When the Weak Win: Role of Farmer Groups in Influencing Agricultural Policy Outcome; a Case of Nkhate Irrigation Scheme in Malawi

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Poster presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa, September 19-23, 2010

When the Weak Win: Role of Farmer Groups in Influencing Agricultural Policy Outcome; a Case of Nkhate Irrigation Scheme in Malawi

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Abstract

The knowledge today recaps that's livelihood of many African farmers are constrained by poor access to both inputs and output markets, limited entrepreneurial skills for adding value to produce and to bargain for better prices and finally limited technical skills in agricultural production. Despite a tremendous attention to salvage this through government interventions and research, there is still a big problem in addressing the smallholder farmer's needs. Farmer organizations open up opportunities for farmers to better overcome the above mentioned constraints through lobbying and collective action. Drawing from results of Participatory diagnosis and participatory market research done in Nkhate irrigation scheme in 2007 and 2008 this paper examines the effect of effective farmer groups in influencing rice price formation. Results demonstrated that farmer groups have the potential to effectively influence policy outcomes in their favour. This was however achieved through reorganization and mobilization of farmer groups to improve lobbying efficiency and reduce the inefficiencies caused by free riding. The results indicate that from the participatory gross margin analysis which was done by CIAT (2007) with rice farmers at the irrigation scheme, it was revealed that farmers have been making losses in the marketing of Kirombero and Super Fire rice varieties and have been realizing a very small positive margin for Mtupatupa a local rice variety. The analysis revealed gross margins of 36.78 US$ ha^{-1}, -182.50 US$ ha^{-1}, and 60.36 US$ ha^{-1}, for Super fire, Kirombero and Mtupatupa varieties respectively. This shows that farmers were making losses when they sold rice to traders at a price dictated to them. However, after farmers were effectively organised in a group and linked to markets, farmers realized gross margins of 681.84US$ ha^{-1}, 664.23US$ ha^{-1} and 1,028.69US$ ha^{-1} for Mtupatupa, Super fire and Kirombero rice varieties respectively. The paper further recommends that such farmer groups need to better articulate and deliver benefits to members hence ensuring that these members subscribe to the group and hence finance lobbying efforts which are often costly.

Key words: Farmer groups, Profitability, input and output markets, participatory market research, lobbying

1.0 INTRODUCTION

Today many African farmers are constrained by three critical issues namely; poor access to input and output markets, limited entrepreneurial skills for adding value to produce and to bargain for better prices and finally limited technical skills in agricultural production. There is a chronic inability of smallholder farmers to have their economic interests articulated in the political process. This emanates from the way governments use policy as a bargaining outcome for private pressure groups. With this governments do not pursue transcendental social interests but rather they respond to private demands. This lack of political wisdom to give priority to agriculture is a critical problem that threatens not only the livelihood of the smallholder farmers, but also the socio-economic progress of the country (Tchale, 2006)

Current analysis of government policies shows that many governments adopt policies that aim at maximizing social welfare, enables it stay in power and finally policies that respond to private demands and not social interests. Most of the policies tend to be antithetical to the interests of farmers. This is evidenced by the way governments respond to the needs of people staying in the rural as well as the urban sectors. The urban dwellers can organize themselves and protests about anything at any time because they stay close together unlike farmers in the rural. This has led to having most public policy outcomes being determined by the ability of specific pressure groups of the population to lobby for their own interests (Cabral & Scones, 2006).

The coming in of democratic governments seemed necessary in generating momentum in farmers to express their views which are not prescriptions but rather could directly or indirectly assists in policy discussions aimed at improving current and long term productivity of smallholder farming systems. In spite of these opportunities, most of the government policies have been in favour of the manufacturing sectors and not the agricultural sector (Helfand, 2000). This has led to minority of people benefiting and majority suffering of which are mostly farmers. It is therefore from this background that there is need to build the capacity of smallholder farmers to lobby and advocate for improved policies that could lead to changes in the policy environment hence enabling economic growth. This paper therefore argues that for efficient achievement of agricultural policies that benefit everyone it is imperative to increase farmers lobbying efficiency.

Rice Farming in Malawi

Malawi depends largely on agriculture for economic development however it is challenged by three critical issues, in the face of declining agricultural productivity. Firstly, the need to keep pace with the growing demand for food; secondly, the need to ensure cash crop production for foreign exchange; and finally how to achieve these core objectives while ensuring that soil fertility is properly managed. Both the government and agricultural research and development organizations have been developing different technologies with an aim of achieving the stated objectives. Most of the developed technologies have been slow in their adoption and utilization by smallholder farmers. This has been so because they only targeted increase in yields for food security without considering improving profitability, competitiveness and sustainability of agricultural production (Mvula, Chirwa & Kadzamira, 2003).

