FARMERS’ ATTITUDE TOWARDS WAREHOUSE RECEIPT SYSTEM IN NEWALA DISTRICT

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

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ABSTRACT

This study aimed at assessing farmers’ attitude towards warehouse receipt system in Newala District. 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 determine knowledge 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.

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(M.A. Candidate)

The above declaration confirmed

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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

ABSTRACT .................................................................................................................. ii
DECLARATION ............................................................................................................. iii
COPYRIGHT ................................................................................................................ iv
AKNOWLEDGEMENT ............................................................................................... v
DEDICATION ............................................................................................................... vi
TABLES OF CONTENTS .......................................................................................... vii
LIST OF TABLES ....................................................................................................... xi
LIST OF FIGURES ..................................................................................................... xii
LIST OF APPENDICES ............................................................................................. xiii
LIST OF ABBREVIATIONS AND ACRONYMS ...................................................... xiv

CHAPTER ONE ......................................................................................................... 1
1.0 INTRODUCTION ................................................................................................. 1
1.1 Background Information .................................................................................... 1
1.3 Justification of the Study ................................................................................... 3
1.4 Objectives of the Study ..................................................................................... 4
   1.4.1 General objective ....................................................................................... 4
   1.4.2 Specific objectives ..................................................................................... 4
1.5 Research Questions ............................................................................................ 4
1.6 Guiding Theory: Theory of Reasoned Action .................................................. 5

CHAPTER TWO ......................................................................................................... 7
2.0 LITERATURE REVIEW ....................................................................................... 7
2.1 Attitude and Behavior ....................................................................................... 7
### 2.2 Likert Scale
2.3 Warehouse Receipt System
2.4 Warehouse Receipt System Approaches
2.5 The role of Warehouse Receipt System
  2.5.1 WRS and access to remunerative markets
  2.5.2 Price Mitigation Risks and Trading
  2.5.3 WRS and the reduction of post-harvest losses
  2.5.4 WRS and the prospects for success in promoting commodity exchanges
2.6 Necessary Conditions for an Effective WRS Activity
2.7 Markets
2.8 Cashew Nuts Grading
2.9 Primary Cooperatives
2.10 Financial Institution
2.11 Cashew Nuts Price
2.12 Livelihood

### CHAPTER THREE
3.0 RESEARCH METHODOLOGY
3.1 Location of the Study Area
3.2 Geographical Location
3.3 Climate
3.4 Economic Activities
3.5 Research Design
3.6 Sampling Procedure and Sample Size Determination
3.7 Data Collection Methods
CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Farmers’ Background Characteristic

4.1.1 Age of the respondents

4.1.2 Sex

4.1.3 Marital status

4.1.4 Level of education

4.1.5 Income level

4.2 Warehouse Receipt System

4.2.1 Source of information to cashew nut producer

4.2.2 Methods for cashew nuts grading

4.2.3 Crops stored in warehouse (WR)

4.2.4 Benefits obtained through WRS

4.2.5 Proximity to market centre

4.2.6 Means of transporting cashew nuts from homestead to market Centre

4.2.7 Price of cashew nuts

4.2.8 Time of payment

4.2.9 Operation cost through WRS

4.2.10 Production trend

4.2.11 Cooperative members

4.3 Knowledge Level about Warehouse Receipt System
4.3.1 General farmers’ knowledge about WRS ................................................. 33
4.3.2 Knowledge index ................................................................................. 34
4.4 Attitude towards Warehouse Receipt System........................................ 36
  4.4.1 Farmers’ attitude towards warehouse receipt system ......................... 36
  4.4.2 Attitude index of farmers towards warehouse receipt system ............ 38
4.5 Contribution of Cashew nuts to Farmer’s Livelihood .............................. 39
  4.5.1 Farmer’s livelihood ........................................................................... 39
  4.5.2 Assets possession ............................................................................. 40
  4.5.3 Material used for house wall............................................................... 41
  4.5.4 Toilet facilities .................................................................................. 41
  4.5.5 Roof covering and nature of the floor............................................... 42

CHAPTER FIVE .................................................................................................. 43
5.0 CONCLUSION AND RECOMMENDATIONS ............................................. 43
5.1 Conclusion .............................................................................................. 43
5.2 Recommendations ................................................................................... 45

