

**AN INVESTIGATION ON THE FACTORS THAT CONTRIBUTE TO  
THE INFLUENCE OF WAREHOUSE RECEIPT SYSTEM ON THE PRICE  
OF RAW CASHEWNUT: A CASE OF SMALLHOLDER GROWERS IN  
MTWARA REGION**

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## SUPERVISOR'S CERTIFICATION

The undersigned certify that he has read and hereby recommend for acceptance by the Open University of Tanzania a dissertation entitled "*An Investigation on the Factors that Contribute to the Influence of Warehouse Receipt System on the Price of Raw Cashew nut: A case of Smallholder Growers in Mtwara Region*", in fulfillment of the requirements for the degree of Masters of Business Administration of Open University of Tanzania.

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**DECLARATION**

I, MOHAMED HASSAN, do hereby declare to the Senate of Open University of Tanzania that this dissertation is my own original work and hasn't been or being concurrently submitted for a higher degree award in any other institution.

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Mohamed Hassan

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Date

## **DEDICATION**

This work is dedicated to my mother Asha Mdoka and my father Hassan Hanga, who set the corner stone of my knowledge, and the late Mr. A. M. Beno Mhagama (former Director General of Cashew nut Board of Tanzania), who showed me the way in Cashew Industry.

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**ABSTRACT**

Warehouse Receipt System (WRS) offers good example of commodity marketing institution and embryonic entry point for agricultural marketing development in Tanzania. This study investigates the factors that contributing to the influence of WRS on the market price of raw cashew nuts (RCN). The investigation is based on the determinants of supply, demand, and productivity that affect market price under WRS. The study was conducted in Mtwara region, in southern Tanzania. Two cooperative unions were purposively selected, namely: Tandahimba Newala Cooperative Union (TANECU) and Masasi Mtwara Cooperative Union (MAMCU). A cross sectional survey was conducted to collect primary data from 80 smallholder farmers, 20 primary cooperative societies (PCS), six exporters, six processors, four bank officers: two from CRDB and two from NMB and four warehouse operators. Secondary data were secured from reliable individual and institutional sources. Only descriptive analytical techniques were employed. The analysis shows that despite the differences in respondents' perceptions, the results provide basic answers to the research questions: The perceived supply of RCN has positive influence on the market price, to some extent the cashew nut market price depends on the demand and there is a direct relationship between productivity and market price of RCN under WRS. Consistent with the literature on market economy, the study has succeeded to generalize from a particular situation, the theories which describe the price responsiveness to changes in supply, demand and productivity. However, the WRS is found to be creditable apart from the challenges it faces. The findings suggest that the dimensions of challenges found in WRS must be strategically taken care of so as to avoid radical reversals of agricultural marketing systems.

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### **LIST OF ABBREVIATIONS AND ACRONYMS**

AMSDP	-	Agriculture Marketing System Development Programme
ATM	-	Automated Teller Machine
BoT	-	Bank of Tanzania
CATA	-	Cashew nut Authority of Tanzania
CBT	-	Cashew nut Board of Tanzania
CMA	-	Collateral Management Agreements
CRDB	-	Cooperative and Rural Development Bank
ECGA	-	Eastern Cotton Growing Area
ECX	-	Ethiopian Commodity Exchanges
IFAD	-	International Fund for Agriculture Development
KNCU	-	Kilimanjaro Native Cooperative Union
MAFSC	-	Ministry of Agriculture Food Security and Cooperatives
MAMCU	-	Masasi Mtwara Cooperative Union
MFI	-	Micro Finance Institutions
NAC	-	National Advisory Committee
NAPB	-	National Agricultural and Products Board
NGO	-	Non Government Organization
NMB	-	National Microfinance Bank
ODE	-	Oxford Dictionary of English
OUT	-	Open University of Tanzania
PCS	-	Primary Cooperative Societies
RCN	-	Raw Cashew Nut
SACCOS	-	Savings and Credit Cooperative Societies

SADC	-	Southern African Development Community
SAFEX	-	Southern African Future Exchanges
SAPB	-	Southern Agricultural Products Board
SRCB	-	Southern Region Cashew nut Board
SUA	-	Sokoine University of Agriculture
SS-A	-	Sub-Saharan Africa
TANECU	-	Tandahimba Newala Cooperative Union
TCMB	-	Tanzania Cashew nut Marketing Board
TR	-	Total Revenue
TVC	-	Total Variable Cost
TWLB	-	Tanzania Warehouse Licensing Board
UDSM	-	University of Dar es Salaam
UNCTAD	-	United Nations Conference on Trade and Development
U. A. E	-	United Arab Emirates
URT	-	United Republic of Tanzania
US	-	United States
USD	-	United States Dollar
WCGA	-	Western Cotton Growing Area
WR	-	Warehouse Receipt
WRS	-	Warehouse Receipt System

## **CHAPTER ONE**

### **1.0 INTRODUCTION AND BACKGROUND**

#### **1.1 Introduction**

Agricultural markets in most developing countries have been liberalized since the 1980s. Reforms in the sector focused primarily on dismantling state intervention, with little emphasis on developing institutions that reduce cost and uncertainty in commodity marketing (Coulter and Onumah, 2002). Warehouse receipting is normally part of a package of innovations designed to modernise, and enhance the efficiency of agricultural marketing systems. It can play a very important role in the development of agriculture, by permitting farmers to hold food back to the lean season, allowing them to access markets on more equitable terms, and enhancing the efficiency of the entire commodity value chain (Coulter, 2009).

During 1990s the Warehouse Receipt Systems (WRS) were developed among countries which belong to Sub-Saharan Africa (SS-A) such as Zambia, Malawi, Kenya, Madagascar and Uganda. This was in response to farmers' income instability due to price fluctuations, resulting from the 'free market' economic liberalization. Since prices tend to be low during harvest periods and to subsequently rise, warehouse receipt systems provide a solution by storing commodities for the duration of the low price season. Price volatility and lack of quality standards are attributed to market liberalization in the agricultural sector.

The warehouse receipt system was introduced in Tanzania in 2005 after the law for regulated WRS and formulation of Tanzania Warehouse Licensing Board (TWLB) was passed and followed by its regulations in 2006. It is now five years since WRS was initially introduced in the marketing of raw cashew nut (RCN) in Tanzania. And



it was started to be utilized in Mtwara region by smallholder farmers in 2007/08 procurement season.

It is of my sincere interests from the above mentioned processes and reasons of liberalizing markets for agricultural commodity in developing countries, to study the WRS's factors that influence market price and the welfare of cashew nut smallholder farmers particularly in Mtwara.

## **1.2 Background of the Problem**

The use of warehouse receipts system on marketing of agricultural commodities has a long history. Warehouse receipts system was firstly used in Mesopotamia in 2400 BC (Budd, 2001). Port warehousing companies and freight forwarders have for a long time been involved in a relatively simple system, under which they offered warehouse without any regulatory authority oversight. In recent years, the local subsidiaries of international inspection companies have increased their involvement in WRS, as a result of opportunities created by liberalization of agricultural commodities market in most of the African countries (Coulter and Onumah, 2001). The situation on the ground has revealed that one way to improve agricultural marketing in African countries like Tanzania is to develop a regulated Warehouse Receipts System (WRS) (Coulter and Onumah, 2002).

In Africa, WRS is under collateralized financing and it is the most common model which has been developed around local subsidiaries of international inspection companies (Onumah, 2002). The inspection company sets up Collateral Management Agreements (CMA) which consists of banks, borrowers and a collateral manager. It also allows depositors to secure bank credit. This model rests on the credibility of the

collateral manager namely the inspection company acting as a warehouse operator. There have also been attempts by Non- Government Organizations (NGOs) to establish inventory credit systems for small farmers groups. This has been pioneered by Techno Serve in Ghana. The Techno Serve approach brought major and immediate benefits to the farmers. However, that has not yet been proven economically suitable, because of the small quantity of products (Kwadjo, 2000).

In Tanzania WRS was primarily practiced in Kagera (Bukoba), Mbeya (Mbozi), Ruvuma (Mbinga), Kigoma, Arusha and Kilimanjaro. Observations from these regions have shown that the system has enabled the farmers to get good prices for their products (Lukumbo, 2007). It has also accessed them to loans in commercial banks as a means to reduce poverty. For example, in Manyara (Babati) the warehouse receipt system has had an immediate and positive effect on farmers' incomes. Some have been able to use the credit to venture into new enterprises (IFAD, 2006). Other achievements observed include management of the products' market and price to the satisfactory degree of minimizing exploitation of farmers by deceitful business people and companies (Lukumbo, 2007).

In Mtwara region, WRS started in 2007 when the government introduced WRS for cashew nut marketing. This came after the success obtained in the marketing of other crops like maize, cotton, rice and coffee (Mwangu, 2007). Cashew nut farmers have since then been mandated to sell their cashew nut through primary cooperative societies and selling outside this system is declared illegal (CBT, 2008b). The system was introduced to address problems in cashew nut price and markets which for a great deal made cashew nut farmers disappointed (Mwangu, 2007). However, since the establishment of WRS for cashew nut marketing in Mtwara, studies done

have been scarce and the ones available are based on economic assessment of the WRS for raw cashew nut (RCN) marketing in Mtwara region (e.g. Yusuph, 2009). The question of WRS factors which influence cashew nut price and markets has not been much dealt with in a marketing approach. Therefore, this study seeks to examine the influence of WRS on cashew nut price and markets, by using smallholder cashew nut growers' experiences in Mtwara region.

Cashew nut marketing in Tanzania has a vast and reflective historical development since the early days of independency up to where it is now. In 1962 when Southern Region Cashew nut Board (SRCB) was established, cashew nut local and export marketing was dominated by a chain of private traders and merchants. These acted as middlemen between the growers and buyers abroad. The role of SRCB was to oversee the overall cashew nut marketing process. However, the price issue was mainly dealt with in mutually agreed terms between the local merchants and buyers in India. The agreed terms stipulated a specified consignment of cashew nut and the agreed price (Shoo, 1997).

In 1963 SRCB changed to Southern Agricultural Products Board (SAPB). The government then amended the Cooperative Societies Ordinance. Under this Act the National Agricultural and Products Board (NAPB) was established in 1964. The role of NAPB was to handle, among other crops, cashew nut marketing. The board immediately appointed cooperative societies as its agents or middlemen. The cooperative societies at primary and secondary levels were made monopoly buying agents of the statutory crops, through a single channel marketing system. This system empowered the cooperatives with even the discretion to determine cashew nut price (Chachage and Nyoni, 2001).

As from 1964, the cashew nut marketing system was organized in a pyramidal three-tier system; with primary cooperatives at the bottom, the secondary cooperative societies in the middle and NAPB at the top. NAPB became the sole collector of cashew nut and auctioned the consignment to buyers from India or their representatives in Dar es Salaam. The buyers were required to pay 50% of their purchases direct at the auction; the remainder was to be paid up on shipment. The General Superintendent supervised the shipment and performed quality control (Chachage and Nyoni, 2001). However, in 1965 the public noted that the cooperatives were dishonest, non-democratic and the farmers had no control of them. This failure to win credibility led to a change of the marketing system such that cashew nut marketing was done under compulsory marketing order (URT, 1987).