In an attempt to put farmers first, the use of participatory learning approaches has been a focal point in building capacity of farmers themselves to understand markets, to identify challenges and opportunities and deal with them using participatory research that draws on new information and indigenous knowledge. in the same line, the International Centre for Tropical Agriculture(CIAT) in Africa has since 2006 been piloting an intervention strategy known as Enabling Rural Innovation (ERI) in Nkhate Rice Irrigation scheme in Malawi. ERI is a mutual and collective learning process that aims at empowering rural communities by strengthening their social organization and entrepreneurial skills, encouraging them to produce what they can market rather than market what they produce. It also aims at enhancing community's ability to conduct research that links technology development to market opportunities and to improved management of natural resources for sustainable rural livelihoods. The main components of the approach are; Participatory Market Research (PMR); Farmer Participatory Research (FPR); Participatory Monitoring and Evaluation (PM&E).

Irrigation agriculture is being promoted in Malawi not only as a way of fostering rural development, but also as a means of reducing rural poverty, malnutrition, diseases and the growing social and economic inequalities between the rural and the urban areas. Nkhate irrigation scheme is one of the irrigation schemes that are under rehabilitation for hand over to the smallholder farmers. Despite its greatest role in food security and income generation its

production and marketing has not been impressive. To sustain high productivity in the irrigation schemes, sound soil fertility management, including use of fertilizer is required.

A major factor discouraging investments in fertilizer are low rice prices as a result of poor markets. In agreement with the above, results from a participatory diagnosis conducted in the area in 2007 revealed that marketing of rice was a major problem for the smallholder farmers in the area. Growing evidence and experience indicates that sustaining success in productivity-based agricultural growth critically depends on expansion of market opportunities (Diano & Hezel 2004) and requires thinking beyond productivity to incorporate profitability and competitiveness (Kaplinksky, 2004). Rice being the dominant crop in the area, efforts of improving its production while maintaining soil fertility relies mostly on the income realized from agricultural sales.

In Malawi, rice production is not enough to meet national demand and as a result, Malawi depends on imports to meet the shortfall. The imported rice is mainly sold and consumed in urban centres. In 2002 rice production was about two-thirds of the national demand (FEWS, 2006). During the period 2001 - 2005 the average milled rice production in Malawi was 49,990 MT. Growth rates for yield, harvest area and production were -11.79%, -5.88% and -16.97% respectively. But the growth rate for rice consumption was 8.53%. In this period, Malawi had a rice self sufficient ratio of 0.97 and rice imports represented 3% of the total quantity consumed (WARDA, 2007).

As a result of the growing rice demand rice prices have also been going up from one year to another. It was evident that paddy rice prices[1] jumped from about US$0.16 kg^{-1} in 2007 to approximately US$0.31 kg^{-1} in 2008 at harvest time. Similarly, within the year 2008 rice prices have been rising up from one period to another. Now one of the major issues or gaps that have been identified in the literature review is about the effect of rice price intra annual fluctuations, as a result of the growing rice demand, on smallholder farmers' livelihoods in Malawi. As rice prices have been rising up the cost of production have also been adjusting upwards especially from 2007 to 2008 seasons.

[1] Prices quoted here are for super fire rice variety at Nkhate Irrigation Scheme

Low income levels from rice are the major problem for rice smallholder farmers in Southern Malawi, Nkhate Irrigation Scheme in particular. (CIAT, May 2007). The major cause of this problem has been lack of farmers' linkage to better or profitable rice market outlets as well as lack of farmers' intelligence in timing their rice sales. Most farmers have not been able to take advantage of the rising seasonal rice prices as a result most of them in Nkhate have been selling their rice in the period of May - July, soon after harvest and the prices have been low during this period as compared to the periods August -September and October - December. Farmers have been accepting to sell their rice at very low dictated prices because they have been so desperate for money to meet their basic needs after investing in their rice fields.

This is a serious problem for farmers in the area because rice production is their main livelihood strategy and low income levels mean inability of farmers to actively participate in the day to day economic activities. Low income levels can also be translated into lack of access to basic needs of life that require to be purchased with money. Farmers that have been affected with this problem are those that have land allocations within Nkhate Irrigation Scheme. Rice smallholder farmers outside the scheme are also equally affected.