REFERENCES ................................................................................................. 47
APPENDICES ................................................................................................. 60
LIST OF TABLES

Table 1: Population distribution by villages ................................................................. 18
Table 2: Respondents ages in years (n=150) ................................................................. 21
Table 3: Respondents sex (n=150) ............................................................................ 22
Table 4: Marital status (n=150) ................................................................................ 23
Table 5: Level of education (n=150) .......................................................................... 23
Table 6: Income generation (n=150) .......................................................................... 24
Table 7: Sources of information (n=150) ................................................................. 25
Table 8: Cashew nuts grading (n=150) ................................................................. 26
Table 9: Types of crops stored in WR (n=150) ...................................................... 26
Table 10: Warehouse benefit (n=150) ................................................................. 28
Table 11: Market proximity (n=150) ................................................................. 29
Table 12: Means of transporting the produce from home steady to market (n=150) ........ 29
Table 13: Price of cashew nuts (n=150) ................................................................. 30
Table 14: Time of payments under WRS (n=150) ........................................ 31
Table 15: Cost of operation (n=150) ................................................................. 32
Table 16: Production trend (n=150) ................................................................. 32
Table 17: Member of cooperative (n=150) ............................................................. 33
Table 19: Score of respondents and their categorization (n=150) ..................... 35
Table 23: Assets possession (n=150) ................................................................. 40
Table 24: Materials of house wall (n=150) ............................................................ 41
Table 25: Toilet facilities (n=150) ................................................................. 42
Table 26: Roof covering material (n=150) .............................................................. 42
Table 27: Nature of the floor (n=150) ................................................................. 42
LIST OF FIGURES

Figure 1: Conceptual Framework ................................................................................. 6

Figure 2: Map of Mtwaru region showing cashew nuts producing areas ................... 16
LIST OF APPENDICES

Appendix 1: Questionnaire to farmers ................................................................. 60
Appendix 2: Operationalization of Concept ...................................................... 75
# LIST OF ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td>African Development Fund</td>
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<tr>
<td>AMCOS</td>
<td>Agricultural Marketing Cooperative Societies</td>
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<tr>
<td>AMSDP</td>
<td>Agriculture Marketing System Development Programme</td>
</tr>
<tr>
<td>CBT</td>
<td>Cashew nuts Board of Tanzania</td>
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<td>CDP</td>
<td>Cashew Development Project</td>
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<tr>
<td>COMESA</td>
<td>Common Market for Eastern and Southern Africa</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>MBICU</td>
<td>Mbinga Cooperative Union</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>MIVARF</td>
<td>Marketing Infrastructure, Value Addition and Rural Finance Programme</td>
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<td>MT</td>
<td>Metric Tonne</td>
</tr>
<tr>
<td>NARI</td>
<td>Naliendele Agricultural Research Institute</td>
</tr>
<tr>
<td>TDV</td>
<td>Tanzania Development Vision</td>
</tr>
<tr>
<td>NMB</td>
<td>National Microfinance Bank</td>
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<tr>
<td>NCT</td>
<td>Nut Count Test</td>
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<td>OTT</td>
<td>Out-Turn Test</td>
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<tr>
<td>RCN</td>
<td>Raw Cashew Nuts</td>
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<td>RRF</td>
<td>Red River Foods</td>
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<td>SACCOs</td>
<td>Savings and Credit Cooperative Societies</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>TANECU</td>
<td>Tandahimba and Newala Cooperative Union</td>
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<td>TRA</td>
<td>Theory of Reasoned Action</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>---------</td>
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<tr>
<td>TWLB</td>
<td>Tanzania Warehouse Licensing Board</td>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<tr>
<td>URT</td>
<td>United Republic of Tanzania</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WRS</td>
<td>Warehouse Receipt System</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Tanzania’s economy is mostly dependent on the agricultural sector which 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, smallholders dominate 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 (Ramadhan 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 Atule 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 linking producers 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 et al., 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 that there 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 prices for the next 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

When the 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 have been 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’s knowledge 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 to 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 WRS as 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) defines Likert 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). A Likert-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 agriculture and 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 markets as infrastructure that enables the implementation of successful warehouse receipt
systems. Such structural components include legal framework, financial institution, grade and standard, market information and warehouse operator of the WRS, all of which need 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) observes that 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 et 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 Kayunzeet 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 take the 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 farming system by combining ngolo food cultivation, livestock and coffee production (Mhando, 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 as it is one of the leading cashew nuts producing areas in Tanzania. However in April 2012, the district was hit by frequent unrest of 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 latitudes 10° 56’ 12" South of the equator. The district has a total area of about 2126km² (URT, 1997). The district shares a border with Masasi District to the west, Tandahimba District to the east, Mozambique to 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 to Makonde, 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).
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 Mtwararural (URT, 1997).

