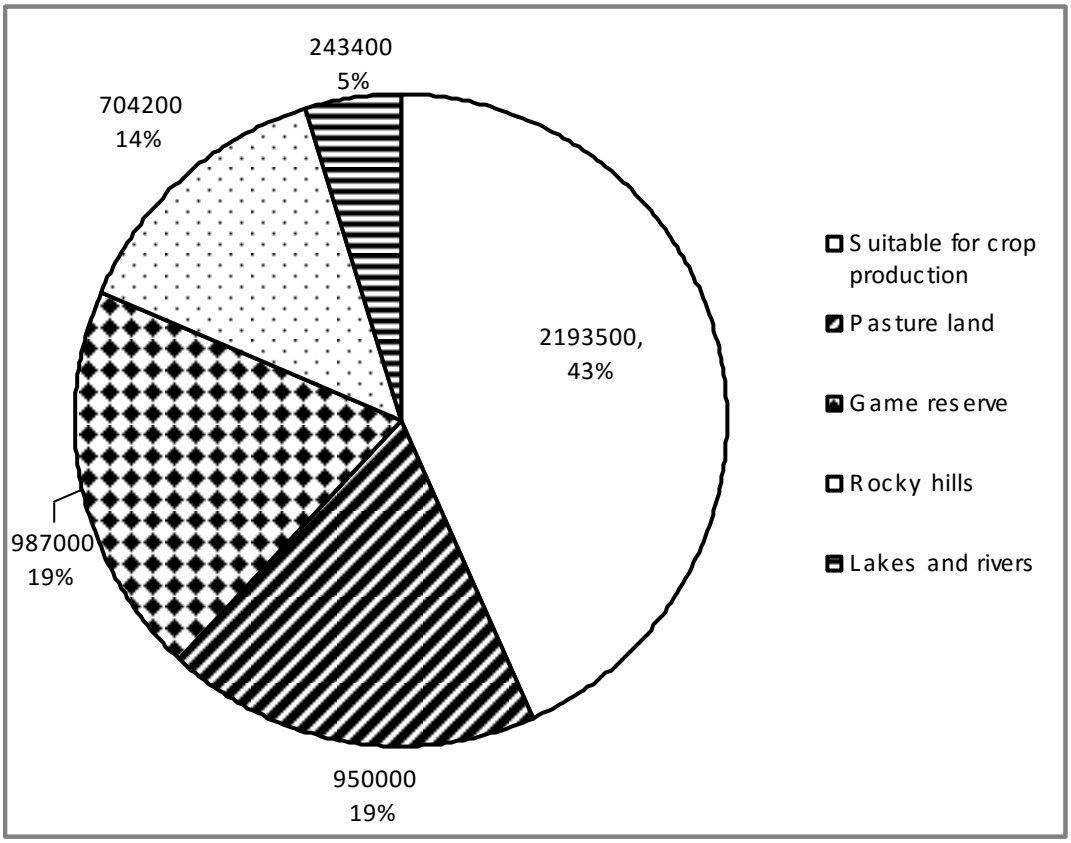

Figure 3: Shinyanga land use distribution (RIDEP, 1999)

The selection of Shinyanga region as the study area was based on three reasons. Shinyanga region is located in WCGA which produces 98 percent of the Tanzanian cotton (TCB, 2006; URT, 2006). Out of the 398 456 hectares of cash crops planted in Tanzania, cotton accounts for a large area (77%) i.e 337 059 hectares and Shinyanga had the largest land under cotton (59.2 %) compared to other cotton growing regions. (National Sample Census of Agriculture, 2002/2003). Shinyanga showed that it had the highest number of cotton growing households in the country. For these reasons, the area was expected to generate information needed for the study.

3.3 Districts and Villages Involved in the Study

Bukombe and Maswa districts were involved in the study. Bukombe district is on the western apex of Shinyanga region and lies between longitudes 31-32° East and Latitudes 3-

3.30° South. The district has a total land area of 10 482 km^2 with an altitude varying from 1000 to 1500 meters above sea level. The district is characterized by flat, gently undulating plains interspersed with ridges and hills. Soils are mainly clayish but vary tremendously from hilltop to valley bottoms (Kileo *et al.*, 1995). In 2007 the district was divided administratively into the Masumbwe, Siloka and Mbogwe divisions with a population of about 396 423 people who are predominantly of Sukuma and Sumbwa ethnic groups. The climate is sub-humid, with annual rainfall varying from 600 to 1200 mm, with a mean of 900 mm. The rain season begins in November and ends in April-May, with a short dry spell between January and February. Annual temperatures vary from 15° C minimum to 30° C maximum (HASHI, 2000). The main economic activities in the district are agriculture and livestock keeping. Food crops include maize, sorghum, sweet potatoes, cassava, pulses, and groundnuts. The main cash crops are cotton, rice-a recent addition and tobacco. The types of livestock kept are cattle, sheep, goats and donkeys (Shinyanga Planning Committee & Regional Administrative Office, 1999).

In Bukombe district, Katome and Nyasato villages were involved in the study. Katome village is located in Siloka division, Ushirombo ward, 30 km East of Bukombe district headquarters (Ushirombo town), In 2007, the village had 512 households, with a population of 2 304. Katome had good feeder roads passable throughout the year, linking it with other villages and the district headquarters. Nyasato village is located in Mbogwe division and Nyasato ward; 89 km North East of Bukombe district headquarters. In 2007, the village had 368 households, with a population of 5 308. The village has poor access to cotton market. A section of the feeder road linking it to the other villages and the district headquarters is poor and impassable, especially in the rain season. Figure 4 shows the map of Bukombe district with Katome and Nyasato villages highlighted.

Another study district was Maswa which lies between longitude 33.30’ and 34.7’ East and latitudes 2.50 and 3.38 South with an altitude of 1 200 - 1 300 m above the sea level. The district has a total area of 3,398 km^2. It experiences a semi-arid type of climate with total rainfall ranging from 500-900 mm a year. The main economic activities include agriculture and livestock keeping. Food crops include maize, sweet potatoes, and sorghum while cash crops are cotton and paddy. Livestock include cattle, sheep, goats and donkeys.

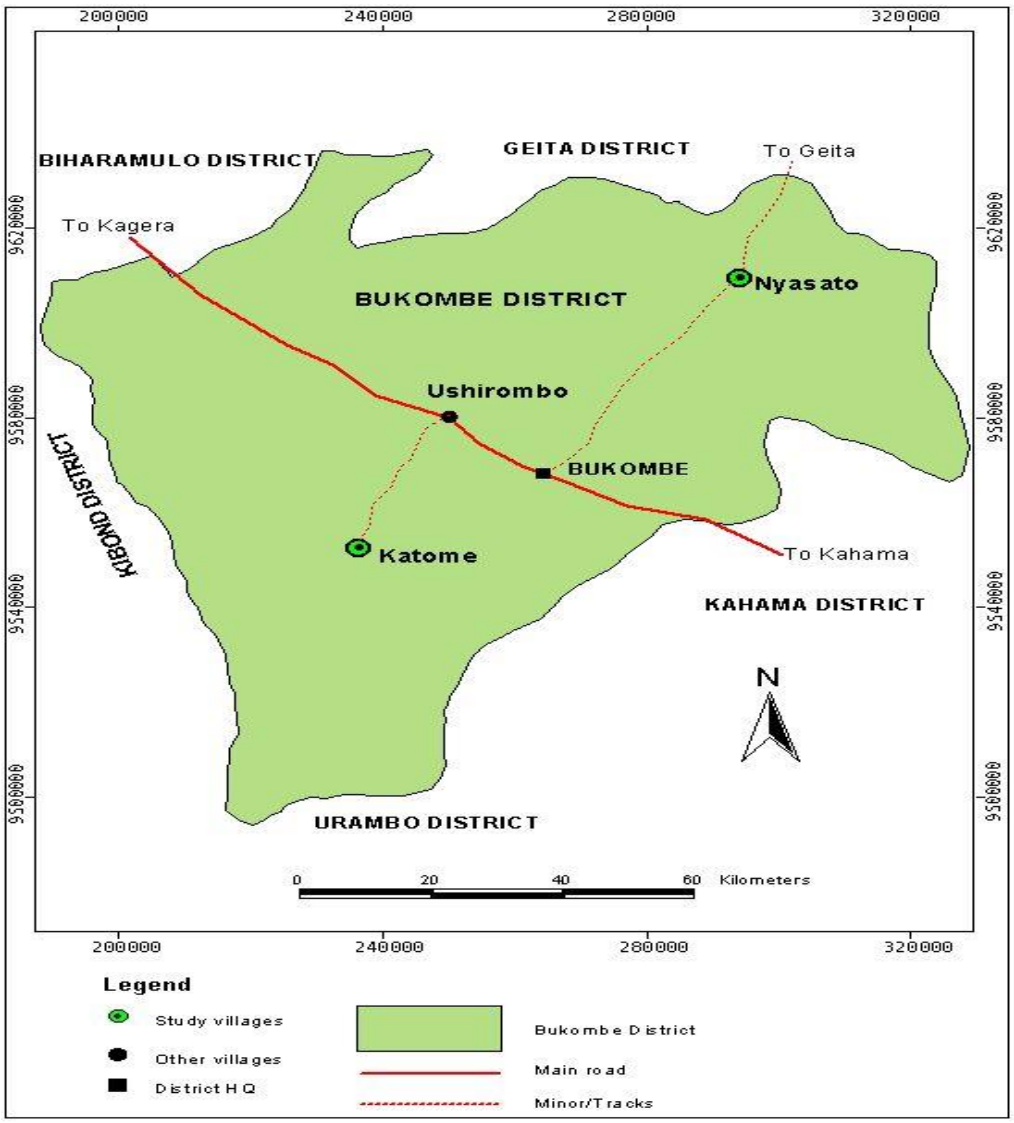

Figure 4: Location of Bukombe district and study villages of Katome and Nyasato

Nguliguli and Matumbwe villages in Maswa district were involved in the study. Nguliguli village is located in Mwagala division in Nguliguli ward 30km East of Maswa, the district headquarters. In 2007, the village had 406 households, with a population of 5 339 people and a good market access. The feeder roads, linking the village and the district headquarters is good and passable throughout the year. Mwatumbe village is located in Sengerema division in Shishiyu ward 60 km North of Maswa district headquarters. The village had 437 households, with a population of 4 099 people. Mwatumbe had poor cotton market access as the feeder road linking it to the district headquarters is not passable during the rain season. Figure 5 shows a map of Maswa district with Nguliguli and Mwatumbe villages highlighted, while Table 1 shows the study villages' profiles.

Table 1: Profile of the study villages

Characteristic	Maswa district		Bukombe district	
	Nguliguli village	Mwatumbe village	Katome village	Nyasato village
Number of households	406	437	512	368
Number of inhabitants	5 339	4 099	4 757	5 308
Main food crops	Sorghum, maze	Rice, maize, sorghum	Maize	Maize
Complementary food crops	Sweet potatoes	Sweet potatoes, cassava	Sweet potatoes, sorghum	Cassava, rice
Main cash crops	Cotton	Rice, cotton	Cotton	Cotton
Transport to market	Lorry,	Bicycle	Lorry,ox-cart	Bicycle
Distance to the district town	30km	60km	30km	89km
Shops/kiosks	27	4	32	6

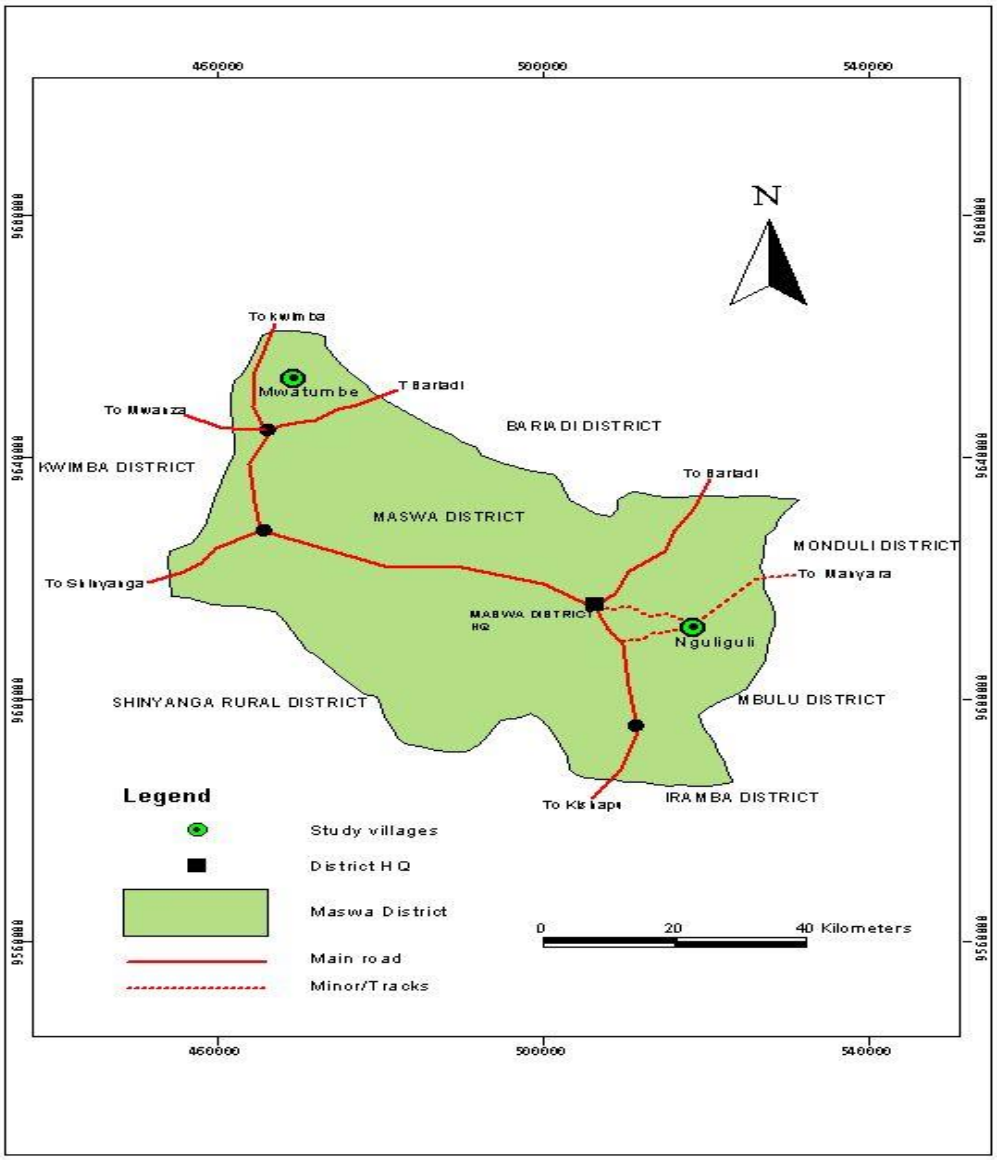

Figure 5: Location of Maswa district and study villages of Nguliguli and Mwatumbe

3.4 Design of the Study

A cross-sectional comparative survey design was adopted for this study which compared different aspects before and aftter the cotton market liberalisation. This design was found appropriate due to the nature of the objectives of the study. Also this approach allows data to be collected at one point in time. Furthermore, the method is cheaper in terms of money, transport and time compared to other methods.

3.5 Sampling Procedures and Sample Size

3.5.1 Selection of study district, villages and respondents

The two districts were selected randomly from the seven districts in the region, which included Bukombe and Maswa and in each, a multistage sampling procedure was adopted. In collaboration with District Agricultural Development Officers in each district, divisions were grouped into two groups: those with good access and poor access to cotton markets. Good access to cotton market referred to villages located near to urban centres which had good and passable roads throughout the year. Poor access to cotton markets referred to villages located in remote areas which had poor roads and were impassable, especially during the rain seasons. These factors were thought to be important in finding out the effects of the cotton market liberalisation. In each group of the randomly selected divisions, one ward was randomly selected in which one village was also randomly selected for the study.

3.5.2 Sample size

Sampling strategy observed both statistical procedures and other community-based conditions in order to have reliable and valid data (Glasow, 2005) .Random sampling was used to select households for the study, using the village register as the sampling frame. Bailey (1998) states that regardless of the population size, a sample of 30 is bare minimum for data collection. Matata *et al*, (2001) argues that having 80-120 respondents are adequate for most socio-economic studies in SSA households. However, the desire for accuracy needs as large sample if the researcher can afford, but the bottom line requires as small sample as possible for the researcher to make statistical inferences accurately. Sample's accuracy is more important than its size as a properly drawn sample of fewer can give more reliable estimates on a population than a huge sample drawn poorly (Oppenheim, 2003). In this study, the following formula provided by Schofield (2006) which is the appropriate

estimation of sample size for sample statistical estimates of normal distributed populations was used.

Sample size $n = (\boldsymbol{z}_{\alpha/2}\ \boldsymbol{\sigma}/e_m)^2$……………………………………………….*(i)*

Where the confidence interval of 95 percent is assumed, *($p<0.05$)* and ($\alpha=0.05$); $z_{\alpha/2}=1.96$; standard deviation σ (estimated at 10); e_m is the marginal error units on scale of measurement (taken as ±2.5%) and thus the required sample size *n* is thus estimated to 32.

In view of the above description, it was decided to sample only 50 in each village for better representation, which was enough in drawing statistical inference. The total number of sampled households was 200, which was optimum because it fulfilled the requirements of efficiency, representativeness, reliability and flexibility.

3.6 Data Collection Procedures and Tools

Different primary data collection methods were employed and these included household questionnaire survey, FGDs, informal interviews with key-informants and participant observation. These were necessary methods to get sufficient and insightful information on the effects of cotton market liberalisation on smallholder cotton farmers.The questionnaire used was composed of both open-ended and closed-ended questions (see Appendix 1). Open-ended questions were specifically formulated to solicit views from respondents on some items that needed in-depth discussions. Questionnaires were administered by two trained enumerators. Respondents to questionnaire were heads of households although respondents who were not heads of households were allowed to respond on behalf of the head of the household either because the heads were away on the agreed day of the

interview or they were sick. Respondents were interviewed in their homes or in their fields and each interview took about 45 minutes. Each day after the interview session, discussions were held between the researcher and enumerators to check if there were any problems encountered during the interviews and necessary corrective measures were taken if found.

