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Improving Smallholder Farmers Access to Finance Through Warehouse Receipt System in Tanzania

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Abstract: Marketing of crops in Tanzania has been undergoing change. Direct sales from farmers to traders and delivery to the Primary Cooperative Societies (PCS) were in practice at different points of time. Since 2007, the warehouse receipt system was introduced in Tanzania. The warehouse operators accept the deposit of crops in the warehouses and provide a receipt to the farmers through PCS and the farmers receive a part of the payments through bank financing based on these receipts. This study was conducted to assess whether Warehouse Receipt System has made any contribution in improving smallholder farmers' access to financial services. The study used cross sectional design where 100 smallholder farmers in Singida Rural district in Singida region were covered. Quantitative and qualitative techniques were used to analyze the data. The results showed that the motives that were used to influence smallholder farmers to join WRS included price, access to credit and access to market, although, most of the farmers participate into WRS to access credit for agricultural activities. Moreover, level of farming technologies adopted found to have increased significantly after joining the WRS. Based on these findings, it is recommended to increase sensitization efforts among the smallholder farmers in order to enable the larger spectrum of the community members becoming aware of the WRS practice. Also, policy maker should deliberately intervene to strengthen the capacity of WRS.

Keywords: Warehouse; Smallholder; Financing; Cooperatives; Tanzania.

1. Introduction

The Warehouse Receipt System (WRS) was legally established in the country in 2007 as a way of getting around this financing problem by linking small holder farmers with financial institutions. There are currently three financial institutions: National Micro-finance Bank (NMB), Cooperative and Rural Development Bank (CRDB), Kilimanjaro Cooperative Bank Limited (KCBL) which provides loans to smallholder farmers through registered primary cooperatives societies (PCS) and comprise 20-30 members. Currently, there about 566 PCS covering major cashew growing areas in Tanzania. The system allows agricultural producers and processors to obtain working capital by using agricultural products stored in licensed warehouse as collateral (Forestier and Bryde, 2013).

The WRS emerged as an important means of improving the performance of Agricultural marketing system following the global economic liberalization in 1980s (Kwadjo, 2013). However, progress in promoting WRS and related market institutions in Africa has generally been slow or limited but interest remains high in Eastern and Southern Africa. Tanzania Government intends to ensure the mainstreaming of the system for eight crops such as cotton, coffee, cashew nuts, paddy, sunflower, sesame, maize and pigeon peas to facilitate agricultural productivity and financing for the small holder farmers (Slater and Dona, 2010). Currently, the WRS is under operations in 14 regions of Tanzania including Mtwara, Lindi, Coast, Morogoro, Singida, Manyara, Kilimanjaro, Mwanza, Mara, Mwanza, Tanga, Kagera, Mbeya, Dodoma.

To enhance smallholder farmers to increase their access to credit, the Government of Tanzania has attempted to establish several policies. These include Tanzania vision 2025 and National Strategy for Growth and Reduction of Poverty. Others policies include National Microfinance Policy 2000, Cooperative Policy 2002, Tanzania Agriculture Policy 1997 and Agricultural Marketing Policy 2008. Likewise, several programmes have been initiated including *Kilimo Kwanza* strategy, Tanzania Agricultural Sector Development Program (ASDP), Tanzania Agriculture Productivity Program, Agriculture Sector Development Strategy (ASDS), District Agricultural Development Plan (DADP) and Tanzania Agriculture and Food Security Investment Plan (TAFSIP). Furthermore, the government has put in place regulation tools including Cooperative Societies Act 2003 (currently Tanzania Cooperative Societies Act 2013) and Cooperative Societies Rules 2004, Warehouse Receipt Act 2005, Warehouse Regulations 2006 and Tanzania Warehouse Licensing Board.

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These efforts have resulted to the creation of an enabling environment, the provision of proactive support to private operators, farmers' cooperatives (organizations), NGOs and CBOs who supply inputs and credit to smallholder farmers as well as ensuring a strong regulatory mechanism. However, these efforts have much to be desired, because rural farmers are still facing difficulties in accessing credits. This raises concern that the role of financing smallholder farmers in rural areas has not yet been adequately addressed.

