

## The Impact Assessment of AMSDP: A Case of Smallholder Farmer in Arumeru District, Tanzania

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**Abstract:** This study aimed at evaluating and determining the impacts of Agricultural Marketing System Development Programme (AMSDP) on smallholder farmers and their participation as a way of empowerment in the market places. Among the programme objective which also become the central to this study includes empowerment of smallholder agricultural producers and their market linkages. Specifically, the study contributes on understanding the impacts of assets owned by household farmers on agricultural output market participation, level of market orientation of smallholder farmers in the study area and identifying transaction costs/factors that influence the decision of farmers to participate in agricultural product markets. The study employs interview, observation, statistical analysis using the logit model as mechanisms approach in estimating data from a randomly selected 163 households. The results show that insufficient land constitutes one of the most constraining assets facing rural households in Tanzania particularly in the area where this study was conducted. Households have access to very small pieces of land for cultivation where by 62% of farmers cultivates a farm size of <4 acres. Road conditions and household size were positively related to household participation in the market. Market orientation remains very low in the area studied, farming learned through extension officers and education of the household positively and significantly influenced the probability of household participation in the market. On the other hand, transaction costs/factors such as the distance to the market and the age of the household head were negatively and significantly associated with the probability of smallholder farmers participating in the market education influence stronger and significant at  $p = 0.01$ , farming learned through extension officers and age were significant at  $p = 0.05$ . The study highlights the recommendations that would reduce impediments of farmers participation in the markets.

**Key words:** Smallholder farmers, agricultural product markets, participation, agricultural marketing system development programme, empowerment, education

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### INTRODUCTION

This study intended to evaluating and determining the impacts of AMSDP on smallholder farmers. Among the programme objective which the study intended to evaluate includes empowerment of smallholder agricultural producers, marketing infrastructure component and market linkages. Lack of agricultural markets linkage in Tanzania represents a significant impediment in market access and thus less participation in the markets especially for smallholder poor farmers in rural areas; it substantially increases transaction costs and reduces market participation (Kuzilwa, 2005).

Tanzania's economy is heavily dependent on agricultural production which accounts for half of the country's GDP and provides 51% of foreign exchange. In most regions around 60-80% of adults depend on agriculture as main activity. Selling agricultural products

is the main source of cash income for most of the rural households in the country. However, the participation of smallholder farmers to formal agricultural markets remains very low. Thus, the government has recently started targeting agricultural markets reforms as the quickest way to reduce poverty (Wetzel, 2002).

Tanzania's economy has undergone an extensive market liberalization approach as a part of its structural adjustment programme since the 1980s. Little information is available about the impact and extent of the liberalization particularly to smallholder farmers. The definition of smallholder farmers varies greatly in the world and as such that farmers with less than eight acres were classified as smallholder farmers in the context of this study. In response to fiscal pressure imposed by the previous state monopsony and price control of grain and food markets, the government began a programme of food market liberalisation in 1984. By 1990, most of the

restrictions on the private trade in grains had been brought to an end and the study for streamlining the trade policies continued (Eskola, 2005).

**Agricultural Marketing System Development Programme (AMSDP) in Tanzania:** The AMSDP was a 7-year program that has been implemented in the Southern and Northern marketing zones covering 36 districts in 8 regions of Tanzania. The implementation of the programme was in 2 phases each with a duration of 3.5 years. The programme started in year 2002 in the following districts Mbeya, Sumbawanga, Mufindi and Songea in the Southern highlands marketing zone; Moshi, Arusha, Manyara and Tanga in the Northern marketing zone. The long-term goal of the agricultural AMSDP was to increase the incomes and food security of at least 25,000 of the poor households living in the Northern and the Southern marketing zones of Tanzania (IFAD, 2002). It was expected that an individual farm products' annual income would rise from Tshs 94800-257000. It was also estimated that approximately 400 persons (about 60 households) would benefit from each kilometer of well maintained transit able road. In order to achieve its goal and provide financial incentive to the smallholders farmers, AMSDP addressed objectives among which was intended to increase and diversify production to smallholder's farmers (IFAD, 2002). The programme activities were implemented through objectives which include producer empowerment and market linkages component for empowering smallholder farmers reduce distance to the market financial market support services component which could enables smallholder farmers to secure loans (those who qualify for loan are farmers with their agricultural crops stored in warehouses and agricultural crops processors/stallholder traders), marketing infrastructure component so as to develop infrastructures for agricultural crops markets.