FGDs were held in each village to obtain more in-depth information about the subject (Appendix 2). In this case the researcher acted as a facilitator, while enumerators guided the discussions because they were more conversant with the KiSukuma, the vernacular language. FGDs allowed in-depth discussions of the effects of cotton market liberalisation, validated information gathered through other techniques and clarified issues raised during the interview sessions. Respondents were asked to respond on issues pertaining to their occupation before and after the cotton market liberalisation, cotton production and marketing structures, size of land owned and its uses for different purposes including issues of food and cash crop production. Other issues asked included credit availability, collateral requirements before and after the cotton market liberalisation, and effects of cotton market liberalisation on different categories of smallholder cotton farmers. In addition, other things asked during the FGDs included income expenditures, shelter status and food availability in the households.

A checklist was made for key informants (see Appendix 4), which was conducted by the researcher and data collected included cotton production and marketing before and after the cotton market liberalization. The researcher made appointments with key informants on a specified date and time for the interview session. Also, cotton traders were interviewed, specifically to get their views regarding cotton marketing organization, procedure for getting cotton buying licenses, price setting, input supply and credit access to smallholder cotton

farmers (see Appendix 5). Others key informants who were interviewed included bank officials who provided information on credit to smallholder cotton farmers (see Appendix 6). Informal discussions were held with the district, ward and village agricultural and livestock extension officers, cooperative union officials, cotton traders and other relevant regional and district officials and village elders. More primary information was gathered through participant observation (see Appendix 7) which verified the validity of information gathered using other methods in order to understand the real situation in the villages and to get a clear picture of respondents' perceptions and attitudes towards the cotton market liberalization.

Secondary data was collected from the respective Cotton Boards Offices, cooperatives, licensed cotton buying companies, the Ministry of Agriculture, Food and Co-operatives (MAFC), regional and district agricultural and cooperative offices and the National Agricultural Library (SNAL), journals and government publications. The information gathered included cotton production trends before and after the cotton market liberalisation, market organizational structure, input supply system, and credit access to smallholder cotton farmers. This information assisted in verifying and complementing information collected from the field.

3.7 Data Analysis and Processing

Quantitative data were coded, entered and analysed using the Statistical Package for the Social Sciences (SPSS) computer program. The descriptive statistics such as means, ranges, frequencies, cross-tabulation and percentages were used to analyse data as per objective. For confirmation, t-test were carried out to establish the level of significance between different scenarios before and after the cotton market liberalisation. Qualitative data were subjected

to content analysis, which captured the components of discussions held with key informants in the cotton chain as well as from FGDs. The information from discussions was broken into smaller meaningful units of themes and tendencies, which assisted in ascertaining the information collected from respondents and other sources.

In order to know whether there was an increase in cotton price after the cotton market liberalization, the real prices was calculated using the formula:

Real price= (Nominal value/CPI) X (CPI in the base year)

Where nominal value=farm gate cotton prices in each year

CPI=Consumer Price Index (from Bank of Tanzania

Base year=taken 1994 when market liberalization started

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Overview

This chapter is organized into six sections; section one presents a description of the socio-economic characteristics of the respondents and the remaining sections present results and discussion based on the four specific objectives of the study.

4.1.1 The characteristics of respondents

The level education attainment showed that the majority 140 (70%) of the respondents had primary education (Table 2). This showed that they had basic literacy that enabled them to read, write and do simple arithemtics. Few respondents 10 (5%0) had secondary education and the rest had attended adult education or had no formal education. FGDs revealed that educated people above primary education had the opportunity of obtaining employment outside their villages, a finding which was also reported by key informants.

The survey showed that the mean age of respondents was 39 years with the minimum age being 19 years and maximum age being 77 years. More than 128 (60%) of the respondents were adults while youths accounted for 59 (29.5%) of the respondents. Discussions revealed that youths were less interested in cotton cultivation, claiming that cotton farming is a tedious job with poor returns. Most youths were engaged in petty business such as selling second hand clothes popularly known as *"mitumba"* and mining activities. Other youths migrated to towns to seek wage employment. This suggests that youths considered cotton cultivation less paying when compared to other activities. Key informants pointed out that aged people were engaged in cotton production because it was their traditional cash earning

crop. FGDs also revealed the presence of a district by law which forced smallholder cotton farmers to grow cotton crop in the study villages, thus they were compelled to produce cotton notwithstanding the poor returns. Key informants agreed with the sampled respondents' argument that returns from cotton production was poor compared to the resources put in its production.

Table 2: Distribution of respondents based on socio- economic profile (N = 200)

Characteristics	Katome	Nguliguli	Nyasato	Mwatumbe	TotaL
No. of Repondents	50	50	50	50	200
Status Respondents					
Head of household	40(80)	35(70)	46(92)	31(62)	152(76)
Not heat of household	10(20)	15(30)	4(8)	19(38)	48(24)
Sex of Respondents					
Male	33(66)	32(64)	40(80)	29)58)	134(67.0)
Female	17(34)	18(36)	10(20)	21(42)	66(33.0)
Marital Status					
Married	42(84)	35(70)	48(96)	38(76)	163(81.5)
Single	8(16)	15(30)	2(4)	12(24)	37(18.5)
Education level					
Primary	33(66)	25(70)	36(72)	34(68)	140(70.0)
Secondary	4(8)	3(6)	2(4)	1(2)	10(5.0)
Adult education	0(0)	1(2)	1(2)	0(0)	4(1.0)
None	11(22)	11(22)	10(20)	15(30)	48)24.0)
Age (years)					
Youth (18 – 35)	17(34)	14(28)1	13(26)	15(30)	59)29.5)
Adult (36-60)	29)58)	34(68)	35(70)	30(60)	128(64.0)
Old (>60)	4(8)	2(4)	2(4)	5(10)	13(6.5)
Household size (average No.)	6	5	11	14	9

Key: Figures in parentheses are percentages and those out of parentheses are frequencies

4.1.2 Wealth ranking before and after cotton market liberalisation

Key informants were requested to rank wealth groups in the study villages before and after the cotton market liberalisation. They came up with three groups based on three criteria: land cultivated, physical assets owned and livestock ownership (Table3).The study found that the ranking into rich, middle and poor was associated with the ability to cultivate land, livestock ownership and to access some key assets. Access to an oxen plough was found to be an important criteria for a household to be ranked into the rich group. An oxen plough

increased the ability of a household to increase area under cultivation and it was also used for generating income for the household through hiring out.

Table 3 shows that before the cotton market liberalisation for an individual to be considered rich he/she had to own more than 100 herds of livestock, while after the cotton market liberalisation categorization in the rich group was based on livestock ownership of below 50. Table 3 also shows that after the cotton market liberalisation, rich and middle households had more cultivated land and assets than before the cotton market liberalisation. This shows that the perception of owning a large herd of livestock as a sign of wealth faded after the cotton market liberalisation. After the cotton market liberalization, for an individual to be put into the wealth group, in addition to livestock, one had to have more land under cultivation and essential assets which are considered important in the community. These essential assets include oxen plough, ox-carts, radio, and bicycle. This is due to improved crop marketing conditions which in turn made smallholder cotton farmers conclude that crop cultivation was more profitable than livestock keeping although this is arguable hence cannot be generalized across smallholder households.

Table 3: Wealth ranking items before and after the cotton market liberalisation

Items	**Before market liberalisation**			**After market liberalization**		
	Rich	**Middle**	**Poor**	**Rich**	**Middle**	**Poor**
Land under cultivation (ha)	2	2	0.5	<10	4	0.5
No. of ploughs	2	1	0	<3	2	0
No. of ox-carts	1	1	0	<2	1	0
No. of radios	4	1	0	5	3	1
No. of bicycles	3	1	0	<5	3	1
No. of livestock	<100	<50	*Chicken	<50	<20	*Chicken

Key: Livestock included cattle, goats and sheep, *chicken were only considered among poor households

Table 4 shows that the percentage of the poor household is about 35 (17.5%) slightly higher compared to the rich households. Katome and Nguliguli villages had a higher percentage of rich households compared to Mwatumbe and Nyasato villages probably because the former villages are close to urban centers with good market access; hence they get higher producer prices for their produce. With higher income they could afford to hire oxen ploughs for cotton or rice cultivation and get substantially high income from the sale of their produce. The other two villages are located in remote areas with poor roads which are almost impassable during the rain seasons. Therefore, they have poor market access and thus get low prices for their produce. This finding justifies the argument that rural people are often isolated from economic opportunities and as a consequence have underdeveloped markets, which in turn, constrains their livelihoods by getting less income from their produce (Lohlein, 2001).

Table 4: Percentage of respondents showing household ranking into rich, middle and poor in the surveyed villages

Village	Rich		Middle		Poor	
	n	%	n	%	n	%
Katome	15	7.5	27	13.5	8	4.0
Nguliguli	11	5.5	34	17.0	5	2.5
Mwatumbe	5	2.5	32	16.0	10	5.0
Nyasato	6	3.0	35	17.5	12	6.0
Total	33	16.5	128	62.2	35	17.5

4.2 Findings Based on the Four Objectives of the Study

4.2.1 Cotton production before and after the cotton market liberalisation

Figure 6 gives cotton production trends from 1991/92 to 2006/07 cropping seasons. It shows that in 1991/92 there was an increase in cotton production, but in 1992/93 production started to drop reaching its lowest level in 1994/95. This might be probably due to frustrations experienced by farmers caused by cooperatives which delayed or never paid farmers at all for the cotton they sold to cooperatives (Maro and Poulton, 2002; Shao 2002; Kabelwa and Kweka, 2006). In 1994/95 cotton production started to peak up, but there after there was a drop in cotton production. Among the factors that led to the decline in cotton productions were rainfall problem (either too much or too little), pests and that smallholder cotton farmers faced problems in getting inputs (Larsen, 2003; World Bank, 2005). Key informants revealed that the previous well established input supply system was dismantled without putting in place an alternative system. With time, cotton farmers adapted to the new introduced input supply and marketing system, leading cotton production to picking up again. Generally, it can be noted that after the cotton market liberalisation, there was a cotton production increasing trend till 2006/07, although key informant pointed out that the drastic drop in cotton production in 2006/07 season was partly associated with too much rainfall.

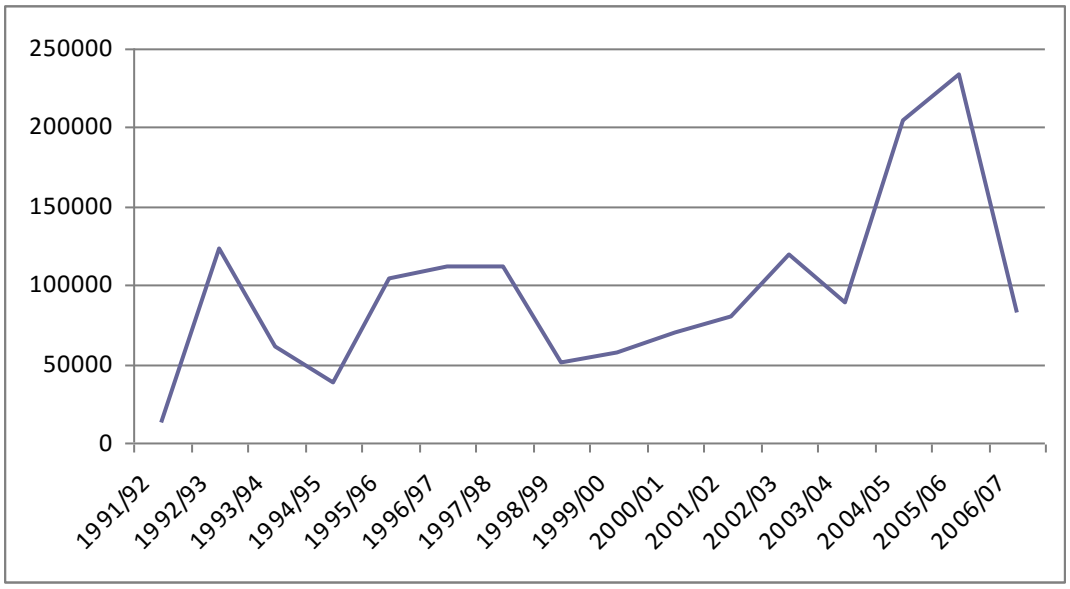

Figure 6: Shinyanga cotton production structure 1991/92-2006/07 seasons

Table 5 shows that there was a change in acreage in the study villages. Before the market liberalization, villages which were located in remote areas (Nyasato and Mwatumbe) had more acreage per household compared to Nguliguli and Katome. The opposite case occurred in which Nguliguli and Katome had more average acreage per household, an average of two hectares, while Nyasato and Mwatumbe had an average of one hectare. There was significant difference ($p<0.05$) between land under cotton cultivation in the villages before and after the cotton market liberalisation (Table 5). This suggests that perhaps after the cotton market liberalisation villages which had good market access increased acreage because they received better prices for their cotton compared to those with poor market access areas. Discussions in Nyasato and Mwatumbe villages revealed that due to poor cotton price after the cotton market liberalization, farmers opted to allocate more of their resources to paddy cultivation. Discussions with key informants also revealed that farmers in the two villages continued with cotton cultivation because there was a district by-law which forced them to cultivate it. It seems that without district by-laws farmers would stop cotton cultivation and opt for rice cultivation. These findings support the argument that price

plays an important role in determining resource allocation in production and area allocated to the crop (Boughton *et al.,* 2002; Ngailo *et al.,* 2007).

Table 5: Area under cotton production (ha) in the study villages before and after the cotton market liberalisation

Study villages	Before cotton market liberalisation		After cotton market liberalisation		
	Hectares	Mean (ha)	Hectares	Mean (ha)	t-value
Nguliguli	87	1.7	117	2.0	12.53
Katome	93	1.8	112	2.0	12.75
Nyasato	102	2.0	83	1.6	14.18
Mwatumbe	113	2.0	91	1.8	15.98

4.3.2 Change of farmers' occupations before and after cotton market liberalization

Distribution of respondents' occupations before and aftter the cotton market liberalisation is shown in Table 6. Before the cotton market liberalisation livestock was a major important occupation 63 (31.5%), but after the cotton market liberalisation the number decreased to 27 (13.5%). This shows that there has been a change in occupation and perception towards farming. There was a significant difference ($p<0.05$) between occupation before and after the cotton market liberalization (Table 6), suggesting a change in occupational activities towards farming. The change might be associated with cotton and rice price increase after the cotton market liberalisation, which attracted more farmers particularly adults towards cotton and rice farming.

Table 6: Distribution of respondents (%) based on occupations (N =200).

Occupations	Before market liberalisation		After market liberalisation		t-value
	n	%	n	%	
Farming	121	60.5	173	86.5	32.84
Livestock	63	31.5	27	13.5	10.75
Wage employment	9	4.5	0.0	0.0	3.03
Non farm activities	7	3.5	0.0	0.0	2.66
Total	200	100	200	100	

Table 7 shows that there has been a significant difference ($p \leq 0.05$) in resource allocation before and after the cotton market liberalization. Priority in resource allocation shifted from livestock production before the cotton liberalization to farming after the cotton market liberalization.

It was found that although the Sukuma ethinic group, which is dominant in Shinyanga region, used to be famous in cattle keeping in the past, such an interest was fading away. Observations in the field show that livestock was relatively less important to smallholder cotton farmers except to a few aged farmers. Key informants pointed out that aged farmers kept livestock not for income generation, but as a sign of wealth. During FGDs in all four surveyed villages, the consensus revealed that before the cotton market liberalisation more resources were first directed towards livestock keeping. This suggests that smallholders farmers probably realised that with an increase in cash crop prices due to improved marketing conditions, cotton and rice production were more paying compared to livestock keeping. Also due to the population growth, land for pasture became scarce resulting in frequent conflicts between farmers and livestock keepers. Records in the four study villages in 2006 showed that there were a total of 78 cases out of which 59 livestock keepers were

found guilty and were fined. This together with the above mentioned observations, led smallholder cotton farmers decide either to engage in farming or migrate to other regions where pastures were abandunt.

Table 7: Respondents' % based on priority in resource allocation in production (N=200)

Major priority on resource allocation	Before the cotton market liberalisation		After the cotton market liberalisation		t- value
	n	%	n	%	
Livestock keeping	120	60.0	25	12.5	15.05
Food production	48	24.0	73	36.5	13.15
Cash crop production	32	16.0	102	51.0	14.17
Total	200	100	200	100	

Table 8 shows the distribution of respondents based on their future plans in the production of cotton. The majority 176 (88%) pointed out that they intended to increase cotton production. This study established that two major reasons were responsible for this future intention. First, cotton had been their traditional cash crop which assured them of cash incomes. The second reason was that the respondents had the expectation that cotton prices will continue to rise. This suggest that smallholder cotton farmers might continue to invest more in cotton farming provided they are assured of better price for the crop (Boughton *et al.,* 2002; Ngailo *et al.,* 2007).

Table 8: Distribution of respondents (%) based on their future intentions in cotton production (N= 200)

Future intentions on cotton	n	%
Increase production	176	88.0
Decrease production	3	1.5
Maintain the same production	20	10.0
Stop production	1	0.5
Total	200	100

4.2.3 Methods used in land preparation for cotton production

The study investigated whether there was a change in methods used in land preparation for cotton production before and after the cotton market liberalisation. Respondents were asked to mention tools used in land preparation in the two periods. Table 9 shows that there was a slight decrease in the use of hand hoe as reported by 122 (61.0%) of respondents before the market liberalisation to 101(50.5%) after the cotton market liberalisation. Statistically there is a no significant change ($p>0.05$) between hand hoe and oxen plough use on land preparation before and after the cotton market liberalisation (Table 9).

