MOSHI CO-OPERATIVE UNIVERSITY

WAREHOUSE RECEIPTS SYSTEM FOR ECONOMIC WELFARE OF SMALLHOLDER CASHEWNUT FARMERS IN MTWARA DISTRICT, TANZANIA

MOSHI CO-OPERATIVE UNIVERSITY

WAREHOUSE RECEIPTS SYSTEM FOR ECONOMIC WELFARE OF SMALLHOLDER CASHEWNUT FARMERS IN MTWARA DISTRICT, TANZANIA

By

HAMZA MOHAMED NANGAMETA

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR AWARD OF THE DEGREE OF MASTER OF ARTS IN CO-OPERATIVE AND COMMUNITY DEVELOPMENT OF MOSHI CO-OPERATIVE UNIVERSITY, MOSHI TANZANIA

NOVEMBER, 2022

DECLARATION

AND

COPYRIGHT

I, **HAMZA MOHAMED NANGAMETA** declare that, this dissertation is my own original work and that it has not been presented and will not be presented to any other higher learning institution for a similar or any other academic award.

Signature_____ Date _____

CERTIFICATION

The undersigned certifies that he has read and hereby recommend for acceptance by the Moshi Co-operative University a Dissertation titled "**Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut farmers in Mtwara District, Tanzania**'' in partial fulfilment of the requirements for the award of Master of Arts in Co-operative and Community Development of Moshi Co-operative university.

_____

(Supervisor's Name)

_____

(Supervisor's Signature)

Date _____

ACKNOWLEDGEMENT

I would like to thank The Almighty God for his mercy and the capacity that has enabled me to complete my studies. I owe thanks to many people who made invaluable contributions in different ways to reach this academic achievement.

Firstly, my grateful appreciation is directed to my supervisor Dr. Rashid Chikoyo, who tirelessly provided me with his kind guidance, technical advice, moral support, assistance and direction from the early stage of the study and dissertation preparation. He readily and willingly accepted to share knowledge and skills wherever I consulted him. I thank staff members of the Faculty of Co-operative and Community Development (FCCD) of Moshi Co-operative University (MoCU) for their constructive inputs. Special thanks should go to the Ministry of Agriculture especially the Department of Training, extension and research for granting me a study leave. My deep thanks go to Dr. CK. Komba and Mr. Msongole for their guidance in writing this dissertation. May God bless all.

Secondly, I extend my deepest appreciation to my lovely wife Jesca B. Mpanda who encouraged and supported me both materially and morally. My particular appreciations go to my late father and mother, my children (Sarah and Najma), and my workmates as well as my brothers (Mbaraka, Abasi, Mohamed Chambunga, Aziz Shaibu and Faraji Mnungamo) I will always cherish their presence. Also, I extend my sincere appreciation to Mr. Shaibu S. Likumbo my uncle. I pray that God continues to bless him.

Special gratitude is extended to my dearest family friends Mr. Omary Jongo, Shamte Jongo (may Allah give them blessed life) and Khalid Nassoro for support and encouragement. I also extend my gratitude to all warehouse receipt system (WRS) officials, leaders and cashew nut farmers who tirelessly cooperated with me as the respondents during data collection. Lastly but not least, I would like to thank all those not mentioned here for their invaluable contribution towards this work. May the most merciful God bless them.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AMCOS	:	Agricultural Marketing Co-operative Society
ATAAS	:	Agricultural Technology and Agribusiness Advisory Services
CATA	:	Cashew nut Authority of Tanzania
CBT	:	Cashew nut Board of Tanzania
CFC	:	Common Fund for Commodities
CMAs	:	Collateral Management Agreements
eWRS	:	Electronic Warehouse Receipt System
FCCD	:	Faculty of Co-operative and Community Development
IFAD	:	International Fund for Agriculture Development
MAMCU	:	Mtwara and Masasi Cooperative Union
MoCU	:	Moshi Co-operative University
NAPB	:	National Agricultural Products Board
NCT	:	Nut Count Test
NGOs	:	Non-Governmental Organizations
OTT	:	Out Turn Test
RCN	:	Raw Cashew nuts
RCUs	:	Regional Cooperative Union
RECINESA	:	Regional Cashew Improvement Network for Eastern and Southern Africa
SCP	:	Structure Conduct Performance
SRCB	:	Southern Region Cashewnut Board
TANECU	:	Tandahimba and Newala Cooperative Union
TCMB	:	Tanzania Cashew Nut Marketing Board
UBOS	:	Uganda Bureau of Statistics
UCE	:	Uganda Commodity Exchange
USA	:	United States of America
WRRB	:	Warehouse Receipt Regulatory Board
WRS	:	Warehouse Receipt Systems
ZAMACE	:	Zambia Agricultural Commodity Exchange
AAACP	:	Ann Arbor Area Committee for Peace

ABSTRACT

Warehouse Receipt System (WRS) was officially introduced since 2005 with the pilot crops of coffee and cotton in some areas such as Ruvuma and Mwanza as a response to farmers' income instability due to price fluctuations resulting from liberalisation and in actual use since 2007. The study objective was to assess the effect of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers in Mtwara District, Tanzania with its specific objectives that were to determine the impact of Warehouse Receipts System on farmer's income improvement, examine the effect of Warehouse Receipts System on smallholder cashew nut farmer's accessibility to markets, examine the impact of Warehouse Receipts System on the improvements of quality cashew nut produced and Determine the challenges facing smallholder cashew nut farmers on adapting Warehouse Receipts System. The study employed cross-section design where the study was conducted at once in Mtwara district and it used the sample size of 302 farmers. Multi stage sampling technique was employed to select five wards where the study used the systematic sampling to obtain representative sample. Survey questionnaire and interview method was also employed to obtain quantitative and qualitative data. Multiple regression models were also used to assess the effects of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers in Mtwara District. Pilot study was conducted to test research instruments employed. The study revealed that WRS brought improvement to farmers income through accessing financial institutions and insurance services. It was also found that the key and vital role played by WRS such as accessing farmers to advanced storage facilities, well packaging materials had improved the quality of cashew nut produced in spite of some challenges that WRS had and eventually farmers' income have increased to some extent. It was also revealed that delaying in payments and being paid for instalment was not satisfied the farmers. Age of the respondents, family size and the land size owned was found to have significant impacts to farmer's economic welfare. The study concludes that farmers value WRS in its role which ultimately benefits farmers by increasing income that leads to improve living standard but the unethical behaviour of operators reduces the trust of WRS. The study recommended to policy makers including stakeholders like farmers, AMCOS and CBT to deal with the aspects of markets, price setting, post-harvest losses and challenges facing farmers accordingly.

Keyword: Warehouse Receipts System, Farmers and Welfare

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

In the United States of America (USA), Warehouse Receipt System has been in operation for more than 100 years (Recinesa, 2014). The system which is widely credited with streamlining the US agricultural marketing system and, up to the 1950s, playing a critical role in financing and development of the family farm, is organised under the US Warehousing Act of 1916, with subsequent amendments.

The law is enforced by Federal and State agencies, whose programmes are described as 'voluntary', in the sense that a warehouse operator has the choice of being regulated by Federal or State agricultural authorities. Licensed warehouses have to meet and maintain key criteria in terms of physical facilities, capital adequacy, liquidity, managerial qualities, insurance and bonding cover (the latter protects depositors against fraud and mismanagement).

This country engaged in Grain handling staff at the warehouses (weighers, samplers and graders) must also be licensed to carry on their activities, and commodities are graded to US standards (Coulter and Shepherd, 2015). Warehouses are subject to unannounced visits by 'examiners' who are responsible for enforcing the law and who can literally suspend or revoke a warehouse license overnight (Mkude, 2003). The oversight system is funded by user fees and the Commodity Credit Corporation payments for use of the system for price support purposes. This latter revenue source has increased to farmer's socio-economic welfare (Coulter and Shepherd, 2015).

In the Philippines, warehouse receipt system management are concerned specifically with agricultural commodities, and the warehouse operator can issue warehouse receipts against stock deposited by third parties and also against their own stock, providing a means of rapidly raising funds against inventories. Regulation is very strict and officials are believed to be of high integrity which enhances small famer's economic welfare by transfers of the receipt to a bank to obtain loan equivalent to a certain percentage of the stored good. Depending on the country, participation of warehouses in the warehouse receipt system can either be mandatory or voluntary (Wehling and Garthwaite, 2018).

In Sub - Saharan Africa countries, the development of Warehouse Receipt Systems (WRS) emerged as an important means of improving the performance of agricultural

marketing systems following liberalization in the 1980s. Progress in promoting WRS and related market institutions in Africa has generally been slow or limited but interest remains high in Eastern and Southern Africa as well as elsewhere in Africa (Onumah, 2017). While some of the countries have been successful, others have not because they pertain to increasing smallholder incomes. An integral part of the WRS in South Africa is the grading regulation and quality issues. Over time, this has taken a back seat, as all participants have absolute faith in terms of the quality that they are entitled to on a WRS (Budd, 2017). However, in a newly established WRS, this will not be the case and there will be uncertainty as what to expect when the WR owner arrives to withdraw her/his product. It is emphasised that, this will not always be the case but it will happen at some warehouse structures (Kimaro and Towo, 2013).

In Malawi, the government has advocated for a WRS as an integral part of agricultural trade and financing since its incorporation in 2006. However, Malawi does not have a regulatory framework for WRs, so the system has to be built on a contractual relationship between grain depositors, storage operators and financial institutions (Gladwin *et al.*, 2016). This took time to achieve but in 2018 the government was able to register the first WRS storage facility (Robbins, 2019). The owner eventually sold the warehouse receipt at a profit of 72% after all costs were deducted, compared to the market price prevailing at the time they deposited which enhanced the smallholder farmers of maize to have a promised income (Robbins, 2019). Further in Malawi, the Warehouse receipt system consultancy team recommended that a WRS should be housed in a specially instituted Agency for this purpose and it should have the following main functions include registering the service providers and maintaining such a registration, as well as promoting future registrations, monitoring compliance with the rules and regulations, taking responsibility for the printing of the relevant documentation, promoting the use of WRs and several other functions related to training, arbitration and market information (Jones, 2016).

In East Africa, Uganda in particular, Warehouse Receipt Systems was implemented on an International Commodity Exchange (ICX) supported electronic platform called electronic warehouse receipt system (eWRS) and has been instrumental in facilitating trade and financing in agricultural commodities (Varangis and Larson, 2016). Key achievements to date was licensing conditions have been developed for maize, beans, rice, cotton and coffee warehouse receipt system in the process of designing licensing

conditions for sorghum and millet. eWRS has over 450 depositors, 70% farmer groups and 30% traders have a memorandum of understanding with the UN World Food Programme to procure 150,000 tons through the system which made smallholder famers of grain to earn income and improve household's welfare (World Bank, 2017).

In Tanzania, WRS were developed in the 2005 as a response to farmers' income instability due to price fluctuations resulting from trade liberalisation. According to Operational Manual 2008, the main objective of establishing Warehouse Receipt System in Tanzania is to introduce a system that will minimise various constraints hampering effective production and marketing of agricultural produce supported by (Sijaona, 2002). The specific objectives were to increase export earnings from agricultural production and marketing in different sub sector, improve income of smallholder agricultural producers and small-scale traders in the commodity trade, by increasing their share of export prices and limiting their risk exposure (Mkude, 2003).

To strengthen public and private institutions and improve local human resource capacities to operate effectively in a liberalised market, the Warehouse Receipt Act no. 10 of 2005 in Tanzania introduces and governs the Commodity WRS (Sijaona, 2002). The Act supports the participation of smallholder producers in agricultural commodities trade, access to bank credit and the reduction of postharvest losses. It provides a regulatory framework for the operations of the WRS, licensing procedures and other related matters. The Act provides the legal foundation for farmers and traders to obtain credit from lenders using Warehouse Receipts when depositing the produce in a licensed warehouse.

The Act legalises the process of recapturing "dead capital" by establishing a mechanism whereby agriculture commodities can be used as collateral for credit obtained from a lender through negotiation of legally recognised Warehouse Receipts. WRS provide a solution by storing commodities for the saturation of the low-price season. Price volatility and lack of quality standards are attributed to market liberalisation in the agricultural sector (IFAD, 2009).

In Tanzania, WRS was officially introduced since 2005 with the pilot crops of coffee and cotton in some areas such as Ruvuma and Mwanza as a response to farmers" income instability due to price fluctuations resulting from liberalisation and in actual

use since 2007. The main objective of a WRS was that millions of cashew nuts small scale farmers will enjoy substantial benefits. They would not need to travel far with their goods to find a competitive market, the prices they receive would almost certainly be a greater slice of the true market price forced to sell to cover their immediate expenses (UNIDO, 2016). They would be encouraged to market their goods collectively with their fellow farmers and they would have an incentive to produce a standard quality product and use standard measure and packing material to improve its market attraction. It is insisted that, the use of a warehouse receipt system allows a farmer to deposit his crop in a warehouse and to meet his short-term needs for cash by borrowing from a bank or other lending institutions (UNIDO, 2016). Since 2007, the marketing of raw cashew nuts in Tanzania is organised through the warehouse receipt system with auctioning taking place on weekly or bi-weekly basis (at the office of Cashew Nuts Board of Tanzania) during the harvesting season.

It is concerned that production of cashew nuts in Tanzania mostly done by small holder farmers in the regions such as Mtwara, Lindi, Ruvuma and Costal Region. Since then, smallholder farmers have been working closely with cashew nut stakeholders such as cashew nut board, primary societies, government, financial institutions and warehouse operators (Lyimo, 2009). They have been promoted in getting subsidies, small loans, agricultural training and many others. Apart from that, small holder farmer’s income has increased with an average from 1200Tshs per KG to 2000Tshs per KG of cashew nuts due to the increase in price which is attributed by the increase in production. The main stakeholders who are close to farmers are warehouse operators. They buy cashew nut directly from farmers and issue them certificates. Warehouse operators have achieved to play their roles and their contributions to improve the economic welfare of farmers have been noted.

In Mtwara district, it is reported that 95% of the cashew nut of smallholder farmers are being sold through WRS in cooperative union and farmer's earning has not grown from it. Price of cashew nut has also declined from TZS 5000 in 2010 to TZS 1500 in 2019. The mode of payment via WRS is that, the cashew nut producer was paid in at least two different periods, the first payment initially on supplying the cashew nut to the primary society and second payment being made after cashew nuts were sold. And if auction prices were above the expectations, farmers were paid an additional bonus to enhance

promised income (CBT, 2019). With this background, therefore, this study aimed to assess the effect of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers Mtwara District, Tanzania.

1.2 Statement of the Problem

Before the introduction of warehouse receipt system in cashew nut, there was a purchasing system in which farmer could sell and receive his/her money in a single instalment whereby smallholder farmers and emerging commercial farmers sell their produce shortly after the harvest each year when markets are in surplus and prices are low (URT, 2010). Currently cashew nut produce should be sold to AMCOS under the warehouse receipt system of which payment were done in instalment whereby a farmer can stay for quite a long time waiting for the payment. The challenge of delayed payment under warehouse receipt system among farmers is also witnessed in other crops such as tobacco and coffee in respective growing regions (Kennedy, 2019).

The Warehouse Receipt System is one of the reform measures undertaken by the government of Tanzania in efforts to address the problems of inefficient crop marketing system. Under this system, the- owner deposit the commodity in a warehouse and a receipt is issued that stipulates the quantity, quality and type of product deposited. The warehouse receipt would generally be negotiable, meaning ownership is transferable, which makes it quite suitable for collateral purposes. Financial institutions may therefore be willing to extend loans against this security in the appropriate environment for a portion of the value of the underlying commodity. In these circumstances the farmer would have access to funds to sustain her/himself until such time that she/he is ready to sell the commodity.

Despite the governments' effort to curb the problem of inefficient marketing system through warehouse receipt system in their primary co-operative societies, there have been several shortfalls since WRS was introduced in 2007, making the farmers continue to experience problems during the marketing of the raw cashew nuts and yet, farmer's economic welfare has not improved from WRS and earning from it is always lower while Co- operative union acts as buyer and seller of cashew nut through warehouse receipt system; the result was not as it was expected especially for the small farmers.

Ngondo (2014) conducted the study to assess the Role of Warehouse Receipt System (WRS) in improving the small holder farmer's income in Mtwara Region, specifically, the study intended to analyze the relationship between production, price, storage and cashew nuts farmers' income increase at Mtwara region.

Mumi (2014) conducted the study intention was to assess the effectiveness of warehouse receipt system (WRS) in Cashew nut marketing in Tandahimba District, the study found that WRS had brought some small improvement in farmers' income.

Until now, little is known with respect to how the WRS has improved farmer's economic welfare in Mtwara district such as farmer's accessibility to remunerative markets, farmer's delivery of quality cashew nut to the market, income improvement to smallholder cashew nut producers and the challenges facing cashew nut farmers in using warehouse receipt system as is the case of cashew nut farmers in Mtwara District. This study therefore aimed to assess the effect of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmer's in Mtwara District, Tanzania

1.3 Objective of the Study

1.3.1 General objective

The main objective of this study was to assess the effect of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmer's in Mtwara District, Tanzania

1.3.2 Specific objectives

Specifically, the study aims to:

i. Determine the impact of Warehouse Receipts System on farmer's income improvement.
ii. Examine the effect of Warehouse Receipts System on smallholder cashew nut farmer's accessibility to markets.
iii. Examine the impact of Warehouse Receipts System on the improvements of quality cashew nut produced.
iv. Determine challenges facing smallholder cashew nut farmers on adapting Warehouse Receipts System.

1.4 Research Questions

i. What are the effects of Warehouse Receipts System help cashew nut farmers on accessing to market?
ii. What are the impacts of Warehouse Receipts System help farmers on income improvement?
iii. What are the effects of Warehouse Receipts System on the improvements of quality cashew nut produced?
iv. What are the major challenges encountered by cashew nut farmers under warehouse receipt system?

1.5 Justification of the Study

The findings will be useful for improving cashew nut marketing strategy and agricultural products. Not only that but also it will be used in improving foreign trade for agricultural products.

The general information unveiled by study findings will be beneficial for decision makers, planers, and other development stakeholder involved directly or indirectly in promoting agriculture.

The study will be significant to academicians and researchers to conduct further studies basing on that topic.

Moreover, the study will provide valuable information to help formulate warehousing development programmes, pinpoint constraints and recommend policy implications.

The study will encourage and assists all those interested in the topic of agricultural development in our country and in other regions of the world to improve the conditions for the use of WRS.

The WRS will provide useful data to different stakeholders who are potential contributors to the national strategy for growth and poverty reduction and will suggest ways which can help the system to be sustainable for cashew nut farmers welfare improvements.

The study will be beneficial to cashew nut responsible institution like CBT and WRS to address smallholder cashew nut farmer’s problems.

The study will empower farmers in Mtwara district to secure access to market, reliable storage facilities for their cashew nuts. But also, the study will help cashew farmers to be further accessed to insurance services and credits via financial institution.

1.6 Limitations of this Research

Lack of record keeping and standard units of measurement among cashew nut farmers and traders featured other limitations. Farmers and traders relied upon their memory in offering information about WRS. This measurement information was given in different units, most of them being trivial, e.g., cashew bag, tin and bucket (Kangomba). Working with these units involved conversion to standard units would be slightly inaccurate. Moreover, it was challenging for farmers and traders to recall the cashew nut prices in different marketing channels over the year, but finally we found then in the markets records sheets and checklist documents.

In some areas, the farmers and the traders were reluctant in cooperating with and offering information to the researcher until they realised that there was financial incentive for providing reliable information. Sometimes, it was challenging to find the farmers in their homesteads since they were performing farming activities in distant farms. This leads to repeated visits to the homes of some farmers to collect the data. Likewise, collecting data from the warehouse receipt system management was not easy because the study conducted out of a marketing season of cashew nut that most of the warehouses managers were not around, and in some areas it was the same marketing season when questioning about cashew nut marketing system, it was a bit difficult to get full information. Thus, the researcher was forced to patiently wait for the managers of WRS to attend the customers then they could proceed with data collection.

1.7 Scope of the Study

The study was conducted in Mtwara district council in five ward's AMCOS namely; Mbawala, Nanguruwe, Mayanga, Ziwani and Mwembetogwa to assess the effects of Warehouse Receipts System on smallholder cashew nut farmers' economic welfare. The reason for selecting respective AMCOS in the mentioned wards above as the study area was due to the fact that, Warehouse receipts system has been used in these areas since it was introduced in 2007.

1.8 Organisation of the Study

The study is organised into five chapters: Chapter one presents background information, statement of the problem; objectives of the study, research questions, significance of the study, limitations of the study and scope of the study. Chapter two comprises literature review that consist of definitions of key terms, theoretical and empirical framework of the study while chapter three is about research methodology that explains the research design, details about populations, sampling frame, sample size and sampling techniques used in the study. Chapter four is about finding and discussion. Chapter five presents summary of major findings, conclusions and recommendations.