**Researcher's contribution into this study:** Farmers in rural areas after establishment of market liberalization, rural farmers, were expected to respond to the new economic environment by expanding output of the most profitable crops and increased income hence participate more in selling agricultural output as markets became more reliable and prices could have been increased due to expected improvement in market efficiency (Akiyama *et al.*, 2003).

According to Rusike and Dimes (2004), smallholder crop markets management practices throughout sub-Saharan Africa still lag behind as those of small-scale farmers in Asia and Latin America. Public and private

sector policy for agricultural output markets have been wider expanded in Tanzania. However, majority of smallholder farmers in the country continues to use traditional and often unproductive crop marketing management practices such as selling crops in the fields before reaching into the markets. The research draws insights from the transaction costs and principal agent theories of the New Institutional Economics on the potential role of the private sector in inducing widespread adoption of improved crop marketing management practices by smallholders in Tanzania (Rusike and Dimes, 2004).

The study discovered that there is a little public role to ensure that practices such as contract farming arrangements are conducted fairly and this, in turn, induces less crops output market development which pulls back the current market liberation policy which could be adopted by farmers. There has been a little empirical knowledge of the effects of the policy change on enhancing the participation of households to the market. This study aimed at bridging this knowledge gap by establishing linkages between agricultural policy change and the enhancement in participation of smallholder farmers into markets in rural areas, Tanzania.

It was not clearly explored as to what extent the AMSDP have led to an increased market participation of small scale farmers in Tanzania. Amani (2005) observed that <1/3 of grain products produced by household might possibly reach commercial market, >90% of transactions took place in the farm or villages in Tanzania (Kahkonen and Leathers, 1999).

The main objective of this study was to evaluate and determine the impact of AMSDP. Specifically, the study intended to examine the level of market orientation of small scale farmers in the study area and identifying transaction costs/factors that influence the decision of farmers to participate in agricultural product markets in Arumeru district and thus suggest measures that can improve the efficiency of agricultural output markets on smallholder farmers in Tanzania. The questions behind this study are:

- Is the level market orientation increases with access to agricultural output markets facilitated by AMSDP in Tanzania
- Is the distance to the market likely to influence participation of farmers to agricultural output market (Distance is among the component of AMSDP)
- What are factors that influence the decision of farmers to participate in agricultural product markets in Arumeru district Tanzania

**MATERIALS AND METHODS**

The study was conducted at Arumeru district in Arusha region, Tanzania. The district was selected because the programme (AMSDP) evaluated has been taking place in Arumeru district which was among the first district in which the programme started operating in the year 2002. The study highlights the methodology approaches used in the evaluation of smallholder farmer’s participation into markets.

**Data collection:** A cross sectional research design was used in this study. This design allows data to be collected at a single point in one time (Bailey, 1998) data collection has been conducted into 5 different villages and used for determination of relationship of variables. Here, 5 villages were purposively selected in the district. The selection was based on the distance from the production site to the selling point as some villages located closer into markets while others are located far-away from the exchange point. A simple random sampling was used to obtain representative sample of small-scale farmers from 10 purposely selected villages in Arumeru district. The primary data were collected through household survey that was carried out in the district and covered about 163 farmers from ten villages. Questionnaire, observations and face to face interview with household heads or his/her representative has been employed in the study to obtain primary data. Secondary data were obtained through existing information mainly from AMSDP programme coordinators and from the local market producers and sellers in which AMSDP programme was operating.

**Data analysis:** The study adopted descriptive analysis and logit model as combined methods in data analysis following the nature of the study. Empirical analysis estimated the determinants of farmers on Decision to Participate into the Market (DPM). It was typically estimated using some measure of response to the DPM question as the dependent variable which is a function of variables expected or assumed to be determinants of DPM. For this case, the choice of the regression tool was dictated by the measurement level of variable and this tested the hypothesis that household farmers with factors influencing participation into the agricultural output markets are more likely to sell their produce. Thus, decision to sale agricultural products variable was dichotomous, scoring 1 if a household sold agricultural product, 0 if not. Hence, the logit model was specified as:

$$\text{Logit}(Y_j) = \text{Ln} \left[ \frac{p(Y_j=1)}{1-p(Y_j=1)} \right] = b_0 + \sum_{i=1}^k b_i X_{ij} + u_j \quad (1)$$

Where:

