

**CONTRIBUTION OF AGRICULTURAL MARKETING CO-OPERATIVES  
(AMCOS) IN POVERTY ALLEVIATION: A CASE STUDY OF CASHEW NUT  
FARMERS IN MTWARA REGION.**

**By**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN  
AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY OF  
AGRICULTURE. MOROGORO, TANZANIA.**

**2010**

## ABSTRACT

This study assesses the contribution of Agricultural Marketing Co-operatives (AMCOS) in poverty reduction to cashew nut farmers. The study was conducted in Mtwara region, in southern Tanzania. The two Divisions of Newala District namely Newala and Kitangari were purposefully selected followed by random selection of seven wards. A cross sectional survey was conducted to collect primary data from 200 farmers, and seven Agriculture Marketing Cooperative Societies. Secondary data were collected from CBT, TANECU and Newala District Council (NDC). Descriptive and quantitative analytical techniques were employed. The findings indicate that farmers obtained an average of Tsh 276 087; 331 752 and 403 187 as income to their family for 2006/07; 2007/08 and 2008/09 respectively. This income trend was due to their involvement in the AMCOS marketing channels from three crop seasons 2006/07 – 2008/09. Results indicate that cashew nut farmers depend mainly on agricultural production as their sole source of income and wellbeing. Farmer's gross margin analysis indicates a gross margin of Tsh 24 947 per 80 kg bag of raw cashew nut. Socio-economic factors which were found to influence cashew nut farmers' participation in the AMCOS market channel were: age of the household head, education level of the household head, household size, gender of the household head, marital status of the household head, price information and distance from the AMCOS godown. Age of the farmer, size of the farm and gender were statistically significant influence ( $P < 0.05$ ). As the farm size increases farmers opt for engaging in AMCOS market as a reliable market channel. Thus, the study recommends that farmers have to be trained on the importance of using the AMCOS marketing channel in order to ensure safe and reliable market for their produce.

**DECLARATION**

I, **JOSEPH DAUD TESHA**, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my original work and has neither been submitted nor being concurrently submitted for degree award in any other institution.

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Joseph Daud Tesha

(MSc. Candidate)

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Date

The declaration is confirmed.

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Dr. Fulgence J. Mishili

(Supervisor)

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Date

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## ACKNOWLEDGEMENTS

First, I extend my thanks to Almighty God for giving me the breath and strength to be able to carry on this study despite of many challenges I faced.

Secondly, I wish to express my profound gratitude and sincere appreciation to my supervisor Dr. Fulgence J. Mishili for his tireless guidance, suggestions and comments which were very important from preparation to the completion of this study.

Thirdly, I would like to acknowledge the Newala District Council for providing financial support for my study.

Fourthly, I would like to extend my appreciation to the District Executive Director of Newala, TANECU Procurement Officer and Assistant Manager Mr. Alex Domitius, CBT Director of Agriculture and Processing Mr. Silomba, L. B., and Mr. Matata for their assistance during the survey. Also I acknowledge the members of staff of the DALDO's office Newala District for their moral and material support during my study and especially for those who assisted in the data collection particularly: Mr. Akili Kimweri, Mr. Adinani Wajadi, Mr. Charles Komba, Miss Bertha Aloyce, Ms Sofia Kasembe, Mr. Hussein Tully, Mr. Mlaponi C.R, Ms Zaina Omary, and Ms Monica Nyongola just to mention few.

Lastly but not least, I would like to acknowledge my dear wife Maria August Mahoo, and our beloved children, Magdalena and Gloria for their tolerance and support during the period of my study as they missed the fatherly care.

Finally, it is obvious that the study of this nature could not be successfully completed without the contribution of many individuals. Therefore, I would like to extend my gratitude to all individuals who have not been mentioned for their contribution in the course of the study.

## **DEDICATION**

To my parents, mother Magdalena Daud Tesha and my father the late Daud Lewanga Tesha.

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## LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
AMCOS	-	Agriculture Marketing Co-operative Societies
ANOVA	-	Analysis Of Variance
BoT	-	Bank of Tanzania
CATA	-	Cashew nut Authority of Tanzania
CBT	-	Cashew nut Board of Tanzania
CRDB	-	Cooperative and Rural Development Bank
CUT	-	Co-operative Union of Tanzania
DALDO	-	District Agricultural and Livestock Development Officer
DADPs	-	District Agricultural Development Plans
DHS	-	Demographic and Health Survey
EU	-	European Union
FGD	-	Focus Group Discussion
GM	-	Gross Margin
GDP	-	Gross Domestic Product
HIV	-	Human Immune Virus
ICA	-	International Co-operative Alliance
ILO	-	International Labour Organisation
IMF	-	International Monetary Fund
KNCU	-	Kilimanjaro Native Cooperative Union
LSD	-	Least Square Differences
MAFSC	-	Ministry of Agriculture Food Security and Cooperatives
NAPB	-	National Agricultural and Products Board
NBS	-	National Bureau of Statistics

NDC	-	Newala District Council
NGO	-	Non Government Organisations
NMB	-	National Microfinance Bank
OALD	-	Oxford Advanced Learners Dictionary
OLS	-	Ordinary Least Squares
OR	-	Odds Ratios
PAM	-	Policy Matrix Analysis
RCU	-	Regional Co-operative Union
SAPB	-	Southern Agricultural Products Board
SNAL	-	Sokoine National Agricultural Library
SPSS	-	Statistical Package for Social Sciences
SRCB	-	Southern Region Cashew nut Board
SUA	-	Sokoine University of Agriculture
TANECU	-	Tandahimba Newala Cooperative Union
TCMB	-	Tanzania Cashew nut Marketing Board
TR	-	Total Revenue
TRA	-	Tanzania Revenue Authority
TShs	-	Tanzanian Shillings
TVC	-	Total Variable Cost
URT	-	United Republic of Tanzania
UK	-	United Kingdom
VEOs	-	Village Executive Officers
WExtOs	-	Ward Extension Officers
WR	-	Warehouse Receipt
WRS	-	Warehouse Receipt System



## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background Information

Tanzania depends mainly on agrarian economy. The agricultural sector is the main source of employment and livelihood for more than two-thirds of Tanzanian population (URT, 2006). It accounts for about 46 percent of the GDP and about 82% of the country's labour force. The majority of farmers are rural small holder farmers who operate between 0.2 and 20 hectares (Chambo *et al.*, 2007).

Shao (2007) points out that cash crop production in Tanzania is dominated by smallholder farmers (1 392 456 ha or 93%) and large scale farms accounting for only 109 939 ha (7%). Mtwara Region has the largest area under smallholder cash crops (247 188 ha, 18%) of the country (URT, 2006). Cashew nuts have the highest small holder planted area compared to other permanent crops with 414 520 ha and 30 % of the total area under permanent crops (URT, 2006). The average smallholder cashew nut farmers occupy about one to two hectares of cashew trees, sometimes intercropped with food crops, mainly cassava, grain staples and legumes. Large-scale private plantations occupy about 2000 ha in Lindi and Mtwara regions. The cashew nut grown area has spread from Southern zone (Mtwara, Ruvuma and Lindi) to Coast regions, Tanga and Dar es Salaam (Donald, 2004). Cashew nuts are mainly grown in Mtwara with 55% of the national total planted area with cashew nuts (URT, 2006).

The marketing of cashew nut was mainly undertaken by the co-operatives or crop marketing institutions that were Government controlled. In 1962, the Southern Region Cashew nut Board (SRCB) was established for the purpose of marketing cashew nut

(Sijaona, 2002). The SRCB sold nuts to exporters at auctions and producers were paid based on the price at the last auction (Sijaona, 2002), which resulted to uniformity of prices paid to producers. The SRCB was replaced in 1963 by the Southern Agricultural Products Board and then by the National Agricultural Products Board (NAPB) in 1964; by then, procurement of cashew was entirely undertaken by Primary Cooperative Societies who sold to Regional Co-operative Unions (RCUs) (Sijaona, 2002). This system lasted until 1974 with the establishment of crop authorities. The Cashew nut Authority of Tanzania (CATA) was established and took over the role played by NAPB (Sijaona, 2002).

In 1985, CATA was replaced by Tanzania Cashew nut Marketing Board (TCMB), whereby the purchasing of raw cashew nuts became again the responsibility of the cooperative unions through their respective primary societies (i.e. three-tier marketing system). The TCMB assumed the task of buying cashew nut from unions, processing, and exporting raw and processed cashew nuts. The board by then did external marketing by requesting tenders (usually by telex) for specific consignment (given specific grades and geographical origin of the cashew nuts) from a limited number of companies (Chachage and Nyoni, 2001).

By then, the system was also characterized by low prices and late payment of farmers due to the inefficient and poor financial status of the cooperatives. Consequently, there were times when only 80% of the crop was purchased in those years when production itself was still low. Another factor that depressed the producer prices were the district levy under which cashew nuts were subjected following the re-introduction of the local Governments since early 1980s. Consequently, some farmers withdrew from producing

cashew nuts and concentrated more on non-controlled crops or those, which could fetch higher prices in the non-official markets (Chachage and Nyoni, 2001).

In 1991/92, the Government of Tanzania began to liberalize cashew nut marketing by introduction of the agency system in the export of the crop. In fact, it was the first traditional export crop to be liberalized. Private traders were allowed to buy cashew nuts and export, and they were allowed by the Bank of Tanzania to retain 10% of the foreign currency with processed cashew nuts, retention of foreign currency was set at 50% legal formalities and proper operational procedures were formalized in 1994. Since then, agricultural exports were subject to 100% retention (Chachage and Nyoni, 2001).

In 1993, Tanzania Cashew nut Marketing Board became Cashew nut Board of Tanzania (CBT) with the following roles:

- To advise the government on policies and strategies for the development of the Cashew industry.
- To promote the development of cashew nut production, processing and marketing.
- To assist directly or through financial support the research and development of Cashew Industry.
  
- To regulate and control the quality of cashew nuts.
- To collect, refine and maintain, use, disseminate information or data concerning the Cashew nuts Industry.
- To ensure proper management of Cashew nuts Development Fund established under the CBT Act.



- To promote and facilitate the formation of associations (or other bodies) related to or dealing with Cashew nut Industry and coordinate their activities.
- To make and enforce Cashew nut Regulations.
- To provide consultancy and technical services to cashew farmers, processors, buyers, or exporters.
- To represent the Government in International Forum.
- To carry out other tasks that are associated with improvements in cashew industry as need arises in the course of time, such as:-
  - a. To register or license Cashew nut Growers, Buyers, Sellers, Processors and Exporters.
  - b. To grant licenses and permits for buying and exporting of cashew nuts.
  - c. To appoint inspectors for inspection of Cashew nut farms; processing facilities, warehouses and any other facility that may be inspected for the better carrying out of the provisions of the Cashew nuts Industry Act. 2003.

The board also set itself a task of announcing an indicative price every season, an aspect, which was meant to ensure that the producer did not get paid an unfair price (Table 1). At the same time regional authorities improved payment of taxes and compulsory contributions in the first year of liberalization of the crop (Chachage and Nyoni, 2001).