CHAPTER TWO
LITERATURE REVIEW

2.1 Definition of the Key Terms

A number of key terms have been used in this study. They include: welfare, economic welfare, warehouse receipt, warehouse receipt system, and smallholder cashew nut farmers.

2.1.1 Welfare

Welfare is the state of good health, happiness and comfort or financial assistance from the government (Coulter and Poulton, 2011). In this study welfare is a state of smallholder cashew nut farmers having food security, good health, and access to education, modern houses, and ability to get adequacy inputs for the farming that would support productivity.

2.1.2 Economic welfare

Economic welfare is the level of prosperity and standard of living of either an individual or a group of persons (Son, William, & Nordhaus, 2004). In this study economic welfare is defined as the state of cashew nut farmers having good standard of living conditions by accessing basic needs such as health services, education, food security and important farm inputs.

2.1.3 Warehouse receipt

The Warehouse Receipts is a document in hard or soft form issued in the warehouse by the Warehouse Operator, stating the commodities certified in the Receipts are held in the warehouse and at the disposal of the person named thereon (Budd, 2014). The use of WRs is often associated with structured financial transactions, which ensure that if a transaction proceeds normally then the lender is automatically reimbursed (i.e. the loan is self-liquidating), and if it goes wrong the lender has recourse to collateral that can be liquidated with minimum difficulty. In this paper the use of WRs in structured finance was looked beyond and the receipt system was discussed to improve trade in agricultural commodities in African economies. In this study warehouse receipt system mean the hard document stating the name of the owner, quantity of the commodity in kilogram, type of crop, bank account of the farmer, and name of the Agricultural Marketing Co-operative Society (AMCOS).

2.1.5 Warehouse receipt system

A warehouse receipt system (WRS) may be defined as "a platform that enables farmers, traders, processors, and exporters to obtain finance secured by agricultural commodities deposited in a warehouse" (FRMA, 2020). A warehouse receipt system (WRS) is used as a mechanism that allows farmers to access markets and financial services using their commodity as collateral (Kwadjo, 2018). In this study Warehouse Receipts System (WRS) denotes a kind of trade by which commodities are stored in a Licensed Warehouse(s), the owner of the commodity receives Warehouse Receipts which certifying the title of deposited commodities as of specific ownership, cost, type, quantity and quality (grades). The Warehouse Receipt facilitates storage and access to credit without necessarily moving the held commodities from the licensed warehouse.

The WRS was adopted for developing agricultural markets in developing countries (Onumah and Temu, 2008), (UNIDO, 2011) and (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 number 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).

2.2 Theoretical Literature Review

A theory is a clarification which helps to understand and making predictions about a given situation. Theory is constructed by a set of sentences consisting completely of true statements about a situation under consideration. However, the truth of any one of these statements is always relative to the whole theory. The study was guided by two theories, namely; income theory of money and marketing orientation theory though income theory of money was the main one in the study.

2.5.1 Income Theory of money

The Warehouse Receipt System Income Theory of money was developed by Fisher in 1989. The income theory of money has two approaches which are Income-Expenditure approach and saving and Investment approach both defines the income theory of money

as relationships of money supply, prices, interest, investment and economic activity. From the income theory explained by different economists, the WRS adopted the theory as income of the farmers are directly proportional with the price, quantity and quality of cashew nut in the market and capital (education and assets) owned by the farmers. The assumption is that when a farmer sent his/her produce to primary co-operative society, the cashew nut will be stored for some time waiting for a good price as selling cashew nut soon after harvesting and farmers experienced low payment. Therefore, warehouse receipt system could solve the challenge of low payment. The theory is strong in a sense that it advocates instalment payment whereby farmers should have a balance in their payment which acts as financial reserve. Critics of the theory argue that money velocity is not stable and, in the short-run, prices are sticky, so the direct relationship between money supply and price level does not hold. According to (Crowther, 2015) "the most said for the income theory is that the quantity of money in existence seems to be the dominant influence on the price level on the average of long period. But in the short period it may or may not control the movements of prices. And whether it does or does not depend on whether changes in the quantity of money are offset by changes in the velocity of its circulation."

2.5.2 Marketing orientation theory

Marketing Orientation theory is a sub theory under Marketing Theory which suit well in this study. This theory states that to be successful, businesses should determine customers' needs and wants, and satisfy them more effectively than their competitors. The theory must be the best at identifying the needs of our customers and identifying the most effective way to meet these needs (Web writer, 2011).

According to the efficient-market theory, news is what causes an asset price to change. If there is no news, the rate of return is the market interest rate. Good news makes the asset price and the rate of return higher, and bad news has the reverse effect. The weakness of the efficient-market theory is that more often than not one cannot identify what news has caused the asset price to change. The price seems to fluctuate up or down even when there is no news (Shiller, 1981). The use of two theories is because the introduction of warehouse receipt system was intended to enhance income and economic welfare of cashew nut smallholder's farmers of which the mentioned theories support the aspect of income as well as economic welfare to the users.

2.3 Empirical Literature Review

The study conducted by Alaouze *et al.* (2018) was used dynamic programming to examine whether Australia should store wheat for subsequent sale at higher prices. The dynamic programming model was developed assuming that the demand for Australian wheat is perfectly elastic at the world price. The major conclusions of the study were: apart from interest rate, the most important factor affecting storage in any season was the price in the following season; the holding of a speculative reserve to be sold in seasons of episodic price increased was generally unwarranted; the optimal policies associated with simulations of the historical price series observed for the period 2012-2013 (when Australian wheat prices had a stable mean and a low variance) indicate that a storage policy based on storing wheat in seasons of below average prices would have been wrong more than half a time.

Recto (2016) Undertook a study with the aim of improving the rice marketing system by determining optimal sizes and locations of warehouses and investigating ways by which the marketing costs of the product could be minimized. He examined the transport and storage systems in each of the 13 regions of Philippines during 2005. He found that warehousing facilities were inefficiently located, with shortages of storage facilities in some regions and surpluses in others. There had been an improvement in the production of rice, but there was no corresponding improvement in marketing infrastructures and services. A large amount of the crop could be lost through inefficient handling and processing.

The study conducted by Ochoa (2016) Jalisco Mexico was intentionally to examine if the WRS provides a better method of collateralizing crops for access to credits, using smart cards as a shortcut for cash withdrawals. By using agency theory, the author reported that with the WRS the risk is not intended to be eliminated; instead, it is a mechanism where the risk is shared between the producers, warehouse management and banks. In the study surveys were employed in order to obtain a broad picture about how farmers finance their activities to provide knowledge concerning their agricultural and post-harvest practices and their perception concerning the WRS and its feasibility. The result of the study shown that, almost half of the farmers agreed with the method of collateralizing their crops after harvest and using smart cards to withdraw cash from automated teller machines. This was because most of the farmers had been receiving

financial support from the informal credit sector such as warehouse officers or suppliers and faced several problems.

Patil (2017) in his comparative study examined performance of warehousing in Karnataka India. The North Karnataka region was considered for the study to provide representative sample. He used both primary and secondary data pertaining to establishment charges and maintenance cost like rent of warehouse, equipment, insurance, disinfestations charges, number of warehouses, capacity, depositor- wise utilization, paid lip capital, total assets, gross receipts, expenditure and profit of the selected warehouses were collected for the period from 2011-2015. A total of 18 warehouses were selected at the rate of 6 warehouses in each region of Hubli, Raichur and Gulbarga covering North Karnataka. Simple tabular analysis was followed to analyse data. The study found that high cost of storage keeps farmers away from using warehouses, especially for the small farmers. Warehouse operators did not give good response during the time of storage. The study concluded that, it is therefore, advised that warehouse owners have to treat all the customers (big and small farmers) as equals.

Another study assessed farmers' perceptions of the warehouse receipt system (WRS) in the West Java Province in Indonesia. Primary data were collected from 500 farmers through questionnaire administration. The results of the weighted average index revealed that there was a strong perception that the WRS is not well known, provides easy access to credit, and limited access for smallholder farmers. Moreover, there was a weak perception that the WRS has complicated regulations and slowed delivery of warehouse receipts. The main problems include lack of awareness, lack of facilities and limited access for smallholders. The implications for improving the implementation of the WRS are presented (Gunawan *et al.*, 2019).

Moreover, Onumah (2018) conducted a study in warehouse system in Africa in general following the trade liberalization which affected most of African countries especially those of the sub- Saharan, focusing the implementation of the system in Zambia. The specific objective of the study was to examine a link between rural livelihood improvements with the introduction of the warehouse receipt system in Africa. Onumah pointed out that the Warehouse receipt system in Zambia has made easy the accessibility of rural financing by attracting deposit from small farmers, formalize the transactions and database so that the banks can use the available information to evaluate

loan facilities to the farmers. The most important or critical aspect on that study was that the farmers could get loans by using the stored crops under the warehouse as collateral.

The study done by UNCTAD (2019) reviewed warehouse receipt system in Zambia, Malawi and Madagascar. The research used secondary data from agricultural organizations at national and local levels which were purposively sampled based on the functions and participation in the WRS as well as some community Banks. The research examined different cash crops including cashew nut. It was reported that as far as could be ascertained, the WRS in cashew nuts system had improved producer prices for raw nuts, but it had issues calling for more in-depth study, monitoring and evaluation in all these countries. It was also reported that public warehousing has developed much more slowly compared to private warehousing in the grain sector, because of the difficult policy environment with politically-sensitive food crops; public WRS in Malawi was the worst. It was also concluded that among all the three surveyed countries Madagascar had established a good regulatory framework in WRS. Madagascar had launched a regulated system involving the use of electronic warehouse receipts which had been well received by farmers, and even more so by bankers.

Nonetheless, another scholar has conducted a study with the aim of improving produce marketing by smallholder farmers in Kenya through Warehouse Receipt System and improving access by smallholder farmers to financial and insurance services and to secure markets (through contract farming) in maize marketing. Secondary and primary data was collected in main maize growing areas which covered Rift valley, Eastern, Western and parts of Nyanza in Kenya. One hundred individual farmers were randomly sampled. The study revealed that there was inadequate awareness on WRS and mainly accessible to large scale farmers & traders (90%) with limited participation of smallholders in groups (10%). Majority (85 %) of the farmers interviewed did not meet quality standards especially moisture tests and minimum quantity (10 metric tonnes, 111 bags of 90kg) required to earn a Warehouse receipt. The result of the study established that there was no policy and legal framework in place to guide the process (KENFAP, 2011).

Similarly, Rweyemamu (2015) conducted a study to examine performance of cashew nut industry in Southern Tanzania under the policies of market liberalization which was introduced in Tanzania in 1992. He looked at the activities in the crop output market.

The specific objectives of the study were to assess production performance of cashew nuts after liberalization, identify institutional changes that have taken place, and assess the behaviour of market participants and how they influence price and marketing costs. The study was based on secondary sources of information where various documents and reports were reviewed as a basis for making assessment. The study found that, liberalization measures had led to strong private sector activity in cashew purchase and export. However, the partially liberalized industry still suffers from significant weakness that impairs the production and marketing system, resulting from both market failure and government interventions. The output market was found partially competitive. As for inputs, there is lack of demand caused by failure of the market for seasonal credit. Government interventions in terms of the structure of levies and activities of input trust funds were also responsible for reinforcing some of the difficulties.

Furthermore, the study from Matei *et al*. (2019) has been conducted to examine factors that influence smallholder coffee farmers' participation in the WRS. The specific objective was to identify factors influencing participation. A random household survey of 390 farmers was conducted in Mbinga District, Tanzania. Data were analyzed using binary logistic regression. The results show that a respondent's age, market information, sex, and distance from coffee farms to Agricultural Marketing and Cooperative Societies (AMCOS) or farmers' group (FG) centres influenced coffee farmers' decisions to participate in the WRS. Young, male farmers with access to coffee market information are more likely to use the WRS. Dissemination of the market information and the location of AMCOS or FG centres closer to coffee farmers could be a key to increasing farmers' participation in the WRS.

Nevertheless, Katunze *et al.* (2017) has conducted the study to find out if Warehouse Receipt Systems (WRS) allow farmers and traders to access markets and financial Systems. While this system is not new in Uganda, as seen through both public and private efforts since 2004 during its pilot, little is known as to why it failed to ensure market access and credit. With the Uganda Warehouse Receipt System Authority in place, the government of Uganda seeks to reinstate the public warehouse receipt system with a concentration on the electronic-WRS. This study, therefore, critically reviews the evolution of the WRS, reviews the current policy support for the WRS and documents

the perceived benefits and challenges of private sector stakeholders of the WRS in Uganda. This paper relied on both quantitative and qualitative analyses to respond to the objectives. The Agricultural Technology and Agribusiness Advisory Services (ATAAS) database by the Uganda Bureau of Statistics (UBOS) was used for quantitative analysis, while the Structure Conduct Performance (SCP) framework was used for qualitative analysis. The results revealed that while the market structure and conduct of the pilot WRS was implemented as theorized, it faced various barriers that led to poor market performance. Overall, the actors perceive that the benefits of the WRS are numerous, including stable and high prices, thereby reducing price exploitation, especially on smallholder farmers. They also perceive that the system will enable access to secure and stabilize markets using a secure and transferable warehouse receipt. However, the actors perceived that more people will be attracted to the WRS if there is mass sensitization and a revision of the costs of storage, cleaning, and other marketing costs. This paper highlights an important policy implication for the implementation of the WRS, including the need for the government to spearhead the promotion of standards, strengthen the capacity of collective action, and stress the importance of increasing the sensitization of all aspects of the WRS.

The study done by Ngondo (2014) where the major objective was to assess the Role of Warehouse Receipt System (WRS) in improving the smallholder farmer's income (case study of cashew nuts farmers in Mtwara Region). More specifically, the study intended to analyse the relationship between production, price, storage and cashew nuts farmers income increase in Mtwara region and analyse the relationship between policy made for Warehouse Receipt System. The survey covered the cashew nuts farmers in Mtwara and Masasi Cooperative Union (MAMCU) and Tandahimba and Newala Cooperative Union (TANECU). Various primary societies in Mtwara District, Mtwara Rural, Nanyumbu, Masasi, Newala and Tandahimba were attended. Michiga, Chiungutwa, Lengo, Naliendele, Mtawanya and Nanguruwe who make produce cashew nuts in Mtwara region were used. The major finding from the study is that the price increase or set by in Warehouse Receipt System is the cause of the improving of smallholder farmers' income thus is beneficial to farmers to adopt a better life. Among other factors, perceived general WRS operation is the influential factor in determining customer's satisfaction in WRS. The study findings indicated that there was a positive and

significant relationship between perceived WRS service provided and customer's satisfaction in Warehouse Receipt System operation.

Masali (2013) assessed the effectiveness of warehouse receipt system (WRS) in cashew nut marketing in Tandahimba district. The study used both primary and secondary data and they were analyzed using SPSS computer programme. The study found that WRS had brought some small improvement in farmers' income. It was shown that what farmers were getting after introduction of WRS in cashew nut marketing was slightly higher than before. This was achieved by enabling farmers to get better prices for their produce and gain access to credit from commercial banks. It was also found that farmers were paid in installment basis although majority of them did not like the mode since it was associated with loss of money and time on frequently chasing for their payments. It was also agreed that WRS was protecting farmers against price fluctuation. When prices fell warehouse(s) used to stock raw cashew nuts (RCN) till the time when prices go high and sell at better prices for the farmers to get high income. Lastly the study found that market constraints experienced by farmers due to introduction of WRS were minimum price setting, lack of transparency in the system, improper measurements of the raw cashew nuts (RCN), and lack of sufficient storage facilities in warehouse. The study recommends that farmers should continue using WRS since the system is effective at improving their household incomes in the near future. They should be patient and pay more attention to the quality of their produce.

Meanwhile, Kidando (2014) undertook the study about the warehouse receipt system and its contribution to the small-scale farmers in Masasi District. The general objective of the study was to assess the contribution of warehouse receipt system to the small-scale cashew nut farmers‟ development in Masasi district. The specific objectives were (a) to identify the roles of stakeholders in implementation of the warehouse receipt system in cashew nut marketing; (b) to examine the contribution of key stakeholders in implementation of warehouse receipt system for the benefit of farmers; and (c) to assess the overall performance of the warehouse receipt system in cashew nut industry. The sample size for this study was 96. A combination of strategies was used in this study that is, both qualitative and quantitative strategies. Also, the cross-sectional survey design was used and data were being collected at once from different groups of respondents. Both probability and non-probability sampling methods were used. Data

indicate that, the system assures availability of cashew nut market every year, though there are some limitations that have become obstacles for the system performance. The study indicates that the challenges of the system are such as the delayed provision of inputs, high charges levied on inputs, installments system of payments and low price of cashew nut. Some suggestions from the cashew nut farmers are: Effective government supervision, early payments as well as remunerative price of cashew nut through appropriate indicative price. The study recommended that there should be timely payments, effective supervision during auctioning and indicative price reflecting the cost of production.

Another study conducted with general objective to assess the performance of WRS by describing the WRS operating in cotton sector, analyzing profitability of the WRS to cotton production, identifying challenges and constraints facing its key players and identifying factors contributing to the profitability differences among cotton farmers. Simple random sampling techniques were employed in selecting farmers. Descriptive and quantitative techniques were employed to meet the objectives of the study. Description of WRS seems to be the same as in other places operating the system and three main key players were identified: farmers, warehouse operators and finance institutions. The role of each key player relied on the Tanzania warehouse receipt regulations. It has been observed that, with presence of WRS, the profits to cotton farmers are able to increase. Insufficient information systems, poor knowledge about the system, unimproved infrastructure was among the challenges mentioned. It has also revealed that household size and cotton field size contribute to the differences in profit among cotton farmers. Basing on the results of this study, WRS should be adopted in other crops because, apart from credit facilities provision, it assists traders to pool financial resources, and form networks for consolidating cotton marketing; also, the system will help farmers to organize themselves into AMCOs for the purpose of bulking and marketing cotton together (Millao, 2011).

TSAFU (2015) determined the role of warehouse receipt system (WRS) in improving cashew nuts marketing by smallholder farmers in Mkinga district. The specific objectives were to assess the operations of WRS in improving cashew nuts marketing, to determine share of consumer price received by smallholder farmer when selling cashew nuts through WRS or through informal marketing channel and to determine

factors influencing smallholder marketing choices among WRS and informal market in the district. Both descriptive and quantitative methods of data analysis were used. The marketing margin analysis was employed to determine share of consumer price received by farmer along WRS and informal markets. The binary logistic regression was employed to determine factors influencing smallholder marketing choice. The descriptive results show that most of farmers trade cashew nuts in informal marketing channel (83%). The results of the marketing margins show that cashew nuts marketing through WRS yields high share of consumer price received by farmer (TSh 300/kg) over share accrued in informal markets (TSh 200/kg). Positive coefficient on experience, quantity sold, transport costs and access to training implies an increase in the likelihood of a farmer changing to WRS. So far, a negative coefficient on distance, education and access to extension indicated less likelihood of the farmer changing to WRS with improvement in these variables. This study calls for improvements in WRS availability, farmer's training, market information and enabling policy framework to enforce laws to enhance regulated WRS.

2.4 Research Gap

This study is designed to assess the Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers in Tanzania using the case of Mtwara district. It is quite true that many studies and theories about Warehouse receipt system have been conducted yet there is inconclusive debates going on about its influence and impact to various famers in the societies. Some scholars like Katunze *et al.* (2017), Kidando (2014) and TSAFU (2015) in their studies have shown evidently that Warehouse receipt system have an impact towards improving economic welfare of its users.

Furthermore, at the outset, warehouse receipt system was concentrating to provide their services to the users, but as the time goes warehouse receipt system become more useful tool for the inclusion of all smallholder farmers in income generating that ensures transformation of their economic welfares. Low economic welfare cut across farmers, so economic welfare improvement should be an initiative for smallholder's farmers. It is the quest of this study to find out the Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers Mtwara District, in order to fulfill the current knowledge gap.

2.5 Conceptual Framework

The conceptual framework shows the relationship between the warehouse receipts system and the economic welfare of cashew nut farmers. Independent variables include warehouse receipt system with its indicator namely; accessibility to remunerative markets which was operationalised by market information, farmers' income improvement which was presented by quality test services in relation to advanced payment systems, delivery of quality cashew nut to the market operationalised by access to agrochemicals and quality test technicians. On the other hand, dependent variable (economic welfare of cashew nut farmers) was operationalised by earned income per annum from cashew nut production, improved accessibility of public services such as access to health services and education, social services such as food, household assets, employment and improved shelter and adequate farm inputs to smallholder cashew nut farmers in Mtwara district.