Sustainable provision of financial services to smallholder farmers by formal financial institutions continues to be hampered by many problems (Coulter and Onumah, 2012). These problems include high intermediation costs, peculiar difficulties in the financial environment, missing markets for risk management instruments and lack of suitable collateral. Also, few formal financial institutions actually understand the most common economic activity in rural areas, i.e. agriculture, and those who understand are reluctant to serve the agricultural sector given its seasonality and the inherent risks of farming (Mahieux *et al.*, 2011). Most of the Savings and Credit Cooperative Societies (SACCOS), which turned up to fill this gap are small, and they are questionable of sustainability. In Tanzania, they have not fully helped the smallholder farmers in solving their agricultural financial problem (Onumah, 2010).

The introduction of warehouse receipt (WR) was expected to reduce these problems to smallholder farmers. However, WRS is still unavailable to most of smallholder farmers who are faced with cumbersome lending procedures. Several studies have been done on WRS however; they are mainly concentrated on marketing. These include study done by Onumah (2014), which centered on the contribution of WRS in marketing of produce in the liberalized market. Furthermore, the study by Onumah (2014) centered on the contribution of WRS in enabling farmers accessing financial services in financial institutions. However, most of these efforts have failed to improve the access to financial services by smallholder farmers. Hence, little has been done to understand the problems which smallholder farmers are facing. There is a need to find out the extent in which WRS has smoothen the access to financial services to smallholder farmers in order to improve their activities. Therefore, the aim of this study was to analyze the contributions of the WRS towards facilitating smallholder farmers to access credit from financial institutions with evidence from Singida Rural districts in Tanzania.

2. Materials and Methods

2.1. Description of the Study Area

The study was conducted in Singida Rural district (Singida region) where 83% of communities are engaged in agriculture, mostly, sunflower farming. According to DALDO (2013, unpublished report) found that the WRS was not used by most of sunflower smallholder farmers. This developed an interest to find more about the practice. The selection of the study area was also because most studies on WRS have been done in other regions of Tanzania including Manyara, Mtwara, Rukwa and Katavi.

2.2. Study Design

The study used cross-sectional survey design because it allows obtaining field data and results more rapidly. Data collected used for simple description purposes as well as determining relationships between variables. According to Babbie (1990) and Bailey (1994), a cross-sectional design allows data to be collected at a single point in time without repetition from the representative population.

2.3. Study population

Singida Rural is one of the six districts of the Singida region of Tanzania. It is bordered to the East by the Manyara region, to the South by the Ikungi district and to the West by the Mkalama district. According to the 2012 Tanzania national census, the population of the Singida Rural District was 225,521. The Singida Rural district is administratively divided into 30 wards.

2.4. Sampling Frame and Sample Size

The sampling frame to conduct this study constituted smallholder farmers through cooperatives societies, extension officers, collateral manager and employees from financial institutions: Banks (NMB and CRDB). The sampling to conduct the study on the part of farmers was the farmers who are growing sunflower and adopted warehouse receipt system. The sample size consisted of randomly selected of 100 smallholder farmers who are members of the primary cooperatives using WRS as a means of obtaining credit from financial institutions. This sample was assumed to be enough for obtaining the information required, because the population was homogeneous. Four key informants were selected using purpose method (1) extension officers from five wards, one (1) warehouse manager and two (2) employees from financial institutions providing loans to smallholder farmers.

2.5. Sources of Data

The study collected both primary and secondary data. Primary data were collected from smallholder farmers and key informants by using structured questionnaires, focus group discussion, interview and personal observation. Secondary data were obtained from the publications in the libraries, reports from financial institutions, warehouses reports, ward extension officers reports and other agricultural programs found in the districts.

2.6. Data and Collection Methods

2.6.1. Questionnaire

Well-structured self-administered questionnaires, with both open and closed ended questions were used for data collection. Primary data including amount of loan issued to farmers, knowledge of farmers on the importance of using WRS, accessibility and training related to the use of WRS as a means of getting loans were collected. Secondary data collection include amount of loan outstanding, number of farmers borrowing from financial institutions through WRS and trend of the farmers produce stored in the Warehouse for various periods.

2.6.2. Focus Group Discussion

In this study, focus group discussion was conducted in order to obtain in-depth information from smallholder farmers. The method helped to obtain opinions on WRS and financial services. The group consists of three credit officers and eight homogenous smallholder farmers.