In 1974, Cashew nut Authority of Tanzania (CATA) succeeded NAPB marketing activities in cashew nut. The cooperative societies remained temporarily the primary buyers, until 1976 when cooperative unions and societies were abolished (Chachage and Nyoni, 2001). After the abolition of cooperative societies, a two-tier system was established. The system encompassed villages officially known as Multipurpose Cooperative Societies on one side and CATA on the other side. CATA had therefore the responsibility to ascertain the farmers with reliability of cashew nut market from the village level. To achieve this, there were people in the villages who were employed by CATA to purchase cashew nut. The mode of payment was on the basis of weight and grade while the storage of the raw cashew nut was done in the village warehouse. The consignment remained in the warehouse until it was transported to CATA main stores in Dar es Salaam and Mtwara; where the cashew nut could either be processed or exported. This marketing system also ensured that at the end of the

season, the required levy which was calculated on the basis of the quantity of cashew nut purchase was paid directly to each village (Chachage and Nyoni, 2001). CATA did not sell cashew nuts at auctions. In the early years when there was no processing capability, CATA sold exclusively to the State Trading Corporation of India. The body supplied raw cashew nut to 200 or more processing factories in the Cochin area of Southern India (URT, 1987). CATA decline started with experiencing considerable transport problems, which contributed to frequent delays in collecting cashew nuts from the villages. This was due to financial problems caused by, among other things, fraud, embezzlement and high overhead costs (Chachage and Nyoni, 2001). In 1985, CATA was replaced by Tanzania Cashew nut Marketing Board (TCMB). Under TCMB, the responsibility of purchasing raw cashew nut was given back to the cooperative unions, through their respective primary societies. This revived a three-tier marketing system. TCMB assumed the responsibility of buying cashew nut from unions, processing and exporting raw and processed cashew nuts. The board by then did external marketing by requesting tenders usually by telex, for specific consignment on the basis of specific grades and geographical origin of the cashew nuts; from a limited number of companies. Additionally, the system demonstrated weakness to farmers on the grounds of low prices and late payments due to inefficiency and poor financial position of the cooperatives. As a result, some farmers declined from cashew nut growing and opted for other non-controlled but paying crops (Chachage and Nyoni, 2001). In 1991/92, the government liberalized cashew nut marketing by introducing the agency system in the export of the crop. This act made cashew nut the first traditional export crop to be liberalized. Private traders were allowed to buy and export cashew nuts. They were allowed by the Bank

of Tanzania to retain 10% of the foreign currency with the processed cashew nuts. In 1993, TCMB became Cashew nut Board of Tanzania (CBT). With liberalization, CBT was transformed into a regulatory body, with the assignment of ensuring that grading regulations, buying procedures, processing guidelines, export procedures and general marketing guidelines were adhered to by the stakeholders in the industry. Additionally, CBT set itself a task of announcing an indicative price every season, an aspect, which was meant to ensure that the producer did not get paid an unfair price. There was also a notable improvement by the regional authorities in the payment of taxes and genuine contributions within the first year of liberalization of the crop (Chachage and Nyoni, 2001). Under CBT cashew nut marketing was run through liberalization until 2007/ 2008 when the government introduced Warehouse Receipt System (WRS) for cashew nut marketing in Mtwara region (Mwangu, 2007). Cashew nut farmers have since then been mandated to sell their products through primary cooperative societies and any selling beyond this system is declared illegal (CBT, 2008b). The WRS was introduced to address dissatisfaction of cashew nut farmers caused by exploitation done by private buyers and middlemen for several years. Observations have revealed that WRS has successfully controlled the cashew nut price and market in the region, hence revitalized cashew nut farmers' expectations (Mwangu, 2007). This study will therefore examine factors in the WRS which influence cashew nut price and markets in Mtwara region.

### **1.3 Statement of the Problem**

Among the importance of WRS is the eradication of cheating on weights and measures from which disadvantage smallholders suffer, and also reduces storage

losses. It eases access to finance at all levels in the marketing chain (producer, trader and processor levels), and encourages the injection of much needed liquidity. Trade margins are reduced and seasonal price variations are moderated to the benefit of producers and consumers. Producers and other players are able to mitigate price risks and participate in a modern and more efficient agricultural trade (both locally and in the sub-region) with certified warehouse guaranteeing contract performance. Small producers are major beneficiaries, though the balance between direct and indirect benefits accrued has to be established through practical experience (Coulter and Onumah, 2002). Furthermore, the WRS is an important contribution to improved agricultural commodity trade, reducing market instability and the political risks. Through encouraging a strong and efficient private trade, it reduces the role of government in agricultural markets. Where strategic food reserves need to be maintained, the WRS makes its management more cost-effective by reducing the organizational infrastructure and funding needed, as well as reducing rent-seeking by public officials (Onumah, 2002).

The introduction of WRS in Mtwara region was strategized on improving raw cashew nut (RCN) price and marketing. As an earlier outcome of WRS, Mtwara accounted for more than 58.34% of total cashew nut export in Tanzania in the production year 2007/2008 (CBT, 2008a). The export volume of cashew nuts was also improved to 58,278 tons, in comparison with 54,005.988 tons of the previous production year 2006/2007 (CBT, 2008b); before WRS was introduced. Additionally, the Bank of Tanzania economic review (BoT, 2008) also recognized the immense increase in cashew nut export which led to the raising of the total value of traditional exports by 8.7% to USD 54.7 million. Furthermore, evidence from

other crops like maize, cotton, rice and coffee (Mwangu, 2007) has also shown that WRS has success on the marketing of agricultural products. These facts make the need to examine factors for the success of WRS in cashew nut marketing obligatory. Despite the achievement of WRS in the improvement of raw cashew nut marketing being perceptible; the problem of price fluctuation is still persisting due to unreliable markets. Also cashew nut farmers have remained to be “price takers” and not “price setters”. This study will therefore investigate the influence of WRS on raw cashew nut price and markets; basing on Mtwara smallholder cashew nut growers perception. It will attempt to find out why smallholder cashew nut growers in Mtwara region have rapidly adhered to using WRS for marketing their products. To answer this question, three issues namely stability of the cashew price, reliability of the cashew markets and credibility of WRS to smallholder cashew nut growers will be addressed.

## **1.4 Objectives of the Study**

### **1.4.1 General Objective**

The general objective of this study is to investigate on the factors that contribute to the WRS’s influence on the price of raw cashew nut in Mtwara region.

### **1.4.2 Specific Objectives**

The study will specifically attempt to:

- i. Evaluate the influence of WRS on the supply of raw cashew nut in the markets.



- ii. Determine the relationship between WRS and the demand for raw cashew nuts in the markets.
- iii. Examine the influence of WRS on the productivity of raw cashew nuts' marketing.

### **1.5 Research Questions**

To address the research objectives, this study will be guided by the following main research questions:

- i. Does the perceived supply of raw cashew nuts have positive influence on the market price under WRS?
- ii. To what extent do the cashew nut market price depends on the demand under WRS?
- iii. Is there a direct relationship between productivity and the market price of raw cashew nut under WRS?

### **1.6 Significance and Justification of the Study**

There has been scarcity of studies done to address issues on cashew nut growing, processing and marketing; despite the significance of the crop itself to the national economy and poverty alleviation. By surveying the perception and participation of smallholder cashew nut growers this study will contribute to the knowledge in cashew nut marketing under WRS. It is anticipated that success in this study will shed light on relevant factors for success of WRS in the marketing of cashew nut, hence rescue smallholder growers from exploitation by deceitful business people and companies. The study will be made available for local and international stakeholders

in cashew nut marketing to access relevant information on the role of WRS in the maintenance of stable cashew nut price and reliable markets and whether the said success has any productivity on the bases of smallholder growers' assessment. Also this study will help researchers, policy and decision makers to enhance the effectiveness and efficiency of the marketing delivery and recovery mechanisms of various market institutions for agricultural commodities.

### **1.7 Organization of the Report**

The rest of the paper is organized as follows: Chapter 2 presents a framework consisting of definitions and concepts of key words. Also two strands of literature; empirical studies of Warehouse Receipt System and a relevant theoretical review. Chapter 3 outlines the methodology consideration of the study, including the approaches used for the sampling procedures, the data collection and the analysis. Chapter 4 presents the results and discussion around the conceptual framework. Finally, chapter 5 concludes the study by summarizing key research findings and drawing recommendations based on the study's finding.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Concepts and Definitions of Keywords

This section describes definitions and concepts pertaining to WRS, market and price in relationship to their (i) independent variables observed in WRS such as supply, demand, and productivity (ii) dependent variables like market and price and (iii) their outcome to cashew nut smallholder farmers' welfare.

##### 2.1.1 Warehouse Receipt (WR)

From the above definitions of WRS, it seems one of the major and most important components is the warehouse receipt then it is not bad for this study to discuss a few on concepts of WR as it had been defined by other scholars such as Goggin (2011) who addressed a number of definitions of a warehouse receipt, including the following: -

A warehouse receipt is a document that provides proof of ownership of commodities (e.g., bars of copper) that are stored in a warehouse, vault, or depository for safekeeping; he also defined WR as a document certifying possession of a commodity in a licensed warehouse that is recognized for delivery purposes by an exchange; and is another form of documentation indicating ownership of a commodity at an approved warehouse or other storage facility.

Other scholars define WR as follows:

Kiriakov (2007) said is a written evidence of goods held in a warehouse operated by a third party. The goods may be in a public (i.e., general), private, or field

warehouse. Also known as collateral receipts. The receipts may be negotiable or non-negotiable. Negotiable warehouse receipts are bearer instruments;

Mbulumi (2007) defined WR as a receipt issued by a warehouse listing goods received for storage, or handling or shipment;

TWLB (2005) confirmed WR as a receipt of commodities deposited in a warehouse, identifying the commodities deposited. It is non-negotiable if permitting delivery only to a specified person or firm, but it is negotiable if made out to the order of a person or firm or to a bearer;

Onumah (2002) elaborated WR as a document guaranteeing the existence and availability of a given quantity and quality of a commodity in storage; commonly used as the instrument of transfer of ownership in both cash and futures transactions; and Onumah *et al* (2003) emphasized that WR is a receipt of commodities deposited in a warehouse, identifying the commodities deposited. Endorsement (without endorsement if made out to bearer) and delivery of a negotiable warehouse receipt serves to transfer the property covered by the receipt. Warehouse receipts are common documents in international banking.

According to the pilot marketing system that was conducted in Tanzania by the Ministry of Agriculture Food Security and Cooperatives (MAFSC, 2008); warehouse receipts give farmers the option of holding back their produce if prices are low and can get approximately 60% to 80% funding of the value of their produce from banks. A warehouse receipt also guarantees the existence of a given quantity and quality of a commodity in storage for safe keeping and is often used in cash and futures transactions. In that perspective, Dayrobinson (2003) summarizes that warehouse

receipts are crucial elements for risk mitigation and enabling a financier to lend to a borrower because banks will lend against crop stored in a reliable warehouse.

In this study an ideal WR contains: the location of the warehouse where goods are stored; the date of issue of the receipt; the serial number of the receipt; a statement whether the goods received will be delivered to the bearer or to a specified person's order; a short description of the goods or of the packages containing them; the registered signature of the authorized warehouse operator; the nature and fact of ownership of the goods, whether solely or jointly or commonly owned with others; and a statement as to the amount of advances made and of liabilities incurred (URT, 2005).