This paper analyses the rice gross margins for smallholder farmers in Southern Malawi, Nkhate Irrigation Scheme in particular at different farming seasons and provides policy interventions that can assist farmers to take advantage of the existing market outlets in order to realize more profits from their rice agro enterprise and hence invest back into the soils. Using farmer participatory research the farmers were trained and linked to reliable markets. A participatory gross margin analysis was then conducted for 2007 and 2008 growing season. A follow up income tracking study was conducted to asses in influence of enhanced farmer – market linkages on farmer decisions on allocation of the income from rice. This study therefore provides results of the gross margin analysis and results of the income tracking exercise.

Review of rice smallholder farmers' profitability at Nkhate Irrigation Scheme

From the participatory gross margin analysis which was done by CIAT (2007) with rice farmers at the irrigation scheme, it was revealed that indeed farmers have been making losses

in the marketing of Kirombero and Super fire rice varieties and have been realizing a very small positive margin for Mtupatupa -a local rice variety. The analysis revealed gross margins of -136.78 US$ ha^{-1}, -182.50 US$ ha^{-1}, and 60.36 US$ ha^{-1}, for Super fire, Kirombero and Mtupatupa varieties respectively. The analysis also showed the break even prices of 0.15 US$ kg^{-1}, 0.18 US$ kg^{-1} and 0.22 US$ kg^{-1} for Mtupatupa, Super fire and Kirombero rice varieties respectively. Traditionally, the average price that traders have been offering at least for the past three seasons has been 0.16 US$ kg^{-1} for Mtupatupa and 0.18 US$ kg^{-1} for Super fire and Kirombero rice varieties. Thus it is so clear that farmers have been making losses and it's assumed that traders have just been making money at the expense of farmers sweat and toil in the rice fields (CIAT, 2007). These low gross margins have mainly been due to lack of linkage of rice farmers to profitable market outlets.

1.1 Methodology

1.1.1 Study Area

Nkhate irrigation scheme (134^{o} 56′ E and latitude 16^{o} 9′ S) is one of the schemes in Livunzu Extension Planning area situated 50 Km east of Chikwawa District. It has distinct winter (May–September) and summer seasons (October–April) and the annual rainfall is less than 800 mm distributed primarily between November and May, its temperatures range from 20-41 degrees Celsius. The topography is fairly flat, with slopes around 0 – 2%. Farmers in the area are researching on different ways of managing their wetlands so as to improve the ecological sustainability of their farms and ultimately their economic viability. These farmers are in two categories one group cultivates in the irrigation scheme and the other outside the scheme. The irrigation scheme consists of 1165 members who cultivate different crops throughout the year using canal irrigation with water from Nkhate River. Of the members only 6% are women (75) and the scheme also consists of a few young farmers (under 18 years of age) that have inherited the membership from a deceased parent. The irrigation Scheme has a gross area of 243 hectares. Farmers inside the scheme cultivate 2- 3 times a year unlike those outside the scheme who mostly manages to cultivate once a year. Those farming in the scheme have an average land holding size of 0.2 hectares whilst those outside the scheme have an average of 0.4 hectares.

As both income and investment in natural resource management is linked to the wealth status of the farmers, a participatory wealth ranking exercise was done to group farmers into resource groups. Different indicators of wealth status were developed during a focus group

involving farmers in the scheme and those from the surrounding communities. The table below is showing the household typologies that were identified by the farmers.

Table 1: Household Characteristics and Typology for Farmers at Nkhate Irrigation Scheme

Indicators of Wealth Status of the Farmers and the Characteristics of the Different Groups

Indicators of Wealth Status and other Characteristics	Resource Group1 (High Resource Endowment)	Resource Group 2 (Intermediate resource Endowment)	Resource Group 3 (Resource Constrained)
farm Size	farm size about 0.4ha	farm size about 0.2ha	farm size about 0.1ha
Livestock Ownership	owns 10-40 cattle	owns <10 cattle and few livestock	No livestock
Farming Implements	Own Scotch cart and all farm implements	Own all implements but rarely scotch cart	Own only small implements such as hoes
Draught Power	Own oxen for draught power	Own oxen for draught power	no draught power
Hire or Sell Labour	Afford hiring labour	Hire labour occasionally	Sell labour all times
Mineral Fertiliser	buy fertiliser every season	buy fertiliser occasionally	do not buy fertiliser
Asset Ownership	Own grinding mill, runs small businesses	runs smaller businesses	do not have grinding mill neither a business
Food Security	Have food the whole year round	Have food the whole year round	run out of food before the year ends

Source (Own Survey 2007)

2.0 Conceptual framework and theoretical review

Consider a smallholder farmer who has a bundle of scarce resources to be utilized in the production of rice. Assume that this farmer is rational and would like to maximize profits. Given options in terms of rice value chains this farmer will obviously go for a most profitable value chain because he/she is rational.

