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Contract Farming Schemes in Tanzania: Benefits and Challenges

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Abstract

This study assesses challenges and prospects of contract farming schemes in Tanzania, with a view to identify interventions for maximizing benefits to farmers. Specifically, the study examines whether or not contract farming has improved farmers' economic and social welfare; the extent to which contract farming has solved access to market constraints; and it identifies challenges in managing contract farming. Both qualitative and quantitative approaches were used covering cotton, sisal, sugarcane and tobacco cash crops. Mixed results are found in relation to the role of contract farming in increasing farmers' production scale, income, access to finance, and access to improved social services (health, education and shelter).

In particular, while farm size and production increased for tobacco and sugarcane after farmers joining contract farming, no significant differences were observed for cotton farmers, largely due to delay of inputs and low quality seeds. Tobacco and sisal growers indicated that they experienced an increase in their real incomes as well as access to better health services, shelter and education for their children, whereas sugarcane farmers recorded a decline in real incomes. As for cotton farmers, no significant change in real incomes was recorded after joining contract farming schemes, except for farmers in Simiyu and Mara regions. The study further found that market is no longer a problem to farmers, but the markets are still characterized by low prices and payment delays, partly contributed by weak contract enforcement mechanism. Contract farming has not greatly helped farmers access credit from buyers and financial institutions. The key deterrent factors for farmers to access credit from financial institutions are related to collateral requirements, long screening procedures and high interest rates.

The study recommends the main policy intervention areas with a view to improving contract farming in the country. These include: availing and facilitating smallholder farmers access to long-term sources of finance; contract enforcement; improvement of transport infrastructure to areas surrounding the schemes; establishment of irrigation schemes for sugar, tobacco and cotton; establishment of competitive environment for the cash crops; and step up public awareness on the significance of contract farming in raising incomes and welfare of farmers.

1.0 Introduction

Agriculture employs about 80 percent of the population, accounts for about 25 percent of GDP, 27 percent of export earnings, and about 65 percent of raw materials supplied to industries. The sector has strong backward and forward linkages with non-farm sectors (URT, 2013). Despite its importance in the economy, the sector still faces many challenges such as imperfect market, unpredictable weather, poor technology, low productivity and inadequate capital. As a result, agriculture has been growing sluggishly, with growth rate averaging 4.2 percent between 1998 and 2012 (URT, 2012). In order to address some of these challenges, contract farming, which started in the country in the 1990s for most of the traditional cash crops, was considered as one of the strategies for increasing agricultural production, and guaranteeing secure market for agricultural produce, thereby leading to increased farmers' incomes.

Several studies including Simmons (2002), Warning and Key (2002), Simmons et al. (2005) suggest that contract farming arrangements allow smallholder farmers to achieve higher yields, diversify into new crops, and increase income. However, the authors also note a number of disadvantages and threats, such as limits to inclusivity of contract farming schemes (often restricted to the top tier of smallholder producers), unequal relations between contract buyers and farmers, farmers bearing high risks, and contract terms for farmers deteriorating over time in the process of 'agribusiness normalization'.

On Africa, contract farming is widely practiced as it is for many developing countries (Wainaina, 2012). However, there are conflicting views regarding its positive effects on the welfare of smallholder farmers. Some authors, for example, argue that contract farming is beneficial to small holder farmers, since it enables farmers to access local and global markets (Key and Rusten, 1999; Warnings and Key, 2002; Gulati et. al., 2005; Minot, 1986; Minot and Roy, 2006; Minot et. al., 2009). Contrasting views are that contract farming is a means of exploiting farmers by large agribusiness firms due to their inherent bargaining power in favor of smallholder farmers (Little and Watts, 1994; Singh, 2002). Such a critique is further supported by Guo et.al, (2005) who argue that contract farming is only advantageous to large scale farmers.

Mixed views have also been expressed in Tanzania by some smallholder farmers and politicians, particularly in areas where contract farming schemes operate. The major concerns are that, the schemes have not adequately benefited farmers in raising their incomes, access to new technology and credit. What explains this mismatch? The main objective of this study is to assess challenges and prospects of contract farming schemes in Tanzania, with a view to identify interventions for

maximizing benefits to farmers. Specifically, the study examines whether or not contract farming has improved farmers' economic and social welfare, the extent to which contract farming has solved access to market constraints, and it identifies challenges in managing contract farming.

The findings from this study contribute to policy by identifying policy intervention areas to maximize benefits to contract farming, particularly on cotton, sisal, tobacco and sugarcane. Unlike previous studies on Tanzania, which used qualitative approach to assess contribution of contract farming to livelihood of smallholder farmers and agricultural productivity, the current study uses both quantitative and qualitative approaches comparing smallholders before and after joining contract farming and farmers in the contract against those outside the schemes to examine whether or not contract farming has improved farmers' economic and social welfare. It also assesses the extent to which contract farming has solved access to market constraints.

After the introduction, section 2 covers evolution of contract farming in Tanzania, while section 3 gives the literature review followed by research methodology in section 4. Section 5 presents the study findings, while section 6 concludes the paper.

2.0 Evolution of Agriculture Policy and Strategies and Contract Farming in Tanzania

2.1 Evolution of Agriculture Policy and Strategies

2.1.1 Economy-wide Reforms and Implications for the Agriculture Sector

Tanzania implemented comprehensive economic reform programs, in the mid-1980s with the objective of restoring both internal and external balances. The main thrust of the reforms centred on liberalization of the economy. The reforms were extended to the sector of agriculture in key areas of liberalization of markets and prices, as well as de-confinement. These measures were geared towards strengthening agricultural production and creating jobs, expanding market opportunities, increasing farmers' incomes, strengthening sectoral linkages and enhancing generation of foreign exchange. Agricultural Policy and strategies that were developed in the new operating environment, aimed at productivity increase, enhancing contribution of the sector of agriculture to Gross Domestic Product (GDP) and overall socio-economic development, as well as increasing competitiveness.

2.1.2 Agricultural Sector Policy and Strategies

Implementation of economy-wide reforms necessitated periodic review of agricultural policy and strategies in order to cope with changing circumstances. Key responses include the following.

Agricultural Sector Development Strategy (ASDS 2003)

The Government of Tanzania developed Agricultural Sector Development Strategy (ASDS) with the objective of transforming both subsistence and commercial agriculture. In collaboration with other stakeholders, the Government implements strategies that target research, extension, training, information and communication, technical services; investments, technology and improved market development. The resulting increases in productivity and profitability ultimately lead to increased incomes. District Agriculture Development Plans (DADPs) translate the policy into actionable programs at district and local levels.

National Agriculture Policy (2012)

The thrust of National Agriculture Policy (2012) is to develop an efficient, competitive and profitable agricultural industry that contributes to improvement of the livelihoods of Tanzanians and attainment of broad-based economic growth and poverty reduction. The policy emphasizes transformation of agriculture from subsistence farming towards commercialization and modernization through crop intensification, diversification, technological advancement and infrastructural development.

The main objectives of the Policy are to:

- i) Strengthen agricultural support and technical services (research, mechanization, irrigation, extension and training);
- ii) Increase production, productivity and profitability from utilization of factors of production (land, labour and capital);
- iii) Enhance national food and nutrition security and production of surplus for export;
- iv) Improve agricultural processing with a view to adding value to agricultural produce and creating jobs;
- v) Enhance production of quality products in order to improve competitiveness of agricultural products in the domestic, regional and international markets;
- vi) Provide enabling environment for attracting private sector investments to take advantage of existing comparative and competitive advantages.

Agricultural Policy 2012 targets, among others, increased production and productivity by focusing on the development of agricultural commodities that have comparative and competitive advantage locally, regionally and internationally.

Contract Farming

Contract farming was officially introduced by the Government of Tanzania in 2010 and its implementation started in 2011/12 financial year in cotton farming. Contract farming was adopted as part of agricultural policy with a view to:

- (a) Promoting agricultural production and guaranteeing a secure market for the agricultural commodities, thereby allowing farmers to earn increased incomes and sponsors to obtain a return on their investments in a win-win manner;
- (b) Promoting and protecting relationship in the contract farming arrangement between farmers and sponsors; and
- (c) Providing farmers with access to wide range of managerial, technical and extension services, farm inputs, credit, appropriate technology, transfer of skills, reliable markets, favourable pricing structures and production services.

Through contract farming, market risk could now be shared between the farmers and buyers. This would enable farmers to get better prices for their produce, acquire new technology, and access credit. Such benefits would be attained if both parties clearly knew their contractual obligations and fulfilled them accordingly. Cognizant of non-compliance, the Contract Act provides, among other things, criteria for product price determination and means of verification including: first, parties to negotiate in order to agree a price that is mutually satisfactory and second, payment methods should be carefully determined in the contract. Detailed discussion on contracting farming practices focusing on the crops under investigation is provided in section 2.2.