### **2.1.2 Depositor**

The depositor is any person who deposits a commodity in a warehouse for storage, handling or shipment, or who is the owner or legal holder of an outstanding WR, or who is lawfully entitled to possession of the commodity (URT, 2005). The depositor may be a producer, farmer, exporter, processor or indeed any individual or body corporate (Coulter and Onumah, 2002).

### **2.1.3 Warehouse Operator**

Warehouse operator is any person engaged in the business of operating a warehouse for receiving, storing, shipping or handling of commodities for compensation and includes the agent or employee the scope of whose actual or apparent authority renders such person to exercise rights or become liable under the Act (URT, 2005). The warehouse operator holds the stored commodity by way of safe custody;

implying he is legally liable to make good any value lost through theft or damage by fire and other catastrophes but has no legal or beneficial interest in it (Coulter and Onumah, 2002).

#### **2.1.4 Warehouse**

Warehouse is any building, structure or other protected enclosure approved by the warehouse licensing board to be used or useable, for the storage or conditioning of commodities or buildings used in relation thereof or including operation of the warehouse (URT, 2005).

According to the Bamako report (2000), warehouses operate in a number of ways. Each type of warehouse provides the customer with a different range of security and services.

#### **2.1.5 Warehouse Receipt System (WRS)**

The Warehouse Receipt System is one among the market institutions that offers a significant potential for the enhancement of the functioning of commodity markets. Kiriakov (2007) describes the concept of WRS as a system that is based on the use of storage facilities, licensed as public (i.e. general use) warehouses, which receive the right to store commodities of third parties and issue warehouse receipts.

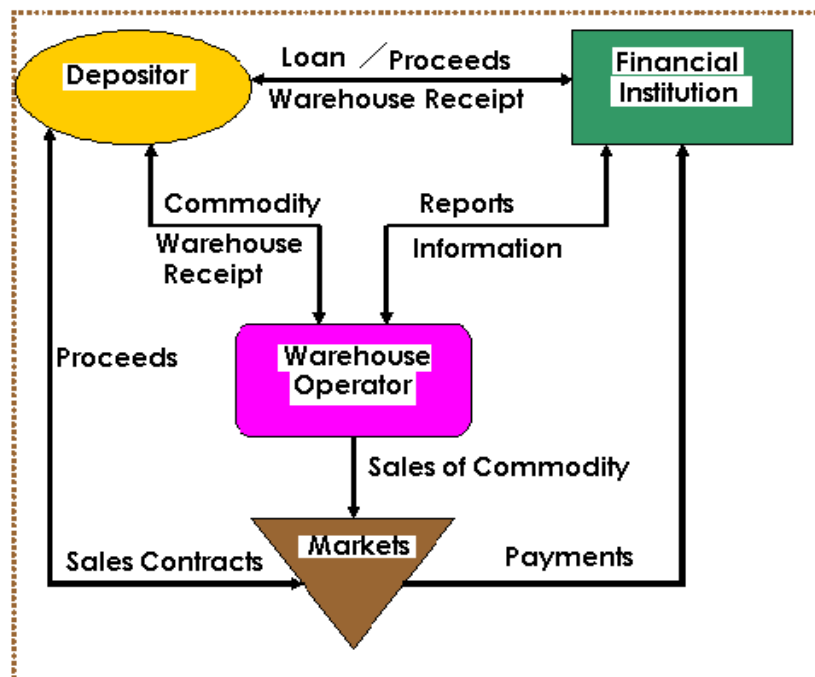
Kuserwa (2009) defines WRS as a market system whereby commodities are deposited in a designated warehouse that enables the access of credit (collateral) to the depositor while awaiting for reasonable market price. Basically, the systems involves the issuing of documents, Warehouse Receipts (WR), as evidence that specified commodities of stated quantity and quality have been deposited at a

particular location by a named depositor(s). Depositors may be a producer, a farmer group, a trader, a processor or particularly any individual or corporate body.

### **2.1.6 How the Warehouse Receipt System works**

There is however more considerations on how the WRS functioning rather than its components such as warehouse and receipt. It is of great importance to know how it works and who are the key players. Warehouse receipt systems facilitate the food supply chain and involve the following parties; in this study the first party is the depositors which consisting of farmers through primary cooperatives. Second party is the warehouse operators and third party is the financial institutions these are commercial banks (NMB and CRDB). Fourth party is the buyers (exporters, processors, traders) in the market. The accepted WRS model being promoted by the TWLB works as follows (URT, 2005): The farmers deposit their cashew nut which meets defined quality standards at designated warehouses. Then the Warehouse Operators issue Warehouse Receipts to farmers stating the quantity and quality of cashew deposited so as to guarantee delivery of the cashew described therein (TWLB, 2006). Hence, if the depositor requires short-term financing, he/she can obtain an advance representing a percentage of the prevailing market value of the commodity from a bank, using the deposited cashew as collateral (Garcia, 2006). The depositor can wait until such time when market conditions are conducive to sell their cashew. Where the depositor borrowed using the cashew as collateral, it will be required that payment for the commodity is channeled through the financing bank. If selling is successful the bank deducts the loan advanced and any accrued interest and other charges before crediting the account of the depositor with the balance (TWLB,

2006). For a depositor who has not borrowed against the stocks will be entitled to the full proceeds from the sale but has to pay warehouse storage fees (Onumah, 2002). And depositor is also responsible for the cost of transporting cashew to the warehouse and storage charges. The “Figure 1” below illustrates how the WRS works while showing the relationships among key players in general environment.



**Figure 1: Accepted Warehouse Receipt System Model**

**Source:** Tanzania Warehouse Licensing Board (TWLB, 2006)

### 2.1.7 The Markets in Raw Cashew Nuts

The WRS is one type of the market systems. Therefore it cannot be discussed without a touch of some concepts of market. Sullivan et al, (2003) defines market as follows: is one of many varieties of systems, institutions, procedures, social relations and infrastructures whereby parties engage in exchange of goods and services.



Markets differ in form, scale (volume and geographic reach), location, and types of participants, as well as the types of goods and services traded (Svedberg, 2004). Examples are the cashew auction markets.

### **Cashew Auction**

Indeed, the concept of market is any structure that allows buyers and sellers to exchange any type of goods, services and information. Cashew auction participants consist of all the buyers and sellers of cashew who influence its price. This influence is a major study of economic markets and has given rise to several theories and models concerning the basic market forces of supply and demand (Callon, 2008).

The type of auctions in cashew are known as blind auctions whereby sellers provide sales' catalogues with detailed information of cashew availability. Buyers collect, fill and return them (catalogues) accordingly back to seller through tender box so as to wait until auction day when they are going to be opened to get the winners. The highest bidder is always the winner of the auction (CBT, 2010).

#### **2.1.8 Pricing in Cashew marketing**

There are several descriptions for price as elaborated by (Balasooriya, 2010) such as; "The amount which is given up in an exchange to acquire a good or service", "Price is the value placed on what is exchanged", "The amount of money charged for a product/service", "The sum of the values that consumers exchange for the benefits of purchasing and/or using the product/service".

Stanton (2009) defines price as the amount of money or goods needed to acquire some combination of another goods and its accompanying services. Price is the element

of the marketing mix which is stable in certain period but at one moment the price might be increase or decrease.

Kotler and Caslione (2009) conclude that, “economists built price theory with equilibrium in mind. If oversupply occurs, producers will cut their prices. Sales will increase, thus absorbing the oversupply. Conversely, if a shortage occurs, producers will raise their prices to a level that will balance demand and supply. Equilibrium will prevail. In this study price refers to “The value paid for a product in a marketing exchange,” as it typically fits for the economic theory. There are four different terms of price in cashew marketing, these are farm gate price, benchmark price, ex-warehouse price and export price (CBT, 2010).

### **Farm gate Price**

Farm gate price is the term used in cashew marketing to fix farmers price at their farms or fields. Farm gate price sometimes known as indicative price is strategically set according to cost of production and market demand per kilogram of cashew (CBT, 2010). Farm gate price used to provide reference point for calculations of other overhead costs in the cashew market.

### **Benchmark Price**

The benchmark price is used as a criterion to accept price offered by buyer in the cashew auctioning. It is a sum of farm gate price, overhead costs and profit margin. The overhead cost is the total of market expenses and administrative costs including

taxes and levies. Profit margin is calculated at 20% to 25% of the sum of farm gate price and overhead costs (CBT,2010).

### **Ex-warehouse Price**

According to CBT (2010) the ex-warehouse price is obtained in the cashew auctions. This price is supposed to be not less than benchmark price. When the ex-warehouse price is above the benchmark price then farmers are going to enjoy third payment or bonus. The other way round when the ex-warehouse price is below the benchmark price farmers are going to suffer loss but their farm gate payments are supposed to be the same as longer as the set up of farm gate price was properly done. Therefore, ex-warehouse price can be considered as market price in cashew marketing. Economic theory asserts that in a free market economy the market price reflects interaction between supply and demand (Stanton, 2009).

### **Export Price**

The export price is not other than Freight On Board (FOB) price. The export price is the inclusion of export levies, cargo and shipment handlings charged on raw cashew nuts.

#### **2.1.9 Price mechanism between buyers and sellers**

Price mechanism is an economic term that refers to the buyers and sellers who negotiate prices of goods or services depending on demand and supply (Shaw, 2008).

A price mechanism or market-based mechanism refers to a wide variety of ways to match up buyers and sellers through price rationing.

An example of a price mechanism is an auction of raw cashew nut in WRS that uses announced bid and ask prices. Generally speaking, when two parties wish to engage in a trade, the purchaser will announce a price he is willing to pay (the bid price) and seller will announce a price he is willing to accept (the ask price).

Price Mechanism causes many changes in the economic environment. If there is an increase in demand, then prices will go higher causing a movement along the supply curve (Pettinger, 2009).

#### **2.1.10 Importance of Price to Marketers**

Hereunder are the importance of price to marketers:

The only element that the marketer can often change quickly in response to demand shifts is price. And price relates directly to Total Income (I) equals to Price (P) multiply by Quantity (Q) and subsequently affect Profits ( $\Pi$ ) that equals to Total Revenue (TR) minus Total Variable Cost (TVC) which is summarized to general equation of Profit ( $\Pi$ ) =  $[P * Q] - TVC$ . Also price is only one of the marketing mix tools that a firm uses to achieve its marketing objectives.

To sum up: The mechanism of market prices is composed of the following: The price of a product is determined by the supply and demand in the market. The supply represents the quantity of products offered on the market. The demand represents the willingness to buy the same products by the consumers, on the market (Galor, 2009). The price of the product on the market is not the price that the producer receives. The market price of a product is determined by the law of supply and demand. For

instance the price the cashew producer receives is lower than the market price in selling cashew through WRS due to deduction of costs and other expenses (CBT, 2010). Therefore the market price of the raw cashew nut sold in WRS implies the evidence of inclusion of all the costs and profit margin. In other words profit is a surplus of productivity whereby the ratio of output (quantity and price) to input (capital, labour, and land) per unit is determined (Genesca *et. al*, 2002).

### **2.1.11 Productivity**

Productivity according to the American Heritage (2005) Cultural Dictionary is defined as: In business, a measure of worker efficiency, such as one hundred units per hour. In economics, involvement in the creation of goods and services to produce wealth.

Saari (2006a) defines productivity as a measure of the efficiency of production and it is a ratio of production output to what is required to produce it (inputs). Therefore measure of productivity is defined as a total output per one unit of a total input.