Assuming that the farmer has inputs L (Labor) and K (Capital), and using these inputs a farmer wants to produce output Y.

Let L_y *denotes amount of Labor required to produce output Y*.

K_y *denotes amount of capital required to produce output Y*.

Mathematically this scenario can be represented as below:

$$Max \quad Y = f(L_y, K_y)$$
$$Subject\ to: X = g(L_y, K_y)$$

Where X denotes an input combination of L and K that would maximize output Y.

By solving this maximization problem, using a Lagrange method, the farmer can identify an efficient level of production of Y. This optimal level of Y can be denoted as Y*. Then Y* is produced using optimal input levels L_y* and K_y*.

But since we are looking at the farmer whose main objective is to maximize profit, then we introduce other variables namely, price of output and cost of inputs.

Let p *denotes price of output*. (*US*$)

w *denotes cost of inputs* (*US*$).

R *denotes total revenue from sale of output* (*US*$) *i.e* $p(y)$.

C *denotes total cost of variable inputs* (*US*$).

Therefore the farmer's problem would be to maximize the gross margin (Z) i.e R-C and it can mathematically be presented as follows:

$$Max \quad Z = p(Y^*) - w_i(X^*) \qquad \forall \quad i = L, K$$
$$where: Y^* = f(L^*_y, K^*_y)$$
$$X^* = g(L^*_y, K^*_y)$$

Given an opportunity to produce one crop, say, rice a farmer will always think of how to increase his/her gross margin from rice. One way a farmer can increase rice gross margin is through value addition. There are several stages of value addition and these stages form what is being referred to as a value chain. Each stage of the value chain has functions that a farmer or an agent needs to perform in order to add value to the produce. These functions attract costs and of course add value to the product. At the farm stage of the value chain a farmer can add value to rice by storage and sell at a period when the prices are reasonably higher.

Gross Margin Analysis

At the production level of the value chain, gross margin analysis is very key in analyzing the costs that goes into a product and hence profitability of an enterprise. The gross margin that a farmer gets is being affected by the costs of production, marketing costs, output level and the selling price which depends on the value chain actor to which the farmer is connected to as a produce market outlet. Prices are also affected by the degree of competition of the rice market, the period the farmer decides to sell rice and other price stabilization policies influenced by the Government.

Gross margin of an activity is defined as gross output (Price *times* yield) less all variable or direct costs. (Hazell, 1971). Kay et *al* (2004) defined gross margin as a difference between income and variable costs. Gross margin can be used as a proxy of profitability of an enterprise or value chain.

At the farm gate the gross margins were calculated by use of farm gate prices for both inputs and outputs. To calculate gross margins the following formula was used:

$$GM = GI - VC$$

Where,

GM is the gross margin per unit land

GI is the gross income which was calculated as the product of price per unit of output at farm gate and the amount of units harvested per unit of land; and

VC is the variable cost directly linked to production and Post harvest handling.

3.0 DATA

The data used for analysis in this study were based on a farm household survey administered to a sample of 150 farm families stratified by wealth status. These farm families were randomly drawn from those that have plots in the irrigation scheme and participated in the wealth ranking exercise. From these farmers, rice technology information related to variety grown, rate of input application, yield levels, output price and input prices were collected and used in the analysis. To analyze the profitability of rice gross margin analysis was done on the three main varieties grown in the area.

The variables that were considered in the calculation of the total variable cost were, cost of fertilizer, cost of seed, irrigation cost, labour cost and marketing costs. The average yield levels, average total variable costs and the average output price for each period were calculated using STATA 10 statistical package and were used in the calculation of gross margins for each rice variety in an Excel computer package. The descriptive statistics for all the variables that were used in the calculations of the rice gross margins are presented in Table 2.