2.1.3 Alignment of Agricultural Policy to National Development Frameworks

Implementation of Tanzania's Agricultural Sector Policy is aligned to key national frameworks, plans and strategies that include the following.

Tanzania Development Vision (TDV) 2025

Tanzania Development Vision 2025 was unveiled in 1999 as the country's blue print for transformation to a middle income country status by 2025. By that date Tanzania will have become a country imbued with five main attributes (URT 1999): high quality livelihood; peace, stability and unity; good governance; a well-educated and learning society; and a competitive economy capable of producing sustainable growth and shared benefits.

The central role for agriculture is spelt out as ensuring food self-sufficiency and food security (under high quality livelihood attribute). Improving agricultural productivity is mentioned as one of the driving forces of transformation, towards a modern rural sector. The Composite Development Goal for the Tanzania Development Vision 2025 (URT 2000) spells out the policies and strategies for agriculture, all aimed at facilitating productivity increase in all activities in agriculture through encouraging use of modern and new technologies.

National Strategy for Growth and Reduction of Poverty (MKUKUTA)

Tanzania launched second generation poverty reduction strategy, National Strategy for Growth and Reduction of Poverty (*Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania MKUKUTA* in Swahili) in July 2005. The strategy was implemented during the period 2005/06 to 2009/10). A successor strategy, NSGRP/MKUKUTA II was launched in July 2010 to be implemented between 2010/11 and 2014/15. The thrust of MKUKUTA is to pursue a two-pronged approach of achieving high growth and substantial reduction of poverty simultaneously.

Agriculture has been identified as the vehicle for substantial poverty reduction (broad-based growth) especially in rural areas. Achievement of high growth of the sector is thus key in lifting the rural population out of poverty. Agriculture features prominently under MKUKUTA Cluster I (Growth for reduction of income poverty) with elaborate strategies for increasing agricultural productivity and strengthening farmer associations.

Tanzania Long Term Perspective Plan (TLTPP) 2011/12 – 2025/26

Since formulation of TDV 2025 in 1999, there had been no elaborate modality of its implementation. It is for this shortfall that the Tanzania Long Term Perspective Plan (LTPP) was drawn, to be the vehicle for delivering TDV 2025. LTPP sets the broad strategic direction and delineates the long-term objectives, targets, and pillars for a more focused guidance, coordination and harmonization of the country's growth process (URT 2012).

TDV 2025 envisions that by 2025, agriculture should account for about 20 percent of Gross Domestic Product (GDP), and grow at not less than 6 percent in real terms per annum. Agriculture should have transformed to a modern sector capable of producing high quality output in sufficient amounts to ensure nationwide food security and food self-sufficiency, and increasing incomes through participation in viable internal and international trade (URT 2012).

Implementation of LTTP is to be achieved through three successive Five Year Development Plans (FYDPs) as follows: First FYDP (2011/12-2015/16) with the theme “Unleashing the Growth Potential”; Second FYDP (2016/17-2020/21) “Nurturing an Industrial Economy”; and Third FYDP (2021/22-2025/26) “Realizing Competitiveness-Led Export Growth”.

Tanzania Five Year Development Plan 2011/12-2015/16

The Five Year Development Plan (FYDP - I) covering 2011/2012 - 2015/16, is first in a series of three FYDPs implementing LTTP. The main objective of FYDP I is to address the main constraints to Tanzania’s growth. Such constraints have been identified as infrastructure bottlenecks, particularly in energy, ports, roads (rural/feeder, regional and trunk); railway, and constraints related to skills, science, technology and innovation (STI), information and communication technology (ICT), general business environment and productivity in agriculture (URT 2011b). FYDP I underlines that “for any growth to be inclusive and prop-poor, it must involve substantial growth of agricultural productivity and allow most of the rural population to benefit from such growth through selling in domestic and export markets” (p,18).

Annex 1 of FYDP provides details on strategic interventions and the activities/projects, to details of location, cost and lead implementer. The relevant strategic interventions for contract farming in the Annex include the following: formulation and enforcement of contract farming legal frameworks in order to foster technology transfer; sensitizing, promoting and building capacity of farmer groups/organizations; providing training in order to strengthen producer/farmer organizations. Also, it entailed development of irrigation infrastructure and capacity building for irrigation development and strengthening extension services and agricultural financing.

Southern Agricultural Growth Corridor of Tanzania

The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) is part of plans under *Kilimo Kwanza* (Agriculture First) “green revolution” initiative to promote development of agriculture sector. SAGCOT is implemented within the framework of Public Private Partnership (PPP) established to promote transformational improvements in agricultural productivity so as to achieve the objectives of *Kilimo Kwanza*. The Southern Corridor includes coastal plains, Kilombero and Ruaha river valleys, as well as the hills and valleys of the Southern Highlands and Usangu.

SAGCOT focuses its interventions in areas that are identified to have great potential for improving livelihoods especially of smallholder farmers, increasing domestic food supply and export earnings, as well as promoting value chain and agribusinesses among local communities. Various financing modalities have been identified for supporting SAGCOT projects.

The main objective of SAGCOT is to increase productivity and achieve the following:

- Approximately 350,000 hectares of land to be brought into profitable production;
- Strengthened capacity of Ministry of Agriculture, food security and cooperatives (MAFC) and Rufiji Basin Development Authority (RUBADA) in order to support small holder farmers become commercial farmers, and create at least 420,000 new employment opportunities in the agricultural value chain.
- More than two million people permanently lifted out of poverty.
- Total annual farm income of about USD 1.2 billion.

2.1.4 Other Initiatives that Support Agricultural Development

Millennium Development Goals Acceleration Framework (MAF)

Implementation of Millennium development Goals (MDGs) in Tanzania (since their adoption in year 2000) showed that the target for MDG 1 “Eradicate extreme poverty and hunger” was not going to be achieved by the target year of 2015. In an effort to assist countries that were off track, the United Nations implemented MAF according to country specifics. Tanzania piloted target 1c: “halve, between 1990 and 2015, the proportion of people who suffer from hunger”. MDG acceleration framework on the reduction of poverty and hunger for Tanzania was piloted in 2011 with the objective of addressing challenges and bottlenecks in agriculture related to hunger and poverty. MAF was implemented in selected districts where the challenges were greatest (URT, 2011a).

A number of interventions in agriculture were made for improving both output and productivity with visible results and the country achieving this target ahead of the target year. The interventions included establishment of Agricultural Information Resource Centers (AIRC) equipped with ICT accessories, establishment of demonstration farms and training of farmers facilitators; regular knowledge sharing, demonstration and capacity development for farmers/ farmer groups about new agricultural and information technologies and credit mobilization through Savings and Credit Cooperative Societies (SACCOS).

Big Results Now (BRN) Initiative

Tanzania launched the Big Results Now (BRN) initiative in January 2013 with the objective of achieving results faster and addressing implementation challenges. Inspiration for launching BRN was provided by the Malaysian experience, which showed that big results can be achieved fast through an approach that focuses on prioritization, detailed monitoring tools, and accountability for performance. The initiative is aimed at establishing a strong and effective system to oversee, monitor and evaluate implementation.

Agriculture is one of the priority areas of focus for strengthened delivery selected on the basis of number of beneficiaries, relative impact on the quality of life, and the feasibility of achieving measurable impact within a relatively short timeframe. A Presidential Delivery Bureau (PDB) has been established in order to monitor related Key Performance Indicators (KPIs).

The main areas that are implemented under BRN and are directly related to contract farming are provision of training to extension officers and farmers on appropriate management of irrigation schemes; training on business management, modern farming practices, and formation of small farmers' associations.

These interventions have direct impact on increasing farmer incomes in rural areas (recall that poverty in Tanzania is mainly a rural phenomenon (URT, 2013d) and that rural areas are home to the majority of Tanzanians (URT, 2013b).

2.2 Contract Farming in Tanzania

Although contract farming in Tanzania was adopted as part of agricultural policy 2012, its practice started in the 1990s in various traditional cash crops including cotton, tobacco, tea, coffee, sisal and sugarcane. This was in response to the decontrol of marketing of traditional export crops in 1993/94. The aim was to pave the way for the participation of cooperatives and private traders in the marketing aspects of agricultural crops in a competitive marketing environment. Following here under are discussions on contract farming with reference to cotton, sisal, sugarcane and tobacco.