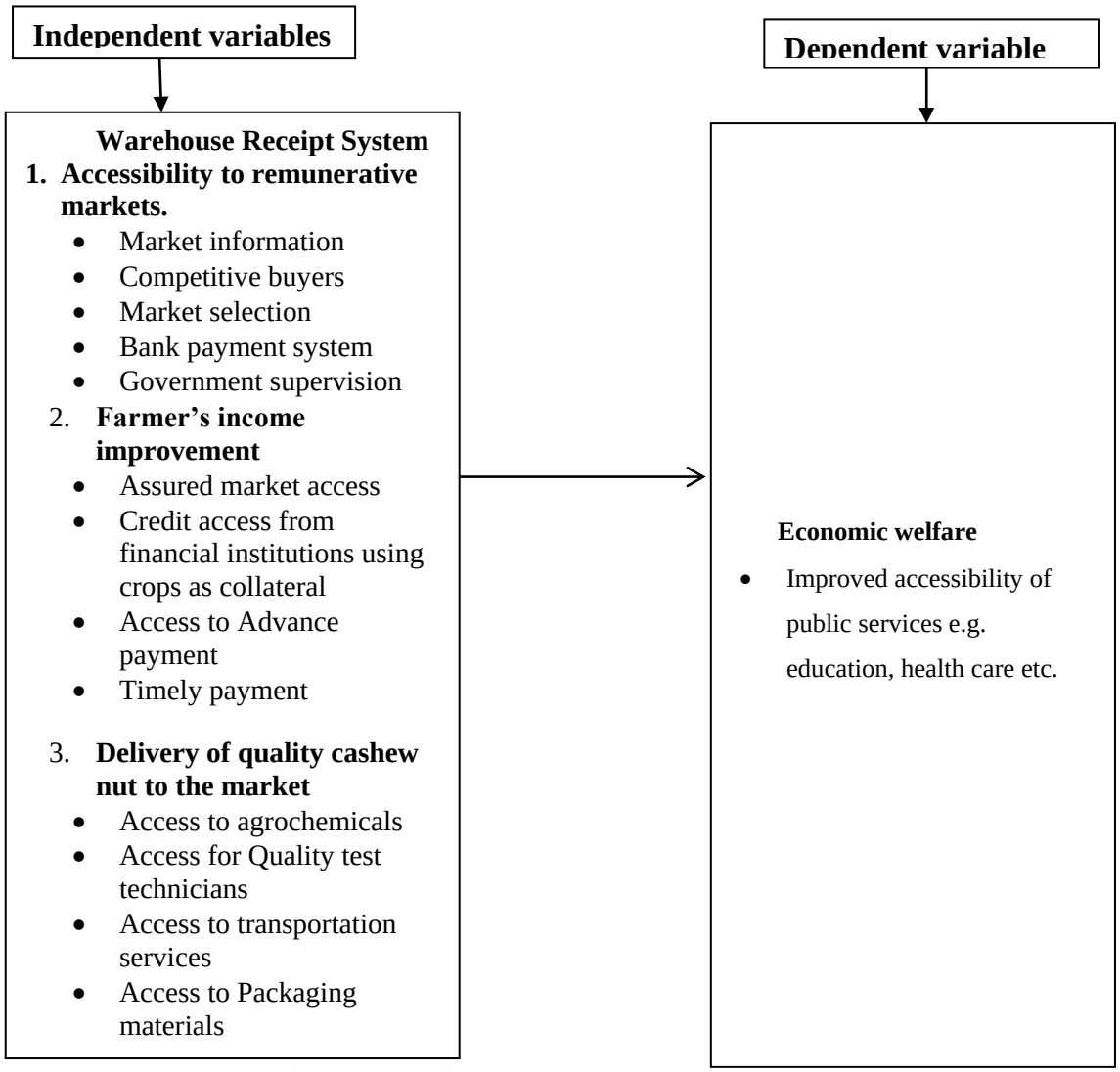

Figure 2.1: Conceptual Framework

The accessibility to public and social services was measured by adequacy of farm inputs that is described as the presence of technical advisory services, availability of fertilizers, pesticides, herbicides and improved planting materials and household income described as income of individual farmers is the function of price, assets/ capital, level of education of the farmers, number of acreages of land used for farming. The household approach is justified when both income and expenditure decisions are interrelated (REPOA, 2010).

Corral and Reardon (2014) explain the variables in the income function in terms of a farmer's incentives and capacities. The incentive refers to returns and risks in the forms of prices of inputs and outputs in the WRS. The capacities are the income which responds to the incentives. (Green, 2008) explains that incentives either pull or push individuals into the market. For the WRS high price paid to farmers improve the economic welfare of the farmers.

Basing on the effects of WRS in accessing cashew nut farmers to remunerative market, of which variables like marketing information, competitive buyers and marketing selection were employed in the study to measure the influence of WRS on smallholder cashew nut farmer’s economic welfare in Mtwara district.

Moreover, study was in touch to observe the effects of WRS on making sure that cashew nut produced are of high quality and quantity. In order to measure the objective, the study has employed variables like storage facilities, packaging materials, quality test technician, transportation facilities and agrochemicals to assess the existing relationship with smallholder cashew nut farmer’s economic welfare.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

Research design is about turning research questions into the research project (Masali, 2013). In this study, cross-sectional study design was adopted and data were collected at a single moment where the observation on variables and individuals were just performed in a single moment, the researcher recorded the facts (variables) of interest. The study employed cross-sectional since it allows researcher to have direct observation on phenomena to be investigated and further enhanced to obtain realistic information in a short time (Kothari and Garg, 2020).

3.2 Geographical Coverage

This study was conducted in Mtwara District predominantly in five (5) wards with five AMCOS of Mbawala, Nanguruwe, Mayanga, Ziwani, and Mwembetogwa. The selection of this area is due to the fact that, the warehouse receipt system has been used in these areas since it was introduced in 2007. Thus, it was expectation of the researcher that the cashew nut farmers from the selected AMCOS in the respective wards have many things to share about the effects of the warehouse receipt system towards socio-economic welfare of the farmers. Furthermore, Mtwara District is among the best producers of cashew nut with active primary Co-operative societies in the Region. AMCOS provided much information to share about the effects of the warehouse receipt system to smallholder cashew nut farmers' welfare in Mtwara District. This study basically was conducted in five (5) AMCOSs with appreciable large number of farmers who sells their cashew nut through WRS which is the only authorised system for purchasing raw cashew nuts as a marketing channel for the past fourteen (14) years up to date (see Table 3.1).

3.3 Population, Sample and Sampling Strategies

3.3.1 Population

Mtwara District has a total population of 228,003 (National Census, 2012). The target population of this study was smallholder cashew nut farmers who selling their raw cashew nut through WRS up to the 2019/2020 production season in five selected AMCOS of Mbawala, Nanguruwe, Mayanga, Zima, and Mwembetogwa which had a total of 1235 farmers. Smallholder farmers were those owning small plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively

on family labour. One of the main characteristics of production systems of smallholder farmers are of simple, outdated technologies, low returns, high seasonal labour fluctuations and women playing a vital role in production. Smallholder farmers differ in individual characteristics, farm size, resource distribution between food and cash crops, livestock and off-farm activities, their use of external inputs and hired labour, the proportion of food crops sold and household expenditure patterns (AFF, 2012). 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, sesame, cowpeas, cassava, millet, sorghum and maize.

3.3.2 Sample size

The sample size for this study was 302 respondents determined by (Yamane, 1967) formula, n = N/I+N $(e)^2$. Where, N is the total population size, and e is the marginal error. The conventional confidence level of 95% was used to ensure a more accurate result from the sample. Based on this, the error term would be equal to 0.05, using the total population of 1235 and error margin of 0.05 at two tailed tests. By using formula above, substituting N=1235 and e=2.5% into the formula resulted into the sample size of 302 respondents.

3.4 Sampling Strategies

This study adopted systematic sampling whereby list of members of AMCOS which are farmers who are selling their raw cashew in the respective AMCOs was determined. Systematic random sampling was used by dividing the population size (N) by the sample size (n) to obtain the range (k)

$$k = \frac{N}{n}$$

1. Steps: Sample of 302 is desired from 1235 elements in the population. Thus, 1235/302= 4.089 because the respondent were farmers therefore 4 was adopted as a range.
2. Simple random number between 1 to 9 is selected and 5 selected as a starting point
3. Start with number 5 and taken every 4^{th} unit.
4. Hence, the sample corresponding to 5, 9, 13, 17 up to the n^{th} a sample of 302 obtained from 1 to 1235 elements in the population.

The District Agricultural and Cooperative Officers were requested to provide register books containing names of cashew nut farmers who sell their raw cashew nut to the respective AMCOS (Mbawala were 108, Mwembetogwa were 408, Mayanga were 437, Ziwani were 157 and Nanguruwe were 130). So systematic sampling technique was employed to obtain the sample size from respective AMCOS as shown in the Table 3.1

Table 3.1: Distribution of farmers with their respective AMCOS

AMCOS (s)	Population (N)	Sample (n)
Mbawala	108	26
Mwembetogwa	408	100
Mayanga	437	107
Ziwani	152	37
Nanguruwe	130	32
Total	**1235**	**302**

Source: District Agricultural Irrigation and Co-operative (DAICO)

The use of this sampling procedure is because there are many appropriate techniques and this is the one which is documented. Farmers were asked on the effect of WRS on socio-economic welfare of smallholder Cashew nut growers. For each AMCOS warehouse receipt system beneficiaries were asked to respond on the items designed for the study.

3.5 Data and data Collection Tool

The researcher used both primary and secondary sources of data collection. The primary source document review for the case of secondary data.

3.5.1 Types of data and sources

Primary data was gathered directly from respondents, which were obtained through questionnaires and interviews checklist. Secondary data was obtained from the annual cashew nut purchasing reports from AMCOS using warehouse receipt system.

3.5.2 Data and data collection method

3.5.2.1 Survey tool

Questionnaires tool was used to collect data according to the need of the researcher because it is easy to administer and collect quantitative information within short period of time concerning economic welfare of the cashew nut farmers. A questionnaire

comprised both open-ended and closed-ended questions that make respondents to provide relevant information to the study. The tool was used because it ensures all respondents answer questions and have standardized answers that make it simple to compile data, thus questionnaire is an economical instrument that has a considered amount of data at a relatively low cost in terms of material, money and time.

3.5.2.2 Interview

This method was used because it enables the researcher to get more views for issues that are not well clarified in the questionnaires. Further, interview method was used as it allows the researcher to be responsive to situational issues concerning warehouse receipt system on economic welfare of cashew nut farmers in Mtwara district. The key informant that enquired through interview was asked if farmers access the agrochemicals through warehouse receipt system, presence of competitive buyers and challenges facing farmers through the use of WRS, presence of government supervision to the marketing process and access to market information under WRS.

3.6 Reliability and Validity of the Data

3.6.1 Reliability of the data

Reliability was carried out by testing the consistency of the research tools with a view of correcting them by eliminating errors. The study measured the internal consistency to ensure reliability by employing the Cronbach's Coefficient Alpha for testing the research tool. A pilot study used five people who engage in cashew nut production at the nearby district (Tandahimba) using convenience sampling. The data obtained during pilot study was analysed for reliability using Cronbach's Alpha. The Cronbach's alpha coefficient value of 0.75 computed from SPSS and further this meant that measurements used was reliable since it is greater than 0.5.

Table 3.2: Reliability of the data

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
0.75	0.273	5

3.6.2 Validity of the data

In order to ensure validity in a sample survey, validation of the research instrument was done by use of a pilot study. Prior to the actual study, pilot test of the measures was conducted against prospective sample population in order to measure validity. The subject to be approached during pilot study was marked so that they cannot be applied in the final study. The wording of items was carefully modified based on the pilot test outcomes and reviews. Pre-testing the questionnaire is of great significance in this survey. The questions were re-examined to ensure that they are not ambiguous, confusing or potentially offensive to the respondents leading to biased responses. This enhanced validity of the research instruments.

3.7 Variables and measures

In order to answer research question, variables and measure used per each study specific objective. Also, it was used at the stage of data entry, coding, recoding, editing, processing and analysis. In the study measurability made regression and descriptive analysis to be smooth and soft.

3.7.1 Independent variable

Warehouse Receipts System effects on improving farmers' income and quality of cashew nut products as well as accessing cashew nut farmers to remunerative market were used as the determinant of cashew nut farmer's economic welfare. Although, the study aimed to assess if socio-demographic characteristics of farmers such as sex of the respondent, age of the respondent, education level, marital status, family size, land size owned by farmers (acres) might to have impacts toward farmer's economic welfare.

3.7.2 Dependent variable

Cashew nut farmers' earned income per annum in interval was used as the measure of economic welfare. The respondents were asked to tick their income earned annually from cashew nut production in a provided income interval. Meanwhile the researcher coded those responses provided in SPSS and then recoded into two levels by recoding into different variable whereby farmers who earned income Ths.100,000-1,500,000 and Ths.1,500,001-3,500,000 combined as Ths.100,000-3,500,000. Also, farmers who earned income Ths.3, 500,001-5,500,000 and above 5,500,000 combined as Ths.3, 500,001 and above, then the scale has reduced from four levels into two levels whereby

1 coded as Ths.100,000-3,500,000 while 2 coded as Ths.3,500,001 and above in SPSS for further regression analysis.

3.8 Data Processing and Analysis

According to Kothari and Garg (2020) data analysis is a practice that includes editing, coding classification, and tabulation of collected raw data. It is the action concerning scrutinizing the essential data and making references. In the study both qualitative and quantitative data was used in the analysis. The data from field were entered, coded, processed and analysed thoroughly via IBM SPSS statistics processor and later on transferred to excel for further analysis. Meanwhile the information derived from questionnaires and interviews were synchronized and organized according to the questions. The data analysis requires a number of operations, that is to say the quantitative data using descriptive statistics such as frequencies were used, the percentages, and means were considered in order to provide descriptive information. The output obtained SPSS and excel was given according to the research question and presented in terms of tables and figures. In case of qualitative data from the interview, thematic analysis was considered and presented in line with descriptive findings.

3.9 Multiple Linear Regression model

The goal of multiple linear regression is to model the linear relationship between the explanatory (independent) variables and response (dependent) variables. In essence, multiple regression is the extension of ordinary least-squares (OLS) regression because it involves more than one explanatory variable (Hayes, 2022). The study employed multiple regression models so that to assess the effects of WRS to socio-economic welfare of small holder cashew nut farmers in Mtwara District.

3.9.1 Assumption of model

According to (Osborne *et al.*, 2002) most statistical tests rely upon certain assumptions about the variables used in the analysis. When these assumptions are not met, the results may not be trustworthy, resulting in a Type I or Type II error, or over- or underestimation of significance or effect size(s). With regard of assumption explained (Osborne *et al.*, 2002), the model employed in the study had taken the following assumption into consideration: -

i. Normality assumption; Variables employed in the model follow normal distributions as illustrated Figure 3.2: -

ii. Linearity and Homoscedasticity assumption met as illustrated in the Figure

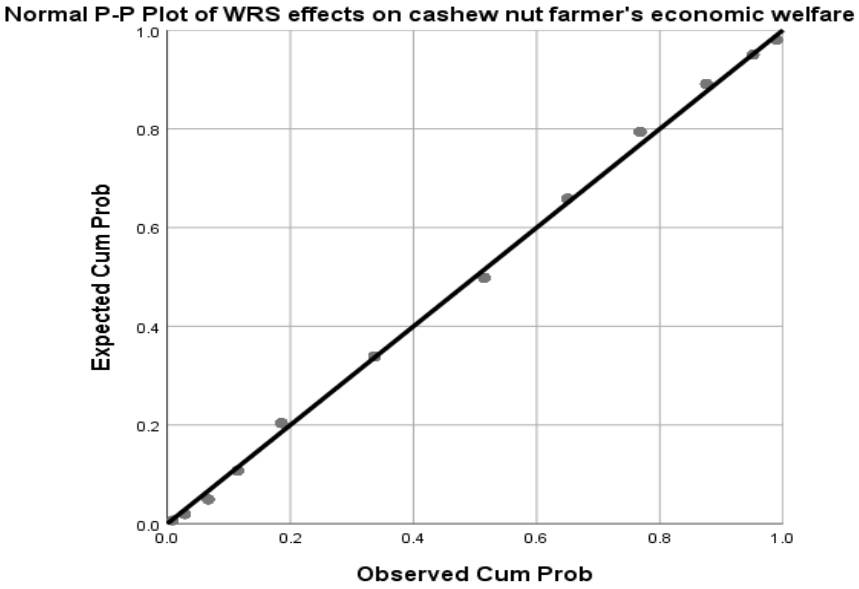

Figure 3.2: Checking normality assumption

From Figure 3.2, it shows that there is linear relationship between WRS effects on improving farmer's economic welfare. Moreover, it unveiled that standardized-residuals were closer to the fitted line that indicating homoscedasticity assumption.

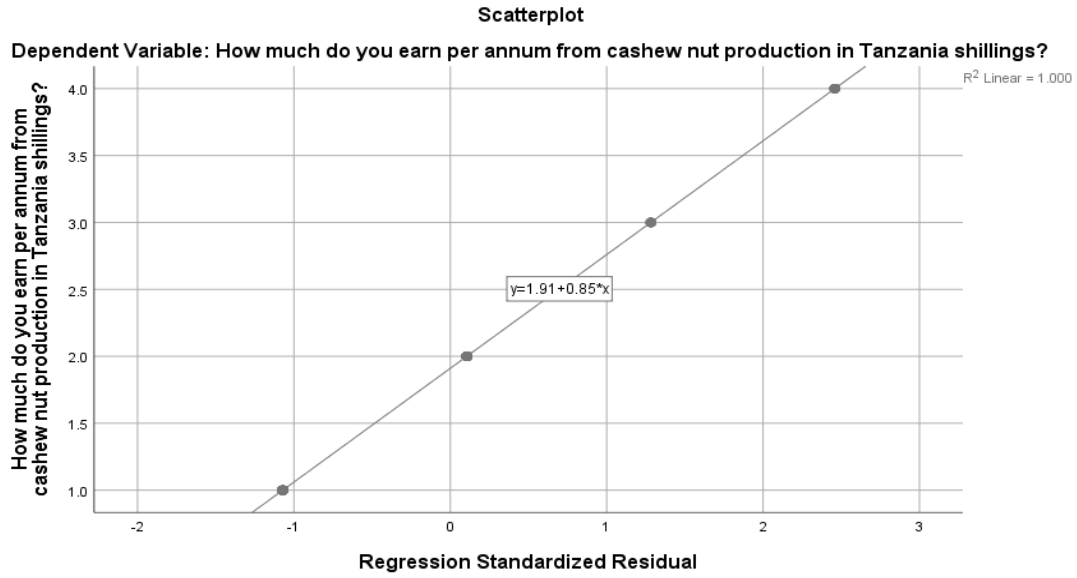

Figure 3.3: Checking normality assumption

3.9.2 Model description

The study has employed multiple regression model as shown below so that to find out and measure the effects of WRS to smallholder cashew nut farmer's economic welfare in Mtwara district: -

$$\boldsymbol{y = \beta + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \varepsilon}$$

Whereby;

y = Cashew nut farmers earned income per annum in interval

$\boldsymbol{\beta}$= Constant

$\boldsymbol{\varepsilon}$ **= Error terms**

$\boldsymbol{\beta_1}$,$\boldsymbol{\beta_2}$,$\boldsymbol{\beta_3}$,$\boldsymbol{\beta_4}$,$\boldsymbol{\beta_5}$ and$\boldsymbol{\beta_6}$ are regression coefficients

$\boldsymbol{x_1}$= Sex of the respondent

$\boldsymbol{x_2}$= Age of the respondent

$\boldsymbol{x_3}$= Education level of cashew nut farmers

$\boldsymbol{x_4}$= Marital status of cashew nut farmers

$\boldsymbol{x_5}$= Family size of cashew nut farmers

$\boldsymbol{x_6}$= Land size owned by cashew nut farmers

$\boldsymbol{x_7}$**=** WRS effects on improving smallholder cashew nut farmer's income

$\boldsymbol{x_8}$**=** WRS effects on accessing farmers to remunerative market

$\boldsymbol{x_9}$**=** WRS effects on improving the quality of cashew nut products

Furthermore, the mean Likert scale of the all indicators with four level scale on WRS effects in improving farmer's income has been calculated to obtain variable x_7. Likewise mean Likert has been employed too to obtain variable x_8 and x_9.

3.10 Ethical Consideration

Conducting research that is ethical requires a commitment that lasts not only through the life of the research project but also afterwards, at the dissemination stage and even beyond. Clearance was obtained from Moshi Co-operative University Administration before commencement of the study. Thereafter, the Mtwara Regional Commissioner, Mtwara District Commissioner, and Mtwara District Executive Director granted me permission of undertaking this study. Informed consents were obtained from all respondents before the interviews in which none of the respondents refused to participate in interview. Strict confidentiality was granted to respondents and participants who had freedom to withdraw at any stage.

CHAPTER FOUR
FINDINGS AND DISCUSSION

4.1 Socio-demographic Characteristics of the Respondents

The study considered the demographic characteristics based on the aim of the study and gathered information such as age, gender, marital status, education level, name of AMCOS, farmers' land size and family size. All of these demographic characteristics aimed to sort information from reliable respondents who have clear information based on the effects of WRS on cashew nut farmers' socio-economic welfare.