Table 2: Descriptive Statistics for Superfire, Mtupatupa and Kilombero Rice Varieties

Variable	Description	Mean	Std Deviation
	Superfire rice yield (kgs ha^{-1})	**4,340.73**	**1,396.22**
yield	**Mtupatupa rice yield (kgs ha^{-1})**	**5,259.26**	**1,884.25**
	Kirombero rice yield (kgs ha^{-1})	**3,845.00**	**1,217.59**
	Total variable costs for Superfire rice (US$ha^{-1})	**1,084.86**	**191.55**
TVC	**Total variable costs for Mtupatupa rice (US$ha^{-1})**	**1,100.94**	**173.15**
	Total variable costs for Kilombero rice (US$ha^{-1})	**1,069.60**	**225.21**
	Output price for Superfire rice (US$kg^{-1})	**0.42**	**0.04**
Price	**Output price for Mtupatupa rice (US$kg^{-1})**	**0.40**	**0.04**
	Output price for Kilombero rice (US$kg^{-1})	**0.45**	**0.04**

Source (Own survey 2008)

4.0 RESULTS AND DISCUSSIONS

4.1 Gross Margin Analysis

The calculated gross margins are shown in table 3. From these two it can be seen that farmer's gross margins have increased from the base year (2007) to the second year (2008). From this it vivid that farmers can get higher prices if effectively linked to market outlets of rice.

Table 3: Mean Farmers Gross Margins[2] for Each Rice Variety by Cropping Season Category

Cropping Season	Superfire	Mtupatupa	Kirombero
2006-2007	-136.78	60.36	-182.50
2007-2008	681.84	1,028.69	665.23

Source (Own survey 2007 and 2008)

Table 2 presents results of the intra seasonal price fluctuations. It is so clear that for each rice variety the mean farmers' gross margin has been increasing from season 1(May - July) to season 3(October -December) .It is so vivid that farmers can multiply their profits if they can store their produce and sale in season 2 (August -September) and also can greatly multiply their profits if they can sale their rice in season 3 (October- December) when rice prices are reasonably higher.

Table 2: Mean farmers' gross margins [3] for each rice variety by season rice was sold

Season	Super fire	Mtupatupa	Kirombero
May-July	116.66	266.47	15.24
August-September	718.17	1,009.15	578.26
October-December	1,210.70	1,810.44	1,402.19

Source: Own survey (2008)

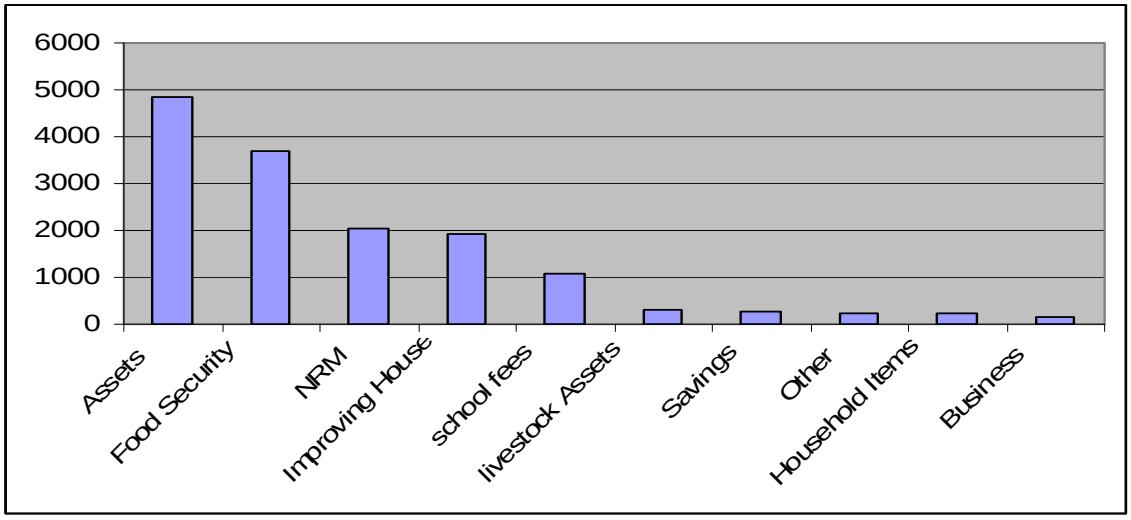
[2] These gross margins were calculated in US$ ha^{-1}, the exchange rate used was MK140 against 1US$ in both cropping seasons

[3] These gross margins were calculated in US$ ha^{-1}, the exchange rate used was MK140 against 1US$ in 2008

4.2 Farmer Investments Decisions with Increasing Market Linkages

There have been drastic cut backs in investment in natural resources by smallholder farmers in the area. The results show that a lot of investment from money realized from rice sales is being invested in accumulation of household assets, improving food security as well as improving living conditions such as construction of better houses see figure 1.