2.6.3. Interview

Furthermore, unstructured interview was conducted to seek information from extension officers, Bank's employees and Warehouse manager. The method enabled the researcher to be more informed on WRS as a way of accessing financial services to smallholder farmers.

2.6.4. Personal Observation

Field observation was carried out to verify some of the smallholder farmers' responses and record whatever they could have not reported and not asked in the questionnaire.

2.7. Data Analysis and Presentation

Descriptive analysis was used whereby quantitative and qualitative data collected was cleaned and analyzed by the aid of Statistical Package for Social Scientist (SPSS) and Microsoft Excel Office 2010. These packages used for analysis in order to obtain the quantitative description of the information. The results that were obtained were in form of mean, sum, percentages and frequencies.

Regression analysis was applied to analyze the determinants of choosing WRS. The model was used to identify the motives of small holder farmers to choose the WRS. The dependent variable in this model was summation of the motives identified by smallholder farmers, each motive being assigned a value of 1 for those who assigned it and a value of zero otherwise. The factors considered were, access to market, improve market information (price, demand, quality, etc), easing access to finance, stable prices and mitigating price risks, enabling cost effective and management of food reserves. The functional relationship is specified in Equation 1.

$$Y = f(G, L, M, I, F, P, S) \dots \dots \dots (1)$$

Where,

G = Gender of the farmer

L = Land size owned by farmers

M = Smallholder access to market

I = Improve market information (price, demand, quality, etc)

F = Easing access to finance

P = Stable prices and mitigating price risks

S = Access to improved storage facility (reduce post harvest losses)

The econometric model is specified as follows presented in Equation 2.

$$Y = \alpha_0 + \alpha_1 G + \alpha_2 L + \alpha_3 M + \alpha_4 I + \alpha_5 F + \alpha_6 P + \alpha_7 S + \mu \dots \dots \dots (2)$$

Where,

α = The coefficient to estimate the relationship between the output and the different variables,

U = Error term.

Content analysis was used for analysis of the data collected through focus group discussion and interview.

3. Results and Discussions

3.1. Characteristics of Smallholder Head of Households

Respondent's characteristics depicted by the study were gender, age, education level and marital status as they are analyzed and presented in [Table 2](#).

Gender: The results show that, 73 (73%) of farmers were males who and the remaining 27 (27%) were female. Male participation in the Warehouse Receipt System is higher compared to female. This means, the awareness and participation in the WRS is higher for males than females while the general population consists of more females than males. Therefore, Deliberate efforts are needed to enable in order to enable more females participate in the system. These findings comply with that of [Stephens \(1992\)](#) who argued that though most technologies are considered gender neutral, they are often gender biased during their introduction and use by societies.

Age: Respondents' age categories are depicted. From the Table, it shows that 47 (47%) farmers were aged between 41 and 50 years, 27 (27%) between 31 and 40 years, 21 (21%) between 51 and 60 years, four (4%) between 20 and 30 years, and only one (1%) was aged between 61 and 70 years. The implication of the above statistics is that majority of the population who participated in the WRS were middle to old age. From the Focused Group Discussion (FGDs), it was revealed that, the participation of the young population was very minimal as shown above, mainly, due the youth's negative attitude towards agriculture as a whole and inadequate emphasize by the government in commercializing agriculture in particular.

Level of education: Community members participating in the WRS were not of the same education level. About 77 (77%) farmers had primary education, 12 (12%) had no formal education, seven (7%) had post-secondary education, and four (4%) had secondary education. If you critically visualize the above findings, you will realize that majority (77%) of the farmers involving into WRS only attended primary education followed by no formal education. The post-secondary education constituted a very low percentage. The information from FGDs indicated that, the more people are educated, the more they tend to run away from agriculture activities and look for other survival options, particularly, formal employment and business related activities in cities. As a result, it has led to low participation of people with higher educational levels in the WRS because, primarily, they are not participating in agricultural production. The results are in agreement with that of [CIMMYT Economic Program \(2013\)](#) where it was reported that in Tanzania, most farmers have primary education and rely on traditional farming practices.

Marital status: Majority 88 (88%) of the respondents interviewed were married and living together with their partners in the same house. Eight (8%) were widowed, two (2%) were divorced/separated, and two (2%) were single. This raised a great concern in financial institutions including Banks and SACCOS visited whereby people who are single were less interested in participating in the WRS, and one of the major reasons pointed out by the most of the interviewees was less family obligations which single families have.