Table 9: Proportion of respondents % based on tools used on land preparation (N= 200)

Tools used for land preparations	n	%	n	%	t- value	p-value
Hand hoe	122	61.0	101	50.5	22.2	0.26
Ox-plough	78	39.0	99	49.5	2.05	0.26
Total	200	100	200	100		

A smallholder farmer, who fulfils all ten cotton management practice as stipulated by TCB, gets a profit of Tshs. 71 200 in a good cotton season from one hactare (see Table 10). The study found that a plough in the villages costs Tshs. 125 000 plus the two oxen needed with each costing about Tshs. 200 000 making a total of Tshs. 525 000. Therefore, for a household to get an oxen plough it has to cultivate about eight hectares and spend the whole profit just for an oxen plough, something which is not possible. Unless arrangements are made to assist smallholder cotton farmers to access credit to enable them purchase farm implements, it is unfair to expect smallholder cotton farmers to change from using the hand hoe in land preparation in the near future.

Discussions with key informants revealed that before the cotton market liberalization, most of the farming activities depended on family labour. For those who had larger farms, besides family labour, they had a neighborhood joint help system commonly known by different names in local language as "*kisumba, luanda, wagobogobo,* and *wagalu".* A neighborhood joint system was a practice in which neighbors collectively assist each other in farming activities. The owner of the farm on that particular day provided drinks, meat with *ugali* (stiff porridge*)* and rice which was eaten after the work. Shao (2002) gives a detailed account of similar kinds of neighborhood joint system in Bunda district known as *lisaga.* After the cotton market liberalisation, this system was rarely practiced. It was found that a neighborhood joint system involved youths, but with time youths either migrated to towns to seek for wage employment or were engaged in petty business such as selling second hand clothes or mining activities. Therefore, those with bigger farms now depended on hired casual labour.

Table 10: Analysis of production and Gross Margin (per ha) for cotton

Activities	**Cost (Tshs.)**
Ploughing	35 000
Harrowing	25 000
Seeds 10kgs x Tshs.120	2 500
Planting x 3 @ 10 000	30 000
Thining	10 000
Weeding x 3 @ 10 000	30 000
Pesticides x 3 @ 3 000	6 300
Spraying x3 @ 10 000	30 000
Harvesting	15 000
Grading	15 000
Transporting	10 000
Uprooting harvested plants 10 000	10 000
Total cost involved	**198 800**
For one hectares a smallholder farmer harvests 600 kgs @ 450	270 000
The farmer gets a profit of 270 000 -198 800	**71 200**

*Cost for labour was average cost for an activity prevailing at the time of study

**Gross Margin = (Avarage yield/ha X Avarage price (Tshs.) per unit (kg) of produce - total cost. Therefore, Gross Margin for cotton = (600 x 450)-(198 800) = Tshs.71 200

4.2.4 Efficiency of input supply after the cotton market liberalisation

The study investigated the smallholder cotton farmers' opinions on the efficiency of input supply after the cotton market liberalisation. Table 11 shows that the majority 177 (88.5%) of the respondents indicated that they were not satisfied with input supply system after the cotton market liberalisation. Before the cotton market liberalisation, inputs were in good supply and were easily accessible through cooperatives. Farmers could collect more inputs than the amount one required and there was no proper record keeping. It can therefore be argued that before the cotton market liberalization, the input supply system was efficient and smallholder cotton farmers were satisfied with input supply system (Gibbon, 1999; Shao,

2002; Maro and Poultons, 2002; Kabelwa and Kweka, 2006). However, key informants cautioned the researcher on the input supply figures given by cooperative and TCB officials. They asserted that many officials who were entrusted with input supply were corrupt, and had financial malpractices hence directed all losses into inputs because there was no proper recording. In addition, figures of the amount of input supplied in most cases were cooked and much of the inputs did not reach the required destination. These observations have also been noted by Maro and Poulton, (2002).

Table 11: Respondents' opinions (%) on efficiency of input supply system (N= 200)

Respondents' opinion on input supply	**n**	**%**
Satisfied with input supply system	23	11.5
Not satisfied with input supply system	177	88.5
Total	200	100

4.2.5 Distribution of cotton pesticides prior and after the cotton market liberalisation

Data shows that the number of cotton pesticide packs supplied in the two districts by CDF were less by 87 822 packs (46.25%) of smallholder cotton farmers' requirement **(**Table 12). Key informants pointed out that besides the CDF supply being less, there was a delay in input supply. All these had negative effects on smallholder cotton farmers' production activities.

Table 12: Distribution of cotton pesticides by CDF in 2006/07 farming season

District	Packs supplied	Required	Deficit	Deficit %
Maswa	142 153	186 253	44 100	23.68
Bukombe	150 000	193 722	43 722	22.57
Total	292 153	379 975	87 822	46.25

The CDF system required smallholder cotton farmers to have a passbook in which the amount of cotton sold was recorded in order to get inputs. Table 13 shows that more than 50% of the respondents in remote areas (Nyasato and Mwatumbe villages) had no passbooks. Key informants pointed out that the smallholder cotton farmers in these villages sold their cotton to unlicensed traders without passbooks because licensed traders delayed the purchase of cotton in the villages. Furthermore, smallholder cotton farmers were forced to sell their cotton to unlicensed buyers at lower prices even before the official cotton buying time was announced. This was due to farmers' urgent need for cash for basic needs. This made smallholder cotton farmers unable to secure input from CDF. With the CDF scheme, a smallholder farmer was given input equivalent to the amount of cotton sold. Those who sold their cotton to licensed traders received passbooks and therefore had the right to get inputs from CDF. Those who had no passbooks had to buy input from agricultural implement shops or *machingas (*individuals who go around with different commodities for sale) in the villages. The study found that even some smallholder cotton farmers who had passbooks and right entries had problems in securing the right amount of inputs due to mismanagement by CDF.

Discussions with key informants revealed that due to rampant corruption, traders got stock of inputs from CDF officials or those involved in input supply and in so doing intensified

the input shortage. In some cases, those who were required to deliver input to villages deliberately delayed the delivery of inputs. Such practices increased the magnitude of input shortage. Input shortage forced some smallholder cotton farmers to buy inputs from private traders which were available in the villages at a higher price even if one still had money in the passbook.

The study found that smallholder cotton farmers had no confidence with TCB officials who handled the administration of CDF.Some smallholder cotton farmers associated TCB officials with SHIRECU officials who were considered as thieves It is therefore, logical to argue that smallholder cotton farmers were not involved in the whole process of input procurement and supply. In view of these observations, there is an urgent need to institute a good input supply system which will be formulated and administered by smallholder cotton farmers themselves to replace the superimposed CDF.

Table 13: Distribution of respondents (%) by owning of passbook (N=200)

Study villages	Owned passbook		Not owned passbook	
	n	%	n	%
Katome	48	96	2	4
Nguliguli	47	94	3	6
Nyasato	21	42	29	58
Mwatumbe	23	46	27	44

4.2.6 The official (CDF) and the private traders' cotton pesticides price

Table 14 shows that the private traders' price for the oil-based pesticide (Fenom c 170 and Bulldog 170) was 130% of the CDF price. The TCB officials admitted that the demand of pesticides was higher than the amount supplied, a situation that forced them to allow some private traders to order and sell the pesticides to smallholder cotton farmers. It was observed

that the pesticide price from private traders varied from one location to another. For example, in Nyasato village, the price for oil based pesticide ranged from Tshs. 7 500-9 000 while in Nguliguli it ranged from Tshs. 7 500-8 000. The difference in prices was due to fact those villages located far away from the urban centers had poor roads hence traders incurred high cost and therefore had to increase the price of pestcides. However, it should be noted that prices of CDF pesticides were government subsdised. . It is a known fact that if there is scarcity of any commodity, corruption or price hiking is bond to exist. In this case, what happened to CDF supplied input is a common phenomenon when demand is higher than the supply. It can be argued from the findings that perhaps market liberalisation was implemented without taking into consideration of an efficient input supply system to replace the dismantled system.

Table 14: The Official (CDF) and private traders input prices (Tshs.) in the 2006/07

Name of Input	CDF	Private traders	Difference	% of price increase
Fenom c 170	3 000	7 500	4 500	130
Bulldog 170	3 000	7 500	4 500	130
Karate	3 000	5 500	2 500	83

4.2.7 The required number of cotton pesticide spraying

The study inquired on the number of pesticide spraying before and after the cotton market liberalisation. Table 15 shows that none indicated to have not sprayed before the cotton market liberalization, while 38 (19 %) of the respondents indicated to have not sprayed after the cotton market liberalisation. Furthermore, the majority 157 (78.5%) sprayed 4-5 times before the cotton market liberalization, but after the cotton market liberalisation the majority 153 (76.5%) indicated spraying 1-3 times. For good cotton management practice it is

recommended that cotton should be sprayed three times (TCB, 2008). Perhaps the increase of input prices after the cotton market liberalisation made some respondents not to spray their cotton. However, it can be argued that smallholder cotton farmers were not cost conscious before the cotton market liberalisation because the majority sprayed more than what was recommended. It is principally known that spraying more than three times is considered as wastage of resources. The study found that before the cotton market liberalization, the majority 185 (92.5%) sprayed more than three times because they had the notion that the pesticides was free although this was not the case since pesticides were deducted from the sale of their cotton produce.

Table 15: Percentage of respondents by frequency of pesticide spraying (N= 200)

No of spraying	Before market liberalisation		After market liberalisation	
	n	%	n	%
0	0	0.0	38	19.0
1-3	15	7.5	153	76.5
4-5	157	78.5	7	3.5
<5	28	14.0	0	0
	200	100	200	100

4.2.8 Change of input usage after the cotton market liberalisation

The study investigated the input usage after the cotton market liberalisation. Respondents were asked to comment on how input usage had changed. Table 16 shows that about 180 (90%) of the respondents indicated that input use decreased implying that market liberalisation discouraged the use of inputs. Several studies had similar observations (Gibbon and Raikes, 1995; Turuka, 1995; Hawassi, 1997; Hawassi, *et al.,* 1997; Ponte, 2002; Larsen, 2003; URT, 2003). It can be surmised from this study that either smallholder farmers applied little or did not apply input, which resulted in low cotton yield and hence

less income. These findings concur with Shao (2002) who found that none use of input reduced cotton yields from about 350 kgs per acre to 20kgs per acre.

Table 16: Respondents' assessment % on input use change (N= 200)

Respondents' assessment on input use	n	%
Increased	45	10.0
Decreased	180	90.0
Total	200	100

Respondents were also asked to mention the reasons behind the change in input usage. Table 17 shows that the majority of respondents 187 (93.0%) pointed out that they did not have cash to use in buying inputs. Key informants pointed out that the TCB's new input supply system the CDF organization and mode of operation was different from the previous one. The newly introduced system as stated earlier, supplied input to smallholder cotton farmers depending on the amount the farmer sold in the previous year. Those who had not sold cotton in the previous year were not able to secure input from CDF. Also, those who increased acreage had to get additional inputs elsewhere buying in cash from private traders. This was contrary to the old system whereby a farmer collected input before the farming season and the cost was deducted after the sale of cotton. It can be deduced that change in input supply system which required buying input in cash is one among the reasons which explains low use or none use of input after the cotton market liberalisation. The cotton input system which was in use for decades was disrupted without smallholder cotton farmers being prepared for the change. This resulted into less use or none use of input hence low cotton yields and poor returns from their labour. This reminds us the importance of stakeholders' involvement in any formulation and implementation of any venture for it to be successful.

Table 17: Distribution of respondents (%) reasons for change in input use (N=200)

Variables	n	%
Lack of cash to purchase input	187	93.0
None availability of input	13	7.0
Total	200	100

The study also found out that before the cotton market liberalisation, cooperatives provided smallholder cotton farmers with oil-based pesticides which had been in use for decades. Smallholder cotton farmers were convinced that the oil-based pesticide were of good quality, not easily washed away by rain water, and was very effective in killing cotton insects. Smallholder cotton farmers claimed that the newly introduced water-based pesticides were unfamiliar to them, although they reported that they had not complained about the ineffectiveness of oil-based pesticides.

TCB officials asserted that there was a change in pesticide from the oil based pesticide to water based pesticide and that it was not only in Tanzania but in other cotton growing countries such as Zimbabwe and Mozambique. The water based was as good as oil based pesticide provided the right application procedures were followed. However, due to smallholder cotton farmers' negative attitude towards water- based pesticides and that the funds used to purchase pesticides belonged to smallholder cotton farmers themselves, TCB was forced to reverse its earlier decision of phasing out oil based pesticides. It can be noted that the failure of smallholder farmers to accept the new introduced input was due discrepancy in the whole processes of introducing it. There was a need for smallholder farmers to be educated first and fully involved in the introduction of the input supply system, fulfilling one among the National Strategy for Growth and Reduction of Poverty – MKUKUTA aspects i.e. consultation with stakeholders is essential in policy formulation and implementation

Another aspect which was explored was whether the poor quality of insecticides was due to private traders' involvement in input supply. Respondents were asked to indicate whether or not they agreed with the proposition that poor quality insecticides were due to private traders' involvement in input supply. About 168 (84%) of respondents agreed that poor quality pesticides were a result of private traders' involvement in input supply (Table 18). Discussion with key informants revealed that probably some unfaithful private traders tempered with the pesticides. In regard to the tempering with the pesticides, one extension officer in Nguliguli ward was reported saying

> *"some unfaithful traders removed the pesticide container seals and added water or kerosene in so doing they affected the quality of pesticide and some traders collected empty oil-based insecticide containers; filled kerosene and water and sealed and sold them at higher price on the pretext that there were oil- based insecticides".*

During FGDs similar kinds of allegations were made in regard to private traders' involvement and its effects on the quality of pesticides. This shows that the government failed to guide the whole process of input supply after the cotton market liberalization.

The study further explored private traders' involvement in input supply and its effects on input prices. Again 156 (78%) of the respondents agreed with the statement that private trader's involvement in input supply increased the price of inputs (Table 18), notwithstanding the government subsidy through CDF inputs. As stated ealier, demand was higher compared to supply, which could be one among the possible reasons for input price hiking. Also poor roads increased the cost of input transportation forcing private traders to increase the price of this type of cotton input.

Table 18: Respondents' (%) comments on the effect of private traders' involvement in input quality and price (N= 200)

Private traders involvement in input supply resulted to poor quality of input		
Respondents position	**n**	**%**
Yes	168	84.0
No	32	16.0
Total	**200**	**100**
Private traders involvement in input supply raised the input price		
Yes	156	78.0
No	44	22.0
Total	**200**	**100**

4.2.9 Credit facility to cotton farmers before and after the cotton market liberalisation

Respondents were asked to indicate if they had borrowed money for farming activities. Table 19 shows that there is no significant change ($p>0.05$) between the number of smallholder cotton farmers who took loans in the two periods. The study shows that through sensitization by government officials, smallholder cotton farmers were now more aware of the importance of loans and the need for having credit after the cotton market liberalisation than before.

Table 19: Distribution of respondents (%) based on whether they borrowed money for farming activities or not (N = 200)

Variables	**Before market liberalization**		**After market liberalisation**		**t-value**	**p-value**
	n	**%**	**n**	**%**		
Borrowed	66	33.0	62	31.0	2.09	0.26
Not borrowed	134	67.0	138	69.0	3.10	0.21
Total	200	100	200	100		

Those who indicated that they borrowed money for faming activities were requested to mention the source. Their responses are summarised in Table 20. It should be noted that before the cotton market liberalisation, 57 (86.5%) of respondents indicated that they had borrowed money from cooperatives, while none indicated not doing so after the cotton market liberalisation. After the cotton market liberalisation, 60 (96.8%) of the respondents reported borrowing money for agricultural activities from relatives and friends, concurring with findigs from Rubambey, 2001 and World Bank, 2005 which reported the same. These findings are concomitant with other study findings that formal institutions had not increased access to basic financial services to the majority of Tanzanians, particularly those in rural areas. It was for example, reported that in 2002/03 only 3% of total smallholders farmers in Tanzania accessed loans from formal credit institutions for agricultural purposes (NSGRP, 2006).

Table 20: Source of borrowing for farming activities

Source of borrowing	**Before the cotton market liberalisation**		**After the cotton market liberalisation**	
	n=66	%	n=62	%
Friends& relatives	6	9.0	60	96.8
Formal institutions (Banks)	3	4.5	2	3.2
Cooperatives	57	86.5	0	0.0
Total	66	100	62	100

Respondents were requested to indicate reasons which made them fail to borrow money from formal institutions. The reasons for failing to get loans from formal institutions are given in Table 21. “Not needed”, “not available” and “ignorance” responses were mentioned by 162 (81%) of the respondents as reasons for not getting loans for farming activities before the cotton market liberalisation. Generally, the failure of smallholder cotton farmers

to access loans from the formal institutions before the cotton market liberalisation could probably be due to ignorance. Because institutions were available and some managed to borrow (Table 19), thus a response that **"***one does not need a loan*" justifies that she/ he was ignorant of the importance of loans. It can be deduced from above that the reason that there were no formal institutions which could provide credit was not true. The reasons for failure to borrow money before the cotton market liberalisation could be due to ignorance and even for those who reported that there were "*no formal institutions which provided credit*" and "*not aware of their existence*" could be an issue of ignorance and hence lack of awareness. After the cotton market liberalisation 152 (76 %) of the respondents reported that lack of collaterals explained their failure to borrow money from formal institutions (Table 21).