**Table 1: Quantity of exported and locally processed cashew nuts from 1998/99 –  
2009/2010**

Production season	Quantity of produced cashewnuts (tones)	Average price (fob us \$)	Indicative price (tshs/kg)	Quantity of exported cashewnuts (tones)	Quantity of locally processed cashewnuts (tones)
1998/1999	103 300	855	550	103 000	Nil
1999/2000	122 254	1 039	641	120 980	1.04
2000/2001	122 207	798	252	117 042	4.23
2001/2002	67 369	537	300	62 327	7.48
2002/2003	92 372	564	360	83 740	9.34
2003/2004	79 000	635	462	70 000	11.39
2004/2005	72 000	855	650	64 987	9.74
2005/2006	77 446	710	550	66 708	13.87
2006/2007	92 573	585	600	70 274	24.09
2007/2008	99 106	785	610	75 887	23.43
2008/2009	79 069	925	675	61 679	22.00
2009/2010	74 340	950	700	53 473	28.07

Source: CBT 2010

In 1990s the marketing of cashew experiencing a liberalisation where private buyers were licensed to buy cashew nut from farmers since 1991/92 crop season where the government relinquished its price control from the cashew in 1992/93 (Sijaona, 2002). Since then, cashew nut marketing has been under market liberalization till 2007/08 when the Government introduced the Warehouse Receipt System (WRS) for cashew nut marketing in Mtwara region, after some success was obtained in other crops like maize, cotton, rice and coffee (Mwangu, 2007). Cashew nut farmers were mandated to sell through primary cooperative societies and selling outside this system is illegal (black market) (CBT, 2008).

The WRS was introduced to address the cheating done by private buyers and middlemen to cashew nut farmers for several years. For example in the 2006/07 season, some of the private buyers and middlemen boycotted buying cashew nuts because they were not comfortable with the indicative price set by the Government. And the few who decided to buy did so at very low prices of TShs 200 per kilogram, which disappointed the farmers from continuing with the cashew nut production and seeking for other alternatives to earn a living (Mwangu, 2007).

By introducing the WRS the government has put more emphasis on the need for the Agricultural Marketing co-operatives to play a major role of mobilization of the market channels for the cashew nuts the exercise that was practiced in Mtwara Region and expect to other cashew nut producing regions (CBT, 2010).

## **1.2 Importance of AMCOS**

Agricultural Marketing co-operatives, maintain higher levels of income, making small farmers able to construct decent houses, and send their children to school (Chambo *et al.*, 2007). AMCOS also, have the advantage of accessing co-operative education and business development capacity building. Co-operative education enables the co-operative members to participate in democratic debates and exercising democratic principles and leadership training. By participating in various co-operative activities such as annual meetings and election season for their leaders farmers will have an opportunity to exchange views and get marketing information from experts such as cooperative officers and extension officers who attend the meetings as invited guests or resource persons (Chambo, 2009).

Research by Wanyama *et al.* (2008) pointed out that co-operatives create employment opportunities in three different ways. Firstly, they offer direct wage employment to people who work in primary and secondary co-operatives as well as in governmental co-operative support institutions (example; ministries, departments, co-operative colleges). Secondly, co-operatives offer self-employment to members, who find it necessary to participate in the economic activities that in return will guarantee a decent income. Thirdly, co-operatives also indirectly provide employment opportunities through the spillover effects of their activities on non-members whose income-generating activities are only viable through the transactions they have with, as well as opportunities created by, co-operative ventures.

Furthermore, Mbise (2007) pointed out that particular attention of the co-operatives theory was the question of their involvement in downstream activities in the agrifood chain, and to its relevance to developing countries and that could be applied to other agricultural products. Mbise (op cit) points out the idea that when people are joined to some activities in a group similar to the 'activity theory' (Banturaki, 2000) that explains the dynamics of groups' formation. The theory holds the fact that people who are involved in similar activities tends to generate spontaneous interactions and sentimentality leading to (or in search of) co-operative and problems solving (Birchall, 2004).

### **1.3 Problem Statement and Justification**

Agricultural marketing co-operatives have been the most popular traditional mode of co-operative development that has linked developing countries with the rest of the world, through export commodity trading (Chambo, 2009). It must also be recognized that the incidence of agricultural co-operatives in Africa, is not accidental. Most developing

countries including those in Africa depend on agricultural production for their livelihoods. Statistics indicate that 84 per cent of the population in African countries depends on agriculture as the source of food, income and employment (Chambo, 2009).

Further, Chambo (2009) reported that agricultural co-operatives has a great role to play in the economy of most African countries as the African continent continues to be the producer of raw materials but trading with industrialized countries, whose economy has the capacity of rationalization on the economic utilization of imported raw materials from the developing world. Agricultural co-operatives, maintain higher levels of income, making small farmers able to construct decent houses, and send their children to school (World Bank, 2001; Birchall, 2003; Chambo, 2009).

Newala District in Mtwara has a total of 33 primary Agricultural Co-operative Societies that serves the total of 118 villages (DALDO, 2009). The primary co-operatives apart from collecting the crops from farmers do collect levy from the cashew nut buyers on behalf of the village government and the village government use the collected revenue for the day to day operations and on improving the social services to the community like rehabilitation of the classrooms, dispensaries, construction of the water system and other services like payment for the wages to the village executives (DALDO, 2009).

Despite the contribution that co-operatives have to the economy the level of poverty to smallholder cashew nut farmers in Mtwara is still prevailing (URT, 2006). Mtwara has the total of 79 566 households' members who had no access to education, only 62 percent of the rural agricultural populations are literate (ibid). There is lack in sufficient literature that conveys the status of African co-operatives since the liberalization of the sector in the mid 1990s (Wanyama *et al.*, 2008).

The study was aimed at assessing the contribution of Agricultural co-operatives in reducing poverty to cashew nut farmers who sell their cashew nut through Agricultural Marketing Co-operative Societies (AMCOS) versus those farmers who sell their cashew nut through other market channels for example, individual private company or buyers. The study was aimed at generating and providing a useful insight regarding the contribution of Co-operatives to the poverty reduction among cashew nut farmers.

Policy makers, other stake holders as well as development partners will find the information useful to decide whether to direct more resources to the AMCOS in order to reduce poverty to the people as it has been advocated by the Millennium Development Goals 2015 and The Tanzania vision 2025.

## **1.4 Objectives of the Study**

### **1.4.1 Overall Objective**

The main objective of the study was to assess the contribution of AMCOS to members livelihood especially cashew nut farmers in Mtwara.

### **1.4.2 Specific Objectives**

The study was carried out to achieve the following specific objectives:

1. To determine the mean income of cashew nut farmers who sell their produce through AMCOS.
2. To determine the value of assets acquired by cashew nut farmers as a result of participating in AMCOS marketing channel.
3. To determine the profitability of cashew production to farmers who participated in the AMCOS market channel

4. To establish the social economic factors that influence the farmers participation in the AMCOS marketing channel

### **1.5 Hypothesis of the Study**

The following hypotheses were used to guide the proposed study

- The mean income of farmers who sell their crop through AMCOS is significantly higher than the income of farmers who sell their products to other buyers.
- The farmers who sell their produce through AMCOS are wealthier than those who sell through private buyers.

### **1.6 Organization of the Report**

This study is organised into five chapters. Chapter Two presents the literature review on various studies and other researchers' findings and recommendation on the study subject. Chapter Three presents the methodology used in the study. Chapter Four presents the major findings of the study and Chapter Five provide the conclusion and recommendations.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Marketing Co-operative:

According to Oxford Advanced Learner's Dictionary (OUD) (2000) Marketing is the activity of presenting, advertising and selling a company's products in the best possible way. A marketing cooperative is a business organization owned by farmers to collectively sell their products. It allows producers to accomplish collectively functions they could not achieve on their own. The formation of cooperatives is justifiable in the following grounds: Marketing cooperatives enable producers to 1) correct market failure where prices are too low or buyers have left the market; 2) provide a service not available otherwise; 3) gain market power (negotiating power) against much larger buyers; 4) spread risks and costs; and 5) have enough volume to operate a processing plant efficiently or enough to meet the demands of buyers.

Co-operatives have been defined as "Associations of individuals which have as their objective the economic and social improvement of their members through enterprise undertaking on mutual aid and which conform to cooperative values and principles" (Carlsson, 1992; and Birchall, 2004). Modern co-operatives have their roots in the credit and consumer society established in Rockdale in the UK in 1844 (Roy, 1969; and ICA 1995). "Cooperatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership" (URT, 2005).

In Africa, however, the most popular agricultural co-operative mode has historically been the marketing of agricultural produce after small farmers have individually completed



their farm production operations. But in some cases, agricultural co-operatives have combined both input distribution and crop marketing (Chambo, 2009). The size of the co-operative movement in Africa has been steadily growing over the years despite various impediments like state control up to the mid 1990s; and the liberal economic environment since the early 1990s, for which they had not been adequately prepared (Wanyama *et al.*, 2008). The report pointed out those Co-operatives in Africa had a major role to play in poverty reduction through major three ways:

- Employment Creation and Income-generation
- Co-operative Investment in Human Capital
- Social Protection

### **2.1.1 Employment Creation and Income-generation**

Co-operatives create opportunities by providing stable, livable and non-precarious employment, since this is what individuals want. They also decrease inequality through equal ownership of the means of production, create community resources for self sufficiency on a local scale, build community networks and social capital, and foster self education and individual empowerment. Co-operative people power allows people to create their own opportunities (Birchall, 2004; and Wanyama *et al.*, 2008). Cooperatives are estimated to employ more than 100 million people and have more than 800 million individual members globally (ICA, 2009). In 2006, the world's top 300 cooperatives were estimated to have an annual turnover of US\$ 963 billion, which is equivalent to the GDP of Canada (Emma and Maghimbi, 2009). In Kenya, 303 455 people are directly employed by cooperatives and up to 16.5 per cent of the population indirectly derive their livelihood from the increased demand and associated opportunities to provide goods and services to cooperatives (Pollet, 2009).

### **2.1.2 Co-operative Investment in Human Capital**

In developing countries, cooperatives have great potential in the field of literacy training for adults. Cooperatives are not usually involved directly in providing primary schooling, but where local government fails to provide they often fill the gap, using their own funds to build and support local schools. As local membership-based organizations they can build on primary education by human resource development; enabling members, managers and staff to gain the skills needed in running a business (Birchall, 2003; Birchall, 2004). As local civil society organizations, they can also monitor the quality of education, preventing absenteeism among teachers. Where they raise the income of poor people, they enable children to complete primary education. Where they raise the income and increase the status of women, this encourages girls to complete their education (Birchall, 2004). Ignorance or illiteracy and poor health were found to be manifestations of poverty, and they are also causes of the same. Consequently, efforts towards improving the provision of educational and health services were found to be fundamental for poverty reduction (Wanyama *et al.*, 2008).

### **2.1.3 Social Protection**

Co-operatives create strength through individuals acting collectively; they can operate to manage micro-risks, by sharing risks throughout the community. Because co-operatives are generally non-profit community-centered enterprises, they ensure equitability in communities (Birchall, 2003). Traditional African society relied on mutual aid to secure every individual from calamities that were beyond his/her capacity to handle. In its simplest form, mutual aid found expression in interfamilial and neighborly help in bringing back strayed cattle; tending the crop of someone fallen ill; chasing away marauding wildlife; and helping family, kin and villager to ease the burden of death by

meeting funeral expenses, among others (Bouman, 1995; and Birchall, 2004). Cooperatives have traditionally been concentrated on sectors concerned with agriculture, finance, housing, wholesaling and retail. However they are also found in industries such as childcare, tourism, utilities, transport, health care, schools and many others. Nevertheless, agriculture and finance remain the dominant activities of cooperatives throughout the world. In Africa, cooperatives are most commonly found in the agricultural sector and in financial services. Prevalence varies according to the particular structure of the national economies, though in general agricultural cooperatives represent 40 to 60 per cent of all cooperatives within a given country, and cooperative financial institutions represent 30 to 50 per cent of the cooperative movements in given country (Pollet, 2009).

