FARMERS'ATTITUDE TOWARDS WAREHOUSE RECEIPT SYSTEM IN NEWALA DISTRICT

AWADHI MOHAMEDI MTANDA

A DISSETATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIMENTS FOR THE DEGREE OF MASTER OF ARTS IN RURAL DEVELOPMENT OF SOKOINE UNIVERSITY OF AGRICULTURE.

MOROGORO, TANZANIA.

2015

ABSTRACT

This study aimed at assessingfarmers' attitude towards warehouse receipt system in NewalaDistrict. The study sought to achieve the following specific objectives. Firstly, to describe the warehouse receipt system that operates for small holder farmers in Newala. Secondly, to determineknowledge of the farmers on warehouse receipt system, thirdly, to determine the attitude of farmers towards the operations of the warehouse receipts system and lastly, to determine the contribution of cashew nuts to farmers livelihood. A cross sectional research design was adopted;a sample size of 150 respondents was obtained through multi stage sampling which involved simple random and purposive sampling techniques. In order to measure individual farmer's knowledge and attitude on Warehouse Receipt System knowledge index and attitude index were used for data analysis. Statistical Package for Social Science (SPSS) 16.0 and Binary Logistic Regression Model were used to analyze data related to descriptive and inferential statistics. Using descriptive statistics (frequencies, percentages, minimum and maximum value of individual variable), the first specific objective of this study was analyzed using SPSS. The Inferential statistics applied the binary logistic regression model to determine the contribution of cashew nuts towards farmer's livelihood. The findings of the study show that farm size and education level (P=0.000) were the most significant predictors of improvement of farmers' livelihood. The coefficient was positive (1.526 and 1.29) in the sense that farmers who have big farms and education were likely to have good quality houses. Likewise, the findings of the study show that farmers have low knowledge level and negative attitude towards warehouse receipt system.

DECLARATION

I, Mohamedi Awadhi, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

_____ _____

Mohamedi Awadhi Date

(M.A. Candidate)

The above declaration confirmed

_____ _____

Dr Magayane, F.T. Date

(Supervisor)

COPYRIGHT

AKNOWLEDGEMENT

I thank God the almighty for providing me with the courage, strength, guidance, patience and passion throughout my study period, for I understand without him I could not be able to accomplish this study. Special thanks are directed to my Supervisor Dr. FlavianusTilusabaMagayane, for his wise advice, constructive criticism and tireless guidance. Without him my academic dreams would have not become a reality.

I am indebted to Pr.Mikidadi, Dr. Kayunze, Dr. Mfaume, Dr. Hashim, Dr. Mbwambo, Mr. Mikidadi, Mr. Amani and Mr. Mnazi for their moral and material support during my study. I am extending my sincere thanks to all academic members of staff of the Development Studies Institute. I also wish to extend my heartfelt thanks to Newala District Council, Formal and non-formal workers, VEO, Cashew nuts Board of Tanzania and donation from relatives for their financial assistance that enabled me to undertake my study at Sokoine University of Agriculture.

I equally wish to extend my gratitude to all 150 respondents who provided valuable information during my data collection for this study. Thanks are also to my colleagues MA (Rural Development) for their friendship, advice and material support in the course of study. Lastly I am also grateful to Mr. Chihangu and BwamkaliNewala District Council retired officers for variable contribution on issues related to Warehouse Receipt System.

DEDICATION

This valuable work is dedicated to my beloved parents Mr. Awadhi MtandaNahovelela and lovely mother AminaHatibuNanyembe who made a lot of effort in laying down the foundation for my education.

TABLES OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABREVIATIONS AND ACRONYMS

ADF	African Development Fund
AMCOS	Agricultural Marketing Cooperative Societies
AMSDP	Agriculture Marketing System Development Programme
CBT	Cashew nuts Board of Tanzania
CDP	Cashew Development Project
COMESA	Common Market for Eastern and Southern Africa
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
MBICU	Mbinga Cooperative Union
MDG	Millennium Development Goal
MIVARF	Marketing Infrastructure, Value Addition and Rural Finance Programme
MT	Metric Tonne
NARI	Naliendele Agricultural Research Institute
TDV	Tanzania Development Vision
NMB	National Microfinance Bank
NCT	Nut Count Test
OTT	Out-Turn Test
RCN	Raw Cashew Nuts
RRF	Red River Foods
SACCOs	Savings and Credit Cooperative Societies
SPSS	Statistical Package for Social Sciences
TANECU	Tandahimba and Newala Cooperative Union
TRA	Theory of Reasoned Action

TWLB	Tanzania Warehouse Licensing Board
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
URT	United Republic of Tanzania
USAID	United States Agency for International Development
WRS	Warehouse Receipt System

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Tanzania's economy is mostly dependent on the agricultural sectorwhich accounts for about 25% of the GDP, 85% of the total employment, 95% of the food consumed, and 30% of the foreign exchange earnings (UNEP, 2007; URT, 2010). It is also argued (Andrew and Maghembe, 2011) that agriculture plays a vital role in unlocking people out of poverty. This has been possible through growing several crops such as coffee, cotton, cashew nut, sisal, tobacco, tea, pyrethrum, sugarcane and cloves, which have been the main cash crops; and maize, sorghum, millet, rice, grain legumes, cassava, banana and wheat, which have continued to be the principle food crops. In Tanzania, smallholdersdominate production in the agricultural sector; and therefore smallholders are an important driver of economic growth and poverty reduction.

Cashew nut is one of the most important cash crop in Tanzania. The main cashew nut producing regions in the country include Mtwara, Lindi and Ruvuma, whose cashew nut production account for more than 50% of national cashew nut production(TechnoServe, 2008; David *et al*., 2010). About 12% of the raw cashew nuts are processed domestically while 88% are shipped to India for processing (Ramadhani*et al*., 2014). Cashew nut by products include medicine, juice from cashew apple, wines, marmalades, lubricant oil from cashew nut shell, pickles, poultry feeds and ethanol(Felix *et al*.,2012 and Atul*et al*., 2011). Cashew nuts contain nutrients such as vitamins A and C3, 47% fat, 21% protein, and 22% carbohydrate (Honorata*et al.,* 2007).

Prior to 1962, marketing of cashew nuts was done by individual private merchants who were the middle men linkingproducers and Indian buyers. What is more, the prices of the crop varied widely from place to place, season to season and even within the same season (Topper *et al*., 1998; Sijaona 2002). The middlemen conducted unethical marketing practices such as buying outside designated centers, buying using single price, mixing of standard grades, unequal exchange and the use of *Kangomba*(measurement tool which weighs 1.25kg to 1.8kg when it is full, but traders use this measurement tool to purchase cashew nuts from farmers at a price of 1kg); thus, the buyers would pay the normal price of the product weighing anything from 1.25 kg to 1.8 kg, as if it were weighing 1 kg (Ashimogo*et al*., 2006; Kayunze*etal.,* 2011a; UNIDO, 2011). In addition to the above reasons low farm gate prices and an increase of production cost do more than making farmers' lives miserable (Michel, 2004).

Inefficient marketing system on raw cashew nuts forced the government to introduce Warehouse Receipt System (WRS) in 2007 in Mtwara Region. The Warehouse Receipt System was the government's effort of ensuring thatthere is a fair and stable market for the product to enable farmers store their outputs at a warehouse and sell them at a later date when prices were attractive (Kayunze*et al.,* 2011a). The first implementation of WRS in Tanzania started with coffee and cotton as pilot crops in 2002(Mhando, 2014).The Warehouse Receipt System operates through farmers' groups and Agricultural Marketing Cooperative Societies (AMCOS). The primary society pays farmers 70% of the price less than the pricesfor thenext season's subsidized inputs and community charges. The produce is weighed and graded carefully and the farmer is issued a receipt in triplicate. Farmers retain the receipt until the sale is done on the basis of auction by the warehouse management several months later. Farmers are given the remaining 30% plus any bonus (less costs of storage, interest, transport and administration) (Kayunze*et al.,* 2011b).

1.2 Statement of the Problem

Whenthe WRS was introduced it was expected that marketing problems could be solved, and marketing of the product would be efficient. Contrary to that expectation, there havebeen several shortfalls since WRS was introduced, making the farmers continue to experience problems during the marketing of the product. These include increase of production cost, mistrust and lack of transparency. Other shortfalls include delay of payments and conservativeness of leaders involved in the implementation of the system. These shortfalls are reported to have led to farmers' dissatisfaction leading to farmers unrest in different parts where the system is in operation.Good examples, include farmers unrest in Newala District in 2010 (UNIDO, 2011); this was shortly followed by another unrest in Tandahimba in 2012 (Kabigi, 2012). Based on these facts, it is worth examining farmers' attitude towards WRS in Newala District, with a view of identifying problems and providing solution to support marketing activities.

1.3 Justification of the Study

Cashew nuts provide an important source of income for smallholder farmers in Tanzania. More importantly, this crop is the backbone of the economy in the southern coastal regions, namely Mtwara and Lindi. In Newala District, cashew nut is the main source of cash income almost for all farmers (Mitchell, 2004). Before Warehouse receipt system, individual private merchants were the only people responsible for purchasing cashew nuts directly from farmers. However, individual private merchants appeared to have been inefficient in marketing the product. This situation necessitated introduction of the Warehouse Receipt System as a solution for cashew nuts marketing problems. However, WRS did not provide tangible benefit to cashew nuts farmers and as result farmers unrests have become a common phenomenon. In addition, this study is in line with URT (2010)

and URT (2011) which emphasize on the eradication of extreme poverty in rural areas. The results will in one way or another help scholars and policy makers to gain sufficient knowledge which can assist in reviewing the policy that will have positive impact to other beneficiaries such as cashew nuts farmers, primary cooperatives, government servants, researchers, processors, buyers and community members.

1.4 Objectives of the Study

1.4.1 General objective

The study intended to assess farmers' attitude towards Warehouse Receipt System in Newala District.

1.4.2 Specific objectives

The study wanted to achieve the following objectives

i. To describe how WRS, works for smallholder farmers in Newala district.
ii. To determine farmer'sknowledge of Warehouse Receipt System.
iii. To determine farmers' attitude towards the implementation of WRS in the district.
iv. To determine the contribution of cashew nuts to the farmers' livelihood.

1.5 Research Questions

i. How does the Warehouse Receipt System work in Newala?
ii. Are the farmers' aware of Warehouse Receipt System?
iii. What is the perception of farmers on the implementation of Warehouse Receipt System?
iv. What are the major benefits that farmer's gain from cashew nuts production?

1.6 Guiding Theory: Theory of Reasoned Action

The theory of reasoned action, which was proposed by Ajzen and Fishbein (1980) form basis on the assumption that human beings are usually quite rational and make systematic use of the information available to make decisions before they decide take any action. The theory states that an attitude is a function of beliefs; therefore a person who believes that he/she can perform a given action will have a positive attitude towards the action and a person who does not believe that he/she can perform something will end up have a negative attitude towards the action. The theory is useful because it lays a strong ground for farmers to make decision regarding the use of WRSas a marketing system. With regards to WRS, farmers are provided with real picture of cashew nuts markets including time of payment, cashew nuts price, production cost, weighing scale transparency and financial institutions to help them make right decisions(Temu and Msuya, 2004). The conceptual framework below describes the relationship of warehouse receipt system components that operates in Mtwara Region.