Land size owned: Minimum land owned by farmers was 1.5 hectares while maximum land owned by farmers was 14.6 hectares. These findings show that majority 97 (97%) of the respondents interviewed owned a land between 1.5 to 5 hectares. Two (2%) owned a land between 5.1 to 10.0 hectares and 1 (1%) owned land between 10.1 to 15 hectares. From FGDs revealed that before the adoption of the WRS, farm size was ranging between 0.5 hectare per household (the minimum size) and 8 hectares per household (the maximum size). But, after the adoption of the WRS, farm size changed from 0.5 to 1.5 hectares as a minimum size and from 8 to 14.6 ha as a maximum farm size in average. One among the factors for the changes included: the adoption of new technology, increased income, market availability and reliability through WRS as well as other benefits obtained from the system. Farmers with larger farms are likely to be better informed, be able to take larger risks associated with early adoption, and have more opportunity to experiment. Agricultural market related technologies such adoption of WRS is more likely to be adopted by farmers with larger farms to be able to meet the market requirements in terms consistency of supply of products to buyers. [Nkonoki \(2011\)](#) found that resource such as land size may make easier for a farmer to alter

practices. Also [Jamison and Lawrence \(1982\)](#) discovered a significant relationship between farm size and adoption of an innovation in agricultural market and that there was a positive correlation between farm size and adoption of new technologies.

3.2. Awareness of WRS

Awareness and source of information: [Table 3](#) depicts that majority of the respondents 72 (72%) were aware of Warehouse Receipt System. About 28 (28%) among the total respondents interviewed were not aware about the system. This means there is a general awareness of the system, but, of course, more efforts are needed to enable the entire community members to become aware of the system and especially on warehouse receipt system modus operandi. Farmers need urgent intervention to be trained on how the WRS operates farmers' obligations and their rights in the system. When community members were asked as to where they obtained the information to access loan through WRS, the responses were as follow; majority of them 76 (76%) they obtained the information from primary cooperatives societies, 21(21%) got the information from bank advertisement and 3(3%) of the total respondents obtained the information from the village meetings. For this matter, it means that primary cooperative societies were the fundamental source of information with regard to access to finance in through WRS. It was also pointed out by respondents during Focused Group Discussion that, being a primary cooperative societies members and banks advertisement e.g leaflets, newspapers in the study area is a stepping stone towards socio-economic success and forum for different information, such as, loan, new economic opportunities, marketing and pricing of different goods and services.

3.3. Motive behind Farmers to Choose WRS

The study revealed that smallholder farmers were faced with lack of sustainable market, low prices and wrong measurement when selling their produce. Respondents had different reason as to why they use the WRS ([Table 4](#)). The reasons differ from one farmer to another. The results indicated that, respondents were using the system as a source of loan. This is because when small holder farmers have access to credit, they can get resources to buy inputs, which are important in increasing productivity. This result, therefore, points to the need to increase awareness of farmers in WRS so that many farmers will be involved. Moreover, the results indicate that male farmers are likely to

use WRS than the female farmers. Access to the market was also important determinant. This could be because when the market is guaranteed to the farmers, they can easily sell their produce. The result implies that more warehouses should be set up to store farmers produce when they are waiting for the better market. Warehouse facilities may also offer other services such as farmers with information on appropriate time to sell their produce so as to get higher prices and increase their profit margin. Moreover, the probability of the smallholder farmer to choose WRS significantly increases with the increase of prices, which is used as a proxy for income. The finding implies that the higher prices to the farmers are, the more they can be able to buy agricultural equipment, and other resources required for the farming activities. Farmers with higher income are also able to quickly obtain market information and price information because they have the ability to attend meetings and other interactions. Whereas, access to storage facility was not significant, there was a positive relationship between the storage facility, access to market access and higher prices. Size of the land and access to storage facility were not significant, however, the sign of the coefficient was positive, which shows that, these variables may be important and should, therefore, not be neglected.