Figure 2: Map of Mtwararegion 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

<table>
<thead>
<tr>
<th>Wards</th>
<th>Village</th>
<th>No of Household</th>
<th>Sample selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitangali</td>
<td>Kitangali</td>
<td>8267</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Niamoja</td>
<td>1903</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Mandala</td>
<td>1221</td>
<td>25</td>
</tr>
<tr>
<td>Maputi</td>
<td>Maputi</td>
<td>6 421</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Mtongwele</td>
<td>2226</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Kadengwa</td>
<td>1116</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>21154</td>
<td>150</td>
</tr>
</tbody>
</table>

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 that the 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 1 and 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 12 and 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). The finding 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 $y_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n + \epsilon$. Where $y=1$ if a house has good floor, $y=0$ if it has bad floor. Therefore, the logistic model would be $\log \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n$, where $p$ is the probability which signifies that a household has a good floor and $\log \left( \frac{p}{1-p} \right)$ 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 $x_1 = \text{age}$, $x_2 = \text{marital status}$, $x_3 = \text{education level}$, $x_4 = \text{farm size}$ and $x_5 = \text{household sex}$. 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 51 years 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 as small businesses.

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

<table>
<thead>
<tr>
<th>Ages of respondents in years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-28 years</td>
<td>7</td>
<td>4.7</td>
</tr>
<tr>
<td>29-39</td>
<td>49</td>
<td>32.7</td>
</tr>
<tr>
<td>40-50</td>
<td>58</td>
<td>38.7</td>
</tr>
<tr>
<td>Over 51</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100</td>
</tr>
</tbody>
</table>

Age of adult farmers is considered to be an important factor in 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)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>110</td>
<td>73.3</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>26.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.1.3 Marital status

Findings in Table 4 show 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)

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>134</td>
<td>89.3</td>
</tr>
<tr>
<td>Single</td>
<td>13</td>
<td>8.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 Ramadhan *et al* (2014) who reported that 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)

<table>
<thead>
<tr>
<th>Education level</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary education</td>
<td>124</td>
<td>82.7</td>
</tr>
<tr>
<td>Secondary education</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>No formal education</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 from 1000 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)

<table>
<thead>
<tr>
<th>Income level</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to Tshs 199 999/=</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Between Tshs 200 000 – 599 999/=</td>
<td>71</td>
<td>47.3</td>
</tr>
<tr>
<td>Between Tshs 600 000 – 999 000/=</td>
<td>33</td>
<td>22</td>
</tr>
<tr>
<td>Tshs 1 000 000/= and above</td>
<td>25</td>
<td>16.7</td>
</tr>
</tbody>
</table>

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 information of warehouse receipt system from Cashew nuts Board of Tanzania, 33.3% came to know about warehouse receipt system from 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 line with Cashew 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)

<table>
<thead>
<tr>
<th>Farmers’ responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashew nuts board of Tanzania</td>
<td>76</td>
<td>50.7</td>
</tr>
<tr>
<td>Fellow farmers/friends and coops</td>
<td>50</td>
<td>33.3</td>
</tr>
<tr>
<td>Mass media (TV, radio and newspapers)</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td>Political meetings</td>
<td>6</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 that Mbinga 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%; such cashew nuts will be allowed to be traded because 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)

<table>
<thead>
<tr>
<th>Farmers’ response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual grading</td>
<td>132</td>
<td>88.0</td>
</tr>
<tr>
<td>Cutting test method</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 nuts which 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)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashew nuts</td>
<td>122</td>
<td>81.3</td>
</tr>
<tr>
<td>Other crops</td>
<td>10</td>
<td>6.7</td>
</tr>
<tr>
<td>Both cashew nuts and other crops</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
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 also facilitate 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. Findings in 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 nuts were the majority (80%). Similar, findings are reported by UNIDO (2011) indicated that warehouse receipt system eliminated Kangombasystem which used the weigh 1.25 to 1.8 kg measuring scales for the commodities weighing 1kg.
Table 10: Warehouse benefit (n=150)

