

**FARMER ORGANISATIONS IN SMALLHOLDER CASH
CROPS AND INPUTS IN MALAWI:
*THE CASE OF COTTON, CHILLIES, PAPRIKA, SUGAR
AND FERTILIZERS***

FINAL REPORT

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Abbreviations

ACDI	Agricultural Cooperative Development International
ADB	African Development Bank
ADCs	Agribusiness Development Centres
ADD	Agricultural Development Division
ADMARC	Agricultural Development and Marketing Corporation
AIHC	ADMARC Investment Holding Company
APIP	Agricultural Productivity Improvement Programme
ATC	Agricultural Trading Company
BASFA	Balaka Smallholder Farmer's Association
CCM	Clark Cotton Malawi Limited
CDA	Cotton Development Association
CDC	Commonwealth Development Corporation
CNFA	Citizen Network for Foreign Affairs
DANIDA	Danish International Development Agency
DCGL	Dwangwa Cane Growers Limited
DCGT	Dwangwa Cane Growers Trust
DSFA	Dwangwa Smallholder Farmers' Association
DSC	Dwangwa Sugar Corporation
DWS	David Whitehead and Sons
ERS	Estimated Recoverable Sucrose
FOs	Farmer Organisations
GACs	Group Action Committees
GLC	Great Lakes Cotton Limited
IFDC	International Fertilizer Development Centre
ISL	Illovo Sugar Limited
KCG	Kangazinja Cane Growers
LSC	Lonrho Sugar Corporation
MACs	Marketing Action Committees
MDC	Malawi Development Corporation
MFC	Malawi Fertilizer Company
MRFC	Malawi Rural Finance Company
NASCOMEX	NASFAM Commodity Marketing Exchange
NASCENT	NASFAM Centre for Development Support
NASDEC	NASFAM Development Corporation
NASFAM	National Smallholder Farmers' Association of Malawi
NSP	NASFAM Strengthening Project
PAMA	Paprika Association of Malawi
SACA	Smallholder Agricultural Credit Administration
SADP	Smallholder Agribusiness Development Project
SFFRF	Smallholder Farmer Fertilizer Revolving Fund
SSA	Smallholder Sugar Authority
SUCOMA	Sugar Corporation of Malawi
USAID	United States Agency for International Development
ZISFA	Zikometso Smallholder Farmer's Association

PART I INTRODUCTION AND CHARACTERISTICS OF GROWERS

1. Introduction

1.1 Background and Policy Context

The agricultural sector plays an important role in the economy and the livelihoods of the rural population. Agriculture contributes about 35-39 percent to the gross domestic products. Most of the agricultural output is generated by the estate sector, with the smallholder sector contributes about 20 percent of agricultural output. The agricultural sector also contributes more than 90 percent of export earnings. Most of the rural population (about 80 percent) derive its livelihood from the agricultural sector. National surveys estimate that crop production accounts for 74 percent of all rural incomes and agriculture is the most important occupation for 71 percent of rural population. About 65 percent of Malawians live below the poverty line, with 29 percent barely surviving (NSO, 2000).

Agriculture in the smallholder sector remains subsistence and the technology remains traditional – using a hoe as the main farm implement. The smallholder sector is divided into three sectors that characterise the farm household in Malawi: net food buyers, intermediate farmers and net food sellers (GoM, 1987). Net food buyers are those farmers with less than 0.7 hectares who cannot produce food to satisfy their subsistence needs given the technology and remain dependent on off-farm activities. Intermediate smallholder farmers are those with land holding between 0.7 hectares and 1.5 hectares who produce just enough for their survival but have very little for sale. Net food sellers are those farmers with land holdings of more than 1.5 hectares and produce more than their subsistence needs for survival during the year. The rural households with landholdings of less than 0.7 hectares are more prone to food insecurity.

Land, access to credit facilities and access to inputs are some of the binding constraints shaping the development smallholder sector in Malawi. With increase in the population, smallholder land holdings have become more fragmented and the average land holding for example fell from 1.53 hectares per household in 1968 to 0.80 hectares per household in 2000 (GoM, 2001). Most smallholder farmers typically grow maize or other food crops to meet their food requirements. Maize also accounts for 53.8 percent of smallholder cultivated land (NSO and IFPRI, 2002).

Apart from maize, the other main agricultural products grown by smallholder farmers in Malawi include cassava, groundnuts, pulses, sorghum and millet, sweet potatoes, cotton and tobacco. Following liberalisation of burley tobacco which was mostly grown on estates in 1995, it has become the main cash crop for smallholder farmers who currently account for more than 70 percent of burley tobacco production, more than doubling their share in 1996 (MCI, 2004). The main agricultural exports are tobacco, tea, sugar, cotton, rice and pulses. Tea, sugar, tobacco and coffee are traditional export products that are largely grown by corporations and large scale farmers. Paprika and chillies are some of the emerging cash crops grown by smallholder farmers that have export potential (MCI, 2004). What has also emerged in smallholder agriculture more recently is the increasing role of farmer organisations in facilitating access to information, inputs and agricultural credit and markets. However, as Kachule et al. (2005) note, farmer organisations experience varying problems including low skill levels,

governance and accountability, members commitment and capacity constraints (human resources, financial resources and capital resources). Under these difficult circumstances some still manage deliver some services to their members efficiently.

1.2 Description of Selected Cash Crops and Inputs

This study is a case study of the role of farmer organisations in four cash crops and one input in Malawi, namely: chillies, sugarcane, paprika and cotton as cash crops and fertilizer as a major input in smallholder food and cash crop farming. On the output side, the four selected cash crops have different characteristics and requiring varying labour intensity and crop management from farmers. All the four products have high potential for expansion and export orientation.

First, are chillies, emerging as potential cash crop among smallholder farmers as a way of diversification out of tobacco. Chillies are less input intensive and the only inputs apart from labour that is required are seeds. Farm management is also critical in achieving high productivity. Access to markets is important in chilli farming. Some of the smallholder chilli farmers have organized associations that link them to markets. The National Smallholder Farmers' Association of Malawi (NASFAM) in Mulanje, Thyolo and Phalombe districts organized some of the farmers into marketing cooperatives. The commercial division of NASFAM, NASFAM Commodity Marketing Exchange (NASCOMEX) buys chillies from farmers for exports. However, there are other buyers of chillies such as the local manufactures of spices such as Nali Limited and other exporters such as Transglobe and Cheetah. The farmer organisations in chillies, such as NASFAM, provide extension services, seeds and promote the production of chillies.

Second, is smallholder sugarcane and is grown on a more organised farming system, particularly on the irrigated scheme on the edge of estates. Smallholder sugarcane farmers are organized around a crop authority that has been reformed and privatised. The Dwangwa Cane Growers Limited (DCGL) is the grower/employee owned company that deals with agronomy and marketing issues of smallholder farmers. The smallholder farmers on the irrigated scheme have fixed and an equal land allocation of 3 hectares per household and most of the agronomy activities are taken by the DCGL. In addition, there is an out-grower scheme that is based on rain-fed agriculture under the DCGL or operating independently and selling sugarcane to the sole processor. Issues of productivity and efficiency in the supply of cane to the processing factory are key elements in the value chain of sugar.

Third, is paprika, largely a smallholder crop that appears to be an alternative commercial crop to tobacco due to similarities in the agronomic conditions. Paprika is mainly grown in the northern and central regions of Malawi by smallholder farmers. According to MCI (2004), there were estimated 60,000 farmers growing paprika in 2001, in which smallholder farmers accounted for 85 percent of production, medium scale farmers accounting for 10 percent and large farmers accounting for only 5 percent. Paprika has a large external market for use as oil, and for food colouring and flavouring (or example, in Spanish sausages). The crop can have very high yields and for farmers is a possible replacement for burley tobacco. However, paprika is high labour intensity and requires significant crop protection chemicals and demanding standards and grades. Cheetah is the leading buyer of paprika, with similar operations in Mozambique and Zambia, and works with farmer organisations such as the Paprika Association of Malawi (PAMA) to benefit from coordination in the value chain.

Fourth, is cotton which is the fourth-ranked foreign exchange earner in Malawi and is a crop with a long tradition of smallholder production and little estate production. In 2001, there were 80,000 farmers in which smallholder production accounted for 94 percent (MCI, 2004). The medium term history has been one of falling production under the negative influences of the declining capabilities of ADMARC, the collapse of the domestic spinning industry and poor world prices (affected by rich country subsidies to their own producers). Cotton is mainly grown in the Lower Shire and the districts of Balaka, Salima, Nkhotakota and Karonga. Cotton farmers have been organised in groups which have historically related to the various public sector service organisations for supply of inputs on credit, extension advice and output marketing. Apart from farmers that belong to NASFAM in Balaka, there is no apex farmer organisation for most of the cotton farmers. The typical farmer organisation is the club level, and these clubs are old Agricultural Development Division (ADD) farmer clubs. There are four major buyers of cotton – Clark Cotton, Great Lakes Cotton, Iponga and Produce Africa, who also own ginning factories with the exception of Produce Africa.

On the input side, fertilizer is the main input apart from labour in most smallholder crop farming system. The fertilizer used in Malawi is imported and is distributed by state owned enterprises and private companies, with farmer organisations, non-governmental organisations (NGOs) and credit institutions facilitating access to smallholder farmers through various interlocking relationships. Some of the fertilizers are blended in Malawi to meet the specialized needs of large scale farmers. Prior to marketing liberalisation for agricultural inputs in 1992, fertilizer distribution to the smallholder sector was entrusted with ADMARC using its numerous distribution networks and distributing fertilizers at government subsidized prices. The opening up of the market has facilitated the entry of private companies and traders in the distribution of fertilizers. There are 12 or more major firms importing fertilizers and two blending or manufacturing operations in Malawi. Nonetheless, most of these fertilizer companies are located in major town centres or peri-urban towns, implying that farmers have to travel longer distances to procure fertilizers than the distance the cover to ADMARC markets.

1.3 Objectives of the Study

The overall objective of the study is to assess the role of smallholder farmer organisations (FOs) in promoting development of cash crops with varying technological processes in Malawi. The specific objectives of the study are to:

- Provide a historical overview of the smallholder organisations in cotton, chillies and sugar industries from their foundation, development, institutional structures, formal and informal networks, and the structural and business policy changes.
- Investigate the inter-relationships between smallholder growers, the buyers, processors, input providers and farmer organisations and identify factors that promote or hinder linkages.
- Determine the role of government and government policies in promoting the development of the relevant crops in Malawi.
- Review the governance and accountability structures of smallholder farmers' organisations and assess the level of trust among various players in the value chain.

- Review the structure and conduct of the fertilizer market and the role of FOs in facilitating input access to smallholder farmers including supply chain integration, transport logistics, financing arrangements and customer profiles.
- Assess the strengths and weaknesses of FOs in smallholder cotton, chillies and sugar in promoting livelihoods of the growers and the local economy.

1.4 Methodology

The study uses both quantitative and qualitative research methods. The quantitative approach involved interviews with smallholder growers for the four selected cash crops. The qualitative approach involved key informants' interviews with stakeholders and focus group discussions with smallholder farmers, and institutional interviews with various organisations that work with smallholder farmers.

1.4.1 Quantitative Approach

The study selected one district for each of the selected crops. We purposively chose to sample 100 smallholder farmers per district (per crop) for the administration of a structured questionnaire. Smallholder cotton, chillies, paprika and sugar growers were selected randomly for the interviews. The gender distribution of the sample farming households (Table 1) shows that cash crop farming is dominated by male-headed households.

Table 1 Distribution of Sample Farming Households by Gender of Head (*N*)

Gender	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Male	68	74	90	81
Female	32	26	10	19
Total	100	100	100	100

Source: Smallholder Cash Crop Farmers Survey 2005

The questionnaire (see Annex A) obtained data on the socio-economic profile of smallholder growers, land use patterns, relative importance of selected cash crops farming in the livelihoods, technology and investments in tea farming, processing, marketing and marketing channels, labour market issues, linkages with buyers and associations, services, problems and constraints in smallholder cash crop farming, and social networks.

1.4.2 Qualitative Approach

The qualitative approach utilized focus group discussions with selected crop smallholder farmers, key informants' interviews with leaders of the local associations and institutional interviews with organisations that work with smallholder farmers. For each selected crop, two focus group discussions were held – one for female farmers and another for male farmers. The focus group discussion and key informants' interview guides are in Annexes B and C, respectively. The list of stakeholders interviewed is provided in Annex D.

2. Characteristics of Growers

2.1 Introduction

Smallholder crop farming in Malawi is typically defined by the size of land holding. Smallholder farmers are those farmers that cultivate crops on land sizes that are no more than 2 hectares and cultivating under customary land tenure. The data from the survey shows that 71.2 percent of the 1,064 plots among the 400 sample farmers were acquired under customary tenure (through the chief, subdivision from family, inheritance). The mean household land under cultivation (for all crops) among the sample smallholder farmers is 2.89 hectares. Typically, smallholder farmers have fragmented land holdings. The average number of plots (for all crops cultivated) held by the sample of chilli, sugarcane, paprika and cotton growers is 2.69, 3.07, 2.51 and 2.31, respectively. The average number of crops grown on a plot is 2.14 crops. On average, farming households have been cultivating on the plots for 16.23 years, ranging from one year to 99 years.

The mean area under selected cash crops cultivation is 1.12 hectares, ranging from 0.04 hectares among paprika farmers to 5 hectares among paprika farmers. This high average is boosted by higher mean land holdings of 3 hectares per farmer under sugarcane cultivation due to the design of the smallholder irrigated scheme. The mean land areas under chilli, sugarcane, paprika and cotton cultivation reported by farmers are 0.28, 3.02, 0.59 and 0.60 hectares, respectively. It is only under sugarcane production that land is distributed equally among smallholder farmers under the irrigated scheme. Otherwise, the sizes of land vary considerably under chilli, paprika and cotton production.

2.2 Demographic Characteristics and Household Composition

Overall mean and median household size is 6.1 members and 6 members, respectively. The household size ranges from 1 member to 16 members. This is far above the national average of 4.3 households based on the 1998 Population Census (NSO, 2000), and reflects the dependency burden brought about by HIV/AIDS and other diseases. Table 2 shows the characteristics of household heads among sample farmers. The household size is highest among smallholder sugar farmers (8.6 members) and is twice the average of 4.6 members for Nkhotakota district. The census average household size for Dowa is 4.5 members, but the sample of paprika farming households has a mean average size of 6 members. Similarly, the census averages for Mulanje and Balaka districts are lower than those obtained from our sample of chilli and paprika farmers, respectively.

Overall, in our sample, 21.8 percent of household are headed by females. Chilli farmers in Mulanje have the highest proportion of female-headed households (33 percent) while paprika farmers in Dowa have the lowest proportion of female-headed households (10 percent). Most of the farming household heads are married, ranging from 92 percent among paprika farmers in Dowa to 74 percent among chilli farmers in Mulanje. Nkhotakota has the highest proportion of widowed household heads, 23 percent, which compares favourably with the high dependency in terms of household sizes.

Table 2 Characteristics of Households

Variable		Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
<i>Mean Household Size</i>	<i>N</i>	4.64	8.59	6.18	5.05
<i>Sample Population</i>	<i>N</i>	100	100	100	100
<i>Sex of Household Head</i>					
Female	(%)	32.0	26.0	10.0	19.0
Male	(%)	68.0	74.0	90.0	81.0
<i>Marital Status of Head</i>					
Married	(%)	74.0	76.0	92.0	82.8
Widowed	(%)	14.0	23.0	4.0	9.1
Divorced	(%)	7.0	-	1.0	4.0
Separated	(%)	4.0	-	1.0	2.0
Single	(%)	1.0	1.0	2.0	2.0
<i>Age Groups (Years)</i>					
Up to 5	(%)	10.6	12.9	19.6	21.1
6 – 14	(%)	30.1	25.6	31.8	28.7
15 – 64	(%)	51.6	58.7	47.0	46.9
65 – above	(%)	7.7	2.8	1.7	3.3
<i>Sex of Household Member</i>					
Female	(%)	52.0	45.6	48.5	47.6
Male	(%)	48.0	54.4	51.5	52.4

Source: Smallholder Cash Crops Survey 2005

In all the sample areas, most of the population is in the productive age of 15 – 64 years. Smallholder sugar farmers in Nkhotakota have the highest proportion of the active age group (58.7 percent) followed by smallholder chilli farmers in Mulanje (51.6 percent) while cotton farmers in Balaka have the lowest proportion of economically active members. Smallholder chilli farmers have the highest proportion of aging population. However, the highest dependency ratio appears to be among cotton farmers in Balaka. Smallholder farming is typically labour intensive, and the high number of economically active populations among the households implies that households may not have major household labour supply constraints. In terms of the gender distribution of members of households, smallholder chilli farmers in Mulanje have the highest ratio of female members of household than male members, and the converse is true for the other three districts.

2.3 Educational Qualifications of Farming Household Heads

The education status of household heads among a sample of the smallholder farmers is low (Table 3). The proportion of household heads that have never been to school is at least 19 percent, the highest being 21.2 percent among smallholder paprika farmers in Dowa. The proportion of household heads that at least completed primary school ranges from 13 percent among chilli farmers in Mulanje to 27.2 percent in Dowa district where there is one farmer with post secondary school education. The low levels of literacy have implications on the effectiveness, management of local farmer organisations and their sustainability.

Table 3 Highest Level of Education of the Household Head (%)

Highest Level	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
None	19.0	20.0	21.2	20.0
Standard 1-4	38.0	31.0	29.3	22.0
Standard 5-7	30.0	20.0	21.2	31.0
Standard 8	10.0	22.0	23.2	15.0
Form 2	2.0	7.0	2.0	9.0
Form 4	1.0	-	1.0	3.0
Post-secondary	-	-	1.0	-

Source: Smallholder Cash Crops Survey 2005

2.4 Major Sources of Income and Expenditure Patterns

There are variations in the major sources of income among farmers of different cash crops. Among smallholder sugar farmers 98 percent of farmers consider crop sales as their major source of income, followed by paprika farmers in Dowa in which 78 percent take crop sales as their main source of income. Among chilli farmers in Mulanje only 40 percent consider crop sales as their main source of income while 23 percent consider small business enterprise as their main source. Cotton farming is not considered as the main source of income among Balaka farmers – only 29 percent revealed that crop sales are the main source compared with 43 percent that point to small business enterprise.

These revealed major sources of income significantly contribute to total household incomes (Table 4). For example, smallholder sugar farmers in Nkhotakota earn gross revenues amounting to MK0.610 million from crop sales. In Balaka, cotton farmers earn MK0.026 million on average from business enterprises compared with only MK0.011 million from crop sales, although those in salaried non-farm employment tend to earn more per annum. In Mulanje, those that are employed earn ten times more income on average than the income from crop sales. The picture is the same among paprika farmers in Dowa district.

Table 4 Mean Annual Household Gross Incomes ('000 MK)

Income Source	Mulanje (Chillies)		Nkhotakota (Sugar)		Dowa (Paprika)		Balaka (Cotton)	
	Mean	N	Mean	N	Mean	N	Mean	N
Crop sales	10.6	98	610.1	99	23.4	98	11.6	100
Livestock sales	11.4	44	7.7	14	14.2	29	3.2	40
Fishing	0.5	1	8.0	3	3.0	1	-	-
Small business	13.1	54	27.0	22	11.6	40	26.8	69
Income transfers	9.3	29	14.9	9	6.5	12	20.6	15
Wages from public works	4.1	4	4.5	1	1.5	4	2.2	2
Salaried farm employment	25.6	9	27.1	8	-	-	-	-
Salaried non-farm employment	310.8	6	23.0	8	25.7	2	52.3	3
<i>Ganyu</i> on Farm	17.5	38	2.5	2	6.0	34	6.0	38
Other <i>ganyu</i>	6.1	17	-	-	6.4	10	13.9	20
Income from land rental	-	-	-	-	3.0	4	2.0	2
Other specify	35.2	3	31.7	6	11.5	16	18.3	2
Total Income	56.17	98	624.89	99	38.51	98	41.57	100

Notes: These figures need to be interpreted with caution due to measurement errors. The standard errors were generally higher than the means.

Source: Smallholder Cash Crop Survey 2005

Table 5 shows the mean annual expenditure of the farming households. Overall, the mean total expenditure is less than the mean total income. Except among smallholder sugar farmers, a large proportion of income is spent on food. The mean expenditure on food across the sample of farmers is MK20,830 per annum. However, smallholder sugar farmers have the highest average expenditure on food (MK53,110) while chilli farmers in Mulanje have the lowest mean expenditure on food (MK7,020). Expenditure of farm inputs and labour is highest among smallholder sugar farmers in Nkhotakota and lowest among chilli farmers in Mulanje. Sugarcane farming is capital, input and labour intensive¹ where as chilli farming does not require inputs such as fertilizers.

Table 5 Mean Annual Household Expenditure ('000 MK)

Expenditure Category	Mulanje (Chillies)		Nkhotakota (Sugar)		Dowa (Paprika)		Balaka (Cotton)	
	<i>Mean</i>	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	<i>N</i>
Food	7.02	100	53.11	100	10.16	99	12.92	100
Non-food items	2.18	99	13.34	100	4.44	100	3.74	100
Education	2.05	77	15.18	82	2.66	59	1.34	59
Health (pills & Hospital fees)	0.62	75	6.27	99	1.36	95	0.84	63
Clothing	1.57	79	13.40	90	3.62	80	2.94	93
Transport	0.76	68	22.10	91	1.41	80	1.26	58
Housing	0.47	64	12.50	44	2.47	23	1.39	40
Farm inputs and labour	1.78	59	180.45	99	8.69	98	2.22	99
Land rentals	0.14	53	12.56	24	2.02	10	0.67	41
Remittances (transfers)	0.40	66	8.79	44	1.69	27	0.88	46
All other expenses	0.33	49	53.86	86	1.69	55	0.30	27
<i>Total Expenditure</i>	<i>14.84</i>	<i>100</i>	<i>354.62</i>	<i>100</i>	<i>32.05</i>	<i>100</i>	<i>24.95</i>	<i>100</i>

Note: These figures need to be interpreted with caution due to measurement errors. The standard errors were generally higher than the means.

Source: Smallholder Cash Crop Survey 2005

2.5 Access to Credit Facilities

Access to financial capital is one of the constraints to agricultural development in Malawi. This has been made worse following the collapse of the Smallholder Agriculture Credit Administration (SACA) in the 1990s. Table 6 shows variations in access to credit facilities in different crops. Smallholder sugar and paprika farmers have the highest access to credit facilities with 100 percent and 93 percent of farmers having obtained credit last season. In these cases, credit is provided by the associations or by crop buyers. Only 10 percent and 22 percent of cotton and chilli farmers have access to credit among the cotton and chilli farmers, respectively. Family and friends are the main sources of credit among cotton and chilli farmers. Most of the credit obtained is meant for agricultural inputs. In terms of amount of agricultural credit, smallholder sugar farmers have the highest amount of MK0.416 million and chilli farmers have the lowest credit of MK1,022. There is also a high proportion of farming households that obtained credit to smooth consumption especially among chilli and cotton farmers.

¹ The figures reported here do not include other input charges administered by Dwangwa Cane Growers Company such as cost of irrigation, cultivation and replanting, transportation of sugarcane to the factory. In 2004, on average smallholder sugar farmers paid MK520,582 as the cost of farming out of average sales revenues amounting to MK745,161.

Table 6 Access to Credit among Smallholder Farming Households

Variable	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Access to credit (% Yes)	22.0	100.0	93.0	10.0
<i>Types of Credit (%)</i>				
Agricultural credit	8.7	100.0	95.8	27.3
Small business credit	13.0	4.0	1.1	9.1
Consumption credit	78.3	21.0	10.8	54.5
Other credit	-	15.0	3.2	-
<i>Amount of Credit (MK)</i>				
Agricultural credit	1,022.22	416,137.65	5,291.30	2,333.33
Small business credit	2,700.00	10,833.33	5,500.00	90.00
Consumption credit	2,102.27	14,539.13	650.00	1,666.67
Other credit	-	22,668.75	190.25	-
<i>Sources of credit (%)</i>				
Friends and family	63.6	6.0	16.1	60.0
Credit institution	27.3	3.0	1.1	-
Crop association	4.5	-	23.7	-
Crop buyers	-	98.0	89.2	-
Money lenders	9.1	30.0	6.5	30.0

Source: Smallholder Cash Crop Survey 2005

2.6 Food Security

The study also explored the food security situation of the household. Smallholder farmers were asked to give an indication of their potential capacity to produce own food that would last them a whole year. The data shows that most of the farming households cannot be self-sufficient in food production even under normal weather conditions (Table 7). The situation is worse among chilli farmers in Mulanje in which 61 percent of sample households experience food shortages from own production. Only 21 percent of smallholder sugar farmers experience shortages in own food production. Apart from the agricultural land provided for maize production under the scheme smallholder sugar farmers also rent some of the land for food production. These farmers have the highest expenditure of land rentals, and this was also confirmed from focus group discussions and key informants' interviews.