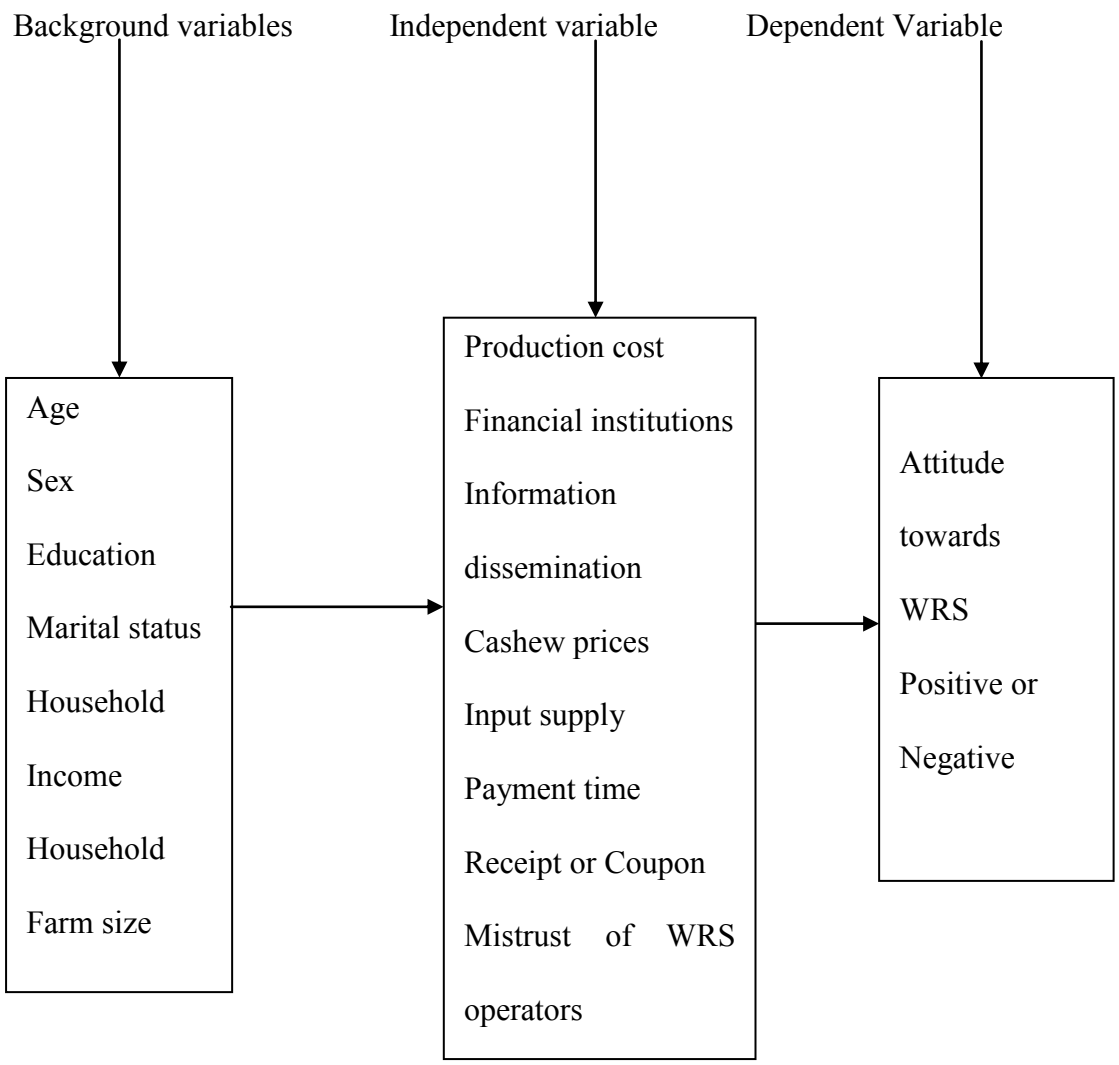

Figure 1: Conceptual Framework modified from (Ajzen and Fishben, 1980).

The arrow show the direction of influence of attitude

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Attitude and Behavior

According to the Theory of Reasoned Action (Ajzen, 2001), attitude is thought to represent a general evaluation of an object and affect the most essential aspect of behavior. Behavior is the way an individual acts towards people, society and objects (UNESCO, 2000). It can either be bad or good; it can also be normal or abnormal according to society norms (Butler *et al.,* 2006). In this regard, individuals who have direct behavioral experience with an attitude object may obtain information which is more relevant(Glasman*et al.*, 2006). Each element in the theory links with behavior of a certain outcome whether positive or negative (Dutta-Bergman, 2005, Elizabeth *et al*., 2006; Tlou, 2009).Poor correlations between attitudes and behaviors cast doubt on the utility of an attitude concept (Bryka, 2009). Farmers face several barriers in cashew nut market behaviors, including lack of finance to capitalize consumer demand for better agricultural practices, better price for their produce, demand for certified products, demand for organic and ecological products, as well as weak institutional capacity of small farmers associations (USAID, 2012).

2.2 Likert Scale

According to Lucia (2011) a Likert scale is actually the sum of responses to several Likert items while Likert item is a statement that the respondent is asked to evaluate. Kothari (2004) definesLikert scale as a statement which expresses either favorable or unfavorable attitude toward given object to which one is asked to react. In Likert scale the respondent is asked to respond to statements in several degrees, usually five degrees, but three to seven times may also be used.

In a “good” Likert scale, the scale is balanced on both sides of a neutral option, creating a less biased measurement. Likert scale is used to measure attitudes, knowledge, perceptions, values, and behavioral changes (Ogunsumi, 2011). ALikert-type scale involves a series of statements that the respondents may choose from, in order to rate their responses to evaluative questions (Edward *et al*., 2005). This may sometimes be a case for forcing the respondents to come down on one side or the other. The reason is that, some people use the midpoint to avoid reporting what they see as less socially acceptable answers (Rob, 2010).

2.3 Warehouse Receipt System

The WRS was adopted for developing agricultural markets in developing countries (Onumah and Temu, 2008; UNIDO, 2011; Kayunze*et al.,* 2011b). It offers stability to produce price, gives farmers confidence, technology up take, improves production, links farmers to credit, provides storage of commodity, and trains WRS operators (Kuserwa, 2009; Robert, 2010). The countries where WRS operates include Tanzania, Uganda, Kenya, Zambia, Malawi, and Zimbabwe (UNCTAD, 2009). In WRS, farmers deliver their produce in dedicated warehouses, and receive a receipt indicating the amount of crops delivered. On the other hand, in the WRS,smallholder producers deal directly with downstream buyers and financiers resulting in an increase of farmers’ power within the market chain (Mhando, 2014).

2.4 Warehouse Receipt System Approaches

According to Hollinger and Kiriakov (2009),Mahanta (2012) and UNCTAD (2009a) WRS fall under three major categories; public warehousing, private warehousing and farmer-focused warehouse. Public warehousing refers to a company storing goods for the public on behalf of whosoever wishes to deposit in the warehouse and issues to the

respective depositors warehouse receipts that can be used for trading purposes or as collateral for raising finance. This in turn can be divided into unregulated independent warehouses state regulated warehouses, warehouse regulated by a trade body and bulking by private trade intermediaries. Private warehousing provides services similar to those provided in public warehouses, but with no obligation to receive deposits from the public in general. Lastly, is farmer-focused warehouse, which are used to finance the storage of food for consumption during the lean season and the bulking of surpluses to be marketed at a later date. This is divided into coops approaches to warehousing, supported by bank lending, microfinance-linked approaches and technological improvements in rural storage.

2.5. The role of Warehouse Receipt System

2.5.1 WRS and access to remunerative markets

The WRS enables smallholder farmers to put their crops in bulk for storage, ensuring compliance with quality standards and minimum quantity requirements. Quality and quantity of stored commodities are sold in a wider geographical area (UNCTAD, 2009b). The guarantee from warehouse operators reduces the risk of non-performance of trade contracts (USAID, 2007).

2.5.2 Price Mitigation Risks and Trading

WRS facilitate development of simple mechanisms by which producers, lenders, and traders can secure a floor price blocking in a fixed future price (Hebron and William, 2007). On other hand, WRS provides market information, prices, techniques, processing, labeling, grades and standards all of which have an impact on transactional costs and thereby development of agricultureand growth of smallholder farmers (Eleni, 2009;

UNEP, 2009). This means that the WRS plays edge swords role, as it tries to be fair to all stakeholder in terms of faithfulness in business transactions to secure price risks.

2.5.3 WRS and the reduction of post-harvest losses

The WRS encourages storage of agricultural commodities in well-run storage facilities that help to reduce post-harvest losses. Likewise, the commodities are sold under known standard prices and therefore save the farmers from the risks of selling into local markets which areswarmed by unethical buyers (Ashimogo*et al.,* 2008). This system of storing commodities and payments act as a banking tool in rural areas where money transaction, roads, electricity and storage are problematic (Eleni and Madhin2009; ADF, 2011).

2.5.4 WRS and the prospects for success in promoting commodity exchanges

Many African countries have attempted to set up exchanges in agricultural commodity since the early 1990s.Onumah and Aning (2009) observe most medium-scale traders could potentially increase their margins per tonne through Warehouse Receipt System. The credibility they built as a result of this would be important in building long-term trade relations with major buyers.The system also makes it possible for traders and processors to build up inventories and overcome limitations of scaling up due to lack of capital or difficulties in cash flow. In South Africa, where a well-developed silo receipt system underpins the operation of most mature commodity exchanges in Africa, lenders tend to interlock agricultural production credit with crop marketing through the Warehouse Receipt System.

2.6 Necessary Conditions for an Effective WRS Activity

Kuserwa (2009) and USAID (2007) refer to necessary conditions of commodity marketsasinfrastructure that enables the implementation of successful warehouse receipt

systems. Such structural componentsinclude legal framework, financial institution, grade and standard, market information and warehouse operator of the WRS, all of whichneed to be developed in tandem and reflect specifically the commodity market in each country. Furthermore, the existence of clear and secure licensing procedures contributes to the creation of trust in the system. The legal framework should be designed in such a way that provides clear definitions of the rights and responsibilities of all participants in the WRS.Without political will and understanding of what benefits the system brings to participants, there would be a high probability of failure. On the other hand, trading companies which have invested in grains handling, storage, planting and trading, offer farmer's market and other services through warehouse receipt system (UNCTAD, 2009).

2.7 Markets

According to Kuserwa (2009) market in the context of WRS is defined as a place in which individuals, local processors and exporters' companies buy the commodities from warehouses at a competitive price. In many countries, market information systems perform poorly or are non-existent due to inadequate funding and the inability of government agencies to collect reliable market information (Eleni, 2009). Individual smallholder farmers can solve market problems through coming together and address their problems (Kumar *et al*, 2011; Muhanji and Roothaert, 2009).Furthermore, Mkude (2003) suggests that accurate, timely and availability of information help farmers to access the market.One of the problems facing cashew nut is that the market for raw cashew nuts is not diversified and therefore large quantities of the nuts produced in Tanzania still end up in the hands of few buyers in India, and therefore creating loopholes for price fixing. On the other hand ADF (2011) observesthat the improved market opportunities and increased value addition facilitate better price for the targeted commodities. The demand for raw nuts in India is high because of the differences in crop

cycle. Harvesting season in Tanzania takes place six months earlier than the one in India. In this context, India processors are ready to buy raw nuts from Tanzania even at a higher price, just to keep their operations running throughout the year (UNIDO, 2011).

2.8 Cashew Nuts Grading

Nut quality is determined by two key tests, the Nut Count Test (NCT) and the Out-Turn Test (OTT). The NCT is the easiest method to perform and gives an indication of the size of the raw nut by measuring the number of raw nuts per kilo. Nuts selected randomly from bags are placed on a scale until the scale reads 1 kg (RRF, 2011). Essentially, it takes much more small nuts to make a kilo than it does for larger nuts, the fewer the nuts taken to make a kilo, the bigger the size of the nuts. Nuts counting to medium-sized are typically 168–199/kg. Some nuts in India and Tanzania have been recorded as low as 160/ kg. Very small cashew nuts may be in the range of 230–240/kg: these are difficult to process and they are considered to have lower quality (Jim, 2011).

The OTT describes how much of the kernel inside of the shell is of good quality. The procedure for the OTT requires that the nuts be cut open and the inside kernel analyzed. It measures the percentage of nuts that meet the following five qualities; (i) Good nut, good kernel, good shape, size and white colour; (ii) Spotted kernel, in the one having black or dark spots; (iii) Premature kernel, is the one not well developed, lightweight, and wrinkled; (iv) Wet or moist kernels is the one having high percentage of moisture that can be felt or seen and (v) Rotten kernels diseases, is the one showing signs of insect damage, or other factors (Jim, 2011). Then there is a calculation, which is done to give an out-turn score, which is expressed in pounds of good kernel in an 80 kg sac. The scores typically range from 48 lbs to 58 lbs. According to Irtwange and Oshodi, (2009), the higher the out-turn score the better the nuts.