Table 4.3: Demographic characteristics of the respondents (n=302)

Demographic Characteristics		Frequency	Percent
Sex	Male	226	74.8
	Female	76	25.2
	Total	302	100.0
Age, category (years)	20-40	67	22.2
	41-50	122	40.4
	>=51	113	37.4
	Total	302	100.0
Marital status	Single	44	14.6
	Married	201	66.6
	Widowed	21	7.0
	Divorced	36	11.8
	Total	302	100.0
Education level	Primary education	168	55.6
	Secondary education	76	25.2
	>=College/University	58	19.2
	Total	302	100.0
Farmers' land size (Acres)	1-10	71	23.5
	11-20	74	24.5
	>=21	157	52
	Total	302	100.0
Family size	1-3	118	39.1
	4-6	137	45.4
	7-10	47	15.5
	Total	302	100.0

4.1.1 Sex of the respondents

With regard to sex profile from Table 4.3, the findings showed that more than a half of the respondents were males and were about 226(74.8%) while the rest 76(25.2%) were females. According to these findings, males seem to dominate in cashew nuts production compared with females in the District. This is probably due to the nature of the work, which is very tedious and needs a lot of investment. Therefore, males have more chance to participate in making decisions about the operation of warehouse receipt system than female. These findings are in line with (Ghasia, 2018) who found that 80% of the respondents were males and 20% were females engaged in cashew nuts production.

4.1.2 Age of the respondents

From Table 4.3, the findings showed that more than a half of the respondents were 122 ranged from age 41-50 and 113 who were aged 51 and above that account for 40.4% and 37.4% respectively while the rest were 67 respondents that account for 22.2% of those included in the study aged between 20-40 years. As it can be noted from the findings, it is 22.2 %of the respondents were between 20 and 40 years; this is probably due to the fact that this age group of people do not own their cashew nut farm rather they inherit or borrow a farm for a season. The findings from this study in line with findings from the study done by (Makhura, 2014) that unveiled 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.

4.1.3 Marital status

Basing on marital status, Table 4.3 shows that most of the respondents involved in the study were married that account for 201 cashew nut farmers (66.6%), 44 cashew nut farmers (14.6%) were singles and 57 cashew nut farmers (18.8%) were both divorced and widowed. According to the study findings most of the small holder cashew nut farmers participated in the study that account for 77.8% were aged 41 years old and above where in most cases that age group it is usually in marriage rather than single who were aged 40 years and below.

4.1.4 Education level

By considering education level basing on Table 4.3, it shows that more than a half of the respondents completed primary education that account for 168(55.6%) while 76(25.2%)

completed secondary education and about 58(19.2%) completed at least college education. These findings are in agreement with other findings from the study done by (Ramadhani *et al*., 2014) that reported small holder cashew nut producers never continued to study higher levels of education since they were facing various challenges forced them to engage in farming activities. However, if the education of cashew nut farmers were high, probably it could have significant impacts to socio-economic welfare.

4.1.5 Farmers' land size

With regard to farmers' land size, Table 4.3 shows that most of small holder cashew nut farmers in Mtwara district own 21 acres and above were about 157(52%), those who own between 11-20 acres were 74(24.5%), others who own 10 acres and below were 71(23.5%). These findings are further evidenced by the study done by (Sijaona, 2002)that unveiled the average of smallholder cashew farmers in Mtwara district occupies about one to two hectares of cashew trees, sometimes intercropped with food crops, mainly cassava, grain staples and legumes while large-scale private plantations occupy the rest fraction.

4.1.6 Family size

According to Table 4.3, basing on family size it shows that more of the cashew nut famers had children between 4-6 were about 137(45.4%) while the rest 118 (39.1%) had 3 children and below and about 47 (15.5%) had 7-10 children. From these findings it seems fewer percent of small holder cashew nut farmers had children range 7-10 and this is probably due to high awareness in family planning matters now days.

4.2 The Study Objective Findings

4.2.1 The influence of Warehouse Receipt System on farmer's income improvement

Table 4.4: Farmer's income earned from cashew nut production

Income earned per annum		**Frequency**	**Percent**
Tanzania	100,000-3,500,000	260	86.1
shillings	3,500,001 and above	42	13.9
	Total	**302**	**100.0**

From Table 4.4, the study found more than a half of small holder cashew nut farmers by about 260(86.1%) earned between Tsh.100,000 and Tsh.3,500,000 while rest of them

42(13.9%) earned Tsh.3,500,000 and above. So according to that finding it seems most of cashew nut farmers in Mtwara district still earned less from cashew nut production in spite of large land size owned and high experience they had since most of them found were old.

To assess farmer's income, the study employed items like getting payment on time, mode of payment under WRS, credit access of cashew nut farmers to financial institution and accessibility of cashew nut farmers through their AMCOS to insurance services as the measures of smallholder cashew nut farmer's income improvement since all of them affect income to large extent. Some of the key informants from respective AMCOS were selected for interview purpose whereby their views and opinions noted down. Meanwhile, questionnaires were distributed to cashew nut farmers based on mentioned above variables with respect to AMCOS selected from five wards in Mtwara district. Finally, their responses were coded and further analysed then after tabulated and presented in the figures in terms of frequencies and percentages followed by its interpretation.

The study aimed to know time at which cashew nut farmers would be comfortable and happy to get payments once their product being sold. So, to achieve this, researcher has employed questionnaire technique where one question was dispatched to 302 respondents and the responses were coded, then later on analysed and presented in Figure 4.4

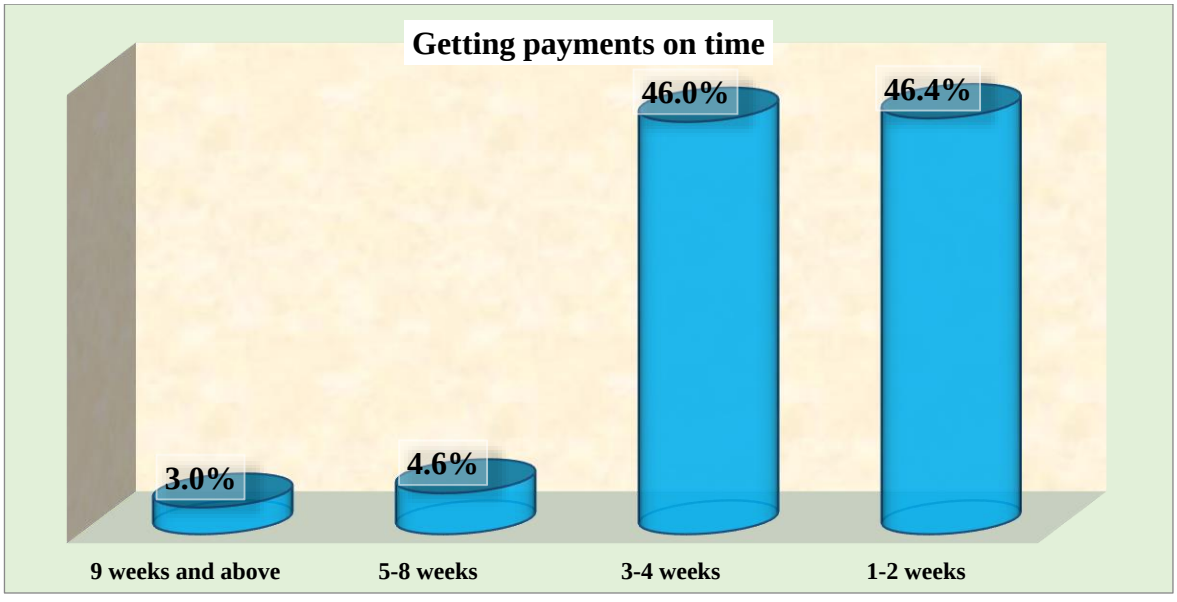

Figure 4.4: Getting payment on time (n=302)

Basing on getting payment on time from Figure 4.1, the study findings unveiled that more than a half of the respondents account for 279 (92.4%) proposed that they want to get payment below 4 weeks once their cashew nut products sold in auction market. This study finding complies with the finding from the study done by (Ngondo, 2014) unveiled that 21.57% of the famers reported on the late payments to cashew nut farmers as the major challenge facing cashew nut farmers in Mtwara district. This is probably due to the facts that there is a lot of complains that small holder cashew nut farmers did not get their payment on time. 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 despite the opportunities offered by warehouse receipt system to farmers. So, if WRS make payment to farmers on time after two weeks once cashew nut products sold will have significant rise in the incomes of small holder cashew nut farmers in Mtwara district and eventually they will be able to access social services. This finding collaborated with the other finding collected from qualitative data where one of the cashew nut farmers selected from Mbawala AMCOS during interview presented his opinions that: -

> *"In a period of years before, I have experienced social and economic changes in my family. I sell my cashew nut through agricultural cooperatives and I receive payments within two weeks, which was difficult in the past years. Before the introduction of WRS, the price of cashew nut was less than 1,800 TZS, payments were delayed and sometimes not obtained at all. Agricultural cooperatives have ensured all cashew nut produced are sold at a good price. This has enabled me to have assurance of getting income every season which is directed to social and economic development of my household."* (Interviewee, Farmer at Mbawala AMCOS 14/7/2021).

By considering the finding above collected through interview way revealed getting payments on time has changed most the life of cashew nut farmers socially and economically in Mtwara district. This probably due to the fact that early payments to small holder cashew nut farmers would enable them to meet their daily basic needs as well as accessing social and economic services. Meanwhile smallholder cashew nut farmers' economic welfare would have climbed up substantially.

The study aimed to find out if WRS enhanced cashew nut farmers' income improvements. So, to achieve this, researcher has employed questionnaire technique where four indicators were dispatched to 302 respondents and the responses were coded, then later on analysed and presented in table as shown below: -

Table 4.5: WRS on Cashew nut farmers' income improvements (n=302)

Variables	SA n(%)	A n(%)	D n(%)	SD n(%)
Fair market price under WRS	61(20.2)	207(68.5)	26(8.6)	8(2.6)
Instalment as payment mode under WRS	13(4.3)	30(9.9)	79(26.2)	180(59.6)
Credit access to financial institution under WRS	86(28.5)	147(48.7)	45(14.9)	24(7.9)
AMCOS access to insurance services	57(18.9)	122(40.4)	83(27.5)	40(13.2)

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree

Basing on fair market price whether can provides income to farmers or not once they had accessibility to assured market, the study findings revealed that 20.2% of small holder cashew nut farmers strongly agreed probably due to the facts that there is unethical marketing system under WRS, 68.5% of small holder cashew nut farmers were just agreed. The study explored that the majority of farmers reported that there is fair market price under WRS. This look similarly from the study done by (Mtanda,2015) that explored about 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, 2.7% reported that WRS provide technology to farmers. According to the study findings, most of the respondents about 268 cashew nut farmers agreed that fair market price under WRS can improves their income a lot through the profit that they receive once they sold cashew nut. In addition, the findings collaborated with the finding collected from qualitative data through interview where one of the cashew nut farmers presented views and opinions as follows: -

> "*…The increase of price for our cashew nut has changed our lives compared to the situation before the introduction of the WRS. The income obtained has helped me to improve my house and build business shops and eventually life in my household has changed and we are happy with our cashew nut*." (Interviewee, Farmer at Nanguruwe AMCOS, 18/7/2021).

One of the interviewees from Nanguruwe revealed that since the introduction of WRS has changed their lives a lot probably due to the facts that their incomes earned have

raised up and consequently smallholder cashew nut farmers would be able to improve their houses and reinvesting in profitable business-like shops, eventually farmers' economic welfare has raised up.

Furthermore, most of small holder cashew nut farmers seem to be more reluctant on being paid for instalments once their products sold. The study findings presented from Table 4.5 revealed 4.3% of cashew nut farmers strongly agreed on being paid for instalment due to associated bonus in the last payment, 9.9% just agreed probably due to the fact that being paid for instalment economizes utilisation of money rather than getting payment on lump sum, 26.2% disagreed since being paid for lump sum assured them remittance of money that they could have wide choice in budgeting and 59.6% strongly disagreed because being paid for instalment have low advantages rather being paid for lump sum. Generally, the study finding further revealed that majority of smallholder cashew nut farmers they were an unhappy to be paid for instalment once their products sold; meanwhile they preferred lump sum to instalment. This is probably due to facts that cashew nut farmers once received payment for lump sum they would be able to meet their daily basic needs on time, accessing social services on time and moreover investing outside from agricultural sector where later on return received may improve farmers' income. This finding is further evidenced from the study done by (Yusuph, 2009) in Tandahimba district and one of his findings unveiled that cashew nut farmers were complaining on the system that forced them to sell and getting payments for instalments on which 70% is paid at first when the cashew nuts were collected by the primary society and another instalment of 30% of farm gate price was paid when the cashew nuts was sold from the warehouse.

Cashew nut farmers were also asked on credit access to financial institution through cooperatives under WRS, the findings from Table 4.5 showed 28.5% of small holder cashew nut farmers strongly agreed since once they are accessed to credits from financial institution would be able to get farm inputs on time, 48.7% of smallholder cashew nut farmers agreed too because once even payment delayed farmers would be able to run and handling their lives, 14.9% disagreed probably due to high interest rate prevailed in financial institution. The study revealed that about 7.9% of farmers were just strongly disagreed due to the existence bureaucracy in credits. The study findings revealed further that majority of the respondents were able to access credit from financial institution through their cooperatives where their cashew nut produced stand

as collateral to banks. Through small holder cashew nut farmer would be able to get farms input like pesticides, fertilizers on time as well employing advanced agricultural methods where all of them resulted to rise of cashew nut farmers' income. The study findings collaborated with the study done by (Cashew nut Board, 2011) unveiled the aim of the warehouse receipt system, apart from facilitating price stability is to guarantee farmers with the loans from the bank and using the stored crop as collateral until it is sold and it further revealed that the AMCOS will take banks loans to facilitate also the initial payments and forward the crops to the desired factories according to the arrangements in place for processing.

By considering on AMCOS accessibility to insurance services under WRS to see if it had significant impacts to small holder cashew nut farmers' income. The study findings from the Table 4.5 revealed that 18.9% of the cashew nut farmers strongly agreed since it covers cashew nut products from various uncertainties that might arise, also about 40.4% of farmers were just agreed due to the facts that insuring cashew nut products might reduce post-harvest losses, 27.5% just disagreed probably due to delay in processing claims once they are submitted in insurance company and about 23.2% of the respondents just strongly disagreed probably due to the facts that sometimes there are bureaucracy before the claim issued. The finding showed more than a half of the cashew nut farmers were in agreements that they would be able to access insurance service through their cooperative. Since WRS is introduced in 2007, cashew nut farmers were able to ensure their products especially at the time stored in warehouse while they are waiting for auction day planned under WRS. This is one of the vital roles played by WRS to farmers since there are uncertainties that may happen while farmers' product is stored at warehouse. These risks include shrinkage in weight of cashew nut products especially when auctioning day delayed, burglary (theft) risk and the risk of fire. So, through that accessibility to insurance service act as safe net to small holder cashew nut farmers' products since it is one way of reducing post-harvest losses a part from assured market access and consequently farmers' income climbed up. This finding is further collaborated with the finding from the study done by (Mpita,2013) that showed that commodities received in the warehouse must have full insurance cover against fire, burglary and other risks as may be directed by the TWLB.

4.2.2 The influence of WRS on farmer's accessibility to remunerative market

In order to answer the study objective above, the researcher employed variables like marketing strategy under WRS, competitive buyers, market selection and cashew nut price under WRS as the measure of smallholder cashew nut farmer's accessibility to market. Some of the key informants from respective AMCOS were selected for interview purpose whereby their views and opinions noted down. Meanwhile, questionnaires were distributed to cashew nut farmers based on mentioned above variables with respect to AMCOS selected from five wards in Mtwara district (see Table 4.6). Finally, their responses were coded and further analysed then after tabulated and presented in the figures in terms of frequencies and percentages followed by its interpretation.

The study aimed to assess the market strategy effects under WRS if whether it is efficient to smallholder cashew nut farmers in Mtwara district basing on 302 sample farmers selected for study. So, to achieve this, researcher has employed questionnaire technique where four questions were dispatched to 302 respondents and the responses were coded, then later on analysed and presented in Table as shown below: -

Table 4.6: The marketing strategy effects under WRS (n=302)

Marketing strategy	Frequency	Percent
The marketing is very good	63	20.9
The marketing is good	139	46.0
The marketing is poor	73	24.2
The marketing is very poor	27	8.9

Small holder cashew nut farmers were asked several questions to meet specific objective of the study. One was the marketing strategy effects, so it was found that 46.0% agreed that the marketing strategy was good and 20.9% were strongly agreed too while 24.2% unveiled that the marketing strategy used was poor and others about 8.9% of farmers responded that it was very poor. The study finding further shows that more than a half of the respondents were satisfied with the marketing strategy adopted by WRS as presented in Table 4.6. The study finding in lines with the study done by (Mtanda, 2015) revealed 80% of the majority in his 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%).

The study aimed to know the influence of WRS on accessing cashew nut farmers to remunerative market in Mtwara district basing on 302 sample farmers selected for study. So that to achieve this, researcher has employed questionnaire technique where four questions were dispatched to 302 respondents and their responses were coded, then later on analysed and presented in table as shown below: -

Table 4.7: WRS on accessing cashew nut farmers to remunerative market (n=302)

Variables	SA n(%)	A n(%)	D n(%)	SD n(%)
Presence of competitive buyers on cashew nut farmers	6(2.0)	19(6.3)	178(58.9)	99(32.8)
Market selection under WRS	67(22.2)	140(46.4)	54(17.9)	41(13.6)
Selling cashew nut price under WRS	57(18.9)	126(41.7)	83(27.5)	36(11.9)

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree

Concerning to the cashew nut price under WRS, the finding shows that 18.9% of the small holder cashew nut farmers strongly agreed on the price that they sold their cashew nut under WRS system, 41.7% of the respondents agreed too, 27.5% of cashew nut farmers disagreed and 11.9% of farmers strongly disagreed. The study explored that the majority of cashew nut farmers just reported that WRS enables farmer to sell their products at good price. This study finding in lines with the study done by (Ngondo,2014) who noted that the price of cashew nut was increase from 2007/08 to 2011/12 through operation under WRS. Although some of farmers seem reluctant on the selling cashew nut price under WRS due to the facts that production cost is very high than indicative price. This study finding was supported by the study done by (Kidondo, 2014) unveiled the majority reported that they were dissatisfied with the indicative price because of high production cost. Meanwhile the findings match with the finding from qualitative data where one of the famers was selected from Mayanga AMCOS in Mtwara District and remarked the following: -

> *"Before the introduction of WRS, buyers bought our cashew nut at an average price of 600 TZS. This was done intentionally as they were sure that we had no option of selling our cashew nut. But I express appreciation to our government after introducing the WRS which gives us a good price (more*

than 2,300/-). That is why, I always regret why our government did not introduce this system in 1990s to make our cashew nut have value." (Interviewee, Farmer, Mayanga AMCOS, 12/7/2021).

Basing to the views and opinions provided by one of the key informants from Mayanga AMCOS on the selling cashew nut price under WRS, the finding revealed that since WRS introduced smallholder cashew nut farmers in Mtwara district were able to sell cashew nut product at good price through their AMCOS unlike Kangomba system.

Basing on competitive buyers, the findings indicate 2.0% of cashew nut farmers strongly agreed on the presence of competitive buyers on their cashew nut products, 6.3% agreed, 58.9% disagreed and 32.8% strongly disagreed. Generally, most of small holder cashew nut farmers reported that there is low existence of competitive buyer. This finding implies that majority of cashew nuts farmers are not fully satisfied with the existing competitive buyers to the market since they considered being weak and not competitive and due to this probably that is why the amount of cashew nuts produced remain unsold and hence farmers lost much income.

Nonetheless, with regard to higher market selection, the study aimed to ascertain market selection as the one of the key role played by WRS to smallholder cashew nut farmers through their AMCOS like doing market research on cashew nut produced and getting farmers market information on time to measure its effects to farmer's income, so study findings indicated that 68.6% agreed since WRS enhanced cashew nut farmers to sell their product at good price while the rest 31.5% of the respondents disagreed with the statement probably due to the fact that in spite of WRS channelling cashew nut product to remunerative market but there are some weakness like low indicative price in auction due to world price fluctuation and postponements of auction that has reduced farmer's income. This is further evidenced from the study done by Wehling and Garthwait, (2018) that WRS is also used as a risk-management tool and as a way of providing smallholder farmers better access to market opportunities hence it improves household economic welfare.