Table 7 Food Security and Food Sources among Farming Households

Variable	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Adequate own food production (% No)	61.0	21.0	33.0	33.0
Mean months of food insecurity (months)	5.8	4.2	5.4	5.8
<i>Sources of Food (%)</i>				
Purchase from ADMARC	69.4	85.7	66.7	72.7
Purchase from local market/traders	82.3	76.2	72.7	90.9
Food transfers from relatives	19.4	19.0	15.2	18.2
Food transfers from Govt/NGOs	14.5	-	12.1	18.2
Ganyu labour for food/cash	46.8	-	78.8	54.5
Begging	9.7	9.5	12.1	12.1
Credit from money lenders	25.8	42.9	-	18.2
Other	-	4.8	9.1	-

Source: Smallholder Cash Crop Survey 2005

The average number of months of food shortages from own production ranges from 4.2 months among sugar farmers to 5.8 months among cotton and chilli farmers. In case of food shortages, smallholder farmers have various sources of food, with purchase from ADMARC and local markets/traders being the most dominant sources in all the four districts. Thus, when supplies are available ADMARC markets play an important role in the supply of maize in the rural areas. A significant proportion of farmers engage in *ganyu* labour for food or cash, except among smallholder sugar farmers in Nkhotakota. As much as 78 percent of those that experience food shortages among paprika farmers in Dowa engage in *ganyu* labour in order to obtain food. Some of the farming households take credit from money lenders to smooth consumption, particularly among sugar farmers (42.9 percent of the food insecure) and chilli farmers (25.8 percent of the food insecure).

2.7 Concluding Remarks

The socio-economic characteristics of sample smallholder farmers show that most households have multiple plot holdings under customary land tenure and tend to grow more than two crops. Average land holdings are also small, with the exception of smallholder sugarcane growers due to the resettlement nature of the scheme. On average, the household sizes are large than their district averages, reflecting some of the effects of HIV/AIDS. About 22 percent of households are female-headed. In terms of the age distribution of the population in the sample households, most of the household members are in the productive age group of between 15 – 64 years of age. This implies that most of the households do not have serious labour-supply constraints, which is important for farming activities.

The quality of human capital is quite low among the sample farming households. On average, 20 percent of household heads have never attended school. Very few farmers have completed school beyond primary school level. The low quality of education among smallholder farmers has implications on farming decisions and assimilation of extension services and management of farmer organisations.

Farming is the main source of livelihood among sugarcane and paprika farmers with at least 75 percent of farmers revealing that crop sales are the main source of income. For cotton farmers, operating small-scale business enterprises is the main source of income while among chilli farmers only 40 percent consider crop sales as the main source of income. The relative importance of these sources is also reflected in the average incomes earned by the households. Most of the households spend their incomes on food, as most households in the sample do not produce enough food of their own to last for the whole year, particularly among chilli farmers in Mulanje. For households that do not produce enough food of their own, most purchase this food from ADMARC and local markets when available. There is very little access to credit among smallholder cash crop farmers, with the exception of smallholder sugarcane farmers. Access to credit is as low as 10 percent among cotton farmers and 22 percent among chilli farmers.

PART II SMALLHOLDER FARMER ORGANISATIONS IN CASH CROPS

3. Chillies

3.1 Introduction

The bird's eye chilli plant is a small bush that can grow up to a height of four feet with a productive life of two to three years. Well-managed chilli plants can yield at least 300 grams of fresh chilli per plant per year or 180 grams of dry chilli. At a density of 10,000 plants per hectare this should yield about 1.8 tones per hectare. Although, it is not clear as to when this crop was introduced to Malawi, due to its low input requirements, it has emerged as the poor man's cash crop and is being promoted as one of the potentially viable alternatives to tobacco. In this endeavour the role of farmers' organization may prove critical in pooling some costs of production and thereby lowering the unit costs.

3.2 Farmer Organisations in Chillies

3.2.1 History of the NASFAM

In 1995, the United States Agency for International Development (USAID) began implementing a five-year plan known as "Malawi 2000" plan, whose first strategic objective was to increase agricultural incomes on a per capita basis including increasing the share of burley tobacco produced by smallholder farms from zero in 1990 to 40 percent in the year 2000. The programme was implemented by the Agricultural Cooperative Development International (ACDI) through its subsidiary in Malawi, the Smallholder Agribusiness Development Project (SADP). SADP established seven Agribusiness Development Centres (ADCs) initially located in key smallholder tobacco growing areas. Staff from these ADCs began by helping farmers form small Clubs at the grassroots, whose members then created informal Group Action Committees (GACs) to address a range of constraints the farmers were facing in marketing their crops (transportation, quality, storage, marketing linkages, financial services and government policies).

In July 1997, fourteen associations decided and voted to form their own mother body, a self-financing shareholder-owned and controlled agribusiness associations, called the National Smallholder Farmers' Association of Malawi (NASFAM) which was formally incorporated on February 11, 1998. Founded on the principle of collective action and self-reliance, the association set out to uplift living standards of member farmers through services that empower farmers at the grass roots, encouraging them to form cohesive village-based clubs so as to generate better returns. The strategy was to relieve hiccups in access to inputs, technical know-how and market access.

However, it is only after 1998 that NASFAM seriously started promoting other cash crops. Due to dwindling support for tobacco in the US congress, in 1998, the SADP applied for and received a \$3.5 million, two-year grant extension from USAID aimed at making the National Smallholder Farmers' Association of Malawi financially and organizationally sustainable and to persuade farmers to grow other cash crops (SADP I and II). The project was further extended in 2000 when SADP was given another three-year grant under the NASFAM Strengthening Project (NSP).

Under the NSP, in 2002 NASFAM created the NASFAM Development Corporation (NASDEC), a holding company owned by all member associations. NASDEC is supposed to provide business, management, financial and technical services to assist or backstop areas where there is a dearth of skill or competencies among member associations. In turn NASDEC owns two subsidiaries: the NASFAM Commodity Marketing Exchange (NASCOMEX) and NASFAM Centre for Development Support (NASCENT). NASCOMEX is a commercially oriented company mostly engaged in revenue-generating private sector type of business and marketing services. In fact, as a commercial commodities broker, NASCOMEX has broadened NASFAM's initial focus, from member-based marketing organization to one that also aggressively buys output even from non-member smallholder farmers. This initiative has created market access to smallholder farmers who for some reason are as yet unqualified to form or join a NASFAM association and demonstrate the virtues of organized farming. On the other hand, NASCENT is a not-profit company involved corporate social responsibility and provides services such as policy advocacy and outreach, HIV/AIDS, gender and other cross-cutting issues.

3.2.2 Organisation of Smallholder Chilli Growers

Smallholder chilli growers are organised into clubs and associations. With the transition the reorientation of SADP, the national umbrella body for smallholder chilli growers is the NASFAM national Board. NASFAM is made up of crop associations, under whose jurisdiction is broken down into Zones. The Zones are subdivided into Marketing Action Centres (MACs) which are managed by Group Action Committees (GAC), which in turn are made up of individual clubs. The GAC has ten members and usually includes one member from each farmer's club. Each club has elected representatives including the Chairperson, Vice Chairperson, Secretary, Vice Secretary, Treasurer and 5 committee members. Clubs have constitutions, but the GAC and Zone committees mostly operate on the basis of by-laws.

The chilli association that was visited in the study is in Mulanje known as the Zikometso Smallholder Farmers' Association (ZISFA). ZISFA was created in November 1998 with assistance from the SADP. ZISFA was formally admitted to NASFAM in 1999, having developed and adopted a set of by-laws and elected a board of directors. Following the NASFAM organizational model, the area under the association is divided into three zones, each representing the administrative districts of Mulanje, Thyolo and Phalombe.² The association board is made up of nine members: three from each zone. Board members are elected every two years. However, since board membership derives from Zone committee membership, if a board member has not been re-elected to the Zone committee, that member automatically ceases to be a board member. This happens because elections for each Zone are conducted annually. At the close of the 2004/05 season, the association had 6,507 members organized in 276 clubs (118 in Mulanje, 83 in Thyolo and 74 from Phalombe). In total there were 49 GACs: 20 in Mulanje, 18 in Thyolo and 11 in Phalombe.

There are three membership requirements: first, one has to register with a farmers' club; second, one should have a garden to be used for growing chillies, which is not less than a quarter of an acre - believed to be the minimum area acceptable to engage in chilli production and be profitable. Third, one has to pay membership fee of K500 (up

² The association also covers chilli farmers in Chiradzulu. However, due to the low density of growers in Chiradzulu, their farmers fall under Thyolo Zone.

from about K70 last season), part of which goes to the MAC and the club decides how to appropriate the remainder.³ Upon payment of membership fees, the farmer receives chilli seeds from NASFAM and, in principle, commits to sell their chilli to the association, although there is no formal enforcement mechanism.

3.2.3 Performance of FOs in Smallholder Chillies

Noting that chillies form a smaller part of the smallholder farmer's asset allocation, the association takes the choice to grow chilli as a portfolio allocation decision that should not take more than half of the farmers' available land area. The association's approach to chilli production system is just an element of a larger production concept called *Kitchen Garden*. The underlying logic is that the association aims at supporting and promoting the healthy farmer. Not only should the farmers be financially independent, they should also be well nourished and free from disease. To these ends, the club offers four types of services: extension services covering chilli agronomy, agribusiness and gender/HIV lessons; operating input shops which supply seed, fertilizer and garden tools mostly for other food crops;⁴ marketing of the association members' chilli; and consulting on setting chilli prices. To deal with the issue of malnutrition, the association supplies free vegetable seeds to selected farmers for establishing gardens. In addition, the associations' extension officers teach farmers about management of other crops and livestock and but also about gender and HIV.

In the first four years of its existence the association's performance was remarkable. When ZISFA was admitted to NASFAM, in 1999, it had 239 clubs and a membership of about 5000. In 2000 the association marketed 62 tones of chilli to Europe and Australia for a profit of US\$27,000 (ADCIVOCA, 2004). Much of this profit was returned to members as a bonus the effect of which was that association members received 35 % more per kg than did non-members. In the following year, membership grew to 5,700 and production rose to 80 metric tonnes, 77 of which were exported to Europe for a gross revenue of \$200,000. With this performance the association diversified into other activities. ZISFA was able to graduate from ACDI assistance, thereby being able to recruit some of its field staff, leasing some warehouses and purchasing office equipment and providing motorcycles to employees. In addition, the association also opened three farm supply shops selling seeds, fertilizers and farm implements. Currently NASCOMEX has 49 such shops.

In 2002 ZISFA was instrumental in introducing chilli farming to the Balaka Smallholder Farmers' Association (BASFA), which hitherto was a cotton growing only association. These inter-association activities are mainly in two areas: first ZISFA provided high-quality seeds to BASFA members and training in seedbed preparation and transplanting. Second, upon harvesting, chillies from BASFA were transported to ZISFA warehouses in Mulanje and Thyolo for grading and eventual exportation. The two associations produced 82 metric tones, of which 11 metric tones were from BASFA. In 2003 NASCOMEX 132 tones of chilli (84 tones from ZISFA, 34 tones from BASFA and 14 tones from non-members⁵) with purchase value of MK17 million and a sales value of MK37 million.

³ From this year farmers are allowed to pay membership fee in instalments.

⁴ Since chilli seeds are given free and the crop does not require fertilizer, these inputs and fertilizers are mostly for other crops and not chillies.

⁵ These non-members are from Nkhotakota.

Although these associations seem well-organised and continue to play a vital role in enabling smallholder chilli farmers to access different services, there are some developments in recent years which threaten not only to undo the gains made but also undermine the association's organizational and financial sustainability. First, the increase in membership fees due to the phasing out of the donor support has led to considerable dropping out of members. Second, although NASCOMEX was designed to be a member owned for-profit marketing cooperative, it seems that NASCOMEX business approach has at times been antithetical to the associations' model leading to occasional stand-offs with local association especially on revenue sharing. For instance, before NASCOMEX was established, associations established and operated farm input shops and therefore had direct relations with input suppliers. The associations generated revenue by buying inputs in bulk and selling in their shops at retail. With the emergence of NASCOMEX both as an input and commodities broker, the association relinquished control over farm input shop. Now associations have to place their orders with NASCOMEX, which procures inputs on their behalf: fertilizers are imported while seeds and chemicals are bought from companies. The association claims that they were never consulted on the take over of shops and some are agitating for a reversion to the older system. In addition, under the new arrangement, NASCOMEX drafted a memorandum of understanding for revenue-sharing proposing that the associations should receive 2 percent of the annual sales revenue as commission. Association members claim that although their outgoing and incoming boards refused to endorse the memorandum of understanding, NASCOMEX went ahead and implemented it.

Second, the association is also a victim of its earlier success. As indicate above between 2000 and 2003 Chilli fetched unexpectedly high demand and favourable international prices so that the association was able to issue bonuses. Since then association farmers have been under the mistaken impression that issuance of bonuses would be an annual event. Moreover, given the past success, in 2003/04 the number of chilli growers grew significantly resulting in excess supply beyond the association's quota from NASCOMEX. After NASCOMEX bought its agreed quota, the association bought the excess chilli on credit hoping to find a market and pay its member farmers after sales. Eventually NASFAM officials identified a buyer within the country, who also got the chillies on credit and has also failed to find a market. The association eventually borrowed K2.9 million from NASCOMEX just to pay farmers but it is failing to square the debt with NASCOMEX because to date their buyer has failed to pay.

Focus group discussions with chilli farmers revealed that the main strength of the association is the spirit of assisting each other to eradicate poverty. With respect to weaknesses, the farmers perceive the failure of the association to buy chillies on time, the lack of information on prices to enable them make decisions weather or not to grow chillies and voicelessness.⁶ Farmers mentioned several issues that are a threat to the association including the increase in the membership fee to NASFAM from MK70 to MK500 leading to high drop-out rate, declining prices of chillies and failure to pay bonuses. ZISFA was also rated poorly with respect to the services offered to its membership. Among the institutions that interact with farmers, ZISFA was ranked third after NASFAM and the Village Headman among male farmers and ranked second after NASFAM among female farmers. ZISFA performs poorly among its members due to its failure to obtain better prices and failure to communicate pre-planting chilli prices.

⁶ The problem of voicelessness was only mentioned in the focus discussion group with female farmers.

3.3 Production Systems and Marketing of Chillies

3.3.1 Production Systems

Bird's eye chilli grown in Malawi has one of the simplest production systems. The crop calendar begins around August – October with the preparation of nurseries and sowing of seeds. At the same time land is prepared in the main garden in readiness for transplanting. In November, the seedlings are transplanted from the nursery into the garden. Since chillies do not require any fertilizers or chemicals, the only imperative is that the garden should always be free from weeds. As such January and February are critical months as they involve repeated weeding to ensure that the crop grows in a clear and good condition. Since chillies take a long time to ripen, harvesting can take from March to August. Harvesting also goes simultaneously with processing: mainly drying and sorting. Hence, the main input apart from seeds is labour.

Table 8 summarises some of the production characteristics of chillies. It is clear that chillies are a smallholder crop with the planted land area averaging just under one-third of a hectare. The evidence also confirms that chilli can be a poor man's crop, given that none of the farmers used any fertilizer on the crop and only 5 percent of farmers used chemicals on their crop. Most chilli growers use family labour complimented with hired labour on those processes in which either time is of the essence or the process is protracted such as harvesting. On average, the labour input is higher in times of harvesting in terms of both family and hired labour. However, except for land preparation, the other production processes seem to impose uniform labour demands on the household. In fact whereas most agronomic processes like planting and weeding are done exclusively using family labour, post agronomic activities harvesting, processing and transportation of produce to marketing centres require more hired labour than family labour.

Table 8 Use of Key Production Inputs of Chilli

Input	N	Mean	S.D	Min	Max
Land under cultivation (hectare)	100	0.2805	.3038	0.10	2.00
<i>Family Labour (man-days)</i>					
Land preparation	30	48.10	20.99	0	315
Planting	21	23.40	9.97	0	234
Weeding	28	27.9	13.24	0	180
Harvesting	17	105.15	33.03	0	810
Processing	49	20.04	13.24	0.13	360
Transport	54	0.301	0.513	0	3.75
<i>Hired Labour (man-days)</i>					
Land preparation	20	2.60	8.57	0	37.5
Planting	20	0	0	0	0
Weeding	21	1.33	5.88	0	27
Harvesting	25	183.00	343.71	0	1080
Processing	22	28.63	134.32	0	630
Transport	25	2.7	13.5	0	67.50
Farmers applying chemicals (%)	5	-	-	-	-
Farmers applying fertilizers (%)	0	-	-	-	-

Source: Smallholder Cash Crop Survey 2005

3.3.2 Processing and Grading

Most bird's eye chillies are processed to extract the oleoresins for sale to the food and pharmaceutical industry. As such the market demands a top quality and consistent product. Both NASFAM and the crop associations through their extension officers conduct farmer training on why it is important for drying and grading to be at high standards. Ideally, chillies are not supposed to be dried on the ground or in direct sun/open to avoid rain damage and sunburn. Chillies are to be dried under a polythene-covered rack and the process takes 4 to 7 days. To earn the most premium, the fruit must be red, not more than 2 cm in length, have less than 8 percent moisture content and have high capsaicin (pungency) content. The latter is the single major determinant of chilli quality. Chillies that meet this standard are graded A while the rest fall into the grade B category.

3.3.3 Marketing

Although the association has received inquiries from buyers in South Africa and locally, all of Malawi's grade A chillies are eventually exported to the European Union (especially the Netherlands) and Australia while grade B chillies are marketed locally. An exception was 2003, when even some grade A chillies, procured from non-members, was eventually sold locally due to high levels of aflatoxins which exceeded the minimum acceptable in Europe.

NASCOMEX is responsible for identifying markets as well as leading consultation on determining prices and recently signed a contract with Noordhaven International trading. Normally, around February/ March NASCOMEX invites international buyers to conduct pre-buying season visits. On the basis of their assessment of the volume and quality of local chilli and taking into account world chilli demand and commitments from the international buyers, NASCOMEX issues price offer contracts to the associations. At this time the club members are not directly involved in price setting and only the association's board deliberate on the price offers and responds to NASCOMEX. When the board and NASCOMEX eventually agree on the price, the board then arranges for Zone and GAC to brief other leader who would in turn brief the general membership. As the price-setting process is grinding on, Malawians of Asian origin use surrogate traders or vendors to purchase chillies and again using surrogates they resell to NASCOMEX.

With the strict monitoring that the association undertakes, there is limited scope for alternative market channels. Although members indicated that private traders and vendors offer alternative market channels, for the most part, NASCOMEX through the association buys the entire member farmers' produce through the 17 warehouses located at the marketing centres. Sales and production data from a sample of chilli farmers reveal that on average farmers sold 30.62 kgs of chilli at an average price of MK114 for total sales of MK3,347.84 last season. However, there is considerable variation among the association members with respect to volume of production (from 2 to 352 kg) and sales, ranging from MK200 to MK46,750.

Although, there other market channels through which farmers can market their chillies, all the ZISFA farmers interviewed sold their chillies to NASCOMEX through their association. Table 9 summarizes the main reasons why the farmers chose to sell their chillies to NASCOMEX through their association. Since farmers have to meet their own

transportation cost to the selling point, it is not surprising that the main determinant of the farmers choice of crop buyers is the distance to the market. Close to half of the farmers sell to the association because it has an extensive network of warehouses that are located in marketing centres close to their place. To a lesser degree, farmers are also concerned with the mode of payment especially whether the buyer has ready cash will buy on credit. Low prices of chilli is the most important disadvantage of selling through the association as stated by 52.7 percent of farmers, followed by cheating on measurements stated by 12.9 percent. Thus, some of the farmers do not trust that their own association operates in good faith; this has the potential to weaken the association.

Table 9 Advantages and Disadvantages of NASCOMEX (%)

Advantage	Yes	Disadvantages	Yes
Best Price offered	14.1	Low Price offered	52.7
Closest location	45.1	Far location	2.2
Pre-established relation with buyer	5.1	No Pre-established relation with buyer	-
Buyer provides advance	-	Buyer does not provides advance	-
Buyer provides input on credit	-	Buyer does not provides input on credit	8.6
Buyer has ready cash	24.2	Buyer does not have ready cash	10.8
No cheating on measurements	8.1	Cheating on measurements	12.9
Other	3.0	Other	12.9
<i>Number of Observations</i>	<i>100</i>	<i>Number of Observations</i>	<i>100</i>

Source: Smallholder Cash Crop Survey 2005

3.4 Role of Government and Other Stakeholders

The Ministry of Agriculture and Irrigation's strategic plan identifies a number of challenges facing the smallholder agricultural sector. These include poor access to agricultural inputs, over dependence of rain-fed agriculture and inadequate diversification of food and cash crops, underdeveloped agricultural marketing systems and fewer and weaker farmers' organizations (GOM, 2003). In fact on the last point, the government aptly observes that due to the lack of farmers' organizations, there is low smallholder commercialisation, poor communication and inadequate adoption of modern agricultural technologies. Therefore, one would have expected that given the central role that NASFAM is playing in alleviating these problems it would easily attract government assistance. Yet as the history of the association shows, chilli production has still managed to catch on and compete favourably with well-established cash crops in spite of the government's lack of attention to the crop. Chillies have neither been recognized in agricultural policy document as a viable cash crop nor have been a significant beneficiary of the government's extension service.

NASFAM's dependence on donor assistance is a double-edged sword. On the one hand, the fact that the association still manages to attract external funding shows that there are stakeholder who subscribe to NASFAM's objectives and strategies and are willing to invest their image and resources in furtherance of those objectives. On the other hand, donor dependence has also meant that NASFAM continues to operate as a project and a work-in-progress. A consequence of this is that many of the association's development and commercial programs are donor directed and their sustainability remains a function of donor benevolence. As an organization, it has mostly operated and been sustained by USAID grants. However, while the USAID continues to express its commitment to furthering NASFAM's activities, it has recently declared that it is more interested in supporting NASCOMEX activities, due to their predominantly commercial orientation,

than NASCENT's social development goals. Although NASFAM has diversified the pool of donors, currently the only stop gap funding for NASCENT's activities was provided by a three year grant with NORAD which will end in March 2006.

3.5 Concluding Remarks

There is no doubt about the instrumental role that NASFAM has played in introducing, promoting and sustaining chilli production in Malawi by alleviating hiccups in access to seeds and identifying new markets for the association. NASFAM's business model has demonstrated that even with simple production technology, it is possible for land-constrained smallholder farmers to engage in profitable cash cropping if the farmers are well organized so as to benefit from economies of scale in transportation, and the crop's value chain is well integrated and monitored. Through its commercial wing, NASFAM has also invested heavily in farm supply shops and marketing systems including building warehouses and owning a fleet of cars for transporting produce. The net effect is that despite some imperfections in the price setting process, the existence of NASFAM has removed uncertainties in chilli marketing by guaranteeing a market to members.

However, going into the future, there is still a need to exercise caution. Focus group discussions and key informant interviews made it clear that whereas NASFAM's objectives are relatively medium to long term, association members live in the moment and their behaviour can best be characterised as typical cob-web price reaction. Without a long-term perspective, farmers' current period decisions heavily depend on the past season's outcomes, and they fail to appreciate the justification of activities or investments that are aimed at making the association either organizationally or financially sustainable in the long term but bring no immediate returns to them as individual growers. This has led to volatility in membership and has been all the more critical in the past few years when Malawi has faced two years of food deficits. Therefore, there is a need to strike a balance between the association's and members' inter-temporal objective functions because long-term investments, though absolutely necessary for the association's survival, seem a luxury to members in need of immediate satisfaction of their subsistence requirements.