- $P(Y_j = 1)$  = The probability that the household sold agricultural products  $j$
- $X_i$  = The  $i$ th predictor variable
- $b_0$  = The model constant
- $j$  = Number of current observation or case
- $i$  = Refers to the  $i$ th of the  $k$  independent variable in the model
- $k$  = Number of variables in the model (in this case 11 variables)
- $b_i$  = Unstandardised logistic regression coefficient for the  $i$ th independent variable
- $u_j$  = Error term and prediction of the logit

Now  $P_i/(1-P)$  is simply the odds ratio in favour of participation to the market. The ratio of the probability that a farmer (household) will participate to market to the probability that a farmer (household) will not participate. Thus if  $P_i = 0.8$ , it means that odds are 4-1 in favour of the farmer’s participation to the market.  $L$  is a log of the odds ratio;  $L$  is called the logit and thus the name logit model (Gujarati, 1995) and therefore researchers can write:

$$\text{Logit}(Y_j) = b_0 + \sum_{i=1}^k b_i + X_{ij} \quad (2)$$

The feature of logit model comprise the following as:  $P$  goes from 0-1, the logit  $L$  goes from  $-\infty$  to  $+\infty$ . That is although the probabilities (of necessity) lie between 0 and 1, the logits are not so bound. Another feature is that although the  $L$  is linear on  $X$ , the probabilities themselves are not. The property is in contrast with the Linear Probability Model (LPM) that is:

$$P_i = E(Y = 1 / X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_2 X_i)}} \quad (3)$$

Where, the probabilities increase linearly with  $X$ . The logit interpretation is as follows:  $b_0$ , the slope measures the change in  $L$  for a unit change in  $X$ , i.e., it tells how the log-odds in favour of household’s participation to the market change as the factor influencing farmer’s participation changes by units, say, price change, road condition change and institutions change. The intercept  $b_0$  is the value of the log-odds in favour of household’s participation to the market if no factor that influences farmer’s participation to the market changes.

**Validation of methods used in the study:** Pre-test of the questionnaires was conducted whereby face to face interviews were done before the actual data collections and analysis in order to determine the relevance of the methods for data collection and model used for data analysis. The questionnaire was modified to incorporate

the relevance information gained from the pre-test. The respondents whom were involved in the pre-test exercise were excluded from the actual data collection in the sample size because respondents may express what they believe/think the researcher wants to hear and thus memorize the previous questions interviewed during pre-test exercise.

**RESULTS AND DISCUSSION**

This study presents market orientation descriptive statistics and empirical results of the model used in the research. Several factors such as access to assets, information, transaction costs and household characteristics influence access and participation of small scale farmers to the market were estimated.

**Market orientation:** The share or portion of agricultural households sold was about 50% (Table 1) that at least every household engaged on crop production for sale, it has been observed that half of the crops produced were sold. Generally, the gross revenue per annum from agricultural produce per individual household farmer in the study area was about Tshs 802,761/= on average with Tshs 658,508/= sold by an individual household. The contribution to the total value (Gross revenue from agricultural produce per annual) obtained was calculated from different sources in which Tshs 550,895/= individual household was obtained from crops not under contract farming while Tshs 1,192 646/= was calculated from crops under contract farming. Typically, contract farming contributed more value on the share of household in the study area as indicated in Table 1. Non-farm income contributed an average of Tshs 371,142/= household. It was expected that farm products’ annual income would rise from Tshs 94,800-257,000. The long term goal of the agricultural AMSDP was to increase the incomes of the participating farm-households. The programme has managed to increase household income from 36-39% and this was more than what was expected amount of Tshs 257,000 thus may be due to workshops conducted in villages to small scale farmers so as to provide agricultural

crop producers with entrepreneurship skills and promises for networking them with markets for their produce.

**Distance to the nearest markets:** Distance to the nearest market is the proxy factor relating to transaction costs where transaction costs comes from factors relating to location and access to information. For example, those households located closer to market centres were expected to experience lower transaction costs since they can get information more easily. At the same time, better access to information was assumed to reduce the transaction costs.

The results obtained in the study shows that usually farmers do most transactions mainly at the service centres such as towns (Table 2). Good access to such centres might imply low transaction costs. The typical range of the sample household in the villages surveyed is about 0.2-30 km away from centres and uses 2 min to reach the nearest market with the mean of 103 min (Table 2). The proxy average travel time to the nearest market centre was seen as important in the study, this was also found to be more appropriate than distance measured in kilometres because travel time captures both the differences in landscape and the quality of the paths/roads and the mode of transport.