The study aimed to know if cashew nut farmers receive any protection from the Government via their registered AMCOS under WRS in Mtwara district basing on 302 sample farmers selected for study. So, to achieve this, researcher has employed

questionnaire technique where one question was dispatched to 302 respondents and their responses were coded, then later on analysed and presented in table as shown below: -

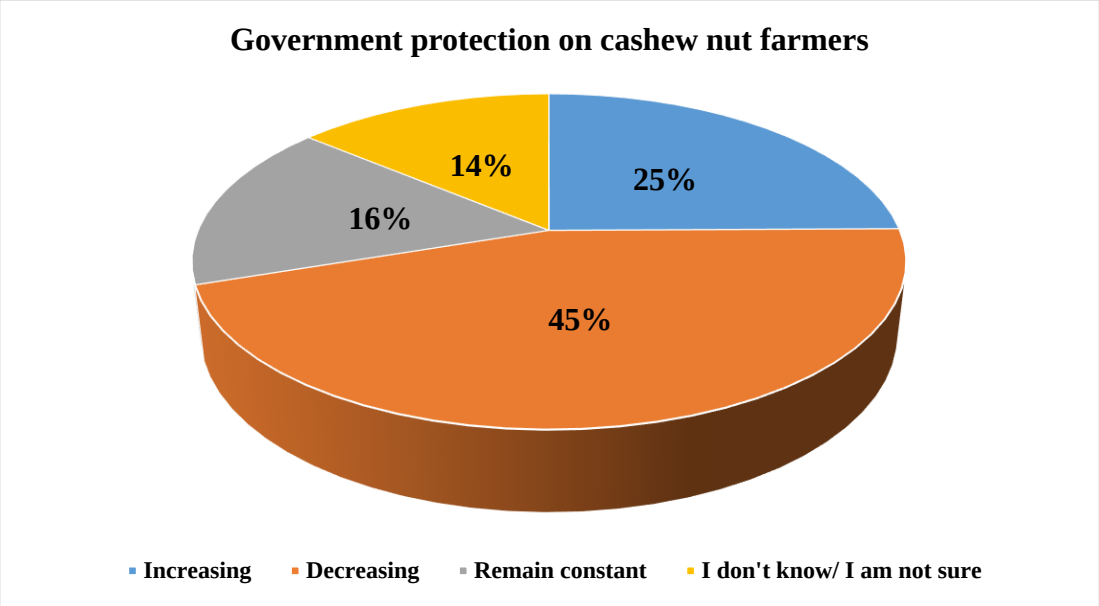

Figure 4.5: Government protection on cashew nut farmer's income(n=302)

The small holder cashew nut farmers asked by the researcher to see whether the government protection increased or not. The study findings in figure 4.2 showed about 25% of the respondents reported that the government protects cashew nut farmers interest, the majority account for 45% reported that the government protection on cashew nut farmers through CBT fell down due to the fact that there is poor bench cashew nut price, no reduction in tax as well as high storage levy. This finding collaborates with finding from the study done by (Mpita,2013) unveiled the Government protection on cashew nut farmers was still low since there were existence of middle man in the marketing system, untruthful operators in AMCOS operated under WRS, Government officials did not provide education about marketing system and low assessment and evaluation on the performance of WRS. Also, about 16% of cashew nut farmers reported that the government protection on cashew nut farmers remained constant probably because there were a lot of shortcomings under WRS operation and they didn't see any further improvement in WRS and 14% of the respondents were neutral. Most of the respondents in this study unveiled that government protection fell down. This might cause low accessibility of smallholder cashew nut farmers to remunerative market and consequently may affects socio-economic welfare negatively.

This study finding in lines with the findings collected qualitatively where some of the cashew nut farmers were selected from AMCOS in Mtwara District. Cashew nut farmers presented their views and opinions concerning on the vital role played by government as follows: -

> "……*Before the introduction of WRS, buyers bought our cashew nut at an average price of 600 TZS. This was done intentionally as they were sure that we had no option of selling our cashew nut. But I express appreciation to our government after introducing the WRS which gives us a good price (more than 2,300/-). That is why, I always regret why our government did not introduce this system in 1990s to rise the cashew nut value"* (Interviewee, Farmer, Mayanga AMCOS, 12/7/2021).

One of the informants above revealed that Government through CBT and WRS made a lot of improvements to cashew nut farmers in Mtwara because since WRS introduced smallholder cashew nut farmers sold their products at good price unlike previous time. Also, others interviewee revealed WRS increased bargaining power among cashew nut farmers through their AMCOS that registered under WRS, meanwhile through these bargaining power farmers were able to influence market price and consequently earned a lot of income. So, this complies with the study done by (Kidando, 2014) whereby he found out that seven of these leaders felt that the supervision was sufficient during the auctioning processes, still there is a need for the government to ensure attentive supervision of cashew nut auctioning in order to address the problems which might be affecting the performance of the warehouse receipt system. During interviewee, one of the respondents argued that:

> *"….I appreciates our government for organising farmers and form agricultural cooperatives in our district which has made us become respected by buyers. Before the introduction of WRS, buyers bought our cashew nut at a lower price, knowing we have no option of selling our cashew nut; this made us sell our cashew nut at a loss compared to expenses incurred in production. Farmers, through our agricultural cooperatives, have power to make decision of accepting or rejecting the price offered by buyers. Also, we present our needs to the government which are considered for our development, and therefore we see cooperatives as a tool which*

helps us to raise our voice to the government and other stakeholders." (Interviewee, Farmer at Nanguruwe AMCOS, 18/7/2021).

From the above views and opinions presented, the study has found that the government via CBT, WRS and their registered AMCOS has made smallholder cashew nut farmers in Mtwara district to be more respected since WRS introduced farmers being able to sell cashew nut produced at favourable price, where one of the respondents during the interview had this to say:

> "…*Before the introduction of WRS every farmer was selling his or her cashew nut on his or her own, either to local processors, middlemen or agricultural cooperatives. The price which was offered was very low compared to the cost incurred during production. The government after introducing WRS and strengthening our agricultural cooperatives, farmers now are organised and, we collect and sell our cashew nuts at a good price and get payments on time."* (Interviewee, Farmer at Mwembetogwa AMCOS, 15/7/2021).

Basing on the above views and opinions presented above, the study unveiled that cashew nut farmers in Mtwara district has appreciated a lot what the government did to them since some of them had the complain that before WRS introduced they sold their produce at low price. The study further unveiled that since WRS strengthen their cooperative and it was that time too where their life has changed. The study relates to what was found from the study done by (Mpita,2013) whereby he revealed that Government should allow small farmers associations to buy cashew nut direct from farmers to auction in order to increase competitions in the market that has resulted to influence the price of selling cashew nut.

4.2.3 The influence of Warehouse Receipt System on quality cashew nut produced

Researcher employed variables like accessing cashew nut farmers to quality test technician, agrochemicals, transportation, packaging materials and storage facilities to see if WRS had any influence on the quality of cashew nut produced. In order to answer the study objective, smallholder cashew nut farmers were asked question on the following variables and their responses are as presented in the table below:

Table 4.8: WRS effects on delivering quality cashew nut produced into market (n=302)

Variables	SA n(%)	A n(%)	D n(%)	SD n(%)
Quality test technician	66(21.9)	135(44.7)	57(18.9)	44(14.6)
Farmers access to agrochemicals	42(13.9)	158(52.3)	65(21.5)	37(12.3)
Transportation services	74(24.5)	153(50.7)	57(18.9)	18(6.0)
Cashew nut farmers access to packaging materials	47(15.6)	165(54.6)	52(17.2)	38(12.6)
Availability of storage facilities	58(19.2)	142(47.0)	80(26.5)	22(7.3)

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree

Basing on transportation facilities, cashew nut farmers were asked to see at what extent WRS helped farmers in the delivery of quality cashew nut to market. The study findings revealed 24.5% of the cashew nut farmers just strongly agreed since there are some efforts made by WRS like ensuring fastening collection of raw materials. The majority account for 50.7% of the cashew nut farmers just agreed probably due to cashew nut farmers have realised on how WRS helped them to reduce transportation cost through ensuring early delivery of cashew nut produced to warehouse. This finding in line with the study done by (Mpita,2013) that unveiled WRS provides slight changes to farmers as improved good infrastructure, improved transport facilities like increase in motorcycles, bicycles, motorcars and asset. Though the study showed about 18.9% of cashew nut farmers just disagreed, this meant they didn't realise any contribution of WRS basing on transportation probably due to transportation costs incurred.

Additionally, quality cashew nut test technician was employed in the study to find out its effects on cashew nut produced. So, the findings revealed that 21.9% of small holder cashew nut farmers strongly agreed, 44.7% of the cashew nut farmers agreed. Thus, majority of smallholder cashew nut farmers seem that they are accessed into quality cashew nut technician. The study finding further revealed about 18.9% of farmers disagreed probably due to some weakness observed by farmers such as shortage of cashew nut technicians while the rest account for14.6% strongly disagreed.

Moreover, the study findings revealed 75.8% of small holder cashew nut farmers just agreed that through the use of WRS, cashew nut farmers' products are well packed. This further have climbed up cashew nut farmers' income due to the facts that well packed cashew nut product has got attraction in the market and hence they will become more marketable that resulted to high standard of living among smallholder cashew nut

farmers while few of them about 24.2% were just disagreed. The researcher wanted to know more if well package under WRS had significant impacts to cashew nut farmer's livelihood. The study revealed majority of farmers about 54.6% were agreed. So, this justify that WRS has improved smallholder cashew nut farmers by ensuring that cashew nut produced in Mtwara district are well packed. The study done by (Peter, 2020) have just explained more on how far packaging materials are vital in improving the standard and quality of farmer's product in spite of packing material cost and the lack of packaging technology that limit many processors to create a better product. Some of smallholder cashew nut farmers seem to have disagreed probably due to availability of improper packaging materials to some extent.

Accessing farmer to agrochemicals such as pesticides and fungicides have positive significant impact to cashew nut production in Mtwara district since it increases cashew nut production as well as improving the quality of cashew nut produced. The study wanted to assess it so that to see if WRS has any significant impacts to smallholder cashew nut farmers. So, the study unveiled about 69.5% of small holder cashew nut farmers just agreed that WRS provides them agrochemicals through their cooperative as one of the subsidies while the rest of the respondents that account for 30.5% just strongly disagreed on farmers' accessibility to agrochemicals. Furthermore, the researcher wanted to know if accessing farmers to agrochemicals via WRS had any impacts to farmers' economic welfare. The study findings revealed 13.9% of the respondents just strongly agreed, that further meant WRS helped smallholder cashew nut farmers a lot to improve their standard of living through provision of agrochemicals. The majority about 52.3% of the farmers just agreed. So, this justify us to farmers that they are benefited a lot via WRS in spite of some challenges persist. The finding in line with what observed from the study done by (Kidando, 2014) where he found the majority of cashew nut farmers availed fungicides and pesticides supplied by AMCOS. Though in his study it was found out that availability of fungicides was not a problem but the time of receiving it was a problem as indicated by the majority in his study too. The study found about 21.5% of farmers just disagreed and 12.3% of cashew nut farmers just strongly disagreed probably due to the fact that they receive late these subsidies.

The researcher wanted to ascertain if cashew nut farmers were accessed to advanced storage facilities via WRS. So, the study findings revealed the majority of small holder

cashew nut farmers reported that their products are stored in warehouse whereby 19.2% of the cashew nut farmers were strongly agreed. This explained us that since the introduction of WRS cashew nut product were stored properly. Moreover, they found 47.0% of farmers just agreed and this proved us warehouses in Mtwara district are somehow advanced in terms of security and also kept distance a well packed cashew nut from moisture. The study findings related with other finding from the study done by (Peter, 2020) that unveiled cashew nut products are yet stored in warehouses, then warehouse receipts give farmers the option of holding back their produce if prices are low and can get approximately 60% to 80% funding of the value of their produce from banks. A warehouse receipt also guarantees the existence of a given quantity and quality of a commodity in storage for safe keeping and is often used in cash and futures transactions. However, it was found small number of farmers about 33.8% were dissatisfied with storage facilities under WRS due to the facts that few other warehouses were not good especially those owned by primary cooperative. This is further justified in the study done by (Kidando, 2014) where he found a reasonable number of farmers who felt that the facilities and quality of warehouses are not good enough.

4.2.4 The challenges facing cashew nut farmers in using warehouse receipts system

The researcher sought to observe challenges facing smallholder cashew nut farmers in Mtwara district despite the strength of WRS found. So, to achieve this, he has employed interview technique where three cashew nut farmers were interviewed and they have presented their views and opinions as noted below: -

> *"…….The challenge that they have been facing with WRS is missing payment for a long time while the cashew nut sold at the same auction to the same buyer, and buyers mostly pay the money in full package of the purchased commodity, by that time some farmers receives their amount at a time while other may not get their amounts and once they make follow up, you can see that there are some miner error on bank costumer name which does not match to the receipt received by farmer from the AMCOS" (*Interviewee, farmer from AMCOS 19/7/2021.

The study found one of the interviewees who have reported on the payment problem existing in the operation of WRS whereby unveiled they didn't get payment on time

after the auction due to mismatch of their names in receipts issued by WRS with what exist in the bank system. The study findings comply with the study done by (Ngondo, 2014) where in his study found 52 farmers (47.71%) reported that the payments were late and not done for lump sum at all and they have proposed to one way to improve WRS operation is to ensure payments are done on time and at once. This was revealed during interview with one respondent who argued that:

> *"……. The challenge explained by some farmers from Ziwani AMCOS that production season 2016/2017 some farmers were received double payment in their bank account for the same quantity of cashew nut sold that experienced other farmer missing their payment while others have doubled it and brought great losses to the AMCOS" (*Interviewee, farmer from AMCOS 23/7/2021)

By considering an opinion provided above, the study findings unveiled too that there are problems in the payment system. It was found that some of cashew nut farmers have received double payment for the same quantity of cashew nut sold and this has resulted to miss payments to the rest of farmers in Mtwara district. Later on, it brought great losses to the particular AMCOS. Another respondent added:

> *"……. AMCOS receive farmers' produce that have been brought by the owner or representative and that person may not have a full name of the produce owner, therefore during the recording of details happening to be different to that of farmer in banking system that creates challenges to the payment system, since farmers brings produce in different time they tend to have the different names in record which brought difficulties in payment and record keeping"* (Interviewee at Mwembetogwa AMCOS).

Another informant from Mwembetogwa have revealed on the problem of payments that are accelerated by poor records keeping to some of registered AMCOS in Mtwara district. This was caused by the habits of bringing cashew nut products to a particular AMCOS at different time and the tendency of submitting cashew nut produced to their cooperative by using representative instead of owner that has resulted to mismatch of names and later on brought problem in the bank payment system.

The study aimed to know challenges facing smallholder cashew nut farmers in Mtwara district basing on 302 farmers selected. So that to achieve this he has employed

questionnaire technique where two questions were dispatched to 302 respondents and their responses were coded, then later on analysed and presented in figure as shown below: -

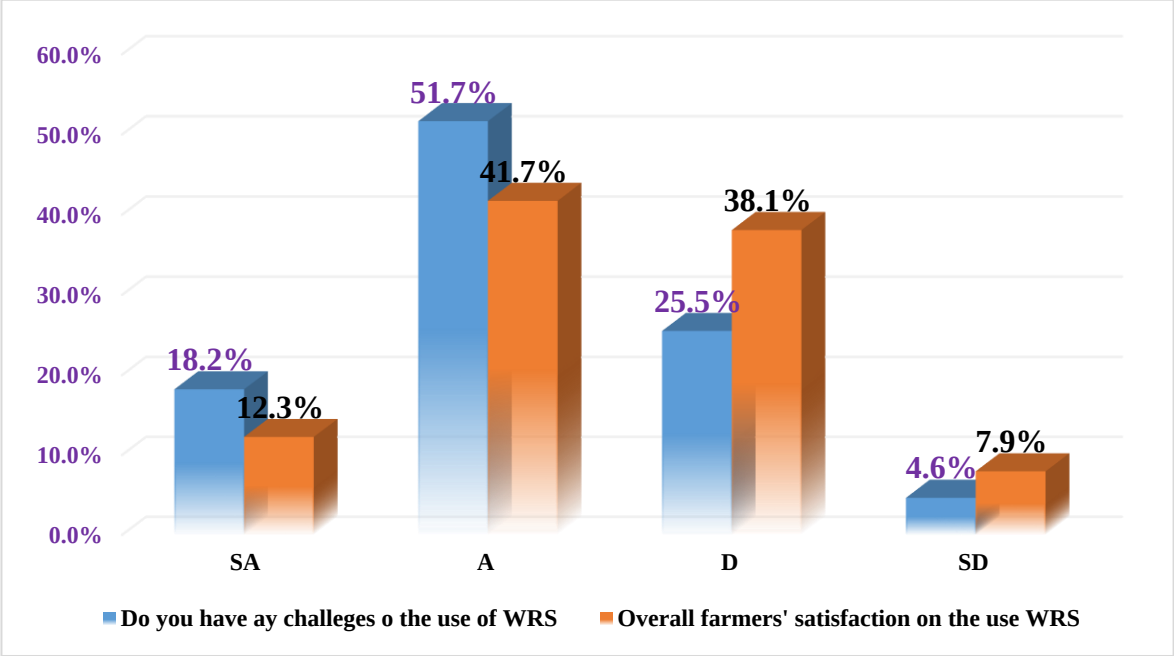

Figure 4.6: The challenges facing cashew nut farmers versus their satisfaction rate

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree

Basing on Figure 4.3, the study found that majority of smallholder cashew nut farmers account for 69.9% seem to be unsatisfied with WRS in spite of its huge contribution to farmers in Mtwara district since WRS operation had some weaknesses like dishonest operators in registered AMCOS under WRS, delay in payments, being paid for instalments and post pond of auction. However, some of cashew nut farmers have just felt okay under WRS via their registered AMCOS.

A part from challenges that WRS had, the study findings indicated that higher number of the respondents were also satisfied with the WRS service provided whereby the majority of cashew nut farmers account for 54% look satisfied. About 46% were not satisfied with WRS probably due to shortage of cashew nut processor that may add value of the product and hence making it more marketable (see Figure 4.3). The recent study done by (Mgonja & Shausi, 2022) unveiled challenges facing small scale cashew nut processor. They also indicate on how cashew nut farmers were affected and further more they came up with the way forward.

4.3 Multiple Regression analysis findings

This part presents analysis of the results obtained as well as interpretations of what found in the model per study objective.

Table 4.9: Significance of the model employed

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.412	9	.490	2.016	.037[b]
	Residual	71.005	292	.243		
	Total	75.417	301			

a. Dependent Variable: How much do you earn per annum from cashew nut production in Tanzania shillings?

b. Predictors: (Constant), WRS on improving the quality of cashew nut produced, Education level, Land size owned, what is your family size, Age of respondent, Sex of respondent, WRS on accessing farmers to remunerative market, Marital status, WRS on improving cashew nut farmer's income

According to Table 4.10, We reject H_O since p-value (sig.=0.037) is less than 0.05. So therefore, we are confident by 95% confidence interval to conclude that the model used in assessing WRS effects to cashew nut farmer's economic welfare is significant. Furthermore, this meant that variables employed in the model associated with the farmer's income earned.

Table 4.10: Estimated coefficients of the model

Coefficients							
	Unstandardized Coefficients		Standardised Coefficients			95.0% Confidence Interval for B	
Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1 (Constant)	1.047	.448		2.339	.020	.166	1.928
What is your family size?	.087	.041	.122	2.126	.034	.006	.168
Age of respondent	.142	.070	.118	2.021	.044	.004	.280
Land size owned	.121	.058	.120	2.092	.037	.007	.235
Education level	-.046	.075	-.036	-.608	.543	-.194	.102
Sex of respondent	.018	.067	.015	.265	.792	-.114	.149
Marital status	.066	.063	.062	1.044	.297	-.058	.190
WRS on improving cashew nut farmer's income	-.005	.014	-.020	-.332	.740	-.032	.023
WRS on accessing farmers to remunerative market	.003	.015	.011	.185	.854	-.027	.033
WRS on improving the quality of cashew nut produced	-.071	.069	-.060	-1.032	.303	-.206	.064

a. Dependent Variable: Cashew nut farmer's income earned

The study found that land size owned by farmers, age of the respondent and family size of cashew nut farmers had significant impacts to income earned by cashew nut farmers in Mtwara district since p-values seem to be less than 0.05. Also, the findings above unveiled that education level, marital status and sex of the respondent had influence to income earned by small holder cashew nut farmers in spite they are not significant.

Nonetheless, it was found that WRS effects on improving cashew nut farmer's income is not statistically significant to farmer's income earned per annum as explained by the model employed in the study. Despite the variable seems to be not significant but it is also looks, like to have negative impacts on farmer's income earned.

Moreover, the model revealed that WRS on accessing cashew nut farmers to remunerative market is not significant to income earned by farmers annually since p-value is greater than 0.05. In spite of this the variable seems to have positive influence on farmer's income earned.

Lastly but not least, it was also found that WRS on improving the quality of cashew nut produced is not significant to income earned by smallholder cashew nut farmers since p-value found to be greater than 0.05. The variable seems to have negative effects to farmer's income.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Major Findings

Smallholder cashew nut farmers enjoy dealing with WRS, since the system had improved the price stability and security of produce, because the price of cashew nuts has been increasing each season since the establishment of WRS in 2007 to date. This improves socio-economic welfare of the farmer and provision of agrochemicals as subsidies assure farmers to the use of recommended Agricultural inputs as per current production season done by various agricultural authorities. Hence farmers are assured with their improved income from cashew nut production.