During FGDs it was revealed that most smallholder cotton farmers were aware of institutions which offered credit for farming. They further admitted that some government officials did sensitize them on the need to form SACCOs and projects which could assist them get credit from financial institutions including the Rural Development Bank (CRDB) and National Microfinance Bank (NMB). A consensus was reached during the FGDs, which explained the major reasons for failure to borrow money from formal institutions. It was revealed that the conditions and procedures demanded by institutions which provide credit were prohibitive. Smallholder cotton farmers pointed out that the financial institutions demanded collaterals such as a land title deed and project write up for one to get credit. The study found that all smallholder cotton farmers in the surveyed villages had no land title deeds. The same problem was reported in Babati in which land could not be used as collateral for financial purposes because smallholder cotton farmers had no title deeds (Senkondo, 2000). Kessy *et al,* (2006) in their study on the Contribution of Microfinance Institutions to Poverty Reduction in Tanzania found that collateral was one among the problems for accessing a loan. It should be noted that although much has been said by the

government that land should be used as collateral, the study found that land survey is yet to be implemented, which is the basic requirement for one to get a title deed. Discussion with the Regional Land Officer revealed that it was not possible for the land survey execise due to lack of funds. He however, hinted that the government was in the process of enacting a law that will allow title deeds to be given at the village based on customary law. The study found that smallholder cotton farmers' were not able to prepare sound project proposals due to lack of expertise. This is another problem that limited smallholder cotton farmers securing credits from formal financial institutions.

Table 21: Cotton farmers' reasons for not borrowing money from formal institutions

Variables	Before market liberalisation		After market liberalization	
	n	%	n	%
Not needed Credit	80	40.0	2	1.0
Credit not available	56	28.0	39	19.5
Lack of collaterals	27	13.5	152	76.0
Ignorance/not aware	26	13.0	2	1.0
Credit interest rate high	10	5.0	1	0.5
Afraid of debt	1	0.5	0	0.0
Total	200	100	200	100

4.2.10 Availability, responsibility and usefulness of extension officers

A large percentage of respondents (197) 98.5% reported that before the cotton market liberalisation, each village had an agricultural extension officer (see Table 22). The extension officer was also known by his/her name by each village member. The implementation of market liberalisation policy led to the decline of government spending on agricultural services and research (Shepherd and Farolfi, 1999; Hammond, 1999; Hyden,

2004). After the cotton market liberalisation, the agricultural sector faced resource constraints, which led to the removal of village agricultural extension officers from villages and were instead stationed at the wards or divisions. The agricultural extension officers were therefore required to provide services to several villages. The study found that an agricultural extension officer stationed at the ward centre serviced at least not less than five villages which were located in the radius of not less than 20 kilometers. Worse still, they were not provided with any means of transport, making their visits to smallholder cotton farmers' fields which were scattered in the ward very difficult and if not impossible.

FGDs results revealed that agricultural extension officers who were posted in each village were responsible for making follow up to ensure that smallholder cotton farmers adhered to good cotton farming practices. Before the cotton market liberalization, agricultural extension officers used to go around cotton fields on bicycles or on foot to educate farmers on good cotton farming practices. Those smallholder cotton farmers who did not comply with these practices were summoned and fined and some were even jailed in case of failure to pay the required fines.

Discussion with some extension officers showed that they were more engaged in report writing and ward executive meetings than visiting smallholder cotton farmers' fields. As a result, the officers rarely visited farmers' fields due to logistic problems such as transport and were generally less accountable to villages (UTR, 2003). This means that after the cotton market liberalization, agricultural extension officers were not easily accessed and less accountable in the villages and had a lot of excuses for failing to visit smallholder cotton farmers' fields frequently.

Table 22: Cotton farmers' responses on the agricultural extension officers location (N=200)

Where agricultural extension officer located	Before cotton market liberalization		After cotton market liberalization	
	n	%	n	%
At village	197	98.5	0	0.0
At ward	3	1.5	186	93.0
At division	0	0.0	14	7.0
Total	200	100	200	100

To assess the quality of the extension services during the two periods, respondents were asked to indicate the frequency of the extension officers' visits per year. Table 23 shows that before the cotton market liberalization, all farmers were visited at least once in a cropping season. However, it was reported that more than 171 (80%) of respondents were visited more than three times a year. After the cotton market liberalisation, the majority of respondents 180 (90%) were not visited at all. It can therefore be argued that the disruption of the extension services is one of the disadvantages and problems emanating from the cotton market liberalisation. As stated earlier, the agricultural extension officers' role seemed to have changed after the cotton market liberalisation, in which their duties moved from field visits to attending meetings and report writing as it was pointed out by some of interviewed extension officers. This contradicts the agricultural extension officers' roles which is supposed to assist smallholder cotton farmers (in fields) to improve productivity, quality and quantity of crops, whose consequence was the envisaged increase in the income of the smallholder cotton farmers (URT, 2003; Kileo *et al.*, 2003; Rutatora and Rwenyagira, 2005).

Table 23: Distribution of respondents (%) by average visits to fields by Extension Officers per year (N =200)

Number of extension visit	Before cotton market liberalization		After cotton market liberalization	
	n	%	n	%
0	0	0.0	180	90.0
1-2	29	14.5	18	9.0
3-4	124	62.0	2	1.0
<5	47	23.5	0	0.0
Total	**200**	**100**	**200**	**100**

Furthermore, respondents were requested to comment on the usefulness of agricultural extension officers' messages communicated to them before and after the cotton market liberalisation. Responses were classified into five categories very good, good, fair, poor or very poor (Table 24). Three responses including very good, good and fair were lumped together and considered to mean good extension service messages and useful for improving farm production. The remaining two message responses, which are poor and very poor, were considered to mean bad and useless messages. Table 24 shows that before the cotton market liberalisation almost all respondents 198 (99%) indicated that agricultural extension services were good, useful and were employed to improve cotton production. After the cotton market liberalisation over 152 (70%) of the respondents reported that the messages were not useful and therefore could not be used in improving cotton production.

Table 24: Distribution of respondents (%) based on their assessment of usefulness of extension service (N= 200)

Assessment	Before the cotton market liberalization		After the cotton market liberalization	
	n	%	n	%
Very good	140	70.0	5	2.5
Good	42	21.0	20	10.0
Fair	16	8.0	23	11.5
Poor	1	0.5	83	41.5
Very poor	1	0.5	69	34.5
Total	**200**	**100**	**200**	**100**

During the FGDs, it was pointed out that agricultural extension officers visited cotton fields after the cotton had been harvested to check those smallholder cotton farmers who had not uprooted and burnt cotton plants. Those who were found not to have done so were fined. However, it was claimed that the officers never provided receipts for the fines therefore; it was assumed that the officers pocketed the money. The study found that smallholder cotton farmers regarded agricultural extension officers as people who could not assist them in imparting cotton cultivation skills as it used to be before the cotton market liberalisation. They were instead seen as law enforcers. These findings seem to suggest that the introduction of the cotton market liberalisation did not consider the important role agricultural extension had played during the pre-cotton market liberalisation period. In other words, such a role was neglected.

4.3 Seed Cotton Marketing Before and After the Cotton Market Liberalisation

4.3.1 Stakeholders in seed cotton marketing

The study found that there were three main stakeholders in seed cotton marketing namely smallholder cotton farmers, TCB and cotton buyers. Smallholder cotton farmers are responsible for cotton production. After harvesting, smallholder cotton farmers were supposed to grade seed cotton into two grades including AR (high quality) and BR (low quality) and the two would fetch different prices. However, it was found that before the cotton market liberalisation initial cotton grading exercise was strictly done by smallholder cotton farmers under close supervision of the cooperative societies (Maro *et al.,* 2002). Key informants pointed out that the cotton grading exercise ceased in 1994 because private cotton traders were less concerned with quality control. The latter's major concern was to buy as much cotton as possible regardless of its quality; a practice which resulted into quality deterioration (Gibbon, 1999). The study found that smallholder cotton farmers were happy with the cotton traders' laxity because they were relieved from the tedious work of cotton grading. Cotton is sold in bundles commonly known as *furushi* at the village selling post but some bigger farmers and unlicensed buyers sold their cotton produce at ginneries where they were assured of getting higher prices compared to the prices they would receive at the village selling post.

TCB being the other stakeholder is the government agent responsible for coordinating various cotton stakeholders' activities. In general, TCB put in place a legal and regulatory framework aimed at improving and developing the cotton industry by promoting, facilitating and monitoring the entire production, marketing, processing and export chain of cotton business (see Appendix 8 for TCB functions). Cotton buyers are traders who buy seed cotton from smallholder cotton farmers, process it and sell it domestically or export. Details on cotton buyers are presented in section 4.4.2.

4.3.2 Cotton buyers before and after the cotton market liberalisation

Respondents were asked to indicate to whom they sold their cotton before and after the cotton market liberalisation. Table 25 presents the type of cotton buyers before and aftter the cotton market liberalisation. Table 25 shows that before the cotton market liberalisation, cooperatives were the sole 200 (100%) buyers of seed cotton in the study area. After the cotton market liberalisation the number of seed cotton buyers increased to three; the cooperative, private traders and unlicensed buyers. For Shinyanga, SHIRECU used to be the sole seed cotton buyer in the region before the cotton market liberalisation. After the cotton market liberalisation over two thirds of the respondents sold their cotton to private traders and only 5 (2.5%) sold seed cotton to cooperatives. This study finding supports Winters *et al.,* (2004) who has argued that trade liberalisation helps to create new markets while at the same time destroying the existing ones.

Table 25: Distribution of respondents (%) based on the type of buyers to whom they sold their cotton (N=200)

Cotton buyer	**Before market liberalization**		**After market liberalisation**	
	n	**%**	**n**	**%**
Cooperatives	200	100	5	2.5
Private licensed trader	0	0.0	129	64.5
Unlicensed traders	0	0.0	66	33.0
Total	**200**	**100**	**200**	**100**

The study found that nine private trade companies bought cotton in the four surveyed villages. The names and number of cotton trading companies in the surveyed villages are shown in Table 26. The number of private cotton trading companies in the surveyed villages

ranged from 2 to 9. Villages with a few number of cotton companies are those which are located in remote areas and had poor roads. Private traders were not ready to go to such villages for fear of incurring high costs. Although 66 (33%) of respondents (Table 25) said that they sold seed cotton to unlicensed traders, it was not possible to get the number of unlicensed cotton buyers because they were buying cotton illegally.

Table 26: Licensed cotton traders involved in cotton buying 2005/06 season in the four villages

Cotton traders (Companies)	Study Villages			
	Katome	**Nguliguli**	**Nyasato**	**Mwatumbe**
Afrisian	√	√		√
Simon agency		√		√
Cargil(t) ltd	√	√	√	
Fresho investment co.ltd	√	√		
Jambo oil mill		√		
Lintex (t) ltd		√		
Nsagali co. ltd		√		
S&M ginning company		√		
Gaki investment co.ltd		√		
Copcot cotton trading	√		√	
Kahama cotton co.ltd	√		√	
Total	5	9	3	2

Key: √ means the company operated in that given village

4.3.3 Seed cotton marketing process

There are a number of conditions to be fulfilled before a company can be allowed to buy seed cotton from smallholder cotton farmers. TCB provides a license to cotton buyers after being registered at a specific selling post. The procedure is that each cotton buyer appoints his/her own clerks to buy cotton on behalf of the licensed cotton trader at the registered

selling post at the village level or commissions village residents. The prices were supposed to be openly displayed at the buying posts. Moreover, cotton buyers were supposed to use the primary societies warehouse to store cotton on payment or a fee, but most did not adhere to this condition. Instead they hired private houses in the villages in which they stored cotton. Appendix 9 presents conditions for obtaining a Seed Cotton Buying License.

During the FGDs, it was revealed that in some cases, licensed cotton traders through their agents negotiated with rich households in the villages who had large cotton farms. These agents provided cotton inputs such as pesticides and cotton sprayers on behalf of private traders. They made agreements with smallholder cotton farmers to sell their cotton to their companies after harvesting and inputs cost would be deducted after the sale of cotton. Cotton from rich smallholder cotton farmers was normally collected at the end of the cotton buying season when prices were established and cotton prices were higher. Key informants reported that some cotton buyers bribed village officials and did not record the proper weight of cotton sold and sometimes the rich farmers did not inform the village government officials the day and time when they would sell their cotton making private traders avoid paying the government levy.

Unlicensed buyers were prominent rich people from within or outside the villages who acted as agents for other buyers. Unlicensed buyers bought seed cotton at low price from smallholder cotton farmers' homes before the official opening date of the cotton buying season. Unlicensed buyers went to smallholder cotton farmers' homes at an agreed time, usually at night, weighed the cotton, collected it and stored it and later sold it to the selling posts within or outside the villages at much higher prices or sometimes they sold it at ginneries.

4.3.4 Cotton delivery at cotton selling post

The study investigated whether there was a change in the means of cotton transportation to the selling post. Results show that there was a significant change ($p \leq 0.05$) on the means of cotton transportation between before and after cotton market liberalisation. Table 27 shows that 155 (77.5%) of respondents reported that before the cotton market liberalization, they used to carry cotton on heads while 42 (21%) used bicycles. After the cotton market liberalization, there was a great change as 168 (84%) of respondents used bicycles and very few still carried cotton on their heads. This shows that there was improvement in smallholder cotton farmers' welfare. Perhaps the increase in cotton price led smallholder cotton farmers buy bicycles. "*Machinga"* brought bicycles at selling posts in anticipation that smallholder cotton farmers would buy them after they had sold their cotton. At two cotton selling (Nguliguli and Katome) posts, an average of twenty bicycles were bought on the cotton selling day. However, this was not the case before the cotton market liberalisation because there were delays in cotton payment.

Table 27: Distribution of respondents (%) by means of transportation to the cotton buying post (N=200)

Means of transport	**Before market liberalisation**		**After market Liberalization**		**t-value**
	n	**%**	**n**	**%**	
On head	155	77.5	3	1.5	4.37
Bicycle	42	21.0	168	84.0	5.92
Ox-cart	3	1.5	26	13.0	5.00
Tractor trailer/lorry	0	0.0	3	1.5	3.68
Total	**200**	**100**	**200**	**100**	

4.3.5 Cotton payment before and after the cotton market liberalisation

Table 28 shows that no one among the respondents reported delay in cash payment after the cotton market liberalisation. Delay of cotton payment was a common phenomenon before the cotton market liberalisation as discussed earlier (see Table 28). FGDs also reported the same in which they said that before the cotton market liberalization, smallholder cotton farmers had to wait for a number of days and even for several months before being paid their dues after delivering their cotton products to the primary cooperative societies. Some complained that they had not been paid for the cotton they had sold in 1992/93 season. Such a situation frustrated smallholder cotton farmers to the extent that some abandoned cotton cultivation and opted for paddy cultivation (Meertens *et al.,* 1991). We can say that cash payment to smallholder cotton farmers after the cotton market liberalisation acted as an incentive to increase cotton acreage in anticipation of getting more income as discussed in section 4.3.2.

It can be observed from Table 28 that 192 (90%) of the respondents mentioned that second payment from cotton sale ceased after the cotton market liberalisation. During the cooperative days, smallholder cotton farmers were paid the first instalment at slightly lower price than the world market price. The second payment was done to compensate for the price differences between the first payment and the world market price. But the difference was paid after deducting costs of marketing and other overhead costs. The second payment was useful to smallholder cotton farmers because it was paid when they had exhausted all their cash. This money was usually used for field preparations and to pay other expenses such as children's school fees and medical bills. The private traders' failure to pay smallholder cotton farmers' second payment was interpreted by most smallholder cotton farmers wrongly as they thought the latter pocketed the profits after first payments.

Table 28: Problems smallholder cotton farmers faced in marketing cotton (N=200)

Problems	Before market liberalisation		After market liberalization	
	n	%	N	%
Payment Delay	200	100	0	0.0
Wastage of time	189	92.5	0	0.0
No second payment	0	0.0	192	96.0
Price fluctuation	0	0.0	198	99.0
Weighing machine cheating	20	10.0	198	99.0

After the cotton market liberalization, none of the respondents reported that they wasted time during the cotton sale (Table 28). During FGDs it was pointed out that before the cotton market liberalisation smallholder cotton farmers had to form long queues in hot weather before their cotton was weighed. After smallholder cotton farmers had weighed their cotton, they had to wait for a number of days and even several months or years before being paid cash for the cotton they had sold. Such a situation wasted a lot of time, which could have been used for other productive activities. However, after the cotton market liberalization, smallholder cotton farmers spent few hours at the cotton selling posts and were able to proceed to other productive activities.

Distance from the homesteads to cotton selling post for the two periods, before and after the cotton market liberalisation was investigated. Before the cotton market liberalisation, the average distance to the cotton selling post was 2.75 km while after the cotton market liberlisation the average distance was 1.125 km (Table 29). This shows that the cotton market liberalisation led to the reduction in distance to the cotton selling posts by 1.625 km. This is attributed by the increase in the number of selling posts due to an increase of the number of cotton buyers. This shows that before the cotton market liberalization, smallholder cotton farmers wasted a lot of time to travel to cotton selling posts which could be used for other productive activities. Study results shows that there was no significant difference ($p>0.05$) between distance to the cotton selling posts before and after the cotton

market liberalisation (Table 29). To some extent, smallholder cotton farmers were relieved from traveling long distances with their cotton luggage on their heads or bicycles to sell their cotton.

Table 29: Distance (km) to cotton buying post before and after the cotton market liberalisation (N=200)

Villages	Before the cotton market liberalisation	After the cotton market liberalisation	Difference	t-value	p-value
	km	Km	km		
Katome	2.0	0.5	1.5	6.32	4.54
Nguliguli	2.5	1.5	1.0	12.05	2.39
Nyasato	3.0	1.0	2.0	7.38	5.39
Mwatumbe	3.5	1.5	2.0	9.42	1.35
Total	**11.0**	**4.5**	**6.5**	**8.36**	**8.63**
Average	**2.75**	**1.13**	**1.63**		

4.4 Income Changes and Dynamics under Cotton Market Liberalisation

This section presents results and discuses findings on cotton price setting mechanism and cotton prices in different villages. It also presents and discusses the nominal change, the percentage the smallholder cotton farmers received from the world market cotton price and the real price after the cotton market liberalisation.