4. Sugar

4.1 Introduction

Sugar accounts for 10 percent of foreign exchange earnings and employs about 16,000 people. The sugar industry is monopolistic and vertically integrated with most sugarcane is mainly grown by estates under irrigation owned by the sugar manufacturer. Estate production accounts for 90 percent of sugarcane while 10 percent comes from smallholder out-grower schemes. Sugar in Malawi is largely produced to meet domestic demand. In 2004, sugar production in Malawi reached 258.1 metric tonnes, but only 84.1 metric tonnes were exported largely to preferential markets (United States of America and European Union) and Kenya and other countries. This implies that the domestic market is critical for the success of the sugar industry in Malawi.

Smallholder cane production takes place at Dwangwa in Nkhotakota district, although a similar scheme is being introduced at Nchalo in Chikwawa district where Illovo Sugar Limited (ISL) has another processing plant and cane plantations. Smallholder sugarcane is sold to the ISL, and accounts for about 20 percent of the raw material. The smallholder sugarcane production has expanded from the initial irrigated scheme to the introduction of rain-fed out-grower schemes. The African Development Bank (ADB) is currently funding an expansion programme for an irrigated scheme to be established in the Liwaladzi Development Area.

4.2 Farmer Organisations in Sugarcane

The FOs in the smallholder sugarcane farming has been state-driven through the creation of a crop authority by Act of Parliament. The FO in smallholder sugarcane farming has undergone through changes following the programme of reforms and privatization of state owned enterprises. New structures and alignment of incentives and contractual arrangements have emerged within the framework of a changed political and economic environment. In smallholder sugarcane growing, the institutional change has occurred from statutory contracts to private contracts through the privatization of Smallholder Sugar Authority (SSA). Despite these changes, smallholder sugarcane farmers are facing new challenges and are struggling to have a voice in the affairs that affects their livelihoods. Some of the smallholder farmers have broken ranks with the new private FOs in search of better access to markets. Others are tied in the statutory, recently reformed production and marketing contractual arrangements.

4.2.1 History of Smallholder Sugarcane Growers

The smallholder sugarcane production started in 1979 with the establishment of the Smallholder Sugar Authority (SSA) at Dwangwa through the Special Crops Act of Parliament. The SSA was mandated to promote the development of smallholder sugar under an irrigation scheme. SSA offered agronomy services to the smallholder farmers, provided capital (hired cultivators to farmers) and other inputs and was responsible for marketing the sugarcane to the processor – the Sugar Corporation of Malawi. In turn, SSA paid farmers after deducting the costs of use of capital equipment, inputs, labour costs, transport costs and other costs. The capital operations of SSA were financed through a loan agreement from the Commonwealth Development Corporation (CDC). Under the funding the SSA sub-leased land from the then Sugar Corporation of Malawi – a state owned enterprises with Lonrho as the foreign investor. Each smallholder

farmer was allocated 2 hectares of land on which to grow sugarcane and an additional 0.7 hectares of land for housing and 1 or more hectares of land for food production. The smallholder cane growers are a mixture of settlers from around Malawi. Over the years, the SSA promoted rain-fed out-grower schemes in the catchment area of the Dwangwa. All smallholder commercial cane growers were members of the SSA.

As with many other state-owned enterprises, the Board of SSA was appointed by the Government of Malawi. The irrigated scheme started with 300 farmers on 713.9 hectares in 1979. The land under irrigation has remained constant while the number of smallholder cane growers has declined to 200 smallholder farmers due to deaths. This has led to the change in land allocation from 2 hectares to at least 3 hectares per household.

4.2.2 Organisation of Smallholder Sugarcane Growers

Smallholder sugarcane growing has five spatial development areas: Dwangwa irrigation scheme, Liwaladzi scheme, Kazilira scheme, Mkoma scheme and Katimbia scheme. The Dwangwa irrigation scheme is the oldest scheme. Each of these schemes has an Area Development Committee with elected Chairperson, Secretary and Treasurer with their vices and 4 committee members. All the members of the Area Development Committee, the field officers, the village headmen in the irrigated scheme and the Sugar Corporation form a Technical Committee chaired by the Sugar Corporation. This committee structure serves as a tiered decision making body – with the Technical Committee being a referral body for all complaints about smallholder cane production.⁷

Smallholder cane growers for the irrigated scheme are organised in terms of residence and cane growing. With respect to residence, under the irrigated scheme each grower is provided with a residential and food crop farming plot and these form a village with a chief. There are 5 villages in the irrigated scheme. With respect to commercial farming (cane growing) the farmers are grouped into block with 3 to 11 plots of 3 hectares each. Each block has a leader who serves as a link persons on agronomy issues between the field officers and smallholder cane growers.

The smallholder cane growers, especially under the irrigated scheme, are tied to the SSA through various services such as the land that is sub-leased, capital and input provision, use of irrigation system, cultivation services, transport and link to the only market of raw sugar cane. Some of these services, such as irrigation, input provision and transport services are optional to the out-grower schemes.

The first association of smallholder farmers was established in 1994, but ceased in 2002 after a bitter dispute with DCGL. Smallholder farmers claim that the first association was later transformed into a Trade Union and SSA management joined – but farmers were unhappy and suspect of the roles of management in the Trade Union as they made decision without consulting smallholder farmers. Smallholder farmers abandoned the Trade Union. A new association, the Dwangwa Sugarcane Farmers Association (DSFA), was formed in 2004 as an umbrella association of farmers that are under the DCGL. The association was formed to look at the welfare of all farmers and as a link between management and smallholder cane growers. DSFA has a committee of 10 members

⁷ For instance, farmers that fail to meet the minimum agronomy standards can be expelled from the scheme. The ADC warns farmers that fail to attend to their cane and refer the matter to the Technical Committee. The Technical Committee can either give a further warning or expel the farmer from the scheme.

comprising the Chairperson, Secretary, Treasurer and their Vice-persons and 4 committee members. All sugarcane farmers under the DCGL are members of the association. Each farmer contributes MK1,000 per year as membership fee towards the running of the association and is deducted from the sales proceeds. DCGL also provided initial funding of MK300,000 to the association. At local area level, smallholder farmers form Cane Growers Associations, which fall under the umbrella of DSFA. Key informant interviews revealed that the formation of the association was not their idea, they were called to a meeting by extension workers where they were told that they must elect members of the DSFA.⁸ The objectives of DSFA are to promote sugarcane growing and promote the social welfare of its members.

There are other smallholder farmers that do not deal with DCGL and are not members of DSFA. These are farmers that belong to Kangazinja Cane Growers (KCG). KCG deals with ISL directly from where they obtain inputs on credit. KCG has its own field supervisor who provides technical advice to farmers. They claim to be transparent in their transactions and borrow the required amount of fertilizers. These farmers arrange own transport to haul sugarcane to the factory, and sometimes hire tractors and trucks from friends and pay them after sale of sugarcane.

4.2.3 Reforms in the Smallholder Sugar Sector

Although the performance of the SSA improved significantly since the 1990s, as a state-owned enterprise, it was placed under the privatization and divestiture programme of the Malawi Government. This privatization process targeted both the Sugar Corporation of Malawi (SUCOMA) and SSA. SUCOMA, incorporated in 1965, as a joint venture between ADMARC (49 percent) and Lonrho Sugar Corporation (LSC) holding 51 percent that established sugar plantations and factory at Nchalo, has undergone several changes (PC, 1998). In 1976, SUCOMA invested in a second factory and sugar plantation, the Dwangwa Sugar Corporation (DSC) with 3.5 percent shares in a joint venture with LSC (24.2 percent), ADMARC (35.9 percent), the Malawi Government (31.5 percent), European Investment Bank (2.5 percent) and DEG (2.5 percent). In 1992, ADMARC transferred all its shareholding in DSC to ADMARC Investment Holding Company (AIHC) and SUCOMA had a management contract to operate DSC. LSC sold its shares to Illovo Sugar Limited (ISL). In 1997, DSC and SUCOMA shares were further restructured with ISL acquiring all shares held by European Investment Bank and DEG and part of Malawi Government holding leading to 49 percent of share holding in DSC, and due to debt swap ISL effectively owned 51 percent. DSC and SUCOMA merged with ISL owning 56 percent, AIHC holding 38 percent and Malawi Government holding 5.9 percent. By the end of 1997, the entire Government shareholding was sold to the general public through the Malawi Stock Exchange.

In the context of the divestiture programme, SSA was also targeted for reform. The reforms entail breaking SSA into two related entities in 1999. First, the Malawi Government created a Trust, the Dwangwa Cane Growers Trust (DCGT), which took over the land and buildings of SSA. DCGT has 8 trustees comprising the Traditional Authority, Ministry of Agriculture, ISL, Law Society, Society of Accountants and 2 smallholder growers. The Trust is responsible for the development of the smallholder sugar sector. Secondly, Government created a limited liability company, the Dwangwa

⁸ The Chairperson of DSFA contends that the association took the top-bottom approach in which farmers were told about the activities of the association and therefore, did not take it seriously. However, one of the focus group had the view that the association was created following a visit of some of the farmers to Zambia smallholder sugar.

Cane Growers Limited (DCGL) which took over all assets and liabilities of the SSA except land and buildings (PC, 1999). The main purpose of the DCGL is to manage the assets and offer technical services and marketing services to smallholder cane growers. DCGL made available all its shares (2,500,000) to registered growers (180 growers purchasing 77.4 percent) and employees (133 employees purchasing 22.6 percent) at an offer price of K1.30 per share. Farmers reported having received dividends of about MK20,000 each last year. One apparent concern on the shareholding structure is that most of the shares are held by farmers that are largely semi-literate against a small number of educated employees who are managing the Trust and the DCGL. This has implications on who effectively makes decisions of the company at shareholders meetings. Another issue of concern with respect to governance is that the Board of DCGL comprises the same trustee of DCGT with the exception of representatives of smallholder farmers who are different from those on the trust. It is apparent that the reform process has not aligned the incentive structure in the principal-agent framework: farmers have no powers to appoint and fire directors on the company although as a block they have majority shareholding.

The DCGL was a management, employee and farmer buy-out. It offers agronomy services to the farmers including managing the use of farm equipment, technical services, other services such as cultivation and hiring of labourers to work on smallholder farms in special cases, transportation of the cane to the factory and marketing of the cane to ISL. The DCGL is managed by the same managers that used to run SSA, the only difference is that they are part-owners of the company, albeit minority shareholders compared to the block of smallholder farmers. DSC offers DCGL 60 percent of the retail sugar price as the price it buys sucrose from smallholder farmers. DSC pays DCGL in three instalments: 70 percent within 30 days of selling the cane, 10 percent in January and 20 percent in May. Once the cane is sold, DCGL deducts 30 percent of the proceeds as management fees and the balance is given to farmers net of all costs and loans in three instalments: 70 percent released within 30 days of selling the cane, 10 percent is paid in January and 20 percent is paid in May.

The Privatisation Commission hailed the reform and privatization of SSA as one of the successful story and a model for other agricultural scheme, and reported a change in the mind-set of staff towards accountability and cost savings (PC, 2000).⁹ This is contrary to the findings of this study as far as questions of economic empowerment and livelihoods of smallholder farmers are concerned. There are several factors that suggest that the reforms are not serving the best interest of farmers. First, some of the out-growers, particularly educated 'elite' farmers, have broken links with the DCGL and have established their own equivalent in 2002 known as the Kangazinja Cane Growers (KCG) due to dissatisfaction with the operations of DCGL. These smallholder farmers claim that they had disagreements with DCGL with respect to use of inputs (oversupply of fertilizers), unreasonable deductions for some of the services, high interest rates on inputs, lack of transparency in sugarcane pricing and the staggering of payments of their net proceeds.

Secondly, these issues of lack of transparency and accountability were also reinforced by the smallholder farmers in the irrigated scheme and the statements of their proceeds for 2004. Focus group discussions revealed the lack of trust between smallholder farmers

⁹ Indeed the reforms in the Smallholder Tea Authority are modelled on the reform process of SSA. However, the governance structure and the misalignment of incentives within the principal-agent framework imply that SSA reforms should cautiously be extended to other crop authorities.

and DCGL, particularly on issues of transparency in the marketing of cane and the deductions made from farmers and the staggering of the payment of their net proceeds. The staggered system of payments push them to contract informal credit which is more expensive and puts them further in a state of destitution.

Thirdly, smallholder farmers also complain that there is no social investment in their residential areas. The farmers do not have access to clean portable water, electricity and maize mill. The farmers indicated that some of the households drink water from the canal and may be at risk of waterborne diseases. Thus, the Trust and DCGL have not utilized some of the surpluses from the activities to invest in social infrastructure in areas where smallholder farmers live.

Fourthly, the data from farmers on sales and net proceeds suggests that the reforms have not yet benefited the smallholder farmers, who by virtue of majority shareholding do not have proportional voice in the management of DCGL. DCGL charges farmers 32 percent interest on the fertilizer input loan, although such fertilizers are provided by DSC at cost. In addition, DCGL puts a mark-up of 32 percent on all the services that they offer to smallholder farmers and also charge smallholder growers 30 percent of the proceeds as management fees. Thus, although DCGL does not have financing costs for the fertilizers and collects management fees; the services are not charged to smallholder farmers at market value. In other words, DCGL is taxing farmers through interest on fertilizer loans, mark-up on services offered and management fees.

In 2004, 185 smallholder growers in the irrigated scheme sold sugarcane for a total of MK137.9 million, yet the total net proceeds were only MK23.6 million (17.1 percent) translating to an average income of MK126,932 per household. Transport costs amounted to MK30.3 million, the Trust Cess (1.5 percent of total sales) amounted to MK2.1 million and the tax bill amounted to MK6.5 million. The other deductions relate to use of irrigation facilities, farm equipment, labour charges towards cultivation and farm inputs charged at above-cost levels. Using the national household size of 4.5 members, the average net proceeds translate to MK21.35 per capita per day at 1998 prices which is just double the 1998 poverty line of MK10.37 per capita per day. However, due to the payment system most of the farmers have substantial debts from the informal financial markets in which they pay 1200 percent interest. This implies that most of the income ends up servicing the debt burden. The terms of the contractual arrangements between DCGL and smallholder growers are less favourable to the farmers. Under this arrangement, smallholder farmers should earn higher income from agriculture given that farmers have access to all farm requirements and markets. The paradox is that farmers own DCGL which in turn owns the assets (farm equipment) and use gravity fed irrigation, but smallholder farmers are in turn charged highly for use of such farm equipment and services offered by DCGL at more than the cost of such services in addition to management fees.¹⁰ The overpricing of services offered by contracting firms to smallholder farmers is one of the characteristic features of contracts that are biased against smallholder farmers (Singh, 2002).

Smallholder farmers on the irrigated scheme believe that those that sell directly or out-growers earn better incomes. In fact, out-growers that sell through DCGL are offered 80 percent of the price compared to 70 percent of the price that of those on the irrigated

¹⁰ Other key informants have the view that smallholder farmers are supporting an institution that maintains high levels of employment – employment which has been maintained by virtue of being partial owners of DCGL.

scheme.¹¹ There are also variations in the cost structure for DCGL out-growers and those on the irrigated scheme (Table 10). Although, on average farmers under irrigation make more profits per hectare than those under rainfed cultivation, the profits per unit of sugar sold is much lower. The difference in profits per tonne of sugar sold is due to differential costs that are more in favour of out-growers. For instance, in 2004 an out-grower who is more than 30 kilometres from the factory with 360 tonnes of cane sugar on 2.2 hectares paid MK270,000 for cane haulage and MK75,000 for cane cutting while the farmer on the irrigated scheme (within 5 kilometres to the sugar factory) with 345 tonnes of cane sugar on 3 hectares paid MK163,000 for haulage and MK72,000 for cane cutting. If unit transport charges were the same, the out-grower is expected to pay more than 6 times the cost of haulage than the grower on the irrigated scheme. In this case, it appears that those on the irrigated scheme are cross-subsidizing out-grower farmers at the expense of the former. In 2004, cane cutting costs for DCGL out-growers averaged MK16,152 per hectare compared to MK23,526 per hectare for DCGL growers on the irrigated scheme.

Table 10 Profitability among Irrigation and Out-growers under DCGL

Sales and Costs	Irrigation 2004		Out-growers 2004	
	Per Hectare	Per Harvested Cane Tonne	Per Hectare	Per Harvested Cane Tonne
Sugar Cane Harvested (tonnes)	113.14	-	78.46	-
Sugar sold (tonnes)	15.71	0.14	10.81	0.14
Gross Sugarcane Sales (MK)	242,470.79	2,143.10	190,629.39	2,429.59
Irrigation and drainage charge (MK)	16,053.76	141.89	-	-
Replanting (MK)	16,156.52	142.80	-	-
Weeding and herbicides (MK)	-	-	8,437.04	107.53
Cultivation and fertilizer delivery charge (MK)	1,710.94	15.12	-	-
Fertilizer charge (MK)	58,752.31	519.29	35,301.82	449.92
Cane cutting (MK)	23,526.32	207.94	16,315.32	207.94
Cane haulage (MK)	53,282.13	470.94	52,175.43	664.98
Trust Cess (MK)	3,637.06	32.15	2,859.44	36.44
Development Charge (MK)	-	-	7,436.11	94.77
Transport Labour (MK)	-	-	4,602.00	58.65
Tax (MK)	11,411.60	100.86	11,812.46	150.55
Net Profits (MK) (exclude harvest loss recovery)	58,206.30	514.46	48,581.60	619.18
Net Profits per tonne of sugar (MK)		3,703.93		4,493.93

Source: DCGL

The differences in the cost structure of DCGL growers and out-growers that sell directly to DSC are substantial and demonstrate the implicit taxation by DCGL. The proceeds statements from two farmers justify the problems of accountability and transparency claimed by the smallholder farmers on the irrigated scheme. Table 11 illustrates the contrasting cost structure of smallholder farmers generating almost revenue but using different institutions, DCGL (irrigated scheme) and KCG (out-grower outside DCGL) in 2004/05 season. Interestingly, the farmer that sells through DCGL sells a higher volume of sugar compared with the one that sells, but he has lower sales proceeds due to the various deductions that are made on the proceeds.

¹¹ Growers' records also revealed that the final price base offered to out-growers is much higher than that offered to growers on the irrigated scheme. The difference here is that most of the out-growers are literate (some retired officers in government) compared to those on the irrigated scheme.

Table 11 Gross Returns from Sugarcane by Institutional Arrangements (MK)

Sales and Costs	DCGL (58.61 tonnes)	KCG (47.95 tonnes)
Gross Sugarcane Sales	708,208.07	852,551.00
Costs		
Irrigation and drainage charge	36,318.91	-
Cultivation and fertilizer delivery charge	3,870.72	-
Replanting	32,065.79	-
Fertilizer charge	106,101.37	146,880.96
Cane haulage	171,165.22	160,119.00
Cane cutting	69,530.87	54,425.00
Trust Cess	10,623.12	-
Administration fees	-	85,255.10
Tax	53,859.62	59,678.57
Other charges	46,427.06	15,000.00
Gross profits	178,245.39	448,812.77

Source: Smallholder Cash Crop Survey 2005

The reform and privatization process in smallholder sugarcane growing has introduced two institutions which are supported by deductions or overpricing of services or use of farm equipment by smallholder farmers. The irony of this arrangement, although management has to balance between the demands of the farmers and the commercial viability of the company, the existing system is configured in such away that elite shareholders of DCGL who manage the company take advantage of the majority shareholders due to the high levels of illiteracy and powerlessness. Most farmers view the firing of the current management of DCGL as the ultimate solution to the problems that they are facing in smallholder sugar farming. The practice of charging services at more than the cost of such services by DCGL that is owned by smallholder farmers and an additional 30 percent deduction as management fees, combined with the informal markets debt burden does perpetuate the poverty situation of smallholder growers.

4.2.4 Performance of FOs in Smallholder Sugarcane

4.2.4.1 SSA, DCGT and DCGL

In contrast to other crop authorities and state-owned enterprises, the SSA had not performed poorly, especially since 1989. The first ten years of establishment were different from the latter years. This is in contrast to the consistent losses of the Smallholder Tea Authority (Chirwa and Kydd, 2005); the SSA had managed to post some profits particularly since the 1990s. The SSA had consistently made losses in the 1980s. For example, between 1984 and 1989, the cumulative loss was MK0.98 million (NSO, 1988). There were, however, improvements in the early 1990s with cumulative profits amounting to MK2.3 million between 1992 and 1995 (MEPD, 1997).

The focus group discussions and key informants' interviews revealed no major problems between SSA and smallholder cane growers in terms of erosion of services offered to smallholder farmers. This is in contrast to the findings in the tea sector, in which political interference and managerial inefficiency played a major role in the loss of trust between the Smallholder Tea Authority and smallholder farmers (Chirwa and Kydd, 2005). The SSA managed to hold farmers under one structure.

The management and performance of the new institutions that emerged from the reform and privatization process has been mixed. Major problems in the relationship and trust exist between smallholder cane growers and the institutions that replaced SSA after the privatisation of SSA. The DCGT is currently managing an expansion programme for smallholder sugarcane growing for local residents at Liwaladzi. This project is funded by the African Development Bank. The Trust is also funded from the sugar proceeds of smallholder farmers, 1.5 percent of farmers' proceeds. In 2004, the Trust Cess amounted to MK2.1 million.

The DCGL is also performing well financially and has managed to pay out dividends to its shareholders, a majority of whom are smallholder farmers. Its main sources of revenue are management fees extracted from farmers' proceeds equivalent to 30 percent of the smallholder farmers' gross sugar sales and the mark-up on the pricing of services and farm equipment hired to smallholder farmers, and the interest on fertilizers. In 2004, the 30 percent was equivalent to MK15,429.53 per tonne while in 2005 it was MK12,083.40 per tonne. However, the good financial performance of DCGL may have resulted from exploitation of smallholder farmers through costing of services provided to farmers.

Although DCGL is playing a vital role in facilitating access to farm equipment, inputs and market for smallholder sugar, it has image and credibility problems with smallholder farmers – who are also majority shareholders but voiceless in the affairs of the company. Farmers claim that management of DCGL lack of transparency in marketing of sugar and costing of services and corruption and that management does not serve the interest of the smallholder farmers. Table 12 shows the extent of these claims by smallholder farmers. Most farmers consider the provision of inputs on credit as the main advantage, followed by the existence of pre-established relations with the buyer. The 'other' advantages include offering transport services, medical services on credit, and no alternative market. These advantages are off-set by the disadvantages that smallholder farmers are experiencing with DCGL. The issue of mistrust is confirmed by the highest proportion of farmers that believe that DCGL cheats on measurements for their produce. This is reinforced by the 'other' disadvantages which include corruption, overcharging of inputs, lack of transparency in transactions and not being involved in pricing and selling.

Table 12 Advantages and Disadvantages of DCGL (%)

Advantage	Yes	Disadvantages	Yes
Best price offered	7.4	Low price offered	16.8
Closest location	7.4	Far location	1.1
Pre-established relation with buyer	25.3	No pre-established relation with buyer	5.3
Buyer provides advance	-	Buyer does not provides advance	1.1
Buyer provides input on credit	35.8	Buyer does not provides input on credit	-
Buyer has ready cash	-	Buyer does not have ready cash	2.1
No cheating on measurements	1.1	Cheating on measurements	43.2
Other	23.2	Other	30.5
<i>Number of Observations</i>	<i>100</i>	<i>Number of Observations</i>	<i>100</i>

Source: Smallholder Cash Crop Survey 2005

4.2.4.2 Smallholder Associations

Smallholder associations are not new in smallholder sugarcane farming. Although, their existence dates from 1994, they have not been effective in providing services to their members. The existing associations are fairly new and their efficiency and effectiveness are yet to manifest. DSFA has a weak financial base, it lacks motivation, it has weak political power, and its members are semi-literate and are proving irrelevant against a few 'educated elite' fellow shareholders who are managing DCGL. The DSFA has not been very active and some of the executive members have had to be replaced after frustration due to lack of cooperation from DCGL. Although, it has taken the complaints from smallholder farmers to DCGL, the Trust and the Ministry of Agriculture, smallholder growers indicated that none of their complaints is taken seriously. If smallholder farmers continue to experience problems of cooperation with the stakeholders, DSFA will remain an inactive association and its sustainability is therefore highly questionable. The findings of this study point to the fact that smallholder farmers have a genuine case requiring Government intervention is smallholder sugar production is to contribute positively to poverty alleviation. It was apparent that after more than 20 years of smallholder cane farming, farmers remain in poverty, overburdened by informal credit market debts and with a sense of hopelessness, powerless and voicelessness.