Co-operatives began in Tanzania as early as 1925 with the organization of the Kilimanjaro Native Planters Association to help the coffee farmers to come into cash economy (Shuma, 1990). The legal beginning of co-operatives in Tanzania (formally Tanganyika) was in 1932 when the first co-operative society's ordinance was passed by parliament (URT, 2005). This enabled the registration of the Kilimanjaro Native Co-operative Union (KNCU) in 1933 with its 11 affiliated primary co-operative societies (Shuma, 1990). Registration of other co-operative unions followed including the Co-operative Union of Tanzania (CUT), which was formed in 1961 and acted as administrative apex of the Regional Co-operative Union (Shuma, 1990).

Between 1961 and 1968 co-operative societies were regarded by the government as partners in both social and economic development despite the fact that they experienced major changes that affected their organizational development (Chambo *et al.*, 2007). In 1963, the Cooperative Ordinance was amended that resulted in the rapid increase in the

number of registered Primary Co-operative Societies from 88 in 1961 to over 1616 in 1966 in the country (Chambo *et al.*, 2007).

Following the Liberalization Programmes of 1980s the co-operatives and their members suffered the problem of stiff competition with private traders and unreliability in prices of both their produce as well as the inputs resulting from liberalized trade and removal of the input subsidy by the government (Temu and Ashimogo, 1997).

The Tanzania co-operative societies Act 1991 is meant 'to make better provisions for the formation, constitution, registration and operation of co-operative societies; and for other matters incidental to otherwise connect with the purposes'. The Act defines the cooperative societies, on the bases of the principles, methods and procedures of cooperation. On the role of Government, the Act states: 'state shall protect the cooperative societies by offering support, guidance and advice.'

In 2003 the 1991 Cooperative Act was repealed and the 2003 Cooperative Act was enacted that enabled the cooperative societies to operate in a competitive environment by becoming more independent from the state controlled. The new Act emphasized on the need for cooperatives to exercise gender equity and equality, good governance and enterprise innovative and creativity and this was enforced by the 2004 Cooperative policy (Chambo *et al.*, 2007). In Tanzania there are over 2 500 crop marketing cooperatives (Emma and Maghimbi, 2009).

## **2.2 Poverty Definition:**

The definition of *poverty* that has been chosen by the UN and its partner organizations is a simple one. It is 'whether households or individuals have enough resources or abilities

today to meet their needs (World Bank, 2006). The simplest way of measuring this is by deciding on an income threshold below which people are poor such as the UN's measure of US\$1 a day (Birchall, 2003).

The growing concern with poverty reduction in developing countries has triggered an emerging consensus among many actors, including the United Nations (UN), the International Labour Organization (ILO), the International Cooperative Alliance (ICA) and the European Union (EU), that the co-operative enterprise is the only form of organization that meets all dimensions of poverty alleviation (Wanyama *et al.*, 2008). The broad argument is that co-operatives have the advantages of identifying economic opportunities for the poor; empowering the disadvantaged to defend their interests; and providing security to the poor by allowing them to convert individual risks into collective risks. Consequently, co-operatives are increasingly being presented as a pre-condition for a successful drive against poverty and exclusion, more so in Africa (Birchall, 2004; 2003; ILO/ICA 2003; Wanyama *et al.*, 2008).

Poverty is multidimensional but specific to a location and a social group. However the striking common features in the experience of poverty is that poor people's lives are characterized by powerlessness and voiceless ness which constrain the people's choice and define the relationship and influence they are able to make with institutions in their environment (World Bank, 2001; Begum *et al.*, 2004).

In Tanzania people are considered poor when their consumption is less than the national poverty line, whereby consumption includes all goods bought and those produced and consumed, such as food, household equipment, clothes, personal effects, personal care, recreation, cleaning, domestic services, contributions, fuel, petrol, soap and cigarettes.

Not all consumption items are included in poverty calculations. For instance expenses on health, education and water are excluded for instance. The national poverty line was estimated by the National Bureau of Statistics (NBS) in 2001 based on the 2000/01 Household Budget Survey. It represents the cost of goods (food and other goods) typically consumed by poor households. In 2001 the national poverty line was Tshs 7 253 per person per 28 days. As prices increased by 93% between 2000/1 and 2007, the 2007 poverty line is Tshs 13 998 ( $7\ 253 \times 1.93$ ) or approximately Tshs 500 per person per day (URT, 2007).

### **2.3 The AMCOS and Poverty Reduction**

Agricultural Marketing Co-operatives (AMCOS) have emerged as a critical rural development institution in Tanzania (Sizya, 2001). The AMCOS has been the kingpins of development interventions aiming at alleviating poverty among the small holder farmers spread out in the rural areas of Tanzania. The colonial governments promoted the formation of agricultural marketing cooperatives particularly for cash crops mainly coffee, cotton and tobacco. The Nationalist post colonial government saw cooperatives as an important vehicle which could be harnessed to spread the benefits of development to a wide section of the Tanzanian population. This was to be done by combining the energies of the farming community and the workers to feed, clothe, house, and educate themselves and their children and generally better their economic and social lives. In order to achieve economic independence cooperatives were expected to play a more dominant role in business as a means of reducing foreign domination (Sizya, 2001; Birchall, 2004).

The statement by United Nations (UN) (2003) emphasizes that cooperatives can help raise people out of poverty, because they are essentially income-generating organisations. Furthermore, because

they return any surpluses to the members in the form of a patronage refund based on the people's participation in the cooperative, they make sure that growth is equitable. The UN (2003) declares 'All countries should implement policies that strengthen the links between economic growth and poverty reduction' and goes on to single out growth that does not discriminate against rural areas, ethnic groups or women, and that increases small farmers' incomes, expands access to land and promotes labour-intensive growth in small and medium enterprises. In many countries, cooperatives are still the main way in which rural people make a living. Where they are working well cooperatives meet these criteria, and should be regarded as a useful part of country policies (Birchall, 2004).

Furthermore, Sizya (2001) argued that agricultural produce sales comprise the major source of income for the rural poor and therefore constitutes a major means for poverty reduction for the majority of the rural poor. The AMCOS have been the main channel for providing these services over the last six decades. Data on the sales of key cash crops handled by cooperatives are difficult to get due to the flux of the ongoing changes. However, the available crop production data from the Bank of Tanzania for the past two seasons (Table 2) give an indication of the service that the cooperatives are providing in this regard.

**Table 2: Production of Cash crops ('000tons)**

Crop	2007/2008	2008/2009
Coffee	41	45
Cotton	67	123
Cashewnuts	99	76
Tobacco	0.7	1.2

Source: BoT (2009)

Tanzania Federation of Cooperatives is a member of the International Cooperative Alliance, the global organisation for the cooperative movement. The ICA and ILO signed a Memorandum of Understanding in 2004 which emphasizes the role which cooperatives can play in working towards achieving the Millennium Development Goals. The two partners have launched the Global Cooperative Campaign against Poverty, *Cooperating Out Of Poverty*. Representatives of the Tanzanian cooperative movement participated at the ICA world congress in September 2005 (Bibby, 2006).

#### **2.4 Impact of Economic Policy Changes on Cooperative Development**

Report by Sizya (2001) points out that the centralized planning policies of the last thirty years AMCOS enjoyed a monopoly of the marketing of agricultural produce, which was additionally dominated by parastatal crop-marketing institutions. The author also found that the poverty reduction potential of the cooperatives was compromised by the arrangement that did not guarantee high returns to the farmer due to the added marketing margins expropriated by the marketing infrastructure. Since mid 1980s Tanzania adopted a series of emergency plans, including economic recovery programmes, policies and institutional reforms aimed at revamping the national economy and facilitating overall growth. These reforms include (i) Macro-Economic Policy Framework, (ii) Planning and Budgetary Management System Reform (Rolling Plan and Forward Budget, RPF; Performance-based Budgeting, and recently Medium Term Expenditure Framework, MTEF), (iii) Public Administration Reform (Civil Service Reform Programme), (iv) Financial Sector Reform and Monetary Policy, (v) Parastatal Sector Reform, and (iv) Local Government Reform Programme (UNDP, 2005).

These socio-economic reforms are geared towards:



- combating poverty and deprivation in order to improve people's welfare;
- creating an enabling environment for a strong private sector;
- ensuring macro-economic stability;
- improving efficiency in the use of public resources;
- maintaining an environmentally sustainable development path, and
- reducing government involvement in directly productive activities.

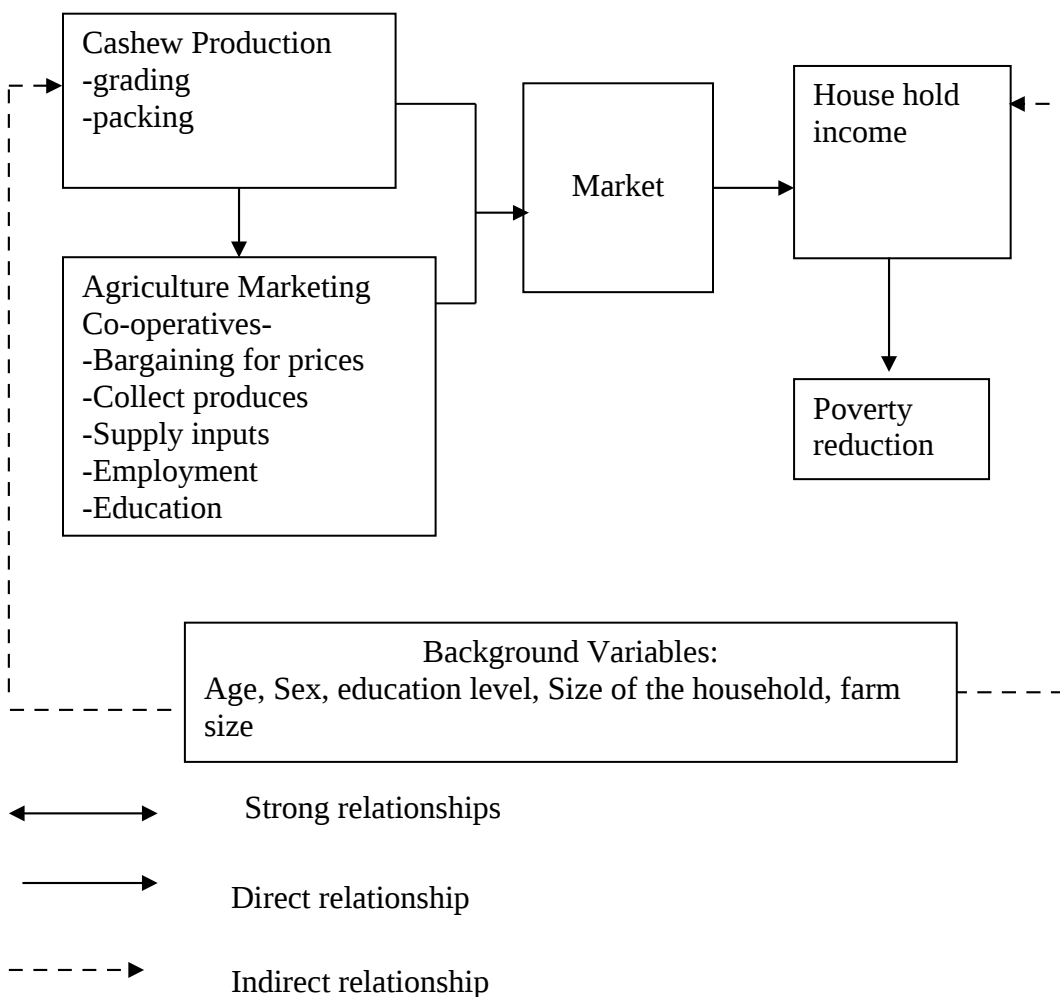
The strategies for realizing these objectives are embedded in the creation of an attractive setting for the development of private enterprises and parastatal sector restructuring through privatization or liquidation for optimization of resources use. Alongside these reforms, the productive functions of the government have been devolved to the local governments, communities and the private sector (UNDP, 2005).