4.4.1 Cotton price setting mechanism and cotton prices

The study investigated whether smallholder cotton farmers were aware of the cotton price procedure before and after the cotton market liberalisation. Table 30 shows that (198) 99 % of respondents indicated that they knew the procedure on cotton pricing before the cotton market liberalisation, while 190 (95%) of the respondents indicated that after the cotton

market liberalisation they were not aware about the cotton pricing mechanism. Discussion with key informants confirmed that before the cotton market liberalization, smallholder cotton farmers knew the cotton pricing mechanism. They knew that cooperatives collected seed cotton and made advance payment. Then they were paid second installment after cooperative had sold cotton to the world market. As stated earlier, the second installment was paid after the deduction of cooperatives costs of marketing and other overhead costs.

After the cotton market liberalization, there were frequent price fluctuations and cotton buyers offered different prices at one selling post. This confused smallholder cotton farmers and therefore farmers failed to understand how the cotton price was set. It can be argued that after the cotton market liberalization, smallholder cotton farmers had no say over their produce as changes could occur in the cotton price without their knowledge.

Table 30: Respondents who were aware about the rule on cotton pricing (N = 200)

New the rule on cotton pricing	**Before cotton market liberalisation**		**After cotton market liberalisation**	
	n	**%**	**n**	**%**
Yes	198	99.0	10	5.0
No	2	0.1	190	95.0
Total	**200**	**100**	**200**	**100**
New price before going to selling post	**Before cotton market liberalisation**		**After cotton market liberalisation**	
Yes	200	100	42	21.0
No	0	0.0	158	79.0
Total	**200**	**100**	**200**	**100**

The study also investigated whether smallholder cotton farmers knew in advance about cotton price that will prevail at the selling post. Responses showed that before the cotton market liberalisation all respondents reported that prices were known before going to the

selling post (see Table30). This is because before the cotton market liberalization, the government used to announce cotton price well in advance before the start of the cotton selling seasons. All cooperatives adhered to the announced price and therefore smallholder farmers knew well in advance the price of cotton before going to the cotton selling post. However, after the cotton market liberalisation only 42 (21%) of the respondents reported that they knew in advance the cotton selling price at the village selling post (see Table 30). The study found that although after the cotton market liberalisation, TCB set indicative price, cotton buyers were at liberty to offer their own prices provided that these were not lower than the indicated price. Therefore, cotton buyers could change cotton price at their will at any time. Hence one could not plan in advance the expenditure since it was difficult to speculate on the amount of money that will be earned after a farmer has sold his/her cotton at the post.

Private Cotton traders claimed that the frequent price fluctuations depended on global price movement that determined the producer price. However, private cotton traders were well connected globally and were thus informed on daily basis of cotton global price changes. It was observed that because of the smallholder cotton farmers' low level of education and lack of organization they were less informed about the global cotton price changes. Private traders took the advantage of the smallholder cotton farmers' ignorance, by deliberately setting prices that were in their favor.

Kamuzora (2002) argued that ITC divides the world into developed and developing countries. In this case, it should also be looked at country level and particularly between smallholder cotton farmers and cotton traders. It should be noted that because smallholder cotton farmers were unable to access the internet and hence were less informed about global cotton price changes, private traders used this weakness and exploited them. Rupert *et al.*

(2005) have argued that the skew-ness in access to basic market information is one of the major impediments to empowering smallholder cotton farmers to negotiate for better prices. Alan (2005) has emphasized the importance of market information and access to such information on the part of smallholder cotton farmers. It is evident from this study that smallholder cotton farmers were powerless and hence were unable to know the correct price they were supposed to get from their cotton sales.

4.4.2 Cotton prices at village level

Figure 8 shows the highest cotton producer prices reached in different villages in four seasons (from the 2002/03 season to the 2005/06 season). In the 2005/06 season, Nguliguli village received the highest producer price of Tshs.s 450 per kilogram while Mwatumbe villages received the lowest price of Tshs.s 350 per kilogram. With the exception of 2002/03 season in which the difference between the highest and the lowest price was Ths.40, in the remaining seasons, the difference between the highest and the lowest price was Ths. 100. Nyasato and Mwatumbe villages located in remote areas and with poor infrastructure including roads received lower price from the sale of cotton compared to Katome and Nguliguli villages located close to urban areas and hence served with good roads. The situation is concomitant to findings from Inter Academy Council (2004) which has posited the argument that market liberalisation has done little to benefit the smallholder cotton farmers, especially those living in areas that are not easily reached by roads and markets. It should be noted that regardless of these results prices offered by private traders were above the indicative price set by TCB.

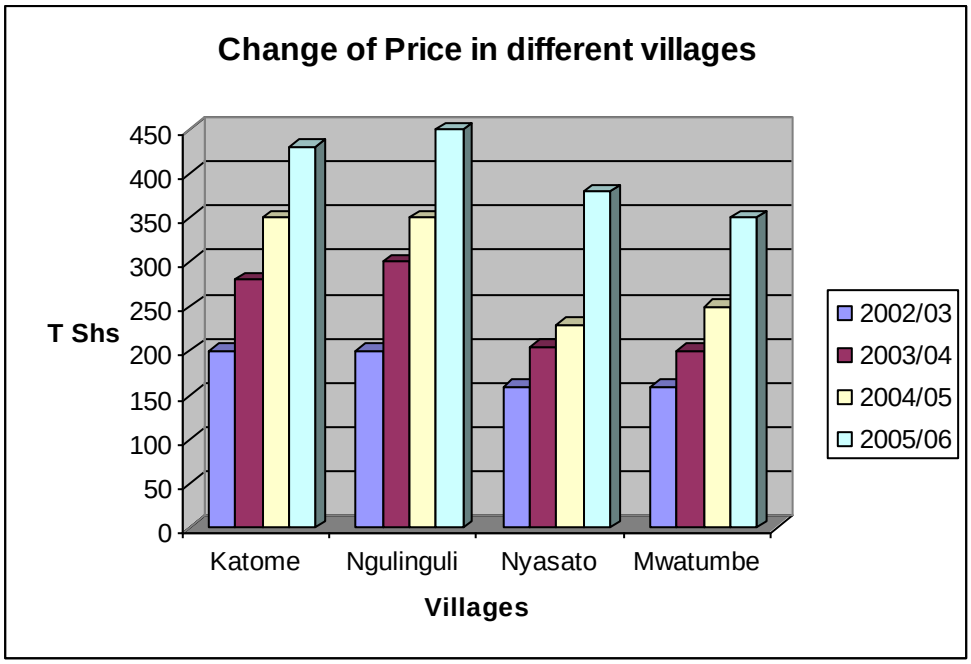

Figure 7: Cotton prices reached in different villages 2002/03 to 2005/06 seasons

Price fluctuations in some cases changed daily and in some cases several times per day. For example, it was observed that on 12 July 2006 in Nyasato village, Tshs. 280 per kilogram was offered in the morning hours while in the evening hours the price had increased to Tshs. 300. Furthermore, there were price variations within a village since each private trader offered different prices (see Table 31). Smallholder cotton farmers were concerned with price fluctuations and they thought it was better for the price to be known at the start of the cotton buying season as it was before the cotton market liberalisation period. However, during FGDs a consensus was reached that there was a positive price change after the cotton market liberalisation compared to before. For example, in the 1993/94 season the cotton producer price was Tshs. 80 per kilogram, and in the 2005/06 season the price had reached to Tshs. 450 per kilogram an increase of almost four times. In the 2005/06 season, smallholder cotton farmers declined to sell cotton to primary cooperatives societies due to low prices they offered and hence sold cotton to private traders who offered higher prices. It can therefore, be argued that the price increase was due to competition among buyers. It can

further be pointed out that the price would have not increased to that level without the private traders' involvement in cotton buying, which is a positive effect of cotton market liberalisation. However, it should be noted as stated earier that the difference in cotton price may be caused by global market factors. The factors include fluctuation in production and export from India, Pakistan, and China. These three countries are major cotton producers but also major consumers of their own cotton; therefore lint is only exported when the cotton harvest is larger than the domestic demand. Also subsidisation of cotton farmers by group of governments may affect the price the farmers receive. For example, subsidies given to farmers in USA and EU prices paid to farmers to domestic cotton farmers were 90% and 154% above world prices in 2001/02 in the USA and EU respectively. It is reported that Africa is losing US$ 200 million a year because of export subsidies especially those of USA (Oxfarm, 2003).Also it said that the removal of US subsidies would lead to a fall in USA production, resulting in a rise in international prices in the short term by as much as 12 cent per pound (Badiane *el at.,* 2002). It is being suggested that price prospects and consequently market share of low cost producers could be considerably improved if developed nations reduced or eliminated their subsidies. (WB, 2005; URT, 2005). It is absard to note that besides the agreement that developed nations should eliminate their subsidies to farmers, WATO has failed to influence EU and US on this matter.

In Tanzania, cotton prices in study area depended on the number of companies buying cotton per village. Table 31 shows the relationship between the number of companies buying cotton per village and the prevailing price in the village 2005/06 season. The Table depicts that the more the number of private traders in the village the higher the producer prices paid to smallholder cotton farmers in that village. Obviously, one should expect that there were no stiff price competitions in those villages which had few cotton buying companies.

Table 31: Number of cotton companies in the villages and cotton prices (Tshs.) in the 2005/6 season

Study villages	No of companies in the village	Cotton price per kg
Nguliguli	9	450
Katome	5	430
Nyasato	3	380
Mwatumbe	2	350

Shao (2002) in his study in Bunda found similar cotton price variations. Before 1994, such scenario was not evident because cotton prices were the same throughout the country regardless of the location. This finding contradicts Rweyemamuand Kimaro, (2006) who found that prices offered by different tobacco dealers in Ruvuma region were almost the same. This implies that with the cotton market liberalisation some farmers benefitted by getting higher prices while others lost by getting lower prices for the same produce depending on ones location.

4.4.3 Cotton nominal prices that farmers got

Respondents were asked to comment on income change from the sale of cotton after the cotton market liberalisation and whether the change was better or worse or remained the same. Table 32 shows that 107 (53.5%) of the respondents said that their incomes from cotton sale increased, while 55 (27%) of respondents pointed out that there was a decrease in their income from cotton sales.

Table 32: Impact of cotton market liberalisation on smallholder cotton farmers' income (N=200)

Variables	n	%
Increased income	107	53.5
Reduced income	55	27.5
Remained the same	38	19.0
Total	200	100

Those who argued that incomes from the sale had decreased compared the kilograms of cotton sold and the price of a radio or bicycle in the 1990s and 2000s. For example, in 1994, the price of a bicycle was Tshs. 15 000 and a smallholder cotton farmer who sold 187.5 kilograms was able to buy a bicycle, while in 2007 a bicycle cost Tshs. 90 000 and a farmer had to sell 257.1 kilograms of cotton in order to buy one. According to farmers, increase in income was not judged by figures, but by the amount of quantity of goods and services which it could buy. In this regard, smallholder cotton farmers had to produce more quantities of cotton than in 1994 to buy the same amount of goods. However, it should be cautioned that the cost of living among smallholder cotton farmers rose more than the income that accrued from cotton sales due to inflation. Regardless of these arguments, it is a fact that there was an increase in incomes from cotton sales after the cotton market liberalisation.

In order to get the real picture on whether there was income increase or not, one ought to look at the nominal price, the percentage of the world cotton market prices the farmers received and the real price. It can be noted that before the cotton market liberalisation both cotton, nominal prices and the percentage of the cotton world market prices that the farmer received were low compared to those offered after the cotton market liberalisation (see Figure 9). The gap between the nominal and the percentage of the world cotton market price

that the farmer received before the cotton market liberalisation was wider but continued to narrow down till 2006 (see Figure 9). Looking at the scenario of cotton nominal price and the world cotton market price that the farmers received, one notes an increasing trend since 1993/94. These justify the argument that since 1993/94 there has been an increase in smallholder cotton farmers' incomes from the sale of cotton.

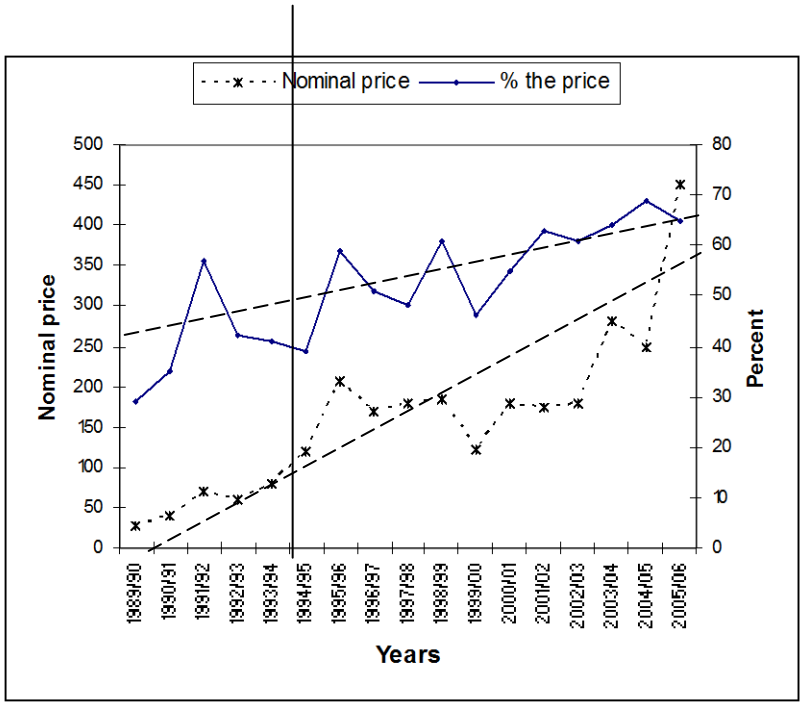

Figure 8: Nominal prices and the percentage at world cotton market price the smallholder cotton farmer received from 1989/90-2005/06

Another way of assessing whether there was income increase to cotton farmers from the sale of cotton is to examine the real price trend of cotton price since 1993/94. It can be noted that since 1993/94 up 2005/06 seasons there was an increase in the smallholder cotton farmers' real price by 100% at an average of 8.3% per year from the sale of cotton after the cotton market liberalisation (Table 33).

Table 33: Cotton nominal price, the cotton world price percentage the farmer received, the Consumer Price Index (CPI) and the real price

Season	Nominal price (Ths)	% the world price the farmer received	Consumer Price Index (CPI)	Real price
1989/90	28	29	36.8	73.21
1990/91	41	35	45.5	83.29
1991/92	70	57	56.0	116.71
1992/93	60	42	74.9	79.82
1993/94	80	41	92.8	80.00
1994/95	120	39	117	93.47
1995/96	207	59	142.7	133.27
1996/97	170	51	162.4	94.31
1997/98	180	48	175.3	88.48
1998/99	185	61	185.0	83.41
1999/00	123	46	186.8	52.91
2000/01	180	55	190.0	74.89
2001/02	175	63	101.0	68.48
2002/03	180	61	104.5	155.37
2003/04	280	64	108.9	231.92
2004/05	250	69	113.6	198.50
2005/06	450	65	121.4	160.03

In addition, Figure 10 shows that there has been an increasing trend of the real cotton price. Figure 10 also shows the relationship between nominal and real prices. It can be noted that in 1994 the real price started to pick up till 1996 when it dropped reaching the lowest level in 2000 before picking up again to its highest level in 2004. Examination of all three indicators shows that the nominal price, the percentage of the cotton world cotton market price the farmer received and the real price were higher compared to the period before the cotton market liberalisation. It can, therefore, be concluded that the smallholder cotton farmers' income from the cotton sale has been increasing since the start of the cotton market liberalisation in 1993/94 season. Perhaps before the cotton market liberalisation, cooperative unions' management appropriated a lot of income through unknown reasons that fall beyond the objectives of this study.

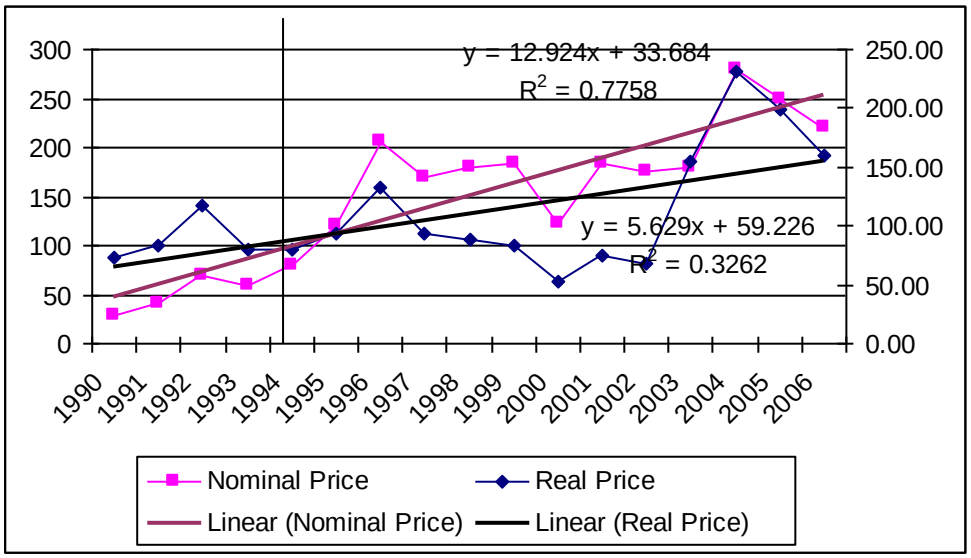

Figure 9: Increasing trends of cotton nominal and real prices

There is an argument that the percentage of the world cotton market prices which the smallholder cotton farmer received for cotton lint was not the same for seed cotton. Calculations show that three kilograms of seed cotton produces one kilogram of lint and two kilograms of seed (Shao, 2002). Therefore, a hectare that produces 800 kilograms of seed cotton produces 266.6 kilograms of lint and 533.4 kilograms of seed. The seed is left with cotton buyers and is used in extracting edible cooking oil, animal feeds and other by-products, all of which have a good market. The seed that is appropriated by cotton traders is not accounted in the percentage of world cotton market price that farmers receive. Regardless of this argument, one should note that private traders incur a number of costs such as transport, ginning, marketing and exportation. In addition, private traders are doing business and, therefore, they have to make profits for them to continue buying seed cotton from smallholder farmers.