The study findings showed that more than a half of the respondents were males while the rest of the respondents were females. Males seem to dominate in cashew nuts production compared with females in the District. This is probably due to the nature of the work, which is very tedious and needs a lot of investment.

The regression analysis employed in the study found that age of cashew nut farmers; family size and land size owned by small holder cashew nut farmers have significant impacts on cashew nut farmer's income in Mtwara District to farmer's earned income per annum. Moreover, regression analysis results show that WRS on improving cashew nut farmer's income, WRS on accessing farmers to remunerative market, WRS on improving the quality of cashew nut produced found to be not significant to farmer's income earned income.

Moreover, the study finding shows that most of small holder cashew nut farmers report WRS helped them a lot so that they can have access to remunerative market. Further the study found that through accessing farmers to remunerative market, small holder cashew nut farmers will be able to reduce post-harvest losses and transaction cost. Meanwhile cashew nut farmers will be able to sell their product at fair and good price that resulted to earn high income and consequently rising up farmers' economic welfare.

Further it was found most of the respondents claimed that Government protection fell down. So, this had negative impacts to cashew nut farmers' economic welfare. A part from this it was also found most of the farmers account for 85.8% seem to be strictly reluctant in the mode of payment (instalment) made by WRS through their cooperative.

This meant that most of small holder cashew nut farmers just satisfied to be paid for lump sum rather instalment.

The study findings found that WRS brought improvement to farmers' income and later economic welfare in general through accessing them to financial institution and insurance services because cashew nut farmers would be able insure the cashew nut product stored in warehouse against any shrinkage in weight of cashew nut, burglary and fire. Also, cashew nut farmers had access to get credits from bank through their cooperative.

The majority of cashew nut farmers in the study wanted to get payments for lump sum rather than instalments as they are being paid. They further unveiled that the issue of late payments once their product sold and a reasonable number of farmers have proposed that payments should be made two weeks later since the date of auction. Most of them were totally disappointed to receive payments for instalments and delay to receive payment since it reduces farmer's income and hence economic welfare.

It was also found that the key and vital role played by WRS such as accessing farmers to advanced storage facilities, well packaging materials, quality test technicians, agrochemicals and good means of transport had improved the quality of cashew nut produced in spite of some challenges that WRS had and eventually farmers' income have climbed up to some extent. Lastly economic welfare of small holder cashew nut farmers raised up too.

The major challenges face farmers while they are using Warehouse Receipt System is that payment is done on loan bases and in small instalments. The delay of payment has led to most of small holder cashew nut farmers failed to access social and economic services as well as buying farm inputs and servicing their farms. The price changes in auction, the internal conflicts within the primary cooperative societies and farmers as well as unstable and unreliable world cashew nut market are other challenges. The system is not transparent enough to farmers especially during the auction. Therefore, farmers lose trust in government and ruling party. The system allows loopholes of theft in the warehouse and the burden is transferred to primary cooperative society and farmers. Also delay and post pond of cashew nut product's auction decreases the value, standard and quality of cashew nuts.

5.2 Conclusion

The study concluded that commodity trade still suffers from significant weaknesses that impair efficiency of farmer's income and marketing system. Those weaknesses are due to market failure which leads to delay of payment, payment in trenches and lack of last payment (bonus), many taxes paid per 1 kg of cashew nut crop and led to undesired outcomes like payment crisis.

It was concluded that marketing through WRS needs higher education than the farmers had. The sampled villages in the district tend to have different income growth and development levels due to size, geographical location, historical background, variety and quality of natural resources, trade links and dependency and industrial structure are among determinants of development level of the district.

It concludes that public warehouse approach was dominant in marketing chain of cashew nut crop, meanwhile addressing problems of storage facilities and access to credit. This WRS is considered as a company that store goods for the public in general on behalf of whoever wish to deposit in the warehouse and then after issuing warehouse receipts to the respective depositors for trading purposes or being used as collateral for raising depositors' income.

It was concluded in the WRS operations in Mtwara district transparency 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.

Moreover, the study concludes that most of small holder cashew nut farmers store their cashew nut produced in warehouse although some of them look scared due to unethical behaviour done by some of warehouse operators including pitching cashew nuts for their personal benefits.

The study further concluded on the issue of challenges encountered by the farmers in using warehouse receipt system. The researcher concludes that late payments, farmers' payments for instalments, inefficient market, dishonest among AMCOS operators, poor means of transportation, little protection from the government and postponements of auction as one of the challenges that demoralises farmer in adapting WRS effectively as well as decreasing smallholder farmer's incomes earned from agricultural production.

5.3 Recommendations

Based on the study findings the researcher recommends the following to the Cashew Nut Board of Tanzania (Policy makers):

In order to reduce or remove shortcomings in the system, the payment to cashew nuts farmers should be done timely i.e. to avoid delay in payment and all amount of money receipted and bonus should be paid too. Policy makers should reduce any inconveniences happening to farmers, for example, rejection of the cashew nut due to complain by the warehouse like improperly dried and unclean cashew nut.

The Government incorporated with CBT and WRS should allow small farmers associations like *"Wanunuzi wa Korosho Mtwara"* (WAKONE) to buy cashew nut directly from farmers to auction in order to increase competitions in the market. The government with the assists of WRS and CBT should buy cashew nuts directly from the farmers and not through banks because those banks have high interest rates.

The government with the aid of WRS and CBT should open international market instead of depending on Indian market.

The cashew nut board should plan well about pricing and marketing of cashew nut which will satisfy the demand of the stakeholders. The board should address the problems facing farmers such as high cost of cashew nut inputs and pesticide. The Government with the help of CBT should conduct continuous assessments/evaluation of the system for better performance. Free market is needed for internal and external market in order to motivate stakeholders.

The government via CBT should reduce or remove middlemen in the marketing system. The management and supervision of big warehouses should not give in to Indian businessmen and all leaders who are not trustful in the system. The government should take law procedures.

Nonetheless, Government officials and co-operative unions should provide continuous education to farmers about marketing system. Marketing supervision should be done by the cooperative leaders who know the costs of the cashew nut

High attention is needed for farmers to participate in decision making about the cashew nut output. In order to make warehouse receipt system to operate efficiently, co-

operative union should not be involved in selling farmers produce and that task should be handled by primary co-operative society. Farmers should continue storing their cashew nuts in the warehouse to reduce the risk of post-harvest losses. The farmers should be offered with technical assistance, insurance services and financial incentives.

Improve transparency during the cashew nut auction and all taxes collected during that market should go directly to help farmers in the vital areas like building dispensaries, road constructions and other services. Employ professionals who had education like accountants so that they could be able to participate in price setting. The price of selling cashew nut should match with the cost of production incurred by farmers.

5.4 Suggestions for Future Studies

This study has not exhausted all the issues concerning Warehouse receipts system and its effect to the cashew nut farmer's economic welfare. Therefore, it is recommended that further studies should be done to assess the effects of warehouse receipts system on smallholder cashew nut farmer's social and economic welfare in Mtwara District.

REFERENCES

AAACP. (2009). *Review of Warehouse Receipt System and inventory credit initiatives in Eastern & Southern Africa,* final draft report commissioned by UNCTAD under the all-ACP Agricultural Commodities programme

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

Alaouze, C., Sturgess, N and Watson, A. (2018). Australian wheat storages: A dynamic programming approach. *Australian Journal of Agricultural Economics,* 22(3): 158.

Antony, C., Gelson, T. and Mary, L. (2012). *Smallholder Farmers Participation in Livestock Markets*. The Case of Zambian Farmers. Working Paper No. 66. Indaba Agricultural Policy Research Institute (IAPRI) Lusaka, Zambia. 38pp.

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

Budd, N. (2014). *The legal and regulatory framework for warehouse receipts in commodity distribution, credit and hedging.* Paper Presented at Workshop on Warehouse Receipt Financing: Making the Difficult Deals Easier and More Profitable, Amsterdam, July 9-11. 14pp

Cashewnut Board of Tanzania (CBT). (2018). Annual Reports2016to2017. Mtwara. 12pp

Corral, E and Reardon, T. (2014). *Agroclimatic Shock, Income Inequality, and Poverty:* EvidencefromBurkinaFaso.WorldDevelopment24(5):901-914.

Coulter, J., and Poulton, C. (2011). *Cereal market liberalisation in Africa.* In: Akiyama, T., Baffes, J., Larson, D., Varangis, P. (Eds.), Commodity Market Reforms: Lessons of Two Decades. Regional and Sectoral Studies, The World Bank, Washington, DC, 191–271.

Coulter, J. P and Shepherd, N. (2015). *The Role of Warehousing in Africa–Lessons for Implementation from Four Continents, in: New Strategies for a Changing Commodity Economy;* the Use of Modern Financial Instruments. Selected papers prepared for the Partners for Development" Summit.11pp

Doss, C. (2016). *The Role of Women in Agriculture*. Agricultural Development Economics, 2(11): 1–48.

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

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

Fisher, D. (1989). The Price Revolution: A Monetary Interpretation, *Journal of Economic History,* (49),883–902.

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

Gladwin, C.H., Thomson, A.N., Peterson, J.S., Anderson, A. S., (2016). Addressing food security in Africa via livelihood strategies of women farmers. Food Policy 26, 177–207.

Green, W. H. (2008). *Econometric Analysis*. New Jersey: Prentice- Hall. 34-42pp

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

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

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

Jones, S. (2016). *Food Markets in Developing Countries:* What do we Know? Oxford Food Studies Group, UK (Working Paper No. 8). 16pp

Katinila, N. A., S. H. Shomari and J. M. Mdadila, (2001). Status of cashew nut Industry in Tanzania. Paper presented to the sub regional Technical Workshop on Development of the Cashew subsector in Eastern and Southern Africa, 29th to 31st October, Maputo, Mozambique.

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

Kennedy, J. A. (2019). *Report for A CE Malawi concerning business development model and strategy.* Lilongwe. 22pp

Kenneth. (2005). *Quantitative research methods in educational planning*. UNESCO-International Institute for Educational Planning

Kenya National Federation of Agricultural Producers (KENFAP). (2011). *The role of warehouse receipt system and financial services in improving produce marketing by smallholder farmers in Kenya*: 63-72

Kimaro, P. K. and N.N. Towo. (2013). *Warehouse Receipt System: A Solution Towards Smallholder Farmers Financial Constraints*. Working Papers, Department of Documentations and Publications. MUCCoBS, Moshi. 42-56pp

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

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

Kwadjo, G. T. M. (2018). *Inventory credit:* a financial product, in Ghana. Paper Presented at Conference on Advancing Micro-Finance in Rural West Africa, Bamako, February, 22–25.

Kweka, J. (2004). *Transport Cost and Trade Policy in Tanzania*, A draft final report to Credit, Economic and Social Research Foundation, Dar es Salaam, Tanzania.

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

Matei E. Mapunda, David G. Mhando & Betty M. Waized (2019). Determinants of Participation of Smallholder Coffee Farmers in Warehouse Receipt System in Mbinga District, Tanzania. *Tanzanian Journal of Population Studies and Development,* Vol. 26 No. 1, 2019: 97-111

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

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

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

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

Ochoa, I. (2016). *Grain Receipts as Collateral for Agri businesses' Financing-A Feasibility Study of Grain Receipts for Corn Producers in Jalisco, Mexico.* Master Thesis: SLU, Department of Economics. 45-78

Onumah, G. E. (2017). *The Role of Warehouse Receipt Systems in Enhanced Commodity Marketing and Rural Livelihoods in Africa.* Natural resource Institute, Central Avenue, Chatham Maritime, Kent ME4 4TB *Food Policy* (27): 319-337.

Onumah, G. E. (2018). *Implementing Warehouse Receipt Systems in Africa Potential and Challenges.* COMESA Symposium, September 6-7, Lilongwe. 19pp

Onumah, G.E. (2001). *The impact of government policy and regulation on the effectiveness of warehouse receipt systems:* the case of Africa", Paper presented at Workshop on Warehouse Receipt Financing: making the difficult deals easier and more profitable, Amsterdam. 14pp

Paradowska, M. (2017). Measuring socio-economic welfare and sustainable transport – selected dilemmas

Patil, S. (2017). Performance of Warehousing in Karnataka-A Comparative Analysis. India: College of Agriculture, Dharwad. *Journal of Agricultural Economics and Development*, 10(2): 182.

RECINESA, (2014). Regional Cashew Improvement Network for Eastern and Southern Africa (RECINESA). Cashew Marketing, Trade Developments and Experience: A Case Study in Eastern and Southern Africa Naliendele Agricultural Research Institute.34-40

Recto, A. (2016). Optimal location and sizes of Palay Warehouses in the Philippines.45pp

REPOA, (2010). *Determinants of Rural in come in Tanzania.* An Empirical Approach: Research Report. Dar-es-Salaam. 48-53

Robbins, M. (2019). Review of the role of commodity exchanges in supporting smallholder farmer market linkages and income benefits. I*nternational Institute for Environment and Development.* [Available at: http://pubs.iied.org/160 28IIED.html] Accessed on 18/01/2021

Rweyemamu, C. (2015). *The contextual analysis of Cashewnut industry in southern Tanzania after market liberalization.* Economic Social Research Foundation (ESRF): Dares Salaam. 78pp

Sijaona, M. (2002). Assessment of the situation and development prospects for the Cashew nut sector – Report carried out in Tanzania on behalf of the International Trade centre UNCTAD/WTO.

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

UNCTAD, (2019). *Development Impacts of Commodity Exchanged in Emerging markets.* New York and Geneva. United National Conference on Trade and Development.67-71pp

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

UNIDO, (2016). *Tanzania's Cashewnut Value Chain:* A diagnostic. United Nations Industrial Development Organization (UNIDO). Vienna. 23-31

URT, (2019). The warehouse receipts system operational manual made under section 6 of warehouse receipts Act No. 10 of 2015: 46-50

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

Varangis P. and Larson D. (2016), *Warehouse Receipt System: Facilitating Credit and Commodity Markets. A Guide to Developing Agricultural Markets and Agro Enterprises,* World Bank, Washington. 67-75pp

Wehling, P and Garthwait, B. (2018). *Designing warehouse receipt legislation:* regulatory options and recent trends. Rome: Food and Agriculture Organization of the United Nations. 34pp

World Bank, (2017). *World Bank. Final Technical Report*. The Role of Warehousing in improving agricultural markets (in Africa), Phase II. 56-62

Yamane, T. (1967). *Statistics:* An Introductory Analysis, 2nd Edition., New York: Harper and Row. 38pp.

Cashew nut Board, T. (2011). Investment opportunities in Cashew nut Industry in Tanzania. *Cashew nut Board Tanzania*.

Chimbyangu, M. A. (2020). *Assessment on Cashew nut Production in High Income Generation to Small Holder Cashew nut Farmers in Tanzania: The Case of Mtwara Region.* Mtwara: Mzumbe University.

Hayes, A. (2022). *Investopedia*. Retrieved June 23, 2022, from https://www.investopedia.com/terms/m/mlr.asp

Kothari, D. C., & Garg, D. G. (2020). *Research Methodology: Methos and Techniques* (4th Edition ed.). London: New Age International (P) Limited, Publishers.

Osborne, Waters, J. W., & Elaine. (August 2002). Multiple Regression Assumptions. ERIC. In *Eric Digests.* ERIC Clearinghouse on Assessment and Evaluation College Park MD.

Peter, F. S. (2020). *Factors affecting Crop Board Performance inTanzania: A case Cashew nut Board of Tanzania.* Morogoro: Mzumbe University .

Sijaona, D. M. (2002). *Assessment of the Situation and Development Prospects for the Cashew nut sector*. Mtwara: ITC Global Trust Fund under project INT/W3/69.

Yusuph, J. (2009). *Economic assessment of Warehouse Receipt System for cashew marketing in Mtwara Region.* Tandahimba: Dissertation for the Award of MSc Degree at Sokoine University of Agriculture, Morogoro Tanzania.

Shiller, R. J. (1981). *Do stock prices move too much to be justified by subsequent changes in dividends?* American Economic Review, 71(3):421–436. HB1E26.

Son, S., William, P. A., & Nordhaus, D. (2004). *Economic.MC Graw-hill.*

APPENDICES

APPENDIX 1: Questionnaire for the effect of warehouse receipt system on smallholder cashew nut farmer's socio-economic welfare in Mtwara District

Dear respondents,

I, Hamza Nangameta, Pursue Master of Arts in Co-operative and Community Development at Moshi Co-operative University. I am conducting research on the effect of warehouse receipt system in smallholder cashew nut farmers' socio-economic welfare in Mtwara District. The information you provide will be helpful in improving warehouse receipt system as a marketing system for you farmers in Mtwara as major beneficiaries of the system. It is therefore very vital to respond to each question below, by giving the most realistic situation.

INSTRUCTIONS

Please read each question carefully and indicate your response by putting an 'tick' (∨) next to appropriate statement or explaining brief where question require explanation. I declare that your answer will be treated as confidential and for academic purpose only.

A. Personal particulars

1. Name of your AMCOS……
2. Sex of respondent……1-Male 2–Female
3. Age of respondent……years.
   (a). 20-40
   (b). 41-50
   (c). Above 51
4. Education level……
   (a) Primary education,
   (b) Secondary education.
   (c) College/university,
   (d) Others.
5. Marital status (Tick)
   1=Single
   2=Married
   3=Widowed
   4=Divorced

6. How much land does your household own in acre? .....

1.1–5

2. 6–10

3.11–15

4. 16–20

5.21-25

6. Above 26

7. What is your family size?

1.1-3

2. 4-6

3. 7-10

v. Determine the influence of Warehouse Receipts System on farmer's income improvement in Mtwara District.

vi. Examine the influence of Warehouse Receipts System on smallholder cashew nut farmer's accessibility to markets in Mtwara District.

vii. Examine the influence of Warehouse Receipts System on the improvements of quality cashew nut produced in Mtwara District.

A. Warehouse Receipts System effects on farmer's income improvement.

a) Do you think benchmark price introduced before commencement of auction can influence socio-economic welfare of cashew nut farmers?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

b) How do you consider instalment as the payment mode under warehouse receipts system?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

c) Are cashew nut farmers able to access financial institution through warehouse receipts system?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

d) Are cashew nut farmers able to access insurance service through their AMCOS that are under warehouse receipts system?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

e) What do you consider on getting payment on time after selling your cashew nut (Tick)

1. One to two weeks

2. Three to four weeks

3. Five to eight weeks

4. Nine weeks and above

B. WRS effects on accessing farmers to remunerative cashew nut market

(a) Based on your experience how does the Marketing efficient of cashew nut WRS?

1. The Marketing is very good

2.The Marketing is good

3.The Marketing is poor

4.The Marketing is very poor

(b) Is market price fair that can give profit?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(c) Do you think there are competitive buyers on the cashew nut markets?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(d) Do you think the presence of competitive buyers on cashew nut market can influence socio-economic welfare?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(e) Do you think higher market selection can influence socio-economic welfare of cashew nut farmers?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(f) Market selection can reduce the post-harvest losses of cashew nut?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(g) What do you consider the price of cashew nut through WRS(Tick)

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(h) Based on your experience does WRS helps on reducing transaction cost (Tick)

A. Yes

B. No

(i) In relation to WRS What do you think has happened to government protecting cashew nut farmers' interest (Tick)

1. Increasing

2. Decreasing

3. Remain constant

4. I do not know/I am not sure

(j) Does the AMCOS organizing farmers together

A. Yes

B. No

D: WRS effects on improving the quality of cashew nut produced

(a) Do you think cashew nut quality test can influence post-harvest losses?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(b) Does ware house receipts system provide cashew nut farmers with agrochemical subsidies?

A. Yes

B. No

(c) Do you think cashew nut farmers' access to agrochemicals improves cashew nut produced?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(d) Do WRS access farmers to transportation services?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(e) Are the cashew nut products well packed?

A. Yes

B. No

(f) Do cashew nut farmers have access to packaging materials under WRS?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(g) Do WRS enhance cashew nut farmers to access warehouse's storage facilities?

A. Strongly agrees

B. Agree

C. Disagree

D. Strongly disagrees

(k) What is the responsible institution on price mitigation risks and trading for cashew nut in benefiting the cashew nut farmers in terms of getting better socio-economic welfare?

A. Cashew nut Board of Tanzania only
B. AMCOS, politicians and CBT
C. Members of Co-operative only
D. Politicians only

E: Challenges the farmers are facing regarding the Warehouse Receipt System

(a) Do you have any challenges on the use of WRS?

A. Strongly agrees
B. Agree
C. Disagree
D. Strongly disagrees

(b) Are you satisfied with the overall performance of the warehouse receipt system for cashew nut in benefiting the cashew nut farmers in terms of getting farm inputs?