Figure 1: Household Investments[4] from Linkages to Markets

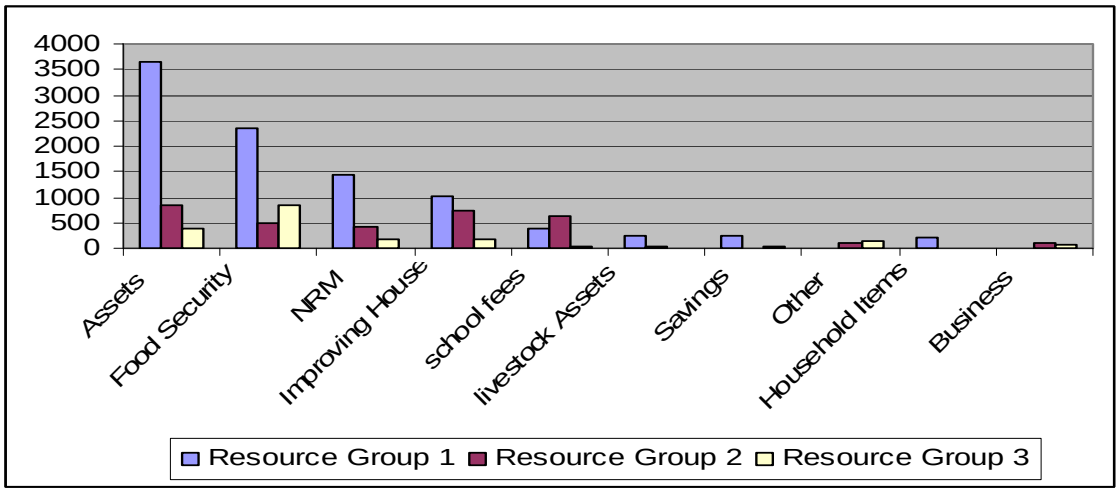


Source (Own Survey 2008)

The above trend did not differ with wealth status of a farmer; figure 2 shows household investments by wealth category with priority in accumulation of household assets, food security and thirdly natural resource management which is mainly soil fertility management.

[4] These investment figures were calculated in US$ ha^{-1}, the exchange rate used was MK140 against 1US$

Figure 2: Household Investments[5] from Linkages to Markets by Wealth Category



Source (Own survey 2008)

This trend is so because of the seasonal farming that happens at the irrigation scheme. Rice is harvested and sold in the months of May to December and during this time farmers are involved in winter cropping. Majority of the farmers in the area do not apply inorganic fertilizer to their winter crop they however rely of residual effects of fertilizer applied in rice during summer cropping. The winter crops are normally harvested and sold between November and January. It was established that they use the money sourced to buy fertilizer and seed for the rice.

5.0 CONCLUSIONS AND POLICY IMPLICATIONS

The study clearly shows that rice gross margins have increased after increasing market linkages in the two cropping seasons. In terms of policy implications, sustainability in maintaining the market linkages as well as in improving the capacity of farmers in conducting market research is key and essential for increasing farmers' income hence improved livelihoods especially at Nkhate Irrigation Scheme where rice agro enterprise is their main livelihood strategy. Thus there is need for improving on farmers lobbying techniques so as to effectively utilise the already available outlet markets for rice.

Furthermore, it is clear that income realized from rice sales is not going to NRM most of it is going in improving living standards of people. The study has however, showed that there is potential that most of the money realized from sales of winter crops is reinvested in NRM. In

[5] These investment figures were calculated in US$ ha^{-1}, the exchange rate used was MK140 against 1US$

both cases farmers are using the marketing knowledge they acquired during the PMR. The use of participatory approaches to identify market opportunities and enterprise selection rather than prescribing markets and products is especially critical for empowering farmers and creating ownership of the process in rural communities.

However, it is important to note that the scope for rice storage to increase farmers' incomes depends on consistent integration of good government's price stabilization policies, strong farmers' organization and access to good storage facilities. Thus establishment of strong farmers' organizations in the smallholder farming systems can provide a mechanism for which smallholder farmers can collectively store their rice and sell when the prices are higher. The farmers' organizations can provide what is being referred to as a commodity warranty to the farmers through a commodity warranty scheme which can be put in Place. With this farmers can be able to buy enough fertilizer and other farm inputs which can be used to increase production levels of their winter crops. It is further recommended that such farmer groups need to better articulate and deliver benefits to members hence ensuring that these members subscribe to the group and hence finance lobbying efforts which are often costly.

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