The economic reforms of 1980s as funded by the great donors IMF and World Bank has ceased the monopoly status of cooperatives and allowing other private traders to participate in the marketing of agricultural produce along side the AMCOS (Sizya, 2001). This has opened up opportunities for small holder farmers to dispose their produce to the buyer and hence offering the best price in the market.

## **2.5 Conceptual Framework**

Co-operatives are membership-based organisations owned by their 'users', people who want to be provided directly with goods or services. These membership organisations are often – called cooperatives (Birchall, 2004). Cooperative is a useful tool to analyze how to overcome the free rider problem and come up with co-operative solutions for the management of common resources or the provision of public goods (Mbise, 2007). In particular organizational and institutional arrangements, Agricultural Marketing Co-

operatives AMCOS are important in motivating farmers to market the crops more efficiently by ensuring market and reduce the intermediate costs of crop handling before reaching the market due to economies of scale. It is assumed that AMCOS would facilitate the collective transportation and bargaining for better price on behalf of the farmers (Fig. 1). The idea here is that the role played by AMCOS will solve the problems associated with determinants of transaction costs namely, market distance, asset specificity, information about price, and uncertainty. This will improve the market margin and farmers' income (Birchall, 2004).



**Figure 1: Conceptual framework for AMCOS marketing channel**

**2.6 Attributes to Household Poverty Status:**

Household head is principal decision maker having a potential role in influencing the household wellbeing, poverty and livelihood vulnerability (Valvidia and Gilles, 2001; Rodgers *et al.*, 1989). Some socioeconomic variables have been reviewed in this section. Household income, household size, and age dependency have been found to be potential factors towards the household economic undertakings and therefore the household poverty status (Manila, 2000; Kamuzora and Mkanta, 1998; Rodgers *et al.*, 1989).

### **2.6.1 Age of the Household Head**

Age of the household head is an important characteristic, which reflects the lifecycle position of the household (Ifiran, 1989). The head of the household as the major bread earner has his/her age influencing both the income generating capacity of the household and its demographic position, which in turn implies certain requirements for income. Rodgers *et al.* (1989) concluded that very poor households and those with few possessions, have younger than average household heads. These in total shows out that accumulation of wealth is highly dependent on age of the household heads, whereby a direct relationship is experienced. It is therefore important to consider the age of the household as the factor while estimating the poverty status of the household.

### **2.6.2 Sex of the Household Head**

Sex of the household head is an important dimension of the locus of responsibility and authority in the household (Lloyd, 1995). Some common attributes ascribed to the household head include primary economic responsibility, primary decision making authority and most respected person (Bruce and Lloyd, 1992). Sex is considered as an important factor determines the division of labour and/or the type of activities to be undertaken by different members of the household. Bagachwa (1994) pointed out experience from other studies that female headed households are more likely to be in

poverty at any point in time than male headed households. Even though that income has not been a very proper measure of socio-economic strata such as being a delimiter in such studies, it has its potential in portraying the existing situation. Rodgers *et al.* (1989) in wealth pattern assessments in India, observed wealth indicators such as domestic possessions and housing quality in disparity of gender. The experience therefore remarks out that sex of the household head has an influence on the wealth accumulated and hence socioeconomic values of a respective household.

Several cultural issues have been making barriers and hence denying integration of women in development activities. Integration of women in the agricultural sub-sector has been slow due to customary practices, land tenure acts and sector development policies (African Development Fund, 2003). Despite providing most of the farm labour, women receive a very discouraging small share of the proceeds. As the gender focal points in ministries, Ministry of Agriculture, Food Security and Co-operatives (MOAFC) being one of them, has been observed to be still weak in the promotion of the integration of women in the sector (African Development Fund, 2003), there are all chances of women, missing the benefits of AMCOS and therefore their households remain poor.

### **2.6.3 Education of the Household Head**

Education is one of strongest determinants of poverty, being a means of access to economic resources as manifested in household income and welfare (Rodgers *et al.*, 1989). This author also reported that lack of education is an important dimension of poverty. DHS (1997) showed that education level of the household members are among the most important characteristics of the household because it is closely associated with other socio-economic factors as well as reproductive behavior, use of contraception, fertility, infant and child mortality, and the health status of the children. World Bank

(1996) presented that education of the head of household has positive effect on household income, and hence its ability to possess household durables and improved housing quality. However it has been found also that there is a difference in the proportional of female access to education among rural dwellers as compared to urban dwellers (World Bank, 1996).

#### **2.6.4 Household Size**

The average household size in Tanzania has decreased from 5.2 persons per household in 1988 to 4.9 persons per household in 2002. It was observed in 2002 census, there is variation of the household sizes from region to region whereby Kigoma and Mtwara were found to have 6.9 and 3.8 respectively being the figures at the extreme (URT, 2002). Literatures suggest that the influence of household size on poverty may be positive, that is larger households are associated with more poverty (Ifiran, 1989; Rodgers *et al.*, 1989). However, other studies by Kamuzora and Mkanta (1998) observed that the higher the size of the household or family, the less the poor the household is. The authors commented that the effects of family size on the well-being are based on the assumption of negative effect of high fertility. These therefore put clear the disparity between the rural and urban contexts, where most of the household members in the rural community are equally participating in economic activities for example farming, which is different from urban areas where the households rely only on those who are employed.

#### **2.7 Poverty Indicators**

There are various indicators, which can express the relative poverty levels of the households in the respective community. These are food security, quality of the housing, household expenditure patterns, domestic assets, household amenities, savings, and

household capacity to handle emergencies (shocks and stresses) (Valdivia and Quiroz, 2000).

### **2.7.1 Household Asset Ownership**

Assets are stock or base wealth that reflects the accumulation and use of economic value and income over time. They are more stable sources of wealth (especially fixed assets). Assets reflects the use of income, a decision by household or individual to use income for financial assets (for example saving deposit account) or to purchase a productive (land, machinery) or other material assets (Haddinot, 1993). In many cases assets hold the capacity to produce value and assist household to withstand economic shocks. The accumulation of assets allows household to cope with weather of unstable income, their disposal can smooth consumption and expenditure activities during the crises (Morduch, 1995; Ruggles and Williams, 1989). Assets can be financial, materials productive and consumptive (kitchen appliances). Assets can also be distinguished between fixed assets (for example buildings and land) and those that are variable or current (for example inventory of store, supplies and cash) (Barnes, 1996).

Assets and income are indicators of poverty, but in most cases it is easier to gather data on assets ownership than on income earnings. In many instances assets also are more reliable indicator of poverty than is for income. The ownership of certain categories of assets (for example types of housing, saving account and electronic goods) point immediately to a certain level of household poverty (Ruggles and Williams, 1989). Using household assets, the Tanzania HIV/AIDS indicator survey 2003 to 2004 created a household wealth index through Principal Component Analysis. The less poor households are more likely to own more domestic assets.

## 2.8 Models of the Study

### 2.8.1 Regression Model

A binary Logistic Regression model was used in establishing the factors that accelerates farmers' participation in AMCOS market channel. The outcomes can either show that there is a relationship among variables that would lead to the observed trend. It is similar to multiple regressions except with a discrete outcome variable, logistic regression emphasizes the probability of a particular outcome for each case. (Griffiths *et al.*, 1993; Gujarati, 1995).

The binary logistic regression analysis is used to fit a model to binary response variable (Y), such as whether the subject 'has an event' (for example the household has participated in AMCOS, for this case) or 'has no event' (for example the household has not participated in the AMCOS). These events are often described as 'successes versus 'failure' results. For each possible set of values for the independent (X) variables, there is probability '**p**' that a 'success' outcome occurs. The logistic regression model has many analogies to multiple (Ordinary Least Squared-OLS) regression models: logit coefficients correspond to '**b**' coefficients in the logistic regression model, the standardized logit coefficients correspond to beta weights, and a pseudo **R**<sup>2</sup> statistic provides information on the strengths of the relationship. Unlike the OLS regression however, the logistic regression models do not assume linearity of relationship between the independent variables and dependent one. They also do not require normally distributed variables, assume homoscedasticity and has in general less strict requirements. The models

however, require that observations are independent and that the independent variables are linearly related to the logit of the dependent (Gujarati, 1995; Wuensch and Poteat, 1998).

### **2.8.1 Strengths and Limitations of the Logistic Regression Model**

The logistic regression model is relatively free of restrictions and can be used to analyze a mixture of all types of predictors, cautions about casual inference; use theory to determine the predictors, making predictions about individual cases. The logistic regression analysis also produces Odds Ratios (OR) associated with each predictor value. The odds ratio of an event is defined as the probability of the outcome event occurring divided by the probability of the event not occurring. The odds ratio for a predictor informs about the relative amount by which the odds ratios of the outcome increase (OR greater than 1.0) or decrease (OR less than 1.0) when the value of the predictor is increased by 1.0 units (Wuensch and Poteat, 1998).

### **2.8.2 The Gross Margin Analysis (GMA):**

Rweyemamu, (2001) used the Gross Margin Analysis GMA and Policy Analysis Matrix (PAM) to assess the economics or (economic value) of cash crop production and Marketing under liberalized market economy. The GMA was used to evaluate the profitability of the two competing crops, tobacco and maize in the study, and PAM used to identify patterns and incentives for economic actors at each level of the commodity chain, and in analyzing the impact of direct policy on these patterns at each level as well as their effects on different production technologies and/or marketing channels.

Mutakubwa (2007) used the GMA to establish relative economic profitability of cassava grown by farmers at different level of market chain. The analysis was used to compare



gross margins for different crops in the same or different times and place, in order to suggest relative efficiency of crops. Mwaikambo (2001) used GMA to analyze the viability of four enterprises where the average monthly gross margins were calculated from the four women economic groups.

### **2.8.2.1 Strengths and weaknesses of Gross Margin Analysis**

- By undertaking a GMA, one can find out whether an enterprise makes a profit or not so GMA can be used to compare the profitability of different enterprises
- It encourages farmers to keep records of their sales and expenses, and to identify problem areas, such as high costs of particular inputs. This knowledge can be used to change the farming practice for example, look for alternative inputs or the bulk purchase of inputs.
- The constraints revealed through GMA can be used to guide stakeholders in designing their interventions. For example, the outcome can be used to develop terms of reference for service providers, who can address issues of low production or high costs in farmer training.
- It provides a process to discuss a range of production-related issues – for example, how can production be increased? How can costs be reduced? How can we get a better price for our produce?
- Some organizations that give loans to farmer groups require that the group produces a business plan. GMA is a useful component of the business plan and demonstrates that the business can be a success.
- GMA is useful tool in policy analysis.
- GMA does not ensure fixed costs efficiency as it considers only return per unit cost of variable cost at a specified time.