Similarly, the smallholder that formed their own organisation to deal directly with ISL, the KCG, face a lot of problems that may affect its sustainability, including weak financial base, lack of input providers, lack of equipment and high illiteracy rates among its members including executive members. For instance, this season they have problems with access to inputs on credit, and ISL has only provided inputs against 30 percent of the remaining proceeds from last season.¹² The group faces a lot of barriers to operations. These developments threaten the livelihoods of its members.

The existing smallholder farmer associations in the sugar sub-sector are recent and they still lack the bargaining power with the DCGL and the DCGT. The DSFA is a weak association and in the short- and medium term its effectiveness will depend on the cooperation it receives from other stakeholders. There is also heavy influence on the election of the leadership of DSFA – DCGL tend to favour working with out-grower farmers who have better terms compared with the disgruntled smallholder farmers on the irrigated scheme who view the DSFA as a crony of DCGL. In the long-term, DSFA will need capacity building support to be an effective institution to take more challenging roles of protecting the farmers.

4.3 Production Systems and Marketing of Sugarcane

4.3.1 Production Systems

Smallholder sugarcane production is both capital intensive and labour intensive. There are two systems: the irrigated system and the rain-fed system. The production cycle of sugarcane, from land preparation to harvesting, takes a whole year. Sugarcane is a perennial crop and has a productive life span of 5 to 7 years. The study focuses on the production systems on the irrigated scheme. The production process starts with land preparation, in form of uprooting the old cane in case of replanting or clearing land for new shoots after harvest. The former is usually done by DCGL using cultivars and other

¹² KCG had approached the DCGT, but they have also been told that because they have asked for inputs late, DCGT is not in a position to supply them with inputs.

farm equipment. The first fertilizer is applied and banking is done using farm equipment from DCGL. The fertilizers used include Urea, DAP, Sulphate of Amonia, MOP, Zinc and others. Irrigation is done regularly by farmers themselves using gravity-fed canal water. The most labour demand activity is weeding and takes between 4 to 6 months, and stops when the cane has grown to reasonable height. After a year sugarcane is harvested by first burning the cane and the cane is cut using labourers hired by DCGL.

Of the production process, smallholder farmers are mainly responsible for weeding, fertilizer application and irrigation. The other production process such as land preparation and banking, chemical application (when necessary), harvesting and transportation to the factory is done by DCGL. Table 13 shows the use of key inputs in smallholder sugarcane production. On average smallholder cane growers on the irrigated scheme have 3.01 hectares of land, with the median size being 3 hectares which is consistent with the information from the DCGL. On average smallholder farmers spend 80 man-days of family labour and 49 man-days of hired labour in sugar production. However, the DCGL uses an estimate of 45 man-days as own labour contribution when computing the taxable income of smallholder farmers, which is far below the total of 129 man-days among our sample of smallholder farmers. This suggests the need to revise the estimation as the existing estimate increases the tax burden of the farmer. Most of the family labour is used in weeding and irrigation, while hired labour is used mostly in planting and irrigation.

Table 13 Use of Key Production Inputs in Sugarcane

Input	N	Mean	S.D	Min	Max
Land under cultivation (hectare)	99	3.0168	0.205	2.08	3.38
<i>Family Labour (man-days)</i>					
Land preparation	18	8.7153	7.476	1.13	28.00
Planting	1	14.0000	-	14.00	14.00
Irrigation	97	54.8814	65.859	0.25	378.00
Weeding	99	123.2235	115.450	8.00	665.00
Application of chemicals	6	5.5000	5.177	0.25	13.50
<i>Hired Labour (man-days)*</i>					
Land preparation	3	1.6667	1.872	.13	3.75
Planting	31	43.7460	32.925	8.00	126.00
Irrigation	52	59.0793	68.224	1.25	350.00
Weeding	4	4.2500	3.260	2.00	9.00
Farmers applying fertilizer (%)	99	100.0	-	-	-
Farmers applying chemicals (%)	16	16.2	-	-	-

Note: This hired labour is the labour hired privately by smallholder farmers to help them in the farm activities for which they are responsible.

Source: Smallholder Cash Crop Survey 2005

All smallholder farmers under the irrigated scheme apply fertilizers, but only 16.2 percent applied chemicals. The high use of fertilizer is a reflection of the farming arrangements in the smallholder cane growers sector. Smallholder cane growers have access to capital equipment, inputs and a guaranteed market. Access to the guaranteed market is through a contract between DCGL and ISL which established delivery dates for sugarcane to the factory. As such the organisation of smallholder farmers becomes a critical element in ensuring the supply of raw cane to the factory. This justifies the importance of a management company such as DCGL or a hired contracted manager. However, smallholder farmers contend that their own company, DCGL, is not

transparent on how they arrive at the cost structure that amounts to the many deductions that are made from farmers' proceeds. DCGL charges interest on fertilizer loans, and farmers seem not to be aware of the level of interest rates used in the input scheme.

The sugar production from smallholder farmers has increased substantially since 2001 while the area under cultivation has declined, leading to increases in productivity. For instance, a total of 1057 hectares of land was under smallholder cultivation, yielding 69,670 tonnes of cane and producing 9,754 tonnes of actual sugar in 2001. In 2005, 983 hectares of land was under smallholder cultivation yielding 103,540 tonnes of cane and 14,274 tonnes of actual sugar. Thus, productivity increased from 66 tonnes per hectare in 2001 to 105 tonnes in 2005, a marginal drop from 106 in 2004. The estimated recoverable sugar (ERS) tends to be higher on irrigated plots than on rain-fed plots. It was also observed that smallholder cane tend to have higher ERS than cane from ISL estates.

4.3.2 Marketing

There is only one market for smallholder sugarcane and farmers have no marketing arrangement. Farmers that work with DCGL on irrigated or rain-fed schemes, sell their sugarcane to ISL through the DCGL. Other farmers belonging to KCG deal directly with ILS. Once harvested, sugarcane for each plot is bundled, labelled and transported to ISL factory for processing. Smallholder sugarcane is hauled to the factory, which on average is less than 10 kilometres from the irrigated smallholder scheme. Each farmer's sugarcane is weighed and one in every 50 bundles of sugarcane is sampled to establish the estimated recoverable sucrose (ERS). The estimated ERS for the six available varieties ranges from 11 percent to 15 percent. The ERS is used to convert the tonnes of cane to tonnes of sugar for each smallholder farmer. The ISL buys the estimated tonnes of sugar using the ERS at prices that are certified by the Government Auditors. Prior to the harvest of sugarcane ISL provides a provisional price at which it expects to buy the sugar. However, the actual price is known around May. In 2004, the certified price was MK22,042.18 per tonne and DCGL pay farmers 70 percent of the price - MK15,492.53 per tonne. In 2005, smallholder farmers on the irrigated scheme were paid MK12,083.40 per tonne, implying that ISL was buying sugar at MK17,262 per tonne, while out-growers were paid MK13,809.60 per tonne based on the same ISL price. The statement of proceeds from one of the out-growers from KCG revealed that the farmer sold sugar to ISL at MK17,779.17 per tonne, more than 30 percent above the price the farmer under DCGL.

Interviews with smallholder farmers and key informant interviews revealed that marketing of sugar is one of the processes that smallholder farmers feel cheated by their own organisation. Smallholder farmers believe that the cheating is in terms of prices, volumes and quality.¹³ Farmers describe this activity as one where there is no transparency, and an area in which their own strong association can play a critical role in ensuring fairness in marketing. The differential effective prices paid to smallholder farmers under DCGL and KCG suggests hidden costs to the smallholder farmers under DCGL. Thus, apart from the deductions on production costs, harvesting and transportation at more than the cost price, smallholder growers contribute 30 percent of their proceeds to the running of DCGL. The problem of declining prices exacerbated by

¹³ In an attempt to address this problem, DCGL took some farmers to observe the selling of sugarcane at the factory. However, most of what the farmers observed were scientific and could not follow what was happening.

claims of cheating on prices, quality and volume, threaten to thwart the livelihoods of smallholder farmers further. Participants in focus group discussions and key informants believe that their problems of marketing can be solved with honest management which should replace the current owner managers.

4.4 Role of Government and Other Stakeholders

Sugarcane production is one of the agricultural crops that has been identified as a potential growth sector by the government (GoM, 2004). However, government policy is more focus on improving the competitiveness of the sugar industry for export orientation that may indirectly affect the smallholder sector. There is no direct reference to the promotion of the smallholder sector in the policy documents (GoM, 2000 and 2004). Nonetheless, the Government with funding from the African Development Bank is implementing an extension programme of smallholder irrigation in Nkhotakota, which is likely to boost smallholder share of sugarcane production in Malawi. The ADB support to the smallholder out-grower sugarcane production is estimated at US\$12.3 million.

This study finds that there are problems with the existing institutional set-up in which the DCGT and DCGL are squeezing the margins of the smallholder farmers. Focus group discussions and key informants' interviews revealed that smallholder farmers are aware that the existing marketing arrangements do not operate to their advantage. Smallholder farmers claim to have made several representations to the Government about the low returns to smallholder farming, but there has been no response from government to correct the economic injustice.

4.5 Concluding Remarks

Smallholder sugarcane farming is an interesting case study of commercial agriculture and demonstrates some of the perils of reforms that do not benefit the poor. This is an example of smallholder commercial farming in which farmers have access to all the capital and inputs into the production process ranging from sizeable gravity irrigated land holdings, access to farm implements (tractors and cultivars), access to fertilizers and other inputs, supplementary hired labour, access to transport facilities and access to cane market, yet smallholder farmers who on average spend 80 man-days of their labour hours remain poor, voiceless and powerless. Sugarcane farming is both capital and labour intensive.

The smallholder sugarcane irrigated scheme started in 1979 whose development was overseen by the SSA – a state-owned enterprise. The irrigated scheme was set up as a resettlement scheme and drew willing farmers throughout the country, through funding from CDC. The SSA provided agronomy services and marketed sugarcane to the DSC and procured inputs, made mechanized farm implements available to smallholder farmers, and managed and distributed the proceeds to smallholder farmers. The performance of SSA was not good in the early years of operations but managed some investible surpluses since the 1990s. Under the privatization programme, SSA split into two entities, the DCGT as a trust to oversee the development of the smallholder sector (including out-grower schemes) and as custodian of the land sub-leases, and the DCGL as a private company owned by former managers and employees of SSA and the smallholder farmers holding a majority block to provide agronomy services to smallholder farmers. The smallholder farmers have just formed their own association,

DSFA, which is financially constraint and powerless against an 'owner management elite'.

Although, DCGL plays a vital role in the provision of agronomy services to smallholder farmers, there is a lot of mistrust between smallholder farmers and the management of DCGL over the cost apportionment and the marketing of sugarcane. There is evidence that smallholder farmers that are operating outside the DCGL are making much better returns on rain-fed sugarcane farming than those under the irrigated scheme that operate through DCGL. For independent out-growers that sell a lower amount of sugarcane to ISL than those farmers aligned with DCGL, the gross returns for the former are more than twice that of the latter. The explicit and implicit taxation due to the institutional arrangements that have emerged after privatization are working against smallholder farmers. Some of these farmers have been growing sugarcane on irrigated land since 1979, but they still remain poor and overburdened with informal credit market debts. This is the paradox of commercial agriculture in which smallholder farmers have access to all the necessary capital, inputs, labour and guaranteed market for their sugarcane, yet most are still struggling to subsist.

5. Paprika

5.1 Introduction

Paprika was introduced to Malawi in 1995 as a leading export horticultural crop (Toomey et al., 2000). Some have argued that it is a good alternative crop to tobacco, and its agronomic properties are very close to tobacco. MCI (2004) notes that some of the farmers that grow paprika have shifted away from tobacco production. Paprika in Malawi is grown by smallholder farmers mostly in central region. The number of farmers growing paprika from 5,000 in 2002/03 to 6,700 in 2003/04 and production rose from 250,000 kg to 356,000 kg. Paprika is grown as a cash crop. According to MCI (2004) production of paprika has increased over the past 5 years with Malawi accounting for 2 percent of world production and 5 percent of world trade in dried paprika.

The main regional export markets for paprika South Africa and Zimbabwe. In addition, paprika is also exported to the United States of America and Europe especially to Spain to be used as spices or for food colouring. Toomey et al. (2000) observe that about 10 Spanish companies dominate the global market for paprika from Malawi. Malawi is considered to be a lower cost producer in the region (MCI, 2004).

5.2 Farmer Organisations in Paprika

5.2.1 History of the Paprika Association of Malawi (PAMA)

The Paprika Association of Malawi (PAMA) was established in 1998 through facilitation by the Malawi Export Promotion Council (MEPC). Toomey et al. (2000) notes that PAMA was initially inactive; and it lacked organisational focus and financial resources to promote the interests of smallholder paprika farmers. PAMA is registered as a non-governmental organisation as an umbrella body of affiliating smallholder paprika associations.

PAMA has recently been revived through donor support. PAMA is currently implementing a three-year Paprika Development Project funded by the European Union with financial support amounting to EUR1.17 billion to be provides between 2003 - 2006. The main objective of the project is to promote capacity building in order to improve the production, processing and marketing of paprika. The activities in the programme include extension and training in production, processing and marketing. PAMA has developed paprika production handbook that provides technical guides to farmers. Under the programme, PAMA intends to procure laboratory equipment for quality control. Apart from extension and training services, PAMA also provides input (fertilizer and chemicals) loans to smallholder paprika farmers upon paying a deposit of MK5,000 increased from MK2,000 last year. According to Mtengowathenga Paprika Association, the association also guarantees the loan and each member pledges some collateral such as a house and garden which can be sold upon failure to repay the loan.

5.2.2 Organisation of Smallholder Paprika Growers

Smallholder paprika growers are organised into clubs and associations. The paprika growing areas are divided into zones. The association can have as many clubs and members. Some of the associations have more than 200 smallholder farmers. The association that was visited in Dowa – Mtengowathenga Paprika Association - was

created in 2004 with the assistance of PAMA and it has 22 clubs in 12 zones.¹⁴ Each association has elected representatives including the Chairperson, Vice Chairperson, Secretary, Vice Secretary, Treasurer and 5 committee members. According to key informants and focus discussion groups, each member contributes MK450 per annum as membership fee. The membership fees are collected by the Chairpersons of the clubs. At club level, members also pay MK15 per year as membership fee and an additional MK65 per year as affiliation fees to PAMA. In total, members contribute MK515 per annum as membership fee and affiliation fee to PAMA. In addition, each farmer contributes MK50 per month to the association fund as one of the strategy to facilitate the meetings of the association.

These associations offer different services to their members including facilitation of training on the agronomy of paprika with training conducted by PAMA extension officers, marketing of paprika in groups¹⁵ and ensuring fairness in the marketing of paprika and facilitation of access to input credit. Participants of focus group discussions argued that most of the decisions of the associations are made democratically particularly on critical issues affecting the membership including proposed prices for negotiation with buyers, agreeing to sell their crop in groups and deciding on disciplinary measures in case a member contravenes the rules and regulations of the association. There was general agreement among association members that there were high levels of transparency and accountability among the office bearers of the associations, although the focus group discussion with female farmers casts some doubts on these issues.

The associations also guarantees the input loans that smallholder farmers obtain from PAMA – fertilizers and chemicals – and seeds from one of the main buyers – Cheetah Limited. In case of a member failing to repay the loan, the association may decide to repay the loan on behalf of the farmer from its fund and pressurize the member to pay the loan to the association at an interest rate.

The smallholder associations also play a role in setting the prices of paprika. According to key informants, two members of each association participate in a meeting with PAMA and the buyers in setting the prices for paprika and the prices are arrived at through negotiations.

5.2.3 Performance of FOs in Smallholder Paprika

5.2.3.1 Paprika Association of Malawi

PAMA had 50 smallholder farmer's associations in the 2004/05 season. The number of associations varies considerably depending on membership subscription during a particular season. Those that do not renew their subscriptions are de-registered from the apex association. All the associations that belong to PAMA are currently concentrated in the central region mainly in Ntchisi, Dowa, Lilongwe and Mchinji. On average, local associations have 150 members – ranging from 100 to 300 members per association. PAMA is setting up a laboratory that will be used to assess seed quality, colour units, pungency, and salmonella and intends to use the laboratory for three other

¹⁴ This association started as a break away association from the Mponera Paprika Association which started in 2001. The reason for breaking up was due to transaction costs of attending meetings since Mponera is 12 kilometres away from Mtengowathenga.

¹⁵ Key informant's interviews revealed that smallholder farmers that sell their paprika through their associations tend to get better prices than those that sell individually.

crops including groundnuts. In 2005, PAMA had provided services to more 5,000 farmers and had also provided training to local association leaders.

PAMA faces a lot of problems. First, although the number of smallholder farmers is estimated to be more than 60,000 farmers, the membership PAMA is less than 20 percent and its members are concentrated in central region. Secondly, PAMA is highly dependent on donor funding. Although, members pay subscription fees, its membership base is weak and reliance on donor funding. It was reported that sometimes they have problems accessing donor funding due to cumbersome procedures. Its long-term sustainability is questionable. Thirdly, PAMA has no strategic plan and currently it is implementing activities that have been recommended by international consultants. There is no strategic vision for the association. Fourthly, PAMA has weak bargaining power over marketing arrangements with the major buyer of paprika in Malawi. Although, PAMA and association leaders meet with Cheetah to decide on pricing, key informants' interviews revealed that the buyers prices always prevail and PAMA and its do not have any alternative other than to accept the prices.

The perceptions of smallholder farmers revealed that PAMA is ranked first in terms of provision of inputs on credit and technical services. It is apparent that provision of inputs on credit is the main strength of PAMA that is helping to ensure loyalty of members. However, this is likely to be threatened this season due to the increase in the deposit that farmers pay from MK2,000 to MK5,000. Key informants' interviews revealed that not many members have registered for fertilizer loans this season, because they are unable to raise the required deposit. This will negatively affect the productivity and production of paprika.

5.2.3.2 Smallholder Associations and Clubs

The local associations are playing a vital role in enabling smallholder farmers in paprika to have access to extension services, inputs and markets. These local associations are well-organised and meet regularly to share information and to make vital decisions. A SWOT analysis by participants of focus group discussions revealed that promotion of farmers' voice in decisions that affect the development of paprika farming is their main strength. However, they have a number of weaknesses including failure to visit some farmers on regular basis, the spatial spread of smallholder farmers, the weak financial base for the associations and lack of office space to hold meetings.¹⁶ It was argued that the problem of office space may require external assistance since the associations do not have adequate funds to build some meeting place.

Farmers also identified opportunities which associations can exploit to its advantage such as the entry of other buyers in the market, government policies that encourage diversification into paprika, increased interest of smallholder farmers in paprika farming that may increase membership in the association, the progress in the PAMA capacity building initiative. Smallholder paprika farmers anticipate paprika farming to be well established as tobacco in future. However, these opportunities can be hindered by several factors including the repayment of loans on behalf of the defaulting farmers without full consultation of the membership – this has the potential to affect group dynamics and solidarity of farmers and encourage 'free-riding' behaviour. Another potential threat is the decision by PAMA to raise the deposit required for farmers to obtain input credit and the continuation of low prices. There were also indications that other non-governmental organisations are also organizing associations that may

¹⁶ The smallholder farmers visited in Dowa meet outside ADMARC offices at Mtengowathenga.

compete with paprika associations for membership. This may lead to increases in drop-out rates from the farmer associations. Most farmers revealed that they join the associations to enhance their social capital by networking with other knowledgeable farmers, for access to inputs and to ensure fairness in marketing and stability in prices.

5.3 Production Systems and Marketing of Paprika

5.3.1 Production Systems

Most of the paprika production in Malawi is based on rain-fed agriculture.¹⁷ Paprika is grown under monocropping farming system like tobacco. Farmers argued that paprika does not grow well if grown together with other crops. The production starts with sowing of seeds on a nursery bed between October and November. Other activities during this period relates to nursery management including irrigation, mulching and fertilizer application. In December farmers start making ridges and transplant paprika on the fields typically in December. This is followed by weeding and the first application of fertilizers. The fertilizer used is D compound. After a few weeks (January – March) farmers start banking, continue weeding and apply the second and last fertilizer – CAN. Paprika is harvested in April.

The major inputs in paprika production are labour, seeds, fertilizers and chemicals. Smallholder paprika farmers have high access to inputs such as seeds, fertilizer and chemicals through the lines of credit provided by PAMA and Cheetah Limited. The survey revealed that 93 percent of farming households had access to credit facilities and 96 percent of these had access to agricultural credit. About 24 percent obtained credit from crop associations while 89 percent obtained credit from crop buyers including PAMA. Cheetah provides quality seeds to farmers on credit upon payment of a deposit of MK150 by the farmer. PAMA provides fertilizer and chemicals on credit upon a deposit of MK2,000 which has been raised to MK5,000 this season.¹⁸ Most smallholder farmers anticipate reduction in use of fertilizers this season due to the increase in the deposit for input credit. The increase in the deposit level of input credit may be counterproductive at the time when PAMA seeks to raise the productivity of smallholder paprika production. The decision to raise the deposit is likely to affect production volumes and productivity in paprika production.

However, Toomey et al (2000) note that the labour input requirement for paprika is 20 percent less than tobacco and requires less commercial inputs than tobacco. Focus group discussions with both male and female farmers confirmed that paprika is easier to grow as it is less labour intensive. Table 14 shows some of the input use among smallholder paprika farmers. The average land area devoted to paprika production for the sample farmers last season was 0.59 hectares (ranging from 0.04 – 5.0 hectares), with a median of 0.4 hectares and a standard deviation 0.76 hectares.

Paprika also requires less fertilizer, while others farmers claimed that it can be grown without fertilizers. Questionnaire interviews reveal that only 86 percent of the farmers used fertilizers and 26.3 percent used chemicals. The low use of some of these inputs were also confirmed from focus group discussions which revealed that about 30 percent of farmers were said to have grown paprika without applying fertilizer. Key informants'

¹⁷ However, in some place in Nkhotakota district some of the farmers are producing paprika under irrigation.

¹⁸ Smallholder farmers through their associations have made representations to PAMA to reconsider maintain a deposit of MK2,000 for input credit.

interviews also revealed that most farmers do not apply chemicals as they consider them more expensive. The high use of fertilizers is due to access to input credit from PAMA facilitated by their local association. This may be one of the reasons why productivity remain low in Malawi estimated at 300 kg per hectare compared to 800 kg per hectare among smallholder farmers in Zambia (MCI, 2004).

Table 14 Use of Key Production Inputs of Paprika

Input	N	Mean	S.D	Min	Max
Land under cultivation (hectare)	98	0.5906	0.756	0.04	5.00
<i>Family Labour (man-days)</i>					
Land preparation	97	18.9871	17.517	1.50	87.50
Planting	98	8.1454	7.202	0.38	41.25
Irrigation	92	35.5177	39.409	1.50	270.00
Weeding	97	13.9304	14.199	1.00	87.50
Application of chemicals	37	2.2272	4.023	0.09	22.50
Harvesting	98	13.9235	19.507	0.50	131.25
<i>Hired Labour (man-days)</i>					
Land preparation	8	4.0938	2.543	0.38	7.50
Planting	3	4.8750	3.577	2.63	9.00
Irrigation	3	22.5000	6.874	15.00	28.50
Weeding	13	4.5865	4.242	1.50	14.00
Harvesting	5	8.5500	5.185	3.00	15.75
Farmers applying fertilizer (%)	86	86.0	-	-	-
Farmers applying chemicals (%)	26	26.3	-	-	-

Source: Smallholder Cash Crop Survey 2005

Most paprika farmers use family labour in the production process relative to hired labour (Table 13). Family labour is used mostly during irrigation, land preparation, weeding and harvesting. No hired labour is used in the application of chemicals – this is also a reflection that most farmers do not use chemicals in paprika production. Hired labour is mostly used during weeding and land preparation.

Good farm management practices are also vital to achieve higher quality of paprika. It is also important for farmers to use good quality seeds as this has implications for overall quality of the crop. Poor quality seeds are susceptible to diseases and pest problems. Good quality certified seeds are not locally available; this is why buyers are providing seeds to farmers to insure against poor quality of the crop (Toomey et al, 2000).

5.3.2 Processing and Grading

Post-harvest processes of paprika include drying and grading of the fruit on the farm. This stage is also important to ensure high quality of paprika. It is recommended that paprika be washed in lightly chlorinated water to remove dirt and chemical residues, failure may reduce the quality of the fruit. The farmers use solar drying on simple drying racks immediately after washing. The drying process takes 2 to 3 days. Toomey et al (2000) notes that although solar drying is least cost and reduces the risk of aflatoxin, its main disadvantage is the risk of loss of the colour of the fruit and reduces quality compared to covered drying.