Schreyer (2005) emphasizes that productivity can be seen not only as a measure of efficiency but also as an indicator of economic development.

These definitions are short but too general and insufficient to make the phenomenon productivity understandable. In order to obtain a measurable form of productivity, operationalization of the concept is necessary (Saari, 2006). In explaining and operationalizing a set of production models are used. A production model is a numerical expression of the production process that is based on production data, i.e. measured data in the form of prices and quantities of inputs and outputs.

Critically, productivity cannot be examined as a phenomenon independently but it is necessary to identify the entity it belongs to. Such an entity is defined as production process which resulting into market value process (Saari, 2011). In the context of this study the costs of both production and market value processes are considered to have effects on market price. The higher the production costs the lower the productivity and vice versa. This implies that productivity has positive relationship to supply – The higher the productivity the higher the supply and the lower the productivity the lower the supply. At last productivity has somehow proven to have factors that affect price and quantity in marketing of cashew under WRS hence smallholder farmers' profits and benefits.

## **2.2 Overview on Successful Functioning of WRS**

Many studies in WRS were mainly done on formulation, functioning, financing and legal frameworks but very few were done on evaluating market and price related to theories of demand and supply instead they proved that the market price is becoming better under WRS. The study by Mbulumi (2007) illustrated that the potential benefit for the WRS with the case of paddy smallholder farmers at Chimala (Mbarali District) which showed that farmers could potentially increase house hold income by almost 30% if they directly use the WRS in marketing their produce. That was possible because they were able to defer sale to take advantage of rising prices as they could obtain inventory credit to satisfy immediate consumption and other needs. The study adopted participatory approach while taking into consideration the nature of AMSDP Programme Implementation Manual. The combination of data collection methods and techniques were used which involved discussions with various key

players at different levels. Individual and focus group discussions (with both beneficiaries and non beneficiaries) were conducted. Informal discussions with key informants and field observations were also conducted in order to enrich the findings of his study.

According to a study by Coulter and Onuma (2002) on functioning of WRS by using logistic regression observed that producers in most developing countries lack the means to mitigate price risk, and this affects their income and ability to repay loans. A WRS will facilitate development of simple mechanisms by which producers, lenders and traders can secure a floor price by locking in a fixed future price. Forward contracts and over the-counter put options can be used for this purpose, but the former entails substantial performance risks-producers have strong incentives to renege on forward contracts if prices rise significantly above the fixed future price or they may simply fail to deliver according to specification. Warehouse operators can mitigate such risks by guaranteeing delivery against forward contracts.

Onumah and Temu (2008), in their study on Reducing Marketing Constraints and Enhancing Producer Income by using descriptive analysis, observed that the WRS initiated in Mtwara region, in 2007, with the objective of enhancing the efficiency of the primary marketing system for raw cashew nuts. As far as could be ascertained during a short period, the system had been successful in raising prices to farmers, though part of the increase was permitted by favourable world prices in 2007/08. One drawback is that it has halted the establishment of outgrower schemes linking buyers and farmers, and which help the latter raise productivity and improve nut quality. The politically-sensitive system of minimum pricing does not sit well with a

WRS which seeks to be market-driven, and in 2008/09 this resulted in a costly stand-off with buyers.

However, this study will use descriptive statistics to evaluate the market forces (i.e. demand and supply) and also assess the productivity that influence price equilibrium in marketing cashew under WRS.

### **2.2.1 The Effects of Supply to the Market Price under WRS**

The study that was done by UNCTAD (2004) on improving the trade poverty relationship through national development strategies in Mozambique, using descriptive statistics they revealed that, market price in the cashew industry through WRS relies heavily on the quality of the supply (i.e. Standard Grade, for raw cashew nuts). To achieve this, requires improving the input procurement process by identifying big cashew enterprise areas; improving access to credit/loan provision facilities; adequate training on the WRS to all cashew stakeholders.

However this study is going to use descriptive statistics so as to see whether there is significant difference of perception on supply as one of the factors affecting price of raw cashew nut among the key players under the WRS. Determinants of supply other than price will be investigated as suggestions from respondents to see their impacts on the same.

### **2.2.2 The Influence of Demand and Quantity sold under WRS**

Coulter and Onumah (2002) studied on the role of WRS in enhanced commodity marketing and rural livelihoods in Africa using returns on warehouse investment; they observed that WRS involve major scale economies, both in terms of managing



warehouses and providing regulatory oversight or certification. Indeed the management and regulatory costs associated with 1,000 and 10,000 tons warehousing sites are not very different but variable costs differ very significantly. The issue of scale economies calls for further action-research. Through practical experience of schemes like the one in Zambia, it is possible to explore means of reducing costs and ascertain the limits in terms of scale. However, as the authors call for further action-research, they didn't go beyond explaining on how to cope with such economies of scale to the level of quantity to be produced as well as the quantity to be sold. This study is going beyond economies of scale by using a descriptive analysis. Descriptive analysis will be used to determine perspectives accumulated by each group among key players under WRS in concluding the extent that demand influences the cashew nut market price.

### **2.2.3 Productivity versus Market Price in marketing cashew under WRS**

The study which was done by Yusuph (2009) using the combinations of t-test, linear regression models, and Gross Margin analysis on economic assessment of the WRS in Mtwara, Tanzania showed that the profit accrued from the WRS was highest for banks followed by processors and third exporters. Primary cooperative societies ranked fourth followed by input suppliers. The last were farmers. His study based on measuring Gross Margin per each and every player from their different sources and comparing their profitability among themselves. Also productivity was analyzed according to socio-economic factors. This study is quite different because it is going to evaluate the influence of productivity in relation to the market price in marketing cashew under WRS. This study will also use descriptive analysis to discuss the

relationship between smallholder farmers' perspective and other key players' perspectives on the influence of productivity towards market price of cashew under WRS.

#### **2.2.4 Global Experience on Warehouse Receipt System**

Although recently there has been a considerable experience with warehouse receipts schemes in Poland, Hungary, Slovakia and Bulgaria, the experience of WRS in developing countries is still limited. However, the little available provides important experience on the impact of government interventions like in the past, sophisticated agricultural markets, including thriving future markets, once flourished in India. More recently, the government interventions in setting and maintaining domestic prices have displaced the economic viability of many storage schemes and limited the demand for the inventory-based credit. In Mali, credit systems were established in 1997, basing partly on inventory receipts. However, a number of government-imposed conditions and delays made the system ineffective.

Several countries in Latin America have introduced WRS. Argentina's WRS accounts for a significant portion of agricultural lending where total receipts issued now exceed USD 1 billion. Brazil's legislation dates back to 1903 but its systems have deteriorated because of political intervention and bureaucratic entanglement. In some cases, however, the receipts are not widely used because of the low return to storage resulting from government policies, high interest rates, inadequate legal environment (i.e. collateral laws, liquidation procedures and property rights) and lack of informal grades and standards.

In the United States, the WRS has been in place since 1916. Its usefulness in the economy has been well established. For instance, it is widely recognized that the United States (US) would have found it difficult to manage and liquidate the huge grain inventories its farmers accumulated during the mid-1980s, in the absence of a system of warehouse receipts as negotiable instruments. US warehouse code requires that every commodity receipt should contain the location of the warehouse; date of issuance; consecutive number of the receipts; statement guaranteeing delivery of the product to the bearer, to a specified person or to the order; storage rate; and the quantity, weight, grade, or class of the product. In addition to the statement that the receipt is the subject to the warehouse law and the signature of the licensed warehouse operator, the receipt also must identify the ownership of the warehouse and specify the amount of the advance and the liabilities incurred (Rick *et al.*, 2007).

The integrity of the WRS in US is enhanced by the presence of performance guarantees which are usually posted as insurance bonds, sometimes supplemented with an indemnity fund. These funds are created through contributions of participating warehousemen, collected as part of the fees they charge for their services. The funds are used either alone or as secondary guarantee alongside insurance bonds. In the latter case, they reduce the cost of the main guarantee instrument, the insurance bond, making the provision of guarantees accessible to smaller warehouses. This broadens the market for warehouse services and increases competition in the storage industry (UNCTAD, 2002).

Dilber (2007) points out that, warehouses in Germany and France are shaped by the relatively high labor costs and inflexibility of the work force. In the past, the economies of Europe were separate, more recently the economies are integrating into

a common market, which creates economies of scale, that lead to larger warehouses. However, urban areas, many of which have grown out of ancient towns, will still present challenges to the efficient flow of product.

In Zambia, warehousing services are accessible to various depositors of different sizes: producers, processors, and traders with the minimum sizes of grain deposit between 10 and 30 tons. Only commodities that meet prescribed weight and grading standards are receipted. Warehouse operators and their front-line staff (samplers, graders and weighers) are trained and certified in commodity quality and quantity assurance to facilitate enforcement of commodity standards.

#### **2.2.5 WRS Experience in Tanzania**

In the coffee sub sector, the system is working smoothly for all key players including farmers' groups, small scale traders, cooperative unions, primary cooperative societies, and licensed private companies (MAFSC, 2008). Four warehouses: Mbozi Coffee Curing Company Ltd (Mbeya), Mbinga Coffee Curing Company Ltd (Ruvuma), Tanganyika Coffee Curing Company Ltd (Kilimanjaro, Arusha, and Tanga), and Kanyovu Coffee Joint Venture Company Ltd (Kigoma) have been approved by the

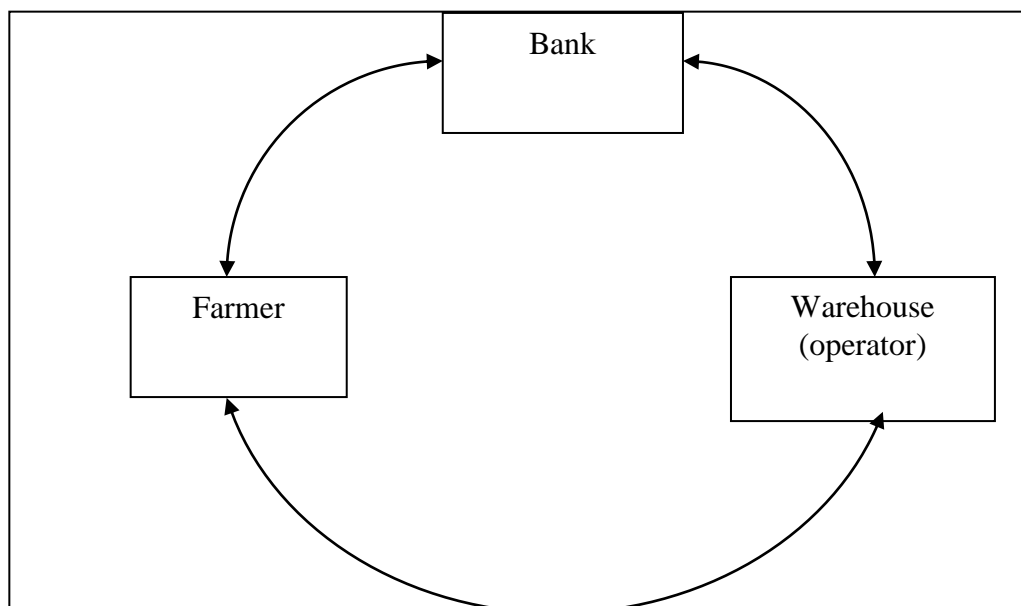
National Advisory Committee to provide collateral management services to the interested trader and coffee farmers. The services are provided at a fee which ranges from one to three Tanzania Shillings per kilogram of parchment coffee delivered to these warehouses per season. The performance of the system is very successful because none has suffered loss for the past three years. Also different stakeholders have managed to pay back the loan facility from the lending bank (MAFSC, 2008).