Despite the fact that data shows that there was an increase in income from seed cotton sales, there were claims that smallholder cotton farmers lost incomes through weighing machine cheating**.** This was done by tightening a bolt in the weighing machine and in so doing it

reduced the weight of seed cotton bag. The study set a trial to estimate the extent of loss as a result weighing machine cheating. A seed cotton bag weighing 100 kilograms was weighed at five different selling posts A, B, C, D and E. The result of the weighing is presented in Table 34 in which the weight and income losses due to cheating are also shown. Table 34 indicates that the weight loss ranged from 3 to15 kilograms, while incomes loss ranged from Tshs.750 to Tshs. 3 900 per 100 kilogram of seed cotton. Smallholder cotton farmers' option to sell their seed cotton to the selling post depended on how much the buyer offered, the higher the price offered, the more smallholder cotton farmers sold their seed cotton. The experimental results showed that although "A" selling post offered a higher price of Tshs. 260 per kilogram, the total amount of Tshs. 22 100 the smallholder cotton farmers received was lowest compared to the rest of the buying posts. These findings suggest that smallholder cotton farmers sustained income losses from weighing machine cheating during the cotton market liberalisation which undermines the smallholder cotton farmers' efforts of increasing their incomes from cotton sales.

Table 34: Loss of weight (kg) and cotton incomes (Tsh) through weighing machines cheating at buying post

	BUYING POSTS				
	A	**B**	**C**	**D**	**E**
100 kg bag	100	100	100	100	100
Weight at different post	85	90	95	96	97
Weight difference	15	10	5	4	3
Price per kilogram (Tshs.)	260	255	250	250	250
Amount received	22 100	22 950	23 750	24 000	24 250
Income loss	3 900	2 550	1 250	1 000	750

Discussion with key informants revealed that the problem was common among private traders. Smallholder cotton farmers blamed the Weight and Measures Department for failing to check and taking legal actions against unscrupulous cotton buyers. Weight and Measures Department Officials admitted that the problem was critical, after the cotton market liberalisation. According to Weight and Measures Department Officials, the failure to stop weighing machines cheating was due lack of enough personnel and shortage of funds. The other problem was that private cotton traders had good communication networks and monitored Weight and Measures Department Officials' movements using their radio calls or cell phones, hence hampering efforts to book them. One can speculate that the cheating done by cotton traders was probably due to the fact that cotton traders were compensating for poor quality of cotton they bought from farmers because there were allegations that some smallholder cotton farmers added stones or sand and some sold wet cotton in order to increase the weight of cotton, consequently lowering the quality of cotton. Another reason could be that cotton traders did so in order to get huge profits.

4.5 The Wellbeing of Smallholder Cotton Farmers Before and After the Cotton Market Liberalisation

This section presents results and discuses findings on the wellbeing of smallholder cotton farmers after the cotton market liberalisation. It examines assets acquired and shelter status. Other issues include livestock ownership, expenditure of income from cotton sale and food self sufficiency.

4.5.1 Assessment of assets owned before and after the cotton market liberalisation

The study examined the assets owned by smallholder cotton farmers in the two periods; before and after the cotton market liberalisation. The more durable items owned by smallholder cotton farmers were the radio, bicycles, ox-plough and ox-cart. Table 35 shows

that in the period after the cotton market liberalisation, respondents had more of each of these assets compared to the period before the cotton market liberalisation. Findings also show that there was a significant difference ($p<0.05$) between asset ownership before and after the cotton market liberalisation**.** It can, therefore, be argued that smallholder cotton farmers were wealthier after the cotton market liberalisation. This was perhaps due to the fact that after the cotton market liberalisation smallholder cotton farmers got more income from increased production and selling of cotton and rice. Therefore, they were able to afford more fixed assets compared to the period before the cotton market liberalisation.

Table 35: Assets owned by respondents before and after the cotton market liberalisation.

Assets	**Before market liberalisation**	**After market liberalisation**	**t-value**
Plough	23	55	8.23
Ox-cart	5	28	4.68
Bicycle	29	188	4.75
Radio	19	178	4.60
Total	**76**	**449**	

4.5.9 Assessment of shelter status before and after the cotton market liberalisation

Data shows that 141 (70%) of the respondents had houses built using mud roofs and mud walls known as "*tembe"* in both periods. However, houses with mud walls and grass roofs had decreased from 41 (20.5%) before the cotton market liberalisation to 10 (5.0%) after the cotton market liberalisation (Table 36). There was a significant difference between the type

of houses smallholder cotton farmers owned before and after the cotton market liberalisation at $p \leq 0.05$.

Table 36: Types of houses that respondents lived in before and after cotton market liberalization (N=200)

Type of house	Before market liberalisation		After market liberalisation		t-value
	N	%	N	%	
Corrugated iron sheet /mud	14	7.0	20	10.0	8.80
Mud/mud	141	70.5	161	80.5	17.24
Mud/grass thatched	41	20.5	10	5.0	5.97
Corrugated iron sheet, & cement/burnt bricks	4	2.0	9	4.5	8.26
Total	**200**	**100**	**200**	**100**	

It was observed that the materials used for building houses were of low quality which were mostly obtained locally. This is a common situation in most rural areas of Tanzania (Rutasitara, 2002; Ngailo *et al.*, 2007). The common roofing and wall materials in the surveyed villages were mud and little change had occurred in the two periods towards using of corrugated iron sheets, burnt bricks or cement bricks.

The study found that smallholder cotton farmers lived in houses commonly known as "*tembe".* The major argument was that "*tembe"* maintained temperature i.e, was cool inside compared to cement walls and corrugated iron sheet roofed houses. Discussions with elders revealed that iron sheet roofed houses were noisy when it rained and making it moredifficult to hear if thieves broke in the livestock shelters. They disagreed with the argument that they

did not use cement bricks and corrugated iron sheets because there were expensive. They maintained that "*tembes"* were best given the semi-arid environment. The researchers confirmed that inside a *"tembe"* was cooler and comfortable during the day and was less noisy when it rained. The decrease of grass thatched houses was associated with the cotton market liberalisation as most of the areas where the thatching grass came from were cultivated with cotton.

Discussions with key informants revealed that some smallholder farmers believed that they could be bewitched in case they lived in houses built with burnt or cement bricks, thatched with corrugated iron sheets and had cement floors. However, findings of this study did not show that cotton market liberalisation had improved the quality of housing of smallholder farmers partly due to their traditional and cultural beliefs.

4.5.3 Livestock ownership in the two periods

Table 37 shows the type and number of livestock owned by each respondent before and after the cotton market liberalisation. Results summarized in Table 37 show that with the exception of oxen, the number of respondents who were involved in livestock keeping and the number of animals were higher before the cotton market liberalisation compared to the period after this policy was put in place. However, in respect to oxen ownership, the percentage of respondents who owned oxen after the cotton market liberalisation increased by more than 165 (50%) compared to the period before the cotton market liberalisation. Results also show that there is a significant difference ($p<0.05$) between livestock ownership before and after the cotton market liberalisation (Table 37).

Among the reasons given by farmers to explain why some households opted not to continue with livestock keeping after the cotton market liberalisation include; problems associated

with the availability of pastures due to population growth and expansion of land for crop farming, deterioration of livestock services and frequent conflicts between smallholder cotton farmers with livestock keepers. Given the above mentioned reasons and the improved crop marketing system, smallholder cotton farmers found livestock keeping less profitable compared to cotton farming as well as rice farming.

The increase of the number of oxen could be associated with the increase in the number of ploughs and carts acquired after the cotton market liberalisation. The study found that livestock keeping used to be part of the Wasukuma culture. Livestock owning especially cattle was associated with wealth and prestige. Yet, cattle are also an important part of food security and food particularly milk (Rutasitara, 2002) because in times of famine, animals were exchanged with food grains or sold for cash (Ngailo *et al.*, 2007).

Table 37: Number of livestock in the four study villages before and after the cotton market liberalisation (N=200)

Name of livestock	Before market liberalisation	After market liberalisation	t- value
Cattle	2 856	1 155	6.8
Goats	830	100	4.97
Sheep	450	88	5.08
0xen	46	165	6.02
Total	**4 192**	**1 508**	

4.5.4 Smallholder cotton farmers' income expenditure from the sale of cotton

The study investigated the use of cash from cotton sale before and after the cotton market liberalisation. Results summarized in Table 38 suggests that the major expenditure of cash from cotton sales after the cotton market liberalisation were in order of priority purchase of

assets (radio, bicycle, and plough), leisure and food. The study found that for the Wasukuma, the above mentioned assets were very important for a household to own, hence every one strived to own them. One household could own more than three to four bicycles or radios, because after the cotton market liberalisation, business men brought these assets at the cotton selling posts where smallholder cotton farmers bought them immediately after the sale of their cotton. Results show that there was a significant difference ($p<0.05$) between the expenditure of cash from the cotton sale before and after the cotton market liberalisation (see Table 38).

The increase in expenditure on food after the cotton market liberalisation could have been due to the fact that smallholder cotton farmers found it cheaper to buy maize by cash obtained from the sale of cotton compared to engaging in maize cultivation or using cattle to buy food. The reason behind this is probably due to the fact that maize production required fertilizer, an item which became expensive because of the removal of subsidies after the cotton market liberalisation.

Discussions with key informants revealed that traditionally, the Sukuma had leisure expenditure known as "*ngosha magembe",* literally meaning washing hoes after a tough job. Men collected part of the money from the cotton sale for leisure in the form of alcohol consumption without considering the fate of their wives. During the FGDs it was revealed that to some extent women participated in"*ngosha magembe",* both husbands and wives brought cotton together to the selling posts. After receiving their cash they jointly decided on how to use the income and even went together to *ngosha magembe,* a situation which was not possible before the cotton market liberalisation.

Table 38: Distribution of respondents (%) based on expenditure of cash from the cotton sale (N = 200)

Expenditure	Before market liberalisation		After market liberalization		t-value
	Freq	%	Freq	%	
Livestock	189	94.5	98	49.0	8.40
Radio	110	55.0	198	99.0	11.52
Bicycle	97	48.5	187	93.5	11.20
Plough	78	39.0	99	49.5	12.13
Ox-cart	34	17.0	96	48.0	6.35
Food	42	21.0	186	93.0	5.14
Medicine	26	13.0	78	39.0	6.01
Cloth	20	10.0	186	93.0	4.92
School fees	19	9.5	30	15.0	9.78
Leisure	18	9.0	198	99.0	4.67

This suggests that the cotton market liberalisation indirectly brought gender equality such that women were no longer being excluded by men from decisions pertaining to use of income and "*ngosha magembe".* However, key informants pointed out that the increase in leisure *"ngosha magembe"* expenditure played a major role in fuelling the spread of HIV/AIDS infection. Efforts were being done by different institutions in imparting HIV/AIDS related education at the cotton selling posts during the cotton buying seasons in order to combat the HIV/AIDS pandemic.

4.5.5 Food self sufficiency before and after the cotton market liberalisation

Respondents were also asked to indicate the period which they faced food shortages. Table 39 shows that 189 (94%) of the respondents indicated that they faced food shortages after the cotton market liberalisation. Table 40 also shows the major reason given by respondents to explain the food shortage in the two periods. Respondents reported that the major cause

of food shortage before the cotton liberalisation can be categorized under natural calamities. On the other hand, the major reasons for food shortage aftter the cotton market liberalisation could be categorized as man-made. Furthermore, smallholder cotton farmers reported that before the cotton market liberalization, they could cultivate different types of food crops such as maize, sweet potatoes, cassava, groundnuts and sorghum particulary for the family food requirements for the whole year. After the cotton market liberalisation, even those crops which were previously cultivated solely to meet family food requirements were sold.

Key informants reported that during the cotton marketing season, some business men went around villages buying food crops, a situation which was not common before the cotton market liberalisation. Consequenttly, smallholder cotton farmers sold most of their food crops which led to food shortages. In addition, good marketing conditions brought about by the cotton market liberalisation influenced smallholder cotton farmers to divert more resources on cotton production and less on food crops. In short, the cotton market liberalisation brought with it food shortages.

Table 39: Respondents' responses on the period they faced food shortage and reasons for food shortage in the two periods (N=200)

Period faced food shortage	**Before market liberalisation**		**After market liberalization**		
	Freq	**%**	**Freq**		**%**
	21	6	189		94
Reasons for food shortage					
Reason	**Freq**	**%**	**Reason**	**Feq**	**%**
Drought	189	94.5	More labor in cash crops	178	89.00
Locust	158	79.0	Low soil fertility	156	78.0
Seasonal hunger	96	48.0	Sold food crops	102	51.0

Respondents were asked to indicate the number of meals the household usually took in the two periods. Results summarized in Table 41 show that 157 (77%) of respondents reported that they took three meals per day before the cotton market liberalisation, while 130 (65%) indicated that they took two meals per day after the cotton market liberalisation (Table 40). One can conclude that there was shortage of food after the cotton market liberalisation, an indirect consequence. This is partly due to the fact that after the cotton market liberalization, more resources were directed towards cash crop production.

Table 41: Number of meals consumed in a day (N=200)

No. of meals	**Befor market liberalisation**		**After Market liberalisation**	
	n	**%**	**n**	**%**
One	0	0.0	34	17.0
Two	46	23.0	130	65.0
Three	154	77.0	36	18.0
Total	200	100	200	100

4.6 Coping Strategies After Market Liberalization

This section presents results and discuses findings on smallholder cotton farmers' coping strategies after the cotton market liberalisation. Issues covered are additional cash crops for cash earnings and principles of cooperative formation.

4.6.1 Alternative cash crops for cotton

Table 42 shows changes in all major cash earning crops after the cotton market liberalisation. Before the cotton market liberalisation 15 (7.5 %) and seven (3.5%) indicated that they were engaged in rice and sunflower cultivation, respectively. After the cotton market liberalization, the number of respondents who cultivated alternative crops increased to 102 (51%) in which 42 (21%) indicated cultivating rice and sunflower, respectively.

Table 42: Respondents' major cash crop earnings (N=200)

Before the cotton market liberalization			**After the cotton market liberalization**		
Crop	**n**	**%**	**Crop**	**n**	**%**
Cotton	178	89.0	Rice	102	51.0
Rice	15	7.5	Cotton	98	48.0
Sunflower	7	3.5	Sunflower	42	21.0
Total	200	100	Total	200	100

Among the reasons that respondents gave for cultivating other alternative crops were that rice and sunflower fetched higher prices compared to cotton (Table 42). The study also found that rice and sunflower were easily stored and sold at any time when prices were high, a situation which was not possible for cotton. Cotton had to be sold at a particular and specific given time within a growing season. Cotton was cultivated in small plots because there was a District Council By-law which forced farmers to cultivate cotton since it earned income to smallholder farmers and the District Councils, which collected levies from cotton sales for financing various activities.

Using the Gross Margin (GM) analysis, it can be noted that earnings from rice were far greater (Tshs. 1 419 000) followed by sunflower (Tshs. 645 000) and lowest were from cotton, which stood at Tshs. 71 200. Meertens *et al.* (1991) and Kileo *et al.*(1998) had observed that smallholder cotton farmers opted for alternative crops during cotton market liberalisation became cotton returns were low. However, smallholder farmers in the study villages of Nguliguli and Katome villages were engaged more in cotton cultivation because they had no suitable land for cultivating rice and sunflower. Also, most discussants in the

FGDs pointed out that the Sukuma people continued the cultivation of cotton because it is their only traditional cash crop concurring with the observation that traditions die hard.

Table 43: Analysis of production cost for three crops and their GM

Crop	**Cotton**	**Rice**	**Sunflower**
Input	**Cost (Tshs.)**	**Cost (Tshs.)**	**Cost (Tshs.)**
Land preparation	35 000	35 000	35 000
Harrowing	25 000	25 000	25 000
Seeds	2 500	20 000	20 000
Planting	30 000	30 000	10 000
Thinning	10 000	-	-
Weeding	30 000	20 000	10 000
Pesticides	6 300	-	10 000
Spraying	30 000	-	5 000
Harvesting	15 000	10 000	10 000
Grading	15 000	-	-
Transport	10 000	25 000	10 000
Uprooting plants	10 000		
Total cost involved	**198 800**	**I65 000**	**145 000**
Yield kg/ha	600kg	3 520kg	2 580 kg

*Cost of labour was average cost for an activity per hectare at the prevailing at the study time

*** Gross Margin= (Avarage yield/ha x Avarage price(Tshs.) per unit (kg) of produce - total cost

Therefore, calculations using the GM formular show earnings to be

Gross Margin

- for cotton = (600 x 450)-(198 800)=71 200
- for rice = (3 520 x 450)-(165 000) = 1 419 000
- for sunflower =(2 580x 250)-(145 000) = 645 000

4.6.2 Cooperatives importance to smallholder cotton farmers

The study investigated whether the cooperatives were still a power base for smallholder cotton farmers. Respondents were asked to indicate whether they were members of primary cooperative societies. All respondents indicated that they were members of cooperative societies before the cotton market liberalisation, but after the cotton market liberalisation only 6 (3%) of respondents were members of cooperative societies (Table 44). This suggests that before the cotton market liberalisation smallholder cotton farmers were united under cooperatives. Cooperatives used to be smallholder farmers' united forum for bargaining the price of their crops with traders. Also cooperatives enabled farmers to easily access cedit and other services for their agricultural activities. One among the major reasons for farmers' poor access to credit after cotton market liberalisation is lack of appropriate institutional mechanism for directing credit to smallholder farmers after the collapse of cooperatives. This is supported by findings from MAFS (2008) and FAO (2OO8) which show that only 4% of the population were members of co-operatives. The reasons for the low involvement of farmers in co-operatives after the cotton market liberalization are lack of effective participation and control by members f co-operatives, poor professional and managerial ability of co-operative staff, corruption and lack of of transparency in the running of the affairs of the cooperatives. Other reasons include lack of education for members of co-operatives and the general public, and failure of co-operatives to compete wih private traders to ensure good prices for its members. As the result of the above pointed weakness, in the 2007/08 season, the MAFC continued to implement Co-operatives Reforms and Modernization Progrm, especially on leadership management, training and establishments of new cooperative societies including Savings and Credit Cooperative Socities (SACCOS).