2.9 Primary Cooperatives

A Primary cooperative is the entity acting on behalf of member farmers to provide inputs and procure supplies (farm equipment, fertilizers, sprayers, and gunny bags) in bulk. It also buy raw cashew nuts from its members and sell the nuts via warehouse system. It receive first and second payment, making bargaining power with the existing price and farmers organized in primary cooperative societies, (UNIDO, 2011).

2.10 Financial Institution

As Ashimogo e*t al.* (2008) note, some credit institutions are in place but farmers avoid taking loans from such institutions for fear of crops failure and low farm gate prices that would make them unable to pay back the loans. As Kayunze*et al.* (2011) argue access to credit promotes agricultural productivity and subsequently reduce poverty. Moreover, farmers lack collaterals to act as security for the loans though they are willing to takethe loans (Ashimogo*et al.,* 2006 and Masawe*et al.,* 2011).

2.11 Cashew Nuts Price

Before the commencement of cashew nuts marketing season, the Cashew nuts Board brings together all stakeholders to set indicative (benchmark) prices. The set prices serve as reference point by various institutions when setting fees and taxes that have to be paid as products get from the farmers' fields to the warehouse. The farmer gets paid 75% of the total amount by the cooperative society upon delivery of the product (600 Tsh/kg in 2010/11). The second payment (Tsh 200/kg) is transferred via the cooperative to the farmer after the product has been auctioned and the buyer has paid for the product to the respective bank (Ashimogo*et al.,* 2008).

2.12 Livelihood

According to Urasa (2010) livelihood is defined as the assets, activities and the access that determine the living gained by an individual or a household. Livelihood means ensuring peoples' rights and maximum entitlements with deliberate organized efforts of the organization in improving the livelihood of its members. These rights include the rights to good health, happiness, comfort, prosperity, growth and protection (Abdus*et al.,* 2010). An incentive to invest in Marketing Infrastructure Value Addition and Rural Finance Progammeis for improving farmers' profit margins through the reduction of operational costs and value addition (ADF, 2011).In Tanzania, nearly 90% of the poor are living in rural areas and depend on the sale of agricultural products for about 75% of their household cash incomes (ADF, 2011).For example the livelihood of Matengo people is based on indigenous faming system by combining *ngolo* food cultivation, livestock and coffee productionMhando (2007). Thus, the construction of modern marketing infrastructures and the establishment of market linkages system among farmers would improve farmers' livelihood.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Location of the Study Area

This study was conducted in Newala District in Mtwara Region. The district was chosen it is one of the leading cashew nuts producing areas in Tanzania. However in April 2012, the district was hit by frequent unrestof cashew nut farmers who were unhappy with the operation of Warehouse receipt system. Figure 2 shows the map of Mtwara where Newala District is located and indicating cashew nut producing areas.

3.2 Geographical Location

The district is located in the southern part of Tanzania and it lies between longitude 39° 16' 22" East of Greenwich and between latitudes10° 56' 12" South of the equator. The district has a total area of about 2126km^2(URT, 1997).The district shares a border with Masasi Districtto the west, Tandahimba Districtto the east, Mozambiqueto the south, and Tandahimba and Masasi Districts to the north. According to URT (2013) the population of Newala District is 205 492 of which 95 018 are males and 111 474 are females. Most of the inhabitants belong toMakonde, Yao and Makua ethnic groups.

3.3 Climate

The area receives monomodal type of rainfall with an annual precipitation exceeding 1000 mm and a six month growing season from November to April. It has isohyperthermic temperatures and less fertile soils in the south east of Newala (URT, 1997).

3.4 Economic Activities

Socio economic activities of the population in the district fall within subsistence farming of perennial and annual crops. Crops grown in the district include cashew nuts, groundnuts, simsim, cowpeas, cassava, millet, sorghum and maize. Households keep livestock such as goats, cattle, sheep, chick, dogs, and pigs. The district is also endowed with minerals and which exploited on a small scale; such minerals include sapphire, christalbella, alexandrite, tourmaline and rhodolite, which have been mined Newala district, Masasidistrict and gas in Mtwara rural (URT, 1997).

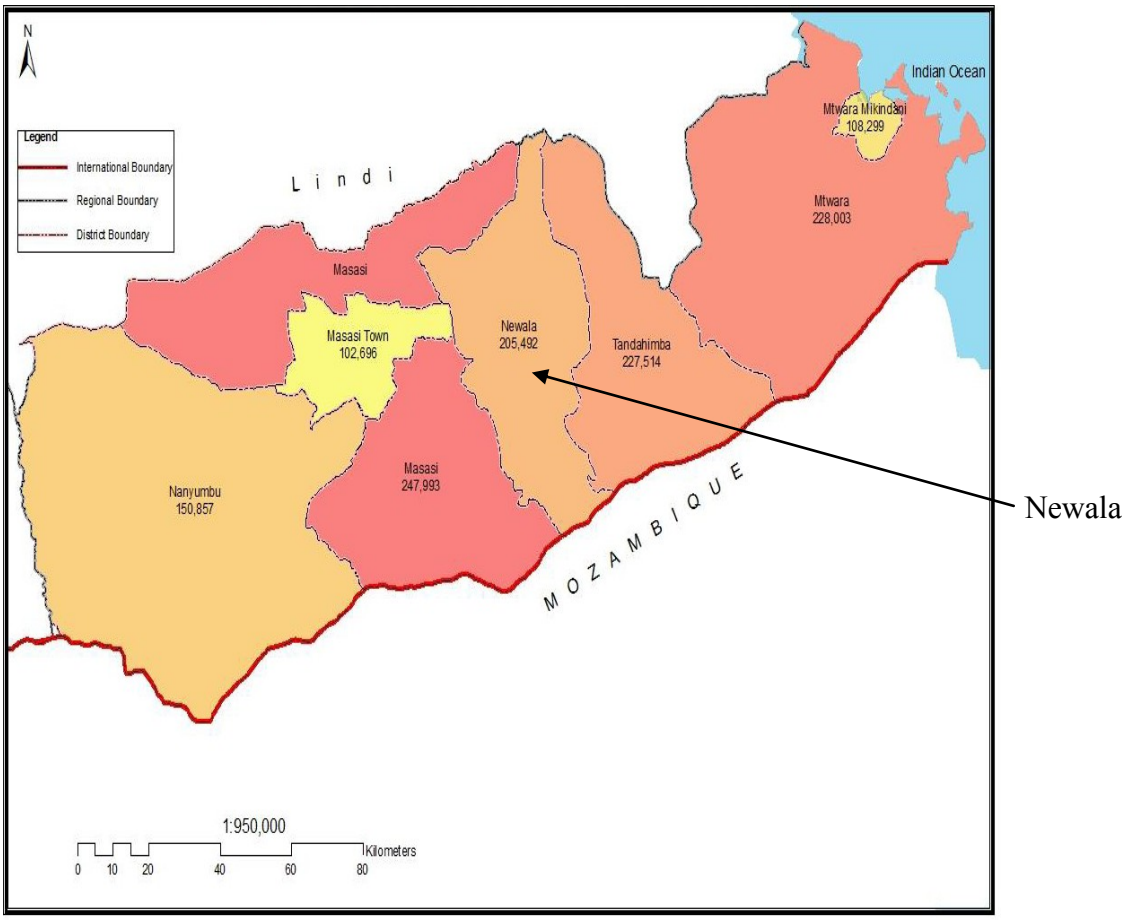

Figure 2: Map of Mtwara region showing cashew nuts producing areas

3.5 Research Design

This study employed cross-sectional research design. The design was chosen because of being economical in terms of time and financial resources (Kothari, 2004). It also ensures internal validity in which the findings obtained in the study area would be the true reflection of reality, rather than being the result of the effects of extraneous variables (Burns and Grove, 2009). As Russell and Sandip (2012) put it, cross-sectional research design measure some data change due to growth and some data due to other factors.

3.6 Sampling Procedure and Sample Size Determination

A multi stage sampling procedure was adopted. The first stage involved purposive selection of two wards in Newala District. These wards were selected because they had large numbers of cashew nut producers. The second stage involved a random selection of three villages from each ward. The third stage involved a random selection of individual farmers from each village. The list of all households from village registers was more available to which random selection of respondents was conducted. Each village provided 25 participants randomly selected to give a total sample of 150 respondents. The choice of this sample size was necessitated by the scarcity of financial resources available. As Bailey (1994) observes, regardless of the population size, the minimum sample size should be at least 30 cases for a research in which statistical data analysis is to be done. Table 1 shows the number of individual farmers obtained from each village.

Table 1: Population distribution by villages

Wards	Village	No of Household	Sample selection
Kitangali	Kitangali	8267	25
	Niamoja	1903	25
	Mandala	1221	25
Maputi	Maputi	6 421	25
	Mtongwele	2226	25
	Kadengwa	1116	25
Total		21154	150

Source: Population and Housing Census (URT, 2013)

3.7 Data Collection Methods

A structured questionnaire was administered for the collection of primary data from cashew nut farmers in the study area. In order to identify individual farmer's attitude, the Likert scale tool was used to collect primary information for the statements, which were designed such thatthe respondents were supposed to agree or disagree. The pre testing of questionnaire was done in order to ensure validity and reliability of the instrument. Necessary adjustments and corrections were made before final administration of the questionnaire.

3.8 Data Analysis

Descriptive statistics were adopted, in which means, frequencies and percentages of individual variables were computed for specific objectives one and four using Statistical Package for Social Science (SPSS) version 16.0. Knowledge index and attitude index were used for specific objectives two and three.

3.8.1 Knowledge Index

Knowledge index was used to measure farmers' level of awareness about WRS whereby statements were converted into index by summing up scores of each statement. The respondents were required to say either Yes or No for each statement. The score on the index were further categorized into high (5.1-10 score), medium (5.0 score) and low with (4.9-1) levels of knowledge. The responses were used to measure farmers' awareness about WRS and the data of the study are presented in Appendix 1 section 3.

3.8.2 Attitude Index

Information on the attitude of farmers towards warehouse receipt system was collected and measured using Likert items. Statements of positive and negative attitude among cashew nuts farmers towards WRS were used to develop attitude index. Respondents were requested to respond on five point Likert type scale as; strongly agreed, agreed, undecided, disagreed and strongly disagreed where 5 = strongly agreed, 4 = agreed, 3 = undecided, 2 = disagreed and 1 = strongly disagreed. For positive statements strongly agree was given a score of 1and for negative statement strongly agree was given a score of zero but reversed for negative worded statements (Ogunsumi,2011). The total score for each individual was stated such that the higher the score the more favorable the attitude. The responses were put into two groups namely; strongly agree and agree merged into agree while strongly disagree and disagree merged into disagree. The agree responses were represented by number 1 while disagree responses were represented by number 0. The 12 statements imply that the maximum score that the respondent could get was 12and the minimum score which a respondent could get was 0. This implies that the respondent's scores would range from 0 to 12. The scores on the index were further categorized into positive attitude and negative attitude. The positive attitude was considered if a respondent scored above the index mean while negative attitude was

considered if a respondent scored below the index mean. The statement variable result which was used to measure the respondent attitude is shown in Table 20.

3.8.3 Binary logistic regression model

In the inferential statistic, binary logistic regression model was used for a specific objective that aimed at determining the contribution of cashew nuts to farmers' livelihood. In this study, the livelihood level of farmers is measured in two categories good and bad. For example, a good house is the one in which its floor is made of cement while a bad house is one made of earth. Following this classification, binary logistic regression was used to assess the factors determining individual categories of house ownership (good or bad). Thefinding is reported to only one indicator which is the nature of the floor. This indicator produced the best model with two significant variables namely farm size and education. To reflect the situation the following regression was adopted$y_1 = \beta_0+\beta x_1+\beta_1 x_2 \ldots\ldots..\beta_n x_n$ +£.Where y=1 if a house has good floor, y=0 if it has bad floor. Therefore, the logistic model would belog $[\frac{p}{1-p}]=\beta_o+\beta x_1+\beta x_2 \ldots..\beta_n x_n$where p is the probability which signifies that ahousehold has a good floor and log $[\frac{p}{1-p}]$ is the logarithm of the odd ratio of having a good floor against bad floor (Andy, 2009). The independent variables used in the equation were x_1 = age, x_2 = marital status, x_3 = education level, x_4= farm size and x_5 = household sex. The analyses of the results which show farmers' livelihood are presented in Table 22.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Farmers' Background Characteristic

4.1.1 Age of the respondents

With regard to age, the findings show that 38.7% of the respondents were between 40 to 50 years, and 32.7%were between 29 to 39 years. Furthermore, the findings show that cashew nut producers aged between 18 and 28 and those above 51years were 4.7% and 24% respectively (Table 2). As it can be noted from the findings, it is 4.7% of the respondents which is in the age group of between 18 and 28; this is probably due to fact that most young people do not like farming activities, and are therefore make engaged in other economic activities such assmall businesses.