The road condition is another factor, considered in accessing market centres. Only 18% of the households in the study area reported to be using well-maintained earth roads to reach the nearest town or market centres, while 82% reported to be getting to the nearest town or market by earth road not well-maintained (Table 2). The programme has little achieved this component as it was expected that the rehabilitation of rural roads would promote agricultural growth by reducing transportation costs and increase the availability of transport. Therefore, AMSDP estimated that approximately 400 persons (about 60 households) would benefit from each kilometres of well maintained transit-able road.

**Empirical analysis**

**Estimation and interpretation of results:** In order to determine significant factors that influence household participation to the market, the research estimated the

Table 1: Market orientation indicators

Values (Tshs)	Minimum	Maximum	Mean	SD
Value of crops produced	9,000	10,850,000	8027.61	1,289,655
Value of crop sold	8,000	10,820,000	658,508	1,244,805
Share sold from total production	0.06	1.00	0.5977	0.23103
Value of crops not under contract	9,000	4,830,000	550,895	719,015
Value of crops under contract	23,250	75,00,000	1,192,646	1,794,595
Total value of livestock sold	10,000	900,000	228,482	179,037
Non-farm income	30,000	1,440,000	371,142	364,843

\* Standard deviation

Table 2: Access to the market and services centres

Markets	Mean	Minimum	Maximum
Closer to market (min)	103	2.00	300.00
<b>Road condition (%):</b>			
Household used well maintained earth road	18*		
Household used earth road not well maintained but passable	82*		

\*Frequencies in percentages obtained through deceptive analysis process using SPSS 11.5 computer package

unrestricted regression equation which include all the variables and whose results are presented in Table 3. Regression analysis therefore was adopted to assess the factors that affect farmers' participation to market in the research area. The decision to sell agricultural products (those who sold) or participate in the market (DPM) was thus the dependent variable and the regressor, independent variables were farm size cultivated (acre) the value of livestock non-farm earnings value ownership of animal plough, farming skills acquired through institutional experts visits, the average household education (years), distance to the nearest market, road condition, sex of the household head, age of household head and household size.

The results in Table 3 show that the model has predicted correctly the cases at 88.9% with R<sup>2</sup> value of 0.437. Since Nagelkerke R<sup>2</sup> value is within 0.2 and 0.6 as suggested by Gujarati (1995) in most practical applications, substantial proportion of variation in the dependent variable is fully measured or explained by explanatory variables. Therefore, the R<sup>2</sup> value of 0.437 shows that the estimated model is strongly robust as this value is quite high for such kind of regression. The results shows that 4 out of 11 factors examined have significant influence on market participation in the study area. These factors influenced farmer's participation to the markets as expected include; farming skills learned through extension officer, ages of the household head, education and distance to the nearest market are significant in influencing the level of participation to the market by household in the study area.

The Wald statistic and the corresponding significance level test the significance of each of the covariate and dummy variables in the model. The ratio of the logistic coefficient b to its Standard Error (SE) squared, equals the Wald statistic (Garson, 2007). When the Wald statistic is significant (i.e., <0.05 or 0.01) then the parameter is significant in the model of the independents. The positive relationship between DPM and education

can be explained by the fact that higher level of education is consistence with the increased ability to interpret information about the market. Thus, farmers with better education were more likely to participate in the market. The opposite is also true, the lower the education level the less the market participation as per results in the study area. This is consistence with the findings by Balint and Wobst (2005) that significant positive value of education in the sales question, results suggest that household heads with at least 12 years of education sold more. Indeed educated household heads are likely to participate more in agricultural market as opposed to less educated household in the study area.

The farm size cultivated (acre), road condition, household size and non-farm earnings income were positively associated with the probability of smallholder farmers participating into the market. This could be associated with the fact that a larger area of arable land cultivated provides a greater opportunity for surplus production. Normally, households decide to sell when they cannot consume all they have produced. That is, a decision to sell comes after crops for consumption have been decided upon. This is in line with the fact that an increase in the household size decreases the possibilities for participating to the market. The larger the household size, the higher the probability of the produce to be consumed. Good roads conditions as well as earnings from non-farm income were also positively associated with the probability of the household's participation to the market. Gender of the head of the household, livestock value possessed by the household and ownership of animal plough are negatively associated with market participation but not statistically significant.