Grading of paprika is also done on the farm based on the visible colour intensity of the skin. Focus group discussions and key informant interviews revealed that there are four grades of paprika, grade A – D. According to Toomey et al. (2002) grade A has dark maroon skin with no disease spots and with thick skin; grade B has dark maroon skin with maximum of 25 percent disease spot and slightly thick skin; grade C has

red/maroon skin with 25 percent disease spots and with thin skin and lastly grade D has white or orange skin due to disease. The farmers also distinguished between opened and unopened types in each grade. Most smallholder farmers use family labour to process and grade paprika. On average smallholder farmers spend 9.26 man-days to process their paprika. Different grades of paprika are stored in different containers in clean, dry, dark and cool sheds with the bags elevated from the floor. The longer paprika is stored in the sheds the higher the quality erosion; hence farmers are encouraged to sell as quickly as possible.

5.3.3 Marketing

Given the need to sell paprika as soon as it is dried, transport therefore becomes a key component of the marketing arrangements. Cheetah Limited is the main buyer of paprika in Malawi. Cheetah used to run an out-grower scheme (contract farming) with smallholder farmers and provided inputs on credit and extension services and the farmers in return promised to sell their produce to Cheetah. However, over time, with the entry of other buyers and vendors, there were a lot of side-selling and most farmers reneged on their contracts. The marketing system for paprika has undergone some changes in response to the active participation of other buyers (Toomey et al., 2000). Initially, Cheetah either bought the crop from its office in Lilongwe and paid farmers instantly or bought the crop in the area and paid farmers within 3 or 4 days. With the problems of side-selling and in order to reduce the transaction costs for farmers, Cheetah is now buying the crop out from the associations at specific locations. Smallholder farmers believe that the change in the marketing strategy of Cheetah is a result of the competition it was facing from somebody known as Lorraine who was buying from farmers in the association areas. It seems the buyer market is highly oligopolistic and this has implications on the pricing. Focus group discussions and key informants' interviews revealed that the lack of competition among the buyers is a contributing factor in what they perceive as low prices for paprika. Low prices were one of the three most important problems with respect to paprika farming. Smallholder farmers contend that this is due to limited competition among buyers that has implied that prices have tended to swing more in favour of Cheetah during negotiations as it is the dominant buyer of smallholder paprika.

There were only three marketing channels for paprika in the study area: Cheetah, Lorraine and vendors. These offer different prices and services to smallholder farmers. The price at which Cheetah and other large buyers buy paprika is a negotiated price between smallholder farmers, PAMA and the big buyers. Data from smallholder farmers revealed that both Cheetah and Lorraine buy paprika at agreed prices although Lorraine only buys grade A and B. Vendors, who are mainly well-to-do farmers in the community, offer the lowest prices for the same grades of paprika that would fetch higher prices from Cheetah and Lorraine. Table 15 shows the prices at which smallholder farmers sold paprika to different institutions, and margin between prices offered by Cheetah and those of vendors is just too wide. For grade A, vendors offer two-thirds of the price that the farmers agreed with Cheetah through PAMA.

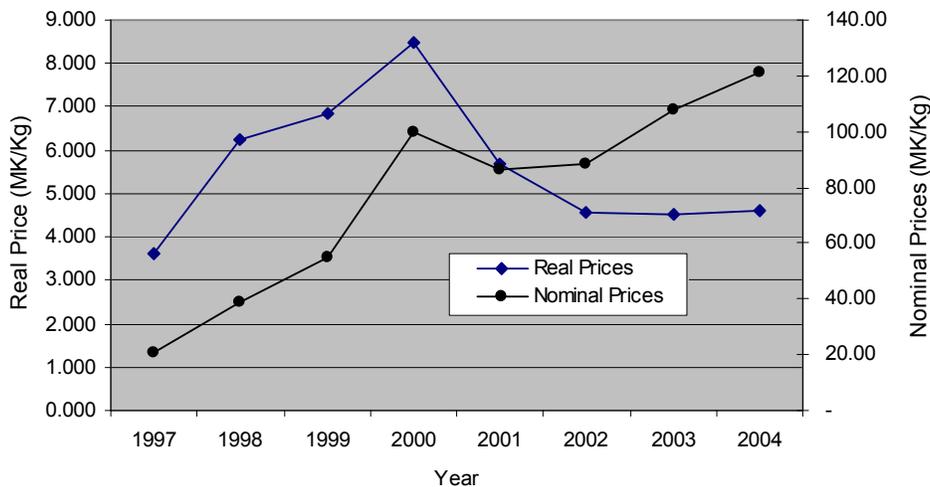
Table 15 Prices of Paprika by Type of Buyer (MK per Kilogram)

Grade	Market Channel / Buyers		
	Cheetah	Vendors	Lorraine
<i>Grade A</i>			
Open	115.00	65.00	115.00
Whole	150.00	100.00	150.00
<i>Grade B</i>			
Open	105.00	50.00	105.00
Whole	130.00	80.00	130.00
<i>Grade C</i>			
Open	75.00	25.00	-
Whole	90.00	40.00	-

Source: Smallholder Cash Crop Survey 2005

Figure 1 shows the trends in the price of grade A paprika since 1997. There has been an increase in the nominal price of paprika particularly between 1997 and 2000 and between 2002 and 2004. However, paprika prices increased on between 1997 and 2000; otherwise farmers have experienced a decline in the price of paprika. In US dollar terms, these prices represent a declining trend since 2000. Production data revealed that smallholder production increased substantially from 600 tonnes in 2000 to 1,500 tonnes in 2001 and 1,700 tonnes in 2002, but slumped to 250 tonnes in 2003 and 346 tonnes in 2004. The decline in real prices may be a disincentive to paprika production among smallholder farmers in the long-run and reflects the monopsonistic nature of the market.

Figure 1 Prices of Grade 'A' Paprika, 1997 - 2004



Source: PAMA

Institutional analysis of various market channels revealed differential service levels as perceived by smallholder paprika farmers. For example, farmers like Cheetah because it provides seeds to smallholder farmers and buy at the agreed negotiated prices and buy all the grades, but they doubt their business practices such as cheating on measurements and quality assessment and the transport deductions made on farmers' proceeds and pays farmers a week after sales. The claims of cheating on measurements and quality were confirmed by both female and male focus discussion groups and key

informants. Lorraine was highly ranked by smallholder farmers for the absence of transport costs deductions and buying at the agreed negotiated prices with no cheating on measurements and quality and pays farmers instantly, but the disadvantage is that Lorraine does not offer credit to farmers, buys only higher grades and it is a new comer in the market – they are uncertain whether they will buy paprika this season. Vendors have the worst ranking due to low prices offered and high incidence of cheating in measurement and quality. Their only advantage is that vendors live in the area and smallholder farmers take their produce to them if they are desperate to sell their produce.

Cheetah was the main market for smallholder paprika farmers with 85 percent of farmers selling an average of 130 kilograms, compared with only 14 percent of farmers selling an average of 108 kilograms to other traders (including Lorraine) and only two farmers selling to the local market with about 80 kilograms each. The mean total sales to Cheetah were MK7,854.41, compared with MK10,295.19 among those who sold to other private traders and MK9,148.25 among those that sold at the local market. The mean differences in sales imply that the effective prices offered by Cheetah may be lower than in other market channels due to the transport cost deductions.

The survey also reveal that the choice of the market channel which the farmers may decide to use to sell their paprika depends on the readily availability of cash (40 percent), followed by access to input credit (37 percent), best offered price (23 percent), close location (17 percent) and no cheating on measurements (9 percent). Table 16 shows the relative merits of the two market channels from the perspective of farmers. The most important advantage for those farmers who sold to Cheetah is that the buyer has readily cash, which also emerges as an important factor for Lorraine. With respect to disadvantages, other disadvantages which include transport deductions for Cheetah and purchasing only higher paprika grades for Lorraine seem to be important consideration in the choice of the market channel.

Table 16 Advantages and Disadvantages of Alternative Markets (%)

Advantage / Disadvantage	Cheetah	Lorraine
Advantages		
Best price offered	23.5	7.1
Closest location	8.6	14.3
Pre-established relation with buyer	-	-
Buyer provides advance	-	-
Buyer provides input on credit	21.0	-
Buyer has ready cash	30.9	28.6
No cheating on measurements	3.7	14.3
Other	12.3	35.7
<i>Number of Observations</i>	<i>81</i>	<i>14</i>
Disadvantages		
Low price offered	25.6	7.1
Far location	6.4	-
No pre-established relation with buyer	-	-
Buyer does not provides advance	-	-
Buyer does not provides input on credit	1.3	7.1
Buyer does not have ready cash	-	-
Cheating on measurements	17.9	7.1
Other	48.7	78.6
<i>Number of Observations</i>	<i>78</i>	<i>14</i>

Source: Smallholder Cash Crop Survey 2005

Cheating on measurements is proportionately an important disadvantage for farmers that sold to Cheetah than those farmers that sold to Lorraine. Farmers believe that improvements in the marketing of paprika can be brought about by increase in the number of big formal buyers and with the deployment of marketing inspectors by PAMA to certify that the transactions are honest.

5.4 Role of Government and Other Stakeholders

Paprika has not been singled out as one of the agricultural products with a potential to generate sustainable growth. Paprika as an alternative crop to tobacco is not mentioned in the recent government policy documents such as the Malawi Poverty Reduction Strategy (GoM, 2002) and the Malawi Economic Growth Strategy (GoM, 2004). However, MCI (2004) shows that with respect to profitability (gross margins), paprika production is more profitable than burley tobacco using data between 1995 and 2001. The National Association of Smallholder Farmers of Malawi (NASFAM) is one of the farmer organisations, apart from PAMA, that is promoting the production of paprika. The NASFAM Commodity Marketing Exchange (NASCOMEX) is actively involved in the marketing of paprika from smallholder farmers.

There has also been donor support channelled towards the development of paprika farming in Malawi. Some of the donors that have supported capacity building activities of PAMA include the DANIDA, the European Union and the African Development Bank.

5.5 Concluding Remarks

Paprika is one of the emerging export crop grown by smallholder farmers. It is mainly grown in central and northern regions of Malawi under the same agronomic conditions like burley tobacco. Paprika production is labour intensive, though less labour intensive than tobacco, and requires good farming management and practices to ensure high quality of produce. The main inputs for paprika in addition to labour include quality seeds, fertilizers and chemicals. Paprika also requires post-harvest processing and grading, with the first grade fetching a substantially higher price relative to the second grade.

Some of the paprika farmers have formed local associations that affiliate to the apex association, PAMA through subscriptions obtained from each member farmer. At a local level, the association geographic area is divided into zones. Farmers in each zone are organized into clubs each with a management committee. Clubs make up the local association. Each farmer subscribes MK15 as club annual membership fee, MK50 as the association annual membership fee and MK450 as the annual membership fee to PAMA. Associations that do not pay their subscription fees cease to be members of PAMA. PAMA offers several services to their members including extension services, provision of farm input loans (fertilizers and chemicals) and negotiate produce prices with the buyers. Input loans are provided upon members paying a deposit of MK5,000 this season compared to MK2,000 last season. With donor funding, PAMA is also setting up a laboratory for assessment of seed quality, colour units and salmonella among other things. In addition, paprika farmers also have access to seeds on credit from Cheetah, the main buyers of paprika.

The perception of farmers on the operations of PAMA reveals that it is an important institution in the provision of extension services and input credit, although the increase in the input credit deposit threatens the growth in membership and sustainability of the

apex association. PAMA is seen as a weak institution in negotiating better prices for paprika with the most dominant buyer and in ensuring that farmers are not cheated on measurements and quality by purchasing officers of the major buyers. PAMA is also heavily dependent on donor funding and its long-term sustainability will depend on membership growth which is likely to be driven by the quality of services offered to its members. Local associations are also playing a vital role in facilitating access to input credit for smallholder paprika farmers as they act as a guarantee group for the loans that PAMA and Cheetah.

The domestic market for paprika in terms of the buyer characteristics is highly monopolistic. Cheetah is the main buyer of paprika in Malawi. It is a well-established company that offers quality seeds to farmers. Other buyers are however, emerging in the market but they are relatively smaller than Cheetah. Cheetah uses this dominant position in the market to dictate the prices for buying paprika. Although, PAMA and chairpersons of local associations negotiate these prices, it turns out that PAMA and its farmers take Cheetah prices as there is no alternative market for their paprika. Apart from the low and monopsonistic prices, farmers also complain about the poor business practices by purchasing officers especially the tendencies to cheat on measurements and quality of produce. These problems lead to lower profitability from paprika and are disincentives to paprika production and development. Farmers may benefit from greater competition in the buying of paprika.

6. Cotton

6.1 Introduction

Cotton ranks as Malawi's fourth highest foreign exchange earner. Recent estimates suggest that it is grown on approximately 30,000 hectares and supports up to 80,000 – 90,000 smallholder farm families (GoM, 2004). It is mostly grown in low lying areas, especially the lower Shire Valley which accounts for up to 50 percent of national production; the Southern Region upland areas around Balaka, accounting for about 30 percent of production and the lakeshore areas around Salima accounting for the remainder. Given Malawi's structure of production and composition of output in recent years, cotton can best be characterized as Malawi's fading cash crop, having lost its dominant market position to other cash crops with respect to the number of growers, area under cultivation, value of total output and even relative contribution to export earnings. The government estimates that cotton production has fallen by 80 percent from about 70,000 tonnes in 1986 to 16,000 tonnes in 2002 with average yields of 500-700 kg/ha which were also lower than in the in the early to mid 1990s.

6.2 Smallholder Cotton Associations

6.2.1 Organization of Smallholder Cotton Growers

Cotton farmers are organized in old Agricultural Development Division (ADD) clubs of the Ministry of Agriculture. There is no apex farmer organisation for cotton farmers in Malawi, with the exception of some smallholder farmers in Balaka which are affiliated to NASFAM. Key informants indicated that about 70 percent of smallholder cotton farmers in Balaka sell cotton through NASFAM. Otherwise, in all other areas the farmer organisations are at the club level and various stakeholders interact with such farmers at that level.

The cotton case study analyses the experiences of smallholder farmers that are affiliated to NASFAM in Balaka district. Following the divestiture of ADMARC and the closure of its "bush markets" efforts to re-organize smallholder cotton farmers began in earnest in 1999 when the USAID funded a three-year project called the Smallholder Agribusiness Development Project (SADP). The principal objective of SADP was to facilitate market access for farmers of non-traditional cash-crops who were organized in clubs. With the transition of the project from SADP to NASFAM the left-over clubs formed under the project were automatically adopted by NASFAM. It was at the expiry of the project in 2002 that the leftover clubs formed the Balaka Smallholder Farmers' Association (BASFA) and affiliated themselves to NASFAM. In addition to the original objective of facilitating market access, in the new set-up the association also seeks to train farmers in agro-business, to link farmers with other services providers such as marketing, credit and input suppliers and also to engender transparency and good governance in club and association activities.

BASFA has a similar hierarchical structure as ZISFA. At the lowest level, smallholder farmers are organized into clubs of between 10 and 15 members. Each club has a committee of five members who deal with matters of administration and act as conduits between the association's secretariat and club members on issues pertaining to the association's policies and on input and crop pricing information. Depending on the club density in an area, a group of between 8 and 20 clubs then forms a Marketing Action Committee (MAC), which comprises ten members selected from the club members.

Above the MACs are chapters, which are committees at the level equivalent to the Extension Planning Area (EPA) of the Ministry of Agriculture. The committee for each chapter has ten members drawn from the MACs. Finally, at the top level is the umbrella association, BASFA, run by a Board of Directors, made up of 18 members (three from each chapter). These representatives are elected at the annual meeting for each chapter. The association visited for this study, the Balaka Area Farmers Association (BASFA) has six chapters, 43 MACs and 329 clubs.

6.2.2 Developments in Smallholder Cotton

The efficacy of the farmers' organization in cotton will depend, to a large extent, on the role played by the Cotton Development Association (CDA). The CDA was formed by two cotton buying companies, Clark Cotton Malawi (CCM), a joint venture between Clark Cotton of South Africa (51 percent) and ADMARC (49 percent), and Great Lakes Company (GLC), in collaboration with BASFA. Although the CDA was principally formed to fix cotton prices, it soon recognized the role played by other non-price constraints on smallholder cotton production especially low productivity due to low seed treatment and farmers' inability to meet high input requirements for cotton growing such as herbicides, pesticides and spraying equipment. The CDA received funding from the Department for International Development (DFID) of the United Kingdom which enabled investments in a seed treating plant. The investment in a seed treatment plant enabled cotton farmers to obtain treated seeds at subsidized prices. In the first year, the subsidy on prices of seeds was 40 percent and reduces to 5 percent in the 2005/06 season.

The CDA's desire to increase smallholder productivity by supplying high quality but subsidised seed, dressing and other chemicals led to the invitation of two input suppliers, Farmers Organization and Chemicals and Marketing, to participate in the CDA. In the past two seasons two new cotton buyers, Iponga and Produce Africa, have entered the cotton market. To ensure that the new entrants did not free-ride on their input subsidy regime, the new companies were also co-opted into the CDA. However, since the new companies were not part of the original arrangement, their commitment to the ideals of the CDA is questionable exemplified by their willingness to renege on prices set by the CDA.

Notwithstanding the presence of the co-opted members, the CDA can still be described as a hybrid of CCM and GLC's business models. Prior to commencing operations in Malawi, Clark Cotton had considerable experience in investing in cotton production and buy-back, while GLC were mostly passive buyers in Malawi. With the coming of CCM four years ago, GLC changed its business approach to include limited provision of credit and other service. In conjunction with some farmers clubs, GLC introduced a Pilot Credit Scheme while in association with Chemicals and Marketing they also supported around 60 demonstration plots from which farmers could learn the benefits of appropriate seed and application of modern growing practices, including the use of chemicals and pesticides. The CDA now embodies CCM long experience in providing inputs with GLC knowledge of local agro-economic and socio-cultural environment. Most industry stakeholders question the sustainability of the CDA due to the varying interest of its members. The objective of raising the productivity of smallholder cotton production is far from being attained and in most cases other players in the market have chosen to play their own way disregarding the agreements reached in the CDA. With the phasing of the seed subsidy program, the coherence of the CDA is also questionable.

6.2.3 Performance of FOs in Smallholder Cotton

The association has a secretariat that runs its day to day affairs and liaises with NASFAM, chapters and MACs. Currently, the emoluments for staff at the secretariat are covered by NASFAM, with donor funding. Farmers are linked to BASFA through different services that the association offers. To access these services, up to this year, the farmers' clubs used to pay an affiliation fee of MK200 to association. However, due to the phasing out of the project funding under which the association's administrative and overhead costs were met, the association has transferred some costs onto members and from the 2005/06 crop season each member is expected to pay MK250.

The farmers' rating of the association's performance depends on their understanding of what BASFA is about. Focus group discussions revealed that the association is viewed first and foremost as a crop promoter intent on fighting rural poverty, second as a farmers' intermediary and then as a guarantor of better prices. The association has field extension officers who provide training in cotton agronomy and general business management to association farmers. In addition, the association chooses the abler members and leaders of the groups to assist other members. Moreover, given the difficulty of training illiterate farmers, in its early years the association complimented its extension services with the introduction of adult literacy classes. Under the auspices of the CDA, BASFA members were linked with Clark Cotton and Great Lakes Limited who supplied subsidized seed, fertilizer and chemicals.

The participants in the focus group discussions were also asked about their involvement in decision-making in the association. In general, it appears that there is a lot of trust placed on club chairmen who eventually make most decisions on behalf of their members and similarly convey decisions made at higher levels to the general membership. Yet there are gender differences in involvement in the decision making process. The group of men indicated that they took part in decision making; they had reservation with the process because on a number of occasions some of their decisions have been reversed by BASFA. In contrast, the group of women seemed ignorant about association's hierarchy and it seems that they trust that the club chairpersons would do the right thing.

The lack of knowledge on organizational aspects notwithstanding, there seems to be a good degree of transparency in making most major decisions. For instance all groups conceded that the association sought their opinion when it decided to revise membership fees upwards. In addition, from focus group discussion it appears that association members are reasonably empowered in two respects. First, they have the power to remove club officials as well as higher (district) officials if they are not satisfied with the performance or the leader is not seen to serve their best interests. The committee holds annual elections at local and district levels. Second and more importantly, the members also claimed that they were free to reject decisions or resolutions made by the association's board. For instance, when the issue of increasing the annual membership fee to K200 per member was actually brought up, some people rejected it and eventually most pulled out of the association.

The farmers were also asked to assess the performance of their association in terms of service delivery. To get a sense of proportionality regarding the association's efficacy, participants were also asked list other institutions that they interact with and rate them on the basis of some criteria which included prices, timing of markets, extension services and general business practices. For each element participant were required to score between zero (no service) and 100 (best service). Seven groups of institutions were

identified: BASFA, Clark Cotton, Great Lakes, Iponga, Village Headmen and extension workers (field assistants). The most significant finding is that among both male and female participants, BASFA was ranked first in terms of farmer satisfaction among the institutions that serve smallholder farmers, followed by Iponga, Clark Cotton and Great Lakes (tied for third), vendors and then village headmen.

BASFA got the highest rating for three reasons: it provides extension service, it has many and good markets and has good business practices. On extension services, BASFA got a perfect score because apart from training the farmers on good cotton husbandry practices their extension services also include the promotion of adult literacy classes. With respect to general business practices, BASFA had a favourable rating because their scales are considered fair and BASFA usually does not force farmers to re-grade their cotton. More importantly, although BASFA usually buys the cotton in cash, in the instance that they had a cash-flow problem and obtained the cotton on credit they settled with the farmers within a short period of time.

However, the association had mixed scores on pricing and timing of trade scoring favourably among women and badly among men on both elements. Among the women, BASFA was given a perfect score on price because their minimum prices were higher than those offered by most traders and vendors. In addition, BASFA had a perfect score on timing of trade because they open markets on time. In contrast, the men's group gave BASFA a score of 30 out of 100. Given the time lag it takes for the CDA to propose, deliberate and agree on prices, it seems the issue was not price per se, but the timing of trade (on which the men gave BASFA 50 out of 100) because they wait for other people to make decisions on prices and only then do they start buying. These sentiments seem to reflect members' misunderstanding of the role of BASFA in setting prices and also the terms and conditions under which BASFA raises funds for buying the cotton. NASFAM scored 80 out of 100 on customer care because of customer care and its officials were said to be cheerful people and they do not shout at farmers.

6.3 Production and Marketing Systems in Cotton

6.3.1 Production Systems

Although the cotton associations are a relatively new development, association members have been growing cotton for an average of 8 years, with the maximum recorded of 33 years. For this group, the planted land area averaged over one-half of a hectare but the largest smallholder had about 4.4 hectares. Cotton goes through the normal crop husbandry stages including planting, weeding application of fertilizers and chemicals, harvesting, grading, sorting and marketing. Land preparation begins around April and lasts until June. However, this early land preparation is because cotton stalk are supposed to be removed and burnt soon after harvesting. As such, it is common for harvesting and processing, on the one hand, and land preparation on the other hand to overlap. Since cotton is wholly rain fed, planting occurs in November and December and weeding follows a few weeks thereafter. Between January and February farmers apply fertilizers and chemicals and then from April cotton is harvested and marketed.

Cotton production is labour intensive and requires good farm management, fertilizers and chemicals for pest control. Table 17 summarises some of the labour requirements associated with the different stages of cotton production. The land under cotton cultivation shows that cotton production occur on small plots of about 0.6 hectares. Most cotton growers use family labour, except for processes in which either time is of the

essence or the process is protracted. Of the stages of production processes, land preparation and harvesting require relatively more labour input. However, there are differences in the way family and hired labour are used. On average, the ratio of family to hired labour is 4 to one with less than 20 percent of cotton farmers using hired labour. Hired labour is mostly used in for activities where time is of the essence such as weeding and harvesting.