In the cotton sub sector Tanzania has two main growing areas namely the Western Cotton Growing Area (WCGA) and the Eastern Cotton Growing Area (ECGA). The system is now tested in the ECGA whereby Kilimanjaro Native Cooperative Union (KNCU) ginnery as warehouse operator where farmers are depositing seed cotton. CRDB bank (Arusha branch) is a financing bank which honours the receipt submitted to the bank by the authorized leader of the Oridoy Primary Cooperative Society (MAFSC, 2008).

## 2.3 Review of Empirical Studies

### 2.3.1 The Organization of Warehouse Receipt System (WRS)

The system is made up of the farmer, the warehouse and the financial institution as illustrated in “Figure 2”. Garcia (2006) argues that all kinds of cash crops are inevitably linked to warehouses. As such cash crops like cashew nut play a significant role to make the system work.



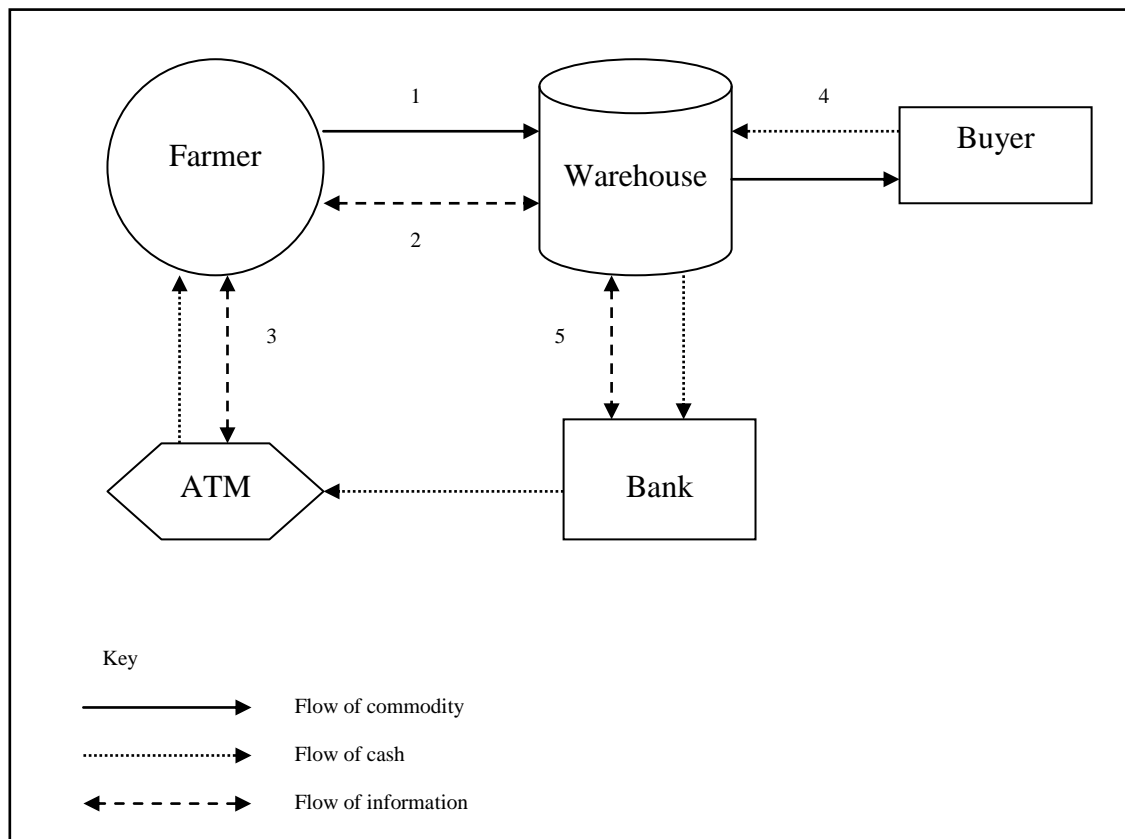
**Figure 2: The Organization of Warehouse Receipt System (WRS)**

**Source:** Coulter and Shepherd (1995).

Garcia (2006) identifies three primary key players under the WRS namely: the farmer, the bank or financial institution and the warehouse. Dayrobinson (2003) outlines that farmers face mainly two kinds of risks: firstly, the price instability because the difficulty to forecast the selling price of the commodity that would be produced. Secondly, the physical risk of loss or damage to the crop due to weather conditions, harvesting losses and storage or handling. Although the literature does not mention, these risks link the farmer with other key players in the process of making the system manage the same. Relating the risks outlined by Dayrobinson (2003) with WRS as illustrated in “Figure 2”, the farmer needs the bank or financial institution for the prediction of the selling price and access to credit. The farmer also needs the warehouse for the secured storage of the crops which the bank will use them as security for the accessed loan. On the other hand the bank and the warehouse need the farmer for business transactions in the same way the bank and the warehouse need each other.

### 2.3.2 Supply Chain in the Warehouse Receipt System

Garcia (2006) identifies the interaction of the primary key players under the WRS as illustrated in “Figure 3”. The flow accesses the farmer and other key players with relevant information about marketing of the crops, the value of the crops, access to loan and mode of payment.



**Figure 3: Supply Chain in the Warehouse Receipt System**

**Source:** UNCTAD (2002).

The following flows of relationships between the primary key players are identified:

- (i) At harvest the farmer delivers his crop into a licensed warehouse.
- (ii) The warehouse operator registers the quality, quantity and location of the crop on a smart card, which acts as a physical proof of ownership of the crop and informs of the accessibility of credit.

- (iii) To receive the payment in cash, the farmer inserts the smart card in the Automated Teller Machine (ATM).
- (iv) Before the due date of the loan or when the buyer needs the crop, the farmer sells the crop consulting with the bank.
- (v) After the buyer has paid for the crop and storage services; the warehouse operator makes the transaction to the bank for the value of the crop and the bank pays any exceeding amount as a profit to the farmer.

### **2.3.3 Different Models used in Studies done on WRS**

In recent years, many studies on WRS have been focused on its feasibility at different locations for marketing different commodities. Basing on the factors that contributing to the influence of WRS on market price, very few analytical works have been done. Different methodologies have been suggested and adopted for feasibility studies related to WRS. For example, Mark (2002) conducted a feasibility study for a regional warehouse receipt program for Mali, Senegal, and Ghana in West Africa and used a distributed analysis model to assess the feasibility of WR program in the three countries of West Africa. The study revealed the roles of producers, traders, processors, and bank institutions in the WR program. The study in addition addressed the requirements for adopting a WR program to facilitate an efficient cross border trading system.

Garcia (2006) conducted a feasibility study on grain receipts for corn producers in Mexico using an abductive approach with both qualitative and quantitative methods. The broad picture about agricultural activities, post harvest practices, how farmers



finance their agriculture, and how they perceive the WRS and its feasibility was obtained.

Giovannucci *et al.* (2005) conducted WRS analysis for facilitating credit and commodity markets using the general equilibrium model. The study sets out the critical conditions for the success of a WRS and illustrates the roles of the key actors in setting up and running such a system.

Coulter *et al.* (2000) used a predictive model that deployed discriminative analysis to articulate a strategy for the development of a WRS for agriculture in India. The study based on the feasibility of developing a WRS in India. The conclusion was that WRS makes more willing banks to lend the agricultural sector, reduce transaction costs and improve price-risk management. WRS can also play an important part in new policies which would make agriculture more responsive to market opportunities and more competitive in relation to the world markets. Eventually the potential net benefits of WRS to the economy are large.

However, this study used descriptive model to answer the research questions while using both quantitative and qualitative analyses. Quantitative analyses were merely used for percentage and frequency of occurrence in summarizing results on itemized rating scales. Qualitative analyses were based on the use of cross-tabulations in exploring the respondents' perceptions.

## **2.4 Review of Relevant Theories**

### **2.4.1 Introduction**

This section emphasizes the reasoning in which general rules are drawn from a particular situation (i.e. induction) according to ODE (2007). The theories on Supply

and Demand are discussed to elaborate on how the factors that contribute to the WRS influence on market price of raw cashew nuts.

#### **2.4.2 The Overview of Supply and Demand**

The most basic theories in economics are the theory of supply and the theory of demand. Indeed, almost every economic event or phenomenon is the product of the interaction of these two theories (Alchian, 2006). One function of markets is to find “equilibrium” prices that balance the supplies of and demands for goods and services. An equilibrium price (also known as a “market-clearing” price) is one at which each producer can sell all he wants to produce and each consumer can buy all he demands (Alchian, 2006).

Historically according to Hosseini (2003), the power of supply and demand was understood to some extent by several early Muslim scholars, such as fourteenth-century Mamluk scholar Ibn Taymiyyah, who wrote:

"If desire for goods increases while its availability decreases, its price rises. On the other hand, if availability of the good increases and the desire for it decreases, the price comes down."

Humphrey (2002) describes the phrase "supply and demand" was first used by James Denham-Steuart in his *Inquiry into the Principles of Political Economy*, published in 1767. Adam Smith used the phrase in his 1776 book *The Wealth of Nations*, and David Ricardo titled one chapter of his 1817 work *Principles of Political Economy and Taxation* "On the Influence of Demand and Supply on Price".

In *The Wealth of Nations*, Smith generally assumed that the supply price was fixed but that its "merit" (value) would decrease as its "scarcity" increased, in effect what was later called the law of demand also, Ricardo, in *Principles of Political Economy and Taxation*, more rigorously laid down the idea of the assumptions that were used to build his ideas of supply and demand. Antoine Augustin Cournot first developed a mathematical model of supply and demand in his 1838 *Researches into the Mathematical Principles of Wealth*, including diagrams. Professor Fleeming Jenkin in his 1870 essay "On the Graphical Representation of Supply and Demand", in the course of "introducing the diagrammatic method into the English economic literature" published the first drawing of supply and demand curves therein, including comparative statics from a shift of supply or demand and application to the labour market (Brown *et al*, 2000). The model was further developed and popularized by Alfred Marshall in the 1890 textbook *Principles of Economics* (Humphrey, 2002).

### **2.4.3 Supply**

The amount of goods and services firms are able and willing to produce at a given level of prices over a period of time is called Supply (Mankiw, 2008). In a scenario, where the price of a good or service is higher, with all other conditions remaining the same (*ceteris paribus*), the greater the quantity is supplied. This is called the "theory of supply". This theory demonstrates the direct relationship existing between the price and the supply of product. Its graphical representation is called the supply curve, which is an upward sloping curve due to the direct relationship (Investopedia, 2003).

#### **2.4.4 Demand**

The willingness of consumers to buy a particular good is called demand (Mankiw, 2008). The most important factor influencing the consumer buying decision is the price of the product. The demand for a particular product would be higher in case its price is lower than the other related products. Therefore, price of a product and the quantity in demand are inversely related to each other. The graphical representation of the discussed statement is called the demand curve, which is a downward sloping curve due to the inverse relationship (Investopedia, 2003). This is called the “theory of demand”.