Table 2: Respondents ages in years (n=150)

Ages of respondents in years	Frequency	Percentage
18-28 years	7	4.7
29-39	49	32.7
40-50	58	38.7
Over 51	36	24
Total	**150**	**100**

Age of adult farmers is considered to be an important factorin determining the positive or negative attitude towards WRS. According to Makhura (2000, cited in Kulindwa, 2008), older farmers may be more experienced in marketing management, bargaining power, and may have stronger networks which can be an important driver in lowering transaction costs. This means that much of the agricultural production and marketing in the area is managed by active adult farmers whose ages range from 29 to 50 years (Table 2). This finding implies that most of the cashew nuts producers were within the active age group

and could provide the required information for the study. These findings agree with Mgina (2000, cited in Ghasia, 2003) who observe that most of the cash crop farms belong to old people.

4.1.2 Sex

Findings in Table 3 show that 73.3% of the respondents were males and 26.7% were females. According to these findings, males dominated cashew nuts production compared with females in the District due to nature of the work, which is very tedious and needs a lot of money investment. Therefore males have more chance to participate in making decisions about WRS.These findings are in line with Ghasia (2003) who found that 80% of the respondents were males and 20%were females engaged in cashew nuts production.

Table 3: Respondents sex (n=150)

Sex	Frequency	Percentages
Male	110	73.3
Female	40	26.7
Total	**150**	**100.0**

4.1.3 Marital status

Findings in Table 4show that 89.3% of the respondents were married,while the remaining 8.7%, 1.3% and 0.7% were single, divorced, and widowed respectively. These findings indicate that majority (89.3%) of farmers were married.

Table 4: Marital status (n=150)

Marital status	Frequency	Percentages
Married	134	89.3
Single	13	8.7
Divorced	2	1.3
Widowed	1	0.7
Total	**150**	**100.0**

4.1.4 Level of education

Findings in Table 5 show that 82.7% of the respondents had at least completed primary education and 14% had attained secondary education while 3.3% had not attended any formal education. These results indicate that majority (82.7%) of the cashew nut producers had primary education. The findings are in agreement with other findings by Ramadhani*et al* (2014)who reportedthat cashew nut producers had low level of education. Similar findings are reported by Ghasia (2003) indicating that about 77.5% of the respondent had completed primary education.

Table 5: Level of education (n=150)

Education level	Frequency	Percentages
Primary education	124	82.7
Secondary education	21	14
No formal education	5	3.3
Total	**150**	**100.0**

4.1.5 Income level

Findings presented in Table 6 show that 47.3% of the respondents earn an income of between 200 000 to 599 999 Tanzanian shillings. While 22% of the respondents earn between 600 000 and 999 999 Tanzanian shillings, 16.7% earn an income of from1000 000 Tanzanian shillings and 14% earn below 199 999 Tanzanian shillings. The findings

are in line with the findings in a study by Peter (2011) who reported that about 41% of cashew nut farmers earn 127 300 Tanzanian shillings. On the other hand, Ellis and Freeman (2004), Mhando (2007) and Lay and Mahmoud (2008)indicated that smallholder farmer can increase his/her income through indigenous farming system by combine food cultivation, livestock and cashew crops cultivation.

Table 6: Income generation (n=150)

Income level	Frequency	Percentages
Up to Tshs 199 999/=	21	14
Between Tshs 200 000 – 599 999/=	71	47.3
Between Tshs 600 000 – 999 000/=	33	22
Tshs 1 000 000/= and above	25	16.7

4.2 Warehouse Receipt System

4.2.1 Source of information to cashew nut producer

Warehouse Receipt System Act No 10 of 2005 indicates that warehouse receipt system helps in the establishment of regulatory framework for all agricultural commodities in Tanzania mainland (URT, 2009). Thus, during the study, farmers were asked to state the source of information about warehouse receipt system. The finding in Table 7 shows that 50.7% of the respondents reported to have received informationof warehouse receipt system from Cashew nuts Board of Tanzania, 33.3% came to know about warehouse receipt systemfrom fellow farmers and primary cooperatives, 12% got information about warehouse receipt system from mass media and 4% got information about the warehouse receipt system from political meetings. These findings imply that Cashew nuts Board of Tanzania which is supposed to provide information to farmers were not accountable and reliable.This finding was in linewithCashew nuts Industry Act of 2009 which state that one of the function of the Cashew nut Board was to collect, refine, maintain and

disseminate information to cashew nuts farmer through primary cooperatives (URT, 2009).

Table 7: Sources of information (n=150)

Farmers' responses	Frequency	Percentage
Cashew nuts board of Tanzania	76	50.7
Fellow farmers/friends and coops	50	33.3
Mass media (TV, radio and newspapers)	18	12.0
Political meetings	6	4.0
Total	**150**	**100.0**

4.2.2 Methods for cashew nuts grading

Cashew nuts Industries Act No 18 of 2009 shows that warehouse receipt has reinforced establishment of the Cashew nut Board (URT, 2009). The main tasks of the Board among other things include provision of regulations for cashew nuts production, grading, processing and marketing. In the survey, farmers were asked to state the method used to grade cashew nuts. Finding in Table 8 shows that 88.0% of the respondents reported to have been using visual grading, while 12% reported to have been using cutting test method. This implies that the major method used in grading cashew nuts was visual grading. During grading, small, light, spot and wet cashew nuts are removed from the rest to maintain quality. The findings are in agreement with those of Mhando (2007) who reported thatMbinga Cooperative Union(MBICU) and the local government have attempted to maintain a high quality of cashew crops through visual grading using extension workers.

A modern system such as the use of moisture meter is needed at primary cooperative for measuring moisture content in raw cashew nuts. The acceptable moisture content range from 10% to 12%; suchcashew nuts will be allowed tobe tradedbecause they are regarded

as of good quality (Onumah, 2010).The finding is therefore in line with Jim (2011) who observes that very small cashew nuts may be in the range of 230 to 240 per one kilogram;these were difficult to process and considered to be poor in quality.

Table 8: Cashew nuts grading (n=150)

Farmers' response	Frequency	Percentages
Visual grading	132	88.0
Cutting test method	18	12.0
Total	**150**	**100.0**

4.2.3 Crops stored in warehouse (WR)

During the study respondents were asked to indicate the major types of crops stored in the WR. This was because the researcher wanted to gauge the effect of a standard storage and collateral management contract between the depositor and the storage operator. The findings in Table 9 indicates that 81.3% of the respondents reported to have been storing cashew nuts, 6.7% store other crops whereas 12%store both cashew nut and other crops. These findings indicate that Warehouse operating in Newalais used to store cashew nutswhich are intended to be sold in the presence of buyers at a given indicative price.However, most of the WR operate under very poor conditions while some of them have leaking or collapsed roofs or have unfaithful operators causing a lot of damage and loss of quality of the stored cashew nuts.

Table 9: Types of crops stored in WR (n=150)

Respondents	Frequency	Percentages
Cashew nuts	122	81.3
Other crops	10	6.7
Both cashew nuts and other crops	18	12.0
Total	**150**	**100.0**

4.2.4 Benefits obtained through WRS

The Agricultural Commodity Exchange for Africa (ACE) has been advocating for a Warehouse Receipt System (WRS) as an integral part of agricultural trade and financing board since its incorporation in 2005. There has been a substantial need in the market for a system which would reduce risks of defaults of contracts or performance in agricultural trade and which would alsofacilitate the presence of competitive financing institutions involved with agricultural commodities as collateral. Mtwara Region does not have a regulatory framework for warehouse receipts, thus the system has to be built on a contractual relationship between depositors, storage operators and financial institutions.

During the survey, farmers were asked to state the major benefit gained through Warehouse Receipt System**.**Findingsin Table 10 show that 80% of the respondents in the study reported that WRS helps to reduce unethical marketing of cashew nuts, 10.7% reported that WRS provided better prices to farmers, 6% reported that WRS increased the bargaining power of farmers, 2.7% reported that WRS provide technology to farmers and 0.7% reported that I do not know.The findings show that those indicated that WRS helps to reduce unethical marketing of cashew nutswere the majority (80%). Similar, findings are reported by UNIDO (2011) indicated that warehouse receipt system eliminated *Kangomba*system which used the weighs 1.25 to 1.8 kg measuring scales for the commodities weighing 1kg.

Table 10: Warehouse benefit (n=150)

Farmers' response	Frequency	Percentages
Reduce unethical marketing of cashew nuts	120	80.0
Provide better price to farmers	16	10.7
Increasing bargaining power of farmers	9	6.0
Provide technology to farmers	4	2.7
I do not know	1	0.7
Total	**150**	**100.0**

4.2.5 Proximity to market centre

Proximity to marketsallow farmers to deliver the products to the market in time and at lower costs. Proximity to the market centre is positively related to market participation and thisis measured as the distance from the market increases participation to the market decreases. The findings in Table 11 illustrate that 87.3% of the respondents interviewed were located between 0-2kmfrom the market centre, 12.0% were located between 3-5km,and 0.7% of the respondents were located between 6 km and 8km from the market centre. These findings imply that many farmers were close to the market centres and had a chance of gettingmarket information early and timely although validity and reliability of such information within the system were usually questionable.

Thesefindings weresimilar with the finding of a study by Makhura (2001) who reported that households located closer to the market or town were more likely to sell their commodities as opposed to those living further away.These observationsare logically linked since farmers living near the markets or towns have more accessible to up to date information about markets, and which help themin making the right decisionsin marketing their products.

Table 11: Market proximity (n=150)

Distance in km	Frequency	Percentages
0-2	131	87.3
3-5	18	12.0
6-8	1	0.7
Total	**150**	**100.0**

4.2.6 Means of transporting cashew nuts from homestead to market Centre

Findings in Table 12 show that 58.7% of the respondents used bicycles to transport cashew nut from homestead to the market centre, 29.3% used motor cycles, 11.3% walked and 0.7% used vehicles. This implies that the family use of bicycles is the most common means of transporting cashew nuts to the market centre. This means of transportation shows formany farmers in rural areasis still poor and that WRS has not had much impact inimproving the income of these cashew nuts farmers. This finding is in line with the finding by the World Bank (2011) which observes that poverty in Tanzania is concentrated in rural areas where 84% of the people cannot afford to ownmotor-cycle or vehicle for transporting their cargos.

Table 12: Means of transporting the produce from home steady to market (n=150)

Responses	Frequency	Percent
Bicycle	88	58.7
Motor-cycle	44	29.3
Foot	17	11.3
Vehicle	1	0.7
Total	**150**	**100.0**

4.2.7 Price of cashew nuts

Findings in Table 13 show that 82.0% of the respondents indicated that the price was being set by the Cashew nuts Board of Tanzania only, while 16% said the price was being set by cooperatives, politicians and CBT; 1.3% said the price was set by membersof the cooperatives and only 0.7%said that the price was set by politicians only. These finding show that majority (82%) of the respondents indicate that price of cashew nuts was set byCashew nuts Board of Tanzania. These findings are in line with Mitchell (2004) who asserts that the Cashew nuts Board of Tanzania announced an indicative price of 540 Tanzanian shillings (Tshs) a kilogram for standard grade cashew nuts in September 2000.

Table 13: Price of cashew nuts (n=150)

Farmers' responses	Frequency	Percentages
Cashew nut board of Tanzania only	123	82.0
Cooperative, politicians and CBT	24	16.0
Member of cooperatives only	2	1.3
Politicians only	1	0.7
Total	**150**	**100.0**

4.2.8 Time of payment

The findings in Table 14 show that 88.7% of the respondents reported that paymentfor cashew farmers was on average made more than 9 weeks after selling of the cashew nuts. About 5.3% reported that the payment for cashewsales was done between six and eight weeks, 5.3% reported that payment for cashew nut was done between threeand five weeks, and 0.7% reported that the payment is made between the first and the second week.