### **2.8.3 Paired T-test**

Paired t-test is used to judge the significance of the mean of difference between two related samples and for the unknown population variance (Kothari, 2008). Swai (2008) used paired t-test to determine the effects of land and water conflicts on production. The model was specified such that it could be used to compare the effects using the 'with' and 'without' conflict scenarios. Two samples are paired when each data point of the first sample is matched and related to a data point in the second sample.

## CHAPTER THREE

### 3.0 METHODOLOGY

#### 3.1 Description of the Study Area

Mtwara Region is located in the southern part of Tanzania. It lies between longitudes 38° and 40° 30' East of the Greenwich. It is also situated between latitudes 10° 05' and 11° 25' South of the Equator. It borders with Lindi Region to the North, the Indian Ocean to the East, and it is separated by the Ruvuma River from Mozambique in the South. To the West it borders Ruvuma Region. The region occupies 16 720 square kilometres equivalent to 1.9% of Tanzania mainland area of 885 987 sq. km. It is the second smallest region after Kilimanjaro.

Mtwara Region had a population of 1 124 481 according to population census of 2002, at growth rate of 1.7%. It has a population density of 67 people per square kilometres. Administratively Mtwara Region is subdivided into six districts, 21 divisions, 102 wards and 554 villages (URT, 2006).

Economically, about 92% of the population engage in agriculture, apart from other rural activities like fishing, beekeeping and small-scale industries. Approximately, 85% of region's land is arable land. However, less than 20% of this is under cultivation. Main food crops produced include cassava, millet and sorghum. Only recently maize has gained popularity. Exchange crops are cashew nuts, ground nuts and sesame.

Newala District (Fig. 2) was selected because the area is one of the major cashew producers in the Southern zone Regions (URT, 2006).



collecting data at one point in a time from selected sample of respondents. These designs have greater degree of accuracy and precision in social science studies (Kothari, 2008). The method consumes less time in data gathering, although more triangulation and probing are needed in order to get more accurate information.

### **3.3 Sample Size and Sampling Procedure**

#### **3.3.1 Sample Size**

A total of 200 farmers were purposively selected for interview. Farmers from two divisions of Kitangari and Newala were used for data collection. They comprised of 96 and 104 cashew nut farmers from the two divisions respectively who sell their cashew through AMCOS and other buyers. Furthermore, a total of 61 AMCOS leaders participated in focus group discussions that were conducted at their respective AMCOS offices. The sampling procedure used produced 200 farmers, 61 AMCOS leaders and 28 key informants.

#### **3.3.2 Sampling Procedure**

Newala District was purposively selected for the study where two divisions of Kitangari and Newala were selected basing on their capacity in the cashew production due to favourable climate and the good soils. From the two divisions three(3) and four (4) wards were randomly selected where in each ward two villages were selected randomly after which sixteen farmers were selected from the six villages of Kitangari division while thirteen farmers were selected from eight villages of Newala division to make a total of 200 farmers. Seven AMCOS were purposively selected basing on their distances to the study area, key informants were the Ward extension officers (ExtOs), Ward Executive Officers (WEOs) and Village Executive Officers (VEOs) who played a vital role of mobilising the farmers for the interview and enumerators.

### **3.4 Data Collection Sources**

Data collection sources were comprised of both secondary and primary data sources.

#### **3.4.1 Secondary Data Sources**

Secondary data were obtained from the AMCOS records, the secondary co-operative union (TANECU), from the DALDOs office Newala DC, from the Cashew nut Board of Tanzania (CBT), from various records from Sokoine University National Agricultural Library (SNAL) and from the internet.

#### **3.4.2 Primary Data Sources**

Primary data were collected by using a structured questionnaire and a checklist. Structured questionnaires were administered to collect information from the cashew nut farmers in the study area who sold their cashew to the AMCOS as well as to the other buyers, where as the checklist was used to guide the discussion with the key informants at the study area.

### **3.5 Data Collection Instrument**

Structured questionnaire and a checklist were the tools used for primary data collection. Qualitative and quantitative data for the three crop seasons 2006/2007; 2007/2008 and 2008/2009 were collected using a structured questionnaire and Key Informant interview. The Market data collected included the information on the amount of cashew nuts that were sold in the past three seasons basing on the recall ability of the respondents, the cost of inputs used to produce in the past one seasons 2008/2009.

### **3.6 Questionnaire Pre-testing**

A pilot survey was conducted prior to the main fieldwork for pre-testing the questionnaire. This was done in the first three weeks of December 2009. This was necessary to enable the researcher to check the relevance and comprehensiveness of the data collection tools in gathering the required information. A pilot survey was done by taking a sample of 15 respondents. Among the 15 respondents, 10 respondents were farmers of which five were from each division, and five respondents were AMCOS leaders from one AMCOS. These assisted in the modification of some questions and tables which were used in the main fieldwork.

### **3.7 Survey and Questionnaire Administration**

A survey was conducted by the researcher assisted by eight thoroughly trained enumerators from the early January 2010 to early March 2010. The data were collected at the primary cooperative societies and farmers from seven wards of the two divisions of Newala District, the area cooperative union The Tandahimba and Newala Co-operative Union Ltd (TANECU), Cashew nut Board of Tanzania and the District Agriculture, Livestock and Co-operative officer (DALDO). At the primary cooperative society, the leaders who are board members and the farmers were interviewed using the checklist of questions and structured questionnaires respectively. At the Union and the Cashew nut Board, respondents were interviewed using checklist of questions. The discussions with key informants were conducted using subtle probing technique and let most of them free to give their view regarding the research question.

The structured questionnaires and checklist of questions used in the survey were prepared in English but translated in Kiswahili during the field stage. Kiswahili is understood well by majority of respondents in the study area.

The content of structured questionnaire and checklist of questions were designed to collect sufficient data intended to address the objectives of the study. In this regard, the questionnaire included questions properly set to collect information required in running all the anticipated statistical and econometric analyses for testing hypotheses.

### **3.8 Analytical Techniques**

The study employed four analytical techniques to test stated hypotheses. The analytical techniques were GM Analysis, Binary logistic Regression Analysis, and descriptive statistics where means, frequencies, percentages and cross tabulations was calculated and t-test statistics was used to compare the means of income and value of assets for AMCOS members and Non AMCOS members

#### **3.8.1 Gross Margin Analysis**

GM analysis was employed to test the hypothesis that there is no significant difference across the gross margin earned by the cashew nut farmers participated in the AMCOS market channel. GM is the difference in values of gross sales and gross variable costs. This was used to determine profitability of each farmer participated in the AMCOS marketing. It was assumed that own labour of each key player's enterprise was unpaid, since it was tedious to estimate it as a cost incurred in cashew nut marketing. It was assumed that fixed costs like land will not change over the production season and therefore assumed to be constant. The expression which was used to calculate the GM across different farmers who participated in the AMCOS marketing channel is therefore as shown below:-



$$GM_i = \sum TR_i - \sum TVC_i$$

Where;  $GM_i$  = Gross margin in Tshs per 80kg bag of cashew

$\sum TR_i$  = Total revenue from sales of one 80kg bag of  $i^{\text{th}}$  cashew nuts

$\sum TVC_i$  = Total variable cost spent on one 80kg bag due to  $i^{\text{th}}$  production and/or marketing function.

### 3.8.2 Binary Logistic Regression Model

The following logistic regression model was used to establish the factors that accelerate the farmers' participation in the AMCOS market channel in the study area.

$$\log it(Y_1) = \ln\left[\frac{P(Y_1 = 1)}{1 - P(Y = 1)}\right] = b_0 + b_1X_1 + b_2X_2 + \dots + b_6X_6 + \mu$$

Where:

$P(Y_1=1)$ = the probability that the household participated in the AMCOS and/or not participated.

$X_1$  = Categorical age of the head of the household in years

$X_2$  = Categorical level of education of the Household head in years

$X_3$  = House hold size in head counts

$X_4$  = Farm size under cashew production in hectares

$X_5$  = Sex of the respondent/Household head 1= male, 0= Female

$X_6$  = Distance to the AMCOS godown in kms.

$X_7$  = Price information before decide to sell the cashew nut 1 = Yes, 0 = No.

$X_8$  = Marital status of the respondent 1 = Married, 0 = Not married

$b_0$  = the <sub>model</sub> constant

$b_1 - b_6$  = Un-standardised logistic regression coefficients for the independent variables

$\mu$  = Error term- the prediction of the logit was computed as:

$$\text{Logit}(Y_1) = b_0 + b_1X_1 + b_2X_2 + \dots + b_6X_6 + \mu$$

$\hat{y}_j = \{ 1 \text{ if ever participated in AMCOS market and } 0 \text{ if otherwise} \}$

### 3.8.3 T-test

T-test was used to compare if there were significant difference in terms of income obtained by cashew nut farmers who are AMCOS members and Non AMCOS members for the crop season 2008/2009. The Null hypothesis governing this analysis was “The mean income of farmers who sell their crop through AMCOS 2008/2009 is significantly higher than the income of farmers who sell their products to other buyers.” i.e ( $H_0, x-y \neq 0$ ) at 99% confidence where  $x =$  AMCOS members income and  $y =$  Non AMCOS members income.

### 3.8.4 Descriptive Analysis

Descriptive statistics was used to test the hypothesis that the mean income, and the value of assets of farmers who sell their crop through AMCOS 2008/2009 was significantly higher than the income and the value of assets of farmers who sell their products to other buyers. The analysis included deduction of means, frequencies, cross-tabulation and percentages of different key players under the AMCOS market channel.

### 3.9 Limitations of the Study

- i. Data collection was done during rainy and farming season and was the time of bonus payment arranged by the AMCOS therefore had limited the respondents' availability for house to house visit. This made it necessary to conduct the interview during the evening or afternoon by first making appointment with the Village Executives Officers (VEOs) and Ward Extension Officers WExtOs) of

the study area. It was difficult to find respondents especially farmers in their respective homes.

- ii. Some of the respondents especially farmers had no records on costs of cashew nut production. So it was difficult to know exactly the net cost of cashew nut production. Thus, what have been presented are actually estimates given by the respondent and secondary data collected from the government officials.
- iii. There was reluctance by some officials hesitating to provide the information about cashew collection and marketing by the Secondary Co-operative Union Tandahimba and Newala Co-operative Union (TANECU) fearing the information to be misused for other purposes especially for political interest which could sometimes bring about chaotic situation in the society if perceived wrongly.

## CHAPTER FOUR

### 4.0 RESULTS AND DISCUSSION

#### 4.1 Socio-economic Attributes of the Respondents

The socio-economic attributes of the respondents examined includes age, level of education, marital status, family size, family labour and its composition. Like other household demographic and surveillance surveys, this study considered the household to be composed of people who eat and sleep in the same house. For the case where the man of the house was away/ not living in the household, the woman became the actual household head (Regnard, 2006).

Results show that age-range of the household heads considerably from 23 to a maximum of 76 years with mean age of 48 years. The mean age indicates that most of the farmers belong to the productive group. The majority (46%) of the farmers were between 31 to 40 and 41 to 50 age group categories while 23% of the farmers belonged to 51 - 60 age category and 20% of the respondents were aged above 60 years of age. This implies that there is high proportion of adults in the community who mainly make up the community workforce. The fact that 20% of the respondents are above 60 years old suggest high life expectancy. It also implies that cashew nut production in the study area is carried out by old people as well (Table 3).