3.4. Facilitation of WRS to Farmers in Accessing Financial Services

The study revealed that financial institutions in Tanzania have established agricultural business (Agribusiness) department and special units. The institutions have been innovating new product targeting agricultural sector. Generally, there was growing interest in small scale farmers by financial institutions, banks companies amongst others has increased the number of financial products available. Farmers are aware of these financial institutions and insurance products thus limiting their uptake and utilization.

The WRS enables smallholder farmers accessing credits and savings from the banks. All respondents interviewed explained that they normally do obtain money in Banks (NMB and CRDB) for different activities in WRS. More than one trillion Tanzanian shillings were borrowed by farmers through WRS in 2013/2014 cropping season. During Focus Group Discussion, it was revealed that farmers benefited from the loan offered by the financial institutions. Some of the benefits of warehouse receipt financing highlighted during the discussion are: it gives flexibility to farmers/ primary producers to sell their produce when the market offers in good price, provides ample time and flexibility for primary producers to purchase raw materials, warehouse provides good storage and reduces post-harvest losses, promotes quality of crops which one of the requirements to high value market in Europe which offer high price, facilitates price discoveries for farmers through participation in price setting and avoid being price takers.

During the FGDs, farmers mentioned the eligibility criteria for warehouse Receipt Financing. These includes: registered farmers cooperatives, loan Application letter from cooperatives, realistic crop procurement plan and cash flow projections, financial statements for at least three years of farmers cooperatives, Crop business license, security of the loan (if pre-finance is required), certificate of maximum liability from Registrar of Cooperatives and minutes of the meeting approving to apply for the loan for Cooperatives.

Farmers discussed that, borrowing helps them to participate in agriculture, because, during farming season, majority of the farmers are broke and cannot afford to buy farm inputs such as fertilizers, seeds, pesticides, herbicides). Also money borrowed from financial banks are used to cover the following: warehouse operators lien, buying books, papers, pens, transportation of crops from their farm to the warehouse, fees for primary societies, Union fee, purchase storage materials (bags).

Figure 1 illustrates how the WRS was operating during the fieldwork period in the study area. The arrows in the top left-hand box show how sunflower move from the farmer to the primary cooperative society (PCS) before being auctioned off to exporters and processors. Services provided by the PCS buying of sunflower from its members, collecting and transporting of sunflower and storing them in licensed warehouses, money transfer and warehouse maintenance. In the right-hand corner of the figure, the movement of money to and from the bank is shown. Initially, the primary societies apply for loans from banks to pay their farmers for their produce before auction. Once the loans have been approved, individual farmers through their cooperatives are paid a proportion of the indicative price and are normally paid 70 percent of the price as an advance, using money obtained from banks (bank loans) before sunflower are sold to traders and the remaining part of the price is paid after auction. At the warehouse where the auction takes place, the sunflower bags are organized by the primary society. Sales catalogue with the grades of batches for the different primary societies is provided for the bidders who jot down the prices for a batch and put them in an auction box. The auction is then conducted and the winning (highest) bidder takes the warehouse receipt to the bank to arrange payment. After having paid, the bidder is provided with a permit and a levy for transporting the product, and then returns the original warehouse receipt that he used to pay for the batch at the bank. Given proof of payment from the bank, the warehouse manager provides the winning bidder with a release warrant. Bids must be high enough to cover any unforeseen additional costs associated with production. If they are too low, the auction is suspended and there is no winner. The minimum bid allowed is for 50 tones. After the auction, farmers receive a second payment that covers the remaining part (30%) of the indicative price. Mashindano *et al.* (2011) reported that farmers retain the receipt and, after sale at the auction by the warehouse management several months later, the farmer is given the remaining 30 percent plus any bonus (less costs of storage, interest, transport and administration). This is in line with Nkonya and Barreiro (2013) who both reported that if auction prices are above expectations, farmers are paid an additional price bonus.

4. Conclusions and Recommendations

The use of WRS has shown a positive implication to the producers mainly in rural areas irrespective of educational level, marital status, land owned or gender of an individual concerned. However, there are some minor variations on the use of the system based on age, gender, marital status and educational level among the smallholder farmers participating in the WRS. With respect to the awareness of the WRS, majority of the members in the study area were aware and few were not aware of the system though efforts from Tanzania Warehouse Licensing Board (TWLB) are underway to enable all members of the primary cooperative societies becoming aware. With regard to the motive for farmers choosing the WRS, they are using the system as a source of loan, others are using the system in order to acquire markets for their produces while the rest are using the system in order to obtain good price when the produce sold. Furthermore, the WRS goes with technological adoption basically aiming at increasing the output hence improving the general total socio-economic wellbeing of the smallholder farmers.

