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Impacts of Maize Policy Changes on Small Scale Farmers' Vulnerability to Exploitation in Nyimba District, Zambia



May 2011

**Impacts of Maize Policy Changes on Small Scale Farmers' Vulnerability to
Exploitation in Nyimba District, Zambia**

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Master Thesis

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Trondheim, Norway 2011

Dedication

To Amama na Atata and my siblings and their spouses for their prayers, support and encouragement

Acknowledgement

First and foremost I thank the Almighty God for bringing me this far, this would never have been possible without your guiding and leading hand.

Secondly, I would like to express my sincere gratitude to certain people who played critical roles in the whole process of research. First, I express my deepest thanks to Professor Haakon Lein for his guidance, constructive criticism, valuable suggestions, encouragement, and for inspiring me. Second, I would like to thank Edward Ezekiel for his constructive criticism, valuable suggestions and helping me with editing my thesis. Third, special thanks also go to Godfrey Miti, my research assistant for his valuable input both during and after the fieldwork. Fourth, I also like to thank all my research participants for sparing me the time and the valuable data they provided without which this thesis would not be here. Fifth, I would also like to thank the Mr. Mufana Lipalile, University of Zambia for his support during field work. Last but not least, I would like to thank all other relatives and friends for their prayers, inputs and encouragement.

Abstract

Taking cognisance of the fact that SSFs the major producers of maize in Zambia were most affected by the 1991 agricultural policy reforms, from 2005 onward, the state became very active in the maize market and production systems in order to mitigate their problems. The main objective of this study is to investigate to what extent the maize policy changes have contributed to the SSFs' vulnerability to exploitation. This information will be of use in the policy formulation process to ensure that the formulation of policies take a holistic approach to mitigation of the SSFs' vulnerabilities. The study draws from political economy, peasant rationality and risk aversion theories to explain the phenomenon under study. Qualitative research methodology was used to collect and analyse both the secondary and the primary data. The study indicates that the prevailing dual system where the state marketing system exists side by side with the private sector has resulted in forms of exploitation which can broadly be classified as petty and structural forms of exploitation. Several factors could be said to exacerbate SSFs' vulnerability to exploitation such as FRA's delay in opening its marketing season; delays in paying the SSFs' for their maize by government/FRA; lack of monitoring of the FRA buying agents' activities; SSFs' passivity, and incomplete information.

Key terms: Small Scale Farmer, Exploitation

Acronyms and Abbreviations

AIM	Agricultural Input Marketing Plan
CBOs	Community Based Organisations
CSO	Central Statistical Office
FGD	Focus Group Discussion
FISP	Farmers' Input Support Programme
FRA	Food Reserve Agency
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
HYV	High Yielding Variety
IMF	International Monetary Fund
JAICAF	Japan Association for International Collaboration of Agriculture and Forestry
KAMIS	Kabwe Agriculture Market Information Services
LCMS	Living Conditions Monitoring Survey
MACO	Ministry of Agriculture and Cooperatives
MMD	Movement for Multi-Party Democracy
MNCs	Multi National Corporations
MRS	Mtilizi Resettlement Scheme
NAMBOARD	National Agricultural Marketing Board
NDFA	Nyimba District Farmers' Association
SAPs	Structural Adjustment Programmes
SMS	Short Message Services

SSF	Small Scale Farmer
UNDP	United Nations Development Programme
USD	United States Dollar
WTO	World Trade Organisation
ZMK	Zambian Kwacha

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List of Glossary

Kunyegelelewa is a term some SSFs used to describe their feeling of not being treated fairly.

Kuibiliwa is simply translated to mean 'stealing from'.

Kutaya (meaning throwing away) was a word that was used to describe feelings of giving away something at a giveaway price, which is as good as just giving something away for nothing or simply throwing it away in their view.

Kufyengewa is a word that was used to describe feelings of not getting what one feels he/she rightfully deserves.

Kulyela mulimi is a phrase which describes a situation where one reaps where he/she did not sow, in this case the maize buyers/traders, it was felt were reaping benefits from what they did not work for.

Kuzyelelane is a word which was used to describe the feeling that someone is getting more than the other person.

List of Units

United States of America Dollar (USD) \$1 = Zambian Kwacha ZMK4, 973.87

A *diinda* (unweighed bag) which usually exceeds 50kg indicated is equivalent to 60-70kg

A *lima* equal to a quarter of a hectare, that is, 25metres x 25metres

A *meda* is equivalent to 5kg worth of maize grain

A *dunavant* container is equivalent to 10kg worth of maize grain

A tin is equivalent to 20kg worth of maize grain

CHAPTER ONE

General Introduction

1.0 Introduction

Maize is an important crop in Zambia. Zambia's staple food is made of it and it is grown on about 70 percent of cultivated land (Saasa 1996). Maize farming in Zambia has for several years been an economic activity dominated by the rural-based small scale farmers (SSFs) and Kähkönen and Leathers (1999) assert that most of the maize in Zambia is grown by such SSFs. Whereas the large scale maize farmers are mainly situated along the line of rail, that is, from Livingstone in the southern province to the Copperbelt province, the SSFs are found all around the country and often in remote areas.

There have been several changes in Zambia's agricultural policies from the colonial era to date. In each case the small scale maize farmer has been affected quite differently. Whereas in the colonial era agricultural marketing policies favoured the white settler farmers, the new government after independence in 1964 endeavoured to rectify this by incorporating the interests of the small scale farmers also (Chiwele et al. 1998).

From independence in 1964 up to 1990, the Zambian government exercised substantial control over both maize production and marketing. The state was in charge of providing the farmers with inputs and credit, providing extension services, warehousing for the maize grain, output price setting, and was also to a large extent the sole buyer of the maize grain (Seshamani 1999). Things changed when the movement for Multi-Party Democracy (MMD) came into power in 1991 under the leadership of president of Fredrick Chiluba. This new regime embraced the Structural Adjustment Programmes (SAPs) which the former government failed to implement in the mid 1980s. Zambia adopted market liberalisation as one of the conditionality within the SAP package in order to access financial assistance from the International Monetary Fund (IMF) and the World Bank.

Market liberalism is a development strategy within the neoliberal policies which advocates for the reduction of the state participation in the allocation, production and distribution of economic resources (Pieterse 2001). The advocates of market liberalism argue that the state is

not good at allocation, production and distribution of economic resources, thus it should allow the market to take charge of the economic activities of a country (Oatley, 2010). In this way, it is argued, a robust private sector which is considered the engine of economic growth would thrive leading to economic development. However, this process is not as simple as is suggested because as is argued by Winters et al. (2004, 72), 'liberalisation by its nature implies adjustment and so is likely to have distributional impacts'. It is assumed that there are some underlying factors whose adjustments lead to distributional impacts which hurt the SSFs because of their susceptibility to exploitation and hence their being hurt by liberalisation of maize markets.

The role of the state after the implementation of market liberalisation can be divided into two periods because of the notable variations in policies: the period between 1991 and 2004; and the period from 2005 to date (Govereh et al. 2008). Between 1991 and 2004, the government's role was reduced to policy formulation to ensure the creation of a conducive environment for the private sector to thrive. The main characteristics of the liberalisation of agricultural markets in Zambia during this period can be summarised as 'the dismantling of the state institutions for the marketing and distribution of agricultural produce and inputs, the abolition of agricultural subsidies, the liberalisation of import and export trade and the market determination of input and output prices' (Seshamani 1999, 549). However, even during the Chiluba era when the Zambian economy could be said to have been more liberalised, the government did not entirely let the market rule when it came to maize markets, as it continued to set maize prices (Robinson et al. 2007, Dorosh et al. 2007).

Recent studies show that since 2005, the MMD government under the leadership of president Levy Mwanawasa to 2008 and now president Rupiah Banda, has gone back to heavy government involvement in the maize production and marketing, almost as was the case before the adoption of liberalisation in 1991 (Govereh et al. 2008, Robinson et al. 2007, Dorosh et al. 2007). Thus the role of the state in the production and marketing of maize is reminiscent of the pre-liberalisation period. The government, through the Food Reserve Agency (FRA) has become involved in the buying of maize in rural areas at pan-territorial prices, put in place input support programmes to support small scale farmers, as well as controls maize imports and exports (Govereh et al. 2008).

A review of literature revealed that research has been done on the agricultural liberalisation policy implications in Zambia (Seshamani 1999; Saasa 1996; Chiwele et al 1998, Mwanauomo, 1998, Govereh et al. 2008). However, most of these researches have revealed in passing the predicament of the SSFs. This has been the case because in Zambia one cannot talk about agriculture especially food crop farming without mentioning the SSFs because they produce about three quarters of all the maize that is consumed in the country (Seshamani 1999; Saasa 1996).

Moreover, even if the above referred to research have revealed very important issues about the SSFs vulnerability to exploitation; not very much research has been done on SSFs' vulnerability to exploitation in Zambia. Some of the issues raised in previous studies include: first, that the lowering of the SSFs' income as a result of liberalisation have twofold implications- firstly, of driving their households further into poverty, and secondly, leading to lower productivity and reduction of area under cultivation dedicated to maize in the subsequent farming season. Second, that by the end of harvesting time, the SSFs are almost at the end of their tether that they are ready to sell their produce at lower prices to unscrupulous traders. Third, that the belief by government that once the economy stabilised the negative impacts of market liberalisation on the SSFs would wane off was a misconception (Seshamani 1999, Govereh et al. 2008).

What has been observed in Zambia between 1991 and 2004 was that the welfare and distribution ramifications of market liberalism in the agricultural sector resulted in the SSFs bearing the brunt of this economic policy reform (Seshamani 1999, Mwanauomo 1998). To this effect the government changed the mandate of FRA to include marketing and market facilitation to mitigate the SSFs' suffering but there has not been any remarkable improvement, (Government of the Republic of Zambia (GRZ) 2004).

In his 2009 budget speech, the Minister of Finance noted that the agriculture sector's performance between 2006 and 2008 was bad with the sector's output growth declining by 1.2 percent annually (Musokotwane 2009, 10). The crop production decline for 2007 and 2008 were 2.7 percent and 7.0 percent respectively. The sector's contribution to the Gross Domestic Product (GDP) has been on average 18 percent since the implementation of the liberalisation (GRZ 2006, 46). Some of the reasons put forward for this poor performance are: high cost of inputs; limitations in accessing credit, inputs, and extension services; over

dependence on rain fed agriculture; poor livestock management; weakness in the fertilizer support programme; failure to attract adequate private sector investment; and inadequate infrastructure inter alia.

Zambia's economy has for several decades been heavily dependent on foreign exchange earnings from copper (GRZ 2004). However, with privatisation, the mines are owned mainly by foreign Multi-national Corporations (MNCs) which repatriate most of the profits they earn from the mining sector to their countries of origin as there are allowed by law to repatriate any amount of profits, dividends and royalties without any restrictions except that a 15 percent withholding tax is slapped on the same (Ministry of Mines and Minerals Development nd). This has negative impact on economic development of the country because very little of the profit is being ploughed back into the economy. A more developed agricultural sector would ensure that the wealth that is created is reinvested in the local economy thereby having a multiplier effect.

In this regard therefore it is hoped that an in-depth examination of the opportunities and problems to the SSFs arising from the policy changes with respect to maize marketing will contribute to greater understanding of whether policy reforms have brought in another twist to the way the SSFs experience exploitation. The main objective of the study is to investigate to what extent policy changes from 2005 onwards have contributed to the SSFs' vulnerability to exploitation. The study also explored the effects of government intervention measures whether they mitigation or exacerbates the SSFs' vulnerability to exploitation. This information will be of use in the policy formulation process to ensure the formulation of policies take a holistic approach to mitigation of the SSFs' vulnerability to exploitation (instead of jeopardising their livelihoods.)

1.2 Study Objective

The main objective of this study is to investigate to what extent the maize policy changes have contributed to the SSFs' vulnerability to exploitation.

1.3 Research Questions

To help focus the study and ensure that only the relevant data is collected this study seeks to answer the following research questions:

1. What are the general features of Nyimba SSFs' maize production system?
2. What costs and/or returns are linked to Nyimba SSFs' maize production system?

3. How is maize marketing organised in Nyimba?
4. What problems do the Nyimba SSFs encounter as regards selling of their maize and/or access to markets for their maize?
5. What opportunities accrued to the SSFs due to maize market liberalisation?
6. What impacts have state intervention measures had on their vulnerability to exploitation?

1.4 Study Area

Zambia covers a surface area of approximately 752, 000 square kilometres of which 58 (42 million hectares) percent is suitable for growing crops (GRZ 2006, 46). Zambia is endowed with good climatic conditions, abundant underground and surface water resources suitable for irrigation, and abundant labour (ibid). However, the sector is so under developed that by 2004 only 14 percent of its arable land was used for agricultural purposes (ibid). Zambia boasts of 40 percent of the water resource in southern Africa but unfortunately only 170, 000 (40.2 percent) of the estimated 423, 000 hectares with irrigation potential is under irrigation (GRZ 2011, 85).

Zambia is divided into three agro-ecological zones. Zone I covers about 12 percent of the country's surface area (Siegel 2008). Siegel further describes the region as very hot, very dry very sandy, with soils of poor fertility, and low rainfall patterns (600-800mm). This area covers the southern part of southern and western provinces. Zone II covers around 42 percent of the country's surface area located in the central parts of the southern, eastern part of western, central, Lusaka and most of the eastern provinces of the country. Zone II is characterised by medium rainfall patterns. Of all the three zones, zone II is the most suitable agro-ecologically for crop production as it has good rainfall patterns (800-1000mm), good quality soil, and is not infested with tsetse flies thus suitable for livestock rearing (ibid). This zone is further subdivided into two zones, with one subdivision characterised by lower rainfall patterns than the other and being more prone to drought. Zone III covers the northern part of the country which comprises the Copperbelt, Luapula, Northern and North-Western provinces. This region covers about 46 percent of the country's surface area. Zone III is characterised by high rainfall patterns (1100-1700mm), acidic sand soils.

According to the 2010 national housing and population census, Zambia has a population of 13, 046, 508 of which 61 percent were based in the rural areas while 39 percent were based in the urban areas (CSO 2011). Agriculture is one of the major economic activities in Zambia as

it is the source of livelihood for the majority of the rural based poor people. According to the 2004 Living Conditions Monitoring Survey (LCMS) 69 percent of Zambians depend on agriculture for their livelihood especially those in rural areas (CSO 2005, 71). Of the total rural population, 92 percent are employed in agricultural sector while in urban areas only 20 percent of the urban population are employed in the agricultural sector (CSO 2005, 71).

The Post Harvest Survey 2003/2004 revealed that the eastern province had the highest (27.7 percent) of households engaged in agricultural activities in the whole country (CSO 2006, 5). In addition, in 2004, 14 percent of the total population of Zambians were living in the eastern province of which 76 percent lived in the rural areas (CSO 2005, 13). Among all the nine provinces in Zambia, this put the eastern province among the top five provinces which had the majority of its population living in rural areas. The eastern province is also among one of the poorest provinces in Zambia with poverty levels at 70 percent of the total provincial population (CSO 2005, 133). Of all maize growing households in the country, almost all (99 percent) of the households in eastern province were involved in maize production, with 92 percent growing local maize and 22 percent growing hybrid maize (CSO 2005, 87, 88). Of all maize growing households in the country, the highest was in the eastern province at 20 percent.



Figure 1: Administrative Map of Zambia Source: www.nationsonline.org

Nyimba is one of the districts in the eastern province of Zambia. Thus Nyimba district being part of the eastern province is a good example of a place suitable for the study which was undertaken as it gives a good picture of the salient characteristics relevant for the study.

The research was conducted in Nyimba district which is one of the districts in the eastern province of Zambia. This study was conducted in Vizimumba Block (see figure 2) which is divided into five camps namely: Chipembe, Lubamba, Mtilizi Resettlement Scheme (MRS), Mwape, and Vizimumba. However, I only managed to interview SSFs from four of the camps except for Mwape due to logistical constraints.

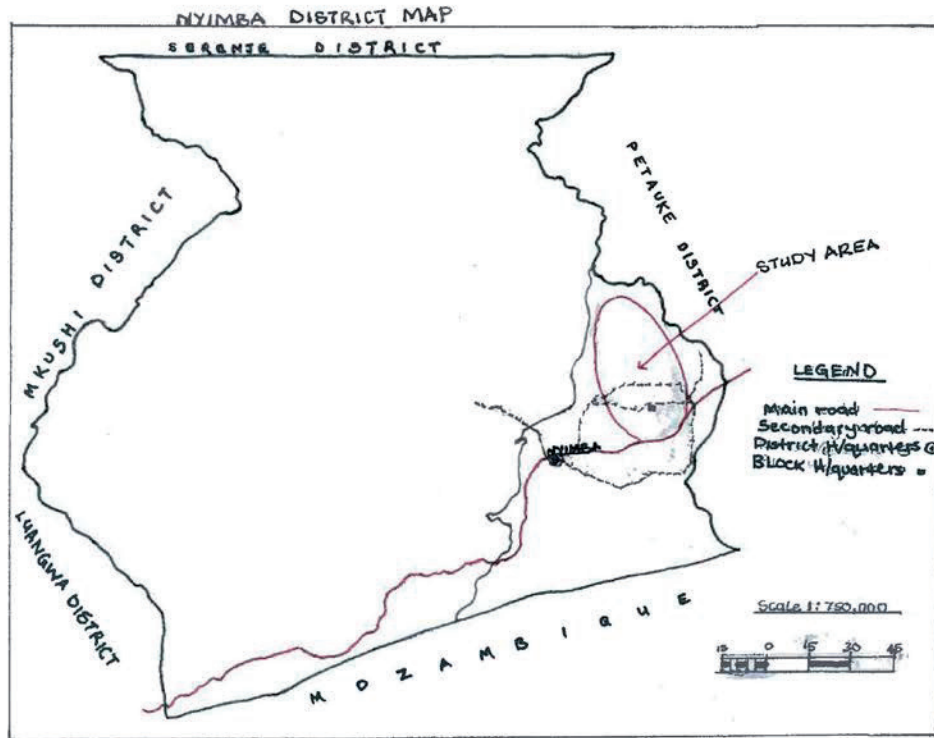


Figure 2: Nyimba District Map showing Study Area Source: Agricultural Map Services

1.5 Study Outline

Chapter one gives a general overview of the research problem and justification, research objectives and research questions, a description of the study area. Chapter two highlights the theories that provide the basis for the empirical part of the study. In chapter three I discuss the research methodology that was used in the study. Chapters four and five are descriptions and discussions of the empirical findings. Chapter four focuses on the production of maize in Nyimba district. Chapter five is divided into two parts: Part I focuses on the maize marketing while Part II focuses on exploitation as it is experienced by the small scale farmers in Nyimba district. Chapter six is a discussion of how theory links with the empirical findings and gives the main conclusion of the study.

CHAPTER TWO

Theoretical Framework

2.0 Introduction

Theory is important for any research that is undertaken for several reasons some of which include: ‘gives concepts, provides basic assumptions; directs [researchers] to the important questions; and suggests ways for [researchers] to make sense of the data, ... increases [researchers’] awareness of interconnections and of the broader significance of data’ (Boolsen 2005, 156). This chapter highlights the theories that were used to identify the relevant data for understanding the phenomenon under study, instrumental in the analysis of the collected data and also in the structure and presentation of the information.

Development being a multi-faceted concept, the study drew from an array of political economy theories in dealing with the phenomenon under study. Several theories were used as ‘frameworks for the behavioural linkages between the data which was collected’ (Sumner & Tribe 2008, 83).

The chapter is subdivided into eight sections. In the first part of the chapter I define some key terms. In the second part I highlight and discuss theories about the relationship between agriculture and development. In the third part I discuss some of the peasant theories, specifically singled out are theories on peasant rationality, risk aversion, strategies to increase peasant productivity, peasant and surplus, and peasant and the state. Lastly I give a summary of the chapter.

2.1 Key Terms Used

2.1.1 Small Scale Farmer

A rural-based *small scale farmer (SSF)* as used in this study refers to a maize farmer based in the rural area who grows maize for both home consumption and also for sale (Govereh et al. 2008). The rural-based SSFs are the main focus of this research because they are the ones deemed to be most vulnerable to exploitation, thus relevant for the study.

2.1.2 Local Conceptualisation of Exploitation

From the research it became apparent that among the SSFs no single word exists in Nsenga (the local language) to mean exploitation. SSFs used different words to express the problems

they encounter when selling their maize. Local words such as *kunyengelelewa*, *kuibiliwa*, *kutaya*, *kufyengewa*, *kulyela mulimi*, *kuzelelane*, were used by the SSFs to describe some of the problems they encounter when selling their maize. *Kunyengelelewa* is a term some SSFs used to describe their feeling of not being treated fairly. *Kuibiliwa* is simply translated to mean ‘stealing from’. *Kutaya* (meaning throwing away) was a word that was used to describe feelings of giving away something at a giveaway price, which is as good as just giving something away for nothing or simply throwing it away in their view. *Kufyengewa* is a word that was used to describe feelings of not getting what one feels he/she rightfully deserves. *Kulyela mulimi* is a phrase which describes a situation where one reaps where he/she did not sow, in this case the maize buyers/traders, it was felt were reaping benefits from what they did not work for. *Kuzelelane* is a word which was used to describe the feeling that someone is getting more than the other person. Some research participants with good command of English used the word exploitation to describe their feelings of being taken advantage of.

2.1.3 Exploitation

Exploitation is a main concept in this study. The concept of exploitation has been defined differently by different authors. For example, Olson (1971, 29) defines exploitation as ‘a disproportion between the benefits and sacrifices of different people’. Roemer (1989, 90) defines exploitation in terms of unequal exchange which states that ‘an agent who expends in production more hours of labour than are embodied in the goods he can purchase with his revenue from production (which may come from wages, profits, or the sale of commodities) is exploited’. Others still argue that ‘[t]o exploit someone or something is to make use of him, her, or it for your own ends by playing on some weakness or vulnerability in the object of your exploitation’ (<http://science.jrank.org/pages/21673/exploitation.html>).

Arneson (1981) considered Karl Marx’s belief that capitalism is synonymous with exploitation, a technical conceptualised of exploitation which implies ‘the appropriation by a class of non-workers of the surplus product of a class of workers (p|203). This follows from Marx’s notion of the composition of a capitalist economy which comprises the owners of capital and the labourers. Arneson asserts that Marxists’ normative perception of exploitation is the premised on ‘the labour theory of value’ (p|202). As such he argues that technically speaking exploitation does not exist where surplus product is absent. He notes that not all exploitation is bad. Exploitation is bad in the Marxist sense when it is imbued with unequal

power relations between the capitalists and labour which disadvantage the latter who are less powerful in this relationship. To this effect Arneson argues that the unequal power relations are decisive in the redistribution of the benefits from the interaction between the two classes. Arneson argued that this is what confers the owners of factors of production with more bargaining power than their workers. However, according to Arneson exploitation is bad ‘when there is appropriation of a surplus product by non-producers and mistreatment or ... violations of the rights of the producers’ (p204).