Table 44: Respondents membership (%) to primary cooperatives before and after cotton market liberalisation (N=200)

Co-operative membership status	Before market liberalisation		After market liberalisation	
	n	%	n	%
A member to cooperative	200	100.0	6.0	3.0
Not a member to cooperative	0.0	0.0	177	88.5
I don't know	1.0	0.0	17	8.5
Total	200	100	200	100

In his study on the structures and patterns of cotton value chains in selected companies in Mwanza Tanzania, Itika (2006) desribes a detailed power base of the cotton industry actors. It is indicated that after the cotton market liberalisation smallholder cotton farmers depended on other actors such as TCB who were not under the smallholder farmrs' control. TCB was under the obligation of providing indicative price, provision of information and input through CDF.

TCB officials at the headquarters in Dar es Salaam, Mwanza Zonal Office and in the districts admitted that there were no active primary cooperatives in the districts. In regard to the revival of the failed cooperatives, key-informants reported that it was not feasible since smallholder cotton farmers had lost confidence in them and considered cooperative officials as thieves. Msonganzila (2004) and Bibby (2006) commenting on the image of cooperatives pointed out that cooperatives are seen as institutions which were stuck in the past, unable to cope with modern economic realities, their image was tarnished by poor administration and leadership, poor business practice, and corruption. It can be concluded that currently,

smallholder cotton farmers are left without an organization that can defend their interests while private cotton traders have organisations which defend their interests (see Table 45). Given the differences in organisational set up between smallholder cotton farmers and private traders, it is obvious that smallholder cotton farmers are the losers in the cotton business because the latter could be manipulated easily by private traders who were strongly united.

On the basis of the above findings, one is obliged to look at the ideological orientation in the two periods i.e. before and after market liberalization. Before the cotton market liberalization the ideology underpinning collective approach, socialism, in particular, left no alternative for smallholder farmers to be collectively united under cooperatives. After the market liberalization the dorminat ideology was free market. To some, free market can simply be interpreted to mean everybody for him/her self. The importance of operating collectively as smallholder farmers was also somehow ignored particularly by smallholder farmers mainly because cooperative societies had failed to fullfil their expectations. However, it should be known that regardless of what transpired, cooperatives remain to be a usefull orgarnisation in assisting the weak (smallholder farmers) to have a voice over their produce.

Table 45: Comparison of power base between smallholder cotton farmers and private traders

Status	Organization	Activity	Resouces owned	Information
Smallholder	Operate individually	Seller of cotton	Land, physical labour, hoe	Depend on TCB
Private trader	Member of TCA & WTC, registered companies & have lawyers	Cotton buyer, ginner, seller domestically & exporter	Own other companies, transport facility and easy loan access	Own web site & mobile phones

Respondents were asked whether they were in favor of the revival of SHIRECU or formation of new cooperatives. The majority 153 (76.5%) of the respondents were on favor of formation of new cooperatives (Table 45). During field work, the researcher managed to meet some Regional and District Cooperative Officials in the villages who were sensitizing smallholders on the need of reviving of SHIRECU (see Table 46). This shows that smallholder cotton farmers were against the top down approach which was advocating the revival of the dormant SHIRECU. Smallholder farmers wanted a complete liquidation of the regional union and that primary cooperative societies should be formed at the village level and a union of cooperative formed at the district level. The current government efforts of injecting funds in the dormant cotton cooperatives was seen by smallholder cotton farmers as an attempt by the national leaders to enrich cooperative officials. Smallholder farmers were of the opinion that the governments' move was not for the development of cotton industry and in particular smallholder cotton farmers. It is true that for the smallholder cotton farmers to get good returns from cotton sales to enable them to improve income, they need to operate collectively in order to have a strong bargaining power. The important thing to bear in mind is the process of cooperatives formation given the current suspicion shown by smallholder cotton farmers. Bibby, (2006) argued that for cooperatives to be efficient and effective they should follow cooperative formation principles i.e they should be voluntarily formed and democratically administered. Here once again we note some discrepancy on part of the government when it advocates people's participation in any endeavor at the same time while using the top down approach in the process of reviving the dormant SHIRECU Cooperative Union, action which also runs contrary to MKUKUTA strategy.

Table 46: Respondents' opinion on cooperative formation

Respondents' opinion	n	%
Revival of SHIRECU	47	23.5
Formation of new cooperatives	153	76.5
Total	200	100

The study found that at the time of the study, smallholder cotton farmers lacked the bargaining power since they were operating individually. It was also found that the call from the top national leadership on the need to combat the problem had reached the lower level and was already understood. That is, in view of the problem, smallholder cotton farmers were eager to form farmers' associations or other forms of groups to enable them access credit, other farming services and have a bargaining power with private traders following the collapse of cooperatives.

4.6.3 The impotance of ITC to smallholder farmers

Table 47 shows that each cotton trading company had an e-mail address and mobile phones that were given to all heads of sections while only 17 smallholder farmers' households out of 200 had moble phones. Itika (2006) had similar observation that cotton traders had new information and communication technologies such as Internet, and mobile phones which play a vital role in getting world market price information. On the other hand, smallholder farmers were not exposed to these techenologies. In terms of usage cotton traders used e-mail and mobile phones searching information regading their businesses i.e finding customers, information on world market prices, ordering equipment and follow up of luggage movement. On the other hand, smallholder farmer households' usage of mobile phones can be summarised as greeting and informing each other on social matters.

Consequently, smallholder farmers in most cases lack up-to-date information about market prices for their produces, hence the prices they receive are too low and lose a lot of income.

Table 47: New information and communication technologies ownership and usage

Status	No.	e-mail	Usage	Mobile phones	Usage
Cotton traders companies	9	< 10 @ head of section in @ company	• seacking world price information • seaching for customers • ordering equipment • tracing luggage movement	• <20 @ head of section in@ company and some key personnel	• seacking world price information • seaching for customers • ordering equipment • tracing luggage movement
Smallholder farmers households	200	Nil	Nil	17 households	• greeting each other • informing each other on ceremoies,death, sickness,date& time of arrival • asking for asistance from relatives & friends

Althogh the government lunched the First Mile project to support poor farmers with the marketing of their produce (SDC, 2005) much is need to be done since the project seem to benefit traders more than farmers. This is because traders take the trouble to seek information regarding the prevailing prices in different locations and buyers who are in need of the prduce. Also, caution should be made that the project has been very effective to

farmers who are engaged in cultivation of consumer crops like food crops which are consumed in Tanzania. These crops include maize, rice, sorghum, millet, banana and vegetables. The project is yet to benefit smallholder farmers who are engaged in the production of export crops such as cotton, coffee, tea, tobacco and cashew nut. This is due to the fact that prices for the crops depend on world market prices which is not the case with food crops. Smallholder farmers of cash crops are unable to access information on world market prices prevailing at a particular time because they do not have the expertise and technologies of accessing world market prices of their produce. On the other hand, traders have the expertise and technologies for knowing world market prices and utilize it in their favor. Generally, the new information and communication technologies have benefited big companies while the majority of Tanzanians who are smallholder farmers are disadvantaged.

4.7 Different Stakeholders' Views About Cotton Marketing during Cotton Market Liberalisation

Discussions with government officials at the regional office revealed that almost all of them had a positive view on the cotton market liberalisation. They agreed that competition for seed cotton buying was stiff and that is one among the objectives of the cotton liberalisation i.e to remove cooperative monopoly. SHIRECU which had a monopoly in cotton buying had to compete with private traders. However, one senior government official Dr. Yohanna Balele (the Shinyanga Regional Commissioner) had this to say:

> *"There was a need to make follow up on the TCB regulations that dictate how traders may buy cotton from smallholders and also protect smallholder farmers from cotton buyers' collusion*".(Dr.Yohanna Balele –Personal communication 24th April 2006).

During FGDs smallholder farmers had this comment in regard to the cotton market liberalisation:

> *"It shortened the distance to the cotton selling posts, increased the cotton price, and were promptly paid for the cotton they sold, disliked the forced savings for CDF and the idea of reviving the dormant SHIRECU. However, they were in need of farmers associations to empower them to access the required resources and information."*

Cotton traders complained about the procedures of getting a cotton buying license. They claimed that the procedures were cumbersome. The manager of Lalago Company in Shinyanga revealed that he had to make seven trips to TCB headquarters at Pamba House in Dar-e-salaam and three trips to the Cotton Zone Office in Mwanza in order to get the cotton buying license. This process made him incur a lot in terms of money and time. In respect to smallholder farmers' and some politicians' perceptions on cotton traders, one cotton trader was of the opinion that they (cotton traders):

> *"Should not be considered as exploiters as some politicians and smallholders consider them. They should be seen as service providers who are also doing business. Therefore they need profits so that they can continue to provide the needed services".*

On the basis of stakeholders' views, one can to say that there was a change in cotton marketing structures and improvements in cotton smallholders' wellbeing. However, there are some matters which need to be resolved, especially matters patterning to weighing machine cheating and formation of farmers' associations.

CHAPTER FIVE

CONLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The study was set to investigate the effect of cotton market liberalisation on smallholder cotton farmers' livelihoods in Shinyanga region**.** The research attempted to find out the effects by comparing the situation before and after the cotton market liberalisation. The study had four specific objectives for which conclusions are made.

5.1.2 Assessment of cotton production and marketing before and after the cotton market liberalisation

The study revealed that the production and marketing of cotton has changed. Before the cotton market liberalization, the cooperative union (SHIRECU) was the sole buyer of cotton from smallholder cotton farmers in Shinyanga region and used to provide all input requirements. After the cotton market liberalisation there was a change in the cotton marketing system from a single channel to a multi-channel system. As a result, two new cotton buyers emerged, private traders and unlicensed traders who competed with SHIRECU. Due to financial problems, SHIRECU failed to compete, leaving the arena to private and unlicensed traders who became the dominant cotton buyers from smallholder cotton farmers.

After the cotton market liberalization, inputs (seed and pesticides) were distributed through multi-channels that involved cooperatives, private traders, and unlicensed traders. CDF was also formed to assist in input provision however; it failed to meet the high demand of inputs due to financial constraints. It was observed that inputs particularly pesticides were

available in plentiful quantities horded by input retailers and unlicensed traders in the villages. However, the involvement of private and unlicensed traders in the supply of inputs resulted into the poor quality, high prices of inputs and poor quality cotton produce. Furthermore, smallholder cotton farmers had no easier access to credit from formal institutions due to lack of collateral in addition to the failure and inability of cotton smallholder farmers to prepare sound project proposals due to lack of expertise and know how.

5.1.3 Income change under cotton market liberalisation

Cotton market liberalisation had significantly increased price competition among cotton private traders. The cotton price competition among private traders resulted in an increase in cotton producer prices hence an increase in smallholder cotton farmers' income. An increase in the income from the sale of cotton improved smallholder cotton farmers' financial capability to purchase basic goods and services which improved smallholder cotton farmers' livelihoods.

However, cotton market liberalisation led to price differentiation between those who were in remote areas with poor infrastructure and those who were near urban areas with good infrastructure. Those in remote areas received lower prices compared to those near the urban areas. These were some of the negative effects of the cotton market liberalisation to smallholder cotton farmers. The study acknowledged the fact that after the cotton market liberalisation, cotton markets increased, smallholder cotton farmers had a choice of selling cotton to a buyer of their choice and at short distance. Results show that there was an increase in the percentage of world cotton market price the farmer received, the nominal and real prices aftter the cotton market liberalisation compared to the period before the cotton market liberalisation. Despite of these gains, farmers lost income through traders' practice

of tempering wirh weighing machines. Also the inflation of Tanzania shilling had negative effects not only to the cotton farmers but all Tanzanians.

5.1.4 Wellbeing of smallholder cotton farmers before and aftter the cotton market liberalisation

(i) The shelter status

The study findings showed that little change had been witnessed in the improvement of shelters especially with regard to building materials. Housing conditions in terms of construction materials does not reflect that there was a change between before and aftter the cotton market liberalisation periods. Most smallholder cotton farmers in the study villages lived and were still living in traditional *tembe* houses. Even those who managed to have houses built with cement walls; floor and corrugated iron sheets were not living in those houses. For them, a *tembe* house was the best house since it maintained cool temperatures and it was not noisy when it rained. Besides these reasons, witchcraft was found to be one among the reasons that made farmers fail to build and live in houses built with cement walls and floor and corrugated iron sheets for fear of being bewitched. Generally, we can say traditions and beliefs of witchcraft hampered improvement of the Wasukuma shelters. As pointed out earlier, there is a need to sensitize the *Sukuma* to change their witchcraft belief and strive to improve their shelters. *The Sukuma* should be encouraged to construct houses using burnt bricks with cement walls and floor and use corrugated iron sheets for roofing. Given the problem of getting fire wood for domestic energy, they could use rice husk to produce burnt bricks.

(ii) Assessment of assets and livestock ownership

The study found that there were some assets which were of priority for any Sukuma. These includes bicycles, radios, ploughs and livestock. With the exception of livestock,

smallholder cotton farmers acquired more assets after the cotton market liberalisation. Smallholder cotton farmers who owned large numbers of livestock migrated to other regions to find pasture for their livestock.

(iii) Assessment of income expenditure from cotton sale

Assessment of expenditure showed that there was an increase in purchase of assets (radio, bicycle, and plough) and leisure after the cotton market liberalisation. There was also an increase on food expenditure after the cotton market liberalisation. Smallholder cotton farmers found that it was less expensive to buy maize than to cultivate because maize farming needed fertilizer which became expensive after the cotton market liberalisation. This was mainly a consequence of input subsidies which were removed after the cotton market liberalization. Furthermore, it was also found that increase in leisure expenditure probably fuelled the spread of HIV/AIDS as reported by many respondents.

(iv) Food self sufficiency status before market liberalisation and under liberalised market condition

It was found that smallholder cotton farmers suffered frequent food insufficiency after the cotton market liberalisation compared to the period before the cotton market liberalisation. Reasons for food insufficiency were man made and these included sale of food crops, more labor being put in cash crop production and high dependency on maize as a major food crop regardless of the poor climatic condition especially rainfall amount and reliability.There was also a decline in maize yield due to soil infertility.

5.1.5 Smallholders' coping strategies after the cotton market liberalisation

(i) Opting for alternative cash crop to replace cotton

The study found that there was a by- law which required smallholder cotton farmers to cultivate cotton as an identified cash crop in the study area. However, some smallholders opted to cultivate rice and sunflower as additional cash crops for income generation. Among the reasons for choosing these additional cash earning crops was that rice and sunflower fetched higher prices compared to cotton. The study found that rice and sunflower can be stored easily and sold at the time when prices are higher, a situation that was not possible for cotton. This move of using food items such as rice and sunflower endangers household food insecurity, a situation that has made the governmet to restricts the export at of food crops.

(ii) Cooperatives as a power base for smallholder cotton farmers

SHIRECU which used to be the smallholder cotton farmers' power base failed to compete in the cotton business and became dormant after the cotton market liberalisation. As a result, smallholder cotton farmers lacked the bargaining power in marketing their cotton. To address the problem, the formation of smallholder cotton farmers group marketing associations would assist in empowering them. The government efforts in sensitizing the formation of such groups in each village were a correct move that would lead to the empowerment of smallholder cotton farmers. The study found that smallholder cotton farmers completely disliked the idea of the reviving the dormant SHIRECU, but were instead in favor of the formation of new farmers' associations following the principles of cooperative formation.

5.2 Recommendations

5.2.1 Cotton production and market liberalisation

(i) Input supply

Because CDF is managed by TCB, there is a need for TCB to be accountable to smallholder cotton producers. Hence CDF should be managed by smallholder cotton farmers. Moreover, since the change of input supply system had direct implication on cotton producers, they were therefore supposed to get involved in the formation of the new input supply system. Farmers should voluntarily form and manage them, the government should only play a guiding role by enlighlitening smallholder farmers on the formation and management principles and this should be the role of TCB. It should completely not be involved in the acquisation, management and supply of input.

The TCB initiative to phase out the oil based pesticides failed because of the none involvement of smallholder cotton farmers. It can be argued that even if the water based pesticides are better than the oil based pesticides, smallholder cotton farmers ought to be involved in the decision to replacing oil based to water based pesticides. The involvement of growers has been demonstrated through its easier adoption in Australia, Mali, the USA and Zimbabwe. The private traders who meet part of the input needs and hence are also interested stakeholders could be involved to ensure greater effectiveness of inputs supply and ensure the appropriateness of imported chemicals. The TCB may continue to play the role of co-ordination.

(ii) Research and extension services

Among the setbacks of the cotton market liberalisation includes research and extension services provision whose delivery is limited by the inadequate government financial allocation. The government must increase budget allocation for research and extension

services. The agricultural extension officers working in the area should be trained in cotton production skills at regular intervals on specific topical issues through workshops/seminars, and then pass the skills to smallholder cotton farmers. The government should also provide agricultural extension officers with means of transport to enhance mobility and enable them visit smallholder cotton farmers' fields frequently. However, it is now high time for farmers to seeck advice on good crop management from extension officers rather than sit and wait.

(iii) Credit facility

The government initiative to encourage and assist smallholder cotton farmers to establish local organization such as savings and credit cooperatives, and smallholder cotton farmers' banks ought to be speeded up. Although much has been said on the use of land as collateral, most of the smallholder cotton farmers' lands were yet to be surveyed to get a land title deed which could be used as a collateral. The government should speed up the exercise to enable smallholder cotton farmers use land as collateral. Among the the other reason for smallholder cotton farmers' failure to secure loans from formal institutions is lack of sound project write up expertise. The government should initiate a project to assist smallholder cotton farmers in acquiring project proposal writing expertise.