<table>
<thead>
<tr>
<th>Farmers’ response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce unethical marketing of cashew nuts</td>
<td>120</td>
<td>80.0</td>
</tr>
<tr>
<td>Provide better price to farmers</td>
<td>16</td>
<td>10.7</td>
</tr>
<tr>
<td>Increasing bargaining power of farmers</td>
<td>9</td>
<td>6.0</td>
</tr>
<tr>
<td>Provide technology to farmers</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>I do not know</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.2.5 Proximity to market centre

Proximity to markets allow 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 this is 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 0-2km from the market centre, 12.0% were located between 3-5km, and 0.7% of the respondents were located between 6 km and 8 km from the market centre. These findings imply that many farmers were close to the market centres and had a chance of getting market information early and timely although validity and reliability of such information within the system were usually questionable.

These findings were similar 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 observations are logically linked since farmers living near the markets or towns have more accessible to up to date information about markets, and which help them in making the right decisions in marketing their products.
Table 11: Market proximity (n=150)

<table>
<thead>
<tr>
<th>Distance in km</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>131</td>
<td>87.3</td>
</tr>
<tr>
<td>3-5</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td>6-8</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycle</td>
<td>88</td>
<td>58.7</td>
</tr>
<tr>
<td>Motor-cycle</td>
<td>44</td>
<td>29.3</td>
</tr>
<tr>
<td>Foot</td>
<td>17</td>
<td>11.3</td>
</tr>
<tr>
<td>Vehicle</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>
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 members of the cooperatives and only 0.7% said that the price was set by politicians only. These findings show that majority (82%) of the respondents indicate that price of cashew nuts was set by Cashew 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 (Tsh) a kilogram for standard grade cashew nuts in September 2000.

<table>
<thead>
<tr>
<th>Farmers’ responses</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashew nut board of Tanzania only</td>
<td>123</td>
<td>82.0</td>
</tr>
<tr>
<td>Cooperative, politicians and CBT</td>
<td>24</td>
<td>16.0</td>
</tr>
<tr>
<td>Member of cooperatives only</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Politicians only</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.2.8 Time of payment

The findings in Table 14 show that 88.7% of the respondents reported that payment for cashew farmers was on average made more than 9 weeks after selling of the cashew nuts. About 5.3% reported that the payment for cashew sales was done between six and eight weeks, 5.3% reported that payment for cashew nut was done between three and 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)

<table>
<thead>
<tr>
<th>Farmers responses</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 weeks and above</td>
<td>133</td>
<td>88.7</td>
</tr>
<tr>
<td>6-8 Weeks</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>3-5 Weeks</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>1-2 Weeks</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 show that 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 hand Antony 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)

<table>
<thead>
<tr>
<th>Farmers response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>139</td>
<td>92.7</td>
</tr>
<tr>
<td>Decreasing</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Remain constant</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 had little 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 Bayfidan are 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)

<table>
<thead>
<tr>
<th>Farmers responses</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Decreasing</td>
<td>83</td>
<td>55.3</td>
</tr>
<tr>
<td>Constants</td>
<td>46</td>
<td>30.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
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 line with Bezabih (2009) who observed that 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)

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers joined cooperatives</td>
<td>79</td>
<td>52.7</td>
</tr>
<tr>
<td>Farmers didn’t join cooperatives</td>
<td>71</td>
<td>47.3</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3 Knowledge Level about Warehouse Receipt System

4.3.1 General farmers’ knowledge about WRS

In order to gauge general knowledge on WRS among farmers, respondents were asked 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)

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

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 measured some 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>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>22.0</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>30.0</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>9.3</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>12.7</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>4.0</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Categorization of knowledge

<table>
<thead>
<tr>
<th>Knowledge Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>96</td>
<td>64.0</td>
</tr>
<tr>
<td>Medium</td>
<td>14</td>
<td>9.3</td>
</tr>
<tr>
<td>High</td>
<td>40</td>
<td>26.7</td>
</tr>
</tbody>
</table>