Lewis Lorwin argued that the characteristic inherent in exploitation is “‘that some individuals, groups, or classes benefit unjustly or unfairly from the labour of, or at the expense of, others’” (cited in Scott 1976, 157-158). This conceptualisation of exploitation seeks to portray that in society there are some people or groups of people who enjoy benefits at the expense of other people’s sweat. He also argues that there is some common understanding among socialists and non-socialists that exploitation should be perceived as ‘*relationship* between individuals, groups, or institutions ... [and] an *unfair* distribution of effort and rewards’ (author’s italics, *ibid* p158). Scott argues that the notion of fairness introduces justice into the discussion of exploitation. This he argues is contentious because there are divergent views about what constitutes justice. Mayer (2007) argues that ‘exploiters always gain at the expense of others by inflicting relative losses on disadvantaged parties’ (p137). This means the winners do not deserve the gains.

According to Scott (1976) three aspects must be considered if an analysis of exploitation is to be viable: special attention should be paid to ‘the relational or exchange quality of social relations; it must seek out the shared human needs that social actors expect from these relationships; and, in this context, it must work from the actual notions of “‘fair value’” that prevail’ (p165).

Scott (1976) contends that ‘the power of some and the vulnerability of others make for bargains that violate common standards of justice’ (p163). As such he concludes that ‘it must be assumed that there are genuinely normative standards of value in exchange that are to some degree independent of the actual alternatives available in a given context’ (*ibid*). Whereas, Scott was particularly referring to the tenant-landlord relationship, these ideas could also apply to producer-buyer relationships which are imbued by unequal power relations.

According to Scott (1976), a peasant's conceptualisation of exploitation is based on peasants' test, that is "what is left?" than "how much is taken" (p7). For the peasant the question is, is what is left after honouring all the claims by outsiders able to sustain my household and enable me meet my other social obligations? Scott further argues that this test 'offers a very different perspective on exploitation than theories which rely only on the criterion of surplus value expropriated' (ibid). The idea is that what is taken away should not jeopardise the lives of those who gave by leaving them with very little to the extent of pushing them to starvation.

Ellis (1993) argues that what constitutes exploitation in the real sense of the word according the Marxists is surplus appropriation through wages whereby the peasants work for other people. Otherwise, he argues all else which is dubbed exploitation is actually not necessarily exploitation as it is consistent with the 'normal working of the capitalist economy' (ibid) whereby only those who produce their products efficiently survive. He further contends that peasant exploitation is by and large due to social relations other than capitalism, and/or the exercise of unequal market power relations. He calls the appropriation of social surplus by the state through prices as exploitation. Ellis argues that the state does this in order to please certain interests groups who in most cases are owners of productive resources (capitalists).

The definition of exploitation adopted in this study that stated on this internet source <http://science.jrank.org/pages/21673/exploitation.html> which recognises the fact that there exists weaknesses or vulnerability that are the premise the exploiter uses to gain unfair advantage of the vulnerable. This definition is adopted because SSFs are vulnerable which make them susceptible to being taken advantage of, thus their vulnerability to exploitation. The decision to adopt this definition is informed by the local conceptualisation of exploitation in which the SSFs allude to their feelings of being taken advantage of by the maize buyers.

Rural-based SSFs are vulnerable in many ways, but this study will focus on exploitation. Exploitation is the focus of this research because it is often assumed that maize market liberalisation contributed to some extent to increasing the rural-based SSFs' vulnerability to exploitation. The liberalisation of maize markets policy led to the private sector participating in maize marketing and trading. According to neoliberals this is a good thing because it would facilitate economic growth which will ultimately benefit everyone. Apparently majority of the rural-based SSFs have failed to take advantage of the presence of many

traders by way of reaping higher profits for their produce for several reasons and this study sought to find out if some of them could be attributed to changing policies.

2.3 Agriculture and development

There has been an evolution in the perception of how agriculture contributes to overall development over the years. Staatz & Eicher (1984) argue that during the 1950s agriculture was not considered relevant to economic growth. Thus economic surplus extraction from agriculture was the norm, and development was synonymous with 'structural transformation of the economy' (p4) whereby agriculture which was a labour reservoir would shrink in its contribution to economic growth. Thus the policies which were promoted at the time were those that facilitate surplus extraction from agriculture to the industrial sector which was considered the engine of economic growth.

Martinussen (1997) illustrates the four different ways in which the agricultural and the industrial sectors are linked. First, he argues that there is a reciprocal relationship between the agricultural and the industrial sectors, whereby the agricultural sector's products are sold either as consumer goods to the city dwellers or sold as raw materials for further processing to the industrial sectors. On the other hand the rural dwellers also buy consumer goods and inputs and implements from the industrial sector. (The difference in relations between the two sectors is, whereas the agricultural sector sells raw materials to the industrial sector, the latter sells intermediate goods to the former.) Second, the exportation of goods from both sectors earns a country foreign exchange which is used to import goods that benefit both sectors. Third, the two sectors are linked through the loans and investments which are financed by savings from both sectors. Fourth, the two sectors are connected through each sector's contribution and/or benefit from government revenue and government spending respectively.

Staatz & Eicher (1984), summarise this as the scholars' acknowledgement of the important contribution agriculture made to overall development through the interdependence which exists between the agriculture and industrial growth.

Different scholars over time suggested different interventions in order to increase agricultural productivity in the global South. One of the intervention measures focused on the diffusion of new agricultural technologies. There was a general belief that to increase agricultural productivity there was need for such technology transfer from the industrialised countries to

the third world countries (Staatz & Eicher 1984). An evaluation of the failure these programmes to yield the expected results led to the rational choice models.

2.4 Peasant Rationality

Previous studies have shown that SSFs have been perceived to be irrational simply because they did not ‘recognise and exploit the opportunities available to them for increasing their production and incomes’ (Martinussen 1997, 135). Other studies still have shown that actually SSFs are indeed rational, except that they make decisions based on other forms of rationality. This fact is made vivid in the rational choice approach.

The rational-choice approach is an ‘attempt to explain a pattern of social behaviour or an enduring social arrangement as the aggregate outcome of the goal-directed choices of large numbers of rational agent’ (Little 1991, 35). This approach is based on the fact that ‘individual behaviour is goal-directed and calculating’ (p36). The idea here is that each person’s course of action is guided by his/her assessment of the costs and benefits of the intended action based on that person’s interests. In this sense a person’s action is considered rational if it is the only appropriate way of achieving that outcome after taking into account one’s beliefs (Little 1991). They argue that norms and values are crucial in determining social action.

There are variations in views within the rational-choice approach. There are those referred to as the formalists and other group called the substantivists. For the formalists ‘individual rationality is relevant to understanding social phenomenon in a wide range of cultural and historical circumstances and that peasant societies may be analysed in terms of the aggregate consequences of individually rational choices’ (p35). The substantivists on the other hand hold that ‘the concept of self-interests is overly narrow, neglecting the powerful influence of norms and values in social action’ (p36).

T.W. Schultz (1964) argued that ‘peasants were “poor, but efficient”’ (Martinussen 1997, 136). His argument was that, through experience over several years of engaging in farming, peasants discover what techniques work for them in the most efficient way given the resources available to them. Peasant farmers choose to employ technologies that ensure their survival. This is what he called allocation efficiency as no reallocation of resources is needed to get the required production (Lundahl 1988).

Lipton (1968) disagreed with Schultz thesis of poor but efficient peasants, arguing that this does not hold in the real world situation (Lundahl 1988). The problem according to Lunahl was Schultz assumed that the peasants pursued profit maximisation goal as postulated in traditional economic theory. An analysis of traditional agriculture reveals that the conditions for efficiency are not met thus negating Schultz theory. Ellis (1993) also argues that efficiency in a strict economic sense does not happen under peasant farming because of their partial integration in incomplete markets since the notion of efficiency applies to competitive markets. Adams (1986) also argues that ‘peasants farmers are in a particularly poor position to acquire information about future prices of products and inputs’ (1986, 277). Peasants are usually information starved thus the decisions they make are compromised. As such Adams argues that the decisions they make cannot be deemed rational.

Conversely, Lipton (1968) argued that peasant farmers seek to ‘either minimize the probability of obtaining a farming outcome which falls short of the subsistence level or guarantee survival in some other way’ (cited in Lundahl 1988, 122). Profit maximization is not their production objective. According to Lipton, the choices peasant farmers choose to ‘maximize the return that can be attained with a given maximum acceptable probability of disaster’ (ibid). To achieve this Lundahl argues that the farmers adopt what he calls ‘risk dampening arrangements, i.e. devices designed to reduce the probability of an unfavourable production outcome’; and consequences mitigation arrangements in case of the former happening (p123). He considered subsistence farming and diversification as examples of the former. Producing using proven traditional methods and peasants tendency to fall back on social capital in unfavourable times, he considered as an example of a strategy that ensure mitigation of the consequences of the unfavourable production outcome.

2.5 Risk Aversion

According to Martinussen (1997), studies have revealed that for the peasants ‘risk avoidance and risk minimising behaviour are both necessary and more sensible than profit maximisation that involves considerable risk taking’ (p135). Risk avoidance and risk minimisation behaviour is apparently characteristic of SSFs. This is because they have so many odds against them such that they cannot afford to jeopardise their lives. On the basis of the above Martinussen (1997) argues that SSFs ‘generally act rationally in terms of their own situation and in terms of the way they perceive the options available to them’ (p135). Rationality is therefore a relative concept.

Ellis (1993) highlights the main theories of peasant risk behaviour which include: crop diversification as a typical example of the peasants' risk aversion behaviour by which they seek to ensure that their households do not starve whatever happens as opposed to maximising profits; risk aversion makes farmers use resources inefficiently; risk aversion makes the spread and acceptance of innovations which have the potential of increasing the farmers' production and incomes difficult if not impossible; and there is an inverse relationship between risk aversion and income, that is, as incomes increase risk aversion behaviour declines.

Ellis' (1993) reviews of other studies show that it is wrong to assume that peasants are always risk averse. For example, in the Philippines and Bangladesh it was found that the farmers were risk takers. So he argued against treating peasants as a homogenous group when it comes to risk aversion because while some maybe risk averse others are not. Other studies also revealed that risk aversion does not decline across the board with the rise in income but that there could be variations. Another thing is that crop diversification not only ensures food security for the farmers but also helps them meet their profit maximisation goal. Ellis concludes by saying 'risk avoidance strategies are not of necessity in conflict with efficiency criteria, nor can all economic behaviour not in consistent with profit maximisation be attributed to risk' (p98).

Feeny (1983) argues that crop diversification does not necessarily imply risk aversion as is believed by many authors. He argues that there are several factors that would lead a farmer to diversify other than risk aversion. For example, he says that the type of land a farmers cultivates on may necessitate that he/she diversifies, or that a farmer may decide to try out a new crop or technique on a part of his/her land, or that limited amount of labour he/she may also necessitate diversification in order to maximize that factor's use and the returns from it. Feeny believed that contrary to the notion that risk aversion led to apathy toward adoption of new innovations and cash crop farming, and crop diversification, risk aversion could actually result in the opposite reaction.

According to Adams (1986), peasants in traditional societies like their counterparts in the modern societies make rational decisions with respect to resource allocation and innovation adoption. Peasants weigh the pros and cons whenever confronted with choices about resource allocation and what innovations to adopt regardless of what type of society they belong to.

According to Scott (1976), 'the overriding importance of meeting family subsistence demands frequently obliges peasants not only to sell for whatever return they can get but also to pay more'(p14). Peasants in this case are said to put their family subsistence first regardless of how much it costs them. For people believed to be living close to the margin, access to family subsistence to the peasants could be viewed more in terms of a life and death situation. Scott, argues that 'the goal of a secure subsistence is expressed in a wide array of choices in the production process: a preference for crops that can be eaten over crops that must be sold, an inclination to employ several seed varieties in order to spread risks, a preference for varieties with stable if modest yields' (p22-23). This suggests that the type of crops small scale farmers grow could be very revealing of the underlying safety first principle.

There are variations in the factors believed to determine SSFs' risk aversion behaviour. Lundahl (1988) argues that there are several factors which determine the extent of risk aversion behaviour such as 'education, family size, income opportunities outside agriculture and access to public institutions that allow the farmers to overcome a bad year' (p122). Adams (1986) argues that cultural values matter when it comes to peasant agricultural practices. Testimonies to this are the different outcomes of pricing policies in different countries. For Bates (1988) rationality of the peasants in decision making is influenced so much by what is considered rational in their societies (cited in Martinussen 1997). This suggests that what is considered rational in one society is may not necessarily be rational in another.

Scott (1976) argued that it was because peasants lived lives which were just above the subsistence levels that they are afraid of food shortages. This condition led to the development of what he called 'subsistence ethic'. The peasants' aim was to have a harvest which would enable them have enough food and a surplus which can be sold in order for them to buy essential goods such as salt, soap, and cloth, and also enable them 'meet the irreducible claims of outsiders' (p2). He argues that a peasant 'seeks to avoid the failure that will ruin him/her rather than attempting a big, but risky, killing' (p4). Thus for a typical peasant, survival is the overall goal of his/her economic activities and not profit maximization. So peasants according to Scott are risk averse as they seeks to minimize 'the subjective probability of maximum loss' (ibid). As such he argues peasants adopt technologies that would assure them of such even in the midst of uncertainties such as

weather which is outside their control. This kind of reasoning led to what Scott refers to as the ‘safety first’ principle. It was on the basis of this that the peasants made their production decisions. The idea of the safety first principle is that rather than maximize the returns, a farmer opts to minimize the chances of disaster.

According to Scott (1976), the economic behaviour of peasants is peculiar because they are not just producers but also consumers of part of their own production. So for them, their decision making on what technology to employ is based on choices which assure them of sustainable and reliable consumption. As a result Leonard Joy, argued that ‘subsistence farmers may resist innovation because it means departing from a system that is efficient in minimising the risk of catastrophe for one that significantly increases this risk’ (cited in Scott 1976, 19). SSFs therefore need assurance that the new technology is reliably capable of keeping them afloat whatever the uncertainties. According to Scott the farmers consider the expected crop yield in relation to weather patterns as well as costs of inputs.

Popkin (1979) found that “... peasants are continuously striving not merely to protect but to raise their subsistence level through long- and short-term investments, both public and private” (cited in Adams 1986, 278). Peasants were seen as calculators who seize opportunities presented to them. According to Popkin, peasants took proactive individual actions rather than depend on social capital in times of hardships because such arrangements have shortcomings embedded in them. This is somewhat contrary to Scott’s assertion that the peasants sought to safeguard their subsistence level given the uncertainties they had to contend with.

Theories of peasant rationality and risk aversion have been chosen because in this study because it was assumed that these theories could help in the analysis of decision making process of the SSFs in Nyimba in their choices of production and technology. An insight into the rationale for Nyimba SSFs’ decision making processes would be helpful in understanding why their agricultural activities are organised the way they are. In addition, knowledge gained would be instrumental in informing policy makers in formulating appropriate policies.

2.6 Strategies to increase Peasant Productivity

Different scholars have suggests different strategies to increase production of SSFs. Schultz (1964) argued that in order to increase productivity among the SSFs, it was important not only to avail them with the information about new existing technology which increases

productivity but most importantly those technologies should be accessible to them (cited in Martinussen 1997). He was convinced that since SSFs act rationally, they would respond accordingly. Bryceson (2002) is another scholar who has called for investment in green revolution in order to increase agricultural productivity in the rural areas. In addition, Schultz proposed education as a way through which productivity could be increased (Lundahl 1988). He saw education as a way of modernising the peasant farmers because it entails improvement in human capital which enhances communication of knowledge. His argument was that ‘neither market signals ... nor policy-induced incentives for peasants could bring about production increases or productivity improvements’ (cited in Martinussen 1997, 136).

According to Martinussen (1997) new technological innovations such as the high yielding varieties have the potential of substantially increasing the yield derived from a specified area planted provided the specified conditions are adhered to (p140). For example fertilizer has to be applied correctly and at the right time during the growth of the plants failure to which the yield will be compromised. However, the high yielding varieties are said to be more susceptible to attacks by insects than the traditional varieties thus necessitating the need for insecticides to kill the insects which is an extra cost which the farmers are not familiar with especially those who grow the local varieties which are somewhat resistant to destruction by the pests (Marinussen 1997). The use of new technologies has been criticised by some theorists that it assumes that the farmers have the resources to make use of them and everything that comes with them such as the need for fertilizers, insecticides, and irrigation, which is not the case in most developing countries (ibid).

For Bates (1988) what were crucial in determining peasant productivity were the prevailing socio-economic conditions under which peasants carried out their production and not physical or biological conditions (ibid). His argument was that ‘if these conditions embody sufficiently strong incentives for the peasants,’ then peasants would respond accordingly. However, he said this could only happen if proper institutional frameworks were put in place. Contrary to Schultz, Bates believed that ‘the free market forces provide the peasants with the best and strongest incentives to increase production’ (ibid 244).

Bates (1988) also argues that if government pursued ‘positive pricing policies’ in favour of the peasants, the peasants would definitely be motivated to increase production, more so if they could even buy processed/industrial goods at affordable prices (ibid, 245). The idea here

is that such policies would increase the peasants' income. However, he argues that states find it hard to implement such policies for several reasons such as: they do not favour the political elites and the urban population who benefit from policies that keep the prices of agricultural products low and also because such policies are not discriminatory against the opposition. Political leaders do not pursue such policies because they harm other players in the cities who are very crucial their remaining in power. Bates found that instead, some peasants have been offered incentives which have helped in drumming up political support for them. He argues that 'they [African leaders] have used public resources to support selected groups of peasants, who in return have supported the political rulers' (ibid). The argument is that the political agenda of the African leaders have always taken precedence.

Lipton (1977) and Bryceson (2002) was also of the view that in order to achieve increased production there was a need for institutional reforms whereby more resources were invested in the SSFs. According to Martinussen (1997), the establishment of the 'cooperative societies for production, trade and credit, and extension of material infrastructure' are yet other ways through which the goal of increased production among SSFs can be achieved (p139). However, he argues that there has been lack of political will by most third world countries' governments to follow this route. In addition, he argues that the other problem has been that SSFs have not formed robust interest groups to lobby their governments to provide them with the much needed infrastructure and services.

2.7 Peasants and Surplus

Peasants have been known to produce beyond their subsistence needs. Over the time there has been an evolution in how this surplus has been captured by other members/sectors of society. Surplus extraction takes various forms one of which is the 'unequal exchange of industrial and agricultural goods, where the industrial goods are sold at 'artificially' high prices and agricultural goods at 'artificially' low prices (Martinussen 1997, 131). It is artificial he argues because in most cases states deliberately play with the prices through pricing policy to disadvantage the agricultural sector. By so doing he argues that the states facilitate the transfer of resources from the agricultural sector to other favoured sectors. In this way the state uses its structures to exploit the agricultural sector.

Different terminologies have been used to refer to the peasants' production which is captured by other people in the society. Ellis (1993) notes that some refer to the same as "marketed

surplus”, while others still refer to the same as “financial surplus” (p54). According to Ellis, the former refers to that portion of the peasants’ production which they sell in the market, while the latter refers to the monetary value of that part of peasants’ production which is sold on the market but which is part of the price they receive exclusive of the marketing costs. Informed by the Marxists, the same surplus is referred to as social value- the part of peasant production beyond their subsistence level. Ellis distinguishes social surplus from surplus value which he says is appropriated by the capitalists. His argument is that social value is not entirely appropriated by the capitalists in the society because peasants are able to retain part of their surplus.

Ellis (1993) argues that social surplus is appropriated by other people in society. He argues that they do this in several ways which can broadly be categorised as through the markets, rents, and the state. An example of how surplus appropriated which is relevant to this study is that done through the market which Ellis calls ‘appropriation via prices- ...the potential for peasant incomes to be squeezed, either through falling prices for output sold in the market or through rising prices of market inputs, or a combination of both’ (p55, 56). This type of extraction he argues is ‘intensified by unequal exercise of market power in imperfect markets’ (p56). An example of surplus appropriation through the state is ‘peasant taxation’ (ibid). This is mostly indirect tax which the peasants pay when they purchase inputs or pay levies on their output.

The most notable ways through which the state increases its involvement in the market is by fixing prices of both farm produce and inputs, the establishment of agricultural products marketing institutions, compulsion of peasants to grow specified crops, and persuasion of peasants to acquire state financed inputs (ibid).

According to Ellis (1993), command of power over means of production and what becomes of the products so produced is a crucial determinant of the livelihoods of groups of people everywhere in the world. This same power is what distinguishes the powerful from the vulnerable.

Ellis (1993) argues that in some countries with large agricultural sector the state is usually under pressure to extract surpluses from the agricultural sector for its own survival. In such circumstances the state has been seen to succumb to the interests of the capital. Some of the ways by which the state does this is ‘when it fixes the price itself of the inputs and outputs of

farm production, establishes exclusive state channels for the handling of farm commodities, insists on peasants growing particular export crops, or encourages them to use purchased inputs financed by state loans' (p57)

Bates (1988) highlights some of the ways in which African governments intervene in agricultural markets. First, they prefer lowering prices of agricultural output and hiking prices for consumer goods consumed by farmers. Such policies are not beneficial to the SSFs as the rich large scale farmers are the ones who have been found to reap the benefits of such policies. Second, African governments prefer project-based policies instead of price-based policies in order to achieve production expansion. Bates argues that these projects are limited in their spatial coverage and appropriately target the specific people in order to serve their ulterior motives. Third, African governments opt for lowering production costs to facilitate production increase instead of increasing agricultural output prices. Fourth, 'intervene in ways that promote economic inefficiency: they alter market prices, reduce market competition, and invest in poorly conceived agricultural projects' (p332).

Bates contends that African governments opt for such policies/intervention measures based on: first, the thesis that government policy interventions are for social interests (Bates 1988, 343). The goal is to achieve economic growth so as to lift poor people poor out of poverty. This policy preference entails prioritising industrial development at the expense of agriculture;

Second, that government policy interventions seek to serve private interests (ibid, 345). In this regard government policy is influenced by the political pressure of interest groups which push for their private interests. Two of the private interest groups he highlights are the urban poor and the employers. The argument here is that the urban poor who spend more than half of their income on food as well as employers do not entertain high food prices because this lowers their real income, and reduce their profits respectively (ibid 346, 347). He argues that because the urban poor are geographically clustered it is easy for them to organise themselves for protests which thing politicians always seek to avoid because it threatens their legitimacy. Thus the groups whose incomes are affected by food price increases gang up against the incumbent government as it is considered to be incompetent (ibid). Bates also argues that infant industry protection policy harms peasants because it means the industrial goods they buy are unnecessarily expensive for them.