2.2.1 Evolution of Cotton Contract Farming

Cotton farming was first introduced to Tanzania in 1904 by Germany Colonial Government. During the British colonial rule, more efforts were made to promote cotton farming in various parts of the country particularly in the Lake Zone. More efforts to strengthen cotton farming in the Lake zone were made after Tanzania's independence in 1961. Regardless of the challenges encountered such as low cotton prices, insufficient and late delivery of inputs, inadequate technical knowhow, and unfavourable weather farmers have continued cultivating the crop since then.

Institutional and Regulatory Framework

The institutional and regulatory arrangements pertaining to cotton farming in the Lake zone has evolved overtime, partly in response to a number of challenges and partly in response to general

agricultural policy aiming at enhancing the contribution of cotton crop to national income. In 1951 Farmers Primary Cooperative was formed, charged with the role of buying cotton from farmers. In 1952, Farmers Primary Cooperative was abolished and instead Victoria Federation Cooperative Union was created and given the role of developing marketing of cotton industry. In 1973, Tanzania Cotton Authority (TCA), a parastatal was formed to promote cotton sector through buying and processing of cotton seeds from farmers for export.

In 1997, Tanzania Cotton Association (TCA) was established bringing together individuals, firms or corporate bodies holding licenses under the Tanzania Cotton Industry and Licensing for buying and ginning cotton. The Association also had associate members who were individuals, associations, institutions, corporate bodies and exporters for the purpose of supporting the objectives of the association morally and financially. The objectives of the association were to ensure sustainable growth and development of cotton industry; promote, protect and further the interests of those involved in cultivating trading, ginning, and export of cotton.

Enactment of Tanzania Cotton Marketing Act, in 1984 paved way for the establishment of Tanzania Cotton Marketing Board (TCMB) in 2001, which was empowered to regulate cotton industry in the country. Cotton Industry Act 2001 provided for the formation of Tanzania Cotton Board which was mandated to promote, facilitate and monitor production, marketing, processing and export of cotton.

Due to mounting challenges, Tanzanian cotton industry stakeholders resolved to embark on contract farming as a way of rescuing the industry from the brink of collapse in the Western Cotton Growing Area (WCGA) in 2011/2012. In practice, contract farming practices have tended to develop as a result of increasing agricultural commercialization particularly with small farmers.

2.2.2 Evolution of Sisal Contract Farming

The sisal sub-sector is the oldest commercially organized agricultural activity in the country. Sisal was introduced in Tanga (via Hamburg) in 1893 from Mexico, and thereafter, it spread to other parts of the country as well as East and Central Africa (FAO, 2013).

Sisal production expanded very fast in the period up to the 1960s, making Tanzania the world's largest producer of sisal. For example, annual production in 1964 was around 240,000 tonnes grown on 487,000 hectares of land (Sutton and Olomi, 2012). Relatedly, sisal became one of the major sources of foreign exchange and employment. The development of synthetic fibres in Europe and North America, particularly in the 1970s, put a downward pressure on demand for natural

fibres. The reflection of this effect together with other factors such as limited technology¹ to produce other products from sisal was a decline in production, from 240,000 tonnes in 1964 to 20,584.3 tonnes in 1999. These developments affected negatively operations of most sisal estates thus constraining their growth.

With the liberalization of the sisal industry in the 1990s, sisal farming is now undertaken at smallholder and large-scale mainly in plantations. Most of the sisal is produced on plantations that have processing facilities for decorticating and drying. At national level, there are 22 estates (companies), with 43,320.11 hectares of land under sisal, located in Tanga, Morogoro, Kilimanjaro, and Arusha regions. In the value chain, there are seven spinning mills with TANCORD Ltd, Usambara Spinning Co, Amboni Spinning Mill, Ubena Spinning Mill, 21st Century Holdings (TASCO) and TPM (1998) Ltd been active, while Tanga Sisal Spinning Mill is not. Products produced by the spinning mills include twines, sisal bags and ropes.

Institutional and Regulatory Framework

Before 1967, the sisal industry was essentially privately managed. Following the 1967 Arusha declaration, about half of the industry was nationalized and managed by the Tanzania Sisal Corporation, and then, by the Tanzania Sisal Authority from 1973. Although companies such as Amboni Limited, Ralli Estates Limited and Karimjee Agricultural Limited continued to be in private hands, marketing of sisal and its products remained under the control of the Tanzania Sisal Authority. In 1997, the Tanzania Sisal Board (TSB) took over regulatory role of the Tanzania Sisal Authority, mainly charged with the function of overseeing small and large scale sisal farming in the country.

Sisal Smallholder and Outgrowers Scheme (SISO)

Sisal contract farming scheme (commonly known as Sisal Smallholder and Outgrowers Scheme, SISO) was started in Tanga in 1999, with the aim of boosting sisal production in the country. The system is practiced in five estates owned by Tanzania Sisal Board (TSB), namely, Hale, Magunga, Magoma, Mwelya and Ngombezi. The scheme involves small scale production largely on small farms obtained by subdividing the agricultural lands by TSB. The sisal smallholder farmers are issued subleases under the condition that they grow sisal and other permissible (seasonal) food crops between broad rows of sisal. Meanwhile, the outgrowers scheme which involves use of own land is still new as sisal planting was done in the past two years and no sisal harvesting has been

¹Apart from making agricultural twines for hay bailing and making bags, recent advances in technology have extended the use of sisal to the production of biogas, electricity generation and bio-fertilizers.

made yet. The scheme is practiced at Mkumbara and Mwelya sisal estates to which the smallholder farmers sell their produce for onward processing and marketing.

Under the arrangements, farmers are responsible for all agronomic practices ranging from growing, maintenance and harvesting of sisal. Katani Ltd and D. D. Ruhinda & Co. Ltd (owner of Mkumbara Sisal Estates) are privately owned and possess all processing facilities, warehouses and camps in the estates. According to Sutton and Olomi (2012), Katani Ltd accounts for some 30 percent of industry output and operates sisal decortication factories in Hale, Mwelya, Ngombezi, Magoma and Magunga estates. The company engages in primary processing, spinning and weaving, producing sisal fibres, ropes, twines, carpets, fine yarns, buffing cloth and geotextiles. Katani also owns spinning and weaving mill, Tancord (1998), as well as a sisal energy company with facilities at Hale estate.

Owners of the processing facilities, mainly Katani Ltd and D. D. Ruhinda & Co. Ltd for the case of outgrowers are the sole buyers of all sisal produced by contracted smallholder farmers. The price of sisal leaves is market determined and dependent on prevailing world market sisal prices as well as sisal quality (measured as fibre content per meter). The agreement between smallholder farmers and buyer seeks to link the farmers with agribusiness expertise and marketing channels. Farmers commit to provide sisal of high quality standard, determined by the purchaser. Unlike other cash crops, the sisal buyer does not support farmer's production through farm preparation, provision of inputs. However, the buyer provides extension, harvesting and transport services whose costs are borne by the farmers. In this way, the buyer has control over sisal fibre quality.

Sisal Fibre Production under SISO

Sisal fibre production in the five estates in the initial years of the scheme declined (from 3635 tonnes to 861 tonnes in 2005) partly reflecting the lag effect from sisal planting to harvesting. Production has since then increased reaching 3,762 tonnes in 2013. Contributing to the increase include increased demand, enhanced labour and land utilization as well as higher factor productivity.

2.2.3 Evolution of Sugarcane Contract Farming

In Tanzania, sugar is manufactured in four factories, namely; Kilombero Sugar Company Limited (KSCL), Mtibwa Sugar Estate (MSE), Tanganyika Planting Company (TPC) Limited and Kagera Sugar. Sugarcane is cultivated in firms' estates and outgrower fields (except TPC). For many years these factories were under government ownership and cane production involved both factory and out-growers. The evolution of sugar industry can be traced by breaking down history of sugar

production into three periods: Before nationalization, during public ownership (or period before privatization) and during private ownership.

(a) Before and During Nationalization

Sugar production in Tanzania began in early 1930 when TPC began producing sugar at a small plant at Arusha Chini. Larger-scale production began in 1936 with a crushing capacity of 350 tonnes per day. The 1940–60 periods experienced an expansion of the TPC plant to a capacity of 1,500 tonnes per day, and the establishment of three additional small plants at Karangai in Arusha, Bukoba (Kagera) and Turiani (Mtibwa). The first large sugar project in Tanzania after independence, Kilombero I, began as a sugarcane out-growers programme in 1962. As regulator in the sugar industry, the Sugar Development Corporation (SDC) was established under the Public Corporation Act of 1964 with the key objective of overall development of the industry.