Table 14: Time of payments under WRS (n=150)

Farmers responses	Frequency	Percentages
9 weeks and above	133	88.7
6-8 Weeks	8	5.3
3-5 Weeks	8	5.3
1-2 Weeks	1	0.7
Total	**150**	**100.0**

The findings indicate that the timing of payment for farmers' produce was not consistent and timely. This makes farmers unable to meet other family commitments such as medical care, school fees, buying food and agricultural inputs. This situation causes discontent among cashew nut farmers in several areas in Mtwara region resulting into negative attitude toward the implementation of warehouse receipt system.

4.2.9 Operation cost through WRS

Findings in Table 15 showthat 92.7% of the respondents reported that the cost of operation is increasing,4% reported that the cost has remained constant and 3.3% reported that the cost has decreased. For example a farmer had to pay cess cost such as district cost, marketing cost, loan cost, primary cooperatives cost and cost of purchasing raw cashew nut. The finding is in line with UNIDO (2011) which observed that operation cost, loan costs, marketing costs, cost of purchasing raw cashew nuts and deterioration in quality or shrinkage arising from poor handling was deducted from the price paid to farmers at the warehouse receipt system. On the other handAntony *et al*. (2012) point out that operation costs rises not only due to higher transportation costs, but also due to the increased costs of screening, bargaining with and monitoring distant trading partners.

Table 15: Cost of operation (n=150)

Farmers response	Frequency	Percentages
Increasing	139	92.7
Decreeing	5	4.0
Remain constant	4	3.3
Total	**150**	**100.0**

4.2.10 Production trend

Findings in Table 16 reveals that 55.3% of the respondents reported that cashew nuts yield was decreasing while 30.7% reported that yields remained constant and 14% said yield was increasing. These findings imply that WRS hadlittle impact on increasing the production of cashew nuts.These findings are in line with other findings of a study by Abbas (2009) and Kowero (2008) who report that over time use, poor land use, poor management, unregulated planting seedling and poor market access result in decline in cashew nuts productivity in African countries. On the other hand, Mkude (2003) reports that weeding and crop protection practice such as the use of sulphur and other organic alternative like Anvil, Toppac and Bayfidanare likely to increase cashew nuts productivity. In respect of the theory of reasoned action (TRA), farmers make assumptions on deciding to increase or decrease the cashew nut production by observing market trend price of each season.

Table 16: Production trend (n=150)

Farmers responses	Frequency	Percentages
Increasing	21	14
Decreasing	83	55.3
Constants	46	30.7
Total	**150**	**100.0**

4.2.11 Cooperative members

In the survey, farmers were asked whether or not they were members of primary cooperatives, with the aim of examining the advantages and disadvantages of membership in primary cooperatives. The findings in Table 17 show that 52.7% of the respondents were members of primary cooperatives while 47.3% were not members. The findings show that primary cooperatives had better performance than cashew nut farmers who become members of primary cooperatives on privilege of input supply, markets access and were paid their money early than those who were not member. The findings were in linewith Bezabih (2009) who observedthat primary cooperatives help farmers to access markets, creates jobs, generate income, provide social protection and give their members a voice and representation in society.

Table 17: Member of cooperative (n=150)

Response	Frequency	Percentages
Farmers joined cooperatives	79	52.7
Farmers didn't join cooperatives	71	47.3
Total	**150**	**100.0**

4.3 Knowledge Level about Warehouse Receipt System

4.3.1 General famers' knowledge about WRS

In order to gauge general knowledge on WRS among farmers, respondents wereasked to state whether they agree or disagree with constructed statements. Later on the percentages of individuals saying "agree" or disagree" in each of the statements were computed and the findings are presented in Table 18. The findings showed that 90% of the respondents agreed with the statement that WRS takes a long time to pay farmers, 80% agreed that they can keep receipt for a long time, 78.7% agreed that they can get education outside the village, 73.7% agree that they sell all of cashew nut produced last season and 65.3% agree that primary cooperatives delay to solve farmers' problem. This means that majority

of the respondents have low knowledge about the performance of WRS in marketing their product. This situation could make farmers have negative attitude towards WRS and see it as exploitative.

Table 18: Knowledge statement expressed in percentage (n=150)

Statements	Yes (%)	No (%)
With WRS I can keep receipt for a long time	80.0	20.0
It is easy to lose the WRS coupon or receipt	21.3	78.7
Coops solve problem quickly encountered during operation	32.0	68.0
Coops delay on solving problem encountered during operation	65.3	34.7
Can you receive education about WRS within the village	23.3	73.7
Can you receive education about WRS outside the village	78.7	21.3
Did you fail to sell cashew nut product last season	16.7	83.3
Did you sell all of cashew nuts produce last season	73.7	26.7
Do you think time taken is two long	90.0	10.0
Do you think time taken is too short	21.2	78.8

4.3.2 Knowledge index

To analyse the level of knowledge of farmers about the operations of warehouse receipt system, an index was developed using 10 statements each of which measuredsome aspects of knowledge. For each aspect, every "Yes" response towards a positive statement was given a value of 1, while every "No" response to a positive statement was given a value of 0. Likewise a Yes response to a negative statement was given a value of 0 while "No" to a negative statement was given a value 1.

In this approach a respondent with a score of 10 would be considered as having high knowledge because he or she managed to score in all the statements measuring awareness correctly and a respondent with 0 score will be considered as having no knowledge. The values of index knowledge were categorized as high knowledge, medium knowledge and low knowledge so as to get a meaningful analysis. Scores of 5.1-10 were considered as having high knowledge, 5.0 as having medium knowledge and 0-4.9 were considered as having low knowledge on issues related to WRS. The findings in Table 19 show that 64% of the respondents had low knowledge, 9.3% had medium knowledge whereas 26.7% had high knowledge.

Table 19: Score of respondents and their categorization (n=150)

Score	**Frequency**	**Percentage**
2	18	12.0
3	33	22.0
4	45	30.0
5	14	9.3
6	19	12.7
7	8	5.3
8	6	4.0
9	3	2.0
10	4	2.7
Total	**150**	**100.00**
Categorization of knowledge		
Low	96	64.0
Medium	14	9.3
High	40	26.7

Many respondents were found to have little understanding about warehouse receipt system. The findings are consistent with the findings in a study done byTechnoServe(2010) which show that small cashew nut farmers in the region are

characterized by having low knowledge on the operation of WRS through marketing chain.

4.4 Attitude towards Warehouse Receipt System

4.4.1 Farmers' attitude towards warehouse receipt system

In order to understand the attitude of cashew nut farmers towards warehouse receipt system which operates in Newala District, Likert items were used. The respondents were asked to say whether they agree or disagree with each item (Rob, 2010). The findings were computed using summated scale approach where scores on positive and negative statements were obtained and compared. In this study, most of the respondents received high percentage scores on all negative statements and relatively low percentage score on positive statements.

The field data in Table 20 can be summarized as follows; 40.0% of the respondents agree with the positive statement that WRS provide inputs and 60.0% disagree with negative, 72.7% agree with negative statement that they can get inputs outside the WRS; and 27.3% disagree with positive. About 20.7% of the respondents agree with positive statement that financial institutions provide loans with reasonable interests and 79.3% disagree with positive. About 87.3% of the respondents agree with negative statement that financial institution provide loan with high interest and 12.7% disagree with positive. About 78.3%of the respondents agree with the positive statement that WRS help farmers to ensure that large quantities of the crop are sold and 21.7% disagree with positive. About 68.3% of the respondents agree with negative statement that with WRS the quantities sold can be questionable and 31.7 disagree with positive. About 87.0% of the respondents agree with negative statement that WRS promote mistrustamong operators and farmers and 13.0% disagree with positive. About 17.3% of the respondents agree with positive

statement that WRS promote trustamong operators and farmers and 82.7% disagree with positive. About 36.3% of the respondents agree with positive statement that WRS provide reliable promise about payment of money and 63.7% disagree with negative. About 72.7%of the respondents agree with the negative statement that promise will be met and 27.3% disagree with positive. About 76.7% of the respondents agree with positive statement that clerks grade cashew nuts efficiently and 23.3% disagree with positive. About 86.0% of the respondents agree with negative statement that clerks cheat farmers on grading cashew nuts and 14.0% disagree with positive. In general, many farmers had negative attitude towards WRS statements.

Table 20: Statements used to measure farmers' attitude towards WRS (n=150)

Statements	Agree%	Disagree %
I can get inputs from WRS	40.0	60.0
I can get inputs a way from WRS	72.7	27.3
Financial institutions provide loans with reasonable interests	20.7	79.3
Financial institutions provide loans with high interest.	87.3	12.7
WRS helps farmers to ensure the quantity sold.	78.3	21.7
With WRS I can get doubt on the quantity sold.	68.3	31.3
The WRS promotes trusteeship among primary cooperative operators and farmers.	17.3	82.7
The WRS promotes miss-trusteeship among primary cooperative operators and farmers.	87	13.0
With WRS I can get reliable promises about payment of money.	36.3	63.7
One is never sure to whether or not a promise of payment will be met.	72.7	27.3
I have confidence with clerks on grading cashew nuts before selling.	76.7	23.3
The clerks cheat the farmers on grading cashew nuts.	86.0	14.0

These findingswere in contrast with the findings of a study byOsei*et al*. (2010), USAID (2012) and Mahanta (2012) who found out that the main objective of WRS was to facilitate storage of commodities, provide credit, market access, improve quality of commodities and solve other constraints that hampered effective production of agricultural produce. However in Tanzania, the flow of reliable and relevant market information to producers through WRS was questionable. This provided a room for cashew nuts farmers to develop negative attitude toward WRS.

4.4.2 Attitude index of farmers towards warehouse receipt system

In order to gauge attitude towards WRS an index was developed. The responses were grouped into two categories namely agree and disagree. In all positive statements every "Agree" response was given a score of 1 while "Disagree" was given a score of 0. For all negative statements every "Agree" response was given a score of 0 while "Disagree" was given a score of 1. The list of the variable and their values are presented in Table 21. In this phenomena an index ranging from a score of 0 to 12 was constructed as a measure of attitude towards WRS; the scale had a mean of 5.3 and a scores on the index were further categorized into negative and positive attitudes. A score value above the index mean was categorized as positive attitude where the score below the index mean was categorized as negative attitude. The data in Table 21 show that 62.7% of the respondents had negative attitude while 37.3% of the respondents had positive attitude towards Warehouse Receipt System.

Table 21: Attitude of cashew nuts farmers towards WRS (n=150)

Score	Frequency	Percentages
3	4	2.7
4	10	6.7
5	16	10.7
6	18	12.0
7	8	5.3
8	26	17.3
9	34	22.7
10	11	7.3
11	23	15.3
Total	**150**	**100.0**
Attitude towards WRS		
Positive	56	37.3
Negative	94	62.7

4.5 Contribution of Cashew nuts to Farmer's Livelihood

4.5.1 Farmer's livelihood

Findings in Table 22 show that farm size which had P=0.000 was the most significant predictor of improvement of people's livelihood based on the quality of house. The coefficient is positive (1.526) implying that farmers, who have big farm sizes are likely to have good quality houses. Thus, big farms help farmers to produce more cashew nuts and when sold they enable them to build quality houses. Another variable which influence farmer's quality of housing is farmer's education denoted by p=0.007. Its coefficient is positive (1.29) show that an educated farmer can spare some cash earned through cashew nuts selling to build a good house. However, variables such as age, marital status and sex were insignificant. While age had positive influence, marital status and sex had negative influence. The research found that a farmer being a male or a female or being old or young had no relationship in the contribution to theimproved livelihood of cashew nut farmers.

Table 22: Nature of the Floor

Variable	B	S.E	Wald	Df	Sig	Exp(B)
Age	.047	.225	.044	1	.834	1.048
Marital	-.737	.529	1.944	1	.163	.478
Education level	1.291	.482	7.160	1	.007	3.636
Farm size	1.526	.370	17.000	1	.000	4.602
Household sex	-.686	.490	1.962	1	.161	.504
Constant	-3.399	1.634	4.328	1	.037	.033

P = 0.000 Chi-value = 30.625 n = 15

4.5.2 Assets possession

As for asset possession the objective was to measure the economic status of each surveyed household using assets possession as an indicator (Table 23). The findings show that 78% of the cashew nut producers owned houses, hoes, farm, mobile phones, radio and bicycles; 11.3% owned houses, hoes, farm, mobile phones, radio, bicycle and TV; and 10.7% owned houses, hoes, farm, mobile phones, radio, bicycle, TV and Motorcycle. The findings show that most of the cashew nut producers earn low income thus preventing them from owning good quantity and quality of household assets. The findingsare consistent with the ones by Kanji *et al.* (2005) who report that limited access of assets, services and social networks are an important indicator of insufficient incomes.