The arguments put forward by Bates are based on Michael Lipton (1977) arguments about urban bias. Lipton (1977) argues that urban bias is a manifestation of the class conflict in most third world countries between the urban population and the rural population. His argument is that, it is the policy preferences of the urban population that prevail in national marketing policy objectives because political policy makers reside in the cities. According to Lipton the politicians tend to deliberately divert most development efforts to the cities at the expense of the rural areas, thereby disadvantaging the rural population. To exemplify, Lipton cites issues such as how that 'public and private services are much more extensive in the cities and towns than in the rural areas ... both the state and the market mechanisms generally function in favour of the cities by extracting surplus from agriculture' (Martinussen 1997, 137).

Lipton proposed that in order to achieve pro-poor growth more resources should be invested in agriculture. His suggestion was informed by facts showing that the industrial sector was only employing a small fraction from the available labour force. So meaningful growth should be in the agricultural sector where the majority of the poor people are. Rigg (2006) on the other hand disagrees with investments that revamp agricultural development because it entails consigning the rural population to agriculture when the trends on the ground indicate that rural dwellers are shying away from agricultural activities.

Third, Bates (1988) argues that governments favour agricultural projects because they use them as tools to drum up support from the rural dwellers, selectively reward the people who would ensure their continued stay in power, and use the 'markets as instruments of political organisation' (351-355).

Bates suggested democratic elections as the solution to urban bias. His assumption was that democratic elections are good for rural development in Africa because the majority of people live in rural areas thus politicians would seek to please the rural dwellers in order to win an election. According to Bates 'the impact of organised interest groups works to the detriment of agrarian interests, whereas competitive elections work to their advantage' (p350).

2.8 Peasants and State

States as has been mentioned above have a role to play in facilitating overall development. As such states play an important role of organising their economies. Bernstein (1982) argued that colonial governments facilitated the advancement of capitalism and were also responsible for

coming up with structures through which labour and land were to be exploited in the natural economy. This resulted in the reorganisation of the economy which existed in precapitalist periods. The other way through which the natural economy was destroyed was through the creation of 'peasant commodity production which does not involve the direct separation of the producers from the means of production' and also very little 'technical changes in production' (p162). The activities of the colonial governments also led to the break in the peasant reproduction cycle and this was done through the attachment of monetary value to some of its aspects (ibid). Bernstein argues that the peasants were forced into commodity production by the colonial governments. The colonial governments did this by creating conditions which necessitated the peasants' need for cash. Some of the methods used included taxation, and forcing farmers to grow specific cash crops. The monetisation of some elements of simple reproduction, Bernstein argues is the motivation for reproduction. Production below subsistence therefore entails perpetual indebtedness. Moreover, this makes peasants very desperate for cash by the time they are harvesting that they can meet their immediate financial needs. This is as a result of commoditisation where farmers produce not only with the intention of subsistence but also for sale in order to meet their other financial needs. In this way the colonial governments made commodity production obligatory for the peasants. Thus peasants ended up combining production by producing crops for home consumption as well as some crops for commercial purposes.

Scott (1976) argues that two main factors greatly affected the peasants' way of life: the introduction of capitalism; and the establishment of the contemporary nation-state. These two factors resulted in the commoditisation of land and labour whereby, Scott argues that peasants were forced to earn a minimum income. This entailed that a household had to ensure that it earns a minimum income with which to live on and contribute to the social and ceremonial obligations in the village.

According to Bernstein (1982) the consequences of colonial states actions undermined the natural economy by extracting labour from subsistence production and other petty non-farm activities; the substitution of subsistence goods which local producers used to produce or obtained through local trade. The whole process led to the undermining of the way production in its entirety used to be undertaken and also the stopping of many indigenous production skills outside agriculture (ibid).

Bernstein describes the type of production which existed between capital and peasants after the destruction of the natural economy as 'simple commodity production'. Simple commodity production refers to a type of production where production by the households is subsistence in nature (p163). Bernstein distinguishes simple commodity production from capitalist commodity production. The latter refers to production dominated by appropriation and where the surplus is reinvested resulting in capital accumulation (ibid).

Bernstein also argued that three main interests influenced what cash crops were produced and supplied by the colonies. According to Bernstein the industries from the cities, the merchant and the state worked together to achieve this (p165). The peasants as such were only left with the task of organising production. Meanwhile, what the peasants produced and how they reproduced themselves was determined by the outcomes of the commodity relations, economic and political actions of these main interests.

Bernstein saw peasant households as different from a capitalist as its economic system was determined by subsistence needs and not accumulation as is the case for capitalists. He argues that for this reason a peasant household experiences a fall in the price of its produce as a fall in its terms of exchange when compared to its subsistence needs (p166). This entailed 'a reduction in levels of consumption or an intensification of commodity production, or both simultaneously' (ibid). Bernstein considered this as simple reproduction squeeze. According to Bernstein the implications of simple reproduction squeeze are both direct and indirect. He argues that simple reproduction squeeze directly increases the costs of productive resources and indirectly increases the cost of reproducing the producers. He also argues that the cost of production is also raised 'by the exhaustion of both land and labour ... and by rural development schemes which encourage or impose more expensive means of production' (ibid) without guaranteeing the remuneration to labour given the costs that have been incurred.

Bernstein argues that simple reproduction squeeze is as a result of a mix of the peasants' production in material and technical terms, and the demands of commodity relations. An increase in production costs can either be through an increase in time expended by labour and/or money wise through the acquiring and/or replacing of productive resources in order to increase yields. Bernstein argues that the intentions of rural development programmes are to facilitate the peasant integration into the market, and also to ensure that peasant production is

rational and adheres to stipulated standards of the domestic as well as the international market. He also argues that these programmes have a tendency of compelling the peasants to gravitate towards certain technologies thereby reinforcing the ties with proponents of the same.

Bernstein contends that the simple reproduction squeeze is a mechanism which is used by capital which fuels peasant self exploitation in order to stabilise and/or increase production while not spending anything in terms of managing and supervising production.

Out-grower scheme arrangements are an example of commodity relations intensification. It is through these arrangements that companies that contract farmers to produce agricultural products for them seek to ensure that the supply of the products to their organisations is guaranteed and under their control (Bernstein 1982). In this way then, the companies dictate what the farmers produce and how they produce it.

Ellis (1993) argues that because peasants have 'one foot in the [incomplete] market and the other in subsistence they are neither fully integrated in that economy nor wholly insulated from its pressures' (p3). He argues that the consumption of their own production is the reason why peasants' participation in the market is partial. The markets peasants are confronted with present them with both opportunities and challenges. Ellis argues that peasants participation in these markets among others 'exposes them to the possibility of ruin either from adverse price trends or from the exercise of unequal market power' (p6).

To explain the phenomenon under study I choose to use economic surplus extraction through unequal exchange of consumer and agricultural goods as theorised by Martinussen (1997), Ellis' (1993) theory of social surplus appropriation through the state and the market and Bernstein's (1982) theory of simple reproduction squeeze. These theories are useful in explaining the structural exploitation. I do not dwell on the Marxist conceptualisation because it is based on labour theory. The SSFs in most cases use their own labour and land to produce their maize, as such they are owners of some factors of production. Besides, these SSFs are not employed by the capitalists to produce the maize as is implied in the Marxist conceptualisation of exploitation. This makes analysis in the Marxist way somewhat tricky.

Scott's (1976) peasant test of what is left as against what is taken is used to explain petty exploitation.

2.9 Summary

The main concepts in the study are small scale farmers, local conceptualisation of exploitation and exploitation. From the 1950s to date there have been several theories about how agriculture contributes to overall development. There has been disagreement among scholars about whether peasant decision making is rational, while others argue that peasants are not rational other argue to the contrary, and say peasant make decisions based on other forms of rationality. Peasant risk aversion behaviour *vis-a-vis* pursuit for profit maximization has been the main areas of interest. Several strategies have been proposed to increase peasant production either through the state or private sector. The state, the industrial sector and urban populations are the different interests that capture peasants' surplus. This aspect is fraught with exploitative tendencies which are the focus of this study.

CHAPTER THREE

Research Methodology

3.0 Introduction

Research design is an important aspect of research as it makes a researcher make decisions about the methodology that will best generate the desired data for the research given the available resources.

This chapter has thirteen sections. In the first section I discuss the choice of the qualitative research approach I took for this study. In the second section I discuss why I decided to use the case study approach. The third section is a brief discussion of the choice study area. In the fourth section I briefly discuss the choice of the research participants who have been grouped into two categories: primary and other research participants. I then highlight their general characteristics. Section five discusses both the secondary and primary data sources used in the study. Multiple primary sources of data collection methods such as observation, semi-structures interviews, focus group discussion and photographs were used to collect data during fieldwork. In section I highlight the fact that I engaged a research assistant. In section seven I discuss very briefly the methods of data analysis which I used to analyse the data. Section eight is a discussion about the study limitations. In section nine I discuss my reflections from the study. I discuss the ethical considerations in relation to the study in section ten. In sections eleven and twelve, I discuss the validity and reliability of the data respectively. Section thirteen is a summary of the whole chapter.

3.1 Qualitative Research Method

As the aim of my study was to investigate to what extent the liberalisation of the maize markets has contributed to the SSFs' vulnerability to exploitation, I needed an approach that would enable me to collect first hand data from the farmers themselves about how they have experienced the policy change and enable a researcher to get a broader understanding of '... how individual people experience and make sense of their own lives' Longhurst (2003, 123). By being an approach through which one can 'study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of meanings people bring to them' I was convinced qualitative method was the right approach to help me get the data I needed to get an understanding of the SSFs vulnerability to exploitation in relation to maize market liberalisation. The methods used for data collection such as interviews gave me an

opportunity to discuss with the farmers a number of issues that helped me to gain insight on how they make sense and interpret the maize marketing system in Zambia and how it has affected them. Ragin (1994) also argues that '[q]ualitative methods ... are best understood as data enhancers' (1994a, 92 quoted by Neuman 2006, 14). This is in contrast to the quantitative methodology which gives a bird's view of the data because of aggregation of data thereby concealing the originality of research (ibid). Thus qualitative methodology was chosen so that a clearer understanding could be given about the SSFs daily experiences.

Further, qualitative methods was employed so that respondents' everyday lives can be captured because it is assumed that they are the ones who know best what problems they encounter as they sell their produce (Smith 2001). I felt that this methodology was better because my knowledge of how the policy of the liberalisation of the maize market has impacted the SSFs is limited to what I have read and observed from a distance since I do not live among them nor have I asked them about it. So the qualitative method enabled me to hear them out. Moreover, any lasting solution to the problems facing SSFs should be informed by their struggles. So the knowledge that they have is very important for shaping the right solution to the problems they are currently encountering.

Qualitative research methodology was adopted for this research because it allows for an in-depth understanding into the 'complexities and processes' (Marshall & Rossman 1999, 57) of the phenomenon under study. In order to establish to what extent the liberalisation of maize markets contributed to the vulnerability to exploitation of the SSFs entailed speaking to the farmers to find out their experiences and their opinions on the issue. By virtue of the qualitative method being an approach which is best suited for the investigation of the intricacies of a study, it seemed logical to me to adopt the method as it would ensure the collection of the relevant data.

According to Marshall & Rossman (1999) qualitative methods are helpful in identifying inconsistencies inherent in policies and thus help in correcting them. Thus qualitative methods by virtue of facilitating personal encounter with the research participant as is the case in interviews are able to get to the root of the problems between policy and practice

3.2 Case Study

This study has the characteristics of a case study. Case study approach is considered suitable in situations where the researcher's investigation is based '... on a contemporary phenomenon

within some real-life context' (Yin 2003, 1). Thus I decided to adopt a case study approach in this instance because I felt it would help me understand how the SSFs are experience the new maize marketing system. Yin (2003) also asserts that 'the case study method allows the investigators to retain the holistic and meaningful characteristics of real-life events...' (2003, 2)

Case studies are always criticised for the difficulty of generalising the findings. Whereas generalisation to a whole population might be difficult to attain, case studies are still useful in the sense that they provide 'detailed information' (Rice 2003, 225) of the particular case that is studied. This is because by focusing on a single case allows the researcher to be intensive in his/her investigation of the phenomenon under study. My aim for focusing on Nyimba was so that I could be extensive in my research as I recognise that there are variations within a population which I could highlight well by taking the case study route.

The other advantage of case studies according to Rice (2003) is that they '... may present unique opportunities for understanding the mechanisms that underlie empirical observations' (2003, 226). Some researchers (Seshamani 1998; Govereh 2008) have found that SSFs have been exploited since the introduction of maize market liberalisation. However they do not elaborate how this is done. Thus my study is one way of gaining insight into how the SSFs this happens in the era of maize market liberalisation at the grass root level.

3.3 Choice of Study Area

Nyimba district in this case was chosen as my study area because it has some characteristics of that I was interested in such as, it is a rural area where majority farmers are. According to Silverman (2010) the reasons for adopting purposive sampling in choosing a case should be 'the groups, settings and individuals where ... the processes being studied are most likely to occur' (2010, 141). Looking at Nyimba district it presents a good example of a group, setting and individuals who have the relevant features to the study. In addition, besides being easily accessible I can speak the language that is spoken in the area so that made my research relatively easier.

3.4 Choice of Research Participants

The primary study participants were both small scale maize farmers who have been involved in maize farming prior to the implementation of the maize market liberalisation policy and also those who started maize farming after the implementation of the liberalisation policy to

date. The reason for including both categories of farmers was to see if there are any variations in the feelings and experiences such as opportunities and struggles, and how they are coping with the current situation.

3.4.1 General Characteristics of Primary Research Participants

Fifteen SSFs were interviewed. In addition, the spouses (one male, one female) of two of the SSFs chipped in as the interviews with their spouses progressed. Of the fifteen, three were women, while the rest were men.

The primary research participants comprised persons aged between 32 and 72 years old. By Zambian definition of youth comprise persons up to the age of 35 years, so that four of the respondents can be classified as youth. Two of the participants were senior citizens above 65 years old at the time of interviewing them. Nine of the primary research participants were aged between 38 and 52 years old.

The education backgrounds of the primary research participants were varied. Six of them had primary school education; another six of them had junior high school education, only two of them went as far as grade twelve, the highest in secondary school education; and one had never been to school at all.

All the small scale farmers interviewed were married except for one of the women who was a widow at the time of the interview. All the SSFs had families and were taking care of their children and some dependents. On average a household had at least five people and at most twelve people.

3.4.2 Other Research Participants

Also included in the study were government officers from the Ministry of Agriculture and Cooperative (MACO). All these government officers were included in the study in order to get an understanding on the role government has played in the whole process of liberalisation of the maize markets in relation to SSFs.

A staff member at the Food Reserve Agency (FRA) was also included in the study in order to get data related to the government's maize marketing strategy intended to serve the interests of the small scale maize farmers.

Officials from agricultural community based organisations (CBOs) such as the cooperatives, women's club, information centres were also included in the study.

Maize buyers and traders were also included in the study. Millers were also included in the study were both city and rural based. There are variations in the activities of millers between those located in the rural area and those located in the city. The Farmers' Union was also included in the study. From him I managed to get data about how the Union is serving the interests of the small scale farmers at the district level and how they lobby government on their behalf. A wide array of research participants has been included in the study in order to broaden 'the scope and validation of information' (Mikkelsen 2005, 180).

I used purposive sampling to select the research participants. I did this to ensure that all the relevant informants were included in the research. I was also aware of the problems related to bias that this choice of sampling procedure introduces to the study such as the limitation of my prior knowledge. However, I was open-minded about the selection of study participants such that I took the advice of those who knew about the kinds of people involved in maize marketing. Thus I followed their lead and followed up some of the people they suggested whom I felt would be relevant. Of course this again introduces the issue of subjectivity on my part as well as those helping me (snowball sampling). Besides several considerations have to be made because not all potential research participants possess the salient characteristics such as what I have already mentioned above in the case of the SSFs.

3.5 Data Sources

3.5.1 Secondary Data Sources

Given the limitations time and financial resources under which this research was undertaken, there was the need of supplementing primary data with secondary data. Secondary data is necessary 'to provide a context for a study, for comparison and as the prime evidence for analysis (White 2003, 67). For example, with respect to the data providing the context for the study, I was able was from the information already available to find data to assist me in the description of my study area by picking out the relevant features that I needed about Nyimba in particular and Zambia as a whole.

3.5.1.1 Document Analysis

Besides the primary data collection, I also collected secondary data from some of the research participants, media, books, reports, journals, internet which was relevant to the study. The data derived from these secondary data sources was helpful in understanding what has been done on the topic by other researchers. This assisted me in focusing my research on areas or

aspects that have not been very much researched on by other researchers so that new knowledge can be generated and/or distinguish my work from other studies that have been done before (Kitchin & Tate 2000). The data was also used to supplement primary data (ibid). Document analysis also helped me to position my research

3.5.2 Primary Data Sources

There are several sources of primary data such as interviews, focused group discussions, observations *inter alia*. I collected primary data in order to ensure the relevancy and quality of the data by the research questions and tools of data collection I employed (Mikkelsen 2005). I did this because I recognised that much as I could get data from secondary sources of data, secondary data is ‘information [that] has been collected by someone else, for another purpose’ (White 2003, 68) other than mine. As such it raises questions of how perfectly applicable such data would be to my study.

Semi structured interviews and focus group discussions (FGDs) were employed in collecting the data for the study. Longhurst (2003) describes the two instruments as interviews which involving ‘talking with people but in ways that are self-conscious, orderly and partially structured’ (2003, 118). The two instruments were chosen because they ‘allow for an open response in the participants’ own words’ (Longhurst 2003, 119). By getting responses in the informants’ own words the experiences or meanings are not watered down as would have been the case if the responses were just yes and no as is the case in a questionnaire. In fact, in this way, the participants broaden my understanding of the complexities they experienced which I would have otherwise taken for granted.

3.5.2.1 Non-Participant Observation

I conducted non participant observation whereby I did not participate in the activities I was observing but simply observed as these activities were happening before my eyes (Bailey 2007). I observed events as they unfolded before my eyes. I initially did not intend to use observation method of data collection. However, since my fieldwork was done during the time when the maize marketing season was in full swing, I could not avoid observing what was going on as I saw with my own eyes what was happening as I travelled around the villages. Observation is acknowledged as one of the methods of primary data collection. However, observation alone is not a sufficient method of primary data collection because ‘... researchers cannot always see everything in a setting, determine what is important to notice, and know the meanings of what they observe, even their first account of observations will be

partial and filtered' (Bailey 2007, 79). Thus data collected through observations alone are incomplete and does not give the full picture. Observation did not form the main part of data collection methods.

3.5.2.2 Semi-Structured Interviews

Semi-structured interviews are '... about talking with people but in ways that are self-conscious, orderly and partially structured' (Longhurst 2003, 118). Interviews have several advantages which I chose to capitalise on. For example, interviews allow for the study of people whereby the '... understanding of the meanings in their lived world, describing their experiences and self-understanding, and clarifying and elaborating their own perspective on their lived world' (Kvale 1996, 105), they also facilitate 'a more thorough examination of experiences, feelings or opinions' (Kitchin and Tate 2000). I envisioned that the vulnerability to exploitation of the SSFs' which is the focus of this study could be best investigated if I asked the farmers to describe their experiences with respect to the phenomenon. In addition, an interview according to Valentine (2001), is an efficient and effective tool of data collection because it 'can generate a lot of information very quickly; it enables the researcher to cover a wide variety of topics, to clarify issues raised by the participant and to follow up unanticipated themes that arise' (2001, 44). The interview method of data collection also enabled me to rephrase or paraphrase the questions for the interviewees to understand what I meant. Similarly they were able to clarify things I did not understand upon being asked to. In this way misunderstandings were taken care of. Thus the interviews facilitated an in-depth understanding of the phenomenon under study. The decision to conduct interviews was also among other things influenced by the fact that most SSFs who were interviewed were illiterate.

I adopted semi structured interviews because of their flexibility. That is, I was able to follow up relevant issues which the research participants raised up during the interview which I was not aware of with probing questions (Mikkelsen 2005). In this way I was able to get data that I would not have collected had I used a rigid method which does not allow for such flexibility.

Prior to leaving for Zambia, I prepared interview guides (refer to Appendix A) for all the respective categories of research participants which I used to elicit information from them. I did this in order to ensure that the interviews were more focused and not haphazardly done. The guide also helped me in the sense that it was like a checklist by which I ensured that all

the relevant issues and/or themes I needed to address where raised of course not necessarily in the order they appeared on the guide but as conversation flowed (Bailey 2007). In total, fifteen small scale maize farmers were interviewed within Vizimumba Block. Most of the primary research participants were from Vizimumba Camp where nine SSFs were interviewed. The distribution of the primary research participants in other camps was two SSFs from Lubamba Camp, three from Chipembe Camp and one MRS.

A total of six members of staff from Ministry of Agriculture and Cooperative (MACO), of the five, two were from MACO headquarters in Lusaka, two were from the Nyimba district agricultural office and the last two were from Vizimumba and MRS camps. One of the interviews with the staff from MACO headquarters was informal with promises to conduct a formal one at a later date, which never materialised. From the two MACO officials I was able to get data related to MACO's overview at the national level of the plight of the small scale maize farmers and what government has been doing to help them. The MACO staff at the district office provided the same data but at a district level. The Officers at the MACO camps were my gate keepers. I was in the field when the government maize marketing season opened so it was not possible to meet with all the Camp Extension Officers as they were busy with arrangements of the maize markets. So I only managed to interview two of them one from Vizimumba camp and the other from MRS Camp. One of the interviews with one of the camp officers was not recorded as the officer refused to have the interview recorded with the possibility of being directly quoted.

I also had an interview with an officer from Food Reserve Agency when I returned to Lusaka from Nyimba because it was not possible to meet him before then. From him I was able to get data related to the government's maize marketing strategy intended to serve the interests of the SSFs. I also interviewed officials from agricultural community based organisations (CBOs) such as the cooperatives, information centres.

Three maize buyers were interviewed one from each of the following camps Chipembi, MRS, and Vizimumba. All the three buyers were based in Vizimumba Block but working for maize traders based in Nyimba Central Block and Petauke district respectively. Six maize traders were interviewed: two from Vizimumba Block, that is one from Lubamba and the other one from Chipembe Camps; and four from Nyimba Central Block.

I interviewed three millers in total, two millers in Nyimba, one from Lubamba Camp and the other one from Chipembe Camp, and one from Lusaka. There are variations in the operations of millers between those located in the rural area and those located in the city. From the Lusaka based milling company I was able to get data about the suppliers of maize to the mill, the prices at which the milling company buys the maize, and the products that the milling company processes from maize and their customers. Similarly, from the Nyimba based millers I was able to get data about a typical rural based miller's activities.