Production reached an annual average of 49,000 tonnes between 1961 and 1965. In 1967 (when all factories were nationalized) production rose to around 99,000 tonnes, before rising further to an annual average of 115,200 tonnes during the period 1976–80. Nationalization ended in 1986, with privatization and restructuring of the industry (Sutton and Olomi, 2013). When sugar estates were under government ownership, the government was involved with provision of credit inputs to small holder's farmers, extension services were delivered without fees, stocking and selling of sugar at fixed prices, which was the same in all regions (NEI, 1997). At that time, production was high though not enough to suffice the domestic market.

(b) Liberalization Era

Following the Structural Adjustment Programme (SAP) implementation, liberalization went on gradually, with the sugar distribution being liberalized in 1992. This translated to opening up of the sugar market, reduction of the government involvement in production, distribution and marketing. Despite the reduction in government involvement in the sugar industry activities, still it maintained ownership and operations of sugar factories. Major development was that, during this time the sugar industry competitiveness was reduced (Sutton and Olomi, 2012). During this time the condition of factories deteriorated; payments for the outgrowers were delayed affecting reinvestment in the sector and the government could not sustain operations. In this regard, government decided to undertake privatization in the sugar industry in 1997 to attract private capital and technology to meet both the domestic and export demand. Following this decision all four factories were privatized.

(c) Sugar Industry after Privatization

Mtibwa Sugar Estate (MSE) was privatized in 1999 as a subsidiary of a domestic firm called Tanzania Sugar Industries (TSI) which owned all shares. Kilombero Sugar Company, the largest sugar-processing company in Tanzania, was privatized in April 1998 and now is owned by three shareholders; 55 percent Illovo Sugar Limited of South Africa, 25 percent by the government of Tanzania and ED and F Holdings from UK own the remaining 20 percent. After privatization, Illovo Sugar Limited invested USD 50 million into the rehabilitation of the K2 factory. A further USD 3.5 million was invested later. Sugar cane is cultivated in the Kilombero valley by Kilombero and Kilosa districts, in two factories namely, Kilombero 1, or K1 (in Msolwa) and Kilombero 2, or K2 (in Ruhembe). The capacity of Kilombero factory is about 120,000 metric tons of sugar per annum. Other factories have capacity below that, and are geared toward modernization and improvement in cane husbandry practices, and the use of higher-yielding disease-resistant cane varieties. For instance, TPC has aimed at an annual output level of 84,000 tonnes by 2016–20.

In 2005, Kilombero Sugar Company established the Kilombero Community Trust in order to support the farming community in the Kilombero valley to obtain loans, not only for sugarcane development but also for other crops. Sugarcane is grown in Kilombero Sugar Estate as well as the out-growers surrounding the mills and supply to the factory about 40 percent of total crushed canes, guided by annually renewable contracts. Smallholder farmers' farms are organized by two farmers' associations: Kilombero Cane Growers Association for farmers supplying sugarcane to K1 and Ruhembe Out-growers Association serving farmers who are located to Kilosa district and supply to K2. The increase in annual production from 29,000 tonnes in the year before privatization to the current level of 120,000 tonnes is largely attributed to the establishment of the community trust (Sutton, 2012).

For Mtibwa factory, cane is mostly supplied from the company's own fields in Morogoro, supplemented by a small portion coming from small scale out-growers in surrounding villages in Mtibwa area. The small scale out-growers, through their Out-growers Associations supply to the factory as guided under the contracts. During the time of harvesting, a harvesting schedule is prepared and the amount of cane to deliver each day is determined. Truckers transport the cane to the mill, where it is weighed at the company's weighbridge, and samples are collected for laboratory analysis.

At the time of privatization both mills were producing low amount of sugar compared to the demand, MSI was producing 32,128 tonnes of sugar and KSCL was producing 29,580 tonnes of sugar. These figures indicate that Mtibwa was doing better than Kilombero which had two mills with capacity of producing 85,000 tonnes at that time. The difference is explained by the fact that Mtibwa

had good condition at the time of privatization because it underwent major rehabilitation, while KSCL had worse condition (NEI, 1997).

National wide, following privatization, production rose from 135,535 tonnes in 2000/01 to 263,461 tonnes in 2009/10 and eventually to 294,214 in 2013/14. However, comparatively, production was far less than the demand, and shortages led to price rises. The government responded by allowing private companies to import duty-free sugar to fill the gap.

(d) Contract Farming Era

During the privatized period, the major challenges to small farmers remained to be lack of access to new technologies, credit for inputs and market for their products. The key problems of markets were associated with high risks such as price and market uncertainty on the part of small farmers and less predictable volumes and supplier defaults. The government then, in early 2000's, decided to revive contract farming strategy, including sugarcane, but this time through private sector, to help containing these risks, improve technology transfers and provision of input.

2.2.4 Evolution of Tobacco Contract Farming

From historical perspective, tobacco growing in Tanzania was first introduced by the British colonial administration in Tabora region and later spread to other regions of Shinyanga, Rukwa, Mbeya Singida, Iringa, Ruvuma, Kigoma, Kagera and Morogoro. The administration was taken over by state cooperatives and the Tanzanian Tobacco Board, which was formed at the time. Production was very tightly controlled by the cooperatives, and while there were no contracts with the growers, the arrangement was structurally similar to the sugar cane and tea outgrowing schemes. Therefore, after independence, Tanzania Tobacco Authority was established with the responsibilities of developing tobacco schemes, infrastructure and extension services as well as running research institutions. The authority was also responsible for organizing the chain of activities from buying cured tobacco leaf from growers, keeping individual and village records of inputs, credit and sales, managing transport, storage, grading, bailing, reprocessing and selling.

There are three major tobacco buyers operating in Tanzania, namely Tanzania Leaf Tobacco Company (TLTC), Alliance One Tanzania Limited (AOTTL) and Premium Active Tanzania Ltd (PATL) TLTC is a subsidiary of Company Universal Leaf Corporation of USA. The company accounts for 50 percent share of the market for processed tobacco. AOTTL is an affiliate of US multinational Alliance One International. It accounts for 39 percent share of the market for processed tobacco. PATL is an affiliate of Premium Holdings International which accounts for about 11 percent of the market for processed tobacco.

Institutional and Regulatory Framework

In 1984, Tanzania Tobacco Authority was renamed Tanzania Tobacco Processing and Marketing Board and later transformed to Tanzania Tobacco Board (TTB) in 2001 as a regulatory institution. TTB was established by Act No. 4 of 1994 and charged with the responsibilities of licensing tobacco growers and processors. Among other issues, TTB regulates and enforces quality standards, finances research and development programs aimed at improving the quality of seeds. TTB established the Tanzania Tobacco Council (TTC) whose membership includes tobacco growers represented by primary cooperative societies, tobacco buyers and representatives from the Ministry of Agriculture. TTC was established by section 42 of the Tobacco Industry Act of 2001 for discussing issues of mutual interest such as contractual terms, arbitration of disputes, contract termination, negotiation of inputs and tobacco prices, tobacco grades, loans, the distribution of inputs and extension services.

Commencement of Contract Farming

Tobacco contract farming in Tanzania was introduced in 1997/98 season. Prior to the establishment of contract farming scheme in 1997/98, tobacco farmers sold their produce to primary cooperative unions that received inputs, market assistance and regulations from Tanzania Tobacco Processing and Marketing Board. In practice, tobacco buyers, primary cooperative societies and unions enter into contractual agreement using a framework prepared by the Tanzania Tobacco Council with a contract period ranging between one to three years. Tobacco buyers specified loaning banks and primary societies sign a tripartite agreement where the buyers agree to purchase the crop and the banks agree to finance inputs supply while the farmers' responsibility is to produce the tobacco.

Tobacco is sold to buyers through Tanzania Tobacco Board (TTB) registered market centres where classification of the tobacco is done by TTB classifiers witnessed by both farmers and buyer representative. Once all parties agree with the classification done by TTB, a purchase contract note is signed to signify change of ownership. The farmer is then paid for his/her tobacco using a pre – agreed grade price list agreed in the Tobacco Council (whose membership includes tobacco growers represented by primary cooperative societies, tobacco buyers and representatives from the Ministry of Agriculture). Tobacco buying prices are agreed between buyers and growers through negotiations in a forum called Tanzania Tobacco Council. Prior to price negotiations the council agrees on the farmer cost of production (COP). The agreed grade prices are minimum indicative.

Prior to 2009/10 tobacco production was undertaken through contracts between tobacco buyers and farmers, either on an individual basis or through cooperative societies or farmers' associations. During 2009/10, the government introduced a new system by which cooperatives through their

primary societies, source farmer's inputs using bank credit. Farmers then sell their cured tobacco to cooperative societies, which maintain an account with the lending bank. Buyers pay the primary cooperative society through its bank account and the bank deducts the farmers' loan/debt before crediting payments to the primary society account for payment to the farmer.