Based on the findings and discussions, this study recommends that there is a need to increase sensitization efforts among the smallholder farmers in order to enable a larger spectrum of the community members to become aware of the WRS practice and therefore, using it as a tool towards poverty reduction and at the end of the day improving their socio-economic livelihood status. A deliberate intervention from the government is needed to strengthen the capacity of WRS. This can be done through opening more opportunities for loans, ensuring better prices for different products and training community members on better WRS practices.

The findings in this study should be interpreted in the light of two limitations. One, the cross sectional nature of the study's design poses challenges to the validity of a causal interpretation. A longitudinal design is more appropriate for solving this problem. Two, the findings are based on the primary data collected from only sunflower smallholder farmers in Singida Rural district of Singida region where the WRS is under operation. Similar studies should be conducted in other regions where the practice is not in existence in order to make comparisons on different aspects, which in one way or another affects the WRS.

Abbreviations

ASDS:	Agricultural Sector Development Strategy
ASDP:	Agricultural Sector Development program
CBOs:	Community Based Organizations
CRDB:	Cooperative and Rural Development Bank
CIMMYT:	International Maize and Wheat improvement Centre
DADP:	District Agricultural Development Plan
DALDO:	District Agricultural and Livestock Development Officer
FGDs:	Focus Group Discussions
KCBL:	Kilimanjaro Cooperative Bank limited
NGOs:	Non- Government Organizations
NMB:	National Micro-finance Bank
PCS:	Primary Cooperative Societies
SACCOS:	Savings and Credit Cooperatives Societies
SPSS:	Statistical Package for Social Sciences
TAFSIP:	Tanzania Agriculture and Food Security Investment Plan
TWLB:	Tanzania Warehouse Licensing Board
TZS:	Tanzanian Shillings
WRS:	Warehouse Receipt System

Tables

Table-1. Independent variables and their hypothesized effects (expected signs)

Explanatory Variables	Expected signs	Explanations of the relationship	Measures
Gender of the farmer		Motive is positively related to gender of farmers. Equal opportunity to both genders in WRS, the more the motives increase.	1 = Male 0 = Female
Land size owned		Motive is positively related to land size. The more land owned by farmers increase production and thus more products to be stored in WRS.	Acres
Access to market (M)	+	Motive is positively related to Access to market. The more buyers/traders in WRS, the more the motives increase.	1 = access 0 = no access
market information (I)	+	Motive is positively related to improved market information. The more available information through WRS, the more they increase motivation for farmers to join WRS.	1 = access 0 = no access
Easing access to finance (F)	+	Motive is positively related to ease to access to finance. The more available source of finance at low interest rates, the more they increase the motive of farmers through cooperatives to take loan.	1 = access 0 = no access
Stable price (P)	+	Expected high and stable price of crops through WRS will make farmers motivation to join WRS to increase.	Price measured in TZS/Kg
Access to storage facility Reduce post harvest losses (S)	+	Motive is positively related to availability of improved storage facility to reduce post harvest losses. The more improved storage facility through WRS, the more they increase the motive of farmers to store their crops in WRS.	1 = access 0 = no access

Table-2. Characteristics of smallholder head of households

Characteristics	Categories	Number	Percentage
Gender	Male	73	73.0
	Female	27	27.0
			100.0
Age	20-30	4	4.0
	31-40	27	27.0
	41-50	47	47.0
	51-60	21	21.0
	61-70	1	1.0
			100.0
Level of education	Primary	77	77.0
	No formal education	12	12.0
	Secondary	4	4.0
	Post secondary	7	7.0
			100.0
Marital status	Married	88	88.0
	Widow/separated	8	8.0
	Single	2	2.0
			100.0
Land size owned	1.5- 5.0	97	97.0
	5.1-10.0	2	2.0
	10.1-15.0	1	1.0
			100.0

Source: own research findings, 2014

Table-3. Awareness and source of information for credit in of WRS

Characteristics	Categories	Number	Percentage
Awareness	Yes	72	72.0
	no	28	28.0
			100.0
Source of information	Primary cooperatives	76	76.0
	Bank advertisement	21	21.0
	Village meetings	3	3.0
			100.0
			100.0