Table 17 Use of Key Production Inputs of Cotton

Input	N	Mean	S.D	Min	Max
Land under cultivation (hectare)	100	0.599	.5513	.10	4.40
<i>Family Labour (man-days)</i>					
Land preparation	64	110.25	188.54	1.25	1080
Planting	100	5.01	3.88	0	25
Weeding	77	36.32	39.66	0	236
Application of chemicals	90	2.72	2.72	0	15
Harvesting	81	63.14	97.91	1.25	540
Processing	82	15.75	23.57	0	112.50
Transportation	86	0.72	3.29	0	30.63
<i>Hired Labour (man-days)</i>					
Land preparation	11	31.38	58.81	3.75	202
Planting	7	6.48	7.70	0.50	22.50
Weeding	17	28.69	26.23	5.25	112.50
Application of chemicals	9	4.66	4.69	1	16
Harvesting	21	65.14	106.85	0	405
Processing	14	4.74	10.10	0.63	39.38
Transportation	10	0.32	0.42	0.13	1.50
Farmers applying fertilizers (%)	60	-	-	-	-
Application of chemicals	100	-	-	-	-

Source: Smallholder Cash Crop Survey 2005

Only 60 percent of the farmers applied fertilizers in cotton production last season while all farmers interviewed used pesticides and chemicals. The low use of fertilizer is partly due to the fact that fertilizer, the most expensive of the chemicals, is sold on cash basis to smallholder farmers. Most of the cotton farmers do not have access to agricultural credit facilities. The socio-economic characteristics of farming households revealed that only 10 percent of households had access to credit facilities. Low productivity in cotton production is one of the main challenges confronting the smallholder sector (GoM, 2004). Stakeholder interviews revealed that the current productivity in Malawi has averaged between 0.49 tonnes and 0.8 tonnes per hectare compared with 1.8 tonnes per hectare in Zambia. GoM (2004) also shows that the potential productivity in cotton production in Malawi is 1.3 tonnes per hectare for untreated seeds and 2.5 tonnes per hectare for treated seeds. Cotton production in Malawi plunged from 28,455 tonnes in 1997/98 season to 15,999 tonnes in 2001/02 season (GoM, 2004) due to several factors including productivity, marketing and pricing.

The decline in cotton production should also be understood within the context of the general economic – political environment. It is therefore important to consider how developments in cotton production link in the cotton, textile and garments value chain have contributed to lower production and productivity among smallholder farmers. A number of factors, both exogenous and endogenous to the different links in the value

chain have conspired to lower the demand for local cotton lint. Exogenous factors include low world market prices which, in turn, have translated into low prices paid by local ginners to smallholder farmers and thereby reduced the return to farmers. In addition, the rationalization of the portfolio and activities of the Agricultural Development and Marketing Corporation's (ADMARC) activities, led to disposal of cotton-related subsidiaries and consequent reduction in the number of buying points close to farmers. This also increased the role of traders who have taken advantage of smallholder farmers, through low prices and delayed payment of farmers for cotton obtained on credit by traders.

Endogenous factors include smallholder farmers' inability to meet high input requirements for cotton growing e.g. herbicides, pesticides and spraying equipment. In addition, cotton production has also been beset by problems of quality and availability of seed, high labour input requirements and pest management problems that have limited yield and profitability. More unsettling is the fact that these problems have arisen against a backdrop of poor organization of smallholder farmers which has made it difficult for them to receive technical assistance and inputs and also led to poor credit discipline which resulted in the withdrawal of credit facilities.

The second was the liberalization of the garments industry which lowered the demand for domestic textiles and cotton lint. Until the 1990s there was a well-integrated cotton, textiles and garments chain in Malawi. Most of Malawi cotton was utilised by Malawi's sole textile mill, David Whitehead and Sons (DWS). DWS comprised a large vertically organized production complex for spinning, weaving and dyeing and other specialised finishing processes and it enjoyed considerable financial success due to high tariff protection. With the liberalization of the textiles industry, severe dumping and smuggling of finished textile goods and second-hand garments drastically disrupted DWS' domestic markets. Annual production fell from a peak output of over 30 million meters in the 1980s to under hundreds of thousands by 2002/03, and it accumulated deficits in excess of MK1 billion (US\$30 million). This slow down created a break in the cotton – garments value chain, with disastrous consequences for smallholder production as DWS's domestic demand for cotton lint fell to below 1000 tones per annum.

A consequence of these developments is a shrinking cotton industry characterised by oligopolistic competition and collusion. Except for Great Lakes Cotton Company, the other players in the cotton industry have been in Malawi for less than four years. However, using the power of incumbency and first mover advantages GLC has managed to entice the newer entrants into collusive arrangements. Although the immediate casualty of the structure of competition in cotton has been prices and smallholder farmer welfare, there is potential for undesirable long run consequences if this anti-competitive behaviour continues.

6.3.2 Marketing

Prior to the reforms smallholder cotton had traditionally to ADMARC, who, through its subsidiaries owned all of Malawi's four ginneries and supplied DWS with the needed cotton lint. However, with the retreat of ADMARC's from cotton marketing and the subsequent closure of most of its rural markets, there are now three main channels through which smallholder cotton is sold to ginners: through traders, through farmers' organizations and through direct sales to the ginners. Although there are no firm numbers regarding the relative importance of the various channels, currently there are four main buyers of cotton: Clark Cotton, Great Lakes, Iponga and Produce Africa. Each

of the buyers has established buying points serviced by their own employees. These officers, in addition to produce purchasing, also provide extension services to farmers. The buyers also offer other services to farmers such as input shops and equipment (spraying machines) hiring services. CCL also offered input loans to smallholder cotton farmers at 90 buying centres (out of the 230 buying centres) in 2002/03 season, and the recovery rate was 90 percent.

The market relationships between cotton buyers and smallholder farmers are limited due to problems of enforcement of contractual arrangements. One of the constraints experienced by smallholder cotton farmers is the lack of input credit, which is critical to achieving higher productivity levels in cotton production. Cotton farmers are largely procuring these inputs on cash basis, and given increasing costs it is likely that most farmers use such inputs disproportionately. The lack of contract enforcement has somehow discouraged buyers from extending input credit at a large scale to smallholder farmers. Buyers provide non-monetary services such as extension but believe that not all farmers that receive such extension services supply their cotton to them. Cotton is a crop that required some good input regime, and without access to credit facilities most farmers will find it difficult to increase productivity. One issue raised by the buyers is that these farmers are not organized, with the exception of NASFAM members, and it becomes difficult to extend credit and ensure that the farmers will supply the produce to the input provider. However, the study has revealed that even among more organised NASFAM farmers access to credit is still a problem.

Under the aegis of the CDA, BASFA deals exclusively with GLC and CCM and requires its members only to sell to buyers who are registered as members of CDA. About February or March of every year, CCM and GLC meet to set initial cotton prices and submit them to government for consideration. In turn the government consults NASFAM head office, especially the patron for BASFA, and other industry stakeholders. We observed that since CCM and GLC are also involved in the supply of subsidized seeds and inputs under the CDA, their proposed prices inevitably take into account the production subsidy and are, therefore, lower than those offered by other buyers who are not party to the input supply or subsidy program. Participants in focus group discussions claimed that before the CDA was formed, CCM and GLC bought cotton at MK25 per kg. However, after CCM and GLC invested MK3 million in the CDA to supply the subsidized seeds and chemicals, the CDA set cotton prices at MK18 per kg in order to recoup the subsidy.

At about the same time, BASFA comes up with estimates of the unit costs of production and volume of cotton that will be harvested by its members. On the basis of these estimates BASFA invites bids from CCM and GLC for exclusive contract to buy its members cotton. Since both buyers offer the same price, BASFA's choice of the buyer is guided more by non-price incentives offered especially who pays for haulage costs and assurances of smooth cash-flow. The latter is especially critical because once BASFA picks the winning bidder; the buyer is expected to give an imprest to BASFA given the estimated volumes cotton and attendant transportation and storages costs. It is this money that the association will use to buy the cotton from its members. To this end, at each buying point BASFA employs marketing assistants and two farmers to assist with the buying.

While the price-setting process is going on, vendors and small-scale private traders try to take advantage of the lack of price information to lure farmers to sell them their cotton. Although prices offered by the vendors and private traders are relatively lower

than those eventually agreed by members of the CDA, vendors and private traders take advantage of the confluence between the lumpiness and seasonality of agricultural incomes and delays in price-setting by the members of the CDA. Vendors and private traders take care of cash cost of transportation and also offer the farmer money when it is urgently needed to meet some social and financial exigencies that require immediate cash.

As alluded to above, since cotton prices are set through the tripartite consultative process, the choice of the buyer for BASFA is determined more by overhead considerations and cash flow than price. Given the contractual agreement between BASFA and the CDA, there is not much leeway for association member in the choice of markets. Table 18 shows the average production and mean sales of BASFA's farmers in the 2004/05 season, distinguished by their place of sale. Over three-fourth of BASFA farmers sold their cotton to the association followed by 20 percent who sold to CCM. In general the evidence seem to suggest that although the average production among farmers who sold to BASFA was higher than that of farmers who sold their cotton to CCM the mean value of sales for BASFA farmers were lower than those obtained by selling to CCM and GLC. This seems to bear witness to the observation that CCM and GLC put more emphasis on quality than does BASFA. In 2004 BASFA started buying on commission.

Table 18 Marketing of Smallholder Cotton

Market Channel	Mean Production (Kg)	Mean Sales (MK)
NASFAM (76)	451.28	9,871.64
Clark Cotton (20)	436.28	10,262.45
Great Lakes (5)	599.98	13,200.00
Total (101)	450.80	10,016.25

Source: Smallholder cash crop survey, 2005

Table 19 summarizes the relative merits of selling cotton through NASFAM.¹⁹ Given the fact that farmers have to meet their own transportation cost to the selling point, it is not surprising that the main determinant of the farmers' choice of crop buyers is the distance to the market. In this regard, no single company has a competitive advantage because whereas BASFA has built warehouses in all MACs, CCM uses a country-wide network of former ADMARC depots as buying centres. However, an advantage of dealing with BASFA over other buyers is that BASFA buyer is less likely to cheat over measurements, especially rigging or tampering with scales, under-grading of cotton, or requiring frequent regarding of cotton.

¹⁹ Although about 30 percent of farmers are non-NASFAM members, it was not possible to obtain perceptions of the farmers that sell directly to CCM, GLC, Iponga and Produce Africa. The study team only interacted with NASFAM farmers.

Table 19 Advantages and Disadvantages of NASFAM (%)

Advantage	Yes	Disadvantages	Yes
Best price offered	8.7	Low price offered	68.3
Closest location	41.7	Far location	3.0
Pre-established relation with buyer	3.9	No pre-established relation with buyer	-
Buyer provides advance	-	Buyer does not provides advance	-
Buyer provides input on credit	-	Buyer does not provides input on credit	4.0
Buyer has ready cash	9.7	Buyer does not have ready cash	13.9
No cheating on measurements	33.0	Cheating on measurements	6.9
Other	2.9	Other	4.0
<i>Number of Observations</i>	<i>100</i>	<i>Number of Observations</i>	<i>100</i>

Source: Smallholder Cash crop survey, 2005

It is also apparent that smallholder farmers are dissatisfied with the pricing of cotton, with 68 percent of farmers revealing that low prices offered to smallholder farmers is the major disadvantage. The cash flow problems that the association experiences is also reflected by 13.9 percent of farmers that consider lack of readily available cash as a major disadvantage. It also appears that some of the members do not trust the associations on measurements, although the incidence of cheating is much lower than observed in the case of sugar and paprika.

6.3.3 Ginning

Malawi's cotton season usually last from December to May, while ginning occurs between June and August/September. Until 2004 there were only two ginners in Malawi, Clark Cotton Malawi (CCM) and Great Lakes Company (GLC), both of which are subsidiaries of international cotton companies. Whereas CCM controls approximately half of the national ginning capacity with two gineries in Salima and Shire Valley, GLC owns the other three gineries: one each in Balaka, in the Shire Valley and Karonga. Although the five gineries are characterized by excess capacity, with only approximately 20-25 percent of the ginning capacity being used (GoM, 2004), anti-competitive behaviour by these gineries has forced entrants into the industry, Iponga, to establish their own ginery.

The two companies have effectively used their ownership of gineries and the CDA to keep out competitors or co-opt potential competitors into collusive arrangements. For instance, in the past two years two new companies, Iponga and Produce Africa (PA), have joined the cotton buying business. In Iponga's first buying season, it was able to offer higher prices than CCM and GLC since it had not participated in the input supply subsidy regime. The problem for Iponga was that although CCM and GLC could not legally exclude them from buying cotton, since at the time they controlled all the ginning capacity, the imposed unreasonable conditionality with respect to processing of the cotton in their gineries. Another case in point occurred in 2004 when Produce Africa were allowed to buy cotton but both GLC and CCM refused to process it at their gineries and Produce Africa eventually had its cotton processed in South Africa.

Consequently, Iponga has now installed its own ginery. Similarly, Produce Africa is also exploring building it own ginery. Given the excess capacity that already exists in the ginning industry and the fact that production levels slipped from 70,000 tonnes in 1986 to 16,000 tonnes in 2001/02 it is clear that much of this capital expenditure is not economically justifiable save for overcoming the said market barriers. In addition, in Malawi the ginning-outturn, which is the percentage of lint that is extracted from the

cotton seed, is relatively low reported between 33 and 35 percent, compared to about 40 percent in the neighbouring countries (GoM, 2004).

6.4 Role of Government and Other Stakeholders

After a long period of official neglect, recent policy documents seem to suggest that the government intends to revive the cotton industry. For example, cotton is singled out as one of the smallholder cash crop with a growth and poverty reduction potential (GoM, 2004). The policy documents recognise that increased productivity in smallholder cotton depends on the availability of better technology, whether seed pre-treatment, micronutrients, herbicides or pesticides. Government also recognises that given their income levels, the smallholder farmers cannot afford these higher productivity technologies and highlights the need for an input credit system to enhance the smallholder cotton farmers' productivity. The government further recommends better organization of the smallholders for receiving inputs and marketing raw cotton with an expansion of the work of NASFAM and the ginning companies. Yet it is also understandable that due to the poor credit discipline in past years, almost all industry stakeholders, including BASFA and the CDA are reticent about giving seasonal input credit to smallholder cotton farmers.

Buyers have complained that the government seems too preoccupied with distortionary interventions such as guaranteeing minimum prices contrary to the market forces, at the expense of being forward looking and devising strategies that will lever the industry out of the doldrums. Buyers recommend that government should concentrate on reviving its beleaguered extension services and promote technology adoption, especially access to proper seed dressing which can increase production from the current level of 490-800 kg per hectare to 1.5 - 2 tonnes per hectare.

6.5 Concluding Remarks

The cotton association has gone a long way toward alleviating hiccups in access to inputs. Yet it is also clear to association members, the government and other stakeholders that the association's initiatives can be undermined by a cotton industry characterized by anti-competitive behaviour. This is a function of both history and the number of players in the market. History-wise, the near closure of David Whitehead and Sons, Malawi's only textile manufacturer, meant that all lint had to be exported. The fact that only two companies own all the ginning capacity in effect erects barriers to entry in the market. Attempts for each buyer to establish their own ginnery in an industry characterized by excess capacity, introduces inefficiencies by inducing unnecessary capital expenditure geared more towards ginning than enhancing actual smallholder production.

The cotton sector is quite weak in the organisation of farmers. Although it is a major cash crop, there is no apex organisation that represents the views of the smallholder cotton farmers in Malawi, with the exception of BASFA that is affiliated to NASFAM. In most parts, especially in Lower Shire, the highest level of farmer organisation is a club and some of the buyers have to interact with these many clubs. As a result farmer organisations do not seem to play critical roles in the market, apart from being vehicles for delivery of extension services by the crop buyers. Even in the more organized BASFA, the association plays a very limited role. One problem that BASFA has minimized is the incidence of cheating on measurements and grading among its members, although a very small proportion of members believe that the practice even exists in their association. BASFA members do not have access to input credit like many

other non-NASFAM cotton farmers and they do not have powers to influence the prices of cotton as a block of suppliers. BASFA does not have financial resources to establish an input credit regime to its members.

The CDA under the seed subsidy program relieved some of the difficulties that farmers experience in procurement of inputs. However, it is imperative to recognize that the CDA's price-setting mechanism is flawed in two respects. First, although in principle the eventual price is supposed to be determined consultatively, the survey found that given their market shares, the balance of power is so heavily tilted in favour of CCM and GLC that when they firmly maintain their position there is nothing that the government, the crop association or indeed anyone, can do to move them. Second, in addition to bidding for BASFA members' cotton, CCM and GLC also buy cotton directly from BASFA and non-BASFA growers where they are free to offer lower prices. It is apparent that farmers are likely to benefit with greater competition among buyers in a particular location than under the current collusive pricing arrangement. There is evidence that some of the buyers, though relatively small compared to the two major buyers, are offering higher prices.

7. Fertilizer Distribution and Farmers' Access

7.1 Introduction

Fertilizers are one of the important inputs into food or/and cash crop farming that raise productivity among smallholder farmers. Since independence, issues of fertilizer importation, pricing and marketing has been at the centre of government policy and agricultural strategy in Malawi. Such policies have varied from state-ownership of enterprises involved in the supply and marketing of fertilizers, the pricing of fertilizers and the resulting subsidy, deregulation of input marketing and pricing and targeted supply of free inputs. The promotion of the use of fertilizers has also been reinforced by research and development with respect to seed technology, especially for maize - the staple food crop.

Since independence in 1964 to 1991, the fertilizer market was more restrictive and segmented between estate and smallholder farmers. As Westlake (1999) notes, prior to liberalisation in 1993, estate and smallholder fertilizers were marketed using different market arrangements. Fertilizers for estates were imported directly by Optichem and Norsk Hydro Malawi, and farmers were buying directly from the importers at market determined rates (Sahn and Arulpragasam, 1991). On the other hand, fertilizers for smallholder farmers were imported by the Smallholder Farmers Fertilizer Revolving Fund (SFFRF) under the Ministry of Agriculture. Fertilizers imported by SFFRF were distributed solely by ADMARC through its network of market through out Malawi and sold to smallholder farmers at subsidized prices. An integral part of this distribution network that facilitated access to fertilizers by smallholder farmers was the operation of the Smallholder Agriculture Credit Administration (SACA) – an agricultural credit scheme operated by the government of Malawi.²⁰

Following the adoption of structural adjustment programmes in 1981, there have been several policy changes with respect to fertilizer supply in Malawi. First, the government phased program of fertilizer subsidy from 1984 and subsidies were completely removed by 1992. Secondly, in 1992, the government liberalized the marketing of agricultural inputs and deregulated the market which allowed entry of the private sector in the marketing of inputs to the smallholder farmers. Thirdly, the credit system that facilitated access to fertilizers for smallholder farmers collapsed partly due to political factors, and smallholder farmers had to seek new ways of accessing inputs. This was coupled with the declining performance of ADMARC. Fourthly, since 1994 following substantial increases in the cost and price of fertilizers government has been experimenting with various targeted program focusing on the resource poor farmers. Finally, in 2005, the government made a decision to subsidize fertilizers using a coupon system targeted at resource poor smallholder farmers at which farmers are buying fertilizers at one third of the market price.

Given the structural and policy changes that have taken place in the fertilizer sub-sector, it is important to understand how smallholder farmers are gaining access to fertilizers and the roles of various players and stakeholders in the market. This study examines the structure and conduct of the major companies involved in the supply of fertilizers in Malawi, the role of smallholder farmer organisations in facilitating access

²⁰ In this system, ADMARC provided fertilizers to farmer clubs and farmers in turn sold their produce to ADMARC, which made it easier to recover the loans. The repayment rate in SACA prior to 1992 was above 98 percent (Chirwa, 1997).

to fertilizers and the constraints and opportunities that exist for private companies and farmer organisations.

7.2 The Structure and Conduct of Fertilizer Industry in Malawi

7.2.1 Structure of the Fertilizer Industry

The deregulation of agricultural input marketing in 1992 in Malawi and the liberalisation of prices for agricultural inputs has substantially changed the structure of the fertilizer industry. Prior to market deregulation there were only three companies involved in the importation of fertilizers into Malawi. These were Optichem, Norsk Hydro (now known as Yara Malawi) and the SFFRF. Optichem used to be a state-owned enterprise through ADMARC and Malawi Development Corporation (MDC), until 2001 when foreign investors acquired majority share holding. Similarly, the SFFRF is a government owned enterprise as a trust fund under the Ministry of Agriculture. Hence, Norsk Hydro was the only private enterprise in the fertilizer industry. The opening up of the industry has led to entry by other players in the market some as diversification from their traditional activities. The new entrants are Malawi Fertilizer Company, Agora, Farmers' World, Rab Processors, NASCOMEX, Transglobe, Omnia, Export Trading, Nyiombo Investments and Agrimak. In total there are 12 private companies and one state-owned enterprise in the fertilizer supply industry. Agora, Farmers' World and the Malawi Fertilizer Company are under single ownership, and technically they do not compete against each other, therefore effective competition is among 11 private companies. The following are some of the brief profile of some of the fertilizer companies in Malawi:

7.2.1.1 Optichem Malawi

Optichem was incorporated in 1975 and was partly owned by the Government through ADMARC that held 34 percent of the shares. According to the PC (2005) Optichem (Malawi) Limited was privatized when the AECI Limited exercised its pre-emption rights to buy MDC's 50 percent shareholding in 1998. AECI disinvested in Malawi and sold their entire equity to MDC, who have in turn sold 51 percent of the company to MCFI Limited of Mauritius in 2001. Optichem deals in granulated fertilizers that are mixed domestically at their granulation plant in Blantyre. It does not have retail outlets and relies on other retail merchants such McConnell and Company to sell its products to smallholder farmers and estates on cash basis. In 2004, Optichem handled 27,000 tonnes of fertilizers. In 2005/06 season it anticipates to account for about 5 percent of the planned fertilizer supply. The range of fertilizers sold by Optichem suitable for smallholder farmers include urea, CAN, NPK, D-Compound, S-Compound and Super D.

7.2.1.2 Malawi Fertilizer Company

The Malawi Fertilizer Company (MFC) is a fertilizer blending owned by Farmers' World and Agora. All the fertilizers blended by MFC are sold by Farmers' World and Agora and it is therefore a downstream firm. The MFC has a processing capacity of 12,000 tonnes per month and the peak production period is between July and December. It has 14 permanent employees and employs up to 150 temporary workers. In the past, they have been involved in providing fertilizers for government programmes such as Starter Pack which involved repacking into smaller units.

7.2.1.3 Agora

Agora started operations in 1996. Agora has shareholding links with Farmers' World and jointly owns the MFC. Due to the ownership structure there is a market sharing arrangement with Farmers' World in which Agora supplies the southern region while Farmers' World supplies central and northern regions. Agora deals in a variety of fertilizers suitable for smallholder crops, but also sells other farm inputs and household goods in their depots located in various parts of the southern region.

7.2.1.4 Farmers' World

Farmers' World started operations in 1997 and has ownership links with Agora and MFC. It operates in the central and northern region. Apart from fertilizers, Farmers' World is also selling other inputs and household items to farmers at their outlets through out central and northern Malawi. However, supply of fertilizers is the main business activity. Farmers' World together with MFC and Agora accounts for about 27 percent of the market.

7.2.1.5 Yara Malawi

Yara Malawi is an agri-business firm of Norsk Hydro with branches throughout southern Africa. It is one of the private firms in the fertilizer supply with a long history in Malawi. Yara Malawi is operating through three wholesales in Lilongwe, Blantyre and Rumphi. It also retails its fertilizers through Chipiku Stores that have outlets through out the country and through the agro-dealers. Their focus is on wholesaling the fertilizers, with very limited retailing. Yara Malawi is the largest fertilizer single company in Malawi accounting for at least 20 percent of the planned 2005/06 imports.

7.2.1.6 Rab Processors Limited

Rab Processors Limited is a highly diversified firm involved in various sectors of the economy including food manufacturing, agro-processing, commodity trading and supplying farm inputs such as fertilizers. They trade their fertilizers under the 'Kulima Gold' brand through their depots located across the country. Rab Processors stocks a variety of products in their outlets including fertilizers, seeds, pesticides, hoes, iron sheets, bicycles, stock feeds, bread flour, maize flour, cement and lime to meet the needs of smallholder farmers. Fertilizer and input supply is a recent addition to their tradition business activities to augment their produce purchasing activities following the liberalisation of agricultural input marketing. Rab Processors is estimated to account for about 8 percent of the planned imports for this season.

7.2.1.7 NASCOMEX

NASCOMEX is the commercial division of NASFAM. NASCOMEX buys produce from smallholder farmers – both members of NASFAM associations and non-members. The range of crops includes chillies, rice, groundnuts, paprika, soya, pulses, cotton and coffee. In addition to purchase of farmers' produce, NASCOMEX also retails fertilizers and farm inputs to smallholder farmers through shops located in local associations. Fertilizers are the main inputs supplied by NASCOMEX. NASCOMEX only accounts for 2.5 percent of the fertilizer market.