3.0 Literature Review

3.1 Theoretical Review

Contract farming is agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of farm products. Typically, the farmer agrees to provide established quantities and quality of a specific agricultural product (in Tanzania mostly are traditional export crops such as cotton, coffee, tobacco, tea and Sisal). In turn, the buyer commits to purchase the product and commits to support production through, for example, timely supply of farm inputs, pesticides, providing technical advice, land preparation, and arranging transport of produce to the buyer's premises. Contract farming has evolved as a model that links smallholder farmers with expertise and established marketing channels.

There are four models of contract farming arrangements namely centralized, multipartite, intermediary and informal model (Eaton and Shepherd, 2001; FAO, 2012). The centralized model involves a focal processor and/or buyer procuring from a large number of small-scale farmers². Multipartite contract farming model is a joint one and arises when two or more organizations (state, private agribusiness firms, international aid agencies etc.) come together to coordinate cooperation between buyers and farmers. An intermediary model shows many characteristics of a centralized model except that the focal processor and/or buyer act as an intermediary on behalf of another firm. Normally, intermediaries organize all production support on behalf of the final buyer. Informal arrangements may as well exist and they involve casual verbal agreements between contracting parties and regularly repeated marketing transactions, without any written contracts or formal agreements.

3.2 Empirical Review

A number of studies suggest that contract farming is beneficial to small scale farmers (Covey and Stennis, 1985; Hobbs and Young 1999; Martinetz, 2005, Wainaina et. al., 2012). According to these

²In this set up, the cooperation is vertically integrated and in most cases involves provision of several services such as pre-financing of inputs, extension and transportation of produce from the farmer(s) to the buyers' processing plant.

studies, the benefits are mainly attributed to risk sharing between the farmers and producers as well as decline in transaction costs. Supporters of contract farming further argue that, for developing countries, there are other potential benefits associated with contract farming. Since farm scale tends to be small, farmers are generally less educated, with production and management technologies being less efficient. Infrastructure e.g. transportation, cold storage, and information channels are not well developed. Contracting with a large agribusiness firm may be the only way farmers in developing countries can access higher end markets and receive higher returns, that they would otherwise be excluded from (Setboonsarng, 2006; Barrett et al., 2012).

It is further argued that, contract farming could be adopted as an alternative model to avoid the problems of displacement and create 'win-win' outcomes for local communities, private investors as well as local communities³. From the point of view of purchasers, contract farming provides greater control over volume and quality consistency; to a certain extent, able to also lower certain transaction and production costs that purchasers face. Moreover, contract farming affords potential benefits to governments. While development of market linkages for farmers is traditionally viewed as a public sector responsibility, establishment of the necessary agro-services for a large number of small, unorganized farmers requires a considerable amount of public sector resources. On the other hand, contract farming provides market linkages in ways, which do not burden the public sector (Setboonsarng et. al., 2006).

Despite the detailed benefits from contract farming, there are dissenters who question contract farming as a solution to the marketing problems facing smallholder farmers in developing countries. For example, it is claimed that contract farming is associated with a range of problems, including food-price increases and socio-economic marginalization. Therefore, the establishment of contract farming schemes should be done with care if the rural poor were to benefit (Liversage 2011; Anseeuw et al., 2012).

Although the debate is not yet conclusive about the benefits of contract farming, the practice has increasingly gained popularity in Africa (NAMC, 2009; FAO, 2010). Some of the enterprises where contract farming is widely practiced include in French beans and horticultural crops (Kenya and Ethiopia), fruits such as pineapples mangoes and passion fruits (Ghana), cotton (Zimbabwe) and poultry (Kenya). It is argued for example that, much of the success in the horticulture industry in Kenya, Zambia and Ethiopia is mainly attributed to contract farming (Okello and Swinton, 2007; Narrod et al., 2009). On the major challenges facing Africa contract farming, most studies cite low

³See for example Kay (2012).

productivity and poor quality output; poor farm management; poor timeliness of operations; over-reliance on inputs credit and default from one or both of the partners⁴.

On methodology, most of empirical studies have used matching techniques, in order to assess the impact of contract farming. In the matching method technique, an individual who is participating in contract farming is matched with one from the treatment group and the difference in outcome variables of interest in the intervention is computed (Caliendo and Kopeinig, 2005; Ali and Abdulai, 2010; Wainaina et al., 2012). One method of matching which is popular is propensity score matching⁵, proposed by Heckman et al. (2000), in which the comparison group is matched to the treatment group on the basis of a set of observed characteristics in the form of a “propensity score”. Wainaina et al. (2012) used propensity score matching method on a sample of 180 smallholder poultry farmers in Nakuru, to examine the determinants of participation in contract farming. The study found that, on average, contracted farmers earned more net revenue per bird compared to independent farmers, by approximately 27 percent. The study concluded that participating in contract farming improves the welfare of small holder poultry farmers.

Benfica et al. (2006) examined the determinants of participation in contract farming in Mozambique using a methodology that is similar to matching method. The authors developed two versions of sample selection methods in order to examine the factors which affect farmer participation, the determinants of net income from tobacco once in the scheme, and the effect of participation on crop income and total household income⁶. In order to adequately investigate participation, the authors explain these relationships by accounting for unobserved factors that may affect both the likelihood of participation and the performance of farmers following Greene (2003); by applying a two-stage Heckman model in two scenarios: (1) a Sample Selection Model for the determinants of tobacco income among growers, and (2) a Treatment Effects Model to assess the impact of contract farming on overall cropping and total household income. The results show that participation in contract farming by household is more related to technology, income diversification opportunities and asset endowments than with demographic characteristics.

On the impact of participation on contract farming, Benfica et al. (2006) found that, the impact of larger land holdings is almost entirely reflected in total household incomes; households with more

⁴Farmers default arises through family consumption, input diversion, negligence, loan default, side marketing; while companies may default for late or non-supply of inputs, failure to collect produce and late payment (SNV, 2009).

⁵ The propensity score is the predicted probability of participation in an intervention given observable characteristics. In the propensity score method, if the propensity scores for the treatment and the control become closer than it is considered the match is considered to be better. A good comparison group comes from the same economic environment and is administered the same questionnaire by similarly trained interviewers as the treatment group (Baker, 2000).

⁶ The important contribution of this article is its investigation of threshold effects of education and land holdings; rather than focusing on the average effect of participation. This is akin to distinguishing the types of farmers that benefit from participation.

land do not appear systematically to be giving up off farm incomes. Second, the impact of larger land holdings stabilizes or falls for nonparticipants indicating the presence of economies of scale in tobacco production, through more efficient use of hired labour. Furthermore, it was found that female headed households earn lower crop incomes; this suggests that diversification into off-farm activities by female headed households reduces gender inequality.

MAFC (2006) used qualitative and participatory approach, focusing on farmers in Tanzania. The study divided farmer organizations into four groups namely: public sector (such as cooperatives, covering sugarcane, tea, pyrethrum, sisal and tobacco); non-state actors (small group organizations formed by farmers to increase their bargaining power, covering sesame, paprika and cashew nuts); private sector (relatively larger farmer organization with well-established superstructure covering most cash crops); and small and medium enterprises (these covered livestock, potatoes and other food crops. All these groups were examined with respect to intensities of contract farming programs ranging from sole buyer formal contracts to the purely informal (verbal) contracts. The findings indicate that the impact of contract farming in agricultural development and well-being of smallholder farmers is generally positive, in all groups. However, there are some weaknesses such as small holder farmers are generally the price takers, they face high costs which make them unable to cover their costs and in some cases there is limited involvement of farmers in determining price. As result many farmers were forced to practice side selling i.e. upon harvesting, a farmer diverts a proportion of or the entire crop to another buyer in order to gain higher price. This is also identified as one of the highest risks a buyer in contract farming faces. It was also found that, there existed some violations in contracts too between the buyer and supplier of the specific product in contract farming. Partly, farmers are claimed to be in a hangover of government controlled economy set up where the government provided most of the requirements that farmers needed, hence they still expected government to perform such free services, the duties which it does not have to.

Contract farming can as well lead to increased yields due to application of specialized input and technical assistance while in other crops contract farming may be associated with higher prices but not higher yields. For instance, higher incomes in Madagascar contract farming was corresponding to increased incomes from agriculture sources but have productivity spill overs to contract farming (Minot, 1986; Key and Rusten, 1999; Warnings and Key, 2002; Gulati et al., 2005; Minot and Roy, 2006; Minot et al., 2009).

Studies which view contract farming as a means of exploiting farmers by large agribusiness firms due to the inherent bargaining power in favour of the latter include Little and Watts (1994), Singh

(2002). According to Guo et al. (2005), contract farming is only advantageous to large scale farmers.