Table 23: Assets possession (n=150)

Farmers response	Frequency	Percentages
Houses, hoes, farms, mobile phone, radios and bicycles	117	78.0
Houses, hoes, farms, mobile phone, radios, bicycles and TV	17	11.3
Houses, hoes, farms, mobile phone, radios, bicycles, TVs and Motorcycles	16	10.7
Total	150	100.0

4.5.3 Material used for house wall

Findings in Table 24 showmaterial used by the respondents to construct houses, whereby 45.3% of cashew nut producers use un burnt earth bricks; 27.3% use mud and trees; 22.0% use cement bricks; 3.3% use burnt bricks and 2.0% use thatches. The findings indicate that most (45.3%) of cashew nut producers use un-burnt earth brick which is easy to obtain and purchase. The findings are in agreement with those in a study byFred *et al.*(2001) who reported that in southern Tanzania (Lindi) the small scale farmers have low incomes which is likely to causelabour problems, low productivity, poor housing and few assets possession.

Table 24: Materials of house wall (n=150)

Response	Frequency	Percentages
Un-burnt earth bricks	68	45.3
Mud and trees	41	27.3
Cement bricks	33	22.0
Burnt bricks	5	3.3
Thatches	3	2.0
Total	**150**	**100.0**

4.5.4 Toilet facilities

Another asset which was used to measure the livelihood status was possession of toilet facilities. Table 25 indicates that 77.3% of cashew nut producers reported to have owned traditional pit toilet and 22.7% owned ventilated improveBd pit. This meansthat cashew nut producers use traditional toilet facilities. These findings are in line with observations by Mend (2009) who indicated that smallholder farmers own traditional toilet which need to improvehygiene by refill and plant toilet facilities.

Table 25: Toilet facilities (n=150)

Farmers response	Frequency	Percentages
Traditional pit toilet	116	77.3
Ventilated improved pit	34	22.7
Total	**150**	**100.0**

4.5.5 Roof covering and nature of the floor

Findings in Table 26 show that 72% of the respondents in the rural areas in the district use corrugated iron sheet and 28% use thatches as roof covering material because corrugated iron sheet are expensive.

Table 26: Roof covering material (n=150)

Farmers response	Frequency	Percentages
Corrugated iron sheet	108	72
Thatches	42	28
Total	**150**	**100**

Findings in Table 27 show further that 62.7% of cashew nut farmers had houses with earth floor and 37.3% had houses with cement floor. This implies that many cashew nut producers leave in poor houses. Thus, WRS fails to generate high income among the cashew nuts farmers so as to improve their livelihood.AsEleni and Madhin (2009) suggest, educating the rural poor about market prices and commercial value for their products would be a factor in improving the livelihood of the poor in the area.

Table 27: Nature of the floor (n=150)

Response	Frequency	Percentages
Earth	94	62.7
Cement	56	37.3
Total	**150**	**100.0**

CHAPTER FIVE

5.0 CONCLUSION AND RECOMENDATIONS

5.1 Conclusion

With regard to the description of WRS that operates in Newala district,the findings show that public warehouse approach was dominant in the marketing chain of cashew nut crop inaddressing problems of storage facilities and access to credit. ThisWRS is considered as a company storing goods for the public in general on behalf of whosoever wishes to deposit in the warehouse which issues to the respective depositors warehouse receipts that can be used for trading purposes or as collateral for raising depositors' incomes. In the WRS operations in Newala district transparency was found to be poor due to lack of proper market information. However, most of the warehouses were in very poor conditions while some of them had leaking roofs, few moisture meters and dishonest operators as well as corruption causing loss of stored cashew nut bags. To tackle these problems primary cooperatives should build modern warehouseand engage skilled workers and trustworthy operators.

The second objective of the study was to determine the knowledge levels of farmers about WRS. To address this objective, knowledge index scale was used to analyse the respondents' awareness of the WRS elements. The study found that 64%of the respondents had low knowledge regarding time of payment, production cost, weighing scale, cashew grading, price setting, input supply and dissemination of information. Some misconception was observed particularly on the causes of payments delays for deposited cashew nuts leading to poor living standard among the producers. The findings found that primary cooperatives workers and VEO are the causes of the delay, and therefore they were to be held responsible for the plight of cashew nut farmers.

The third objective of the study was to determine farmers' attitude toward warehouse receipt system. This objective was analysed using attitude index scale using 12 statements. The findings show that 62.7% of the respondents had negative attitude. This means WRS was not yet effectively and efficiency implemented in the study area. The available evidence indicates that the overall participation of cashew nuts farmers in the cashew nut market remains very low. Farmers reported that delays in payment, delays in information dissemination and dishonest among WRS staff cultivated negative attitude among producers towards WRS as elaborated in the theory of reasoned action in Chapter One.

The fourth objective was to determine the contribution of cashew nuts to farmers' livelihood. The findings show that cashew nut producers depend on subsistence growing of cashew for their livelihoods, and that most of them faced many problems in marketing and exporting their products. However, it was noted that farm size and education level of the respondents had positive influence on farmer's livelihood. Thus, big farms helped farmers to produce more cashew nuts which when sold they are able to build good houses. Another variable which influenced farmers' livelihood was education. Educated farmers could handle all farms related activities and spare some money earned from cashew nuts selling to purchase household assets.

Literature on warehouse receipt system lists considerable benefits of the system to the farmers throughan increase of agricultural outputs and productivity through addressing many of the marketing and financing constraints in the cashew nut sector. In Mtwara region, one of the major benefits of WRS is the reduction of unethical agricultural marketing practices (Kangomba system) which forces farmers into extreme poverty. The study found that the warehouse receipt system brought problems to most smallholder

cashew nuts producers. These problems include chaos, miss-trust of leaders, lack of transparency, cash payment delay, poor infrastructure, poor policy, biasness in disseminating information and corruption. The government and other stakeholders need to take appropriate measures to address poor performance of warehouse receipt system in the study area.

5.2 Recommendations

In accordance with the study findings and the conclusion the following recommendations are made;

i. Payment to cashew nuts producers should be done immediately after selling their produce.

ii. CBT should encourage fully participation of all stakeholders in all stages of cashew nuts marketing.

iii. Trading and auctioning should be done at primary cooperatives level between buyers and cashew nuts producers.

iv. The cashew nuts marketing chain should involve few stakeholders, and adequate and timely marketing information should be provided to cashew nuts farmers.

v. The system of grading of cashew nuts should be uniform from primary cooperatives to warehouse operation.

vi. The rural primary cooperative societies should be strengthened through giving them soft loans to buy crops and be allowed to sell crops outside the country.

Likewise, making sure that the cashew nut marketing is done on hand of pure primary cooperative societies.

vii. Training of farmers on how and where to apply loans, use of improved seedling, how to find cashew nut markets outside the country, processing using simple technology, packaging and cashew nuts grading need to be undertaken.

viii. The government via CBTshould reform the WRS or abolish the system completely because the system fails to eradicate poverty among smaller farmers in Newala district.

ix. The government should revive the former marketing system where buyers purchase cashew nuts from the farmers and pay money immediately.

Further research should be done to determine the level of cashew nuts shrinkage that rise to 1% which is not accepted by buyer.

REFERENCES

Abbas, I. I. (2009). An overview of land cover changes in Nigeria. *Journal of Geography and Regional Planning* 2(4): 62 – 65.

Abdul, B., Salami, A. and Kamara, B. Z. (2010).*Smallholder Agriculture in East Africa, Trends, Constraints and Opportunities.*Working Papers Series No 105. African Development Bank, Tunis,Tunisia. 52pp.

ADF (2011).*Competitiveness and Job Creation Support Project.*Appraisal Report, Malawi. 34pp.

Ajzen, I. and Fishben, (1980).*Understanding Attitudes and Predicting Social Behavior* Engle wood Cliffs, United States of America. 278pp.

Ajzen, I. (2001). Perceived behavior control, Self efficacy, Locus of control and the theory of planned behavior.*Journal of Applied Social Psychology* 32: 1 – 20.

Andrew, C. and Maghembe, J. A. (2011).*The Minister for Agriculture Food Security and Cooperatives.*Global Commodity Forum Geneva, Switzerland. 8pp.

Andy, F. (2009).*Discovering Statistics Using SPSS:* Los Angeles. New Delhi, India. 857pp.

Antony, C., Gelson, T. and Mary, L. (2012).*Smallholder Farmers Participation in Livestock Markets*.The Case of Zambian Farmers.Working Paper No.

66.Indaba Agricultural Policy Research Institute (IAPRI) Lusaka, Zambia. 38pp.

Ashimogo, G., Mlozi, M. and Silayo V.(2006). Market analysis and survey of small scale cashew processing firms.*BACAS Consultancy Final Report presented to PEA, Common Fund for Commodities, Regional Cashew Improvement Network of Eastern and Southern Africa-Mtwara Tanzania*. 13pp

Ashimogo G., Mlozi M. and Silayo V. (2008)*Cashew profitability analysis and projection of the sector's future performance in Kenya, Malawi, Mozambique and Tanzania.* BACAS Consultancy Final Report presented to PEA, Common Fund for Commodities, Regional Cashew Improvement Network of Eastern and Southern Africa-Mtwara Tanzania. 76pp.

Atul, M., Sudhir, J. and Jowar, A. G. (2011). Cashew nut processing: Sources of environmental pollution and standards College of Technology and Engineering, Maharanapratap University. *Agriculture and TechnologyUdaipur* 1: 5 – 11.

Bailey, E.R. (1994). *Method of Social Research*.The Free Press.A Division of Macmillan Inc. New York. 345pp.

Bezabih, E. (2009). *Cooperatives, a Path to Economic and Social Empowerment in Ethiopia*.Series on the status of cooperative development in Africa.International Labour Organization, Geneva, Switzerland. 44pp.

Bartlett, E. J., Joe W. K. and Chadwick, C. H. (2001).Organizational research: Determining appropriate sample size in survey research, *Journal of Information Technology, Learning, and Performance* 19(1): 1 – 8.

Burns, N. and Grove, S. K. (2009).*The Practice of Nursing Research: Appraisal, Synthesis and Generation of Evidence.* St. Louis, Saunders Elsevier, United State of America. 750pp.

Butler , C. J., Robert A. G., Mary, M. Q., Robert, B. R., Kenneth, W. H., Catherine, C. and Hoffman, C. (2006). *Functional Behavioral Assessment, Behavioral Intervention Plans, and Positive Intervention and Supports*: An essential part of effective school wide discipline in Virginia.Department of Education, USA.31pp.

Byrka, K. (2009).*Attitude-behavior Consistency Campbell's Paradigm in Environmental and Health Domains*.University of Technology Library, 57pp.

David, B., Lobellb, M. L., Navin, R. and Pedram, R. (2010).Climate variability and crop production in Tanzania.*Journal of Agricultural and Forest Meteorology*151: 449 – 460.

Doss, C., Mwangi, W. Verkuijl, H. and de Groote, H. (2003).*Adoption of Maize and Wheat Technologies in Eastern Africa. A Synthesis of the Findings of 22 Case Studies.*D. F., Mexico. 38pp.

Dutta-Bergman, M. J. (2005). Theory and practice in health communication campaigns: A critical interrogation. *Article of Health Communication* 18: 103 – 122.

Edward, S., Peter, B. and Dean, E. H. (2005).The Parasocial Contact Hypothesis.*Department of Communication Monographs* 72(1): 92 – 115.

Eleni, Z. and Madhin, G. (2009).*A Market for all Farmers, Market Institutions and Smallholder Participation*. 45pp.

Elizabeth, L. J., Mohammed, Q., Nazrul, I. and John, S. (2006). Hybrid vigour of behavioural theories in the agribusiness research domain. Is it possible? *Journal of International Farm Management* 3(3): 1 – 15.