A. Strongly agrees
B. Agree
C. Disagree
D. Strongly disagrees

F: Dependent variable (Economic welfare)

(a) How much income do you earn per annum from cashew nut production in Tanzania shillings?

A. 100,000-1500,000
B. 1,500,001-3,500,000
C. 3,500,001-5,500,000
D. 5,500,001 and above

THANKYOU VERY MUCH FOR YOUR COOPERATION

APPENDIX II: Interview Guide Questions

1.0 Influence of warehouse receipt system on accessibility to remunerative markets.

Do you think the use of WRS as marketing channel on cashew nut helps to influence accessibility to remunerative markets? Yes/No_____

If yes, why? _____

2.0 Influence of WRS on price mitigation risks and trading for cashew nut farmers in Mtwara District?

Does WRS can influence price mitigation risk and trading of cashew nut marketing? Yes/ No

If yes, explain how? _____

3.0 Influence of WRS on reduction of post-harvest losses of cashew nut

Does warehouse receipt system can help to reduce the post-harvest losses of cashew nut? Yes/No

If yes, explain how? _____

4.0 Challenges facing cashew nut farmers on the use of WRS as marketing channel

(a) Do cashew nut farmers face any challenges on the use of warehouse receipt system in Mtwara District? Yes/No_____

(b) If yes;

Please explain those challenges:

_____

_____

BUDGET

ACTIVITIES	**DESCRIPTIONS**	**QUANTITY**	**COSTS**	**TOTAL COST (Tshs.)**
Pilot Studies	Stationeries	Photocopy and Printing	320,000	320,000
	Research Transportations and communication	60 Days	1,600,000	1,600,000
	Meals	Food and drinks 12 Months	@15,000	5,400,000
Data analysis	Coding questionnaire	75 units	@1000	75,000
	Typing service	96 Pages	@1000	96,000
Report writing	Report Photocopying	96 Pages X 10	@150	144,000
	Hardcopy and binding	2Copies	@60,000	120,000
GRAND TOTAL COST (Tsh)				**7,755,000**

Appendix VI: Publishable Manuscript

WAREHOUSE RECEIPTS SYSTEM FOR ECONOMIC WELFARE OF SMALLHOLDER CASHEWNUT FARMERS IN MTWARA DISTRICT, TANZANIA

Nangameta M. Hamza[1] Dr. Rashid A. Chikoyo[2]
[1]Student Moshi Co-operative University, Email: nangameta@gmail.com
[2]Lecturer Moshi Co-operative University, Email: chicco_chicoyo@yahoo.com

ABSTRACT

Warehouse Receipt System (WRS) was officially introduced since 2005 with the pilot crops of coffee and cotton in some areas such as Ruvuma and Mwanza as a response to farmers' income. The study objective was to assess the Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers in Mtwara District, Tanzania with its specific objectives that were to determine the impact of Warehouse Receipts System on farmer's income improvement, examine the effect of Warehouse Receipts System on smallholder cashew nut farmer's accessibility to markets, examine the impact of Warehouse Receipts System on the improvements of quality cashew nut produced and Determine the challenges facing smallholder cashew nut farmers on adapting Warehouse Receipts System. The study employed cross-section design where the study was conducted at once in Mtwara district and it used the sample size of 302 farmers. Multi stage sampling technique was employed to select five wards where the study used the systematic sampling to obtain representative sample. Survey questionnaire and interview method was also employed to obtain quantitative and qualitative data. Multiple regression models were also used to assess the Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers in Mtwara District. The study revealed that WRS brought improvement to farmer's income through accessing financial institutions and insurance services. It was also revealed that delaying in payments and being paid for instalment was not satisfied the farmers. The study concludes that farmers value WRS in its role which ultimately benefits farmers by increasing income that leads to improve living standard but the unethical behavior of operators reduces the trust of WRS. The study recommended to policy makers including stakeholders like farmers, AMCOS and CBT to deal with the aspects of markets, price setting, post-harvest losses and challenges facing farmers accordingly.

Keyword: **Warehouse Receipts System, Farmers and Welfare**

1.0 INTRODUCTION

1.1 Background of the Study

In the United States of America (USA), Warehouse Receipt System has been in operation for more than 100 years (Recinesa, 2014). The system which is widely credited with streamlining the US agricultural marketing system and, up to the 1950s, playing a critical role in financing and development of the family farm, is organised under the US Warehousing Act of 1916, with subsequent amendments.

In East Africa, Uganda in particular, Warehouse Receipt Systems was implemented on an International Commodity Exchange (ICX) supported electronic platform called electronic warehouse receipt system (eWRS) and has been instrumental in facilitating trade and financing in agricultural commodities (Varangis and Larson, 2016). Key achievements to date was licensing conditions have been developed for maize, beans, rice, cotton and coffee warehouse receipt system in the process of designing licensing conditions for sorghum and millet. eWRS has over 450 depositors, 70% farmer groups and 30% traders have a memorandum of understanding with the UN World Food Programme to procure 150,000 tons through the system which made smallholder famers of grain to earn income and improve household's welfare (World Bank, 2017).

In Tanzania, WRS was officially introduced since 2005 with the pilot crops of coffee and cotton in some areas such as Ruvuma and Mwanza as a response to farmers" income instability due to price fluctuations resulting from liberalisation and in actual use since 2007. The main objective of a WRS was that millions of cashew nuts small scale farmers will enjoy substantial benefits. They would not need to travel far with their goods to find a competitive market, the prices they receive would almost certainly be a greater slice of the true market price forced to sell to cover their immediate expenses (UNIDO, 2016). They would be encouraged to market their goods collectively with their fellow farmers and they would have an incentive to produce a standard quality product and use standard measure and packing material to improve its market attraction. It is insisted that, the use of a warehouse receipt system allows a farmer to deposit his crop in a warehouse and to meet his short-term needs for cash by borrowing from a bank or other lending institutions (UNIDO, 2016). Since 2007, the marketing of raw cashew nuts in Tanzania is organised through the warehouse receipt system with

auctioning taking place on weekly or bi-weekly basis (at the office of Cashew Nuts Board of Tanzania) during the harvesting season.

In Mtwara district, it is reported that 95% of the cashew nut of smallholder farmers are being sold through WRS in cooperative union and farmer's earning has not grown from it. Price of cashew nut has also declined from TZS 5000 in 2010 to TZS 1500 in 2019. The mode of payment via WRS is that, the cashew nut producer was paid in at least two different periods, the first payment initially on supplying the cashew nut to the primary society and second payment being made after cashew nuts were sold. And if auction prices were above the expectations, farmers were paid an additional bonus to enhance promised income (CBT, 2019). With this background, therefore, this study aimed to assess the Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmers Mtwara District, Tanzania.

Before the introduction of warehouse receipt system in cashew nut, there was a purchasing system in which farmer could sell and receive his/her money in a single instalment whereby smallholder farmers and emerging commercial farmers sell their produce shortly after the harvest each year when markets are in surplus and prices are low (URT, 2010). Currently cashew nut produce should be sold to AMCOS under the warehouse receipt system of which payment were done in instalment whereby a farmer can stay for quite a long time waiting for the payment. The challenge of delayed payment under warehouse receipt system among farmers is also witnessed in other crops such as tobacco and coffee in respective growing regions (Kennedy, 2019).

The Warehouse Receipt System is one of the reform measures undertaken by the government of Tanzania in efforts to address the problems of inefficient crop marketing system. Under this system, the- owner deposit the commodity in a warehouse and a receipt is issued that stipulates the quantity, quality and type of product deposited. The warehouse receipt would generally be negotiable, meaning ownership is transferable, which makes it quite suitable for collateral purposes. Financial institutions may therefore be willing to extend loans against this security in the appropriate environment for a portion of the value of the underlying commodity. In these circumstances the farmer would have access to funds to sustain her/himself until such time that she/he is ready to sell the commodity.

Despite the governments' effort to curb the problem of inefficient marketing system through warehouse receipt system in their primary co-operative societies, there have been several shortfalls since WRS was introduced in 2007, making the farmers continue to experience problems during the marketing of the raw cashew nuts and yet, farmer's economic welfare has not improved from WRS and earning from it is always lower while Co- operative union acts as buyer and seller of cashew nut through warehouse receipt system; the result was not as it was expected especially for the small farmers.

Alaouze *et al.* (2018) conducted the study to assess the Role of Warehouse Receipt System (WRS) in improving the small holder farmer's income in Mtwara Region, specifically, the study intended to analyze the relationship between production, price, storage and cashew nuts farmers' income increase at Mtwara region.

Mumi (2014) conducted the study intention was to assess the effectiveness of warehouse receipt system (WRS) in Cashew nut marketing in Tandahimba District, the study found that WRS had brought some small improvement in farmers' income.

Until now, little is known with respect to how the WRS has improved farmer's economic welfare in Mtwara district such as farmer's accessibility to remunerative markets, farmer's delivery of quality cashew nut to the market, income improvement to smallholder cashew nut producers and the challenges facing cashew nut farmers in using warehouse receipt system as is the case of cashew nut farmers in Mtwara District. This study therefore aimed to assess the effect of Warehouse Receipts System for Economic Welfare of Smallholder Cashew nut Farmer's in Mtwara District, Tanzania

Empirically, the study conducted by Alaouze *et al.* (2018) was used dynamic programming to examine whether Australia should store wheat for subsequent sale at higher prices. The dynamic programming model was developed assuming that the demand for Australian wheat is perfectly elastic at the world price. The major conclusions of the study were: apart from interest rate, the most important factor affecting storage in any season was the price in the following season; the holding of a speculative reserve to be sold in seasons of episodic price increased was generally unwarranted; the optimal policies associated with simulations of the historical price series observed for the period 2012-2013 (when Australian wheat prices had a stable

mean and a low variance) indicate that a storage policy based on storing wheat in seasons of below average prices would have been wrong more than half a time.

Recto (2016) Undertook a study with the aim of improving the rice marketing system by determining optimal sizes and locations of warehouses and investigating ways by which the marketing costs of the product could be minimized. He examined the transport and storage systems in each of the 13 regions of Philippines during 2005. He found that warehousing facilities were inefficiently located, with shortages of storage facilities in some regions and surpluses in others. There had been an improvement in the production of rice, but there was no corresponding improvement in marketing infrastructures and services. A large amount of the crop could be lost through inefficient handling and processing.

The study conducted by Ochoa (2016) Jalisco Mexico was intentionally to examine if the WRS provides a better method of collateralizing crops for access to credits, using smart cards as a shortcut for cash withdrawals. By using agency theory, the author reported that with the WRS the risk is not intended to be eliminated; instead, it is a mechanism where the risk is shared between the producers, warehouse management and banks. In the study surveys were employed in order to obtain a broad picture about how farmers finance their activities to provide knowledge concerning their agricultural and post-harvest practices and their perception concerning the WRS and its feasibility. The result of the study shown that, almost half of the farmers agreed with the method of collateralizing their crops after harvest and using smart cards to withdraw cash from automated teller machines. This was because most of the farmers had been receiving financial support from the informal credit sector such as warehouse officers or suppliers and faced several problems.

Patil (2017) in his comparative study examined performance of warehousing in Karnataka India. The North Karnataka region was considered for the study to provide representative sample. He used both primary and secondary data pertaining to establishment charges and maintenance cost like rent of warehouse, equipment, insurance, disinfestations charges, number of warehouses, capacity, depositor- wise utilization, paid lip capital, total assets, gross receipts, expenditure and profit of the selected warehouses were collected for the period from 2011-2015. A total of 18 warehouses were selected at the rate of 6 warehouses in each region of Hubli, Raichur

and Gulbarga covering North Karnataka. Simple tabular analysis was followed to analyse data. The study found that high cost of storage keeps farmers away from using warehouses, especially for the small farmers. Warehouse operators did not give good response during the time of storage. The study concluded that, it is therefore, advised that warehouse owners have to treat all the customers (big and small farmers) as equals.

Another study assessed farmers' perceptions of the warehouse receipt system (WRS) in the West Java Province in Indonesia. Primary data were collected from 500 farmers through questionnaire administration. The results of the weighted average index revealed that there was a strong perception that the WRS is not well known, provides easy access to credit, and limited access for smallholder farmers. Moreover, there was a weak perception that the WRS has complicated regulations and slowed delivery of warehouse receipts. The main problems include lack of awareness, lack of facilities and limited access for smallholders. The implications for improving the implementation of the WRS are presented (Antony, *et al.,* 2012).

Moreover, Onumah (2018) conducted a study in warehouse system in Africa in general following the trade liberalization which affected most of African countries especially those of the sub- Saharan, focusing the implementation of the system in Zambia. The specific objective of the study was to examine a link between rural livelihood improvements with the introduction of the warehouse receipt system in Africa. Onumah pointed out that the Warehouse receipt system in Zambia has made easy the accessibility of rural financing by attracting deposit from small farmers, formalize the transactions and database so that the banks can use the available information to evaluate loan facilities to the farmers. The most important or critical aspect on that study was that the farmers could get loans by using the stored crops under the warehouse as collateral.

2.0 RESEARCH METHODOLOGY

In this study, cross-sectional study design was adopted and data were collected at a single moment where the observation on variables and individuals were just performed in a single moment, the researcher recorded the facts (variables) of interest. The study employed cross-sectional since it allows researcher to have direct observation on phenomena to be investigated and further enhanced to obtain realistic information in a short time (Kothari and Garg, 2020).

Geographical Coverage of this study was conducted in Mtwara District predominantly in five (5) wards with five AMCOS of Mbawala, Nanguruwe, Mayanga, Ziwani, and Mwembetogwa. The selection of this area is due to the fact that, the warehouse receipt system has been used in these areas since it was introduced in 2007. Thus, it was expectation of the researcher that the cashew nut farmers from the selected AMCOS in the respective wards have many things to share about the effects of the warehouse receipt system towards socio-economic welfare of the farmers. This study basically was conducted in five (5) AMCOSs with appreciable large number of farmers who sells their cashew nut through WRS which is the only authorised system for purchasing raw cashew nuts as a marketing channel for the past fourteen (14) years up to date (see Table .1).

The target population of this study was smallholder cashew nut farmers who selling their raw cashew nut through WRS up to the 2019/2020 production season in five selected AMCOS of Mbawala, Nanguruwe, Mayanga, Zima, and Mwembetogwa which had a total of 1235 farmers. Smallholder farmers were those owning small plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour.

The sample size for this study was 302 respondents determined by (Yamane, 1967) formula, $n = N/I+N\ (e)^2$. Where, N is the total population size, and e is the marginal error. The conventional confidence level of 95% was used to ensure a more accurate result from the sample. Based on this, the error term would be equal to 0.05, using the total population of 1235 and error margin of 0.05 at two tailed test. By using formula above, substituting N=1235 and e=2.5% into the formula resulted into the sample size of 302 respondents.

This study adopted systematic sampling whereby list of members of AMCOS which are farmers who are selling their raw cashew in the respective AMCOs was determined. Systematic random sampling was used by dividing the population size (N) by the sample size (n) to obtain the range (k)

$$k = \frac{N}{n}$$

5. Steps: Sample of 302 is desired from 1235 elements in the population. Thus, 1235/302= 4.089 because the respondent were farmers therefore 4 was adopted as a range.
6. Simple random number between 1 to 9 is selected and 5 selected as a starting point
7. Start with number 5 and taken every 4^{th} unit.
8. Hence, the sample corresponding to 5, 9, 13, 17 up to the n^{th} a sample of 302 obtained from 1 to 1235 elements in the population.

Questionnaires tool was used to collect data according to the need of the researcher because it is easy to administer and collect quantitative information within short period of time concerning economic welfare of the cashew nut farmers. A questionnaire comprised both open-ended and closed-ended questions that make respondents to provide relevant information to the study. The tool was used because it ensures all respondents answer questions and have standardized answers that make it simple to compile data, thus questionnaire is an economical instrument that has a considered amount of data at a relatively low cost in terms of material, money and time.

Further, interview method was used as it allows the researcher to be responsive to situational issues concerning warehouse receipt system on economic welfare of cashew nut farmers in Mtwara district. The key informant that enquired through interview was asked if farmers access the agrochemicals through warehouse receipt system, presence of competitive buyers and challenges facing farmers through the use of WRS, presence of government supervision to the marketing process and access to market information under WRS. The study employed multiple regression models so that to assess the WRS for economic welfare of small holder cashew nut farmers in Mtwara District

3.0 FINDINGS AND DISCUSSION

3.1 Socio-demographic Characteristics of the Respondents

The study considered the demographic characteristics based on the aim of the study and gathered information such as age, gender, marital status, education level, name of AMCOS, farmers' land size and family size. All of these demographic characteristics aimed to sort information from reliable respondents who have clear information based on the effects of WRS on cashew nut farmers' socio-economic welfare.

Table 1: Demographic characteristics of the respondents (n=302)

Demographic Characteristics		Frequency	Percent
Sex	Male	226	74.8
	Female	76	25.2
	Total	302	100.0
Age, category (years)	20-40	67	22.2
	41-50	122	40.4
	>=51	113	37.4
	Total	302	100.0
Marital status	Single	44	14.6
	Married	201	66.6
	Widowed	21	7.0
	Divorced	36	11.8
	Total	302	100.0
Education level	Primary education	168	55.6
	Secondary education	76	25.2
	>=College/University	58	19.2
	Total	302	100.0
Farmers' land size (Acres)	1-10	71	23.5
	11-20	74	24.5
	>=21	157	52
	Total	302	100.0
Family size	1-3	118	39.1
	4-6	137	45.4
	7-10	47	15.5
	Total	**302**	**100.0**

3.1.1 Sex of the respondents

With regard to sex profile from Table 1, the findings showed that more than a half of the respondents were males and were about 226(74.8%) while the rest 76(25.2%) were females. According to these findings, males seem to dominate in cashew nuts production compared with females in the District. This is probably due to the nature of the work, which is very tedious and needs a lot of investment. Therefore, males have more chance to participate in making decisions about the operation of warehouse receipt system than female. These findings are in line with (Ghasia, 2018) who found that 80% of the respondents were males and 20% were females engaged in cashew nuts production.

3.1.2 Age of the respondents

From Table 1, the findings showed that more than a half of the respondents were 122 ranged from age 41-50 and 113 who were aged 51 and above that account for 40.4% and 37.4% respectively while the rest were 67 respondents that account for 22.2% of those included in the study aged between 20-40 years. As it can be noted from the findings, it is 22.2 %of the respondents were between 20 and 40 years; this is probably due to the fact that this age group of people do not own their cashew nut

farm rather they inherit or borrow a farm for a season. The findings from this study in line with findings from the study done by (Makhura, 2014) that unveiled 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.

3.1.3 Marital status

Basing on marital status, Table 1: shows that most of the respondents involved in the study were married that account for 201 cashew nut farmers (66.6%), 44 cashew nut farmers (14.6%) were singles and 57 cashew nut farmers (18.8%) were both divorced and widowed. According to the study findings most of the small holder cashew nut farmers participated in the study that account for 77.8% were aged 41 years old and above where in most cases that age group it is usually in marriage rather than single who were aged 40 years and below.

3.1.4 Education level

By considering education level basing on Table 1: it shows that more than a half of the respondents completed primary education that account for 168(55.6%) while 76(25.2%) completed secondary education and about 58(19.2%) completed at least college education. These findings are in agreement with other findings from the study done by (Ashimogo *et al.,* 2008). that reported small holder cashew nut producers never continued to study higher levels of education since they were facing various challenges forced them to engage in farming activities. However, if the education of cashew nut farmers were high, probably it could have significant impacts to socio-economic welfare.

3.1.5 Farmers' land size

With regard to farmers' land size, Table 1, shows that most of small holder cashew nut farmers in Mtwara district own 21 acres and above were about 157(52%), those who own between 11-20 acres were 74(24.5%), others who own 10 acres and below were 71(23.5%). These findings are further evidenced by the study done by (Sijaona, 2002) that unveiled the average of smallholder cashew farmers in Mtwara district occupies about one to two hectares of cashew trees, sometimes intercropped with food crops, mainly cassava, grain staples and legumes while large-scale private plantations occupy the rest fraction.

3.1.6 Family size

According to Table 2, basing on family size it shows that more of the cashew nut famers had children between 4-6 were about 137(45.4%) while the rest 118 (39.1%) had 3 children and below and about 47 (15.5%) had 7-10 children. From these findings it seems fewer percent of small holder cashew nut farmers had children range 7-10 and this is probably due to high awareness in family planning matters now days.

3.2 The Study Objective Findings

3.2.1 The influence of Warehouse Receipt System on farmer's income improvement

Table 2: Farmer's income earned from cashew nut production

Income earned per annum		**Frequency**	**Percent**
Tanzania	100,000-3,500,000	260	86.1
shillings	3,500,001 and above	42	13.9
	Total	**302**	**100.0**

From Table 2. the study found more than a half of small holder cashew nut farmers by about 260(86.1%) earned between Tsh.100,000 and Tsh.3,500,000 while rest of them 42(13.9%) earned Tsh.3,500,000 and above. So according to that finding it seems most of cashew nut farmers in Mtwara district still earned less from cashew nut production in spite of large land size owned and high experience they had since most of them found were old.