7.2.1.8 Transglobe

Transglobe Produce Exports Limited is also a highly diversified firm in export-oriented commodity trading and processing. Its main activities include commodity export trade (maize, soya beans, groundnuts, pulses, chillies, tea and coffee), bulk processing (dhals, poultry and dairy stock feeds), farm input supplies (fertilizers, irrigation equipment, farm implements and agro-chemicals), and commodity packing materials. In farm input supply, fertilizer is the main business activity accounting for 80 percent of turnover. Transglobe deals in granulated fertilizers traded under the 'Chonde' brand and has offices located in southern region (Blantyre) and central region (Lilongwe and Kasungu), but does not operate in the northern region. Transglobe accounts for 2 percent of the 2005/06 season planned imports. Transglobe is one of the crop produce buyer and input seller that experimented with contract farming in Malawi.

7.2.1.9 Agrimak

Agrimak is one of the new entrants in the fertilizer business and is the smallest and owned by a local Malawian. Apart from supply of fertilizers it is also involved in the purchase of agricultural produce from smallholder farmers based on confirmed orders from local manufacturers. Thus, it only purchases the quantities of commodities that have been ordered. Agrimak only operates in central Malawi.

7.2.1.10 Smallholder Farmer Fertilizer Revolving Fund (SFFRF)

SFFRF is a state-owned enterprise established as a Trust Fund under the Ministry of Agriculture. Prior to liberalisation it used to have a monopoly of the supply of smallholder fertilizers in Malawi. It handles most of the smallholder fertilizers under government programme, distributed through its outlets and ADMARC markets.

There is no evidence of supply chain integration in the fertilizer supply industry in Malawi apart from a few companies in which suppliers own processing facilities or transport facilities. Most suppliers believe that such integration does not offer substantial advantages over those that import directly and use contracted transport for local distribution. It appears that the distribution and marketing strategy is the critical element in gaining market shares in the fertilizer supply market. Farmers' World and Agora are two separate companies under the same ownership, who in turn own the Malawi Fertilizer Company, a fertilizer blending plant.²¹ Yara Malawi is an agri-business unit of one of the manufacturers of fertilizers and has the advantage in procurement of fertilizers.

In terms of competition in fertilizer supply, there are effectively 11 fertilizer importers and suppliers in Malawi. The structure of the importation and supply of fertilizer is highly monopolistic, with a 3-firm concentration ratio of 60 percent, based on the planned imports of fertilizers for the 2005/06 agricultural season. The state-owned enterprise only accounts for about 6 percent of the total fertilizer tonnage. However, the only advantage it has is that it exclusively handles the fertilizer under the government subsidy program distributed through its own outlet and the extensive network of ADMARC markets.

²¹ All fertilizers processed by the Malawi Fertilizer Company are sold through Agora and Farmers World and the two do not compete in the same market. Agora operates in the south of the country while Farmers' World serves the central and northern region.

7.2.2 Conduct in the Fertilizer Market

The markets are heavily segmented between smallholder farmers and large scale estate or plantation farmers. Some of the companies have established contracts with large estate owners which provide some protected market niche for their fertilizers. Another feature of the market that may affect competition is the geographic spread of retail outlets of these supplying companies. As observed below, there are wide variations in the spatial spread of retail outlets for the fertilizer importing and supplying companies. Despite these facts, the level of price competition in the market is high with different suppliers charging different markets. Some of the suppliers strive to be the cheapest source of fertilizers and they usually match or undercut the prices if other companies sell at lower price, although the differences are small for large customers but may be of significant value for a smallholder farmer. For instance, Westlake (1999) find that the price ratio of different types of fertilizers between two private supplying companies in Malawi ranged between 0.94 and 1.11, with one company charging lower prices for most of the fertilizer types.

Interviews with stakeholders also revealed that most of the suppliers consider the existing competition between them as healthy. Apart from the ownership structure among three companies, interviews with stakeholders revealed that in some cases there are trade relationships between different suppliers. For example, there were indications that companies lend each other stocks when they have lumpy orders that they cannot satisfy from their own stock and such fertilizers are usually returned in-kind or sold at wholesale price.

Apart from the companies that are linked through ownership, there is no evidence of market sharing in the fertilizer market.²² The current fertilizer market is estimated at 200,000 – 300,000 metric tonnes but the potential fertilizer use in Malawi is estimated at 500,000 – 600,000 metric tonnes. Many stakeholders in the fertilizer business believe that the market is sizeable to sustain the current competition, making collusive arrangements unsustainable.

7.3 Procurement and Processing

All fertilizers sold in Malawi are imported mainly from South Africa, Europe (such as Romania and Greece) and the Gulf states. Compound fertilizers are either imported directly or produced locally in Malawi using various imported components through granulation or blending. Most importing companies in Malawi import and sell granulated fertilizers.²³ Only Farmers' World and Agora, using the Malawi Fertilizer Company, sell blended fertilizers to specialized large customers in the coffee, tea and tobacco sectors. Interviews with various suppliers revealed that many importers favour granulated fertilizers due to its ability to preserve the mix during handling and transportation. Blended fertilizers have the potential to generate unbalanced mix of the components during transportation and may require additional information to the farmers to re-mix it before applying to the crops. Hence, such types of fertilizers may not be suitable for smallholder farmers.

²² Only Agora and Farmers' World share the markets with Agora serving the southern region while Farmers' World serves the central and northern regions of Malawi.

²³ Westlake (1999), however, notes that mixing or granulation within Malawi saves up to 10 percent compared with the delivered costs of importing the compounds from South Africa.

Fertilizers are transported by rail from Nacala or road from South Africa. Most suppliers revealed that they do not have major problems in procurement of fertilizers. There are no special financing arrangements with the supplies apart from a Letter of Credit from the bank. Transportation of fertilizers from Nacala takes about a week. Most of the importers in Malawi place their orders with dealers in South Africa such as PJC and IHC. International transportation is arranged by the dealers. None of the importers have their own transport facilities for shipping fertilizers into Malawi.

7.4 Distribution and Clientele Base

The standard packing for fertilizers in Malawi is the 50 kg bags, and most of the fertilizers are sold in this unit. With the exception of a few suppliers, such as Rab Processors, smaller units of 10 kg and 5 kg bags are also sold in their shops.²⁴ The standard 50 kg bag may actually be more than what a smallholder farmer requires for use in one season, particularly those that have smaller plots of land.²⁵ For instance, the recommended fertilizer per hectare of hybrid maize is 100 kg (2 bags) of NPK and 150 kg (3 bags) of Urea. Most of the farmers interviewed in this study, cultivate less than half a hectare and a 50 kg bag is more than what they require, save the questions of affordability. All the suppliers interviewed in this study indicated that they sell their fertilizers in standard 50 kg bags and many have not considered retailing fertilizer in smaller units except by special orders from the government or non-governmental organisations who ask them to repackage the fertilizers. In such special cases fertilizers are packed in smaller units such as 10 kg or 5 kg bags and are sold at higher prices.

The local distribution of fertilizer is one of marketing strategies that provide avenues of competition among the suppliers of fertilizers. There are wide variations in the transport and marketing infrastructure among the major suppliers of fertilizers. With respect to local transportation, most of the supplies do not own transport fleet to transport fertilizers to their selling points or customers. Only one supplier, Agora, uses its own transport to distribute fertilizers, although sometimes it also does contract transporters to deliver the fertilizers. Suppliers typically use specific transporters with whom they have established a working relationship.

With respect to marketing infrastructure, some of the suppliers have established their own network of outlets while other use agents some of which have a network of shops in various parts of the country (Table 20). The SFFRF has its own outlets but also sells its fertilizers through ADMARC. Under the subsidy programme, subsidized fertilizers are only sold at SFFRF and ADMARC markets only. In terms of distribution network, SFFRF (combined with ADMARC infrastructure) has the largest number of distribution networks and most of these are located in the rural areas – implying low transaction costs for farmers. However, most private supplying companies observed that although SFFRF and ADMARC have the infrastructure for the distribution of fertilizers, they are not a threat to private business due to the high inefficiency in their operations. On the other hand, the private companies that have own distribution networks or use agents are usually located at the district centres or peri-urban centres which may be far for most of the smallholder farmers. Yara Malawi uses a network of Chipiku Stores to reach out to smallholder farmers. However, these Chipiku Stores are located mainly at district towns or major peri-urban trading centres.

²⁴ This is mostly the case for the suppliers that deal with NGOs in the food security area that require smaller packing. The excess of the NGOs' requirement is put on the open market.

²⁵ However, vendors usually sell in smaller units and those farmers that require less fertilizer than the standard package resort to such fertilizers that is found in local markets.

Table 20 Distribution Networks for Fertilizers in Malawi

Name of Supplier	Number of Own Outlets	Number of Regions covered	Are agents used?
SFFRF	24	3	Yes
Optichem	0	3	Yes
Agora	27	1	Yes
Farmers' World	86	2	Yes
Yara Malawi	3	3	Yes
Rab Processors	58	3	Yes
NASCOMEX	?	3	No
Transglobe	0	2	Yes
Agrimak	0	1	?

Source: Smallholder Cash Crop Survey 2005

Agency arrangements are also common marketing strategies for the supply of fertilizers to smallholder farmers. Since 2002, there has been capacity development in agro-dealership through programmes implemented by International Fertilizer Development Centre (IFDC) and Citizen Network for Foreign Affairs (CNFA) with funding from the Rockefeller Foundation and the United States Agency for International Development (USAID), respectively. Under the programme, by 2005 there were more than 1,000 fertilizer dealers in Malawi, 30 percent being women (USAID, 2005, CNFA, 2005). Under the project, the agro-dealers get fertilizers from the main suppliers on credit terms of which 50 percent is guaranteed by CNFA. According to CNFA (2005), eleven supply companies participated in the guarantee fund and extended trade credit to 119 agro-dealers.²⁶ Transglobe, for example, does not have depots of its own and exclusively rely on the agro-dealers – at least 2 -3 agro-dealers per district, to retail their fertilizers and other inputs. Credit lines from suppliers to agro-dealers without the guarantee are not available, and suppliers require dealers to purchase on cash basis.

All the major fertilizer supplying companies are not certain about the proportion of fertilizers that is sold to smallholder farmers. Only fertilizers sold through SFFRF and ADMARC outlets could be said to reach mostly smallholder farmers. The retail outlets and agents of private companies use sell fertilizers to both large and smallholder farmers. In some cases, fertilizers are sold to intermediary institutions that work with smallholder farmers such as the Malawi Rural Finance Company (MRFC) and non-governmental organisations. Repeat sales of fertilizers are only evident with large scale farmers and non-governmental organisations. It is also worth noting that the central region dominates in terms the number of outlets among private companies, underscoring the importance of the tobacco sector and relative dominance of estates as the main customers for fertilizers.

7.5 Pricing, Profitability and Risks

Malawi being a land-locked country, transport costs form a significant part of the final price of fertilizers and for imported inputs changes in exchange rates are critical in the pricing of fertilizers. Westlake (1999) estimated that the cost of bringing fertilizer to Malawi accounted for about 25 percent of the retail price; and suppliers get a margin of 20 percent and rural distributors get a margin of 11 percent of the retail price. Most suppliers revealed that fertilizer business is good although the margins have become

²⁶ These agro-dealers are small-scale enterprises in rural areas, and sell fertilizers and inputs in smaller units. The dealers are organized into district associations and have formed an association known as the Agro Input Dealers Association of Malawi.

smaller due to increases in the retail price of fertilizers relative to the prices of produce obtained by farmers. Fertilizer prices per 50 kg bag in 2002/03 season for Urea and NPK were MK1,300 and MK1,500 and increased to MK1,900 to MK2,000 in 2003/04 season, respectively. According to FEWS NET/Malawi (2003), using the maize selling prices, the net balance of hybrid maize on a hectare of land slumped from 1,094 kilograms to 530 kilograms due to the increase in fertilizer prices relative to the prices that farmers obtained for their produce. High prices in fertilizers were identified as one of the most important problem during focus group discussions with smallholder farmers in the four selected crops. Table 21 shows fertilizer prices between 2003/04 season and 2005/06 season. The prices of these fertilizer increased by 33 percent in 2004/05 season and 24 percent in the 2005/06 season, and the highest increase of 56 percent was on the price of Urea in the 2004/05 season.

Table 21 Fertilizer Prices per 50 kg Bag, 2003/04 to 2005/06

Fertilizer Type	2003/04	2004/05	2005/06
Urea	1,880	2,870	3,100
NPK (23:21:0+4s)	2,100	2,800	3,430
CAN	1,820	2,100	2,830
D Compound	2,100	2,750	3,605

Source: Smallholder Cash Crop Survey 2005

Most suppliers expressed satisfaction with respect to the business environment in fertilizer supply. However, some noted that they face risks such as unpredictability of government policy on fertilizers and on the status of ADMARC, the increasing cost of fertilizers due to exchange rate movements that dampen the demand for fertilizers, bad weather, safety of stocks in rural depots – staff mismanagement or otherwise, and failure by agro-dealers to pay due to fungibility of money. Others cited the exclusion of the private sector from participating in the subsidy scheme as a policy that will adversely affect their fertilizer sales, though marginally, this season.

7.6 Smallholder Access and Stakeholder Relationships

There are variations in the use of and access to fertilizers among the sample smallholder farmers for selected crops (Table 22). On average 76 percent of smallholder farmers used fertilizers in their farms last season. All smallholder sugarcane farmers used fertilizers while only 60 percent among cotton farmers used fertilizers. Cash purchases are dominant forms of procuring fertilizers among chilli and cotton farmers. Chilli, paprika and cotton farmers have significant proportion of farmers that obtained fertilizers from ‘other’ sources which included NGOs, Starter Pack and the Agricultural Productivity and Improvement Programme (APIP). Only among paprika farmers do crop associations provides fertilizers on credit to its farmers, but only 24 percent of those that applied fertilizers obtained fertilizer on credit from PAMA. Other associations also play an important role among chilli and paprika farmers. For sugarcane farmers, fertilizers are provided by the intermediary company that markets smallholder sugarcane, the DCGL. It is apparent from the data that farmer organisations do not play a critical role in facilitating access to fertilizers in Malawi.

Table 22 Access to Fertilizers among Smallholder Farmers

	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Proportion using fertilizers (%)	61	100	86	60
<i>Sources of fertilizer (%)</i>				
Cash purchase	56.5	-	43.7	62.7
Credit from specific crop association	-	-	24.1	-
Other crop associations	-	-	1.1	-
Credit from other associations	1.6	-	3.4	-
Credit from crop buyers	-	100.0	-	-
Others	41.9	-	27.6	37.3
<i>Reasons for not using fertilizer (%)</i>				
Available but could not afford	97.4	-	90.0	94.2
Not available but could afford	2.6	-	10.0	5.8

Source: Smallholder Cash Crop Survey 2005

Fertilizers were available in the study areas, but many smallholder farmers did not have the means to procure fertilizers. At least 90 percent of chilli, paprika and cotton smallholder farmers that did not apply fertilizers last season indicated that fertilizers were available in their areas but they could not afford. Only a few farmers indicated that fertilizers were not available but did have the means to procure fertilizers.

7.6.1 Private Traders or Companies

The private sector is the dominant player in the supply of fertilizers to smallholder farmers following the liberalisation of agricultural input marketing. The state-owned enterprises such as ADMARC and SFFRF are usually financially constrained and their efficiency had deteriorated considerably over time. The advantage that ADMARC in partnership with SFFRF has is the extended network of markets through which fertilizers are sold and hence making it more available to smallholder farmers within reasonable distance. The private traders or companies can facilitate access to fertilizer by smallholder farmers through contract farming and credit to smallholder farmers through associations.

In this study, access to fertilizers to smallholder farmers is enabled through the distribution networks that have been established in various parts of the country. However, such network of distribution infrastructure is not as extensive to reach out to the remote rural areas. Although there have been efforts to improve the distribution of fertilizers and other agricultural inputs through capacity building programmes for the development of agro-dealership businesses, these agro-dealers have not matched the distribution network of ADMARC especially in facilitating access to fertilizers in remote rural areas. Earlier studies, such as Mvula et al (2003) find that the agricultural input marketing function of ADMARC in rural areas has not been replaced by private operators and inputs remain less accessible to smallholder farmers. Private traders are located in town centres in some parts of the country. Access to inputs from such traders entails high transaction costs for smallholder farmers. Focus group discussions with paprika farmers revealed that those that bought fertilizers on cash basis had to travel as long as 10 kilometres to Farmers' World, Rab Processors and Agriculture Trading Company (ATC) depots and to agents of Transglobe.

There are no special arrangements by private fertilizer supplying companies that increases access to fertilizer by smallholder farmers. Interviews with stakeholders

revealed that some of the suppliers that are also involved in produce purchase have attempted some contract farming on loose terms with smallholder farmers. For example, among fertilizer supplying companies Transglobe and Rab Processors and Cheetah the main paprika buyer have experimented with contract farming but the results have not been encouraging. All have abandoned direct dealing with smallholder farmers on contract farming. Several reasons led to the collapse of the system. First, the main problem in these contracts has been side-selling by smallholder farmers that lead to high default rates. These were very loose contracts, 'gentleman's agreement', and the recourse to redress was traditional and cumbersome. Secondly, contract farming involves uncertainty of the market, pre-season produce prices agreed maybe higher than actual prices and the produce buyers had to absorb the costs. Thirdly, farmers were expecting prices for their produce to be increasing every year, which most of the buyers could not sustain.

There are very limited relationships between smallholder farmers and the produce buyers in facilitating access to fertilizers and other farm inputs. Most of the produce buyers do provide inputs to smallholder farmers on cash basis. For instance, cotton farmers buy inputs on cash basis from crop buyers from buying centres established in the cotton growing areas. One exception is the case of Kangazinja Cane Growers in Dwangwa, in which ISL provided fertilizers to smallholder sugarcane out-growers.

7.6.2 Non-Governmental Organisations and Financial Institutions

Non-governmental organisations and faith based organisations also play an important role in facilitating access to fertilizers among smallholder farmers. Most of the fertilizer suppliers interviewed indicated that NGOs working in the areas of food security are important customers for their fertilizers and sometimes require repackaging the fertilizers to suit the needs of smallholder farmers. Some of the NGOs that were mentioned by the main supplying companies of fertilizers include Concern Worldwide, Catholic Development Commission of Malawi, World Vision Malawi, Save the Children and Blantyre Synod. This is supported by the evidence from farming households among paprika, chilli and cotton farmers in which a high proportion of farmers obtained their inputs as grants or loans from non-governmental organisations.

The survey of fertilizer suppliers also revealed that access of fertilizers among smallholder farmers is facilitated by their relationship with the Malawi Rural Finance Company (MRFC). The suppliers deliver the MRFC orders to the farmers in the rural areas. There are no credit terms for such orders, and MRFC pays for such fertilizers within 30 days of delivery. In turn, MRFC offers these fertilizers to smallholder farmers on credit after satisfying credit conditions such as possession of a collateral or tobacco license, title to land or in case of resource poor farmers belonging to a club that has to undergo 6 months of group dynamics training.

7.6.3 Farmer Organisations

Farmer organisations are weakest in linking smallholder farmers to fertilizer suppliers or in facilitating access to fertilizers. In a survey of four cash crops grown by smallholder farmers, it was only among paprika farmers that smallholder farmers obtained fertilizers on credit from their umbrella association, PAMA, in which the local association provide guarantee for repayment. In smallholder sugarcane farming, following reforms and privatization, the farmer-employee owned private company administers the fertilizer and input regime.

Access to input credit is also difficult even for the most organized farmers. For instance, although chilli farmers and some cotton farmers belong to the most organised association, NASFAM, smallholder farmers can only be linked to the suppliers without NASFAM guaranteeing the loans.²⁷ Similarly, the farmer association for sugarcane growers and clubs in cotton do not provide inputs to their members.

There are two major problems that contribute to the failure of FOs in facilitating access to fertilizers among their members. First, most farmer organisations are financially weak and financially unsustainable. Most are surviving on donor funding and are not able to raise private capital to finance input requirements by their members. Secondly, there is a problem of credit repayment among smallholder farmers, particularly if credit is provided without collateral. The high incidence of side-selling implies that FOs are uncertain whether the loans are to be recovered particularly when there are many produce buyers. Most FOs have problems of member loyalty. For example, PAMA is able to provide fertilizers on loan due to the existing donor support programmes and the fact that there is only one major buyer for paprika. In addition, PAMA requires farmers to pay a deposit of MK2,000 (increased to MK5,000 – which is more than a 50 kg bag of fertilizer) to register for input loans and the local paprika association somewhat guarantee the loans through group selling of their produce. Focus group discussions also revealed that in case of default the local associations repay the loans on behalf of the members.²⁸

All the major suppliers of fertilizers interviewed in the study do not have specific strategies for working with farmer organisation and contend that the risk of default is high if fertilizers were to be provided to associations on credit basis. Cash sells are likely to make fertilizers less accessible to smallholder farmers that do not have the necessary cash flow during the times when they need the fertilizers.

7.6.4 Role of Government and Government Institutions

Since liberalisation of agricultural inputs marketing, Government policy has focused on ensuring that the resource poor farmers have access to inputs such as seeds and fertilizers particularly for the production of the food staple - maize. This has led to targeted input programmes aimed at providing free or subsidized inputs or inputs on credit to resource poor households. Since the liberalisation of agricultural input marketing and due to exchange rate depreciation the price of imported fertilizers has increased sharply, and most resource poor farmers are finding it difficult to procure inputs.

In the late 1990s, the government with the support of bilateral donors introduced a series of safety net programmes for resource poor smallholder farmers to minimize the cost of adjustment. These agricultural based safety net programmes include a 'starter pack' program which provided free inputs (seeds and fertilizers) to resource poor farmers from 1998/99 – 1999/2000; the Agricultural Productivity Improvement Programme (APIP) funded by the European Union which provides inputs on credit to resource poor farmers in 1998; and the Targeted Input Programme funded by the Department for

²⁷ NASFAM, as a matter of policy, does not guarantee loans for any of its associations, but just facilitate the linking of associations with financial institutions.

²⁸ However, some of the participants consider the payment of loans on behalf of defaulters by the association without full consultation of members as a threat to the sustainability of the associations.

International Development in 2000 which provides free inputs to resource poor farmers including cereals seeds, legumes seeds and fertilizer.

Due to rising costs of fertilizers, in the 2005/06 season, the government introduced a subsidy of fertilizers using the voucher system that is targeted at resource poor households. Smallholder farmers with such vouchers purchase fertilizers at 30 percent of the market price. The distribution of subsidized fertilizers has been entrusted with two state enterprises, the SFFRF and ADMARC. SFFRF procures fertilizers and the distribution is done through their network of outlets and through ADMARC using its extensive rural infrastructure. The private fertilizer supplying companies are not participating in this subsidy program.

7.7 Concluding Remarks

Since liberalisation of the agricultural input marketing in 1992, there has been some entry by private business as new investments or diversification activities by produce buyers. The number of competing firms increased from 3 companies in 1992 to an effective competition of 11 companies. Most of the companies import granulated fertilizers using agents in South Africa. There are only two fertilizer processing companies on specialising in granulation and the other in blending. Blended fertilizers are typically supplied to large estates, and are distributed by Agora and Farmers' World who in turn own the blending company. The fertilizer used by smallholder farmers is granulated. There is no evidence that there are supply constraints in the importation of fertilizers as none of the major suppliers reported any such constraints. However, Malawian firms do not have financing arrangements in the procurement; and purchases are based on a Letter of Credit from the financial institutions. International transport services are arranged by agents and transportation is largely by road. Except for very few supply companies which own limited fleet of trucks, internal distribution is done using contracted transport services. No credit facilities do exist in these contractual arrangements apart from a 30-day payment window once the services have been offered. The contractual arrangements have emerged through repeated dealing between the fertilizer supplying companies and transporters.

There are indications that the market for fertilizer in Malawi is not yet saturated. Stakeholders estimate that the current supply is just half of the potential use of fertilizers in Malawi. The major limiting factor is the adoption rate in an environment of increasing fertilizer prices due to exchange rate movements, the worsening poverty situation and the absence of a smallholder credit scheme. There is no evidence of collusive or anti-competitive arrangements in the industry. Different companies charge different prices for fertilizers, although such differences are marginal. However, some fertilizer companies have some mutual cooperation in stock management when they are not able to satisfy lumpy orders. In these cases, one company can obtain fertilizers from the other on cash basis at wholesale price or repaid in-kind when stocks become available. The establishment of outlets and the link with agro-dealers in the various parts of the country is what gives the competitive edge for fertilizer companies; with those with many outlets securing a larger market share of the market.