In general, there are conflicting views regarding the impact of contract farming on the welfare of smallholder farmers. In Tanzania, few studies have assessed the contribution of contract farming to livelihood of smallholder farmers and agricultural productivity. This study attempts to fill the gap. This study differs from the previous studies on Tanzania in three ways. It used both quantitative and qualitative approaches, comparing smallholder farmers before and after joining contract farming, as well as farmers in the contract against those outside the schemes, to examine whether or not contract farming has improved farmers' economic and social welfare, as well as the extent to which contract farming has solved access to market constraints. The study covers four cash crops, namely sugarcane, tobacco, cotton and sisal.

4.0 Methodology

4.1 Research Design and Data Collection

Both secondary and primary data were collected for the purpose of performing analysis to answer the study's objectives. Surveys were used to collect both qualitative and quantitative information from a cross section of respondents. Structured questionnaires were prepared and administered on smallholder farmers. Checklist questions were used to collect information from companies engaged in contract farming and crop boards. Meanwhile, secondary information was collected from crop marketing boards (for cotton, sisal, sugar and tobacco) as well as companies that engaged in contract farming. Additional information was as well collected through focus group discussions. The groups comprised farmers' leaders.

In order to ascertain the extent to which contract farming has impacted on economic and social welfare, farmers' economic and social status "*before*" and "*after*" engagement in the contract farming were examined. Also a comparison was made between farmers who are engaged in contract farming and those who are outside the scheme ("*with and without*" scenario).

4.2 Sampling Techniques and Sample Size

A multi-stage random sampling approach was used to get the sample size. In the first stage, wards were selected randomly in districts which practice contract farming. In the second stage, farmers were selected randomly by the help of farmers' associations. The sample size was determined in such a way to allow for "*before*" against "*after*" and "*with*" against "*without*" comparisons.

Initially, the plan was to interview 200 smallholder farmers for each crop. The outturn was 904 smallholder farmers as follows: 200 respondents on sugarcane, 230 respondents (tobacco), 269 respondents (cotton) and 205 respondents (sisal).

4.3 Questionnaire Administration and Area of Study

The data collection instruments were administered on the spot in June 2014. In order to ensure confidentiality, each sampled smallholder farmer was interviewed separately. Areas of study were as follows: cotton survey was conducted in Mara, Simiyu, Mwanza, Tabora, Kigoma, Geita, Kagera, Shinyanga regions; sisal (Tanga region); sugarcane (Morogoro); and tobacco (Ruvuma, Mbeya, Katavi and Iringa regions).

4.4 Data Analysis Method

Primary data which were gathered through questionnaires were analyzed using Statistical Package for Social Sciences (SPSS). The strength of this package is that it can be used to analyze questionnaires with many questions including both closed-ended and open-ended questions (Kothari, 1985). Descriptive statistics such as frequencies and percentages were computed and charts and tables produced in order to discern patterns. Secondary data were as well analyzed and presented using tables and graphs.

5.0 Field Findings and Discussion

5.1 Characteristics of the Respondents

The demographic characteristics of interest were gender and age. Out of 904 respondents, 87 percent were male and the remaining percent were female. This result is not surprising since in African setting many families are headed by men who act as family spokesmen. Production activities also engage women and young people.

As for age distribution, half of the respondents were between 41 to 60 years, followed by respondents aged between 18 and 40 years (37 percent) and those aged more than 60 years were 13 percent. The age structure suggests that the schemes are manned by young generation, which is good news for the sustainability of the schemes. This is because productivity of a farmer tends to increase with age. Productivity reaches some mid-age peak, and then decreases with further age which has implications for the survival of beginning farmers, and for successful succession planning.

On the portion of land dedicated for contract farming, about 26 percent of the respondents devoted less than 25 percent of their total farm land. The high response was mainly influenced by cotton and tobacco respondents (**Table 5.1**). For sisal and sugarcane farmers, about 84 percent and 49 percent of respondents devoted 75 percent and over of their land, respectively. The response on sisal was not surprising as farmers are required to cultivate all land allocated to them.

Table 5.1: Percentage of Farm Dedicated to Contract Farming

Crop	Less than 25 Percent	25 Percent	50 Percent	75 Percent	Above 75 Percent
Cotton	36	32	15	12	5
Sisal	1	9	7	44	40
Sugarcane	8	20	21	13	36
Tobacco	57	20	11	10	1
Average	26	20	14	20	21

Source: Field findings, June 2014

5.2 Farm Size and Production Performance

(a) Farm size

Cotton: the findings suggest that 80 percent of respondents cultivated farms of less than 5 acres per annum before joining contract farming, 17 percent cultivated farms ranging between 5 and 10 acres, and 2 percent farms ranged between 11 and 20 acres per annum. No significant differences were observed in farm size changes after joining contract farming. About 85 percent of respondents on contract used own land, 9 percent leased and 6 percent used both leased and own land.

Sugarcane: about 57 percent of respondents indicated to cultivate farms of less than 5 acres. Only 2 percent were large farmers with more than 50 acres. Farmers' farm sizes were found to be statistically different *before* and *after* contract farming periods. However, farm sizes of respondents based in Mvomero district decreased substantially during contract farming period, attributed to farmers' dissatisfaction with low sugar prices offered by the buyer (Mtibwa sugar factory), accuracy of weighing scales and sugar content (renderment) as reported by the buyer. In addition, no extra payment was made to farmers on sugarcane by-products as done by its counterparts in Kilombero and Kagera. Some respondents indicated that these constrains acted as disincentive to farmers, thus influencing them to reduce land allocated to sugarcane production and instead they grew maize and sunflower. In contrast, land allocated to sugarcane production for respondents in Kilombero and Kilosa districts increased after contract farming, mainly attributed to better prices.

Tobacco: about 86 percent cultivated farms of between one and less than five acres, while 9 percent of respondents cultivated between 5 and 10 acres. It was revealed that farm size increased after joining contract farming, largely attributed to market assurance as farmers did not have to waste time in search for market. Most of respondents used own land and a small proportion leased land.

Sisal: no comparisons could be made as there was no smallholder sisal growing before contract farming. Also, the outgrower scheme was started two years earlier and so there were no sisal sales yet. On average, a farmer cultivated 4.5 hectares during the period 2012-13, with a minimum of 1.0 hectare both in Korogwe and Lushoto and a maximum of 82 hectares in Korogwe. About 56 percent of respondents cultivated farms of less than 5 hectares, while 32 percent cultivated between 5 and 10 hectares. Only 1 percent cultivated farms of above 50 hectares.

(b) Use of Modern Mechanization

As indicated in **Table 5.2**, about 61 percent of respondents on contract used a tractor or oxen plough in farm preparation compared to 21 percent of farmers not on contract. Comparing respondents on contract and those outside the scheme, the results suggest that about 64 percent and 60 percent of cotton and sisal respondents used a tractor or oxen plough in farm preparation compared to 22 percent and 20 percent for respondents not on contract, respectively. This could imply that contract farming has helped farmers to access modern technology of farm preparation.

Sugarcane producers dominated in the use of modern technology of farm preparation. The use of hand hoe was nevertheless predominant in tobacco.

Table 5.2: Use of Tractor or any Kind of Modern Mechanization

Crop	Percent			
	Farmers under contract farming		Farmers not under contract farming	
	Yes	No	Yes	No
Cotton	64.0	36.0	22.0	78.0
Sisal	60.0	40.0	20.0	80.0
Sugarcane	99.0	1.0	NA	NA
Tobacco	21.0	79.0	NA	NA
Average	61.0	39.0	21.0	79.0

Note: NA= Means Not Applicable (Indicating that no farmers not under contract farming)

Source: Field findings, June 2014

(c) Access to Credit

In the list of key sources of finance, own funds dominated, being cited by about 78 percent of respondents as the main source, followed by loans from SACCOS (11 percent) and loan from buyers (8 percent). Respondents indicated that most of loans from SACCOS were limited in size and were of short term duration. The high share of farmers who use own funds portray difficulty in accessing loans from formal financial institutions, thus constraining expansion of production. One of the main constraints to accessing bank loans was lack of collateral, bureaucratic procedures and high interest rates.

Table 5.3: Sources of Funds for Crops Production

Crop	Own fund	Banks	Processor/ buyer	Percent
				Microfinance institutions/ NGOs/ SACCOS
Cotton	83.0	0.0	17.0	0.0
Sisal	54.0	0.0	12.0	34.0
Sugarcane	78.0	14.0	0.0	8.0
Tobacco	95.0	2.0	1.0	2.0

Source: Field findings, June 2014

(d) Average Production

Table 5.4 summarizes respondents' responses on whether or not production increased over time due to contract farming. The responses indicate that about 61.9 percent and 17.3 percent of respondents in tobacco and sugarcane experienced production increases, respectively. No production changes were recorded for cotton farmers, largely attributed to poor seeds, delay of inputs by the buyers and lack of credit.