The Farmers' Union was also included in the study and were represented by a staff from the Nyimba District Farmers' Association (NDFA). From him I managed to get data about how the Union is serving the interests of the small scale farmers at the district level and how they lobby government on their behalf.

3.5.2.3 Focus Group Discussion (FGD)

A FGD is a form of interview where 'a group of people, usually between 6 and 12, who meet in an informal setting to talk about a particular topic that has been set by the researcher' (Longhurst 2003, 119). FGD was also used to collect data because of the financial and time constraints under which this study was undertaken. The FGD as an instrument of data collection was used because it enabled me to collect the opinions and feelings of several people on an issue under discussion within a short time and at relatively lower cost (Longhurst 2003). Further, FGDs facilitate the exploration of how 'meanings and experiences are negotiated and contested between participants' (Valentine 2001, 44). Thus I was able to determine the preferences of the different SSMFs on market liberalism. FGD was also used to triangulation and add-on to the interviews to assure validity of the data collected in through interviews (Longhurst 2003). I was however wary of problems associated with FGDs such as the fear that some participants might have problems expressing themselves because of fear of embarrassment or criticism *inter alia* which might in turn affect the information that they share (Kitchin and Tate 2000). Such a case arose and the research participant who was discouraged by someone (whom I later learnt was the daughter) was encouraged to speak and the critic was kindly asked to respect the wish of the one who wanted to speak.

I had one FGD with the women's club whose membership comprise both men and women farmers. It was difficult to organise more FGD because farmers were busy with preparations and arrangements to sell maize to the government maize market which opened during the

time of the fieldwork. I moderated the FGD assisted by one of the farmers who in the leadership of one of the local agricultural CBOs.

3.5.2.4 Photographs/Images

I also took photographs of aspects that I thought could be better expressed visually. Photographs like the other tools of primary data collection also tell stories.

3.6 Research Assistant

I engaged a researcher assistant from Nyimba who knew the area relatively well, is a native speaker of the Nsenga language spoken in Nyimba and is involved in agricultural activities with the local farmer groups. In fact he is the vice chairperson one of the NDFA Information Centres. He is also a SSF. He assisted me in translating and/or interpreting whenever need arose. With his background, he also enlightened me on several intricacies in maize marketing in his area. He also helped in transcribing of the interviews. I oriented him about his role in the fieldwork on the day I contracted him.

3.7 Methods of Data Analysis

3.7.1 Qualitative Data Analysis

Dey's approach to qualitative data analysis as adapted by Kitchin and Tate (2000) was used to analyse the data from the interviews, and FGD. This approach 'consists of the description, classification and making of connections between the data' (Kitchin and Tate 2000, 231).

3.8 Study Limitations

The field work was done within 8 weeks, the period when I went home for my summer vacation after being in Norway for almost a year. One of my challenges prior to embarking on the research was how I was to divide time between being with family and carrying the research. Fortunately though, I was lodging with family, so this helped me to kill two birds with one stone. I was with family in the evenings and weekends and did my fieldwork during working hours.

My other challenge was technical in nature. The battery charger for the cells for the camera and recorder did not work when I got to the Nyimba. I had to ask someone who was coming to eastern province from Lusaka to bring me new cells as the ones I bought in Nyimba could not work. This resulted in my incurring extra costs for still photographs taken by a local cameraman. As if this was not bad enough, the solar energy at the house I was staying was

not adequate enough to charge my laptop battery. This meant if I wanted to use the laptop I had to charge the battery at Nyimba Boma which was expensive as I had to pay for transport to and from there plus charging costs. So I decided to have the first transcription hand written.

Other issues of concern were time and financial resources. I recruited a researcher assistant in order to ensure that the research was carried out within the vacation period. This was also for complementary and supplementary reasons. However, involvement of the researcher assistant had financial implications. Besides, this there were other materials also that were required such as a recorder and all the accessories that go with it, stationery and also local transport costs to ensure mobility considering that the research was done in a rural area. I had to carter for all these expenses using the meagre resources available to the researcher.

The other challenge I encountered during my fieldwork was difficulties in getting round some gate keepers especially in large companies where I had to go through the security and then the secretaries to get to the informants. This proved to be a challenge that in some cases I ended up giving up as I was told from the security point that the person I was supposed to see was not available.

3.9 Reflexivity

Dowling (2000) contends that a researcher's reflexivity centres around two main issues: power and subjectivity. By reflexivity she means the process where a researcher is self analytical throughout the research process. With respect to power, she recognises that the fact that qualitative research takes place in environments where power relations have to be negotiated because of the different socio-economic, socio-cultural positions *inter alia* of the different parties involved in the research. Field work for this study took place in the villages where the majority of the farmers are of humble education background and with high illiteracy levels. As such I was able to foresee 'potentially exploitative' (Dowling 2000, 29) power relations between the research participants in the villages and myself. My education level was perceived as being of a high level therefore I was held in high esteem. Even if this was the case I made sure to point out to the research on the phenomenon under study they were the experts hence I went to consulted them in order to get more insight on the knowledge they had.

I think where one is studying and what qualification one will get at the end of the studies also influences how research participants view and relate to you. The fact that I was studying as a European university made some my research participants to respect me and spare me their time. While others wanted to undermine my work and show me that they were more knowledgeable. I only had two such cases and it turned out that one of them was not the right person for the interview while I was not able to see because he had a busy schedule. The fact that I conducted my research in the rural areas where few go to do research also made some of my research participants open up to me as they felt they had information which would be beneficial. In this regard the nature of power relations that manifested were unequal as well as asymmetrical. So I made sure to adequately prepare for these encounters to ensure that the quality of the information I get from them was not compromised.

Dowling (2000) argues that, one cannot rule out issues of power relations during research because it is part and parcel of social interactions of which qualitative research is one. Since I realised at an early stage that power relations issues are inevitable during field work, in the case of the small scale farmers, I endeavoured as much as possible to make them aware of the fact that giving honest responses from the knowledge they had about the phenomenon under study would be very insightful in the research findings thus being reflective of their interpretation of reality. In the case of the elites, and in high socio-economic strata, awareness of the potential existence of unequal power relations I made sure I adequately prepared before embarking on the interview so as not to be seen to be wasting their time and also to be able to engage with them at that high level.

I made adequate preparation prior to the interviews and this helped me in power negotiations during the interviews from unequal to reciprocal. As Dowling (2000) suggests, I incorporated reflexivity throughout the whole research process thus I allowed for flexibility which enabled me to make modifications as need arose.

With regard to subjectivity, it is impossible for qualitative research to be strictly objective because all researchers bring to the study their 'personal histories' and worldviews Dowling (2000, 31). So according to Dowling (2000) the concept of subjectivity is an acknowledgement by the researcher that these aspects about themselves will be introduced into the research by virtue of it being a social encounter. With respect to the phenomenon under study, since I originate from Nyimba district, I was an insider. This presented both

advantages and disadvantages during the field work. It was advantageous because, as an insider, farmers felt free to speak to me and offer relevant information for the study as language and natal place were my assets in this context, thus the two were helpful/resourceful in creating relations of trust.

The disadvantage of being an insider in my case arose from the fact that I was empathetic with my kinsfolk. For example, as an insider, I am personally involved in the topic of study as most of my family are small scale farmers. So I had first-hand experience of their predicament. From the little that I know, I am sympathetic to their lamentations that things are not as good as they used to be in the olden days when they had to sell to the NAMBOARD (a government parastatal which was in charge of buying grain from the farmers). This as Kitchin and Tate (2000) argue has the problem of introducing biases into the view point and the selection of criteria or issue of study. However, with this prior knowledge of the problem, I was cautious to ensure that this problem does not affect the outcome of the research. As the saying goes, to be forewarned is to be forearmed. Thus I adopted an open minded approach during the whole research process and thesis writing.

3.10 Ethical Considerations

Ethics in research is concerned with the researcher's 'responsibility to research participants with regard to matters of privacy, informed consent and harm' (Dowling 2000, 24). With respect to privacy, as I used a recorder and took field notes, I was very careful to ensure restricted access to them in order to ensure the privacy of the research participants (Dowling 2000). It is also acknowledged that using a recorder in a rural setting during interviews and FGDs might influence the kind of data the participants may give. Thus before starting the interview or FGD, I sought prior permission from participants so as to foster a rapport atmosphere in order to dispel any fears about security issues the participants might have had because of recording the conversation. In addition, in the case of the those informants from organisations most especially, I sought prior permission in the event that a need arose to quote them in the research because of the difficulty of ensuring anonymity in their case (Dowling 2000). So only those who gave their consent have their identity revealed. Thus anonymity was highly guaranteed.

In order to get informed consent, I availed the research participants with the necessary information about the essence of the research and their role in the research (Dowling 2000).

Those that could read were availed with both written text and word of mouth of the same, while the illiterate were informed verbally. This was done to ensure that they knew what they were involving themselves into and that all the parties involved in the research knew their roles. The clear definition and execution of roles by all the research participants, researcher assistant and I inclusive also assisted in reducing biases in the study

To ensure that neither the research participants, research assistant nor I were not exposed to either physical or social *harm*, I tried my best to do the right thing by observing all protocols throughout the field work and presentation of the findings (Dowling 2000). In addition, I will endeavour to share the findings of the study with all the research participants.

3.11 Validity of Data

Issues of validity according to Kitchin and Tate (2000) pertain to ‘the soundness, legitimacy and relevancy of theory and its investigation’ (2000, 34,). To systematically consider the issue, they categorise validity into two broad categories, those related to theory and the other related to practice, which Mikkelsen (2005, 193) refers to as ‘communicative validity’ and ‘pragmatic validity’ respectively. To ensure validity of my research findings the following actions were undertaken: First, fortunately for me, I speak Nsenga and Chewa the local languages spoken in Nyimba, this enabled me to communicate with the research participants effectively. That is not to say there were no situations when the Nsenga equivalents/expressions escaped me because such cases where there or when they said things I did not understand because of my language limitations. As I have said such situations where there but when it happened, my research assistant who is a native of the area and is up to date with the language came in handy to clarify things both for me and the research participants. In addition, when I arrived in Zambia I made enquiries about the definitions or expressions of some of the words that I was not too sure about before leaving Trondheim in order to get the current local expressions/words so as to avoid misunderstanding when I finally got to the field. This strategy proved very useful because I had very few problems related to such issues and when they did arise as already mentioned the research assistant came in handy to clarify.

Second, I adopted qualitative methodology in because of the claim that as an approach, it takes a holistic view especially with regard to the emphasis on ‘processes, relationships, connections and interdependency among the component parts’ (Denscombe 2003, 84 quoted by Boolsen in Mikkelsen 2005, 125). Thus through the tools and techniques that this

approach provides I was able to gather data that would be able to bring out the salient issues/aspects which I would not if I had used the quantitative methodology. For example, by focusing on only a few farmers, I was able to go into detail about the phenomenon under study and get the experience of the farmers as opposed to suggesting responses to them which would have been the case had I used the questionnaire.

Third, besides interviews, I conducted a focused group discussion with some farmers for triangulation to ensure that what has been missed and/or taken for granted is incorporated. In addition, as the field work was conducted at the government maize marketing season had opened I was able to observe both private and government maize market mechanisms. I also took photographs which also further portray the reality on the ground.

Four, I recognised that transcription of tape recordings by virtue of being a translation of what is communicated both verbally and non-verbally during the interview to written text should not be assumed to be exact reflections of the original conversation (Kvale 1996). Power to charge my laptop battery was a challenge so I did not type my transcript until I left Nyimba. However, this was a blessing in disguise, as I ended up transcribing the tape recordings twice. I decided while in Nyimba to have a hand written transcript done together with my research assistant. The reason for this decision was, he best knew language and the jargon so it was better for him to translate them before I left as I did not want to have a problem of not reaching him by phone because he lives in an area where mobile telephone network is difficult. In the whole process, I was able to counter check the transcript with the tape recordings as I went about to type. I noted a few omissions which I then included.

3.12 Reliability of Data

Reliability is a concept which has to do with the extent to which the results of the research would be the same if a similar study was undertaken using the same approach (Kitchin and Tate 2000). As people who are the object of study are dynamic it is hard to guarantee reliability of the findings. Besides the research findings as pointed out by Crang and Cook (2007) ‘... speaks to a unique group of people at a specific moment in time’ (2007, 146). In addition, they speak about issues of the researcher’s own baggage which she/he brings to the research process. This is important because it takes cognisance of the uniqueness of research participants and researcher alike. This therefore also explains why different results might be obtained by different researchers undertaking similar research. This being the case does not

imply that rigor will not be observed. Further by transcribing the tape recordings twice first using only the tape recording, secondly using the tape recording and the hand written transcript I was able to spot omission which I included in this way rigor in the process of highlighting the fact that rigor to ensure that whole was undertaken in a transparent manner is assured.

I also assured the research participants about the confidentiality issues which in a way made them open to air their views and share their experiences. Striking rapport was easy because I was in the company of someone they knew and trusted (the research assistant). I also think his company helped in facilitating their speaking the truth for fear that he would question them if they did not since he knew them.

3.13 Summary

Qualitative research methodology is used in study for both data collection and analysis. A case study approach was used in this study. The study drew upon both primary and secondary sources of data. The main study limitations were time and financial constraints, technical challenges and getting access to some of the secondary research participants. I also share my experiences.

CHAPTER FOUR

Production of Maize in Nyimba District, Zambia

4.0 Introduction

This chapter is an account of the research findings focusing on the production of maize in Nyimba district, Zambia. In the first section I present a description of the various agricultural activities that the respondents are engaged in. The second section is a description of the technology that the SSFs use in their maize farming. In the third section I describe how the SSFs access inputs such as fertilizer and hybrid seed and the challenges they encounter to access the same. The fourth section is a description of the primary research participants' motivation for joining farmer groups. In the fifth section I describe the differences in yield between local maize and hybrid maize grown by the SSFs. In the sixth section I present a brief description of how the SSFs I interviewed store their maize. In the seventh section I describe and discuss the cost and returns of maize farming. Section eight is a summary of the chapter.

4.1 Agricultural Activities

The SSFs interviewed were involved in several agricultural activities such as growing of traditional crops, gardening, rearing of livestock, bee keeping, and agriculture related wage labour. A brief description of these activities is given below

4.1.1 Rain Fed Crops

All SSFs who were interviewed engaged in the cultivation of a variety of crops. Thirteen of them entirely depend on rain to carry out their farming activities; two were also engaged in gardening using water from the streams in the cold and dry seasons. The crops grown during the rainy season include beans, cassava, cotton, groundnuts, maize, and sunflower. Apart from maize, groundnuts and sunflower are the most commonly grown crops.

Maize

The maize seed varieties grown can be broadly categorised into two: hybrid varieties and local maize variety which is popularly known as *nseenga*. All the fifteen SSFs interviewed grow hybrid maize. Five of the SSFs interviewed do not grow the local maize variety in addition to the hybrid maize variety, so that ten SSFs grow both local maize and hybrid varieties.

The five SSFs who grow only hybrid maize variety grow it for home consumption as well as for sale. The reasons for this course of action include: **first, changing rainfall patterns**. Of the five SSFs, three argued that with the current changing rainfall patterns crop failure with *nseenga* is more prevalent than hybrid. This is because there are customised varieties like early, medium and late maturing varieties. This being the case one finds that whatever happens weather-wise he/she is assured of harvesting something from any of the three varieties. Apparently, this is not the case with *nseenga*, as when the rainfall patterns are not favourable, a farmer suffers loss. For example, one SSF said ‘we have sidelined *nseenga* because of the changing rainfall patterns. With hybrid, even when the rains are not enough, you will harvest something at least as opposed to local maize which when the rains are not enough, you will have severe crop failure that’s why hunger was rife’. SSFs have turned to hybrid varieties because it is a hedge against total crop failure. For instance, another SSF said ‘should one variety perform badly, *uzafuzila kuliyenangu* (you will be relieved through the other varieties)... So when there’s drought, you will get relief from the early maturity’. The other advantage of hybrid that was highlighted was the fact that it does not require many days to mature. For example, one SSF said ‘when there is insufficient rains, the yield of local maize is low, whereas that of hybrid is relatively good because it doesn’t require a lot of days for it to mature’. Apparently, local maize takes longer (about 90-120 days) to mature than hybrid.

On the contrary, JAICAF (2008) argue that given the changing weather conditions, there was no difference in yields between hybrid and local maize. And yet local maize is grown cheaply as few inputs are used. For this reason they propose the intensified use of local maize to ‘better avert the risk posed by drought and other adversities’ (p4), as it is most convenient given the changing weather patterns.

Second, **hybrid varieties give high yield with or without fertilizer**. The argument here is that regardless of whether one uses fertilizer or not, the yield for hybrid is still higher than that of local maize. So the SSFs harvest a lot of maize. For example, one SSF said ‘the difference is when you grow *nseenga* on 1Lima you expect to harvest 12 bags, but in the case of hybrid, you expect to harvest about 20 – 25 bags from 1Lima ... If the land is fertile, the yield is still as if you have applied fertilizer. But if the land is not fertile, the yield is not good. Anyhow, the yield for hybrid is still higher than that of local maize’. This is the case where maize is grown under proper management. However, according to MACO the

expected yield per *lima* for hybrid maize grown with fertilizer and good management is between 15-20 bags (50kg) (Donovan et al 2002).

Some of reasons the SSFs gave for not discarding *nseenga* completely include: first, '**better safe than sorry**'- one SSF quoted a local proverb which says “‘*osataya chi kabudula chakale, chanyowani pakine chingambike lombapano chisile* (don't throw away own pants or shorts because you never know whether the new pair of pants will soon get torn and be good for nothing)’” as the reason she would not abandon local maize entirely for hybrid. She has several years of experience with local maize and sees it as more reliable than hybrid with which she has little experience, so she still clings to *nseenga* for that reason. Her comment suggests that she is risk averse. Second, **lack of willingness to bear fertilizer costs and fear of crop failure in case of bad weather**- A MACO official in commenting on the issue said 'he (SSF) would think of if I grow hybrid I will be buying fertilizer, “where do I get the money? and in case the rains are not okay, hybrids are a problem as they will all be wiped out”. So he would go for a one *lima* (a quarter of a hectare) or one hectare local maize which will give him less than what he was supposed to get from one *lima*'. If hybrid was cultivated the extra costs involved and the higher risk of crop failure in case of poor rains makes SSFs to continue growing the more reliable but low yielding *nseenga*. This line of argument is challenged when one factors in the issue of different hybrid varieties such as early, medium and late maturing varieties mentioned above.

For the ten SSFs who grow both maize varieties, *nseegna* is grown for home consumption while hybrid is grown for sale. The SSFs based their decision to distinguish the purposes for the two varieties on several factors. For example, they said they choose to grow *nseenga* for home consumption because:

- the *nseenga* grain is hard thus difficult for weevils to destroy;
- *nseenga*, does not require chemicals to store for long time;
- the grain is heavier than that of hybrid thus one gets more maize meal and less maize bran from it compared to hybrid;
- the maize meal made from it is whiter than that of hybrid.

With respect to hybrid, they said they choose to grow hybrid for sale because:

- the hybrid grain is soft thus easily attacked by weevils by September/October/November.
- fear that the grain would be infested by weevils;
- they do not have funds to buy chemicals to protect the grain from attacks by weevils;
- they do not have proper storage facility in which to store the grain; and
- it gives high yield thus is good for business.

The argument here is that hybrid is not easy to store but is bountiful. So in order to make money from it, one has to sell it as it would go to waste if no extra care is taken. The precautionary measures that have to be taken have financial implications.

Groundnuts

Fourteen of the SSFs interviewed grow groundnuts. Out of the fourteen, only two of those who grow the crop said they grow it solely for sale. Six of them said they grow groundnuts for sale as well as for home consumption. Whereas six of them said they grow the crop solely for home consumption.

Sunflower

Nine of the SSFs interviewed grow sunflower. Of these nine, three grow sunflower purely for home consumption, one grows it solely for sale, two grow it for subsistence purposes, while the remaining three grow it with the intention to both sell and consume some at home. Some in this last category process the sunflower into cooking oil before selling it while some sell it unprocessed.

Cassava

Out of all the SSFs interviewed only three grow cassava. All the cassava growers grow the crop for both home consumption and for sale. Not much of the crop is grown.

Cotton

At the time of the fieldwork, only three farmers were growing cotton. And all of them grew the crop under the out-grower arrangement, whereby they were contracted by cotton

companies to grow the cotton on the companies' behalf. These companies provided the farmers with the necessary inputs and after harvest buy the crop off the farmers. It is at this stage that the cotton companies recover the costs of inputs they gave the farmers to grow the cotton. Some of the SSFs interviewed used to grow cotton but stopped citing low prices and that the crop is difficult to grow as the reason for stopping. For example, one SSF said 'that's why the company has realised and increased the price in order to attract farmers.' Apparently several people had stopped growing cotton because of low prices. One SSF, a 70 years old widow said '... elders ... cannot manage to grow cotton because cotton farming is very difficult'. In comparison to maize farming, apparently cotton farming is too demanding and/or involving thus the older people shun the crop.

4.1.2 Gardening - (Irrigated Crops)

Only two of the SSFs interviewed grow beans. Both of them grow the crop for sale.

Of all the SSFs interviewed, only two were also engaged in gardening. They did this agricultural activity during the cold and dry season. This is the period when most of the other farmers rested from their labour. Gardening is mainly done by those who have pieces of land along the banks of streams or rivers. The farmers use watering cans to draw water from the stream/river to water their crops. The crops cultivated include cabbage, onions, rape, tomatoes to mention but a few. The farmers who engage in this activity argue that it is very profitable compared to maize farming because from a small portion of land one is able to earn a lot. For example, one SSF argues that 'when I plant 1,000 head of cabbage and I peg them at a giveaway price of ZMK1, 000.00 (USD) 0.20); it means I will have ZMK1, 000, 000.00 (USD201.05) on a small piece of land. But for me to get ZMK1, 000, 000.00 (USD201.05) from my maize field I will need a large piece of land. So the advantage of having a garden is you cultivate a small piece of land but you reap a lot of returns'. He argues in terms of the surface area and the crop that can be planted. The other farmer involved in gardening argues that 'when I use 4 bags of fertilizer in the field, I don't think it gives me ZMK2, 000, 000.00 (USD402.10) but here at the garden when I use 2 bags I am able to raise ZMK2, 000, 000.00 (USD402.10)'. His argument is that besides cultivating on a small piece of land, the amount of fertilizer needed is less but the returns high.