Results further show that the majority (76%) of the respondents were male, suggesting societies with male headed households. In male headed households in the study area, it was a man who concentrated more on cashew nut production than a woman. The women were pre-occupied with home duties and hence reduced their concentration on cashew

nut production (Table 3). However the respondents reveal a good level of sharing in decision making among couples on the expenditure of the income from cashew nut sales. The level of basic education in the study area were relatively high. Out of 200 respondents, 87% had attained primary education, 3% had secondary education while 10% had no formal education. This implies relatively high literacy level among the cashew nut farmers (Table 3).

**Table 3: Characteristics of the farmers**

Characteristics	Frequency (N=200)	Percentage %
Age distribution:		
21-30	20	10
31-40	54	27
41-50	39	20
51-60	46	23
More than 60yrs	41	20
Total	200	100
Gender distribution:		
Male	153	76
Female	47	24
Total	200	100
Education level:		
No formal	20	10
Primary	174	87
Secondary	6	3
Total	200	100
Household size:		
1-3 person small size	41	20
4-8 person medium size	147	74
9-12 person large size	12	6
Total	200	100
Household labour:		
small labour 1-3 person	166	83
medium labour 4-8 person	34	17
Total	200	100
Marital Status:		
Married	184	92
Single	7	4
Widow/divorced	9	4
Total	200	100
Rank of cashew in importance as cash crop:		
Most important	200	100
Occupation of the respondent:		
Farming	200	100

All of the respondents (100%) were depending on farming as a major livelihood source and cashew nut as their most source of income. The cashew nut was ranked as a least in importance as a food. Large part of almost all the good quality cashew nut harvested was sold as raw cashew nuts. This implies that, cashew nut farming is the main economic activity in the study area and contributes significantly to the livelihood security of the people (Table 3).

Family size per household was important in determining the levels of cashew nut production. Family size was used to determine the available labour for farm work basing on the extent of contribution of each in farm work (Boehnke, 2003). Results show that, household size of the respondents ranged between 1 and 12 members with the average household size of 5 members. Household labour force ranged between 1 and 7 members with the average of 3 members work on cashew nut farm. The majority of the households (74%) had medium family size of 4 to 8 members followed by small size (20 %) and very few large size households (6%). On household labour force, the majority (83%) of the households had small size family work force and small medium size (17%) family labour. This implies that majority of the households in the study area had small family labour for cashew nut production, due to rural-urban migration by the young male household members resulted to low productivity per available family labour (Table 3).

#### **4.2 AMCOS Contribution to Farmers' Income**

The results on the contribution of AMCOS to the farmers' income showed that there has been a substantial increase in the value of income as revealed by the mean obtained by the revenue of farmers through their selling of cashew nut to AMCOS for three crop seasons 2006/07 – 2008/09 (Table 4). The mean income of the farmers who sell their

cashew nut through other channels was observed to be very low and fluctuating through the three seasons where the data were obtained.

**Table 4: Annual mean income of cashew nut farmers**

Years	Mean rev AMCOS	Mean rev Private
06/07	276 087	13 837
07/08	331 752	1 220
08/09	403 187	3 455

#### 4.2.1 Paired T-test result AMCOS Contribution on Cashew nut Farmers Income

Paired T-test shows a significant difference at 1% in the level of income between the farmers who participated in AMCOS versus the other channel, there fore failed to reject the Hypothesis that claims that, *the mean income of cashew nut farmers who sell their crops through the AMCOS is higher than the mean income of cashew nut farmers who sell their crop through other channels* (Table 5). However, Standard deviation was observed to be higher than the mean mainly due to higher disparity among the respondents that has been caused by the Government intervention in the control of cashew nut market by the Cashew nut Board and Co operative Union and therefore influenced most of the farmers to sell their cashew nut through the AMCOS hence acquired higher income.

**Table 5: Mean income of cashew nut farmers by AMCOS and non AMCOS 2008/09**

	Mean	N	Std. Deviation	T-value	df	2-tail
AMCO	4.03E+05	200	5.38E+05	10.45	199	0.000
Non AMCO	3.46E+03	200	1.83E+04			





**Table 6: Cashew nut collection by AMCOS for 2007/2008 and 2009/2010**

NAME OF THE AMCOS	CASHEW 2007/08 IN KGS	CASHEW 2008/09 IN KGS **	CASHEW 2009/2010 IN KGS
AMANANI	396 937		175 188
CHEMANA	203 763		367 207
CHETU	110 699		213 934
CHILIDA	375 232		476 777
CHIMALE	284 684		469 442
CHIMBUKO	292 342		411 535
CHIMELE	25 547		17 438
CHIMO	126 913		178 000
HENGANELO	529 406		372 980
IMANI	513 445		438 678
KITANGARI	498 962		468 480
KWELI MSILILI	331 655		241 760
LINGANELO	287 457		332 624
LUMANA	556 288		344 157
MAKOTE	432 422		303 040
MAPILI	379 483		78 160
MCHOLI-I	436 366		362 280
MICHINGA	126 971		76 800
MIKUMBI	80 488		83 520
MKOLACHI	143 588		231 248
MKOMA-II	132 883		42 600
MMALE	130 398		330 625
MNATAMBE	535 921		343 625
MNEKACHI	132 479		360 845
MNYAMBE	160 687		176 210
MPWAPWA	131 824		191 736
MTONDO	194 239		346 480
MTUNGURU	256 671		588 144
NANGURUWE	235 862		278 922
TEGEMEO	154 390		142 167
TUKUTA	220 044		533547
TUYANGATANE	501 530		411 772
<b>TOTAL</b>	<b>8 919 576</b>		<b>9 389 921</b>

Source: DALDO, 2010. \*\*Data were not available.

### 4.3 AMCOS Contribution to Household Assets

The assessment of the value of assets acquired by the farmers as a result of participating in the AMCOS market channel shows that there were no big variation in the value of assets acquired by the AMCOS member farmers who participated in the AMCOS market

channel for 2008/09 crop season as compared to Non AMCOS who participated in the other channels (Table 7).

**Table 7: Average value of assets per household**

Assets	AMCOS member	Non member of AMCOS
Household Assets	shs	shs
Bicycle	12 802	11 250
Radio	3 752	2 527
Mobile phone	5 781	-
Television	12 222	-
Sewing machine	3 090	-
Truck/car	229 167	214 286
House	12 135	-
Farm Assets		
Hand hoes	6 295	-
Motorised sprayers	6 458	6 607
Knapsack sprayers	1 354	2 411
Livestock		
Cattle	3 472	-
Goats	12 757	2 545
Chicken	22 379	1 246
Total value of assets	331 666	240 871

#### 4.3.1 Paired T-test result for the Value of Assets

Paired T-test results shows that there were no significant difference in the value of assets acquired by the AMCOS member and the Non AMCOS member in the crop season 2008/09 and there fore the hypothesis that claims that, *'The value of assets acquired by AMCOS member is higher than the value of assets acquired by Non AMCOS member for the crop season 2008/09 was rejected.*(Table 8).

**Table 8: Values of assets acquired by AMCOS member and non AMCOS member****2008/09**

	Mean	N	Std. Deviation	T-value	df	2-tail
AMCO	6.92E+06	13	1.78E+07	1.4	12	0.19
Non AMCO	3.46E+06	13	8.89E+06			

#### **4.4 GM Analysis for the Farmers Profitability in Cashew nut Production**

In analysing the farmers' GM, the results show that the TVC incurred in cashew nut product was at TSh 29 053 per 80 kg bag. The TR accrued from cashew nuts was TSh 54 000 per 80 kg bag. Thus, the GM was at TSh 24 947 per 80 kg bag (Table 9). While the cost of sulphur dust (TSh 13 576 per 80 kg bag) was relatively higher than other variable costs, the cost of insecticides (TSh 2 051 per 80 kg bag) was the lowest. The cost of sulphur liquid (TSh 7 522 per 80 kg bag) and the cost of hired labour (TSh 5 904 per 80 kg bag) follows (Table 9). The costs of sulphur were high because it was found that the sulphur supplied by the district input supplier was not enough to meet all spraying rounds within a season. This obliged farmers to buy sulphur from private dealers. The positive value in GM indicates that all the variable costs incurred during production can be recovered at the selling of cashew, this encourage farmers to proceed with their production as well as participating in AMCOS market.

**Table 9: Annual Gross Margin for cashew nut farmers 2008/09**

Production	Value in Tsh '000'	Tshs/80 kg bag
Cashew	80 638	54 000
Sub total (TR)	80 638	54 000
Cost of production		
Inputs		
Sulphur dust	20 364	13 576
Sulphur liquid	11 284	7 522
Insecticides	3 077	2 051
Labour		
Hired	8 856	5 904
Sub total (TVC)	43 581	29 053
Gross margins	37 057	24 947

#### **4.5 Binary Logistic Regression on the Factors that Influence Farmers' Participation in the AMCOS Market**

The Logistic Regression Analysis was done at 0.05% confidence interval to establish factors that accelerated the participation of farmers in AMCOS market channel. Results of this regression are summarized in Table 10 below. The factors were Age of the Household head, Education level, Household size, Farm size, Gender of the household head, Price information, Marital Status and the distance to the AMCOS godown. The model was statistically significantly ( $P < 0.05$ ) and the model predicted at 40%. The results in Table 10 show that 6 out of 8 factors examined to have influenced the farmers participation in AMCOS have positively significant influencing the farmers' participation in AMCOS.

##### **4.5.1 Age of the Household Head**

Results show that the age of the household head can not influence the participation of the farmer in AMCOS market significantly at ( $p < 0.05$ ) and has a positive coefficient implying that a unit change in the categorical age of the respondent might as well influence his/her decision to participate in AMCOS market channel.

#### **4.5.2 Education Level**

Results from the regression analysis shows that the education level of the household head has significance influence in his/her participation in the AMCOS at ( $p < 0.01$ ) it has a positive coefficient indicating that the more educated the household head is the increases his/her involvement in the AMCOS market.

#### **4.5.3 Household Size**

The results in Table 10 show that household size has significance influence on farmers participation in the AMCOS at ( $p < 0.01$ ) and has a positive coefficient implying that the large the family size the more is the participation to the AMCOS market channel as might be caused by presence of a large number man power who can increase the household productivity.

#### **4.5.4 Farm Size**

Results in Table 10 on Farm size have shown a significance effect on farmers participation in AMCOS market channel at ( $p < 0.10$ ) implying that the increase in the size of the farm has influence on the farmers participation in AMCOS market, with the positive coefficient indicates the increase in the level of participation with increase in the farm size and production.

#### **4.5.5 Gender of the Household Head**

The results in Table 10 show that gender of the household head has not significantly influence the participation of the farmers into the AMCOS market at ( $p < 0.05$ ) implying that decision as to where to sell the cashew nut not necessarily influenced by gender as the government has been control the kind of system from time to time.

#### 4.5.6 Marital Status of the Household Head

The results in Table 10 show that marital status of the household head has significantly influencing the participation of the farmers to the AMCOS market at ( $p < 0.01$ ) implying that two parents households stand a better chances to produce cashew nuts and therefore participating in the AMCOS market as compared to single parent households.