The Exp (b) column in SPSSs label for the odds ratio in the row of independent with the dependent (household sold agricultural crops) predicted change in odds for a unit increase in the corresponding independent variables as shown in Table 3 of regression analysis above. The odds ratio with regard to household who learnt through

Table 3: Results of the regression analysis

Variables	Coefficients (b)	SE	Wald	Significance	Exp (b)
Farm size cultivated (arce)	0.169	0.460	0.135	0.714	1.184
Value of live stock (Tshs)	-0.042	0.802	0.003	0.958	0.959
Non-farm earnings value (Tshs)	0.000	0.000	1.983	0.159	1.000
Own animal plough (Dummy)	-0.209	0.918	0.052	0.820	0.354
Farming was learned through extension officer (Dummy)	3.205	1.270	6.368	0.012*	24.660
Average house hold education (years)	0.512	0.160	10.198	0.001**	1.669
Distance to the nearest market (h)	-1.516	0.488	9.661	0.002**	0.220
Road condition (Dummy)	0.411	1.034	0.158	0.691	1.509
Age of household head (years)	-0.093	0.038	6.083	0.014*	0.911
Household size (No.)	-0.037	0.179	0.042	0.838	0.964
Household head is female (Dummy)	0.786	0.802	0.961	0.327	0.456
Constant	6.060	3.626	2.794	0.095	428.494

\*p<0.05; \*\*p<0.01: Education and distance to the nearest markets influence stronger than extension and age number of observation = 163; Nagelkerke R<sup>2</sup> = 0.437; -2 log likelihood = 72.837

the assistance of extension officer is 24.660 (1 = Farming was learned through extension officer, 0 = Not). According to Garson (2007), the odds ratios  $<1$  correspond to decreases and odds ratios  $>1.0$  correspond to an increase in odds. Odds ratios close to 1.0 indicate that unit changes in that independent variable do not affect the dependent variable.

The results show that the extension contact was associated positively and was thus significant to DPM implying that getting information through extension contacts has a considerable influence on increasing the probability of selling agricultural products. The results also indicated that household visited by extension officers either from the government or private institutions have a higher probability in participating in agricultural markets by about 24 times of those who were not visited. These results show the importance of extension officers in the provision of up-to-date information about markets and how to deal with the marketing process. Krishnakumar (2007) show clear lack of coordination between what the buyers actually prefer and what the farmers are currently putting all their efforts into growing a certain crop. Thus, it can be noted that the role of extension workers is crucial factor that they can educate farmers on the preferred varieties of crops by the buyers and therefore minimizes crops wastage and motivate farmer's participation to the market.

The slope coefficient gives the rate of change in the conditional probability of the event occurring for a given unit of change in the value of the explanatory variables (Gujarati, 1995). With this regard, the coefficient of -0.093 values attached to the age variable probability of participation to the market by older farmer's household head is smaller by 9.3% as compared to the younger agricultural farmers. However, the estimated parameter for age is statistically significant but has unexpected negative sign. This means the significantly negative sign of the age has been contrary to the prior expectation of the model that household benefits from the experience of older household head (Blandon *et al.*, 2007). The implication of this aspect on decision to sell is that older heads of households might have the knowledge where to market their crops since they have been involved for a longer time. However, older household heads may lack the ability to sell more due to their slow pace in catching up with the technological changes such as the use of mobile phones. Also, the decision to participate in the market through new practices such as contract farming may entail significant risk to aged farmers.

The study by Diederer *et al.* (2003) found out that the younger farmers were more likely to adopt innovations early. Older farmers on average had a lower level of

education which may be correlated with the ability to judge opportunities to innovate. In fact, younger farmers may be more willing to take the risk of taking more products to the market with the attendant risk of not selling at all than the older farmers. Furthermore, most of the younger farmers in the study area are involved in high value crops such as horticultural crops which seem to be under contract farming while most of the elderly farmers were found engaged mostly in grain legumes and banana operations. Therefore, even if the elderly are willing to sell their crops, they would not sell as much as the younger farmers. Furthermore, market participation of young farmers (household head) in the study area might also have been caused by the need for more income to pay for extra needs such as school fees for their children as opposed to older household heads who may not give priority to issues such as paying school fees to private institutions for their children and who might also find it difficult to understand the operations of institutions in their areas. Further evidence is from the study by Balint and Wobst (2005) who found the age to be significant and negative in both the sales and the commercial orientation equation suggesting that younger household heads sold more while older farmers sold less due to the fact that older people are always risk averse.