Months											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainy Season (<i>Mainza</i>)				Cold Season (<i>Mwela</i>)			Hot & Dry Season (<i>Chisalo</i>)			Rainy Season (<i>Mainza</i>)	
Nseenga (Local Maize)									Nseenga		
Early Maturing											H Y V
Medium Maturing										HYV	
Late Maturing HYV											
Groundnuts								Groundnuts			
Sunflower									Sunflower		
Cassava											
Cotton									Cotton		
		Vegetables									

Figure 3: Crop Calendar showing crops grown by SSFs in Nyimba District

Source: 2010 Fieldwork (Interviews)

SSFs start preparing their fields in August up to October. Maize planting starts as early as October to the first week of January. For those SSFs who start planting in October, *nseenga* is the maize variety which they plant because it takes a long time to mature. However, most of the maize is planted in November and December. Some SSFs plant early maturing hybrid varieties in November while other plant during the first week of January. The cultivation period of maize which last from November to April is true for the rest of the maize growing areas in Zambia (JAICAF 2008). Maize is normally harvested in May and June. However, some people sometimes start harvesting as early as April. Planting period for groundnuts is similar to that of maize. Groundnuts are usually harvested in April and May. The planting period of sunflower starts in November all the way to February, while harvesting is done in June. Cassava is planted in February and March and harvested the same period the following year. JAICAF (2008) cite this long period cassava takes before it can be harvested as the

reason why the crop is not highly favoured. Cotton is planted in November and December, and then harvested in May and June. Vegetables are mostly grown from March to October.

4.1.3 Livestock Rearing

All the SSFs interviewed reared at least one form of livestock. The livestock reared range from chickens, to ducks, goats, pigs and cows. Cows and chickens are the most reared of all the livestock highlighted. Eleven out of fifteen SSFs interviewed reared cows. The reasons given for rearing cows include provision of milk; to assist in field work such as ploughing, planting and weeding; means of transport; and sometimes source of meat because SSFs rarely slaughter cows. With respect to help in field work, during land preparation the oxen are used to pull the plough. With respect to planting, the oxen pull the plough which rips the ground and the farmer follows behind sowing his/her seed in the ground so ripped. When it comes to weeding, oxen help in making ridges in the maize fields by pulling a ridging plough that is attached to them.

Ten of SSFs interviewed reared chickens. Chickens are usually reared as a source of food as well as for sale. Only seven of SSFs interviewed reared pigs. Pigs are reared for home consumption in ordinary times and also on special occasions such as funerals or weddings. Pigs are also sold in order to raise money to meet pressing financial needs, and/or used as payment for hired labour during rainy season when people are hired to work in other people's fields. Five of the SSFs interviewed reared goats. Goats are reared for reason similar to those for rearing pigs. Only one of the SSF interviewed reared ducks. Most SSFs have suffered loss in their livestock due to livestock disease outbreaks. Chickens and pigs are the livestock most seriously affected by these diseases outbreaks.

The livestock like the crops SSFs grow serve several purposes such as source of food and income as well as being used as payment for labour power. Thus the SSFs have diversified sources of income from agricultural activities.

4.1.4 Bee Keeping

Only one of the SSFs interviewed said he was also engaged in bee keeping for business, though at a very small scale.

4.1.5 Wage Labour in other Farmers' Fields (Non-Farm Activity)

Only two of the SSFs interviewed do agricultural related wage labour in other people's fields, while the rest of the SSFs interviewed said they actually hire people to work in their fields and maize is the payment given for wage labour supplied. For example, one SSF said 'I tell people to work in my field and I give them a tin of maize'. This form of wage labour is common during the rainy season when there is both food shortage and farmers need help with field work. Payments received for wage labour is either maize or cash. Those who engage in wage labour to earn some money do it to meet some pressing financial needs such as money to mill the maize. For example, one SSF, a father of eight children said 'when we encounter a problem but hear that someone is looking for piece workers, we go and till the land for them and thus earn the money to enable us mill our maize'. The SSFs who engage in wage labour to get maize do it because they have insufficient or run out of their maize stocks. For instance, one SSF said that 'he/she is desperate and cannot go home empty handed since there is completely nothing there.' Shortage of the staple food makes some people to engage in wage labour.

4.2 Technology Employed

The SSFs interviewed still used traditional tools such as hoes and ploughs. This is also true for SSFs in most other parts of Zambia and Malawi (JAICAF 2008). All the SSFs as already mentioned grow hybrid maize seed. All the SSFs applied fertilizer to their crop except for one. The reason which was given for not applying fertilizer was lack of money to afford the fertilizer. All those that used fertilizer applied it to hybrid maize, as it is believed that *nseenga* does not need fertilizer. For example, one camp extension officer said 'local maize doesn't require a lot of fertilizer. In fact if anything, it doesn't require any fertilizer because even if you apply fertilizer, there is no impact.' (The belief is that regardless of whether one applies fertilizer or not the yield is still low.) So instead of wasting fertilizer on *nseenga*, SSFs choose not to apply it in the first place. Only those SSFs who cultivated fields that are believed to be degraded applied fertilizer to *nseenga*. For example, one SSF who cultivates fields which were handed down to him by his parents said 'we use fertilizer on *nseenga* also because the soils here are not fertile anymore. There are other areas where you don't need to apply fertilizer on *nseenga* or even hybrid to get high yield not this area, where I am the fifth generation and I also have my own children who will inherit the same land'. The perception of the soil fertility to a large extent determines the use of fertilizer on the crop whether hybrid or *nseenga*.

4.3 Fertilizer and Seed (Inputs)

The SSFs main sources of inputs are the government through Farmer Input Support Programme (FISP), the private retailers, and the farmers' organisations. All the SSFs interviewed were beneficiaries of FISP. These inputs were accessed through the different farmers' organisations in which the farmers were members. Fourteen of the farmers interviewed were users of fertilizer except for one who did not use due to lack of funds. While most farmers mainly depend on the FISP for their inputs some buy extra from the private retailers in Nyimba Boma, Petauke or Chipata. The government under the FISP has been selling seed and fertilizer to SSFs who are members of farmers' organisations. The government sells the inputs in packs. When the programme started a pack had eight bags of fertilizer and a 10kg bag of seed. However, for the 2009/2010 farming season the pack was reduced to four bags of fertilizer and 10kg bag of seed in order to increase the number of SSFs accessing the inputs (Musokotwane 2009b). One camp extension officer said 'before last year [2009], farmers could get 4 bags of D compound and 4 bags of Urea. But then looking at the number of farmers in need of inputs, they [government] thought of reducing, instead of giving them [SSFs] 8 bags, they gave them 2 bags of D compound and 2 bags of Urea.' The price for a bag of subsidised fertilizer was ZMK50, 000.00 (USD10.05), while that of seed was sold for ZMK63, 000.00 (USD12.67). For these inputs acquired through the FISP farmers had to pay cash.

The government has influenced the employment of fertilizer and high yielding maize seed varieties by the SSFs through FISP. This is not any different from what used to occur before the implementation of the liberalisation policy in the 1980s. Govereh et al (2008) argue that SSFs increased their use of inputs such as fertilizer and hybrid maize seed varieties during the 1970s and 1980s. They also add that consequently the output increased during the same period.

SSFs highlighted a number of problems associated with the FISP. First, they said that access to the government subsidised inputs was restricted to farmers belonging to farmers' organisations. For example, one SSF's sentiments were 'the badness of that government subsidised fertilizer which comes is it is only given to those who are members of cooperatives, meaning that if you don't belong to a cooperative you can't buy that fertilizer.' This means that SSFs who are not members of any farmers' organisation had to buy inputs at the ruling market price from the retail shops.

Second, the FISP did not supply farmers' organisations with subsidised input packs according to the number of members in the farmers' organisations. For example, the research assistant said that 'as Pamodzi farmers' group we have a membership of 32 but they gave us 5 packs'. The allocation of packs per farmers' organisation is not based on number of members or people who are able to afford the inputs. Moreover farmers are not given inputs as per their requirement.

Third, related to this issue is the fact that each farmer who is lucky as to be sold the inputs is restricted to one pack. For example, one SSF said that 'we are not given according to our need but forced to get only 4 bags. Those are inadequate resulting in some part of the maize goes without fertilizer.' This means that for those SSFs who entirely depend on FISP for access to inputs some of their crop has to do without fertilizer. However, some people found ways of going round this hitch by buying on behalf of those who had money but were not allowed to buy more than a pack. For example, one SSF got an extra bag of seed through this way and said that 'some people buy from the cooperative and sell it to their friends'. Some SSFs turn to their social networks to help them in accessing the inputs. Some farmers' organisations in their quest to serve every member dismantle the packs and issue fewer bags. For example, one SSF said 'we got two bags from the club. Ideally each person was supposed to get four bags. But because we are many in the club we had to spread the number of bags among all the members.' The insufficient number of packs delivered to the organisation resulted in the organisation's leadership taking this initiative. This further reduced the amount of fertilizer available to each farmer.

Fourth, FISP does not respect the rules of farming. For instance, one SSF said 'they don't follow the rules, not only do they bring the fertilizer late but they bring top dressing first and later bring basil.' The inputs are delivered late and the sequence of delivery for fertilizer is wrong. This distorts the farming programme of farmers.

With respect to private sector supply of inputs, the SSFs said they had problems with access to inputs generally. One of the problems they highlighted was scarcity of inputs in the rural areas. For example, one SSF said 'when you go to the shops at Nyimba Boma, at the time you want the seed, you find that at times the variety you want is not there.' There appears to be scarcity of some hybrid seed varieties.

Related to this, is the problem of few input outlets in Nyimba. This problem was also recognised in the Agricultural Inputs Marketing (AIM) Plan (GRZ 2005). It is stated in the plan that distributors of fertilizers and seed are mainly located in cities. For instance, one SSF said ‘[t]here are very few points where to buy the inputs. Sometimes when you prepare to buy you find that they don’t even have the products. Most of the times these inputs are found in cities where there are no farmers instead of the rural areas where the farmers are.’ Nyimba is not adequately supplied with inputs by the private sector. On the same issue a MACO official said ‘for Nyimba we only have one major outlet who is an Indian, Gulamu. So if he doesn’t have fertilizer, for you to access it, it becomes a problem. For the other one, Omnia, it depends on, normally it brings fertilizer when it is bought by the government and it sells the leftovers.’ The provision of inputs in Nyimba can be said to be by two institutions, government through Omnia its agent and Gulamu. However, some company Panar, found some agent in one of the villages and supplied seed to the villagers. For example, one SSF said ‘Panar volunteered to be our agents so they promised to be supplying us’. This measure serves those SSFs who choose to grow Panar hybrid seed.

The SSFs also raised the issue of distance as one of the problems they were experienced in accessing inputs. For example, one SSF said ‘the problem is the distance to the place where we buy these inputs. For example, you will find that one has to travel to Nyimba Boma or Petauke to buy inputs.’ Transportation cost is an issue for farmers who do not live within Nyimba Boma but have to buy inputs from the retail shops. In the case of the inputs provided by FISP, transport is not an issue as one SSF pointed out ‘they bring these inputs at our door steps instead of us looking for money to go to Nyimba Boma to buy these things.’ The provisions of inputs by FISP means no transport cost, thus most preferred.

Some farmers’ organisations also sell seed to their members for cash as well as credit basis. However, SSFs who buy seed on credit basis are asked to pay back a specified number of bags of maize after they harvest. For example, one SSF said for the 2009/2010 farming season ‘they [cooperative] gave us 10kg bag of seed and we are supposed to pay back 3 Bags (55kg) of maize’. This is some form of loan to the farmers. The price of a 10kg bag of seed at the time was ZMK125, 000.00 (USD25.13) while that of maize was ZMK1, 300.00 per kg. This means that this farmers’ group sold the 10kg bag of seed to its members at ZMK214, 500.00 (USD43.13). It follows that the SSFs paid back ZMK89, 500.00 (USD17.99) more for a 10kg bag of seed which was costing ZMK125, 000.00 at the time the SSF bought it on

credit. When time value of money is taken into consideration, assuming that the SSFs paid back after seven months, it turns out that the SSFs pay interest of about ZMK34, 776.11 (USD6.99).

SSFs' opinion of the prices of inputs was varied. Of course all the farmers said the prices of the subsidised inputs were affordable. One SSF said 'the goodness of FISP is, fertilizer is cheap and you can manage to buy fertilizer to enable you cultivate'. The low price would ideally enable many to employ the technology in their farming. However, there were varied views about the prices of inputs bought from the private retailers. Commenting on the prices of seed sold by private retailers, one SSF, a former seed grower, argues that 'seed prices are okay because what one spends to grow seed is a lot.' His knowledge of what it takes to grow seed made him reach that conclusion. One SSF's views on the issue were 'I think the prices are okay, because those Indians are in business, so they cannot sell at the same price as the government which is not there to make profit'. The business motive behind the provision of inputs by private retailers should be recognised.

In contrast, the majority of the SSFs interviewed said that the prices of inputs sold by private retailers were expensive. For example, one SSF's assessment was 'it's expensive when you buy from the shops, but in the case of those sold by government, the prices are much better. For example, the government was selling Panar seed at ZMK63, 000.00 (USD 12.67) per 10kg, but the same was costing ZMK125, 000.00 (USD 25.13) per 10kg in the shops. It was the same thing in the case of fertilizer, the government was selling fertilizer at ZMK50, 000.00 (USD 10.05) while in the shops the price was as high as ZMK186, 000.00 (USD 37.40)'. A comparison of the prices gave the indication of the differences which made the farmers to reach their conclusion.

4.4 Membership in Farmer's Organisations

There are three main types of farmers organisations in Vizimumba Camp namely: Cooperatives; Information Centres (under Nyimba District Farmers' Association [Farmers' Union]); and Legal Women's Clubs (camp extension officer). All the SSFs interviewed were members of some form of farmers' organisation.

The main reasons the farmers gave for joining the farmers' organisations they were members of included: 'We joined this group in order to receive fertilizer because our friends were getting fertilizer which is given only to group members' (Phiri); 'whenever, agricultural

officials came they said things will be given to groups thus if you are a member you will benefit. That is what led me to join' (Tembo); 'for those of us who don't have money, when you get seed for *gamphani* it helps you in your farming' (Mwanza); 'the main reason was to learn from my friends and thus be better equipped to take care of my family' (Tembo); 'gain knowledge (*maphunziro*) using our extension officer coming to teach farmers about how to go about farming' (Njobvu); 'I went to join a cooperative which was active so that I would get information as you know you can't be in farming without information' (Banda); 'I joined after seeing that our friends were being taught as a group' (Daka). In a nutshell the major reasons the majority of the SSFs joined their respective farmers' organisation was in order to access the subsidised inputs, access inputs such as seed on credit, and gain knowledge about new farming techniques.

4.5 Difference in Terms of Yield between *Nseenga* and Hybrid

Generally the observation by the farmers was that the yield for hybrid is higher than that of *nseenga* with or without fertilizer. Govereh et al (2008) also found that in all cases the yield of hybrid seed varieties is always higher than that of local maize even if fertilizer is not applied. To determine the differences in yield some farmers count the number of lines per cob of maize. For instance, one SSF made this observation 'for local maize, mostly you will find that on one cob there will either be 8 to 10 lines [round the cob], that's all. But for hybrid you will find about 16, 18 to 20 lines on one cob'. Hybrid's yield is usually double or more than that of local maize. Some farmers look at the number of maize bags they harvest from a piece of land. For example, one SSF said 'the difference is when you grow *nseenga*, from a *lima* (quarter of a hectare) you expect to harvest 12 bags, but in the case of hybrid, you expect to harvest about 20 – 25 bags from a Lima'. In this case also, the yield of hybrid is double that of *nseenga*. Contrary to the assertions of the SSF, Donovan et al (2002), in their study argue that for hybrid maize grown with fertilizer, a farmer is expected to harvest 15-20 bags (50kg) of maize per *lima*. So there seems to be no agreement on the yield a farmer can harvest per *lima*.

There are some variations in yield within the hybrid seed varieties. The observation by farmers is that some hybrid varieties produce a single cob per stalk while others produce two cobs per stalk. For example, one SSF's experience is that 'with Panar [hybrid seed variety] no matter how long the stalk is there's always one cob on each stalk. But DK [hybrid seed

variety] has two cobs per stalk thus the difference in yield’. Some hybrid varieties have higher yield than others.

There were mixed answers to the question of the difference in yield in cases where fertilizer was not applied to hybrid. Some farmers said *nseenga* out performed the hybrid in terms of yield in such instances. In response to a question about the observable differences in yield between hybrid grown without fertilizer and *nseenga* also grown without fertilizer, one SSF, said ‘the area where we didn’t apply fertilizer because the 4 bags we bought through the cooperative were not enough considering that our field is big, the hybrid maize didn’t do well, the yield wasn’t good. ... [while] the yield for *nseenga* which we grow without fertilizer was very good’. When the same question was posed to another SSF his response was ‘especially DK, its yield is low. But local maize performs relatively well, because it is not used to fertilizer’. The belief is that since *nseenga* is normally grown without fertilizer, its yield comparatively speaking is relatively better than hybrid grown without fertilizer because it is ideally supposed to be grown with fertilizer. While others maintained, that whatever the case the yield of hybrid is still higher than that of *nseenga*. One SSF’s conclusion is that ‘It [*nseenga*] can’t measure up to the other two [Panar and DK hybrid varieties]’. Whether there are fewer or more cobs per stalk, hybrid yield is still higher than that of *nsenga*.

4.6 Storage

Storage of maize is problematic for the SSFs especially with respect to hybrid varieties. The main problem was that hybrid maize is easily attacked by weevils. For example, one SSF in referring to hybrid said ‘by the time you are harvesting the maize will have already been infested, the insects attack it while it is right in the field. But that is not usually the case with local maize.’ On the same issue, one camp extension officer said ‘it’s [*nseenga*] not easily attacked by weevils because the grain is too hard unlike most of these hybrids; they are dent varieties, so they are attacked easily by weevils’. The genetic makeup of hybrid varieties makes them more susceptible to weevil attack thus problematic to store.

Variations were observed in the way the SSFs stored their maize. There are two ways in which the farmers store their maize, some store it unshelled while others store the shelled grain. Those who store shelled maize used chemicals to preserve their grain. Those who store the unshelled maize, still store in barns made of bamboo. This is the traditional way of storing maize. Of the SSFs who were interviewed ten still stored their maize in this way. The photos

in Figure 4 are typical examples of the traditional maize barns. The traditional barn on the right in Figure 4 is not roofed to allow for further drying of the maize after harvesting



Figure 4: Photos showing traditional barns

Another notable issue was the use of granaries for maize storage. There were two types of granaries of observed. One was made using local materials (Figure 5) while the other was made using cement (Figure 6). The storage of shelled maize by SSFs in personal granaries is relatively new to Nyimba to the extent that few farmers have constructed them. For example, one camp extension officer's observations are that 'very few farmers are constructing these improved structures for storage of maize.' Reasons being some SSFs were sceptical of the viability of the improved granary made using local materials. For instance, one SSF's sentiments about a granary made of local materials were 'there are others who did [constructed the granary], and put their maize in there. But as days went by, they thought their granary was okay but when they checked after some time they found that their harvest was destroyed by termites. In this area there are a lot of hills, and so termites are in abundance and very destructive'. Care needs to be taken to ensure the safety of grain.



Figure 5: Photos showing granary made from local materials



Figure 6: Photo showing granary made of cement

The materials used in the construction of the granary made of local materials are sourced from the environment at no cost. The materials include poles from trees, bamboo, grass, and clay soil for plastering. To keep termites away, farmers spray the poles with termite repellent or paraffin or diesel. In most cases such granary are made by the owners themselves.

However, after asking around, it was discovered that labour charge for someone to make the granary when all materials are provided is ZMK250, 000.00 (USD50.26).

With respect to the granary made of cement some SSFs said it was expensive to construct. One of the SSF who benefited from the UNDP programme which sponsored the construction of the cement made granaries said ‘a lot of money went into its construction because 6 pockets of cement was used, plus labour, sand and stones’. Another beneficiary from the same programme said ‘it took 6 bags of cement, so that if we speculate and compare the prices of cement these days, it was about ZMK72, 000.00 (USD 14.48) or ZMK74, 000.00 (USD 14.88) per bag, now multiply that by 6, you will find that it is somewhat expensive’. None of the two beneficiaries mentioned above have built new granaries even if they have found that the facility stores their grain effectively.

The UNDP supported cement made granary was made like the one made using local materials but instead of plastering with clay soil, cement was used. The other difference is the while the granary made from local materials is placed on tree poles about 60centimetres above the ground, the cement made granary is put on rocks to allow air ventilation so as to get rid of the problem of moisture getting in the granary and making the maize to rot. It was not possible to get the actual cost of constructing this type of granary as the farmers were just beneficiaries so they did not know the actual cost. Moreover, the fact that they have not constructed new ones from their own resources made it impossible to determine the cost of constructing the granary

There was another SSF among the research respondents who constructed a cement granary. However, his granary was made different from the UNDP supported granary. The owner could not give a breakdown by cost of the costs involved to construct it but just gave a round figure of ZMK1, 800, 000.00 (USD361.89). This farmer used bricks instead of bamboos. The other expenses were related to materials such as 10 bags of cement, sand, stones, brick force wire, damp proof plastic, and labour.

4.7 Cost and Returns of Maize Farming

Maize farming is important for the SSFs in Nyimba because it is a main source of livelihood. All the SSFs interviewed said that they grow maize so that they would have food. Besides that reason thirteen of the SSFs said they grow maize with the intention of selling in order to meet their other needs. Three of the SSFs said they grow maize for subsistence and only sell

part of it in times when they have surplus. The elderly argue that they grow maize because it is easy to grow, thus a very convenient crop to grow for them. For example, a 70 year old widowed SSF said ‘maize farming is very helpful and beneficial for us elders who cannot manage to grow cotton because cotton farming is very difficult and/or demanding’. Related to this, a 41 year old SSF said ‘labour involved in producing maize is minimal compared to cotton’. For the ten SSFs who grow *nseenga* the crop does not even require fertilizer and other chemicals for storage, meaning fewer expenses in its production and storage. Thus farmers can produce and store their staple food cheaply.

Other farmers still have argued that maize farming is highly profitable. For example, one SSF said ‘looking at the crops I have been growing, I have seen that we get good money from maize’. Farmers however argue that this is the case only if they sell in a good market. And by good market they mean the government market. Refer to table A2:1 in appendix 2 for details of maize prices per kilo gram. Table A2:1 shows the months when the SSFs sell and to whom they sell their maize based on data for the 2009 and 2010 seasons. The prices for FRA indicated in table A2:1 go beyond the fieldwork period as secondary data indicate that the marketing season went up to October, and since the price did not change the same price applies throughout.

One SSF said that ‘one of the most notable outcomes is ‘we have been able to build this house [made of pan bricks].’ The high returns from maize farming have enabled him to build a house thus he has graduated from living in a mud house. One farmer said that maize farming was beneficial because maize is bountiful. For example, one SSF said ‘if I farm properly, it means I will be able to acquire most of the things I lack, because maize is bountiful’. Proper management coupled with good weather is apparently a guarantee for good harvest. In such times the farmer is assured of earning a lot of money from his farming to meet his/her needs.