#### 4.5.7 Price Information

Results in Table 10 show that the price information before participating in the AMCOS market has significantly influencing the farmers participation at ( $p < 0.05$ ) implying that farmers respond to the price information well in advance before deciding where to sell their produce.

#### 4.5.8 Distance to the AMCOS

The results in Table 10 show that distance to the AMCOS showed a significant effect on the influence to farmers participation in AMCOS at ( $p < 0.05$ ) implies that the closer the AMCOS is to the farmer the higher the level of participation.

**Table 10: Factors influencing farmers' participation in AMCOS**

	$\beta$	S.E.	Wald	Sig.	Exp(B)
Gender of respondent	0.454	0.771	0.347	0.556	1.575
Land under cashew	0.613	0.422	2.114	0.146*	1.846
Distance from AMCOS	1.357	0.890	2.324	0.127*	3.886
Marital status of respondent	3.631	1.375	6.969	0.008***	37.746
Price information	2.648	1.259	4.426	0.035**	14.128
Education level	0.212	0.078	7.449	0.006***	1.236
Household size	6.185	2.333	7.031	0.008***	0.002
Age of respondent	-0.011	0.027	0.164	0.685	0.989

-2 Log likelihood = 70.899a, Cox & Snell R Square = 0.163, Nagelkerke R<sup>2</sup> = 0.401

**Note:** \*\*\*=Significant at 0.01, \*\*=Significant at 0.05, \*=Significant at 0.10

#### **4.6 Key Players in the Cashewnut market**

Marketing of cashew nuts involves a number of key players. Each of them has a role to play in the chain of marketing cashew nuts and the absence of one of them may hinder the whole process. In the past, the marketing of cashew nut was undertaken through free marketing system. Under this system, anybody who had money could buy cashew nuts from farmers without any restrictions. It is undeniable fact that in any business, the buyers are interested in getting more and more commodity at as low price as possible, and producers wish to fetch as higher price as possible per unit commodity. The same principle applies in marketing of cashew nut. Under this system of marketing the regulatory board/institution is necessary. If the marketing system is left to run by itself (i.e. no regulatory board to monitor a free market system), the market ends up being monopolistic. Under these circumstances, if the producer is not well set, he/she ends up selling large amount of commodity at very low price. That is what happened in marketing of cashew nut since the major buyers were only Indians who had power to control the market as they wished and the middle men had their share to rip from farmers through 'kangomba' (CBT, 2010).

Due to the problem mentioned above, the Government of the United Republic of Tanzania in 2006, ordered the Cashew nut Board of Tanzania to control the marketing of cashew nuts by using a Warehouse Receipt System. Under this system, the farmers own their cashew until when it is sold to an exporter. Under this system, the selling is done by bidding where by a lot of cashew nuts from a specific area (i.e. Village) is sold to a



highest bidder and his offer must be equal to or above indicative price. Indicative price is set by a meeting of all stake holders, basing on the current World Market Price.

The key players in this Warehouse Receipt System may be divided in six groups as follows:-

#### **4.6.1 Farmers**

They are the most important players in the whole marketing process of cashew nuts since they are the producers. The cashew nuts are not harvested by picking but they are left to mature until when they fall down. Thereafter the farmers immediately separate nut and berry and the nuts are dried for three to four days or until when they attain the moisture content of about 8 to 12 percent. Then the nuts are ready to be sold.

#### **4.6.2 Cooperative Societies/Farmers group**

These are formed by farmers themselves by electing the leaders of their Cooperative/farmers' group from among themselves. After the election, the leaders are given the responsibility of taking care of everything concerning their primary cooperative society, including supply of inputs and collection and transportation of cashew nuts after harvesting. After the formation, all the leaders meet and form a district Cooperative Society/farmers group (e.g. MAMCU, TANECU/UWAKOTA, WAKONA etc). Their responsibility is to deal with the day to day activities of all the primary cooperative societies, such as organizing loans, organizing supply of packaging materials (jute bags), organizing transportation of cashew nuts from remote areas to ware houses etc.

#### **4.6.3 Financial Institutions**

These are banks such as CRDB, and NMB. They play part in marketing of cashew nuts by providing loans to cooperative societies/farmer groups. In the Warehouse Receipts System, the cashew nuts remain to be in the hands of the farmer until when they are sold to an exporter or a processor. But during this time the farmer needs fund to meet his/her financial demands. In order to meet those demands, the cooperative societies take charge by taking loans and pay the farmer three quarter (75%) of the indicative price. When the cashew nuts are sold, the cooperative societies pay the loans and the money that remains (i.e one quarter 25%) is used to pay the farmers. In fact, financial institutions have a very important role to play in the marketing of the cashew nuts particularly under the Warehouse Receipts System.

#### **4.6.4 Warehouse Operators**

After harvesting cashew nuts and being collected at AMCOS collection centre, they must be taken to a registered Warehouse where they are stored until when they are sold to an exporter/processor. The registered warehouses are owned by people who are known as Warehouse operators. They are important in marketing of cashew nuts because in their absence there will be no place to store cashew nuts before they are sold. Currently there are number of them but the most prominent ones are Micronix, Agrofocus, Chimbuli, Dodox, MCC 2005 LTD, BALTONCE, and Export Trading etc.

#### **4.6.5 Traders**

These are those who are engaged in the process of buying cashew nut. They can be individuals, companies or processors. Most of them are foreigners mainly from India which is the leading country in the world for production and export of cashew. Processors, who basically are from within the country, buy cashew nuts and process them for local and international market.

#### **4.6.6 Regulators**

These are regulatory institutions responsible for making sure that the marketing of cashew nuts is done fairly to all who are involved. There are mainly three of them which are Cashew nut Board of Tanzania (CBT), Warehouse Licensing Board and Bank of Tanzania (BOT). The Cashew nut Board of Tanzania has the functions of development, implementation of laws, regulations, and policies governing the cashew Industry in Tanzania. The Warehouse Licensing Board deals with rules and regulation that governs the operations of warehouses and Bank of Tanzania deals with issues pertaining financing the cashew nut industry (mainly during marketing).

#### **4.6.7 Minor/other Players**

These are indirectly involved in the marketing of cashew nuts but they play auxiliary role in the whole chain. They include Transporters, Insurance companies, and suppliers of packaging materials (Jute bags) etc. Transporters transit cashew nuts from the AMCOS collection centres to warehouses. Insurance companies provide insurance protection to AMCOS when they take loans from financial institutions and suppliers supply various packaging materials for raw and processed cashew nut.

## CHAPTER FIVE

### 5.0 CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

The study was designed to assess the contribution of AMCOS to members' livelihood especially to cashew nut farmers in Mtwara. Specifically, the study aimed at determining the mean income of cashew nut farmers who sell their produce through the AMCOS market channel against those who sell through other buyers. Other goals included determining the value of assets acquired by cashew nut farmers who sell their produce through AMCOS market versus those who sell through the other channels; determining the profitability of cashew nut farmers who participated in the AMCOS market channel and establishing the socio-economic factors that will accelerates farmers' participation in the AMCOS marketing channel.

Conclusion made is based on the tested hypotheses that: *there is significant difference at 1% confidence interval between the mean income obtained by farmers who participated in the AMCOS market versus the other channel; and that there were no significance difference in the value of assets acquired by farmers who are AMCOS member versus non AMCOS member in the season 2008/2009*, and it was found that it is profitable for farmer to farmers while participating in the AMCOS market channel. Socio-economic factors for age, education, household size, farm size, gender of the household head, marital status, price information and distance to the AMCOS godown were found to have influence on farmers' participation in AMCOS market channel at ( $p < 0.05$ ).

### **5.1.1 Mean Income of Farmers Participated in AMCOS**

The assumption that the mean income of farmers who participated in the AMCOS marketing channel was higher than those who participated in other market channels. The tested hypothesis that: *there is significant difference in mean income to farmers who participated in AMCOS market channel versus those who sell in the other channels*, failed to be rejected ( $P < 0.01$ ). This implies that there was a significant difference between the mean income obtained by farmers who participated in the two market channels. However, the trend has been influenced by the Government intervention through the Cashew nut Board and Cooperative Union to control the Market by Warehouse Receipt System.

### **5.1.2 Value of Assets Acquired by AMCOS Member versus non AMCOS member.**

The asset value was assumed to express the wealth of the household of the cashew nut farmers. However, the tested hypothesis that: *the value of assets acquired by the cashew nut farmers who are AMCOS member was higher than the value of assets acquired by the Non AMCOS member in the season 200/2009* was rejected ( $P < 0.05$ ). This implies that there were no significance differences in the value of assets acquired by the cashew nut farmers who are AMCOS member versus the Non AMCOS member for the crop season 2008/2009.

### **5.1.3 Farmers Profitability in Cashew nut Production**

The GM analysis test conducted revealed that it was profitable for the farmers to engage in cashew nut production and participate in AMCOS marketing channel will reap a higher margin at farm gate level given the availability of inputs and procurement services as assured by the AMCOS market channel. More over, the results revealed the high cost of input sulphur dust due to the failure of the district input trust fund to meet the demand

of the same to all farmers at their respective village or AMCOS therefore farmers forced to buy through other suppliers who are charged higher prices per bag of sulphur dust as well as other inputs.

#### **5.1.4 Socio-economic Factors Influencing Cashew nut Farmers' Participation in the AMCOS Marketing Channel**

The Binary Logistic Regression for the: age of the farmer, household labour size, education level of the household head, farm size, gender of the household head, marital status of the household head, price information and distance to the AMCOS godown were significantly found to influence farmers participation in AMCOS market channel ( $P < 0.05$ ). This implies that farmers participation in AMCOS market channel will be influenced by the above mentioned factors and other incentives than the above driven towards improving the farmers wellbeing in either improving their net income and or reducing their cost of production and increase the yield.

#### **5.2 Recommendations**

From these study findings it is clear that Co-operative is still and will continue to be the fore front instrument that will defend the majority of the smallholder farmers' interest. However, there are several potential inter-linked strategies at the government and individual level, which if implemented effectively and efficiently, could have an impact in making the AMCOS work better. From the study it can be recommended that:-

- (i) Poverty Reduction is among the key focus of the Millennium Development Goals 2015, Tanzania Vision 2025 and Poverty Reduction Strategy by the Government of Tanzania. Therefore a policy aiming at addressing the poverty reduction should

focus on the majority need especially in the area of agricultural production as majority of the rural population in the study region are farmers who depended mostly on agricultural production to earn the living.

- (ii) Farmers' income could be improved by the government and other stakeholders to invest more on AMCOS in terms of input credit facility and technical advisory services, timeliness provision of the same, and honesty personnel who defend the interest of farmers be recruited by the AMCOS.
- (iii) In the study area cooperative movement is perceived as government imposed to the farmers, the conditions that make most of the farmers in the study area not to fill as they are owners of the co-operatives. However, in most cases where the focus group discussion was conducted by the key informants and farmers representatives the need for co-operative education to farmers and board members was raised to be an issue of concern. We recommend that the farmers to be educated well in advance the importance of participating in the AMCOS market channel before the commencement of the crop selling season and the method to be adopted as the mode of their payment.
- (iv) Farmers fill the need for the government to empower their AMCOS financially and in terms of grants for input supply in order to fasten the supply of inputs to the farmers as the AMCOS are closer to farmers' enterprises. However, the supply should be in time and well supervised. The government should find a way of harmonizing the guarantees to enable the farmer to get 90% of the indicative price at first instalment. Many farmers in the study area lack alternative sources

of generating income; hence paying them 60% of the farm gate price is quite questionable towards their livelihoods.