Ellis, A., Blackden, M., Cutura, J., MacCulloch, F. and Seebens, H. (2007).*Gender and Economic growth in Tanzania, Creating Opportunities for Women*.The World Bank, Washington DC. 164pp.

Ellis, F. and Freeman, H. A. (2004). Rural livelihoods and poverty reduction strategies in four African countries, *Journal of Development Studies* 40(4): 1 – 8.

Felix, N.E., Ma Yong, K., Ernest, A. and John, O. (2012).The effect of pre-treatment methods on the yield and taste of cashew kernels (AnacardiumoccidentaleL.).*African Journal of Food Science* 6(20): 487-493.

Fred, L., Anthony, K., Esther, M. and Nimrod, M. (2001).*Rural-Urban Interactions and Livelihood Strategies.*Working Paper No. 2.The case of Lindi, Southern Tanzania. 32pp.

Ghasia, H. A. (2003). *An assessment of institution factors affecting cashew nuts marketing in Mtwara region*. Dissertation for Award of MA Rural Development Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 112pp.

Glasman, L. R. and Dolores, A. (2006). Forming attitudes that predict future behavior: A meta analysis of the attitude behavior relation University of Florida. 132(5): 778 – 822.

Hebron, A. M. and William, M. (2007).Agriculture Council of Tanzania. Report on Output Market Support, Dar es Salaam, Tanzania. 155pp.

Hollinger, F. and Kiriakov, K. (2009). *The Use of Warehouse Receipt Finance in Agriculture in ECA Countries:* Technical background paper for the World Grain Forum St. Petersburg, Russian Federation. 75pp.

Honorato, T. L., Rabelo, M. C., Goncalves, L. R. G. and Pinto, G. A. S. (2007).Fermentation of cashew apple juice to produce high added value products.*Journal Micro biology Biotechnology* 23: 1409 – 1415.

Irtwange, S.V. and Oshodi, A. O. (2009).Shelf-life of roasted cashew nuts as affected by relative humidity, thickness of polythene packaging material and duration of storage.*Research Journal of Applied Sciences* 1(3): 149-153.

Kabigi, J. (2012). CUF irked by police action to contain riots in Tanzania. [http://in2eastafrica.net/cuf-irked-by-police-action-to-contain-riot]site visited on 6/8/2012.

Kanji, N., James, M. J. and Cecilia, T. C. (2005).*Understanding Market-based Livelihoods in a Globalising World, Combining Approaches and Methods***.**International Institute for Environment and Development.23pp

Kayunze, K. A., Maro, F. and Mashindano, O. (2011a).*Agricultural Growth and Poverty Reduction in Tanzania 2000-2010.*Working Paper No. 2. Where has agriculture worked for the poor and what can we learn from this? 40pp.

Kayunze, K. A., Maro, F. and Mashindano, O. (2011b). *Poverty mobility in Tanzania and linkages with governances*.Working Paper No. No 206. Focus Group Discussions and Individual Life Histories, Mtwara, Rukwa and Mwanza. 48pp.

Kothari, C. R. (2004). *Research Methodology, Methods and Techniques.*New Age International Publisher, New Delhi, India. 410pp.

Kowero, G. (2008).*The Dry Forests of Sub-Saharan Africa, Threats, Challenges and Opportunities*.Forestry Association, Nigeria. 20pp.

Kulindwa, Y. J. (2008). *Linking Small Scale Farmers to Market an Evaluation*. Agricultural Marketing System Development Programme, Arumeru District, Tanzania.116pp.

Kumar, A., Harbir, S., Sant, K. and Surabhi, M. (2011). Value chains of agricultural commodities and their role in food security and poverty alleviation a synthesis. *Agricultural Journal of Economics Research Review* 24: 169-181.

Kuserwa, N. (2009). *Tanzania Warehouse Licensing Board (TWLB).*The Warehouse Receipt System, Tanzania. 30pp.

Lay, J., George, M. M. and Mahmoud, T. O. (2008). *Few Opportunities, Much Desperation:* The dichotomy of non-agricultural activities and inequality. World Development, Western Kenya. 32pp.

Mahanta (2012). Review of warehouse receipt as an instrument for financing in India. *International Journal of Scientific and Technology Research* 1: 45.

Mhando, D.G. (2007). *Farmers' Coping Strategies to a Changed Coffee Market after Economic Liberalization*.The Case of Mbinga District in Tanzania. 20pp

Mhando, D. G. (2014).Conflict as Motivation for Change.The Case of Coffee Farmers' Cooperatives in Moshi, Tanzania.*African Study Monographs*, Suppl. 50: 137–154

Makhura, M.T. (2001). *Overcoming transaction cost barriers to market participation of smallholder farmers in the Northern Province of South Africa*. Thesis for Award of PHD Degree at University of Pretoria South Africa, 193pp.

Masawe, P. A. L. and Kapinga, F. A.(2011). Towards a Sustainable Cashew Industry in Tanzania. *Proceedings of the Second International Cashew Conference held at Hotel Africana* Kampala, Uganda.58pp.

Mend, A. (2009). *Restoration of Farm Infrastructure and Rural Livelihoods Project Country.*Project Appraisal Report, Nairobi, Kenya. 29pp

Michel, D. (2004). *Tanzania's Cashew Sector.* Constraints and Challenges in a Global Environment Africa Region Working Paper Series No. 70.30pp

Mkude, C. D. (2003). *Economic Analysis of Smallholder's Cashew nuts Production and Marketing under Market Labialization:* A Case Study of Coast region. 84pp.

Muhanji, G. and Roothaert, R. (2009). Profit Making for Smallholder Farmers.*Proceedings of the 5th MATF Experience Sharing Workshop*, 25 - 29 May 2009, Entebbe, Uganda. 44pp.

Onumah, G. and Aning, A. (2009).*Feasibility Study Towards Establishments of Commodities Exchange in Ghana*. Final Report undertaken on behalf of the Securities and Exchange Commission, Accra, Ghana. 50pp.

Ogunsumi, L. O. (2011). Attitude of Farmers Toward Improved Agricultural Technologies in South-west Nigeria, Institute of Agricultural Research and Training Ibadan, Nigeria.*African Journal of Biotechnology* 10(50): 10108 – 10115.

Onumah, G. E. (2010).*Implementing Warehouse Receipt Systems in Africa Potential and Challenges*, Common market for Eastern and Southern Africa, Lilongwe, Malawi. 20pp.

Onumah, G. E. and Temu, (2008). Reducing marketing constraints and enhancing producer incomes through warehouse receipt systems: Cases from Coffee and Cotton Sub-Sectors in Tanzania. Journal of *International Business Studies* 16(2): 65 – 82.

Osei-Hwedie, B. Z. and Osei-Hwedie, K. (2010).Alternative global framework for Africa's development.*Zambia Social Science Journal* 1(2): 1 – 16.

Peter, K. S. (2011). *An Assessment of the Contribution of Cashew Production to Local Economic Development, a Case Study of TheBrongAhafo Region*. A Thesis Submitted to the School of Graduate Studies, Kwame Nkrumah University of Science and Technology in partial fulfillment of the requirements for the degree of Master of Science in Development Policy and Planning, College of Architecture and Planning. 107pp.

Ramadhani, A. H.,Neema, K., Beatrice, L. and Matemu, A. (2014). Physicochemical Quality of Street Vended Rostead Cashew nuts in Tanzaina.The School of Life and Bioengineering, Nelson Mandela African Institution of Science and Technology.American Journal of Reseach Communication: 2(9). 10pp.

Rob, J. (2010). *Likert Items and Scales survey question Banks.* University of Strathclyde. 11pp.

Robert, P. (2010). *The Experience of Warehouse Receipt System in Tanzania.* National Microfinance Bank. Dar es Salaam, Tanzania. 21pp.

RRF (2011).*Cashews*.Highlights of the Cashew Industry, India. 24pp.

Russell, G. A. and Sandip, S. (2012). *What Can Repeated Cross-Sectional Studies Tell Us About Student Growth?* Educational Testing Service, New Jersey. 26pp.

Sijaona, M. E. R. (2002).*Assessment of the Situation and Development Prospects for the Cashew.*Agricultural Research Institute, NaliendeleMtwara. 41pp.

TechnoServe (2008).*Business Environment Strengthening for Tanzania.*Reform of the Tanzanian Cashew nut Business Environment, 125pp.

TechnoServe (2010).*Business Solutions for African Smallholder Farmers to Address*.Food Security and nutrition Farm Africa Region Summary of Findings, 95pp.

Temu, A.E. and Msuya, E.E. (2004).Capacity Building in Information and Communication Management (ICM) Towards Food Security.*A paper presented at CTA Seminar on the Role of Information Tool in Food Security,* MozambiqueMaputo. 32pp

Tlou, R. E. (2009). *The Application of the Theories of Reasoned Action and Planned Behaviour to a Workplace.*HIV/AIDS Health Promotion Programme, University of South Africa. 258pp

Topper C. P., Martin, P. J., Katinila, N., Kikoka, L. P., Lamboll, R., Masawe, P. A. L. andShomari, S. H. (1998). The historical and institutional background of the Tanzanian cashew industry. In: *Proceedings of the International Cashew and Coconut Conference, Trees for Life the Key to Development.(Edited by* Topper, C. P., Caligari, P. D. S., Kullaya, A. K., Shomari, S. H., Kasuga, L. J., Masawe, P.A.L. and Mpunami A. A.), Biohybrids International Ltd, Reading UK. pp. 76 – 83.

UNEP (2007).*National Adaptation Programme of Action*.Division of Environment, 44pp.

UNEP (2009).*The Integrated Assessment of Organic Agriculture in Tanzania Policy.*Options for Promoting Production and Trading Opportunities for Organic Agriculture. Dar es Salaam, Tanzania. 105pp.

UNESCO (2000).*Regional Training Seminar of Guidance and Counseling Module 4.*Behaviour Modification, France. 69pp.

UNCTAD (2009).*Review of Warehouse Receipt System and Inventory Credit Initiatives.*Eastern and Southern Africa. 114pp.

UNIDO (2011).*Tanzania's Cashew Value Chain.* A diagnostic annual report.United Nations Industrial Development Organization, Vienna, Austria. 66pp.

URT (2010).*National Strategy for Growth and Reduction of Poverty.*Ministry of Finance and Economic Affairs. Dar es Salaam, Tanzania. 151pp.

Urassa, K. J. (2010). Rural household livelihoods, crop production and wellbeing after a period of trade reforms: a case study of Rukwa, Tanzania. Thesis for Award of PhD Degree at University of Sussex, Brighton, 246pp.

URT (1997).*Mtwara Region Socio-economic Profile the Planning Commission Dar esSalaam.*Regional Commissioner's Office Mtwara, Tanzania. 240pp.

URT (2009).*The Cashew nuts Industry ACT.*Arrangement of Sections. Dar es Salaam, Tanzania.21pp.

URT (2011).Tanzania Country Report on the Millennium Development Goals 2010 Dar es Salaam. 75pp

URT (2013).*Population and Housing Census National Bureau of Statistics.* Ministry of Finance Dar es Salaam Office of Chief Government Statistician President's Office, Finance, Economy and Development Planning Zanzibar. 264pp.

USAID (2007).*Warehouse Receipt System, The Competitiveness*. Trade Expansion Programme, East Africa. 5pp.

USAID (2012a).*Warehouse Receipt System, The Competitiveness*. Trade Expansion Programme, East Africa. 5pp.

USAID (2012b).*The Competitiveness and Trade Expansion Program.*East Africa Hub. 28pp.

World Bank (2011).*Tanzania Poverty Growth and Public Transfers Options*. Report No. 62. National Productive Safety Net Program, Dar es Salaam, Tanzania.121pp

APPENDICES

Appendix 1: Questionnaire to farmers

The following questionnaire is a research project on assessing farmers' attitudes towards warehouse receipt system. Please do not write your name on the questionnaire since all responses are confidential and anonymous. This questionnaire is strictly voluntary. Feel free to leave any questions blank. Thank you for your cooperation.

General information

Date of interview…….....day.....month.....years

Region…….

District…….

Division…….....

Ward……

Village…….