In the 2009/2010 farming season, on average a SSF in Nyimba spent ZMK150, 000.00 (USD 30.16) to produce twelve bags of *nseenga* maize (the expected yield from 1 *lima*) when land preparation, planting and weeding is done by oxen. One bag of the same maize would therefore cost ZMK12, 500.00 (USD 2.513) to produce. This is in a case where marketing costs have been ignored because the SSFs said they grow *nseenga* for home consumption. When marketing costs are taken into account, a SSF in Nyimba spent ZMK249, 600.00

(USD50.18) to produce twelve bags of *nseenga*, and ZMK20, 800.00 (USD4.18) to produce one bag of the same maize. Refer to table A2:2 in appendix2 for details.

Several variations were observed in the costs of labour to produce maize as opposed to production using oxen which was almost standardised among the SSFs. The figures given for labour were usually given as a block amount. So to establish the per *lima* charge, the data about the total surface area owned and farmed by the farmer was used to arrive at the approximate payment to labour.

Based on computation in table A2:4 (see appendix2) which shows the cost of production for 25 bags of hybrid maize (expected yield from *lima*) when land preparation, planting and weeding is done by oxen, production costs are presented for both production with use of fertilizer bought from retail shops and subsidised fertilizer. 25 bags of hybrid maize produced with fertilizer bought from the retail shop cost a SSF ZMK620, 000.00 (USD124.65) to produce in the 2009/2010 farming season (exclusive of marketing costs). And a bag of hybrid produced with fertilizer bought from the retail shop on average would cost ZMK24, 800.00 (USD4.99) (exclusive of marketing costs). On the other hand, if the price of fertilizer is pegged at the government subsidised price of ZMK50, 000.00 per 50kg bag, then the cost of production for 25 bags was ZMK374, 000.00 (USD75, 19) and that of a bag was ZMK14, 960.00 (USD3.01) (exclusive of marketing costs).

The computations above indicate that the cost of producing a 50kg bag of *nseenga* which stands at ZMK12, 500.00 (USD 2.51) is lower than that of producing a 50kg bag of hybrid maize using subsidised fertilizer which is ZMK14, 960.00 (USD 3.01) if the yield per *lima* is 25 bags or ZMK24, 933.33 (USD5.01) if the yield per *lima* is 15 bags. The difference in costs is even higher when the marketing costs are taken into account. The question therefore is why would the farmers opt to grow hybrid when it is more expensive to produce than *nseenga*?

One of the possible explanation could be that *nseenga* is too laborious to grow. For example, one SSF said that ‘when you plant local maize in an area like ours which has a lot of grass, when there is plenty of rain, if you don’t weed twice, all the stems will become canes without any cobs.’ In other words, what she was saying is, too much rain entails double work for *nseenga* growers. This could be the case because *nseenga* takes long to mature. In commenting on the issue one SSF said ‘*nseenga* and hybrid differ in their growth. *Nseenga*’s growth is slow that even the *Kaloi* weed would catch up with it. But hybrid grows very fast

and matures quickly whereas *nseenga* is slow to mature and doesn't even grow that well.' What is not clear though is if this is only true for people who cultivate in areas where there is a lot of grass or not. Anyhow, the SSFs' statements above allude to the fact that a farmer would have to weed twice which brings in an element of double time and weeding costs required to produce *nseenga*. Besides the time issue, the other issue this raises is that of effort expended. By singling out *nseenga*, this suggests that the cultivation of hybrid is not as laborious as *nseenga* cultivation. This could explain why the SSFs would opt to cultivate more hybrid than *nseenga*.

The other possible explanation for SSFs opting to produce hybrid when it costs more than *nseenga* to produce could be attributed to poor record keeping of the costs incurred to produce the maize. Only seven SSFs interviewed kept a written record of the costs they incurred to produce their maize. For the rest, they could recall by heart what they spent in terms of explicit costs but for the implicit costs no cost were attached. Those who kept record of their costs are those who went through some training of how to run a business where keeping record of costs was one of the topics taught. Some of the farmers who did not keep records too went through the same training but did not practice what they learnt sustainably for example, one SSF 'I stopped [keeping record] because even the ones who used to go round to ensure that we record have stopped visiting us, We have even forgotten how to do it'. A lapse in extension services among others seems to have contributed to the SSFs not continuing with record keeping besides the farmer's own forgetfulness.

Table A2:6 shows the net returns for the two varieties, that is, *nseenga* and hybrid. The table has been computed to show the net returns for production when both labour and oxen are used for land preparation, planting and weeding in the production of both hybrid and *nseenga* maize varieties. Further, in the case of hybrid, the table shows net returns for both productions with subsidised fertilizer and with retail priced fertilizer. Two prices are used to calculate the total returns: FRA price and the private traders' price prevailing at the time the research was undertaken (see table A2:1 in appendix2). The total costs figures have been imported from tables A2:2-5 (see appendix2).

The computations in table A2:6 suggest that overall the SSFs would receive higher net returns per bag if they sold *nseenga* than they would from selling hybrid, regardless of whether they used either labour or oxen in the production of the maize. Another general

observation is that whether labour or oxen are used in hybrid maize production, the SSF make losses if they apply fertilizer acquired from the private retailers. Conversely if the SSFs use subsidised fertilizer in their hybrid maize production, they have positive net returns. In addition, the other observation is that the SSFs who use labour in hybrid maize production are better off in terms of net returns than those who use oxen, whether in terms of losses or returns. However, net return is also highly dependent on the price received when sold and this is discussed more in detail in chapter five.

The picture is different if one were to just focus on net returns per *lima*. The computations in table A2:6 suggest that on average maize production using labour gives the SSFs highest returns. This is the case whether the SSFs sell their maize to the private traders or FRA. Another observation is that hybrid maize production using either labour or oxen and making use of market priced fertilizer gives the SSFs negative returns when they sell their produce to private traders. Conversely, hybrid maize production using subsidised fertilizer gives the SSFs higher returns regardless of whether they uses labour or oxen. Table A2:6 also indicates that production of maize is most rewarding when the SSFs sell their maize to FRA. What this suggests therefore is that access to subsidised inputs and/or access to FRA market are pivotal to profitable growth of hybrid maize.

It could be that it makes sense for SSFs to focus on net returns from their entire piece of land and not net return per bag. Thus their decisions on what maize variety to produce could be based on the same.

4.8 Summary

Maize farming is one among many other agricultural activities which the SSFs do. The SSFs still use traditional tools such as hoes and ploughs. Of the crops grown by the SSFs maize is one of the major crops on which they rely for their home consumption as well as income. Both hybrid and *nseenga* maize varieties are grown but former is the more dominant of the two. Hybrid is mostly grown for sale while *nseenga* is mainly grown for consumption.

The government through FISP is the SSFs main supplier of inputs. All the SSFs were beneficiaries of FISP. It was for this reason that all the SSFs joined the farmers' organisations besides gaining farming knowledge. Apart from being the conduit through which SSFs accessed subsidised inputs, farmers' organisations also sold seed to SSFs either on cash or

credit basis. Some few SSFs in addition accessed the private retailers. Generally, SSFs apply fertilizer to hybrid and not to *nseenga* except in areas where soils are believed to be degraded.

With respect to yields, overall, SSFs were of the view that the yield of hybrid is higher than that of *nseenga*. However, they are divided about which of the two varieties' yield is higher when hybrid is grown without fertilizer. Generally SSFs have encounter storage problems especially with respect to hybrid which is susceptible early weevil infestation, as most of them still use tradition storage facilities and methods. The study indicates that *nseenga*'s cost of production is lower than that of hybrid and yet the SSFs prefer to grow hybrid for sale. Access to subsidised fertilizer and/or FRA market is pivotal to profitable production of hybrid.

CHAPTER FIVE

Part I: Maize Marketing in Nyimba

5.0 Introduction

Maize marketing in Zambia has undergone several transformations. Nyimba District is no exception to these transformations. The chapter is divided into two parts: in Part one, I describe and discuss the current maize marketing system in Nyimba district. In the first section of Part one I analyse the SSFs' maize buyers. The second section is a description and discussion of modes of exchange or simply how maize is sold. In the third section my focus is on the period when the SSFs sell their maize. Section four is a discussion of who sets the price at which the SSFs sell their maize. In the fifth section I briefly describe the markets. The sixth section is a highlight of the opportunities SSFs have observed arising from the changing maize marketing policies. Section seven is a summary of the problems that the SSFs said they encounter to sell their maize. In section eight I give a brief description of how the farmers access maize market information. Part two focuses on exploitation as experienced by SSFs. In the first section of Part II I describe and discuss the various types of both petty and structural exploitation. The second section is a summary of the whole chapter.

5.1 Characteristics of the buyers

The buyer of the maize include the government through the FRA, petty maize traders who usually exchange various essential commodities for maize, local maize traders who buy maize from their fellow villagers on cash basis with the intention of selling to FRA, medium scale maize traders who buy maize basis and sell it milling companies in Lusaka, and large scale maize traders who also buy maize on cash basis. In the sections below I will briefly describe the various buyers.

5.1.1 Food Reserve Agency (FRA)

FRA is a parastatal which started operating in 1996. FRA's main functions from inception to 2004 were to 'administer national food reserves, management of storage facilities, establish and operate a market information system, promote use of weighing and grading standards, assess storage requirements for marketing' (FRA 2011). In 2005 FRA was stripped off some of its initial functions and another function was added such that its functions since then have been to administer strategic national food reserves, 'marketing and market facilitation, management of storage facilities' (ibid). This change is what resulted in increased

government participation in the market. For example, an FRA official said ‘we are there [market] to provide a complementary access to the marketing system, for the farmers in areas where the private sector cannot reach’. This suggests that FRA is in the market to provide market to the SSFs in the far flung areas.

The FRA maize marketing season is normally from May to September. FRA administration at national level allocates to each district a target of bags of maize it would buy each season. On the basis of this target the district leadership allocates to the different satellite depots how FRA would buy from them. Once the targeted number of bags FRA planned to buy from a particular satellite depot is met, that market is closed. However there have been times when the targets have not been met within the stipulated time, in such times the marketing seasons have been extended. There have been other situations also when the targets have been met but because of bumper harvests, the government has increased the targets and called on the FRA to continue buying. For instance, referring to the 2009/2010 marketing season, an FRA official said ‘we are expecting definitely that we will go beyond the 300, 000 metric tons. And you’d probably be interested to learn that in areas where we have reached the target, we have told our staff to continue buying.’ The government is not very rigid with targets in times of bumper harvest. The FRA price during the 2009/2010 was ZMK65, 000.00 (USD13.00) per 50KG bag, that is, ZMK1, 300.00 (USD0.26) per kilo gram. Apparently, that was the price for 2008/2009 maize marketing season also.

5.1.2 Large Scale Maize Traders

The large scale maize traders include big companies such as Nyimba Supermarket (popularly known in the villages in Nyimba as Gulamu after the proprietor’s name), Olam, and Comaco. These companies buy a lot of maize and transport as much as 3,500 (50kg) bags of maize to Lusaka per day. For example, one of the administrative staff working for one of the maize trading companies who was interviewed said ‘we handle a lot of maize; we load about six to seven truck loads a day’. Such companies employ salaried buyers and deploy them in villages to buy the maize on their behalf.

The large maize scale traders normally start buying maize around April/May and continue buying until rainy season starts. One of the buyers of the large scale maize traders, said ‘we continue buying depending on whether we have a place where to store the maize we go up to December. But when the rains start we close the market in October or November.’

Apparently the availability of storage facility determines how far into the rainy season the traders continue to buy maize. Most importantly, though it is the availability of the maize that also to a large extent determines the farmers' willingness to sell. One camp extension officer said 'the time maize is very much in demand, the critical time when the maize is needed, is that time when we have the rains, when they [farmers] need to use part of the maize for the labour and even for consumption'. There is critical need for maize by villagers during this period. For example, one SSF who sales maize to fellow villagers said 'around November – December, it means many will have exhausted their stocks, so locally, there will be local market, the villagers will be coming and being helped, as some of them sold theirs at low prices thus exhausted their stocks'. This suggests that the helpers assume that their friends are food insecure because they had to sell large volumes of maize when the prices were low to earn money to meet their financial needs. During this period villagers start 'helping' each other. Those who have the maize sell it to those who do not have.

The large scale maize traders use scales to measure the maize they buy from farmers. These traders determine the prices at which they will buy the maize from the SSFs. When they start buying, the starting prices are around ZMK300.00 – ZMK400.00 (USD 0.06-0.08) per kilo gram. These traders accept any amount of maize the SSFs want to sell. According to one of the buyers there are no restrictions on the quantity a farmer can sell to the large scale traders as they buy any quantity a farmer is willing to sell to them 'a person can sell to us a tin of maize, 5kg, 2kg any number of kg that a person wants to sell they can bring'. Moreover, they do not demand that the farmers sort their maize to remove the coloured grains. For instance, one SSF who participated in the focused group discussion said 'the other goodness with these other buyers is they don't require us to sort the maize, they accept all grain types and colours we take there and give us the money'. The large scale maize traders thus do not have strict quality standards by which the farmers have to adhere to. An FRA official argued that could even be one of the reasons why private maize traders offer low prices for the maize they buy from SSFs: 'when they are selling to traders they don't have to clean the grain, and probably you can understand sometimes why they get the kind of prices [low prices] they get'. His argument was that the SSFs pass on the work of sorting to the traders at a price.

Such companies sell their maize to millers in Lusaka for example. Some have their own milling companies in Lusaka where they take the maize for milling after which they sell the

processed products such as maize meal, and stock feed. Nyimba Supermarket is one such company, and it sells the excess maize to other millers.

5.1.3 Medium Scale Maize Traders

Another category of maize traders is that of individuals who buy in order to sell to millers in Lusaka. One person would have maybe about 2-4 buying points where they engage buyers to buy maize on their behalf. The buyers they employ are paid commissions per bag of maize they buy. For example, one such trader said ‘we agree with the buyer to pay him/her ZMK1, 000.00 (USD0.20) or ZMK1, 500.00 (USD0.30) per 60kg bag of maize he/she buys on my behalf’. They use scales to measure the maize and pay cash and they too set the prices at which they buy the maize.

5.1.4 Local Small Scale Maize Traders

Another category of private traders is those farmers who buy maize from their fellow farmers in order to sell to FRA. Such traders set up buying points at their homes or far flung places. They too like the large scale maize traders set the prices at which they will buy the maize. This is the category of traders who usually buy using *medas*, or *dunavant*, and tins. For example, one such maize trader said that ‘we started with ZMK2, 000.00 (USD0.40) per *meda* ... The thing is at that time, the moisture content in the maize was high, so the maize was heavy such that to weigh the maize was going to be unfair on our part. ... now we are using the scale it is ZMK650.00 (USD0.13) per kg’. They shift to the scale as the marketing season progresses. They too pay cash on delivery and accept any quantity that a farmer would bring to them. They also do not demand that the farmer sort his/her maize to remove the coloured grain.



Figure 7: Meda Container



Figure 8: Photo of Dunavant Container

5.1.5 Petty Maize Trader

The petty maize traders are yet another category of buyers who bring various items and buy maize on barter basis. The petty maize traders bring with them items such as clothes, blankets, kitchen utensils, food stuffs such as meat, vegetable, fish, and beans among others. These maize traders too set the price at which the exchange takes place. Even if these traders set the price at which they exchange their goods for maize, one of the SSFs who sells his maize to such traders said their prices are negotiable. For example, one SSF said ‘as for these other merchants who deal in different merchandise like trousers, buckets, cloths, and kitchen utensils, with these you negotiate’. However, the other SSFs who sell their maize to such traders disagree with the notion of the possibility to bargain because once these traders set the price. For example, one SSF said ‘Those who come with their items are the ones who set the price at which the exchange takes place, saying ‘I am selling this item at such and such a price’. They come with their own containers in which they measure the maize worth the price of the product they are exchanging it for.

There are also those traders who come with cash and empty grain bags which they give to the farmers before the harvesting period. These traders buy the maize before it is harvested. These traders determine the terms of exchange too.

5.1.6 Food Insecure Local Villagers

Other maize buyers are the villagers who are food insecure. Payment for maize by such buyers varies. Some pay for the maize by offering their labour, while others come with cash or any other item they would want to pawn. At this time the farmers are the ones who determine the prices at which they sell their maize. The prices some farmers charge are more than the government price while others charge the government price and others still charge below the government price. For instance, one SSF said ‘we were selling a tin at ZMK22, 000.00 (USD4.42) and a 50kg bag was going for ZMK65, 000.00 (USD13.07). Those who were coming with cash we would sell them maize for cash. Others were coming to work in our field, for those, we asked them to make 10 x 100 metres long lines [ridges] in exchange for a tin of maize’. Interesting though, farmers do not refer selling to their fellow villagers who are food insecure as selling but rather helping them. One SSF who sells maize to fellow villagers said ‘I sell to the community around here, those people that don’t have when they come to plead with me to help them ... I set the price, and depending on how they plead their case we negotiate. Sometimes we barter, they give me an item which I don’t have but they have. So I get that thing and I give them the maize by so doing we help each other.’ Some SSFs also allow room for negotiations on price.

5.2 How Maize is sold: Modes of Exchange

The main modes of exchange for maize are either for cash and barter basis. The government and some private maize traders pay cash while some private maize traders barter. There are variations on when the cash is paid between the FRA and the private maize traders. The FRA pays for the maize after some time. Ideally, a farmer is supposed to be paid within ten days after it has been verified that she/he indeed supplied the maize as per documentation assuming that FRA is funded for the exercise accordingly (FRA 2010, 5). An FRA official also said that there are cases when the verification process takes longer than usual because some districts are very vast and only one person has to go round all the satellite depots to verify the purchases. He said in such cases it would take about two weeks for the farmer to be paid. Apparently in most cases the period within which farmers receive payments for their maize has gone beyond the two weeks. Of the SSFs interviewed, only one said that sometimes it took two weeks for a farmer to receive payment for his/her maize. For example, one SSF said ‘It takes a long time to receive the money. Sometimes it takes 2 weeks. ... this same money from government, some people die leaving the money behind, not having

received it.’ Whereas he acknowledges that sometimes it is possible to receive payment within two weeks of selling, he also laments that it sometimes takes longer than that.

The rest of the SSFs said the period exceeded the two weeks, for example, one SSF said ‘FRA gives cash after a long period of waiting for the money, you see they just *kongola* [buy on credit] ... sometimes, [it takes] a month or two’ While an SSF who participated in the FGD said ‘most of the times the waiting period exceed 2 weeks and sometimes you receive the money the following year’. These sentiments indicate that the period within which the SSFs receive payment for their maize goes beyond the ideal two weeks maximum. A Public Relations Officer at FRA said “‘The marketing season is very active and the major challenges we have had is paying farmers on time’” (Post Newspaper August 2010). This marketing season was no exception to the issue of late payment for maize. Senior chief Mukuni Ng’ombe was quoted as telling the president Rupiah Banda that “‘We have several challenges in this area. One of them is that the Food Reserve Agency has not yet paid farmers for their maize. It has been months now and the farmers are still waiting for payments’” (Post Newspaper October 2010). It appears that late payment to farmers for maize sold to FRA is actually pervasive in Zambia.

The delayed receipt of payment by farmers has resulted in various problems for the farmers. First, the delay results in debt accumulation. For example, one SSF who participated in the FGD said that it led to debts and poverty ‘as a farmer borrows from different people with the expectation that he/she would soon receive his/her money ... and when he/she finally gets the money the following year he/she pays back the debts and remains with nothing thus contributing to poverty’. The hope of receiving the money within a few weeks led to the borrowing which would become unsustainable thus interferes with production and consequently trapping the farmer in poverty.

Second, it hinders the pursuit of non-farm livelihood activities. For example, one SSF said ‘it makes it difficult for farmers to invest that money because by the time we are paid it will be time for farming again. ... it hinders us from investing the money in other activities to make more profit before the next farming season’. The delay in receiving the money in this case interferes with the pursuit of alternative non-farm livelihood activities before the beginning of subsequent farming season.

Third, the difficulties in accessing inputs and hiring labour. For example, one SSF said ‘this makes the farmers suffer because it makes it difficult for them to prepare their land for farming’. Farmers require cash to buy inputs such as fertilizer and seed as well as pay for services offered by those people who help them in land preparation. These expenses are difficult for them to meet in the absence of readily available cash which is supposed to come from their preceding harvest.

Fourth, it results in scarcity of cash hence rampant barter system. For example, one SSF said ‘those who bring relish like pork, when we have the maize we get and give them, even those who bring rape we get because we don’t have cash in hand’. Barter system thrives in maize growing communities because of scarcity of ready cash because of the delay in the farmers receiving their dues when they sell to FRA.

In contrast, the private maize traders pay for the maize there and then regardless of whether it is in exchange for cash or other items. Those maize traders who buy maize on barter basis come with containers in which they expect the farmer to put his/her in exchange for the items they are offering. These containers include *meda*, *dunavant*, *chitundu* (baskets made from reed), sacks, and tins (not necessarily metallic but also plastic containers of the same size are referred to as tins too). For instance, one SSF said ‘they [traders] set the price themselves, saying such a bag of maize we are buying at such a price, or a *meda* we buy at such a price, ... [or] “we are selling this rape, we measure the maize in this container”. They come with their own containers in which they measure the maize worth the price of the product they are exchanging it for’. Thus the traders are the ones who set the price but the exchange takes place instantaneously.

However, during the rainy season farmers have power over their produce. During that period the farmers are the ones who determine how the exchange will be like. For instance during the 2009/2010 farming season one SSF said ‘we were selling a tin at ZMK22, 000.00 (USD4.42) and a 50kg bag was going for ZMK65, 000.00 (USD13.07). Those who were coming with cash we would sell them maize for cash. Others were coming to work in our field, for those, we asked them to make 10 x 100 metres long lines in exchange for a tin of maize’. Because of maize shortage during this period the SSFs has power over their produce to the extent of dictating what to receive in exchange for the maize.

5.3 When Farmers normally sell their Maize and why?

The study indicates that there is really no specific period when the farmers sell their maize to the private traders as the sales were usually need driven. For example one SSF said ‘there is no specific time for selling of maize as it mainly depends on how fast the market is opened by FRA. The private maize traders start early, they start buying maize as early as April. Sometimes they come as early as March’. This suggests that depending on how pressed the SSFs are for cash, they start selling their maize as early as March. These are those who sell before they harvest their crop. For example, one SSF a father of two school going children said ‘I also sold around June, yes. I sold in order to get money to pay for the 2 school going children’. Another SSF said ‘I sell ... when I am in need of money to enable me mill the maize that we eat here at home as I wait for the government market to open’. One SSF had this to say on the issue ‘we have already sold some in order to get money with which to buy the empty backs to pack the maize we want to sell to the government market’. Apparently, sales to the private maize traders in most cases are done when the SSFs are in need of cash to meet expenses that cannot be met by barter as they wait for FRA marketing season to open.