To assess farmer's income, the study employed items like getting payment on time, mode of payment under WRS, credit access of cashew nut farmers to financial institution and accessibility of cashew nut farmers through their AMCOS to insurance services as the measures of smallholder cashew nut farmer's income improvement since all of them affect income to large extent. Some of the key informants from respective AMCOS were selected for interview purpose whereby their views and opinions noted down. Meanwhile, questionnaires were distributed to cashew nut farmers based on mentioned above variables with respect to AMCOS selected from five wards in Mtwara district. Finally, their responses were coded and further analysed then after tabulated and presented in the figures in terms of frequencies and percentages followed by its interpretation.

The study aimed to know time at which cashew nut farmers would be comfortable and happy to get payments once their product being sold. So, to achieve this, researcher has

employed questionnaire technique where one question was dispatched to 302 respondents and the responses were coded, then later on analysed and presented in Figure 1

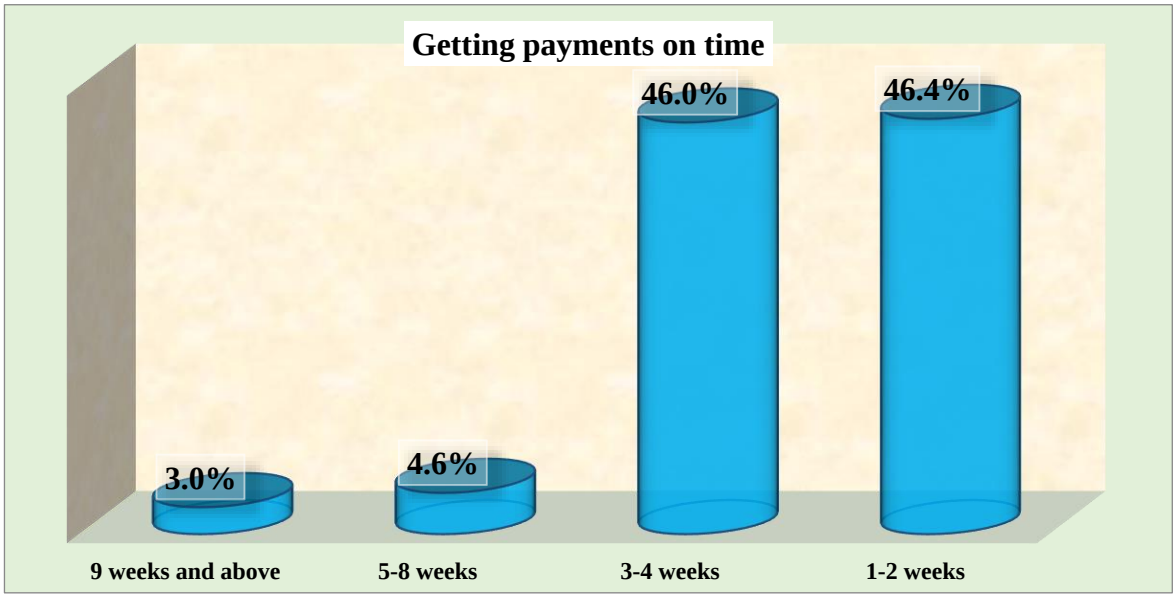

Figure 1: Getting payment on time (n=302)

Basing on getting payment on time from Figure 1. the study findings unveiled that more than a half of the respondents account for 279 (92.4%) proposed that they want to get payment below 4 weeks once their cashew nut products sold in auction market. This study finding complies with the finding from the study done by (Rweyemamu, 2015). unveiled that 21.57% of the famers reported on the late payments to cashew nut farmers as the major challenge facing cashew nut farmers in Mtwara district. This is probably due to the facts that there is a lot of complains that small holder cashew nut farmers did not get their payment on time. 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 despite the opportunities offered by warehouse receipt system to farmers. So, if WRS make payment to farmers on time after two weeks once cashew nut products sold will have significant rise in the incomes of small holder cashew nut farmers in Mtwara district and eventually they will be able to access social services. This finding collaborated with the other finding collected from qualitative data where one of the cashew nut farmers selected from Mbawala AMCOS during interview presented his opinions that: -

> *"In a period of years before, I have experienced social and economic changes in my family. I sell my cashew nut through agricultural cooperatives and I receive payments within two weeks, which was difficult in the past years. Before the introduction of WRS, the price of cashew nut was less than 1,800 TZS, payments were delayed and sometimes not obtained at all. Agricultural cooperatives have ensured all cashew nut produced are sold at a good price. This has enabled me to have assurance of getting income every season which is directed to social and economic development of my household."* (Interviewee, Farmer at Mbawala AMCOS 14/7/2021).

By considering the finding above collected through interview way revealed getting payments on time has changed most the life of cashew nut farmers socially and economically in Mtwara district. This probably due to the fact that early payments to small holder cashew nut farmers would enable them to meet their daily basic needs as well as accessing social and economic services. Meanwhile smallholder cashew nut farmers' economic welfare would have climbed up substantially.

The study aimed to find out if WRS enhanced cashew nut farmers' income improvements. So, to achieve this, researcher has employed questionnaire technique where four indicators were dispatched to 302 respondents and the responses were coded, then later on analysed and presented in table as shown below: -

Table 3: WRS on Cashew nut farmers' income improvements (n=302)

Variables	SA n(%)	A n(%)	D n(%)	SD n(%)
Fair market price under WRS	61(20.2)	207(68.5)	26(8.6)	8(2.6)
Instalment as payment mode under WRS	13(4.3)	30(9.9)	79(26.2)	180(59.6)
Credit access to financial institution under WRS	86(28.5)	147(48.7)	45(14.9)	24(7.9)
AMCOS access to insurance services	57(18.9)	122(40.4)	83(27.5)	40(13.2)

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree

Basing on fair market price whether can provides income to farmers or not once they had accessibility to assured market, the study findings revealed that 20.2% of small holder cashew nut farmers strongly agreed probably due to the facts that there is unethical marketing system under WRS, 68.5% of small holder cashew nut farmers were just agreed. The study explored that the majority of farmers reported that there is fair market price under WRS. This look similarly from the study done by (Peter, 2020)

that explored about 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, 2.7% reported that WRS provide technology to farmers. According to the study findings, most of the respondents about 268 cashew nut farmers agreed that fair market price under WRS can improves their income a lot through the profit that they receive once they sold cashew nut. In addition, the findings collaborated with the finding collected from qualitative data through interview where one of the cashew nut farmers presented views and opinions as follows: -

> "…*The increase of price for our cashew nut has changed our lives compared to the situation before the introduction of the WRS. The income obtained has helped me to improve my house and build business shops and eventually life in my household has changed and we are happy with our cashew nut*." (Interviewee, Farmer at Nanguruwe AMCOS, 18/7/2021).

One of the interviewees from Nanguruwe revealed that since the introduction of WRS has changed their lives a lot probably due to the facts that their incomes earned have raised up and consequently smallholder cashew nut farmers would be able to improve their houses and reinvesting in profitable business-like shops, eventually farmers' economic welfare has raised up.

Furthermore, most of small holder cashew nut farmers seem to be more reluctant on being paid for instalments once their products sold. The study findings presented from Table 3 revealed 4.3% of cashew nut farmers strongly agreed on being paid for instalment due to associated bonus in the last payment, 9.9% just agreed probably due to the fact that being paid for instalment economizes utilisation of money rather than getting payment on lump sum, 26.2% disagreed since being paid for lump sum assured them remittance of money that they could have wide choice in budgeting and 59.6% strongly disagreed because being paid for instalment have low advantages rather being paid for lump sum. Generally, the study finding further revealed that majority of smallholder cashew nut farmers they were an unhappy to be paid for instalment once their products sold; meanwhile they preferred lump sum to instalment. This is probably due to facts that cashew nut farmers once received payment for lump sum they would be able to meet their daily basic needs on time, accessing social services on time and moreover investing outside from agricultural sector where later on return received may

improve farmers' income. This finding is further evidenced from the study done by (Yusuph, 2009) in Tandahimba district and one of his findings unveiled that cashew nut farmers were complaining on the system that forced them to sell and getting payments for instalments on which 70% is paid at first when the cashew nuts were collected by the primary society and another instalment of 30% of farm gate price was paid when the cashew nuts was sold from the warehouse.

Cashew nut farmers were also asked on credit access to financial institution through cooperatives under WRS, the findings from Table 3 showed 28.5% of small holder cashew nut farmers strongly agreed since once they are accessed to credits from financial institution would be able to get farm inputs on time, 48.7% of smallholder cashew nut farmers agreed too because once even payment delayed farmers would be able to run and handling their lives, 14.9% disagreed probably due to high interest rate prevailed in financial institution. The study revealed that about 7.9% of farmers were just strongly disagreed due to the existence bureaucracy in credits. The study findings revealed further that majority of the respondents were able to access credit from financial institution through their cooperatives where their cashew nut produced stand as collateral to banks. Through small holder cashew nut farmer would be able to get farms input like pesticides, fertilizers on time as well employing advanced agricultural methods where all of them resulted to rise of cashew nut farmers' income. The study findings collaborated with the study done by (Cashew nut Board, 2011) unveiled the aim of the warehouse receipt system, apart from facilitating price stability is to guarantee farmers with the loans from the bank and using the stored crop as collateral until it is sold and it further revealed that the AMCOS will take banks loans to facilitate also the initial payments and forward the crops to the desired factories according to the arrangements in place for processing.

By considering on AMCOS accessibility to insurance services under WRS to see if it had significant impacts to small holder cashew nut farmers' income. The study findings from the Table 3 revealed that 18.9% of the cashew nut farmers strongly agreed since it covers cashew nut products from various uncertainties that might arise, also about 40.4% of farmers were just agreed due to the facts that insuring cashew nut products might reduce post-harvest losses, 27.5% just disagreed probably due to delay in processing claims once they are submitted in insurance company and about 23.2% of the respondents just strongly disagreed probably due to the facts that sometimes there

are bureaucracy before the claim issued. The finding showed more than a half of the cashew nut farmers were in agreements that they would be able to access insurance service through their cooperative. Since WRS is introduced in 2007, cashew nut farmers were able to ensure their products especially at the time stored in warehouse while they are waiting for auction day planned under WRS. This is one of the vital roles played by WRS to farmers since there are uncertainties that may happen while farmers' product is stored at warehouse. These risks include shrinkage in weight of cashew nut products especially when auctioning day delayed, burglary (theft) risk and the risk of fire. So, through that accessibility to insurance service act as safe net to small holder cashew nut farmers' products since it is one way of reducing post-harvest losses a part from assured market access and consequently farmers' income climbed up. This finding is further collaborated with the finding from the study done by (Peter, 2020) that showed that commodities received in the warehouse must have full insurance cover against fire, burglary and other risks as may be directed by the TWLB.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

The study concluded that commodity trade still suffers from significant weaknesses that impair efficiency of farmer's income and marketing system. Those weaknesses are due to market failure which leads to delay of payment, payment in trenches and lack of last payment (bonus), many taxes paid per 1 kg of cashew nut crop and led to undesired outcomes like payment crisis.

It was concluded that marketing through WRS needs higher education than the farmers had. The sampled villages in the district tend to have different income growth and development levels due to size, geographical location, historical background, variety and quality of natural resources, trade links and dependency and industrial structure are among determinants of development level of the district.

4.2 Recommendations

Based on the study findings the researcher recommends the following to the Cashew Nut Board of Tanzania (Policy makers):

In order to reduce or remove shortcomings in the system, the payment to cashew nuts farmers should be done timely i.e. to avoid delay in payment and all amount of money receipted and bonus should be paid too. Policy makers should reduce any

inconveniences happening to farmers, for example, rejection of the cashew nut due to complain by the warehouse like improperly dried and unclean cashew nut.

The Government incorporated with CBT and WRS should allow small farmers associations like *"Wanunuzi wa Korosho Mtwara"* (WAKONE) to buy cashew nut directly from farmers to auction in order to increase competitions in the market. The government with the assists of WRS and CBT should buy cashew nuts directly from the farmers and not through banks because those banks have high interest rates.

The government with the aid of WRS and CBT should open international market instead of depending on Indian market.

The cashew nut board should plan well about pricing and marketing of cashew nut which will satisfy the demand of the stakeholders. The board should address the problems facing farmers such as high cost of cashew nut inputs and pesticide. The Government with the help of CBT should conduct continuous assessments/evaluation of the system for better performance. Free market is needed for internal and external market in order to motivate stakeholders.

The government via CBT should reduce or remove middlemen in the marketing system. The management and supervision of big warehouses should not give in to Indian businessmen and all leaders who are not trustful in the system. The government should take law procedures.

REFERENCES

Alaouze, C., Sturgess, N and Watson, A. (2018). Australian wheat storages: A dynamic programming approach. *Australian Journal of Agricultural Economics,* 22(3): 158.

Antony, C., Gelson, T. and Mary, L. (2012). *Smallholder Farmers Participation in Livestock Markets*. The Case of Zambian Farmers. Working Paper No. 66. Indaba Agricultural Policy Research Institute (IAPRI) Lusaka, Zambia. 38pp.

Ashimogo G., Mlozi M. and Silayo V. (2008). Cashew profitability analysis and projection of the sector's future performance in Kenya, Malawi, Mozambique and Tanzania. BACAS Consultancy Final Report presented to PEA, Common

Fund for Commodities, Regional Cashew Improvement Network of Eastern and Southern Africa-Mtwara Tanzania. 76pp.

Cashew nut Board of Tanzania (CBT). (2018). Annual Reports 2016 to 2017. Mtwara. 12pp

Cashewnut Board of Tanzania (CBT). (2018). Annual Reports2016to2017. Mtwara. 12pp

Factors affecting Crop Board Performance inTanzania: A case Cashew nut Board of Tanzania. Morogoro: Mzumbe University .

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

Kennedy, J. A. (2019). Report for ACE Malawi concerning business development model and strategy. Lilongwe. 22pp

Kothari, D. C., & Garg, D. G. (2020). *Research Methodology: Methos and Techniques* (4th Edition ed.). London: New Age International (P) Limited, Publishers.

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

Mumi, (2013) *Assessment of the effectiveness of warehouse receipt system in Cashewnut marketing in Tandahimba District.*

Ochoa, I. (2016). *Grain Receipts as Collateral for Agri businesses' Financing-A Feasibility* Study of Grain Receipts for Corn Producers in Jalisco, Mexico. Master Thesis: SLU, Department of Economics. 45-78

Onumah, G. E. (2017). The Role of Warehouse Receipt Systems in Enhanced Commodity Marketing and Rural Livelihoods in Africa. Natural resource Institute, Central Avenue, Chatham Maritime, Kent ME4 4TB *Food Policy* (27): 319-337.

Onumah, G. E. (2018). *Implementing Warehouse Receipt Systems in Africa Potential and Challenges.* COMESA Symposium, September 6-7, Lilongwe. 19pp

Patil, S. (2017). Performance of Warehousing in Karnataka-A Comparative Analysis. India: College of Agriculture, Dharwad. *Journal of Agricultural Economics and Development*, 10(2): 182.

Recinesa, (2014). Regional Cashew Improvement Network for Eastern and Southern Africa (RECINESA). Cashew Marketing, Trade Developments and Experience: A Case Study in Eastern and Southern Africa Naliendele Agricultural Research Institute.34-40

Recto, A. (2016). Optimal location and sizes of Palay Warehouses in the Philippines.45pp

Rweyemamu, C. (2015). *The contextual analysis of cashew nut industry in southern Tanzania after market liberalization.* Economic Social Research Foundation (ESRF): Dar es Salaam. 78pp

Sijaona, M. (2002). *Assessment of the situation and development prospects for the Cashew nut sector* – Report carried out in Tanzania on behalf of the International Trade centre UNCTAD/WTO.

UNIDO, (2016). *Tanzania's Cashew nut Value Chain:* A diagnostic. United Nations Industrial Development Organization (UNIDO). Vienna. 23-31

URT, (2019). The warehouse receipts system operational manual made under section 6 of warehouse receipts Act No. 10 of 2015: 46-50

Varangis P. and Larson D. (2016), *Warehouse Receipt System: Facilitating Credit and Commodity Markets. A Guide to Developing Agricultural Markets and Agro Enterprises*, World Bank, Washington. 67-75pp

World Bank, (2017). *World Bank. Final Technical Report*. The Role of Warehousing in improving agricultural markets (in Africa), Phase II. 56-62

Yamane, T. (1967). *Statistics:* An Introductory Analysis, 2nd Edition., New York: Harper and Row. 38pp.

Yusuph, J. (2009). *Economic assessment of Warehouse Receipt System for cashew marketing in Mtwara Region.* Tandahimba: Dissertation for the Award of MSc Degree at Sokoine University of Agriculture, Morogoro Tanzania.

Appendix VI: Permission Letters for Data Collection

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA MTWARA
Anuani ya Simu MTWARA
Simu Nambari 023-2333014
Fax Na: 023-2333194

OFISI YA MKUU WA MKOA
S.L.P. 544
MTWARA

Unapojibu tafadhali taja; -

Kumb. Na. FA.73/253/01/178 **Tarehe:** 14 Juni, 2021

Katibu Tawala wa Wilaya,
S.L.P. 501,
MTWARA.

Yah: KIBALI CHA KUFANYA UTAFITI KWA WANATAALUMA NA WANAFUNZI WA CHUO KIKUU CHA USHIRIKA MOSHI (MoCU)

Tafadhali husika na somo tajwa hapo juu.

2. Tumepokea barua yenye **Kumb. Na. MoCU/UGS/3/41** ya tarehe **26 Mei 2021** kuhusu somo tajwa hapo juu.

3. Ofisi ya Mkuu wa Mkoa inamtambulisha kwako **Bw. Hamza Mohamed Nangameta** Mtafiti na Mwanafunzi wa Chuo Kikuu cha Ushirika Moshi ambaye kwa sasa anatarajia kufanya utafiti katika Mkoa wa Mtwara.

4. Utafiti huo unahusu ***"Effects of Warehouse Receipts System on Small holders Cashewnuts Farmers Social Economic Welfare in Mtwara District Council TANZANIA."***

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MTWARA: MKOA
Telegrahic Address: MTWARA
Simu : 023-2333008
Nukushi: 023-2333680
Email: mtwara@mtwara.go.tz

OFISI YA MKUU WA WILAYA
S. L. P. 501,
MTWARA

Unapojibu tafadhali taja
Kumb. Na. BA.274/370/07/133

16.06.2021

Mkurugenzi Mtendaji,
HALMASHAURI YA WILAYA
MTWARA

YAH: KIBALI CHA KUFANYA UTAFITI

Tafadhali rejea somo tajwa hapo juu.

2. Kibali kimetolewa kwa **Bw. Hamza Mohamed Nangameta** mtafiti na mwanafunzi wa Chuo Kikuu cha Ushirika Moshi kibali cha kufanya utafiti katika **halmashauri ya Wilaya Mtwara.**

3. Mada ya utafiti wake ni "***Effects of Warehouse Receipts System on Small holders Cashewnuts Farmers Social Economic Welfare in Mtwara District Council Tanzania***" kuanzia 04.06.2021 hadi 04.06.2022.

4. Naomba apewe ushirikiano.

Thomas J. Salala
KATIBU TAWALA WILAYA

Nakala: Bw. Hamza Mohamed Nangameta

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA WILAYA YA MTWARA
(Barua zote zitumwe kwa Mkurugenzi Mtendaji)

Simu: 023-2333928
Barua pepe: mtwara@mtwaradc.go.tz

S.L.P. 528,
MTWARA.

Kumb. NaAB.525/625/01/95 *29/06/2021*

Watendaji wa Kata wote,
Halmashauri ya Wilaya ya Mtwara,
S.L.P 528,
MTWARA.

YAH: KIBALI CHA KUFANYA UTAFITI.

Husikeni na mada tajwa hapo juu.

2. Namtambulisha kwenu **Bw. Hamza Mohamed Nangameta** mtafiti na mwanafunzi wa Chuo Kikuu chaUshirika Moshi aliyepewa kibali cha kufanya utafiti katika Halmashauri ya Wilaya ya Mtwara kwa barua ya taerehe 16/06/2021 yenye kumbukumbu namba BA.274/370/07/133toka Ofisi ya Mkuu wa Wilaya ya Mtwara.

3. Utafiti wake ni juu ya ***"Effects of Warehouse Receipts Sytem on Small holders Cashewnuts Farmers Social Economic Welfare in Mtwara District Council Tanzania"*** kuanzia 04.06.2021 hadi 04.06.2022

4. Tafadhari naomba apewe ushirikiano.

Ditmary C. Ndunguru
Kny; MKURGENZI MTENDAJI (W)
MTWARA.

Kny. MKURUGENZI MTENDAJI
HALMASHAURI YA WILAYA
MTWARA

Nakala: Bw. Hamza Mohamedi Nangameta.