## CONCLUSION

Descriptive and econometric analysis was carried out to analyse the data on the observed differences among farm households in market participation. The relationship between market participation and other variables were examined. Logit model was carried out using SPSS 11.5 software whereby eleven independent variables were included in the equation.

Available evidences indicate that the overall participation of farm households to agricultural market in Tanzania has remained very low. The conclusion reached here is that little achievement has been realised regarding the specific objectives evaluation of AMSDP. The programme activities were implemented through components whose evaluation seems to have some promising improvements. Small-scale farmers were empowered through training (workshops) which enabled them to acquire some knowledge on marketing systems. It was observed that one of the significant constraints of producers is their inability to hold their produce after harvest due to liquidity shortage.

The results suggest that farmers will not participate in the markets when they lack access to productive assets such as land and agricultural equipments as well as defensive assets such as non-farm income. The findings

pose a challenge to the policy making process in Tanzanian. The model analysis done in the research identified factors contributing to obstacle/limitations or transaction cost and accepted the null hypotheses which stated that access to information has a positive significant impact on agricultural markets participation in the study area. It is, therefore, concluded that despite the efforts made by agricultural marketing institutions in the country, there is still need for more improvement on market availability for smallholder farmers in Tanzania. This suggestion is directed to the government which can play an important role through making policies designed to improve market participation by household farmers in Tanzania.

### RECOMMENDATIONS

The Agricultural Marketing Systems Development Programme (AMSDP) is part of the Government's efforts to implement its policy into agricultural marketing and as a strategy to facilitate sustainable agriculture in rural Tanzania. However, AMSDP was a 7-year plan of action whose effective implementation started in January, 2003 and its completion time was on 31st December, 2009. Based on the findings of the study, the following recommendations are geared towards improving the efficiency of agricultural output market in Tanzania. The policy required to motivate more market participation of household farmers to the agricultural market. It must formulate and implement measures to remove or reduce to a very minimum level obstacles or transaction cost as factors that influence smallholder farmer's participation into the market.

Improving participation in markets should again consider older farmer's constraints to access these markets as per the findings in Table 3. However, the level of participation to the markets would require better access to production facilities such as enough arable land and appropriate facilities for increased production include animal plough and non-farm income. Transport networks and better roads condition would make it ease to solve the problem of access to the available markets particularly to the horticultural markets. Since, horticulture crops are perishable commodities they require fast access to markets and thus the distance should be reduced and the road condition needs more improvements. This study has shown that some horticultural farmers continue to sell considerable quantities even though they face poor road conditions with low prices offered by traders into the field. Indeed, these farmers could participate more effectively if they are served with better infrastructure and

reasonable price and in time to avoid crop spoilage. Thus, small scale farmers are suggested to be market oriented as per findings the study informed.

**Institutional support:** The study found out that agricultural marketing institutional support such as provision of training and extension services on crops production and marketing knowledge were not adequate in the study areas. Smallholder organizations and cooperatives have still with few members for easy empowering smallholder farmer in the area. The study thus recommends for an increase in the provision of training and extension services that may facilitate an establishment of smallholder farmer's cooperatives (groups) and associations that would empower smallholder farmers and enable them to access markets. This will enable them generate sufficient critical mass which would significantly increase their bargaining power. The policy advised to gear into eye shut into farmers through encouraging them to form and participate into saving and credit association using warehouse receipt system which is suggested to be established.

Availability of a market in each village, good information network plus improved condition roads would encourage, farmers to take their crops to the market. If the knowledge of demand and supply is controlled by a certain organ such as MVIWATA Networking Centre, farmers would be enabled to get information before taking their crops to the markets. Thus, access to this system would transform farmers into an informed decision-maker and price-setter.

**Further area for research:** The findings of this study are specifically significant to farmers in Arumeru district. The findings obtained may be different from those in other areas of Tanzania in which the programme is operating thus the areas for future research are as follows:

- Farmer group strengthening for sustainability was found to be of great importance
- Another research should look on contract farming point of view as it was found to be of very important concern. This is because it was established from the study that most farmers entered into contracts with unfaithful companies that was ended up at frustrating farmers

### ACKNOWLEDGEMENTS

Sincere thanks to the Almighty God for lighting the path and enabled to successfully complete this study in good health, peace and harmony. Researcher deeply indebted to Dr. A.A. Temu for the overall encouragement and assistance throughout the pursuit of this study.

Thanks are due to AMSDP Programme for their cooperation that enabled to undertake data collection in the field.

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