Farmers continue selling until the rainy season. Anyhow four periods stood out as the times when most sells took place: March, in case of future selling; May to November selling to big private traders; November – December to fellow villagers who had run out of the commodity; and FRA from May - September. Refer to table A2:1 in the appendix for details of the months when the SSFs sell their maize and to whom they sell based on the 2009 and 2010 seasons.

According to Robinson, Govereh & Ndlela (2007), most sales usually take place during the beginning of the marketing season. However, my study shows that most sales take place during the third quarter of the year when the government market opens. Similarly, Donovan et al (2002) found the period between July and October to be the time when farmers sold most of their maize. Donovan et al (2002) in their study found that prices of maize throughout Zambia are at their peak between January and March and at their lowest between May and August. This would be true if the prices referred to are private traders’ prices during those years when FRA does not actively participate in the market.

With respect to SSFs selling maize to the government, the specific period is determined by when the government opens its marketing season which is usually between May and September. For example, it was stated in the FRA Crop Marketing Arrangements for 2010

Marketing Season that ‘[t]he FRA maize purchase exercise for 2010 Marketing Season will run from 1st May, 2010 to 30th September, 2010. However, in areas where the moisture content is usually still high at the beginning of the marketing season in June, the exercise will delay’ (FRA 2010, 1). Sure enough the FRA markets in Nyimba opened in late July 2010. This suggests that the period when the SSFs sell to FRA varies depending on when FRA feels the maize is of the right moisture content.

Some SSFs who are able to store their maize also sell to fellow villagers. Such sells usually take place during the rainy season when there are food shortages and the farmers need people to help them with their field work. Those with cash pay cash for the maize while those without pay with whatever they have which is of course agreeable with the seller. This would include labour power, livestock among other things. One SSF said ‘sometimes we barter, they give me an item which I don’t have but they have. So I get that thing and I give them the maize by so doing we help each other’. There is some flexibility in the transaction. However, as can be seen in table A2:1 maize prices are at their peak during this same period.

However, in cases where they exchanged maize for other items, the time the traders brought those items which coincide with the SSFs needs at a particular determined when SSFs sold their maize.

5.4 Who sets the price at which maize is sold?

The findings of the study suggest that who determines the price at which maize is sold is dependent on when the maize is sold and to whom it is being sold. For most part of the year it is the buyers who determine the price of maize. Just like the government, the private maize traders go to the farmers with a price at which they would buy the maize. For example, one SSF since 1994 said ‘since I started the farming business, I have found that the buyer is the one who sets the price for your products. The person buying your stuff is the one who sets the price and tells you that “I am buying at such a price”’. Buyer price setting is a trend he has become accustomed to since 1994 when he started maize farming. Another SSF said ‘the one with the money is the one who sets the price’. It appears money speaks in this case.

As already mentioned in section 5.3 the rainy season is the period when the SSFs have authority over their crop to the extent of determining the price at which they sell. For instance, one SSF said ‘here in the village mainly the terms of exchange depend on what the buyer is prepared to buy. We start with a *meda*, to a tin, up to a sack. The prices vary with the

time when people come to buy, there are times when maize is on demand and when it is not.’ So taking into account the demand a farmer sets the price.

5.5 Markets



Figure 9: Photo showing Maize Buyer at Private Maize Buying Point

The whole of Nyimba district had eight satellite depots where the government through the FRA was buying maize from the SSFs. In fact the number had been seven but was raised to eight in the 2009/2010 marketing season. In 2009 Nyimba district had approximately 15, 000 households (MACO official). One camp extension officer’s comment on the issue of markets was ‘market is difficult because we have few markets but very many farmers and the distance to the marketing areas is too far.’ His comment suggests that there is a relationship between the number of satellite depots and the distance the SSFs have to travel to get there. In addition, he said the SSFs in his camp who were farthest from their nearest satellite depot were located about 20km away. Commenting on the issue of markets, an official from NDFA said ‘the government market itself is not enough and is far from where the SSFs stay’. He too attests to the problem of few government markets and long distance to the same. Most of the SSFs interviewed did not know the exact distance to their nearest satellite depot. For example, one SSF’s response to the question about distance to the market was ‘it’s a long distance, we don’t know how many kilo metres it is, but what we know is that it’s very far’. SSFs who were located far and could speculate the distance where located about 7 – 10km

away from their nearest satellite depot. On the other hand those who were located closest where located about less than 1 to 2km from their satellite depots.

With regard to the private maize traders' markets, it was observed that these where located in most villages. For example, an official from NDFA which has district-wide presence in Nyimba said 'there is a market for a private trader everywhere'. I also observed that, in fact some villages had more than one such markets belonging to different traders. Previous studies had found that the private sector does not go to remote areas because of poor infrastructure. It was for this reason *inter alia* that FRA's mandate was actually changed to include marketing and market facilitation so as to provide market to SSFs in rural areas. For example, an FRA official said 'SSFs have serious challenges in accessing markets for their produce ... And it is for that reason that government, in recognition of the challenges that the SSFs have and the fact that we are operating in a liberalisation market, obviously they fall prey to other players who are most advantaged, better placed, more and better informed, and are aware of what is happening. So it was felt that government should intervene in this respect to relieve the problems the SSFs face with respect to marketing'. His comments suggest that private traders do actually conduct business in to rural areas, but the major problem is they take advantage of the SSFs.

However, other studies such as that by Govereh et al (2008) indicate that the policy environment whereby government has increased the role of FRA which buys maize at pan territorial prices in far flung areas makes it difficult for the private traders to conduct their business profitably. This suggests that private traders shun rural areas which are difficult to access because of government's marketing activities there. It was however observed that there are more private maize traders buying points in Nyimba than there was FRA buying points. The study also seems to indicate that wherever FRA had a satellite depot, private traders also had buying points. Moreover, some private maize traders even went out of their way to help a farmer sell his/her maize by going to their door step. For example, one buyer also said that in situations where a farmer could not transport his/her maize to a buying point because it was far, he would actually go with the farmer to his/her home to weigh and buy the maize from there. For example, this buyer said 'In some cases, people come and say for example in places like Zambu, a person can come and just say that "I have about 40 bags". I would go there with my scale and weigh the maize right there and buy the maize right there. When the driver comes with the company vehicle to collect the maize I have bought, I just

tell him that “I bought maize at such and such a village, let’s go and collect”. And we go.’ Apparently the price is not affected in any way in such cases as the maize is bought at the same price as if the farmer had transported it to the buying point.

5.6 Opportunities arising from Liberalisation of Maize Markets

When asked about the opportunities they have observed after the implementation of the liberalisation of the maize market policy, the views of the SSFs were varied. Most of the SSFs viewed the policy negatively. Their contention was that the coming of other buyers in the maize market presented more problems than opportunities. However, overall the SSFs also acknowledged some opportunities such as:

- the freedom for them to sell unlimited amount of their maize to anyone whenever they felt like;
- ability to sell their maize when need arises thus able to access ready cash anytime
- no need to sort the maize to remove the coloured grains
- availability of markets situated at the SSFs’ door’s step or right in the villages where they live and also open for most of the year and also remain open late into the night

5.7 Problems associated with selling maize

When the SSFs were asked to share the problems they encountered to sell their maize, several problems were highlighted and they can be broadly classified into infrastructure and/or market related, policy related, price related, and other problems (refer to table A3:1 in appendix 3 for details).

5.8 Access to Maize Marketing Information

Three main modes of communication were identified as ways through which the SSFs received maize marketing information. These included MACO through their staff on the ground, farmers’ groups, and the radio. One SSF said he used the Short Message Services (SMS) to get information from millers in Lusaka. Another SSF identified newspaper as one way through which he accessed maize marketing information. Overall, MACO and the farmers’ organisations were the majors conduits through which farmers accessed information. I also observed that a member of the village who was tasked with responsibility of relaying

information would go round with a public address system announcing to the villagers about the government market. With respect to the private markets information flow was mainly through friends and observation once such a market was mounted.

Part Two. Exploitation as Experienced by SSFs in Nyimba

5.9 Forms of Exploitation

The forms of exploitation that were observed can be classified into two broad categories: petty and structural/systematic forms of exploitation. Petty forms of exploitation refer to the exploitation perpetrated by petty traders, small scale traders and buyers. While structural forms of exploitation refers to the exploitation perpetrated by the state and its institutions, and other stakeholders such as the farmers' organisations, satellite agents, and better off farmers. Part two is divided into three main parts. In the first section different manifestations of petty forms of exploitation are highlighted. The second section highlights the different manifestations of the structural forms of exploitations. Then finally a summary of the chapter is given.

5.9.1 Petty Forms of Exploitation

5.9.1.1 Giving away more maize grain than normal.

The farmers shared a number of ways through which they feel their customers got away with more maize than they should have. The several ways through which this is done include:

Future buying- this is a situation where traders or buyers come and give SSFs some money before they harvest the crop. Such traders come during the period when the SSFs are in desperate need of money, as such accept to get meagre payments for their crop. For example, one SSF said that 'they [private traders] start buying maize as early as April. Sometimes they come as early as March, they give you empty grain bags and money, there's that system of giving money before the farmer has even harvested the maize. They give little money but they come to get large quantity of maize. Like for instance, they were giving ZMK20, 000.00 (USD4.02) for almost 90, 80 or 70kg bag of maize'. In this way, the SSFs felt that they part away with more maize than would be the case if they had waited to sell their maize when they harvested. The SSFs felt that the buyers capitalised on the SSFs desperate need for money during this period to get more maize than usual from them. One MACO official highlighted another scenario of future buying, he said 'at one time when there was a bit of

some, should I say hunger in one part, others used to buy maize meal, a 25kg a farmer gets, that is before harvest then at the end of it a farmer pays back three bags of maize.’ In this case again it is the desperate situation (hunger) that the buyers capitalised on to get more maize than usual from the farmers.

Others would argue that they get large quantities because the moisture content at the time is high so the extra kilos compensate for the weight loss when the maize is dried. However, what is forgotten is that buyers usually sell the maize to millers almost immediately to be milled into maize meal. So the high moisture content argument is questionable. Of course there are also some traders who stock the maize until the government market opens in order to sell there.

It appears that the time when sells take place has a significant role to play in the amount of maize that a SSF parts away with and the returns he/she gets in exchange. Thus selling before harvesting would to a large extent mean that a SSF parts away with more grain for a small amount of money. The issue here is the desperate situation a farmer is in during that time.

Selling in *medas*, tins, *diinda*. Traders and buyers alike use various ways to measure the maize they receive in exchange for whatever items they take to the SSFs. Some of the ways is by the use of a *meda* and *dunavant* (plastic containers), tins (metallic and/or plastic containers), and *diinda* (unweighed bag which usually exceeds the number of kilo grams indicated on the bag).

It seems like there is no agreement among the SSFs about the actual weight of maize when measured using a *meda* or a *dunavant*. According to one SSF ‘a *dunavant* is equivalent to 20kg while a *meda* is equivalent to 10kg’. According to another SSF a *meda* is equivalent to about 6kg of maize while a *dunavant* which takes 2 *medas* is equivalent to between 12-15 kg. According to the MACO Kabwe Agriculture Market Information Services (KAMIS) Bi-Monthly bulletin, a *meda* is equivalent to 5kg worth of maize grain. Apparently this is the official measurement. Officially, a *dunavant* container is equivalent to 10kg worth of maize while a tin is equivalent to 20kg (CSO 2004).

In March when some traders start buying maize, most of them do not use the scale to weigh the maize they buy; they use the above mentioned ways to weigh the maize. Some traders have argued that they use these methods because during that time the moisture content of the

maize is very high. As such it would be to their disadvantage if they used the scales. One maize trader who has been in the business since 2009 said ‘the thing is at that time, the moisture content in the maize was high so the maize was heavy such that to weigh the maize was going to be unfair on our part’. Moisture content is used as justification for not weighing the maize on a scale and also for offering low prices at the beginning of the season. Another example is one given by another trader who said ‘this year we started with ZMK2, 000.00 (USD0.40) per *meda*. K2, 000.00 was the starting price. ... I will say that now using the scale it is ZMK650.00 (USD0.13) per kg’. It means he was buying the maize at ZMK400.00 when opened his market.

The SSFs are also squeezed when they sell their maize in a *diinda* bag. One SSF had this to say ‘if we sell to the government per kg the price is better such that if we sell a 50kg bag, it doesn’t fill *dinda*. And yet when we sell to the private maize trader, from 50kg you find that sometimes you will get twenty something thousand kwacha. But when you sell to government the correct measurement of 50kg you find that you get more money’. Apparently a *diinda* would usually contain about 60 - 70 kg of maize. And this is what the private buyers would demand from the SSFs in exchange during those times that they are not using a scale. In such transactions, a SSF ends up parting away with more grain to the tune of between 10 - 20 kg. In this case, it appears the buyers capitalises on the seemingly ignorance of the SSFs that a *diinda* contains grain beyond the weight indicated on the bag it is measured in.

Buyers Tempering with Scales. The SSFs and the FRA officials apparently believe that the private maize buyers and/or traders temper with the scales. For example, one SSF said that ‘the private buyers usually temper with the scales, their scales are not usually accurate or normal’ His observation is that about 5-10kg of maize is given away using this same method. In addition, an official from FRA argued that ‘the scales that are used by a number of the traders are not very accurate, in fact they are deliberately so, they are not accurate to the disadvantage of the farmer.’ Apparently this deception is widespread.

A buyer working for one of the maize trading companies argued that employers do not provide for their food rations so they use part of the money they are given to buy the maize from farmers for food. And to cover the shortage they come up with initiatives. (Maybe this could be one of the explanations for the tempering with the scales.) In this case the traders would be oblivious of the inaccuracy of the scales but the buyers would be the culprits.

Receiving less money than is normal. This is as a consequence of the reasons mentioned above. The money a SSF receives for the maize he/she parts with is less than ought to be the case because some kilo grams are deceptively not paid for. There is a belief that most traders do not usually go to remote areas because of distance issues. For example, an FRA official said ‘in a year where you have surplus or huge production for instance this year, farmers in such areas, if someone will go there to buy, they are bound to part away with their produce at a very low price’. The study indicates that the geographical location of the SSFs was not necessarily an issue. The statement alludes to how traders take advantage of the SSFs’ vulnerability. The traders also took advantage of the bumper harvest which entails supply outstripping demand thus low prices. Traders choose these remote areas because they know they can be able to get away with offering very low prices and then make a big killing.

5.9.1.2 Unequal barter exchange.

Some traders especially petty traders take various items and use the *meda*, *dunavant*, *diinda*, and tin to measure the maize they receive in exchange for the items they take to the SSFs. They decide the terms of exchange before they arrive at the SSF’s door step. For example, one SSF argues that traders who bring various items to exchange with maize are after making abnormal profit. He argues that ‘there are some who bring blankets which cost ZMK25, 000.00 (USD5.03) or ZMK30, 000.00 (USD6.03) in the shops in Lusaka but they ask for two *diinda* bags in exchange. I think it doesn’t make sense for me to give him those two *diinda* bags of maize which would fetch about ZMK120, 000.00 (USD24.13) for a blanket worth ZMK30, 000.00 (USD6.03), it is not worth it, their price is exorbitant, they are like thieves’. When such a trader sells say for argument’s sake to government, he will get around ZMK156, 000.00 (USD31.36) that is when a *diinda* is for example equivalent to 60kg at ZMK1, 300.00 (USD0.26) per kg. This therefore gives the trader huge profit. The SSF’s comment suggests that he feels that the fact that trader is the one who bought the product in the city and took it to his door step does not give the trader the right to charge such an exorbitant amount for the product.

Another issue worth mentioning related to barter system is the lack of or the possibility to negotiate. While some SSFs such as the one quoted above see barter system as broad daylight theft, other SSFs argue that barter is good because it allows room for negotiations. For example, one SSF said ‘you can negotiate with the merchants who deal in different merchandise like trousers, buckets, cloths, and kitchen utensils’. In this case the fact that one

can negotiate with the trader is seen as a good thing. While some SSFs argue that it is possible to negotiate with some traders, some SSFs argue that it is not the case with most traders. For example, one SSF said ‘we don’t negotiate because they just say we have brought. So we just get in order to satisfy our need’. Apparently the experience of other SSFs is that no room exists for negotiations. [The Agricultural Market Development Plan also attests to the vulnerable situation of SSFs, for example, ‘Small-scale farmers are currently weak sellers of maize and other products and therefore suffer unduly poor prices for their produce. They tend to offer their produce in small quantities, they do not grade their produce, and they are cash strapped at time of harvest’ (GRZ 2004b,6).]

Box 1: Unequal form of exchange

One day during my fieldwork, some traders came with rape (vegetable) at my auntie’s house. He was exchanging the rape with maize but I did not know. I took it for granted that he wanted cash for his vegetable. So in wanting to please my aunt and cousins, I told the young man ‘give us the vegetable’. Surprisingly though, there was no mention of money. So I asked ‘how much are you selling the rape for’. He said, ‘I use this’ (pointing at a small basket (*katundu*) he had). I then said ‘put the rape there then’. It was then that he explained how it was done. He said ‘the basket is used to measure the maize’. I told him ‘give me the rape I will pay cash’. He refused to transact saying ‘I only accept maize in exchange’. I said ‘well! I don’t have maize but I have money and I want the rape’. After some few minutes of thinking he said ‘do you really have the money? As if doubting if I could afford to buy at the price he was thinking of charging for the rape. I said ‘yes, name your price’. He said ‘it’s ZMK1,000.00 (USD0.20) per batch’. I gave him the money and when time came for him to leave he said to me ‘you should go back where you come from as you are not good for my type of business.’ It was then I realised that for some reason, it was more profitable for such petty traders to get maize in exchange than cash.

Source: 2010 Fieldwork Observation

5.9.2 Structural Exploitation

5.9.2.1 Extra costs (e.g. sewing, stacking) passed on to the farmer.

The study indicates that SSFs unfairly incur extra costs in two main ways. First, satellite agents passing the costs of sewing and stacking to SSFs. According to an FRA official ‘the stacking and sewing is supposed to be done by the satellite agent not the farmer.’ FRA contracts satellite agents to buy the maize on its behalf. Apparently these agents are responsible for rebagging the maize into FRA bags after the quality standard of the maize has been certified, sewing the bags, and stacking them. However, the study indicates that the agents do not do this but there are some youths who provide this service to the farmers at a fee. For example, One SSF who participated in the FGD complained that ‘for them (youths) to sew the bag, they charge ZMK100.00 (USD0.02) and then ZMK200.00 (USD0.04) per bag for stacking’. This activity was apparently widespread in the district. Even the fees were the same in other satellite depots too. One SSF who participated in the FGD lamented that because of such activities ‘the farmers are suffering, spending a lot thus not profiting as they should’. This activity added to the costs that the farmers had to incur further reducing their profit. The fact that the SSFs pay these youths for these services could be an indication that they do not know who is responsible for paying for these services. Thus speculation could be that the satellite agents could be said to have capitalisation on the SSFs’ lack of knowledge to pass this extra cost on them.

Second, SSFs incur extra costs through bribery. For example, a SSF who participated in the FGD argued that ‘when you reach the market the buyers show favouritism when buying the maize’. Such acts were apparently as a result of the buyers requesting for bribes from SSFs with the view of serving them faster. For fear of not being accorded the opportunity to sell to the government which pays good money given that there was a target to be met, some SSFs have succumbed. According to two FGD participants, the amount involved is not fixed but depends on what the SSFs and the buyer agree based on the number of bags the SSF wants to sell. The SSFs choose to bear this extra cost even if it reduces their profit because they felt that they are still better off than if they sold to the private traders. The study indicates that the buyers take advantage of the SSFs’ fear of the FRA targets being met without them selling to FRA to solicit for bribes. (Robinson, Govereh & Ndlela (2007) argue that market liberalisation has resulted in SSFs bearing more risks.)

5.9.2.2 Buyer Price setting.

The study indicates that the perception of the SSFs is that the FRA price is a good price. This is because the FRA is the only buyer which offers to buy maize at prices double those offered by the private traders and/or buyers. The FRA takes several factors into account to arrive at its price. For example, an FRA official said ‘we look at the cost of production here in Lusaka and also cost of production outside Lusaka. We also did a weighted average on those farmers receiving FISP and those not receiving so that we have a weighted average and then also looked at the yield ... there’s a small profit margin of 10 percent’. Meanwhile, FRA provides market for the rural-based SSFs who are also the beneficiaries of the FISP.

The study indicates that in most cases buyers set the price except during the rainy season when some SSFs who had stored some maize sell for either cash or in exchange for labour to fellow villagers who had run out of the commodity. The study also indicates that private traders set prices which SSFs feel are very low. For example one SSF said ‘their prices are very low.’ The SSFs feel this way because they compare the private traders’ prices to the FRA price.

The current maize marketing system is different from the one in the past where SSFs were obligated to sell to NAMBOARD where they got their subsidised inputs (Robinson, Govereh & Ndlela 2007). Moreover, the prices they received for their maize were deliberately set low (ibid). On the contrary, in the current FRA marketing system, farmers are at liberty to sell their maize to anyone. In addition, the FRA prices are set higher than the market price.

The trend in the past has been that farmers would delay to sell their maize so that they sell later in the year when prices were higher. According to Robinson et al (2007), farmers who stored their maize in order to sell later in the year earned more from their maize than those who sold earlier when supply was relatively high. The study indicates that SSFs endeavour to sell to FRA but because FRA markets delay to open and close early, the SSFs sell to private traders when need arises.

To counter the problem of low prices, SSFs are advised to diversify their farming activities. For example, an NDFA official said ‘we are encouraging our farmers to diversify, so that they don’t depend on one crop’. The idea is that when in need of cash, farmers would sell other crops or livestock whose prices are not very low during their time of need. SSFs are also advised to hoard their maize in order to sell to FRA. For example, a MACO official said

‘We are trying to advise them to wait in order to sell at a better price.’ The better price referred to here is that offered by FRA. This could be seen as an acknowledgement that no private trader offers prices higher than the FRA price. And sure enough, even in October or November when the private traders’ prices are deemed high these prices are still below the FRA price (refer to table A2:1). For example, one buyer when asked about buying prices around that period said ‘It [price] depends with the scarcity of maize around that time. But it would reach around K800.00 or K1, 000.00 per kg.’ FRA on the other hand buys maize at K1, 300.00 per kg. So farmers sell most of their maize to FRA. For example, one SSF said ‘actually, I can just estimate in terms of percentages, 75% is taken to FRA and the remaining 25% goes to the rest of the buyers’. FRA is the major customer for this SSF. This is a change from what was observed by Robinson et al (2007). In their studies they found that farmers usually store their maize to sell it later in the year when prices were higher.