#### **2.4.5 Theories of Supply and Demand**

Since both supply and demand are dependent on the price, the equilibrium market price of a good, according to supply and demand, is indicated by a point where customer demand and producer supply intersect each other. This is called the “theories of supply and demand”. At this point the quantity supplied equals quantity demanded (Sullivan *et al*, 2003). Although it is normal to regard the quantity demanded and the quantity supplied as functions of the price of the good, the standard graphical representation, usually attributed to Alfred Marshall, has price on the vertical axis and quantity on the horizontal axis, the opposite of the standard convention for the representation of a mathematical function (Perloff, 2008).

Therefore the measure of the responsiveness of supply and demand to changes in price is critically their elasticity (Alchian, 2006). This is not a major concern of this study instead it is needed to measure the responsiveness of market price to changes in supply and demand where price becomes dependent variable while supply and

demand become independent variables. This justifies that the price is the function of quantity demanded and supplied then mathematical and graphical representation of price on the vertical axis and quantity on the horizontal axis is held. Jain (2007) emphasized that this can be achieved by analyzing shifts in supply and demand curves moving along the demand and supply curves respectively while causing changes in price and quantity to be supplied and demanded.

#### **2.4.6 Criticisms on the Theories of Supply and Demand**

Cohen (2001) resists at least two assumptions are needed for the validity of the standard model: first, that supply and demand are independent; and second, that supply is "constrained by a fixed resource"; If these conditions do not hold, then the Marshallian model cannot be sustained. Sraffa's critique focused on the inconsistency of partial equilibrium analysis and the rationale for the upward slope of the supply curve in a market for a produced consumption good. The notability of Sraffa's critique is also demonstrated by (Samuelson, 2000) comments and engagements with it over many years, for example:

"What a cleaned-up version of Sraffa (1926) establishes is how nearly empty are all of Marshall's partial equilibrium boxes. To a logical purist of Wittgenstein and Sraffa class, the Marshallian partial equilibrium box of constant cost is even more empty than the box of increasing cost."

Aggregate excess demand in a market is the difference between the quantity demanded and the quantity supplied as a function of price. In the model with an upward-sloping supply curve and downward-sloping demand curve, the aggregate excess demand function only intersects the axis at one point, namely, at the point

where the supply and demand curves intersect. The Sonnenschein–Mantel–Debreu theorem shows that the standard model cannot be rigorously derived in general from general equilibrium theory concluded by (Kirman, 2006).

The model of prices being determined by supply and demand assumes perfect competition. But Kirman (2007) challenges:

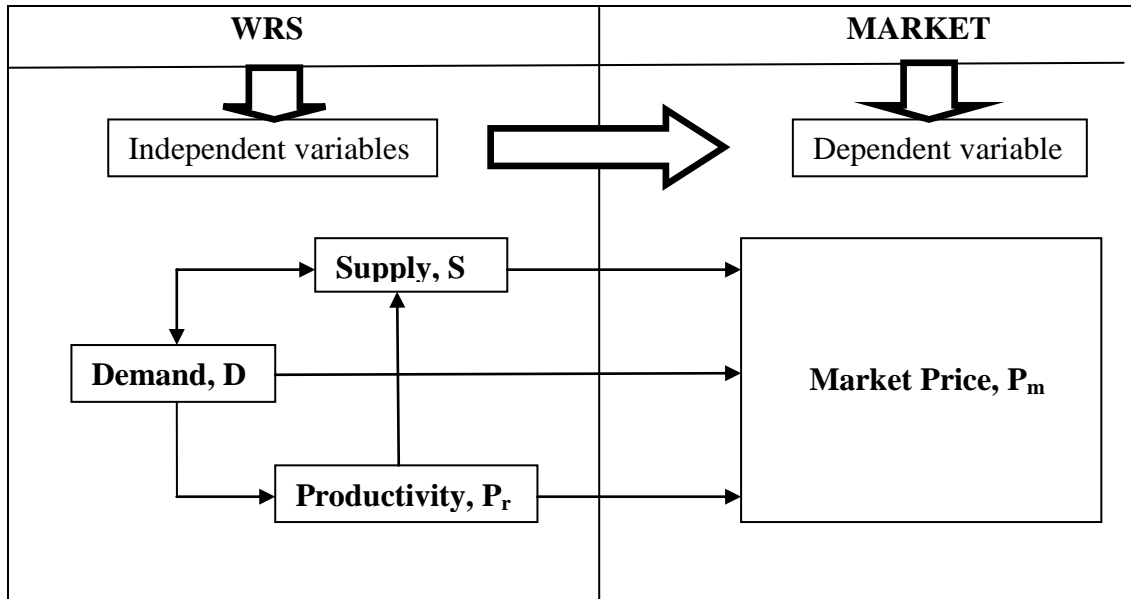
"economists have no adequate model of how individuals and firms adjust prices in a competitive model. If all participants are price-takers by definition, then the actor who adjusts prices to eliminate excess demand is not specified".

Goodwin, Nelson, Ackerman, and Weisskopf (2009) together they write: "If we mistakenly confuse precision with accuracy, then we might be misled into thinking that an explanation expressed in precise mathematical or graphical terms is somehow more rigorous or useful than one that takes into account particulars of history, institutions or business strategy. This is not the case. Therefore, it is important not to put too much confidence in the apparent precision of supply and demand graphs. Supply and demand analysis is a useful precisely formulated conceptual tool that clever people have devised to help us gain an abstract understanding of a complex world. It does not—nor should it be expected to—give us in addition an accurate and complete description of any particular real world market."

## **2.5 Conceptual Framework for the Study**

The relationship between the influence of WRS and the market of cashew can be conceptualized at a fairly general level, depicted in "Figure 4" below, as a one stage relationship where a set of independent variables (i.e. Supply, demand and

productivity) impact on a dependent variable (i.e. market price), which in turn determine the dimension of responsiveness of market price to changes in the factors that contributing to the influence of WRS. Hereunder is the conceptual framework of the study:-



**Figure 4: Conceptual Framework for the Study**

**Source:** Author

## 2.6 Research Gap

Literatures reviewed have widely addressed issues in the development of cashew nut marketing in Tanzania. Various systems have been discussed in a stage by stage approach, indicating their success failure and decline until warehouse receipt system (WRS) came into being. The intentions for establishing WRS have also been well discussed and the situation reveals that cashew nut farmers have gained their lost expectations through this system (Mwangu, 2007). Additionally, the warehouse receipt and warehouse receipt system have been much discussed by (Onumah, 2003)

and (Coulter, 2009). The definitions, primary key players, relationships and benefits of the system to the farmers in relation with marketing of the crops and poverty reduction have been thoroughly addressed. Furthermore, experiences of WRS in different parts of the world have been addressed to show success and challenges of the system through global experiences. In most countries the system is positively perceived and has proved success except where it was politically intervened as cited in the case of Brazil.

However, not any of the above cited literature and studies has addressed the farmers' perspective in the assessment of factors in WRS which influence stability of the price and reliability of the markets for their crops. As such there is a gap which needs to be filled. This study will therefore attempt to fill the gap by assessing factors in WRS which influence cashew nut price and markets; basing on smallholder growers perceptions.



## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter addresses the research design, an area of the study, target population and sampling technique. It also describes methods of data collection and data analysis which will be used in this study.

#### **3.2 Research Design**

The research design undertaken depended on how the problem looked, what questions the problem led to and what end result was desirable (Merriam, 2002). This study employed a case study design. The research type was a descriptive study of exploratory nature which integrating both qualitative and quantitative approaches. A cross sectional survey methods had been used to gather information from respondents' cross – section of the population point at a time. For the purpose of this project the single case study strategy was the perfect approach to take. Case studies are said to be complete, reality based, empirically grounded, and exploratory (Merriam, 2002).

#### **3.3 Area of the Study**

This study was carried out in Mtwara region. The region was selected because it is the only region in Tanzania in which cashew nut was initially marketed under WRS. The WRS in Mtwara region was established in 2007/2008 procurement season. Experience of marketing under WRS from 2007/2008 to date is considered adequate

for smallholder growers to make logical assessment on issues related with this marketing system.

### **3.4 Population**

The target population for this study was the smallholder cashew nut farmers, warehouse operators, financial institutions (banks), cooperatives, regulators (CBT, TWLB), local governments, traders, exporters and processors. Mtwara region had a total of 320,000 cashew farmers out of approximately 1.3 million population of Mtwara. And only 12% of cashew farmers are members of cooperatives (URT, 2010).

### **3.5 Sampling Design**

This study used the “non – probability sampling” type with the element selection technique which employed the restricted sampling in particular purposive sampling was employed. The reason behind for using purposive sampling is to have well experienced respondents in marketing cashew under WRS. Kothari (2004) described that under this sampling design; items for sample are selected deliberately by the researcher, his/her choice concerning the items remains supreme. Thus, the judgment of the organizers of the study plays a significant part in this sampling design. If the organizers are impartial, work without bias and have the necessary experience so has to take sound judgment, the results obtained from an analysis of deliberately selected sample may be tolerably reliable (Kothari, 2004).

### **3.6 Sample Size**

There were only two Cooperative Unions namely MAMCU (Masasi and Mtwara Cooperative Union) and TANECU (Tandahimba and Newala Cooperative Union) which were made up from 199 Primary Cooperative Societies (PCS). MAMCU and TANECU had a total of 88 and 111 PCS each.

An optimal number of participants were purposely selected. Two cooperative unions of Mtwara region were deliberately selected. Then ten primary cooperative societies were intentionally selected from each cooperative union. From each primary cooperative society four farmers were purposively selected depending on their involvement in the WRS. The lists of exporters, processors, banks and warehouse operators were also obtained from each cooperative union. Two banks were purposively selected from each cooperative union depending on their existence in financing the WRS for cashew nut marketing. Six exporters were purposively selected depending on whether they had ever participated on closed bid auctioning of cashew. Six processors were purposively selected depending on whether they had bought cashew through WRS. Four warehouse operators were purposively selected depending on whether they participated in storing cashew under WRS. The summary of the results obtained through the above sampling procedure were as follows: 80 farmers, 20 primary cooperative societies, six exporters, six processors, four banks, and four warehouse operators that made a sample size of 120 as clearly shown in “Table 1” below.

**Table 1: Distribution of respondents by two Cooperative Unions in Mtwara**

Cooperatives	Key players						Total
	Farmers	Primary cooperatives	Exporters	Processors	Banks	Warehouse Operators	
MAMCU	40	10	3	3	2	2	60
TANECU	40	10	3	3	2	2	60
<b>Total</b>	<b>80</b>	<b>20</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>120</b>

**Source:** Survey data, 2012

### 3.7 Data Collection Methods

Both primary and secondary data were collected in this study. Discussions were held with some officials from selected authorities in order to know views perceived by players about factors influencing price and market for raw cashew nut in WRS.

#### 3.7.1 Primary Data Collection

Only one type of techniques was deployed in collecting primary data. The type of technique was the usage of questionnaires.

#### Questionnaires

The structured questionnaires were used to collect primary data from the respondents. The questionnaires were in tabular form and had both closed and open-ended questions so as to obtain the opinions and comments of the respondents. For three weeks time the questionnaires had been pre-tested before they were administered just to prove their usability. Between early January and late March, 2013 the questionnaires were administered in the field by the researcher and other two trained assistants.