Section 1: Background information

1.1 Age of the respondent (Tick)

1=18 – 28

2=29 – 39

3= 40 – 50

4=Over 51

1.2 Sex of the respondent (Tick)

1= Male 2=Female

1.3 Is the respondent head of the household? (Tick)

1= Yes 2=No

1.4 Marital status (Tick)

1=Single

2=Married

3=Widowed

4=Divorced

1.5 Level of education of the respondent (Tick)

1=No formal education

2=Primary education

3=Secondary education

4=Higher education

5=Others (specify)……

1.6 Income generated by farmers through Warehouse Receipt System (Tick)

1=Below Tsh 199,999/=

2=Between Tshs 200, 000/= to 599,999/=

3=Between Tshs 600,000/= to 999,999/=

4= Above Tshs 1,000,000

1.7 Living condition of the respondent

1.7.1 Types of house wall (Tick)

1=Thatches

2=Burnt brick

3=Cement block

4=Mud and trees

5=Unburnt brick

1.7.2 Nature of the floor (Tick)

1=Earth

2=Cement

3=Other (specify) …….

1.7.3 Roof covering material (Tick)

1=Thatches

2=Earth

3=Corrugated Iron sheet

4=Tiles

5=Other

1.7.4 Toilet facilities (Tick)

1=Traditional pit toilet

2=Ventilated improved pit

3=None

4=Other specify……

1.8 Household's assets

1.8.1 Which of the following assets do you own? Circle assets owned by the household

1=A house 2=Farms 3=Bicycle 4=TV 5=Mobile phone 6=Hoes 7=Motorcycle 8=Radio

Section 2: Description of the Warehouse Receipt System Operating in Newala District

A: Description of WRS

1. Have you even head of WRS? (Tick)

1=Yes

2=No

2. If yes, from which of the following sources did you first hear of WRS? (Tick)

1=Mass media (TV, Radio, Newspaper)

2=Cashew nuts Board of Tanzania (CBT)

3=Fellow farmers/friends

4=Politicians

5=Other sources (specify)……

3. What do you know about WRS?

1……

2……

3……

4……

4. What crops are acceptable in the WRS? (Tick)

1=Cashew nuts crops only

2=Food crops only

3=Both cashew nuts and food crops only

4=I do not know

5. Do you think the WRS is beneficial to farmers?

1=Yes

2=No

3=I do not know

6. If No explain ……..

7. What are the major benefits obtained by farmers through WRS? (Tick)

1=Increase bargaining power to farmers

2=Provide technology to farmers

3=Provide better price to farmers

4=Reduce unethical marketing to cashew nuts

5=I do not know

8. How has the WRS affect your cashew nuts production?

1=Increased, explain……..

2=Decreasing, explain ……..

3=No effect, explain ……

9. Did you grade your cashew nut produce through WRS? (Tick)

1=Yes

2=No

10. If yes, which method(s) did you use in grading your raw nuts? (Tick)

1=Cutting test

2=Visual grading

3=I do not know

4=Others (specify)……

11. Did you accept the introduction of WRS? (Tick)

1=Yes 2=No

If Yes explain …….

If No explain …….....

B: Farm description

12. How many years have you been engaged in cashew nuts production activities? (Tick)

1=0 – 10 years

2=11 – 21 year

3=22 – 32 year

4=33 – 44 year

5=above 45 years

13. What is the source of the cashew nut trees? (Tick)

1=Inheritance

2=Planted by self

3=Purchased

14. What is the distance from homestead to the farm? (Tick)

1=0- 1 km

2=2-4 km

3=5-7 km

4= > 8 km

15. What is the farm size for cashew nuts production? …….in acres

16. How did you get the land for farming? (Tick)

1=Bought

2=Inherited

3=Rented

17. For how long have you been using the current farmland? (Tick)

1=0-5 years

2=6-11 years

2=12-17 years

4=Above 18 years

18. What can you comment on the fertility of the farmland? (Tick)

1=Improving

2=Deteriorating

3=Moderate

4=I do not know

C: Market description

19. Do you have access to cashew nuts market information? (Tick)

1=Yes

2=No

20. If No, why (explain)

……

……

21. What is the source of market information?

1=Mass media (TV, Radio, Newspaper)

2=Cashew nuts Board of Tanzania (CBT)

3=Internet

4=Mobile phone

22. From the sources identified in Qn.21 do you normally receive all the information you need? (Tick)

1=Yes 2=No

23. If No, What kind of information do you miss from these sources?

……

……

24. Where do you get such information to complement your information needs?

……

……

25. How far is the nearest market where you sell your cashew nuts from your home? (Tick)

1= 0-2 km

2= 2- 4 km

3= 4-6 km

26. Who carries the cashew nut from homestead to the market place? (Tick)

1=Hired labour only

2=Family labour only

3=Both hired and family labour

27. If family labour is used, which among the following family member?

1=Male members of the family

2=Female members of the family

3=Both Female and Male members of the family

28. What means of transport is used to transport cashew nut from the homestead to selling point? (Tick)

1=Foot only

2=Bicycle only

3=Motor-cycle only

4=Vehicle only

5=All of the above

6=Others specify……

29. Is that means of transport (in Qn. 28) your most preferred?

1=Yes

2=No

30. If No, why (explain)

……

31. Did you sell raw cashew nuts or processed cashew nut? (Tick)

1=Raw cashew nuts

2=Processed cashew nuts

3=Both raw cashew nut and processed cashew nut

32. If raw cashew nut, what was the quantity sold? .....kg

33. If processed cashew nut, what was the quantity sold? ..…….kg

34. What is your preference when it comes to selling your cashew nuts?

1=Raw cashew nuts

2=Processed cashew nuts

3=I do not have any preference

35. If raw or processed cashew nuts, what are the reasons (Explain)

……

36. Where do you normally sell your raw cashew nuts? (Tick)

1=Within the village (rural market)

2=Outside the village (Urban market)

3=Both within the village (rural market) and outside the village (urban market)

4=Others (specify)…….

37. Why? (Explain)

……

……

38. Where do you normally sell your processed cashew nuts? (Tick)

1=Within the village (rural market)

2=Outside the village (Urban market)

3=Others (specify)…… ……

39. Why? (Explain)……..……

40. To whom did you sell your raw cashew nuts? (Tick)

1=Middlemen

2=Primary cooperative society

(specify) ……

41. To whom did you sell your processed cashew nuts? (Tick)

1=Middlemen

2=Primary cooperative society

3=Direct consumers

4=Traders

5=Buying agencies

6=Other specify ……

42. To whom do you prefer to sell your cashew nuts?

1=Middlemen

2=Primary cooperative society

3=Direct consumers

4=Traders

5=Buying agencies

6=Others (specify) ……

43. Why do you prefer to sell your cashew nuts to that entity? (Explain)

……

……

44. Did you sell all of your cashew nuts produce last season?

1=Yes

2=No

45. If NO, What were the reasons?

…….....

D: Price description

46. Who sets the indicative price of cashew nuts each buying season? (Tick)

1=Cashew nut Board of Tanzania (CBT)

2=Farmers

3=Politicians

4=Members of cooperative societies

5=All of the above

6=I do not know

47. What do you consider to be the determinants of the indicative prices? (Tick)

1=Farm inputs and implements costs

2=Prices in the urban markets

3=Prices in the local markets

4=Wishes of the businessmen

5=Wishes of the cooperative societies' members

6=All of the above

7=I do not know

48. Were you satisfied with the prices offered for your produces last season? (Tick)

1=Yes

2=No

49. If No, why (explain)

……

……

E: Time description

50. How long does it take to have farmer's payment effected under WRS (from selling to payment)? (Tick)

1=0 – 2 weeks

2=3 – 5 weeks

3=6 – 8 weeks

4= ≥ 9 weeks

51. Do you think the time taken is too long? (Tick)

1=Yes

2=No

3=I do not know

52. If NO, why (explain)

……

F: Cost description

53. What do you think has happened to the cost of operation to farmers as result of introducing theWRS in Newala district? (Tick)

1=Increasing

2=Decreasing

3=Remain constant

4=I do not know/ I am not sure

54. What do you think are the reasons for the trend observed under Qn. 53 (Explain?)

……

G: Cooperatives description

55. Are you a member of the primary cooperative society? (Tick)

1=Yes.

2=No

56. If yes, why did you decide to join primary cooperative societies?

……

57. What are the roles of primary cooperative societies in marketing of cashew nuts? (Multiple responses) (Tick)

1=To buy cashew nut from the farmers

2=To supply input to farmers

3=To store cashew nut after harvesting

4=To provide credit to farmers

5=All of the above

58. What is the best method used to obtain membership in the primary cooperative society

1=Through voluntary

2=Through force

3=Both voluntary and force

59. In your opinion, what system do you prefer for the farmers to market their cashew nuts?

1=Warehouse receipt system

2=Former marketing system

3=Others (specify) …….

60. What are the major challenges do the farmers face in implementing the WRS?

……

61. What measures should be taken to improve the current WRS?

……

Section 3: Farmers knowledge level about warehouse receipt system

Statements	1=Yes	0=No
With WRS I can keep receipt for a long time		
It is easy to lose the WRS coupon or receipt		
Coops solve problem quickly encountered during operation		
Coops delay on solving problem encountered during operation		
Can you receive education about WRS within the village		
Can you receive education about WRS outside the village		
Did you fail to sell cashew nut product last season		
Did you sell all of cashew nuts produce last season		
Do you think time taken is two long		
Do you think time taken is too short		

Section 4: Attitude towards Warehouse Receipt System (WRS)

Please say whether you 5=SA, 4= A, 3=UD, 2=DS and 1=SD.

Statements	SA	A	UD	D	SD
I can get inputs from WRS					
I can get inputs a way from WRS					
Financial institutions provide loans with reasonable interests					
Financial institutions provide loans with high interest.					
WRS helps farmers to ensure the quantity sold.					
With WRS I can get doubt on the quantity sold.					
The WRS promotes trusteeship among primary cooperative operators and farmers.					
The WRS promotes miss-trusteeship among primary cooperative operators and farmers.					
With WRS I can get reliable promises about payment of money.					
One is never sure to whether or not a promise of payment will be met.					
I have confidence with clerks on grading cashew nuts before selling.					
The clerks cheat the farmers on grading cashew nuts.					

Appendix 2: Operationalization of Concept

Variable	Definition	Indicators	Measurements
1.Age	Number of years of respondents	Number of years 18-51	Interval
2.Sex	Biological sense at the time of time	1. Male 2. Female	Nominal
3. Marital status	Situation of being married or not married	1. Single 2. Married 3. Divorced 4. Window 5. Other	Nominal
4.Education	Number of years in schooling	1= 7 years 2= 11 3=13 4=15 5=Other	Ratio
5.Finatial institution	Provide loan and credit services to primary cooperatives	1. NMB 2.CRDB 3.SACOOS	Ratio
6. Warehouse Operator	Individual who receive and handling commodities without discrimination	1.Private 2.Public 3.Focous group	Ratio
7. Warehouse Custodian	Building used to store Cashew nuts	Number of tone	Ratio
8.Warehouse Receipt	Documents certifying quality and quantity of commodities	1.Negotiatable 2.Non Negotiable	Ratio
9. Cashew nuts Farmers	Individual or Group of smallholder who grow cashew nuts	Number of Hector Grown	Ratio
10. Legal framework	Rule and regulation guiding WRS on operation	1.Strong rule 2.Weak rule	Ordinal
11. Commodity	Amount of cashew nuts in tone stored in warehouse	1.Number of tone	Ratio
12. Cashew nuts grading	Determination of cashew nuts quality using moisture meter instruments	High Medium Low	Ordinal
12. Information	Information delivered to the Smallholder farmer	1.Accurate 2.not accurate	Ordinal
13.Infrastructure Facilities	Provide transport services of cashew nuts to WRS	1.Very poor 2.Poor 3.Goog	Ordinal
14. Primary Cooperative	Organized groups producing cashew nuts	Number of member in cooperatives	Ratio
15.Payment	Payment made to the farmer after sell their cashew nuts	Tsh	Ratio
16. Time	Time taken to pay smallholder farmer	1. Short period 2. Long period	Ordinal
17.Transport bag	Bags used for transport cashew nuts	Number of bags	Ratio
18.Price	Value of cashew nuts per kg	Tsh	Ratio