Many respondents were found to have little understanding about warehouse receipt system. The findings are consistent with the findings in a study done by TechnoServe(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 mistrust among operators and farmers and 13.0% disagree with positive. About 17.3% of the respondents agree with positive
statement that WRS promote trust among 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)

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>6.7</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>10.7</td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td>12.0</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>8</td>
<td>26</td>
<td>17.3</td>
</tr>
<tr>
<td>9</td>
<td>34</td>
<td>22.7</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td>11</td>
<td>23</td>
<td>15.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Attitude towards WRS

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>56</td>
<td>37.3</td>
</tr>
<tr>
<td>Negative</td>
<td>94</td>
<td>62.7</td>
</tr>
</tbody>
</table>

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 the improved livelihood of cashew nut farmers.
Table 22: Nature of the Floor

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

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 findings are 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)

<table>
<thead>
<tr>
<th>Farmers response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houses, hoes, farms, mobile phone, radios and bicycles</td>
<td>117</td>
<td>78.0</td>
</tr>
<tr>
<td>Houses, hoes, farms, mobile phone, radios, bicycles and TV</td>
<td>17</td>
<td>11.3</td>
</tr>
<tr>
<td>Houses, hoes, farms, mobile phone, radios, bicycles, TVs and Motorcycles</td>
<td>16</td>
<td>10.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.5.3 Material used for house wall

Findings in Table 24 show material 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 by Fred et al. (2001) who reported that in southern Tanzania (Lindi) the small scale farmers have low incomes which is likely to cause labour problems, low productivity, poor housing and few assets possession.

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

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Un-burnt earth bricks</td>
<td>68</td>
<td>45.3</td>
</tr>
<tr>
<td>Mud and trees</td>
<td>41</td>
<td>27.3</td>
</tr>
<tr>
<td>Cement bricks</td>
<td>33</td>
<td>22.0</td>
</tr>
<tr>
<td>Burnt bricks</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td>Thatches</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

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 means that 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 improve hygiene by refill and plant toilet facilities.
Table 25: Toilet facilities (n=150)

<table>
<thead>
<tr>
<th>Farmers response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional pit toilet</td>
<td>116</td>
<td>77.3</td>
</tr>
<tr>
<td>Ventilated improved pit</td>
<td>34</td>
<td>22.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Farmers response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrugated iron sheet</td>
<td>108</td>
<td>72</td>
</tr>
<tr>
<td>Thatches</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100</td>
</tr>
</tbody>
</table>

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. As Eleni 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)

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth</td>
<td>94</td>
<td>62.7</td>
</tr>
<tr>
<td>Cement</td>
<td>56</td>
<td>37.3</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>
CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

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 in addressing problems of storage facilities and access to credit. This WRS 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 warehouse and 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 through an 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 CBT should 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


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. 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
3=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
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
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
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 the WRS 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

<table>
<thead>
<tr>
<th>Statements</th>
<th>1=Yes</th>
<th>0=No</th>
</tr>
</thead>
<tbody>
<tr>
<td>With WRS I can keep receipt for a long time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is easy to lose the WRS coupon or receipt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coops solve problem quickly encountered during operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coops delay on solving problem encountered during operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you receive education about WRS within the village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you receive education about WRS outside the village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you fail to sell cashew nut product last season</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you sell all of cashew nuts produce last season</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think time taken is two long</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think time taken is too short</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 4: Attitude towards Warehouse Receipt System (WRS)

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

<table>
<thead>
<tr>
<th>Statements</th>
<th>SA</th>
<th>A</th>
<th>UD</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can get inputs from WRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can get inputs a way from WRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial institutions provide loans with reasonable interests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial institutions provide loans with high interest.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRS helps farmers to ensure the quantity sold.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With WRS I can get doubt on the quantity sold.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The WRS promotes trusteeship among primary cooperative operators and farmers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The WRS promotes miss-trusteeship among primary cooperative operators and farmers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With WRS I can get reliable promises about payment of money.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One is never sure to whether or not a promise of payment will be met.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have confidence with clerks on grading cashew nuts before selling.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The clerks cheat the farmers on grading cashew nuts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 2: Operationalization of Concept

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