The questionnaire design was dominantly based on the itemized rating scale (a.k.a. numerical scale) that presented a series of statements from which a respondent selected one as best reflecting his evaluation. These statements were ordered progressively in terms of more or less of some property (Kothari, 2004). Summated scales (or Likert-type scales) were frequently used simply because in social science studies, while measuring perspectives of the people it generally follows the technique of preparing the opinionnaire (or attitude scale) in such a way Kothari (2004) described that the score of the individual responses assigns him a place on a scale. The respondent expressed his agreement or disagreement with a number of statements relevant to the issue.

### **3.7.2 Secondary Data Collection**

Secondary data were collected from both published and unpublished documents and reports in libraries of the University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA), Open University of Tanzania (OUT) and different internet websites. Other sources were Ministry of Agriculture Food Security and Cooperatives (MAFSC), CBT, TWLB and Mtwara Regional Administration and Local Governments.

### **3.8 Validity and Reliability of Data**

Saunders *et al* (2009) emphasized that in order to have a successful research methodology the quality of it might be high, to judge this the validity and reliability was assessed. Data collected were relevant to the problem and the purpose of the research otherwise irrelevant data and unnecessary information could lead to low

validity (Merriam, 2008). In order to increase validity, it was useful for this study to have a sampling procedure that employed pilot testing of questionnaires. A sample of 21 respondents was conducted during preliminary survey. Among the 21 respondents were eight smallholder farmers (i.e., two from each primary cooperative society), four primary cooperative societies and two cooperative unions were also approached. Others were three exporters, three processors and one bank from the study area. The pre-testing of the above said data collection tools were done so as to make an assurance of the tools to be used hence modifications of the same. Secondary data always came from reliable and trusted sources, so were highly reliable. These factors made the contents very relevant to the purpose of the study.

In this study the reliability was concerned with the issue of consistent results of the research. A good guideline was to make sure that if someone could do the project again, the same results would be found (Rott, 2000). Reliability was an important aspect of doing this case study and the goal of reliability was to minimize biases and errors in the research study. A prerequisite for reliability in this study was that all the documentation was in order and could be easily found (Yin, 2004).

In the context of this study the questions followed a set agenda generating relevant and reliable results; however answers from participants could be highly subjective as participants based responses on perception. However the questions did not lead people and the answers were consistent.

### **3.9 Data Analysis Methods**

Since cross-tabulation is one of the most useful analytical tools and is a main-stay of the market research industry (Saunders *et. al*, 2009) then the cross-tabulation

analysis, also known as contingency table analysis, was mostly used in this study to analyze categorical (nominal measurement scale) data. A cross-tabulation is a two (or more) dimensional table that records the number (frequency) of respondents that have the specific characteristics described in the cells of the table (Kothari, 2004). Cross-tabulation tables provided a wealth of information about the relationship between the variables and gave foundation structures for quantitative analysis. In this study the cross-tabulation is a two dimensional table with variables seller, buyer and facilitator against categories of rating scales on factors of supply, demand and productivity that affect market price. Seller, buyer and facilitator were obtained by grouping of key players of WRS; farmers and primary cooperative societies (seller), exporters and processors (buyer) and banks and warehouse operators (facilitator).

Therefore both qualitative and quantitative analyses had been used on this study. Qualitative analysis was done using descriptive statistics. Quantitative analysis was employed to quantify counts, frequencies of occurrence and percentages for the purpose of creation of contingency tables.

The software used for analyzing and exploring data in this study is the Microsoft Excel Spreadsheet.

## CHAPTER FOUR

### 4.0 RESULTS AND DISCUSSION

#### 4.1 Categorization of key players in marketing cashew under WRS

The bigger part of this study was to investigate on factors that contribute to the influence of WRS on the market price. Specifically, the study was intended to show the impact of market forces such as supply, demand and productivity on the market price. It also investigated the roles of seller, buyer and facilitator in marketing cashew under WRS. The results show that there were 120 key players of WRS whom were conducted and they responded to research questions. If it was needed to analyze them with an approach of the roles in marketing cashew under WRS then further categorization of 120 respondents (primary cooperative societies, farmers, exporters, processors, banks and warehouse operators) into three major groups should be as follows: sellers group which comprises of 20 PCS and 80 farmers making total of 100, buyers group also known as traders which comprises of 6 exporters and 6 processors making total of 12, facilitators group which comprises of 4 banks and 4 warehouse operators making total of 8. The “Table 2” below illustrates the distribution of respondents by major groups of seller, buyer and facilitator.

**Table 2: Categorization of Respondents by Major Groups under WRS.**

Groups	Key players						Total
	Farmers	Primary cooperatives	Exporters	Processors	Banks	Warehouse Operators	Total
<b>SELLER</b>	80	20					<b>100</b>
<b>BUYER</b>			6	6			<b>12</b>
<b>FACILITATOR</b>					4	4	<b>8</b>
<b>Total</b>	<b>80</b>	<b>20</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>120</b>

**Source:** Survey data, 2012



## 4.2 Relationship between Supply of RCN and WRS

One purpose of this study is to evaluate the influence of WRS on the supply of RCN in the market. Therefore, to capture the extent at which the WRS influences the supply of RCN in the market, this study analyzed the respondents' subjective perceptions about the factors of supply that affect market price. The findings of this analysis are reported below in "Table 3" as summarized from "Table 9" in appendix 2. The interviewed groups of seller (farmer, PCS), buyer (exporter, processor) and facilitator (bank, warehouse operator), showed few respondents disagreed and many agreed that the factors of supply affect market price. The groups were differing to each other in supporting various categories of rating scales on determinants of supply as clearly shown by their percentages. The diversification of scoring within groups was also observed.

**Table 3: Respondents' perceptions on factors of supply that affect price**

Groups	Categories of Rating Scales (1 – 5)					Total
	Not at all	no	A little	Much	very much	
<b>Seller</b> count	21	15	30	27	7	100
% within group	(21%)	(15%)	(30%)	(27%)	(7%)	(100%)
<b>Buyer</b> count	2	2	4	2	2	12
% within group	(16.67%)	(16.67%)	(33.33%)	(16.67%)	(16.67%)	(100%)
<b>Facilitator</b> count	0	0	2	5	1	8
% within group	(0.00%)	(0.00%)	(25%)	(62.50%)	(12.50%)	(100%)
<b>Total</b> count	23	17	36	34	10	120
% within group	(19.17%)	(14.17%)	(30%)	(28.33%)	(8.33%)	(100%)

**Source:** Survey data, 2012

### 4.2.1 Combined Categories of Rating Scales on Factors of Supply

Coming to the combined categories of rating scales in the "Table 4", the results show that there was a consensus among groups of seller, buyer and facilitator in supporting

reasons of supply that affecting market price under WRS. This is clearly shown by percentage of scores whereby rating scales (1 – 2) represents disagree and (3 – 5) represents agree. For instance Seller disagrees by 36% and agrees by 64%. Buyer disagrees by 33.33% and agrees by 66.67%. Also Facilitator disagrees by 0% and agrees by 100%. Therefore, despite the differences in perception, the results provide a basic answer to the research question: The perceived supply of RCN has positive influence on the market price under WRS. The findings also support the theory that at different scenarios the supply can change due to various reasons so as to cause changes in the price.

**Table 4: Combined Categories of Rating Scales on Factors of Supply**

<b>Groups</b>	<b>Categories of Rating Scales</b>			
		(1 – 2)	(3 – 5)	<b>Total</b>
Seller	count	36	64	100
	% within group	(36%)	(64%)	(100%)
Buyer	count	4	8	12
	% within group	(33.33%)	(66.67%)	(100%)
Facilitator	count	0	8	8
	% within group	(0.00%)	(100%)	(100%)
<b>Total</b>	count	40	80	120
	% within group	(33.33%)	(66.67%)	(100%)

#### **4.2.2 The discussion of categorical perceptions on factors of Supply**

Refer back to “Table 9” in appendix 2 whereby the respondents had different scores with different opinions. Variations of respondents’ perceptions were also observed within variable groups. The respondents disagreed to each other on factors of supply in statements like “changes in technology”, “changes in buyers’ preferences”, “changes in the price of related goods” and particularly in the statement of “the cost

of production” where seller refuted by scoring not at all (54%), buyer accepted by a little (41.7%) and very much (58.3%) which summed up to (100%), facilitator accepted by much (87.5%) and (12.5%) to get (100%). Therefore respondents usually scored on rating scales according to their characteristics, capabilities and experience. For instance the factor of cost of production seems get no effects on supply to the side of farmers. This is due to the majority of them are incapable of doing calculations on the ratio of inputs (cost of production) to outputs (quantity and price). Since seller and buyers are able to forecast on their business and have the habits of keeping records so they can realize that the cost of production can affect supply. In the other way round the groups of respondents agreed to each other on the remaining six factors of supply as elaborated in statements of “change in world consumer”, the number of producers”, “natural disaster”, “future expectations of the price”, “government policies” and particularly in statement of “sociological factors” where seller agreed by scoring a little (44%), much (15%) and very much (13%) that makes (72%). Buyer agreed by a little (33.3%) and very much (33.3%) so as to make up (66.6%). Facilitator scored to accept by a little (37.5%) and (62.5%) to get (100%). The seller opinions were on the age of farmers and cashew trees. They confirmed that both farmers and cashew trees were very much old to be productive. Buyers based their opinions on the rate of education and marital status. Facilitator condemned urban migration of young males towards big cities such as Dar es Salaam. All in all the factors of supply are amongst the burning issues that impairing the influence of WRS on market price of RCN.

### 4.3 Relationship between Demand of RCN and WRS

Since one of the specific objectives of this study is to determine the relationship between WRS and the demand for RCN in the market, this part presents the ways in which reasons of demand affect market price under WRS. The analysis in “Table 5” as summarized from “Table 10” in appendix 2, generally reveals that to some extent there were disagreements among respondents’ groups of seller, buyer and facilitator according to their percentile scores.

**Table 5: Respondents’ perceptions on factors of demand that affect price**

Groups	Categories of Rating Scales (1 – 5)					Total
	Not at all	no	A little	Much	very much	
<b>Seller</b> count % within group	13 (13%)	18 (18%)	31 (31%)	32 (32%)	6 (6%)	100 (100%)
<b>Buyer</b> count % within group	3 (25%)	3 (25%)	0 (0.00%)	2 (16.67%)	4 (33.33%)	12 (100%)
<b>Facilitator</b> count % within group	0 (0.00%)	2 (25%)	0 (0.00%)	5 (62.50%)	1 (12.50%)	8 (100%)
<b>Total</b> count % within group	16 (13.33%)	23 (19.17%)	31 (25.83%)	39 (32.50%)	11 (9.17%)	120 (10%)

**Source:** Survey data, 2012

#### 4.3.1 Combined Categories of Rating Scales on Factors of Demand

The percentile scores in the “Table 6” of the combined categories of rating scales emphasize that majority of seller, buyer and facilitator scored (3 – 5) to accept that the factors of demand affect market price. Seller agrees by 69%, Buyer agrees with only 50% and Facilitator agrees with 75%. Even though there is balance of scores within some groups, particularly buyer group where exporter and processor belong. It

is empirically elaborated by overall scores that 67.50% of all respondents agree. Certainly, the major factor in the marketing situation is sustainable competitive demand. Therefore, the analyzed results in the table below confirm the research question: To some extent the cashew nut market price depends on the demand under WRS. Hence, the theory of price to be the function of quantity demanded is held. The market price changes as the demand changes.