(iv) Cotton marketing under cotton market liberalisation

Private and unlicensed traders' motive is profit maximisation and the government despite knowing this fact has left the weak (smallholder cotton farmers) to unscrupulous predators. The government should rectify this weakness and protect smallholder farmers from exploitation. In general, the producers who are smallholder cotton farmers will continue to lose a lot of income unless they form strong farmers' associations which can be a united force against unscrupulous traders and the government should assist in the formation of these associations. Producer associations will enable producers to aceess the required and

affordable inputs, reduce costs through supply chain linkages and improve competitiveness. In addition, well organized smallholders can ensure that the benefits of increased production are more equiably shared.

5.2.2 Income from cotton

The government should strengthen the Weight and Measures Department and review the Weight Measure Act, 82 of 1982 in order to give it the power to punish those who temper with weighing machines. Alternatively, the government should assist smallholder cotton farmers to own weighing machines and ensure that cotton buyers use the smallholder cotton farmers' weighing machines. It is evident that smallholder cotton farmers who are in remote areas with poor infrastructure receive low prices from cotton sales and other crops due to high transport costs of marketing the produce. The government should put more effort in infrastructure improvement, especially feeder roads which will reduce marketing cost hence; smallholder cotton farmers will get higher prices from the sale of their produce.

5.2.3 The wellbeing of smallholder cotton farmers

(i) Improvement of shelter

There is an urgent need to have a specific program of sensitizing the Wasukuma to change their attitudes towards witchcraft belief and strive to improve their shelters

(ii) Food self-sufficiency

To overcome the problem of food self insufficiency, the government should sensitise smallholder cotton farmers to change their food preference from maize to other foods such as cassava and sweet potatoes which are drought tolerant. The government should also encourage the use manure or fertilizer in order to increase yield of maize per hectare

5.2.4 Coping strategy under cotton market liberalisation

(i) Co-operative societies' formation as a coping strategy

The government should not impose cooperatives to smallholder cotton farmers. The government should only take an advisory role. The move by the MAFC to implement Cooperatives Reforms and Modernization Program, especially on leadership management, training and establishments of new cooperative societies including Savings and Credit Cooperative Socities has come at the righ time. Let the smallholder cotton farmers form collective orgarnisations and cooperatives societies while the government makes sure that the cooperative formation principles are followed and that they are owned and controlled by smallholder cotton farmers themselves.

(ii) Crop production

The government should not force smallholders to produce cotton. Let them decide which crops fetch high price and how to produce it. This move will address the NSGRP (MKUKUTA) objectives by observing the smallholder's democratic right to decide on matters which affect their livelihood.

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APPENDICES

Appendix 1: Interview Questionnaire to Smallholder cotton farmers

THE EFFECTS OF LIBERALIZATION ON COTTON ON SMALLHOLDER COTTON FARMERS' LIVELIHOOD IN SHINYANGA REGION

General
Date of interview……Time --------

1. Questionnaire No---------- 2 .District---------- 3.Division------
4. Ward---------- 5.Village----------
6. Name of the respondent----------

A RESPONDANT'S INFORMATION

1. Sex of farmer: code 1= Male 2= Female
2. Age of respondent (years)
3. Marital status: Code 1=Married 2= Widowed
   3=Single 4=Separated 5=Divorce
4. Is respondent Head of the Household? 1=Yes 2=No
5. How many years have you attended formal education?
   (0= Not attended. 1 = Primary education 2= Secondary education
   3= above secondary education
6. What other training have you attended besides formal education? (Mention them)
   ---

7. What is the size of your household and how many are available for farm activities?

Sex	<18 Years	Years>18 Years
Male		
Female		
Total		

B. ECONOMIC ACTIVITIES

8. What was your principal occupation before 1994 1= farming 2=livestock keeping
   3=wage employee 4=non farm business 5=others ( )

9. If farming was your principal occupation what was the most important farming enterprises, rank in order of importance (1 - 3)

Before 1994	**After 1994**
Cash crop ----------	----------
Food crops ----------	----------
Livestock ----------	----------

10. How would you rank four main cash crops in order of priority 1---------- 2---------- 3----------

11. How would you rank four main food crops in order of priority 1---------- 2---------- 3----------

12. How would you rank four main livestock in order of priority 1---------- 2---------- 3----------

13. What has been your principal occupation after 1994 to date?

    1= farming 2=livestock keeping 3=wage employee 4=non farm business 5=others ( )

14. Has your principal occupation changed since 1994?.

15. For any answer in question 14 above give reason

16. Method of land preparation mentions the method you use/used. Put × on the method

Method	**Before 1994**	**After 1994**
Plough		
Hand hoe		
Tractor		

C. ASSETS

17. Do you own livestock? Indicate the number in the two columns.

Type of livestock	**Before 1994**	**After 1994**
Cattle		
Goats		
Sheep		
Others		

18. Which of the following assets that are in working condition do you own and when were they acquired? (1=Before 1994 2=After 1994

Type of assets owned	**Before 1994**	**After 1994**
1 = Plough		
2 = Ox – cart		
3 = Bicycle		
4 = Radio		
5 = prayer/Pump		
6 = Hand Hoe		
7 = Other (Specify)		

19:What type of building do you live in and when were they constructed?

Type of house live in/ owned	**Before 1994**	**After 1994**
Cement blocks + iron sheets		
Mud walls + iron sheets		
Mud walls + grass thatched		
Mud walls + mud roof		
Others (specify)		

D. EXTENSION SERVICES

20.Which is your most important source for information on cotton production before 1994 after 1994, and comment on the usefulness?

Source of information	**Before 1994**	**After 1994**
Radio		
News papers		
Primary cooperative societies staff		
Model farmers		
Extension officer		
Family and Relatives		
Private buyers		
Cotton company staff		
Others (specify)		

21. How many (cotton related) extension visits in total did you receive during the two periods?

Number of extension visits	**Before 1994**	**After 1994**
0		
1-2		
3-4		
<5		

22. What is your assessment on the usefulness of the extension advise?

Assessment	**Before 1994**	**After 1994**
Very good		
Good		
Fair		
Poor		
Very poor		

E. INPUTS (chemical fertilizers and agro-chemicals)

23.In which period were you satisfied with input supply system?

Input supply system	**Before 1994**	**After 1994**
Satisfied with the input supply system		
Not satisfied with the input supply system		

24.What would you say on the accessibility of input?

Input accessibility	**Before 1994**	**After 1994**
Easily accessed		
Not easily accessed		

25.Are you having a passbook?

26.How many times did you spray pesticides on your cotton farms?

Number of spraying	**Before 1994**	**After 1994**
0		
1-3		
4-5		
<5		

27. How has the use of inputs changed between 1994 and now (2007)?

Input use change	**Put √**
Highly increased	
Increased	
Decreased	
Highly decreased	

28. Give one major reason for input usage change.

29. What are the effects of private traders' involvement in input supply**?** Put a × to the effects

1. High input price	2. Low quality inputs
3. Better choice of source	4. price fluctuation
5. Exploitation by suppliers	6. Poor crop production
7. poor availability of input	8. Lack of input altogether
9. No price fluctuation	

F. INCOME

30. When did you have larger farms of cotton?

	Before 1994	**After 1994**
Larger cotton farm		
Small cotton farm		

31. Mention problems you faced during cotton selling in the periods

Problems faced	**Before 1994**	**After 1994**

32. Please rank the four (1-4) most important sources of income in the two columns in the two periods.

Source of income	**Before 1994**	**After 1994**
Livestock keeping		
Farming		
Wage labor		
Others (specify)		

33.What has been an impact of cotton market liberalisation on income generation?

Impact of cotton market liberalisation	
Increased income	
Reduced income	
Remained the same	
Others (specify)	

G. COTTON MARKETS/MARKETING

34. Name the institutions to which you sold your cotton.

Before 1994	**After 1994**

35. Name the means of cotton transportation to the cotton selling post.

Before 1994	**After 1994**

36. What is the effect of private traders on buying cotton? Put × on the effects

Exploitative produce prices (too low)	
Decline in household income	
Better choice of place and time of sale	
Output price don't reflect input prices	
Increase in household income	
Lack of bargaining power	
No second payment (coffee)	

37. Did you know in advance the price of cotton that you would receive when going to the selling post? (Put 1=yes 2=No)

Before 1994	**After 1994**

H. THE COOPERATIVE SOCIETIES

38. Were/Are you a member of Primary Cooperative Society? (Put 1=yes 2=No)

Before 1994	**After 1994**

39. What can you suggest on the cooperative formation?

I. FOOD SECURITY

40. In which period did you face serious food shortages?

Before 1994	**After 1994**

41. Mention reasons for reasons for food shortage in the two periods.

Before 1994	After 1994

J. HEALTH SERVICES

42. Does cotton market liberalisation enhance the spread of HIV?
1= Yes 2=No

K. CREDIT

43. Did you borrow money for farming activities?

Before 1994	After 1994

44 Which were/are the source of borrowing

Before 1994	After 1994

45. If you did not borrow what were/are the reasons?

Before 1994	After 1994

46. Are you having a title deed for the land you own ?
1=YES 2=NO
( )

47. If no, why?----------

48. Is land being used as collateral for getting credit?

1=YES 2=NO ( )

49. If no, why?
1= don't have title deed 2=don't have knowledge about it 3=Cumber some process 3=others ( )

L. EXPENDITURE OF INCOME FROM COTTON SALE

50. How did you use the income you received from cotton sales? In order of priority

Before 1994	After 1994

Appendix 2: Guiding Qestions for Focus Group Discussions

Theme one: Cotton smallholders income before and after liberalization
Income from cotton, income from other crops, income from other source

Theme two food security

- Type of food and source

- Number of meals taken a day at different seasons

1980s-1994---Poor--------Medium----------Rich----------

1995 to date---Poor--------Medium----------Rich----------

Crops consumption preferences in the 1980s-1994, and 2000s

DISTRICT				
Maswa		Crop1	Crop2	Crop3
1980s-1999	Poor			
	Medium			
	Rich			
2000-2006	Poor			
	Medium			
	Rich			
Bukombe				
1980s-1999	Poor			
	Medium			
	Rich			
2000-2006	Poor			
	Medium			
	Rich			

Traditional measures in case of food shortage

Theme three: Cotton production
- cotton cultivated hectares
- other crops cultivated hectares
- input supply
- access to credit
- markets
- extension services
- smallholders coping strategies
- empowerment, enable farmers to organize for action

Theme four:
Cotton smallholder farmer's expenditure
On basic needs, capital goods, crop management, livestock, purchase, leisure, dowry etc.

Appendix 3: Checklist Qestions for Key-Informants:

District Administrative Officers,

Agricultural Officers,

Extension Officers,

Community Development Officers &

Village officials.

A General characteristic

A1 Name of the respondent/No. ……..Title……..

Date of interview……Time---------District---------
Division----- Ward ------- Village-------

B: Production trend

B1. Regional/District/village production and sells trend (Ten yrs before and after)

10Years before 1994	Cotton seed production	10 years after 1994	Cotton seed production

Seed cotton price 10years before and after 1994

10Years before 1994	Seed cotton price	10 years after 1994	Seed cotton price

B3 Are there some cotton smallholders who have opted for other crops following liberalization?

B4 Name four alternative crops in your District /Division/ Ward /Village?

B5 What are the reasons for smallholders to opt for other crops?

C Provision of Inputs (chemical fertilizers and agro-chemicals)

C1. Price of inputs

Name of input	Price before 1994	Price after 1994

C2 Where do smallholders get input?

C3 Do cotton buyers provide any input to smallholders?

C4 Under which arrangements do they provide inputs?
C5 How are passbook administered?
C6 What are major challenges are you facing in administering CDF?

D Credit to Smallholders

D1 Are there any institutions which provide credit to smallholders?

D2 What are the major sources of credit to smallholders?

D3 Under which arrangements do smallholders get credit?

D4 Are there smallholder cotton farmers who use land as collateral for getting credit?

D5 If there are any smallholder cotton farmers who have obtained credit using land as collateral, how many are they

E Extension Services

E1 Under what arrangements do smallholders get government extension services?

E2 What comment can you make regarding the provision of extension services for cotton after liberalization?

F PRICES

Grade of cotton	Price before 1994	Price 2005/06

F1 Price of cotton

F2 After liberalization has the price of cotton increased or decreased?

F3 After liberalization has cotton price fluctuations increased or decreased?

F4 Who fixes the price of cotton since aftter the cotton market liberalisation?

F5 What are the criteria for cotton price fixing?

G Marketing institutions

G1 How many cotton buyers are in your area?

G2. Where do farmers prefer to sell their cotton?

G3 What are the reasons for their preference of selling their produce to the buyers?

G4 Does the preferred buyer offer any credit to farmers?

G5 Does the buyer offer input?

G6 What kind of levy do buyers pay?

G7 What is the distance to the market place?
G8 Can you explain the marketing structure?

H Alternative Crops

H1 How do you assess future dependency on cotton in your area?

H2 What are the reasons for your answer to the above question?

I Income

I1 After liberalization has the income of smallholders generated from cotton Increased or decreased?

I2 It is claimed that private buyers do temper with weighing machines, can you comment on it?

I3 How many Weight and Measures Officers (Bwana/Bi vipimo) are in the district?

I4 In the past two/three years how many culprits have been put into task for tempering with weighing machines?

J Type of levy

J1 What type of levy are farmers deducted?

J2 How each of deduction benefits a farmer?

J3 Does farmers know the benefits?

K. Smallholders livelihoods

K1 What comment do you have on smallholder's livelihoods after liberalization?

K2 Justify your comment on shelter/food security/credit accessibility/water availability/education

K3 What can you say o HIV/ AIDS and cotton liberalization?

Appendix 4: Interview Guide to Cotton Traders

Name of trader / institution----------
District----------Ward----------Village----------

1. How cotton marketing is organized in the region/Tanzania?
2. What criteria do you use in determining the cotton buying price?
3. Where do you sell your cotton?
4. Do you have your own ginnery?
5. Have you any contract with smallholder cotton producers?
6. Can you comment on procedures for one to get cotton buying license?
7. What kind of levy do you pay?
8. What are the effects of cotton market liberalization? Price/Market/Input /Credit

Appendix 5: Interview Guide to Banks/ Financial Institutions Official

Credit to Smallholders

1. What can you comment on smallholders access to credit after cotton liberalization/easy/difficult/not possible
2. What are the reasons for your above comment?
3. Who are the major borrowers from your bank?
4. Are there any specific conditions to be met for smallholders who want to secure loans from your bank?
5. What are the conditions?
6. Are there any arrangements that smallholder cotton farmers can obtain credit by using land as collateral?
7. If no one has managed to obtain credit using land as collateral what is the reason?
8. If there are some smallholder cotton farmers who have managed to secure credit by using land as collateral, how many are they in the past five years?--------
9 How many smallholders have secured loans from your bank for farming activities? (Five years before and after 1994)

Five years before 1994	**Five years after 1994**

Appendix 6: Guidelines for Participants Observations (issues to be observed by researcher)

1. Appearance of the cotton smallholders and those engaged in other activities dressing/face/smartness
2. Tools cotton smallholders use in cotton cultivation
3. Assets cotton smallholders own
4. Types of houses / buildings cotton smallholders live and own
5. Economic activities cotton smallholders are engaged besides cotton farming
6. Cotton smallholders expenditure from the sale of cotton

Appendix 7: The TCB Functions

- To promote the growth of production, processing and marketing of cotton.
- To promote good farming methods and increased production of cotton through farmers education.
- To monitor production, processing and marketing cost of cotton.
- To formulate regulations for cotton cultivations, marketing, processing, importation, exportation and storage of seed cotton and cotton lint.
- To promote and regulate the quality, marketing and export of cotton.
- To advice the government on all matters affecting the cotton industry.
- To collect, refine and disseminate information concerning cotton and promote its use for development and improvement of the sector.
- To promote the establishment of associations of stakeholders.
- To stimulate research and agricultural extension services.
- To encourage free competition and establishment of prices by market forces.
- To establish quality standards of seed cotton and cotton lint and to ensure the compliance of such standards by person licensed.
- To determine the manner and quantity of cotton seed any ginner or owner of seed cotton and shall retain for purpose of planting having regard to geographical location.
- To permit and license buyers of seed cotton, exporters of cotton lint, operators of ginneries and to determine the qualifications for granting such permits.
- In liaison with stakeholders, to represent the government and stakeholders in all international fora relating to or dealing with cotton industry.
- To provide a forum for discussions among various stakeholders categories of the sector exceptprice negotiations.
- To protect the interests of farmers against syndicate of buyers.

Appendix 8: Conditions for Obtaining a Seed Cotton Buying License

- The applicant should be the member of Tanzania Cotton Association (TCA) and that application should be channeled though TCA.
- The applicant should be in possession of a valid trading license.
- The applicant should be supported and certified by the Board or its agent and that the intended buying posts have been inspected properly.
- The applicant must have financial ability with the support of a reputable financial institution.
- The applicant must employ an experienced cotton grader for every buying post and ginnery to supervise cotton grades during buying seasons.
- The applicant must pay a non-refundable application fee of twenty thousand shillings (20,000/=).
- Successful applicant will be required to pay a license fee of 20,000/= for every buying post
- Successful applicant must register all seed cotton-buying agents and submit their names to the Board. The agents must display an identity card bearing their names and photographs while at work.
- Successful applicant shall establish a performance bond of USD 36,500 or its equivalent before being licensed. The established bond shall be valid for six months from the start of seed cotton buying season.
- The applicant must visit all areas form which he/she intends to buy seed cotton.
- Applicant must register with the Regional and District Administrative Secretariat.
- Applicant must consult the ginner from which he/she intends to gin seed cotton.