Source: own research findings, 2014

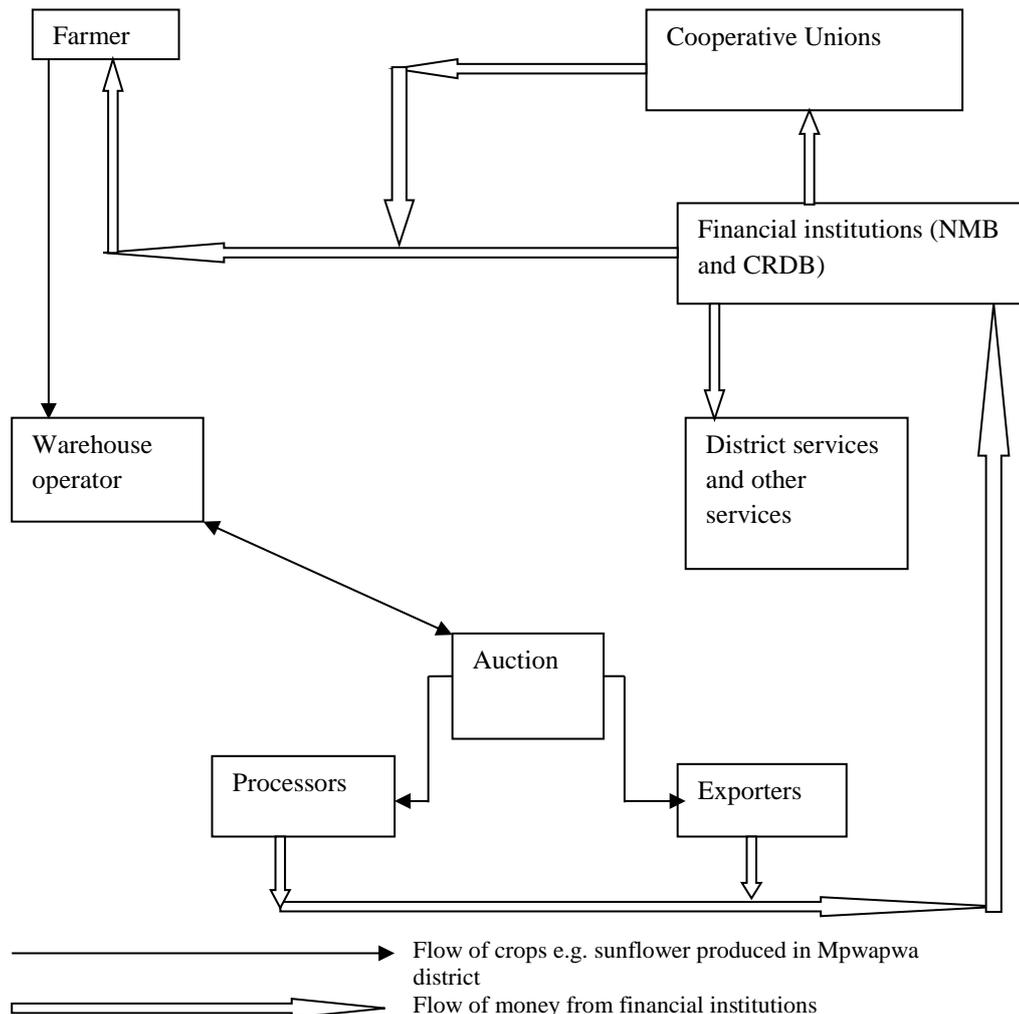
Table-4. Motives behind farmers to choose WRS

Variables	Coefficient	P-value
Gender of farmer	0.479	0.007
Land size owned by farmers	0.115	0.165
Access to credit	0.368	0.002
Access to storage facility	0.748	0.125
Access to market	0.323	0.068
Stable price	0.294	0.363
Log likelihood = -97.3482, Pseudo R² = 0.2340, Prob Chi² = 0.0000		

Source: own research findings, 2014

Figures

Figure-1. Marketing of raw cashew nuts through warehouse receipt system (WRS) in Tanzania



Source: own illustrations based on FGDs by sunflower smallholder farmers and other stakeholders

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