- (v) The system right from the grass root is non-transparent as no training was equally given to all players especially the majority small holder farmers. The farmers are confused about the system and do not fully understand it. The impact here is that, it diminishes their ability to lobby for effective reform. Thus, the government is advised to give detailed training to all players.
- (vi) Call for government and stakeholders to focus on the need to have straight and transparent market channel for cashew nut as the crop play a very big role as a source of income to majority of farmers in the Southern Regions Mtwara and Lindi therefore improve the wellbeing of the farmers.
- (vii) However, the study could not cover every aspect of the AMCOS for cashew nut marketing in the study area. Hence, it calls up for other researchers to conduct further studies especially in parts that were not tackled in this study.



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## APPENDIXES

### **Equation Appendix 1: Farmers' questionnaire**

The Study On: CONTRIBUTION OF AGRICULTURAL MARKETING CO-OPERATIVES (AMCOS) IN POVERTY REDUCTION: A Case Study Of Cashew Nut Farmers in Mtwara Region, Tanzania

Background information:

Name of interviewer \_\_\_\_\_; Date \_\_\_\_\_

Name of respondent \_\_\_\_\_

District \_\_\_\_\_ Ward \_\_\_\_\_ Village \_\_\_\_\_

Household Identification Number \_\_\_\_\_ Questionnaire No \_\_\_\_\_

Respondents Amcos membership status: 1: Member (\_\_\_); 2: Non member (\_\_\_)

#### **A. Household & Farming characteristics**

1. Age of respondent \_\_\_\_\_ years.
2. Gender of respondent: 1: Male (\_\_\_); 2: Female (\_\_\_)
3. Respondent's status: 1 HH head (\_\_\_); 2 Spouse (\_\_\_); 3 Relative (\_\_\_)
4. *If respondent is not HH head:* What is the name of the household head?
5. Marital status: 1: Married (\_\_\_); 2: Single (\_\_\_); 3: widow/divorced (\_\_\_)
6. Level of education: 1: None (\_\_\_); 2: Primary (\_\_\_); 3: Secondary(\_\_\_); 4: Tertiary (\_\_\_)
7. How many persons live in your household? (\_\_\_\_\_) persons.
8. How many household members (including yourself) work on your farm regularly? (\_\_\_\_\_) persons.

Specifics of the persons who regularly work on the farm. (*Start with the HH head, then spouse, then children, then other HH members*)

Persons ID No.	Sex 1=Male; 2=Female		Age	Years of education	On average, this person works on the farm for how many...		
					hours per day? (No. of hours)	days per week? (No. of days)	months per year?(No. of months)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

9. Main occupation: 1: Farming (\_\_\_); 2: employment (\_\_\_); 3: Off-farm activities

10. Type of producer: 1: large scale (\_\_\_); 2: medium (\_\_\_); 3: small scale (\_\_\_)

11. Mention the major five crops you grow in your field:

i \_\_\_\_\_ ii \_\_\_\_\_ iii \_\_\_\_\_ iv \_\_\_\_\_ v \_\_\_\_\_

12. Rank of cashew in terms of its importance as food crop \_\_\_\_ and cash crop

\_\_\_\_\_

	Least	Moderate	Most
Cash crop			
Food crop			

13. Land allocation for crops; under all crops \_\_\_\_ ha; under cashew production \_\_\_\_ ha

### B. Cashew production aspects

14. For how long do you accomplish the following activities in your farm plot planted with cashew?

Land preparation \_\_\_\_ days; 1<sup>st</sup> weeding \_\_\_\_ days; 2<sup>nd</sup> weeding \_\_\_\_ days; collecting the cashew \_\_\_\_ days; separation and grading \_\_\_\_ days;

15. Quantity of inputs: i) sulphur/dust in kgs \_\_\_\_ ii) sulphur fluid in litres \_\_\_\_ iii) insecticides \_\_\_\_ litres/acre; Price of input/kg /litres \_\_\_\_ TSH.

16. How much cashew you obtain per tree? (\_\_\_\_ kg/tree)

17. Mention any production problems you face?

i \_\_\_\_\_; ii \_\_\_\_\_; iii \_\_\_\_\_

18. Did you sell cashew last season? 1: Yes (\_\_\_); 2: No (\_\_\_)

19. If yes, to whom did you sell your cashew?

1: agent middlemen (\_\_\_); 2: AMCOS (\_\_\_); 3: private buyers (\_\_\_); 4: local processors (\_\_\_)

20. Where did those who bought your cashew come from?

1: in village (\_\_\_); 2: nearby village (\_\_\_); 3: in district (\_\_\_); 4: outside district (\_\_\_)

21. What factors do you consider when you decide to sell your cashew?

1: price offered (\_\_\_); 2: personal ties with buyers (\_\_\_); 3: Cash demand (\_\_\_);

4: Repay loan of input to the buyer (\_\_\_);5: others

22. How many buyers did you contact before you decided to sell your cashew?

\_\_\_\_\_

23. Have you been selling to the same buyer every season? 1: Yes (\_\_\_); 2: No (\_\_\_)

24. Did you get the information about the cashew price before you decided to sell?  
1: Yes (\_\_\_); 2: No (\_\_\_)

25. Who or where did you get the price information?

26. Were you satisfied with the information regarding the price of cashew before the selling season starts? 1:Yes(\_\_\_); 2: No (\_\_\_)

### C. Access to the market:

27. How far is your house from AMCOS godown? (Help with estimation if needed)  
(\_\_\_\_).kilometres

28. How long does it take for you to get to the market? (\_\_\_\_)hours ..... minutes.

29. Do you walk or come by bike/bus/car? 1 Walk(\_\_\_);2 Bike(\_\_\_); 3 (\_\_\_); 4 Car(\_\_\_); 5 (\_\_\_) Other (please, specify(\_\_\_\_\_))

30. Do you have the possibility to use other means like bike/bus/car? (Tick all that apply!) Bike(\_\_\_);Bus (\_\_\_);Car(\_\_\_);None of the above(\_\_\_\_)

31. Is there a road to your village? Is the road passable throughout the year?

Road: 1 YES (\_\_\_) 2 NO (\_\_\_)

If yes, passable 1:YES (\_\_\_) 2:NO (\_\_\_)If not

32. Transport costs per 80 Kg (bag)? \_\_\_\_\_TSh.

33. Do you know prices in advance before taking your consignment to the markets?  
1: Yes (\_\_\_); 2: No (\_\_\_)

34. How do you collect information on market prices?

1: direct visit to market (\_\_\_); 2: crosscheck with different buyers (\_\_\_); 3: Friends (\_\_\_); 4: Extension service (\_\_\_) 5: through the media (\_\_\_)

35. Do you sometimes sell produce on credit basis? 1: Yes (\_\_\_); 2: No (\_\_\_)

36. What kind of measuring instruments do you normally use? (\_\_\_\_\_) 1: standard weigh scale (\_\_\_) 2: local measuring instrument.(Kangomba) (\_\_\_) 3: Other specify (.....)

37. To what extent is the selling price different from the expected one?

1: above expected (\_\_\_); 2: equal to expected (\_\_\_); 3: below expected (\_\_\_).

38. In which month was the price high? \_\_\_\_\_ And low? \_\_\_\_\_

39. Have you ever experienced the lack of payments from the buyers? 1: Yes (\_\_\_); 2: No (\_\_\_)

40. How many times do you have to make a follow-up for your payments from the buyer before you are paid: 1: on the spot (\_\_\_); 2: many times (\_\_\_)

41. Does a buyer pay you the price basing on the value added (i.e. sorting)?

1: Yes (\_\_\_); 2: No (\_\_\_)

42. Do you make contract with the buyer? 1: Yes (\_\_\_); 2: No (\_\_\_)

43. If not do you trust the buyer? 1: Yes (\_\_\_); 2: No (\_\_\_)

44. Have you ever got the following services from the buyer?

1: transport (\_\_\_); 2: cash loan (\_\_\_); 3: input credit (\_\_\_); 4: technical advice (\_\_\_); 5: others (\_\_\_), specify \_\_\_\_\_

45. Before the transaction (selling), how many times did you meet the buyer \_\_\_\_\_

46. How many hours did you use for negotiating and setting price with buyer \_\_\_\_ hrs

47. Do you combine with other farmers to transport your cashew? 1: Yes (\_\_\_); 2: No (\_\_\_)

48. How long does it take to sell your cashew in the market?

1: soon (below & up to 1hr) (\_\_\_); 2: some time (1-2hrs); 3: more than 2 hrs (\_\_\_); 4: more than 1 day (\_\_\_); 5: transaction at farm gate (\_\_\_)

49. How much money did you spend in making follow-up of your payments from the buyer, i.e. travel, telephone etc? \_\_\_\_\_ Tsh.

50. How long does the buyer take to effect your payments \_\_\_\_\_ days

51. Explain the contractual behaviour of your buyer:

1: makes new contract every time (\_\_\_); 2: mostly makes contracts (\_\_\_); 3: few occasions (\_\_\_); 4: does not make contract at all (\_\_\_)



**D. Farm asset ownership and Cashew production:**

52. Does your household own the following?

Item	Number owned
Tractor	
Ploughs (ox-drawn)	
Knapsack sprayer	
Motorized sprayer	
Wheel barrow	
Bicycle	
Motor bike	
Truck/car	
Radio	
Mobile phone	
Others (specify)	

53. How many livestock does household own?

Livestock	Number owned
Cattle	
Goats	
Sheep	
Chickens	
Others (specify)	

**F: Contribution of AMCOS on Income**

54. Please indicate revenue acquired by using the following marketing channels.

Cashew Marketing channel	2006/07			2007/08		
	Amount marketed (kg)	Price (TZS/kg)	Revenue (TZS)	Amount marketed (kg)	Price (TZS/kg)	Revenue (TZS)
AMCOS						
Private traders						
Middlemen						
Others (specify)						

**Indicate the proportion of contribution of the enterprises to your household income**

Enterprise	Code 1= Cashew 2= Other crops 3= livestock 4= Off-farm	Proportion (%)
Cashew nut		
Other crops		
Livestock		
Off-farm		

57. Indicate and rank the main source of income of your household

Source	Estimated Income per year (Tshs)
1.....	.....
2.....	.....
3.....	.....
4.....	.....

58. Indicate Household expenditure in 2008/9

Expenditure	Inputs Amount in Tsh	Hired labour Payment in tsh
Re-invest in		
Cashew		
Food crops		
	Amount spent in Tsh	
Consumer goods		
House construction		
Medical expenses		
Education expenses		
Social occasion		
Village contribution		
Other expenses		
Type of input	Unit measure	Retail price
1. Sulphur dust		
2. Liquid Sulphur		
3. Fertilizer		
4. Pesticides		

59. Indicate your household assets acquired as result of participating in AMCOS/Existing marketing channel for the crop season 2008/2009

Assets	Code	1= Yes 2= No	Quantity	Market value (Tsh)	Condition 1= Working 2= Not working
1.Bicycle					
2.Radio					
3.Knapsack sprayer					
4.Motorised sprayer					
5.Sewing machine					
6.Television					
7.vehicle					
8. Tractor					
9. Livestock					
10. House					
11. Others					

60. What socio-economic implications have you observed that are influenced by use of AMCOS in marketing your cashew?

1. Household income
2. Level of production

*Thank you, for your time and cooperation.*