Most of the fertilizers supplied by private companies are offered to smallholder farmers on cash basis in standard 50 kg bags, although some sell repackaged fertilizers in 5 kg or 10 kg bags in their outlets. Most of the suppliers do not have special arrangements to improve access to fertilizers by smallholder farmers. None of the fertilizer companies have special arrangements with crop associations to supply fertilizers on credit terms.

Some of the fertilizer suppliers that are also buyers of produce attempted loose contract farming with smallholder farmers, but have abandoned such contract farming due to problems of enforcement and high incidence of side-selling by smallholder farmers. It is evident that the bulk of the fertilizers in Malawi is supplied to large scale farmers. With the lack of smallholder input credit regime, resource poor smallholder farmers over the years have found it difficult to purchase fertilizers due to sharp price increases and largely rely of government targeted programs or food security programs implemented by NGOs.

Farmer organisations have the weakest link with smallholder farmers in the supply of fertilizers and other farm inputs. With the exception of PAMA for paprika farmers and the farmer-employee owned DCGL for sugarcane growers which provide fertilizers on credit, such services are wanting in some of the crops particularly cotton that requires a high input regime. FOs have weak financial base and are highly dependent on donor financing. It also seems that FOs have not been in position to convince fertilizer supply companies, major produce buyers and credit institutions that they can guarantee the credit facilities extended to their members.

PART III CASH CROPS AND LIVELIHOODS

8. Role of Smallholder Cash Crops on Livelihoods

8.1 Introduction

The smallholder agricultural sector in Malawi remains largely subsistence, with most land devolved to the production of the food staple – maize. Only about 10 – 15 percent of smallholder maize is marketed. Diversification into cash cropping offers smallholder farmers opportunities for sustainable livelihoods. Studies have shown that participation of smallholder farmers in tobacco farming reduces the probability of being poor (Mukherjee and Benson, 2003). Similarly, crops such as paprika, chillies and cotton that are traditionally grown on smallholder farms offer opportunities for smallholder farmers to improve their welfare. Sugarcane is a capital and labour intensive activity, but participation of smallholder farmers under an organised scheme also offers the potential for sustainable livelihoods for smallholder farmers. Cotton and sugarcane have been singled out in policy documents as the main agricultural activities with the potential to drive the growth of the national economy (GoM, 2004). However, as observed above smallholder farmers in these cash crops face several constraints and problems, some of which are perpetuated by the institutional arrangements, the competitiveness of the produce markets, the absence of financial markets and the voicelessness of the smallholder farmer associations.

8.2 Importance of Cash Crop Farming in Growers' Livelihoods

Cash crop farming plays a vital role in the livelihood systems of smallholder farmers in Malawi, given that about 80 percent of the rural population derives its livelihood from the agricultural sector. However, the contribution of cash crops farming to poverty reduction will depend on availability of markets and the returns that farmers obtain from cash crop production. Smallholder farmers in all the four selected crops have access to markets through farmer associations or special institutions or through their relations with the crop produce buyers. Table 23 presents sales, costs and profits from smallholder cash crop farming for selected crops. The returns are highest among chilli farmers in Mulanje with a mean gross margin of 88.7 percent, followed by cotton farmers with a gross margin of 83.2 percent, sugarcane farmers with 39.9 percent and a loss of 2.2 percent for paprika farmers. Some of these figures are in contrast with those found in other studies. For instance, according to MCI (2004) paprika was more profitable than cotton in 2001 while the margin for cotton is close to 64 percent for pre-treated cotton reported in GoM (2004). Information obtained from Cheetah Limited indicates that farmers earn a profit margin as high as 75 percent. The return in smallholder sugar is similar to that obtained in a sample of farmers' statements of 39.2 percent for farmers selling through DCGC but lower than the margin of 48 percent for farmers that sell through KCG. The low returns in paprika are consistent with the claim that due to monopolistic pricing, farmers are sometimes paid less than the production costs (AU, 2005).

Table 23 Profits from Smallholder Cash Crop Farming (%)

Market Channel	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Average sales (MK)	3,347.84	682,453.87	8,132.35	9,993.02
Average cost of production (MK)	377.30	410,233.81	8,309.49	1,680.15
Average gross profits (MK)	2,970.54	272,220.06	-177.14	8,312.87
Average Gross Margin (%)	88.7	39.9	-2.2	83.2

Note: This information is based on the recall of farmers and may not be accurate. Both sales and costs had high standard errors than the mean. The costs do not take into account own labour used in the production process. The gross margin is the return of sales.

Source: Smallholder Cash Crops Survey 2005

One way of determining the contribution of cash crop farming to income is to assess whether profitability has been increasing over time. The data in Table 24 suggest a mixed fortune for different crops. The highest proportion of households that revealed an increase in profitability is 55 percent among sugarcane growers and the lowest proportion is 27 percent among paprika farmers. Otherwise, a higher proportion of farmers in chillies, paprika and cotton revealed that profitability in these crops had slumped over the years, and the proportion is particularly high among the smallholder cotton farmers.

Table 24 Changes in Profitability of Smallholder Cash Crop Farming (%)

Nature of change	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
More profitable	37.0	55.0	27.0	39.0
No change	10.0	13.0	3.0	-
Less profitable	46.0	31.0	34.0	58.0
Do not know	7.0	1.0	36.0	3.0

Source: Smallholder Cash Crop Survey 2005

On the question of impact of cash crop farming on the socio-economic status of households, in all selected crop there is a high proportion of households revealing that the situation had gotten worse than the proportion that revealed that the situation has gotten better (Table 25). Hence, regardless of households' participation in cash crop farming, most remain poor. For instance, 79 percent and 68 percent of cotton and chilli farmers revealed that their socio-economic status has worsened. In both of these cases, farmers belong to NASFAM.

Table 25 Changes in Socio-economic Status of Households (%)

Nature of change	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Better off now	17.0	32.0	19.0	4.0
No Change	12.0	30.0	13.0	17.0
Worse off now	68.0	37.0	32.0	79.0
Don't Know	3.0	1.0	36.0	-

Source: Smallholder Cash Crop Survey 2005

Most of those that indicated that the situation has gotten better attribute the change to better prices for crops – 50 percent, 65 percent, 75 percent and 25 percent among chilli, sugarcane, paprika and cotton farmers, respectively. Poor crop prices account for a

significant proportion of the reasons why farmers believe they are worse off – 58 percent, 31 percent, 33 percent and 58 percent among chilli, sugarcane, paprika and cotton farmers, respectively. Among sugarcane farmers, high input costs have also contributed to the worsening socio-economic status of smallholder farmers while among chilli, paprika and cotton farmers poor weather was the second important factor attributed to the worsening socio-economic status of farmers.

8.3 Importance of Smallholder Farming on Local Livelihoods

Cash crop farming also plays an important role in the livelihoods of households in the communities through employment creation. Table 26 shows the employment creation potential of different cash crops by smallholder farmers. The highest proportion of farming households that hire labour to help them in farming activities is among cotton farmers in Balaka. The number of persons hired ranges from 54 people among paprika farmers in Dowa to 498 people among cotton farmers in Balaka. The average wage bill paid by the farmers last season range from MK989 among paprika farmers to MK15,106 among sugarcane farmers in Nkhotakota. Smallholder farmers generally source their labour from within the communities, except in sugarcane where a large proportion of labours come from outside the district. The implication is that promotion of commercial agriculture has the potential to generate employment in the communities.

Table 26 Employment Creation in Cash Crop Farming

Local employment	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Proportion hiring labour (%)	31	52	22	64
Number of persons hired	118	113	54	498
Average wages bill (MK)	1,373.87	15,105.18	898.06	5,331.65
<i>Sources of hired labour (%)</i>				
Within the village	93.5	13.5	68.2	90.6
Within the TA or district	12.9	5.8	18.2	9.4
Outside the district	3.2	82.7	18.2	1.6

Source: Smallholder Cash Crop Survey 2005

8.4 Problems and Constraints in the Smallholder Cash Crop Farming

The study also sought views from the smallholder farmers on the problems that they typically experience in their farming activities. There are variations on the nature of problems confronting different crop-specific farmers (Table 27). Among chilli, paprika, cotton and sugarcane farmers the typical problem is the increase in the costs of inputs with 89 percent, 72 percent, 96 percent and 58 percent of the sample pointing to this problem, respectively. This is also one of the most significant problems that Chirwa and Kydd (2005) found in smallholder tea in Malawi. For chilli farmers other significant problems include poor crop prices, lack of access to credit facilities and lack of agricultural implements. With respect to sugar farmers, lack of agricultural inputs, limited access to land and lack of access to credit were other major problems that farmers experience. For paprika farmers, lack of agricultural inputs was the most important problem experienced by 96 percent of the farmers, followed by cost of inputs and lack of agricultural implements. Most cotton farmers experience problems of poor crop prices, cost of inputs, lack of credit and lack of agricultural inputs.

Table 27 General Farming Problems (% Yes)

Nature of problem	Mulanje (Chillies)	Nkhotakota (Sugar)	Dowa (Paprika)	Balaka (Cotton)
Limited access to land	30.0	46.0	35.0	17.0
Lack of or access to credit	71.0	42.0	51.0	83.0
Lack of extension services	25.0	13.0	33.0	15.0
Lack of agricultural implements	41.0	23.0	61.0	41.0
Labour shortages	39.0	24.0	41.0	58.0
Lack of agricultural inputs	63.0	57.0	94.0	62.0
Lack of produce markets	15.0	16.0	39.0	2.0
Increase in cost of inputs	89.0	58.0	72.0	96.0
Poor crop prices	83.0	41.0	51.0	97.0
Theft	45.0	27.0	42.0	28.0
Other	15.0	22.0	18.0	2.0
Number of observations	100	100	100	100

Source: Smallholder Cash Survey 2005

These problems were also highlighted in focus group discussions with farmers and key informants' interviews. Discussions with chilli farmers revealed that their main problem is change in the prices of chillies, followed by cheating on measurements and timeliness of produce purchase. Farmers attributed the problem to corrupt practices by those responsible for buying chillies and the inefficiencies of their associations.

For sugarcane farmers, focus group discussions and key informants' interviews revealed that the main problem is the lack of trust between the farmers and the management of DCGL especially on the lack of transparency in the marketing of sugarcane and the apportionment of costs for services provided by DCGL. The institutional analysis of various stakeholders that work with farmers in sugarcane, revealed that DCGL was placed far outside the vein diagram of what the farmers consider as the most important and helpful institutions. Participants in the male focus group discussion argued that their exclusion in the selling of sugarcane is the main problem, followed by low sugarcane prices and delays in payment of proceeds after sales. Smallholder farmers attribute these problems to the Government decision of selling the DCGL to managers who are making decisions to the exclusions of the majority shareholders – smallholder farmers and smallholder farmers feel cheated by the owning managers. Farmers suggested that Government should intervene by closing DCGL or firing all the existing managers, and believe that such actions will bring them back to the old days were smallholder sugarcane farming was more profitable.

For paprika farmers, the focus group discussion with male farmers revealed that lower prices for paprika (especially for lower grades) is the main problem, followed by cheating on measurements and changes in the grading system while for female farmers the main problem is cheating on measurements followed by changes in the grading system and lower prices. All these lead to a lower effective price that smallholder farmers obtain from the market, and this is a disincentive to paprika production. Smallholder farmers attribute these problems to lack of competition in buying their produce and the use of officers by Cheetah to procure the produce in the areas.²⁹ As a result farmers do not

²⁹ Some farmers claimed that when they used to sell the paprika at Cheetah offices in Lilongwe there was no cheating on measurements. The cheating has come about because the officers that buy from smallholder farmers are corrupt and tend to tighten the scales and lower the grades deliberately.

benefit from paprika production and are unable to buy inputs on their own, which lead to lower production. Smallholder paprika farmers' solutions to this problem are increased entry of other buyers in the market and the need for their apex association to monitor the purchases of paprika by the buyers in the field.

Participants of focus group discussions in cotton also ranked low cotton prices as their main problem, followed by cheating on measurements and lack of farm inputs. The problems of low prices and cheating imply low effective prices obtained for their produce. These problems were attributed to the low international prices, limited competition among the cotton buyers and corrupt practices of the crop produce buyers. Farmers argued that these problems create disincentives to farming and discourage cotton production.

Overall, the problem of low and unstable crop prices emerges as the most important problem affecting smallholder cash crop farming. This may be attributed to low international prices, monopolistic pricing tendencies of crop produce buyers and ineffectiveness of farmer organisations in influencing prices, and increased incidence of cheating on measurements that reduces the effective prices of produce. These factors create disincentives for production and investments in productivity improving technologies by the smallholder farmers. In cash crops where farmers are more organized, their associations have proved ineffective in influencing better prices for their members and their failure to be seen to act in the interest of the farmers is a major threat to the sustainability of farmer organisations.

8.5 Concluding Remarks

With the exception of sugarcane which is dominated by estate production, chilli, paprika and cotton are predominantly smallholder cash crops. These cash crops, some of which are just emerging as foreign exchange earners, have potential to improve the livelihood of smallholder farmers. Chilli production is more profitable and requires fewer inputs, apart from labour, than the other three cash crops. Paprika is the least profitable but potentially profitable with good farm management practices. There is a general perception that profitability of these cash crops has gone down over the past five years and most farmers feel that their socio-economic status has worsened in the past five years. Nonetheless, smallholder cash crop farming is contribution to employment creation in the local community between 22 percent to 64 percent of households hired labour in the production of the cash crops last season, with each farmer employing on average 2 persons mostly originating from within the village or the district.

However, smallholder farmers experience a variety of problems in their farming activities. The biggest concern is the rising costs of farm inputs that farmers have experienced over the years. With limited access to financial markets, it seems likely that the use of technology such as high quality seeds, chemicals and fertilizers is restricted to the better off farmers that can afford to purchase fertilizers on their own. This situation is also exacerbated by the poor crop prices that farmers from sometimes monopsonistic buyers or buyers that cheat on measurements and quality. Access to credit facilities is also a major binding constraint for the development of cash crop farming among smallholder farmers. Extension services that government used to provide to promote agricultural development are non-existent. These services are provided by crop buyers and at times facilitated by farmer associations, albeit at very limited scope.

9. Conclusions

Smallholder agriculture remains an important source of livelihoods among rural households in Malawi. With an increase in the population, given the traditional customary system of land ownership, the average land size holdings have sharply fallen and land holdings have become more fragmented. Maize is still the main crop grown by smallholder farmers to largely meet subsistence needs using traditional farming methods. Smallholder farmers are also engaged in cash crop farming, in a few cases in more organized resettlement schemes. Some of the smallholder farmers have formed associations to promote their interests in the value chain, although most of smallholder farming remains unorganized. Such organisation of smallholder farmers enables them to have access to extension services, information, inputs and markets for their produce.

This study set out to assess the role of farmer organisations in facilitating access produce markets for smallholder farmers in chilli, sugarcane, paprika and cotton production and in facilitating access to fertilizers. The study combined quantitative and qualitative research to obtain the data from farming households. For each selected crop, 100 smallholder farmers were randomly selected for the administration of a questionnaire on issues relating to production, access to inputs, marketing and the roles of smallholder farmer associations. This quantitative data was complemented by qualitative data obtained through two focus group discussions in each crop, key informant interviews and institutional interviews with apex farmer organisations, produce buyers, input suppliers and government officials. The following are the main findings of the study:

- The organisation of smallholder farmers varies in the selected crops. Some chilli, cotton and paprika farmers belong to associations that have an apex farmer organisations to which local association subscribe annual affiliation fees. In areas where such apex organisations are not present, farmers are organized around the old ADD farmer groups. In sugarcane, the organisational structure of farmers has moved from statutory membership to a farmer-employee owned agronomy and trading company with a trust overseeing the overall development of the smallholder sugar sector. In all the crops and sites visited, associations have been externally driven by donors, non-governmental organisations or donors. With the exception of sugarcane farmers, farmer organisations in chilli, cotton and paprika have been reasonably stable with respect to their development, structure and business. Only in smallholder sugarcane has the set up changed from a state-owned crop authority to a more commercially-oriented growers company through the privatisation process.
- Farmer organisations in the selected crops play varying roles subject to the constraints that they face. In chilli and cotton production, the association acts as a marketing agent for its members and ensuring that there is fair trade, apart from providing extension services to the farmers. In paprika, the local associations act as a point of entry for extension services and provision of inputs (fertilizers and chemicals) on credit to smallholder farmers and capacity building activities. In sugarcane, the farmer association plays a welfare role as a vehicle of channelling farmers' problems to the Trust or farmer-employee owned agronomy and trading company. It seems, however, that the level of trust between general membership and the executive committee of farmer organisations is very low. Smallholder farmers claim that their own associations cheat them on measurements and quality, and in the case of smallholder sugarcane farmers do

not trust that their own company provide inputs and marketing services in good faith. Farmers attribute these problems to lack of transparency and accountability by the associations on major transactions.

- Farmer organisations have very weak financial base and volatile membership base. For those farmer organisations that belong to apex organisations, apex organisations are also heavily dependent on donor support, making their sustainability in the long-run questionable. FOs also lack the power to influence decisions with other stakeholders such as prices and input credit. The local associations and their apex associations have low countervailing power to negotiate better prices with dominant produce buyers. In most cases, the prices put forward by the produce buyers are what prevail. Apex associations are also unable to facilitate access to inputs, with the exception of PAMA which provides fertilizers on credit to its members who pay upfront a deposit and in the case of sugarcane in which the growers' company provides inputs on credit. The performance of farmer organisation has been below the expectation of their members. In some other cases, associations are raising their membership fees as one strategy towards self-reliance. However, the poor services and the increases in membership fees are creating incentives for members to drop out of the associations.
- The markets for produce in the selected cash crops are highly concentrated leading to questions about the competitiveness of prices that farmers obtain. In chillies in Mulanje, NASCOMEX is the main buyer of chillies, in cotton there are four buyers with two dominating in addition to having ginning facilities, in paprika, Cheetah is the dominant buyer and in sugarcane, Illovo Sugar Limited is the only buyer through the DCGL. Most smallholder farmers voiced concerns over the fairness of trade in the produce market. Smallholder farmers do not trust the operations of the private companies, who seem to use their dominant position in the market to determine prices and the nature of transactions.
- The case of smallholder sugarcane growers is puzzling. The reform that have taken place have created two companies, a trust and an agronomy and marketing company owned by former employees of the state-owned SSA and growers. Growers are the major shareholders as a block in the agronomy and marketing company. The agronomy company provides technical services, inputs and marketing services for smallholder sugar. Technically, the smallholder sugar farmers have access to whatever they need from commercial agriculture – from labour, inputs, mechanised farm implements and readily market for sugarcane. However, the institutional set-up has the potential to perpetuate poverty among smallholder farmers due to the misalignment of incentives in the principal-agent relationship, in which the smallholder farmers who are the majority shareholders are dominated by the minority 'elite' employee owners in the decision making process. Smallholder out-grower farmers that deal directly with ISL get twice as much returns than those under the irrigated scheme that market their cane through DCGL. This demonstrates how unfair institutional arrangements, even those sanctioned by government, can exploit voiceless and powerless smallholder farmers in the name of commercialisation of smallholder agriculture through contract farming.
- There are very limited grower-buyer relationships that extend beyond marketing transaction and extension services. ZISFA, BASFA and NASCOMEX that buy

produce from farmers do not offer input credit. ZISFA only provides free chilli seeds to its members. In cotton, the private companies do not offer input credit to smallholder farmers, with the exception of a few farmers in which CCL is experimenting credit services. Cotton farmers, however, have benefited from the subsidized treated seeds through the CDA – but the phasing out of the subsidy in the absence of agricultural credit markets is likely to put cotton development at risk. In smallholder sugarcane, ISL provides inputs on credit to KCG out-growers although this season inputs were provided against the balances owed to farmers. In paprika, Cheetah provides only quality seeds on credit. The problem is that there has been erosion of trust between the buyers and smallholder farmers. In cases where buyers have attempted to provide input credit on a larger scale, the repayment of such credit has been problematic. In cases where such credit was based on a loose contract farming arrangement, smallholder farmers have tended to side-sell their produce to other market players that offer better prices than those that provided credit. The associations have not been helpful in restoring this trust between produce buyers and smallholder farmers.

- Liberalisation of agricultural input marketing has led to an increase in competition but the market is not yet saturated. Existing firms are only able to supply half of the potential market for fertilizers. There are no major vertical relationships in the supply of fertilizers that have serious implications on the competitiveness of the sector. There are only two processing plants in Malawi one in granulation and the other in blending that are vertically linked in the supply chain. Very few suppliers own their transport fleet for internal distribution of fertilizers. The dominance in the market is determined by liquidity, relations with large estates and extensiveness of selling points. Firms that have customer relations with estate farmers and those with extensive outlets tend to account for a large proportion of the market. Although, state enterprises continue to operate in the market, they do not pose a major threat to private operation due to their inefficiencies. The major threats to private business operations are high prices due to exchange rate movements and bad weather, sometime unpredictable government policy.
- The fertilizer market is a cash-basis market in Malawi from procurement to retailing to smallholder farmers. Terms are limited to short-term financing arrangements that require payment within 30 days of delivery especially between well established companies. As a result, most of the fertilizers in Malawi go to large scale farmers who have the cash flow and can afford increasing prices of fertilizers. None of the fertilizer supply companies are dealing with smallholder farmer associations or their apex organisations in facilitating access to fertilizers in Malawi. They do not even have strategies for farmer organisations as a viable vehicle for facilitating access to fertilizer among smallholder farmers.
- Some of the fertilizer supplying companies have invested in the marketing infrastructure in urban and peri-urban areas, and these outlets are serving smallholder farmers. Other suppliers have also linked with the Association of Agro-Dealers of Malawi whose members have retail shops in the rural areas. Fertilizer supplying companies that deal with agro-dealers provide inputs on credit guaranteed by a special project fund under USAID sponsorship. Access to fertilizers among smallholder farmers is largely through MRFC and non-

governmental organisations in the area of food security and through the governments' targeted input and subsidy programmes.

- Farmer organisations play very little role in facilitating access to fertilizers among smallholder farmers. FOs have weak financial base and suffer from membership loyalty in many cases. Contract farming with smallholder farmers as a vehicle of facilitating access to fertilizers in Malawi has been attempted but has failed due to failure to enforce the contracts – particularly due to an increase in side-selling of produce among smallholder farmers.
- The liberalisation of markets and services has meant less government control of markets and it has tended to play very little role in the promotion of cash crops. There has been erosion of extension services that hitherto were provided by the government. Private companies that buy produce from farmers are re-introducing these services although on ad-hoc basis. Liberalisation of markets, however, has not led to effective competition among private enterprises. In some cases, private monopsonies or oligopolies have replaced state monopsony. Cotton and sugarcane are two of the crops in this study that have been singled out as having the potential for pro-poor growth in various policy documents. Although various strategies have been formulated for such crops, the strategies have largely remained unimplemented in practice. The focus on sugarcane is expansion of smallholder farming, yet the problems confronting smallholder farmers that hinge on their livelihood relate to the transaction costs of a grower-employee company that in the name of commercialisation does not work in the best interest of smallholder farmers. Most cotton strategies in government policy documents remain unimplemented and productivity and prices for cotton remains a problem. Similarly, on the input side – the focus has been enabling fertilizer access to smallholder farmers for the production of the food staple – maize rather than cash crops that may be vital for sustainable livelihoods.

Overall farmer organisations in cash crop farming in Malawi are weak. The case studies in chilli, sugarcane, paprika and cotton farming demonstrate that farmer organisations that are intended to bring the voice of the smallholder farmers are essentially voiceless and powerless in the value chain and are struggling to provide services to the satisfaction of their members. These associations are facing produce buyers that have more power, and due to lack of competition the decisions of the buyers largely prevail and farmer organisations are price-takers or the takers of what ever services such buyers offer. Such ineffectiveness threatens the membership base and therefore the financial sustainability of farmer organisations in Malawi. FOs have weak financial base to address the vital constraints to smallholder agricultural production including access to financial markets, access to inputs on credit, and declining prices of agricultural produce. FOs lack member loyalty and trust, and members cast doubts on the transparency and accountability of executive committees over decisions that affect their livelihoods.

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