**Table 6: Combined Categories of Rating Scales on Factors of Demand**

<b>Groups</b>	<b>Categories of Rating Scales</b>			
		(1 – 2)	(3 – 5)	<b>Total</b>
Seller	count	31	69	100
	% within group	(31%)	(69%)	(100%)
Buyer	count	6	6	12
	% within group	(50%)	(50%)	(100%)
Facilitator	count	2	6	8
	% within group	(25%)	(75%)	(100%)
<b>Total</b>	count	39	81	120
	% within group	(32.50%)	(67.50%)	(100%)

#### 4.3.2 The discussion of categorical perceptions on factors of Demand

The analysis in “Table 10” in appendix 2 generally reveals that there was disagreement among respondents’ groups of seller, buyer and facilitator in first, second and fourth statements of reasons whereby scoring were differing from one statement to another. In third and fifth statements of reasons the seller, buyer and facilitator groups scored with “low” and “very low” to agree together in rejecting the said statements. The findings show that in sixth, seventh, eighth, ninth and tenth statements, is where the relationship between WRS and demand for RCN in the market is realized. In the last five statements in the above said table emphasize that seller, buyer and facilitator scored to accept all factors of demand that affecting

market price. Even though there were variations of scores within some groups, particularly seller group where farmer and PCS belong. Therefore, the factors of demand are considered to be the most effective challenges to the influence of WRS on market price of RCN.

#### 4.4 Relationship between Productivity of RCN and WRS

The study also examined the influence of WRS on the productivity of RCN in relation to the market price. The influence of WRS is viewed in terms of determinants of productivity that affecting market price under WRS. The study findings in “Table 7” as summarized from “Table 11” in appendix 2 show that respondents’ subjective perceptions support majority of factors of productivity that affect market price according to categories of rating scales. Nevertheless, there were very slightly variations in scoring within respondents’ groups.

**Table 7: Respondents’ perceptions on factors of productivity that affect price**

Groups	Categories of Rating Scales (1 – 5)					Total
	Not at all	no	A little	Much	very much	
<b>Seller</b> count	1	18	34	36	11	100
% within group	(1%)	(18%)	(34%)	(36%)	(11%)	(100%)
<b>Buyer</b> count	1	0	2	3	6	12
% within group	(8.33%)	(0.0%)	(16.6%)	(25%)	(50%)	(100%)
<b>Facilitator</b> count	1	0	1	4	2	8
% within group	(12.5%)	(0.0%)	(12.5%)	(50%)	(25%)	(100%)
<b>Total</b> count	3	18	37	43	19	120
% within group	(2.50%)	(15%)	(30.8%)	(35.83%)	(15.8%)	(100%)

Source: Survey data, 2012

##### 4.4.1 Combined Categories of Rating Scales on Factors of Productivity

More emphasis is in “Table 8” below whereby seller scored 81%, buyer scored 91.67%, and facilitator scored 87.50% to agree that factors of productivity affect

market price. From the above facts, one can conclude that there is a direct relationship between productivity and market price of RCN under WRS. Therefore, the concept of responsiveness of market price in the change of productivity as a factor that contributing to the influence of WRS is held intact.

**Table 8: Combined Categories of Rating Scales on Factors of Productivity**

<b>Groups</b>	<b>Categories of Rating Scales</b>			
		(1 – 2)	(3 – 5)	<b>Total</b>
Seller	count	19	81	100
	% within group	(19%)	(81%)	(100%)
Buyer	count	1	11	12
	% within group	(8.33%)	(91.67%)	(100%)
Facilitator	count	1	7	8
	% within group	(12.50%)	(87.50%)	(100%)
<b>Total</b>	count	21	99	120
	% within group	(17.50%)	(82.50%)	(100%)

#### 4.4.2 The discussion of categorical perceptions on Productivity

The study findings in “Table 11” in appendix 2 show that respondents’ subjective perceptions are similar and support majority of factors of productivity that affect market price. About eight out of ten reasons that are listed in the above named table were positively favoured and accepted together by a good number of respondents in their groups of seller, buyer and facilitator. Nevertheless, there were slightly variations in scoring within respondents’ groups. These favourable reasons are found in first, second, third, fourth, seventh, eighth, ninth and tenth statements of reasons. Taking into considerations of the first statement of “government subsidies of farm inputs” seller’s score were: no (21%), a little (35%), much (30%) and very much (14%). Buyer: not at all (33.3%), much (33.3%) and very much (33.3%). Facilitator: scores were, very much (100%). Only two statements existed with different

perceptions from the respondents, these were fifth and sixth statements where one group agrees and other groups reject one statement from another or vice versa. Again variations of perceptions were observed within respondents' groups. For instance in fifth statement of "socio-economic changes of Mtwara farmers", respondents from seller group rejected the statement with scores as follows: no (56%), a little (15%), much (15%) and very much (14%). Buyer accepted the statement with no (25%) and very much (75%). Facilitator also accepted the statement with a little (75%) and much (25%). And so was the sixth statement which had similarities compared to fifth statement of reasons. The opinions of respondent differed to each other according to their level of understanding as it was shown in their scoring against rating scales (1 – 2) that represents to disagree and (3 – 5) to agree. Since the factors of productivity were mostly scored in the same directions for all groups of respondents then productivity can be the best solution to the influence of WRS on the price of RCN. Even though the factors of productivity are most challenging to the side of government, farmers and cooperatives then commitment and confident on issues of productivity are needed.



## CHAPTER FIVE

### 5.0 CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of Findings

The study was organized to investigate the factors that contribute to the influence of WRS on the market price. Based on the factors of supply, demand and productivity which affecting the market price of raw cashew nut under WRS; the findings were as follows: The group of seller (farmers, primary cooperative societies (PCS)) and the group of buyer (exporter, processor) and facilitator (bank, warehouse operator) had different subjective and personal perceptions on supply, demand and productivity. The factors of supply and demand fetched overall total scores of over sixty percent each from all respondents, to agree on combined categories of rating scales. Therefore, it is concluded from the study results that supply and demand are two equal and opposing market forces that affecting market price. In the closed bid auction the two forces are made to intercept to get their equilibrium price. At equilibrium price is where seller and buyer finalizing the exercise of selling and buying cashew under the facilitation of bank and warehouse operator. Also the factors of productivity scored overall total of over eighty percent from all respondents, to agree on combined categories of rating scales. Therefore, it is concluded from the findings that productivity as a measure of efficiency and economic indicator can usefully be applied to curb cost of production and market expenses to enable smallholder farmers improve quality and quantity of cashew and eventually get better market price. At the same time buyer will get the affordable and required quality and quantity of cashew. Therefore, the influence of WRS on market price is observed and concluded from the above citations of findings. The study has

also succeeded to generalize from a particular situation of WRS, the economic marketing theories of supply, demand, productivity against price. It seems the WRS has extensive success compared to other marketing systems of cashew that had been applied before. The success is not enormous due to the fact that there are many interweaved challenges as it has been confirmed by respondents' perceptions. Basing on perceived survey data, the major three issues of stability of market price, reliable market and credibility of WRS to smallholder cashew farmers were addressed openly by respondents. But all in all the WRS was said to be creditable among key players apart from all the challenges that are faced in implementation of the system.

## **5.2 Implication of the Results**

The general recommendation from the findings is that; specific efforts coming from all key players in Cashew Industry should be deployed to bring about stability of market price of cashew. The rectification of the negative effects of the factors that are behind the supply, demand and productivity should also be done. These factors or determinants are many and have different cause and impact on market price that without carefully finding collective solutions for them nothing can be achieved to make WRS prevailing.

For the market of cashew to be reliable then there is a need for the government of Tanzania through CBT and TWLB to expand competitive demand base; number of seller and buyers might be increased, private farmers and farmers' associations might be included and allowed to sell their cashew under WRS. Also different buyers from other parts of the world through electronic adverts and auctions (e-auctions) are to be

attracted and permitted to buy cashew instead of traditional buyer from India only. The other way round is for CBT to promote the domestic cashew kernels eating that would automatically increase local processing then smallholder farmers will have competitive and reliable markets. Markets for cashew kernels could also be expanded to target regional markets surrounding Tanzania as well as SADC and U.A.E countries.

In order to the credibility of WRS to prevail the answer is for MAFSC, farmers, and cooperatives to improve productivity. Productivity could be used as fulcrum for two market forces of supply and demand to intercept perfectly to let seller and buyer, the former accept reasonable price, and the later get sufficient quantity and good quality of cashew in the market.

The overall policy implication from the findings suggest to the government of Tanzania that since the WRS is creditable should not be either radically reversed or abolished as it was so for the previous marketing systems of cashew that existed and gone for the last four decades. The way forward is first to eradicate those burning challenges found in WRS being either institutional, or infrastructure, or policy, or individual obstacles. Second is to go forward to establish ultra modern commodity exchange center basing on pilot projects of WRS. Good examples of commodity exchanges had been done in South African Future Exchanges (SAFEX) and Ethiopian Commodity Exchanges (ECX), to date these two commodity exchanges have performed wonders and emancipated commodity markets.

### **5.3 Suggested Areas for Further Studies**

This research investigated the factors that contributing to the influence of WRS at post harvest activities of raw cashew nuts marketing in Mtwara. It also investigated the role of factors of supply, demand and productivity that affecting market price of cashew. The study concludes that WRS needs careful policy considerations if it is to overcome the current challenges facing it. However, additional research needs to be committed to understanding WRS, the role that factors of supply, demand and productivity play in affecting cashew value chain at pre harvest activities and overall cashew sub-sector development in Tanzania.

Future research could investigate collective efficiency and the growth of cashew industry under WRS. The role of extension services and input supplies also needs to be researched. Things like out growers' schemes: fair trade, organic and contract farming are supposed to be addressed clearly in marketing raw cashew nuts under WRS. Most of the surveys, including the one that informed the current study, were limited to mid ways of value chain specifically distribution of RCN under WRS. In this case, there is a need for the industrial map and baseline survey that will provide accurate and formative data on the pre harvest and value addition activities of cashew sub-sector under WRS.

### **5.4 Limitations of the Study**

The focus of this study is on price fluctuations and unsound markets of raw cashew nuts while insighting the influence of WRS on the same by using respondents' subjective perceptions. Two types of respondents were employed. First, majority

respondents were group of smallholder cashew farmers and primary cooperative societies. Second, minority respondents were group of exporters, processors, banks and warehouse operators. This study was based on the assumption that the sampled smallholder farmers were the fair representation of the rest of farmers because of their homogeneous characteristics and capabilities in perceiving agricultural issues. Farmers' socio-economic status were not considered at all. Another drawback of respondents would be on the side of warehouse operators, processors and exporters who are always reluctant on revealing their actual information on WRS with mind set of defending their interests. The research area covered is only one region of Mtwara among the other major cashew producers' regions of Lindi, Ruvuma, Coast, Tanga and Dar es Salaam. The study had only considered responsiveness of dependent variable (price) of cashew against changes of independent variables (supply, demand, productivity) in cashew marketing under WRS and not vice versa. Since this study had based mostly on qualitative data analysis and scarcely on quantitative data analysis then the call for further on – going researches on the same subject by using quantitative techniques are highly invited so as to reveal more facts beyond reasonable doubts.

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**APPENDICES**