Table 5.4: Smallholder Farmer Production Before and After Contract Farming

Crop	Before contract farming	After contract farming	Percentage change
Cotton	52.8	52.8	0.0
Sugarcane	157.6	184.9	17.3
Tobacco	2.1	3.4	61.9
Sisal	NA	9.1	

Source: Field findings, June 2014

Note: NA means not applicable

5.3 Contribution of Contract Farming to Farmer's Economic and Social Welfare

An effective way of gauging whether or not contract farming has helped farmers improve their economic and social welfare would require comparing status of income and access to social services by farmers before and after contract farming as well as farmers in contract and those outside the scheme. Comparison between farmers on contract and those outside the scheme could only be made for cotton farmers only. Even then, the results suggest that the change is not statistically different. Thus, results are reported for comparisons of status of farmers before and after contract farming.

(a) Income Comparison

An increase in production is reflected in respondents' incomes performance before and after contract farming. On average, nominal incomes rose by 68.9 percent to about TZS 1.5 million driven by upward movements in nominal incomes of tobacco, sugarcane and cotton farmers. Controlling for price changes, real incomes rose modestly (8.6 percent) largely contributed by a 24.7 percent increase in real incomes of tobacco contracted farmers influenced by farmers in Chunya, Mlele and Namtumbo districts. Meanwhile, real incomes of sugarcane and cotton smallholder farmers deteriorated by 6.5 percent and 1.3 percent, respectively.

Table 5.5: Smallholder Nominal and Real Incomes before and after Contract Farming

Crop	Before contract farming		After contract farming		
	Base income	Nominal income	Real income	Percentage change (Nominal income)	Percentage change (Base vs real incomes)
Cotton	628,058	1,063,384	619,778	40.9	-1.3
Sisal	NA	1,891,485			
Sugar	2,366,667	5,666,667	2,213,333	58.2	-6.5
Tobacco	2,583,333	9,300,000	3,222,622	72.2	24.7
Average	1,394,514	4,480,384	1,513,933	68.9	8.6

Source: Field findings, June 2014

On sisal, respondents could not be compared within the two scenarios mentioned earlier. Nevertheless, about 55 percent of respondents indicated that they earned an average of less than TZS 1.0 million in 2012 and 2013, while 40 percent earned between TZS 1.0 million and TZS 5.0 million annually. Average income for respondents in Korogwe district was TZS 1.1 million and for Lushoto district TZS 2.6 million.

(b) Access to Social Services

The contribution of contract farming to the welfare of participating farmers was analyzed in three areas, namely, improvement in health care services, shelter, as well as better education to children. Mixed views were evident from the field findings.

The findings support that engagement in contract farming has contributed in improving farmers' access to the stated services except for cotton farmers. About 64.5 percent of interviewees agreed that contract farming had enabled them to access better health care services than before, 63.2 percent had managed to enrol their children to better schools and 61.2 percent improved their shelter than before. **Table 5.6** depicts responses for the four crops, in which only 36 percent of respondents on cotton indicated that contract farming had enabled them to access better health care services than before, 27 percent had managed to enrol their children to better schools and 24 percent were able to improve their shelter.

Table 5.6: Enhancement in Access to Social Services

Crop	Percent		
	Disagree	Neutral	Agree
a) Access to better education			
Cotton	50.9	21.7	27.4
Sisal	10.3	11.4	78.3
Sugarcane	28.7	6.6	64.7
Tobacco	14.4	3.0	82.6
b) Access to improved shelter			
Cotton	52.4	23.6	24.0
Sisal	15.0	12.8	72.2
Sugarcane	34.0	7.1	58.9
Tobacco	6.5	3.5	90.0
c) Access to better health care			
Cotton	54.0	10.0	36.0
Sisal	8.4	11.4	80.2
Sugarcane	39.0	8.7	52.3
Tobacco	5.7	4.7	89.6

Source: Field findings, June 2014

5.4 Role of Contract Farming in Solving Market Constraints

As mentioned earlier, the fundamental reasons for undertaking contract farming are, among others, shifting of risks from producers (farmers) to processors, since it is a form of forward market as well as transaction cost reduction. Contract farming was perceived to be a relief to farmers as it was

intended to assure market for farmers as well as prices before start of production. Also, contract farming schemes intended to ensure that farmers are supplied with inputs such as pesticides, fertilizers, seeds, agricultural equipment and technical advice.

Market access appears not to be a problem as alluded to by most respondents, mainly reflected by farmers' perception about access to market, market risk and uncertainty, and willingness to sell to contract buyers. About 61 percent of respondents agreed that market is no longer a problem compared to 32.2 percent of respondents who disagreed (**Table 5.7**). Exception case is with sugarcane in which about 84 percent of respondents disagreed that market is no long a problem due to the fact that the buyers could not absorb entire sugarcane produced by the farmers.

As for risk reduction, 63.2 percent of interviewees agreed that contract farming reduces risk and uncertainty, with tobacco and sisal recording the highest scores. Sugarcane recorded the least response of 6 percent.

Table 5.7: Access to Market and Risk Reduction

Crop	Percent		
	a) Market is no longer a problem		
	Disagree	Neutral	Agree
Cotton	26.0	18.1	55.9
Sisal	10.8	3.6	85.6
Sugarcane	84.7	3.3	12.0
Tobacco	7.4	2.2	90.4
Average	32.2	6.8	61.0
	b) Contract farming reduces risk and uncertainty		
	Disagree	Neutral	Agree
Cotton	14.8	15.0	70.2
Sisal	10.8	5.4	83.8
Sugarcane	25.5	0.5	6.0
Tobacco	3.0	4.3	92.7
Average	13.5	6.3	63.2

Source: Field findings, June 2014

The main concerns for most of the respondents were on low prices offered by buyers as well as payment delays. As shown in **Table 5.8**, about 67.1 percent of respondents agreed that buyers delayed payment to their crop sales. Higher dissatisfaction was recorded in cotton and sugarcane and tobacco, whereas for sisal smallholder farmers payment delay was relatively less important. Similarly, farmers indicated that contract farming schemes have not adequately assured

smallholder farmers of crop buying prices before commencement of planting season as stipulated in the Contract Farming Act, 2013. Supply of inputs such as pesticides, fertilizers, seeds, as well as provision of technical advice to farmers were indicated not to be provided on time and in some cases they were not adequate. Limited competition was mentioned as one of the main contributor to these anomalies.

Table 5.8: Payments are Delayed

Crop	Disagree	Neutral	Percent
			Agree
Cotton	16.5	5.6	77.9
Sisal	36.7	10.8	52.5
Sugarcane	18.0	7.0	75.0
Tobacco	35.7	1.3	63.0
Average	26.7	6.2	67.1

Source: Field findings, June 2014

From focus group discussions, it was indicated that crop quality matters in determining prices of cotton, sisal, sugarcane and tobacco. Farmers were however, less knowledgeable on grading and measurement, partly raising concerns of mistrust on offered prices. Also, prices of inputs and other services provided by buyers were said to be exaggerated in favour of buyers. As such, farmers complained that cost of production was higher than return from cash crop sales.

5.5 Challenges in Managing Contract Farming

On challenges facing contract farming management, a number of questions were asked to capture respondents' views about their knowledge on contractual obligations; information flow between farmers and their leaders or associations on one hand, and the buyers on the other; whether a buyer adhered to contract or not as well other key challenges.

Only 54 percent of respondents were aware of their contractual obligations, 56.6 were satisfied with information flow across the stakeholders, and 40.0 percent indicated buyers delayed payments (**Tables 5.9, 5.10 and 5.11**).

Table 5.9: Farmers Know their Contractual Obligations

Crop	Percent	
	Yes	No
Cotton	43	57
Sisal	88	12
Sugarcane	63	37
Tobacco	23	77
Average	54	46

Source: Field findings, June 2014

Table 5.10: Farmers' Satisfaction with Information Flow

Crop	Percent	
	Yes	No
Cotton	48.5	51.5
Sisal	88.0	12.3
Sugarcane	63.0	37.0
Tobacco	27.0	77.0
Average	56.6	44.5

Source: Field findings, June 2014

Table 5.11: Buyers Adhered to Contract

Crop	Percent		
	Disagree	Neutral	Agree
Cotton	48.0	25.2	26.8
Sisal	24.8	9.0	58.4
Sugarcane	31.0	48.0	21.0
Tobacco	40.0	6.1	53.9
Average	36.0	22.1	40.0

Source: Field findings, June 2014

Non-adherence to contract to most of farmers was related to late supply of or poor quality seeds, fertilizers, and insecticides, as well as payment delays. Information asymmetries were related to price setting, crop quality and weight determination, and measures farmers should take when contracts are violated or attached penalty.

Other challenges include:

- Farmer representatives' low accounting knowledge and inadequate contract negotiation skills.
- Smallholder farmers' poor record keeping.

- Inactive marketing boards in overseeing contract enforcement and education to smallholder farmers for them to understand their contractual rights and obligations.
- Poor transport infrastructure in the areas surrounding the schemes which increases the cost of production.
- Disease outbreaks and weather dependence of some crops (particularly for sugarcane, cotton and tobacco) increase the risk of loan default shying away financial institutions in lending the activities.
- Non-transparent crop grading and price setting arrangements contribute to low prices to farmers' produce.
- The use of old technology in crop processing delays crop processing and increases operational costs particularly those related to utilities (water and power).
- Low competition due to limited number of buying companies lead to low prices.
- Non-transparent crop grading and price setting arrangements contribute to low prices to farmers' produce.

6.0 Conclusion and Areas for Policy Intervention

6.1 Conclusion

This study assesses challenges and prospects of contract farming schemes in Tanzania, with a view to identify interventions for maximizing benefits to farmers. Specifically, the study examines whether or not contract farming has improved farmers' economic and social welfare, the extent to which contract farming has solved access to market constraints, and challenges in managing contract farming. Both qualitative and quantitative approaches were used. Crops covered in the evaluation are cotton, sisal, sugarcane, and tobacco.

Mixed findings were found as far as benefits of contract farming are concerned. In summary, the findings are as follows:

Effect on the Farm Size:

- **Cotton:** no significant differences were observed in farm size before and after farmers joined contract farming schemes. Majority of respondents indicated that they cultivated farms of less than 5 acres per annum.

- **Sugarcane:** notable difference was recorded in the farm size before and after contract farming, mainly influenced by farm size increase for Kilombero and Kilosa districts farmers as farm size for Mvomero district farmers dropped.
- **Tobacco:** farm size increased after joining contract farming for all regions visited.
- **Sisal:** no comparison could be made as there were no smallholder farmers before the start of the contract farming. On average a farmer cultivated a farm of 4.5 hectares.

Effect on the Use of Modern Technology:

The results indicate that the majority of cotton, sisal and sugarcane smallholder farmers under contract farming use modern mechanization than smallholder farmers outside the schemes. The use of hand hoe was predominant for tobacco smallholder farmers.

Effect on the Access to Credit:

The findings suggest majority of the smallholder farmers are still using own funds in crop production business. Access to loans from buyers and financial institutions is still a problem, and this has constrained expansion of crop production. As for commercial banks, the key deterrent factors are related to collateral requirements, long screening procedures and high interest rates.

Impact on Crop Production:

- **Cotton:** most of respondents indicated that they did not experience differences in production largely due to delay of inputs, low quality seeds, lack of credit and payment delays.
- **Sugarcane:** a large number of respondents supported that their production had increased by joining the scheme. However, the increase was in favour of smallholder farmers in Kilosa and Kilombero districts as smallholder farmers in Mvomero district experienced a 26 percent decrease for the same period.
- **Tobacco:** tobacco production rose after the introduction of contract farming scheme.
- **Sisal:** no comparison could be made as there were no smallholder farmers before the start of the contract farming and the outgrower scheme started only two years ago. On average a smallholder farmer produces 9.1 tonnes of sisal.

Impact on Economic and Social Welfare:

- **Cotton:** there was not any statistically significant change in real incomes of majority of respondents after joining contract farming schemes except in Simiyu and Mara regions where many respondents indicated that they experienced a modest rise in real incomes. Also most of

the respondents suggested that contract farming had not made them better off in accessing better health services, improved shelter and better education their children.

- **Sugarcane:** smallholder farmers witnessed a decline in real incomes after joining the scheme driven by a fall in real incomes of outgrowers in Mvomero district. Outgrowers in Mvomero district also indicated that contract farming had not enabled them to access better health services, improved shelter and better education their children. Outgrowers in Kilombero and Kilosa districts were in support.
- **Tobacco:** respondents' real incomes as well as access to better health services, shelter and education for children seem to have increased after joining contract farming.
- **Sisal:** most of the respondents agreed that contract farming had provided them extra incomes that enabled them to access better health services and shelter as well as send their children to good schools.

Impact on Market Access:

The results suggest that access to market is no longer a problem to majority of the respondents except for sugarcane where most of the respondents indicated that market is still a problem due to oversupply of sugarcane. The main concerns for most of respondents were on low prices offered for farmers' produce and payment delays by buyers. Similarly, contract farming schemes have not adequately assured smallholder farmers of crop buying prices before commencement of planting season as stipulated in the Contract Farming Act, 2013.

Administrative Challenges

Only few respondents were aware of their contractual obligations and satisfied with information flow from the buyers to the farmers. Also, most of the respondents complained that buyers did not abide by contractual obligations. Such a situation points to weak contract enforcement mechanism.

Other challenges include:

- Farmer representatives' low accounting knowledge and inadequate contract negotiation skills.
- Smallholder farmers' poor record keeping.
- Inactive marketing boards in overseeing contract enforcement and education to smallholder farmers for them to understand their contractual rights and obligations.
- Poor transport infrastructure in the areas surrounding the schemes which increases the cost of production.
- Disease outbreaks and weather dependence of some crops (particularly for sugarcane, cotton and tobacco) increase the risk of loan default shying away financial institutions in lending the activities.

- Non-transparent crop grading and price setting arrangements contribute to low prices to farmers' produce.
- Non-availability of crop insurance schemes against major disasters such as floods, fire, drought and diseases poses a problem in accessing loan from financial institutions by farmers.

Despite the challenges, about 82 percent of the respondents indicated that they are not willing to quit the schemes. Important to farmers is to address the challenges facing the schemes with a view to ensuring a win-win situation for both smallholder farmers and buyers.

6.2 Areas for Policy Intervention

- **Availing and facilitating smallholder farmers access to long-term sources of finance:** the banking and insurance systems have a role to play. Agriculture and investment banks could use the existing smallholder farmer groupings, for example, SACCOs and agriculture marketing cooperatives (AMCOS) and warehouse receipt system to lend to farmers. Also, the government could consider expediting release of customary land titles for them to be used as collateral. Related to this is fast tracking the establishment and access to crop insurance schemes to reduce risks related to crop failure due to unfavorable weather condition and outbreak of diseases. Other measures include, accelerating operationalization of agriculture bank and strengthening of credit guarantee schemes.
- **Enforcement of contracts:** there is a need to enforce contract agreements so that farmers are paid on time. Adequate staffing of the marketing boards with staff with prerequisite skills will be important. Although smallholder farmers are assured of markets to sell their produce, their dissatisfaction with the existing price setting frame calls the need for marketing boards to look into this matter in order to ensure that farmers are not marginalized. This would include putting in place a transparent crop quality determination frameworks; sensitization programs to enable smallholder farmers to understand their contractual obligations; and mechanisms to trace compliance of the buyers in effecting payments upon purchase of farmers' produce.
- **Improving transport infrastructure:** It is important to improve the quality of feeder roads in the areas surrounding the schemes in order to guarantee accessibility throughout the year. This should build on the on-going government's efforts to improve roads connecting district headquarters and Big Results Now Initiatives.

- **Establishment of irrigation schemes:** The government in collaboration with other stakeholders could consider establishing irrigation schemes. Such a move would require synchronizing the infrastructure demand with the priorities set under the District Agriculture Development Plans (DADPs) which translate the objectives of Agricultural Sector Development Strategy (ASDS) into actionable programs at district and local levels.
- **Step up public awareness on the significance of contract farming particularly in raising incomes and welfare of smallholder farmers:** This will increase participation by young people and thus expand and ensure sustainability of the schemes.
- **Establishment of competitive environment:** Presence of few buying companies impairs competition, leading to low prices. Two options are proposed. One is for the marketing boards to be more proactive in ensuring a fair playing field and that parties in contract honor their contractual obligations, and the second, is to allow entry of new buyers in the industry. As an example, reservation area of a radius of 40 kilometers for the establishment of a new sugar factory (given in the law) irrespective of economic or any other justification, constrains expansion of sugarcane production as existing buyers have limited capacity. Here, the Ministry of Agriculture, Food Security and Cooperatives could consider reviewing the respective law to allow other investors to come in.

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