5.9.2.3 Wage Labour in Exchange for Maize

The SSFs who do not produce enough and/or sell all their maize such that by rainy season they have run out of their maize stock are usually very vulnerable. The study suggests that in such situations such SSFs turn to the better off SSFs for assistance. The food insecure SSFs offer to work in the fields of the better off SSFs in exchange for maize. For example, one SSF said ‘we use it [maize] as payment to those who work in our field’. Another SSF said ‘that is cheap labour and we tell them “you will be given a tin of maize if you work up to here”. In fact you are lucky that time there is no counting because people are hungry, so you just say “you go up to that point”’. The better off SSFs recognise the desperation of their fellow SSFs and take advantage of it. Some better off SSFs do not consider what would be fair work in exchange for a tin of maize, as they know that because of desperation the food insecure SSFs would work regardless of the size of the portion they are given to till/weed. This is a problem that arises due to seasonality nature of maize farming.

5.9.2.4 Sell of Seed to SSFs on Credit by Farmers’ Organisations

As has been highlighted in section 4.3, the farmers’ group also sale seed to the SSFs on credit for specified number of bags when the SSFs harvest. For example, one SSF said ‘they gave us 10kg bag of seed and we are supposed to pay back 3 x 55kg of maize’. It was however surprising that the SSFs did not see this as a form of exploitation because it was in form of loan. For example, one SSF said ‘I think it is beneficial because even if you harvest two ox carts all you have to give them is one bag and all the rest is yours but meanwhile you got

seed.’ The fact that the SSF retained more maize than she gave the farmer group is what is important to the SSF. Another possible explanation could be because the same SSFs are the beneficiaries of the profits farmer’ organisations make. For example, one cooperative official said ‘when the cooperative has enough money, and invests it in a business venture, members earn interest on their contribution’.

5.10 Summary

The SSFs sell their maize to multiple buyers namely: the government, the private traders and/or buyers, and food insecure fellow villagers. Maize is either sold for cash or barter exchange. Most of the maize traders and/or buyers pay cash on delivery except for government which pays after some time. Most of the maize sales to the private traders was found to be need driven, thus the sales took place almost throughout the year as long as the traders and/or buyers’ markets were open. On the contrary, sales to the government were determined by the time when the government marketing season opened. Sales to the food insecure villagers took place during the rainy season when there such villagers run out of their maize stocks. Who set the price at which maize was sold to the different categories of buyers was dependent on who the buyer was. The private traders and government set the price at which they bought the maize. The SSFs set the price for the maize they sold to food insecure villagers. The study indicates that there are more private traders markets than government buying points (markets) in the study area. The almost all year presence of the private sector in the maize market was appreciated by the SSFs as it made it possible for the SSFs to meet most of their urgent financial needs before the government market opened and after it closed. The SSFs argued that they experience numerous problems to sale their maize. These problems can broadly be categorised into price related problem, policy related problems, market access related problems, and other. MACO through its extension officers and the farmers’ organisations stood out as the main conduits of information transmission to SSFs.

Several forms of forms of exploitation which can broadly be categorise as petty and structural. Petty forms of exploitations were mostly perpetrated by petty traders, small scale traders and buyers. Problems are inherent in the various terms of exchanges between the SSFs and these traders. The observed main ways through which SSFs were exploited were when they gave away more grain than normal through future selling, selling of maize using other measuring tools other than scales, buyers tempering with scales; and unequal barter

exchange of maize with consumable goods. Structural forms of exploitation were perpetrated by the state and its institutions, farmers' organisations, satellite agents and better off SSFs. Structural forms of exploitation took the form of extra costs passed on to SSFs, and buyers setting maize prices, sale of labour in exchange for maize, and sale of seed on credit.

CHAPTER SIX

Summary and Conclusion

Maize Marketing Policy Changes and SSFs' Vulnerability to Exploitation

6.0 Introduction

The maize marketing system in Zambia has undergone several changes from independence in 1964 to date. The notable changes policy-wise were that from 1964 to 1990 the state substantially controlled both maize production and marketing. Other notable changes in maize market policies took place in 1991 when a new government was ushered into office. This new government liberalised the maize markets. From 1991 – 2004 the state institutions which were in charge of marketing of markets and distribution of inputs were disbanded as the state endeavoured to create an environment for the private sector to thrive. From 2005 to date there is a dual system where state marketing system exists side by side with the private sector. The state is again substantially involved in the production and marketing of maize. These policy changes have impacted the SSFs who are the main producers of maize and also among the poorest group of people in the country differently. The question is have these changes eased or exacerbated the SSFs' vulnerability to exploitation?

In this chapter I endeavour to relate theory with the empirical findings of the study, give a consolidated summary and conclusion of the whole study. To begin with, I discuss the SSFs rationale for the choice of what maize variety to grow. Then, I discuss the different forms of exploitation that have been observed in the light of the theory. Thereafter, I highlight factors that exacerbate SSFs' vulnerability to exploitation. I then give a summary of main issues discussed in the study. Lastly, I highlight the main conclusion of the study.

6.1 Subsistence Ethics

6.1.1 Risk Aversion

All the SSFs I interviewed in Nyimba were engaged in multiple agricultural activities. The SSFs gave various reasons for their engaging in those agricultural activities. The primary reasons included production for home consumption as well as for sale.

It was interesting to note that a sizeable number (ten out of fifteen) of the interviewed SSFs preferred to produce hybrid solely for sale and *nseenga* for home consumption. Various reasons were given for this course of action. For example, they argued that the *nseenga* grain is hard thus difficult for weevils to destroy; *nseenga*, does not require chemicals to store for long time; the grain is heavier than that of hybrid thus one gets more maize meal and less maize bran from it compared to hybrid; the maize meal made from it is whiter than that of hybrid. With respect to hybrid, they said they choose to grow hybrid for sale because the hybrid grain is soft thus easily attacked by weevils by September/October/November; fear that the grain would be infested by weevils; they do not have funds to buy chemicals to protect the grain from attacks by weevils; they do not have proper storage facility in which to store the grain; and it gives high yield thus is good for business.

Anyhow, from their responses it appears that the underlying reason for the SSFs' course of action is to secure their subsistence. Several factors seem to attest to this. First, Nyimba SSFs' choice of which maize variety to grow for sell and which one to grow for home consumption could be said to be determined by the knowledge they have gained through their experience of growing the two varieties. Apparently through experience they have come to discover that *nseenga* is reliable in terms of storage, as it can be stored up to the next farming season without being infested with weevils thus not requiring insecticides to store. In this regard *nseenga* assured the SSFs of subsistence. On the other hand, experience has taught SSFs that hybrid requires insecticides in order to be stored. This suggests that SSFs in Nyimba adhere to Scott's (1976) safety first principle in their selection of which variety to grow. The study suggests that Nyimba SSFs are rational in their decision making process under the circumstance.

However, as has been argued by Martinussen (1997) and Scott (1976), when it comes to *nseenga* cultivation, the underlying factor is risk aversion. Sentiments by the SSFs indicate that this is the case, for example, one SSF quoted a local proverb which says “*osataya chi kabudula chakale, chanyowani pakine chingambike lombapano chisile* (don't throw away own pants or shorts because you never know whether the new pair of pants will soon get torn and be good for nothing)”. This proverb suggests that the SSF is somewhat sure of the performance of *nseenga* and not so sure about that of hybrid. Further, risk aversion could be inferred from the proverb as the SSF prefers safety than to regret.

The empirical evidence from the study is not conclusive about which of the two maize varieties (*nseenga* and hybrid) is most risky and the SSFs were divided on the issue as some argued that hybrid is more risky while others argued that *nseenga* was more risky. There are two main issues that SSFs have to contend with respect to risk, one is storage and the other is changing weather patterns. The study indicates that *nseenga* is less risky than hybrid in terms of storage. This is because according to the SSFs ‘by the time you are harvesting, hybrid maize will have already been infested, the insects attack it while it is right in the field ... I prefer local maize because it lasts for a long time, like this year, I am expecting it to last up to May next year’. These statements portray *nseenga* to be more reliable in terms of storage.

With respect to changing weather patterns, the study is not conclusive. Some of the findings seem to indicate that *nseenga* assured SSFs of subsistence even when the weather was not very favourable. A revealing statement to this effect is that of a MACO official who cited uncertainty associated with changing rainfall patterns as one of the possible reasons why SSFs are probably still clinging to *nseenga*: ‘in case the rains are not okay, hybrids are a problem as they will all be wiped out. So he would go for a one *lima* (a quarter of a hectare) or one hectare local maize which will give him less than what he was supposed to get from the same’. This comment seems to suggest that in times of poor rainfall, *nseenga* performs better than hybrid. In this regard SSFs could be said to conform to Scott’s (1976) argument that, they rather avoid agricultural activities whose failure could spell disaster for those which minimise loss.

This notion is challenged when one takes into account the fact that there are variations in maturity time for the different hybrid varieties. It appears this variation somewhat counters the effects of changing weather patterns. Hybrid producers argue that the different hybrid species make hybrid more reliable when it comes to changing weather patterns and that the fact that hybrid has been customised into early, medium and late maturing varieties, assures them of harvesting something whatever the vagaries associated with weather. For example, one SSF said ‘we grow early maturing varieties so that if the rains come early and stop, from these we can harvest something, the same goes for medium and late maturing varieties, depending on the rainfall patterns whatever the case we will be able to harvest something if we prepared.’ This of course could be said to be true for those SSFs who plant all three varieties in any given rainy season. Anyhow this suggests that hybrid could be said to be reliable for subsistence except for its vulnerability to weevil infestation. Aside from this, if a

SSF took the necessary precaution and applied insecticides to the grain before storage hybrid assured him/her of subsistence. For example, one SSF said ‘If you don’t apply insecticides, by November all the maize [hybrid] is maize bran most of the times’. This suggests that for hybrid to assure SSFs of subsistence, SSFs have to invest in insecticides failure to which their harvest is destroyed by weevils. Thus the SSFs’ growing of different hybrid varieties could be looked at as one way of hedging against total crop failure. However, this statement could still be considered to be consistent with the reaction of risk averse person who seeks to minimise the probability of maximum loss thereby secure his/her subsistence whatever the circumstances.

Something worth noting also is that five out of the 15 SSFs only grew hybrid maize part of which they used for home consumption and sold the rest. The decision for their choice to grow only hybrid for these purposes were influenced by the changing rainfall patterns and the guaranteed high yield offered by hybrid. The decision of the five SSFs who grow only hybrid maize with the intention of consuming part and selling the rest of their produce could be perceived as their initiative to spread risk. As highlighted in the preceding paragraph, when hybrid growers grow all three hybrid varieties, whatever happens weather-wise they are assured of harvesting something from at least one of the varieties. The SSFs’ adoption of hybrid given the changing weather patterns could also be indicative of their awareness of the risks of crop failure which bad weather can cause even with hybrid. As Scott (1976) argued reliable and stable subsistence can be achieved through several ways such as (in this case) the cultivation of a variety of seed so as to hedge against complete crop failure. This suggests that hybrid could secure the SSFs subsistence better than *nseenga*.

Contrary to Leonard Joy’s assertion that ‘subsistence farmers may resist innovation because it means departing from a system that is efficient in minimising the risk of catastrophe for one that significantly increases this risk’ (cited in Scott 1976, 19), majority (ten) of the SSFs have neither altogether resisted the technological innovation (hybrid) nor altogether abandoned production of *nseenga* in preference for hybrid maize even if they acknowledge that they get higher yields from the hybrid which entails more returns when they sell. The SSFs have instead chosen to spread the risk while at the same time securing their subsistence.

Apart from that all the SSFs attested to the fact that hybrid yield is higher than that of *nseenga*. On this issue one SSF said ‘when you plant on equal pieces of land in terms of

surface area, the yield for *nseenga* will be lower than that of hybrid'. If a SSF would harvest double hybrid than he would *nseenga* from a similar piece of land, then he/she is assured of subsistence. It would follow therefore, that the SSFs would receive more net returns from hybrid production than from *nseenga* especially when one looks at it in terms of volumes. To this effect, table A2:6 indicates that a SSF would get as much as ZMK940, 750.00 as against ZMK571, 650.00 in net returns from *lilima*. This somewhat indicates that hybrid could indeed be good for not only subsistence but also for business as one SSF commented 'the yield for hybrid is high thus it is good for business'. The SSFs' line of argument for growing hybrid for business could also suggest that they are rational in decision making, that is, they have recognised and exploited the opportunity to increase production and make money by growing hybrid (Martinussen 1997). The only shortcoming is that hybrid required the use of fertilizer to give the expected high yield. This therefore could mean that hybrid has extra financial implications.

Second, Nyimba SSFs' resolve to sell their produce even to buyers who offer low prices just so that they could support their families could be looked at as pursuit for subsistence. For instance, one SSF said 'when I don't have money for milling of my maize, or money to pay for school requisites for my school going children, I end up telling them to get the maize almost for free, "get the bags and give me whatever little amount so that I can give my school going children"'. This statement gives the impression that when need arises in the family, the SSF is compelled to sell his/her maize at a very low price just so that he could provide for the family. This is consistent with Scott's (1976) argument that the desire to meet one's family's subsistence needs compels SSFs to sell their produce for any amount or pay more. With regard to paying more, the study indicates that SSFs pay more for items they buy through barter. For example, one SSF said 'we don't negotiate because they just say we have brought. So we just get in order to satisfy our needs'.

6.1.2 Profit maximisation

The fact that SSFs are sometimes risk averse for the sake of securing their subsistence has been used by some as the reason why they do not seek to maximize profit. The study indicates that SSFs in as much as subsistence security is important to them, they try to maximise profits in their own way. For example, two SSFs with plots of land along river banks or streams engage in gardening in order to maximize profits. These SSFs were able to seize the opportunity to diversify their agricultural activities because they are strategically

positioned. Whereas, some studies which Ellis (1993) alluded to argued that SSFs diversify because they are risk averse, this example suggests that crop diversification can sometimes be due to the SSFs' quest to exploit opportunities which they identify as being within their reach thus maximise profits. This is consistent with Feeny's (1983) findings that the type of land a farmer owns may necessitate that he/she diversifies and not risk aversion as is believed by others.

The SSFs took several factors into account in order to reach a point where they designate hybrid maize to be grown for commercial purposes. Some of these factors indicate that the SSFs' choice is guided by their profit maximization goal. For example, the SSFs argue that the yield for hybrid is high than that of *nseenga* as such it is good for business. For example, one SSF said 'if I farm properly, it means I will be able to acquire most of the things I lack, because hybrid maize is bountiful'. Another SSF said 'looking at the crops I have been growing, I have seen that we get good money from maize'. The FRA price being higher than the market price enables the SSFs earn more money from selling their maize. Apart from that, hybrid's high vulnerability to attacks by weevils makes it a difficult variety to store. So SSFs choose to dispose of it as soon as possible.

6.2 Exploitation

Exploitation as defined in section 2.1.3 thrives where there are weaknesses which the exploiter can capitalise on. SSFs have been disappointed by the prices offered by and other activities of some of the buyers of their maize. This has led to their feelings of discontent which they express using a variety of phrases which have been mentioned in section 2.1.2. The source of discontent is the disparity between what they part away with and the actual returns which they receive in return. The reason for this turn of events can be explained by looking at what happens when and how the SSFs sell their maize.

6.2.1 Barter System and Exploitation

The study suggests that there is economic surplus extraction perpetrated by traders through unequal exchange of consumer goods and agricultural products, with prices of consumer goods artificially pegged higher than that of agricultural products. The unequal exchange of maize and other products taken to the SSFs is a typical example of economic surplus extraction by the traders. Martinussen (1997) argues that the state uses pricing policies to extract economic surplus from agriculture, in Nyimba it is the buyers who artificially peg the

prices of the consumer goods they sell to SSFs higher than that of maize they get in exchange. As was highlighted in section 5.9.1.2, the traders relying on barter demand a lot of maize in exchange for the products they take to the SSFs. For example one SSF said ‘I think it doesn’t make sense for me to give him two *diinda* bags of maize which would fetch about ZMK120, 000.00 (USD24.13) for a blanket worth ZMK30, 000.00 (USD6.03)’. The SSF’s argument is that it is not fair for the trader to demand grain worth three times more than the value of the blanket. What could be inferred from the transaction is that when the trader factors in the transport costs to and from the city, he feels it is alright to demand for three *diinda* bags of maize. The study indicates that the SSFs feel exploited because the buyers seem to assume that they have a right to demand for more maize than usual simply because they are the ones to travel to the city to buy the products which they later come to sale to the SSFs. The fact that the buyers set the price and do not allow any room for negotiations could also be looked at them having more power than the SSFs. It is supposedly this situation which puts the SSFs in a subordinate position which the buyers capitalise on to get more maize from them or cause them to pay more for the products.

The study indicates that in Zambia, the state since 1991 does not perpetrate economic surplus extraction through unequal exchange of industrial goods and agricultural products. From 1991 to 2004, the study suggests that the state’s participation in the market was very minimal to the extent that no subsidies were provided. However, since 2005, the study suggests that the state actually started encouraging maize production through both the provision of subsidised inputs and also buying the maize at prices higher than the market price. This is contrary to Bates’ (1988) assertion that African government tend to encourage production by lowering both the prices of inputs and prices of output. The GRZ’s policy intervention could be said to result in increasing the SSFs’ income. Net revenue as was computed in table A2:6 also suggests that government intervention through price policies actually leads to an increase in the SSFs’ income.

6.2.2 Social Surplus Appropriation

Ellis (1993) argues that this takes place through three main ways: the market, rent, and the state. Relevant to this study is that done through the market and the state. Social surplus appropriation through the market is done through price. The study revealed that the SSFs were squeezed through low maize prices offered by the private maize traders. For example, one SSF said ‘we make losses when we sell to the private buyers who have money’. When he

did his math, the prices were low resulting in loss on his part. The SSFs argue that not only do private buyers/traders set the price, but the worst aspect of the transaction is that they set very low prices which result in the SSFs incurring losses. The SSFs felt that in most cases the buyers of their maize got away with more grain than they should have in this way. This suggests that given the prices the SSFs received for the sale of their grain, the buyers did not deserve to get as much grain as they got. The study seems to indicate that traders/buyers take advantage of the desperate situation of the SSFs to exploit them.

Ellis (1993) also argues that peasant squeeze is a result of unequal market power relations. The SSFs argue that the buyers/traders in all categories set the price for maize except for the food insecure villagers. So for the most part the buyers/traders have more market power than the SSFs, hence their ability to buy maize at their preferred price. What could be inferred from the SSF's statement above is that the fact that the trader had the money put the SSF in a subordinate position. Apart from that, other SSFs also said that it was not possible to negotiate with the petty traders when they came to buy maize. For example, one SSF said 'we don't negotiate because they just say we have brought. So we just get in order to satisfy our need'. The money the traders had and the SSFs' need for it conferred more power on the buyers. Nancy Holmstrom (1977) argues that exploitation is a relationship where the exploiter uses force or coercion to extract surplus (cited in Arneson 1981). She argues that force does not necessarily have to be physical but that when the other party has no other option then they can be deemed to have been forced or coerced. In the case of the SSFs, their need for the goods which the traders bring in a way forces them to sell their maize even when the prices these traders offer are very low. In this case the SSFs can be said to be exploited by the traders.

The study indicates that the state has facilitated social surplus appropriation through its compulsion of SSFs to grow hybrid maize varieties. As has been mentioned in section 4.3, the state through FISP and MACO officials has been instrumental in facilitating the SSFs' adoption of hybrid maize varieties. The state's influence in this turn of events can be inferred from the statement of one of the camp extension officers who said 'with our interaction with these farmers, they are doing away with local maize, only a few farmers are still sticking to local maize'. This can also be observed by the fact that all the SSFs were beneficiaries of the FISP. The study suggests that FISP has been instrumental in facilitating the SSFs adoption of these technologies. Productivity is facilitated by the government which in turn comes to buy

the surplus from the farmers through its agent the FRA. This is consistent with what Bernstein's (1982) simple reproduction squeeze whereby SSFs costs of production go up due to the adoption of expensive technological innovations promoted by the state through rural development programmes such as FISP.

Moreover, the study suggests that SSFs sale hybrid maize and not *nseenga* maize. This could be suggestive of how the state has facilitated the squeezing of the SSFs, most especially when one considers the fact that the state does not buy all the maize produced by the SSFs but that the private sector is the one that buys at prices which are relatively low. The state in a way has facilitated the abandonment of *nseenga*.

Bernstein's (1982) simple reproduction squeeze is yet another way through which the exploitation of SSFs can be explained. Selling of maize at low prices translates into simple reproduction squeeze through two ways. First, it increases the SSFs' cost of production through intensification of factors of production and self exploitation. Second, it increases the cost of the SSFs' simple reproduction.

6.2.3 What is left?

Most forms of petty exploitation could be explained by Scott's (1976) peasant test of 'what is left?' For example, SSFs seemed convinced that in most of the transactions they parted away with more maize than was normal. Future buying of maize as has been highlighted in section 5.9.1.1 is one of the mechanisms through which SSFs feel traders take more maize from them than they should. For example, one SSF said 'there's that system of giving money before the farmer has even harvested the maize, they give you empty grain bags and money. They give little money but they come to get large quantity of maize'. The SSF feel that the money farmers get from such transactions is not commensurate to the amount of grain the traders get. This could be considered exploitative because the buyer capitalises on the SSFs' desperate need for cash to get more maize from them than would be the case if they were not desperate.

Traders' measuring of the maize they by using measuring tools other than the scale is yet another way traders could be said to exploit the SSFs by taking more from them. The study seems to indicate that buyers use the moisture content argument and the seemingly ignorance of SSFs to exploit them. For example, one buyer said 'ZMK2, 000.00 (USD0.40) is the price at which I started buying a *meda* of maize in May when I opened the market ... The thing is at

that time, the moisture content in the maize was high so the maize was heavy such that to weigh the maize was going to be unfair on our part'. This means in May, he was buying maize at ZMK400.00 (USD0.08) per kilo gram. The buyer uses the moisture content argument not only to get more grain but also to pay a lower price for the same.

Another example is where one SSF complained that 'if we sell to the government per kg the price is better such that if we sell a 50kg bag, it doesn't fill a *diinda*, but by selling to the other traders we get a lot of our produce and just waste it, give it away, that why a life of lack continues'. This is suggestive of the fact that the private traders' use of a *diinda* is one way in which they get more grain from the SSFs. In this case it appears the buyer capitalises on the seemingly ignorance of the SSFs about the disparity between the actual amount of grain in the bag and the weight indicated on the bag in which it is packed to get more grain from the SSF. Contrary to the belief by the buyers that SSFs are ignorant of the disparity, the SSFs know because when they take bags that have been filled in the same way to the FRA market they find that a 50kg bag has more than 50kg worth of maize. The question is why is it that the SSFs choose not to challenge the buyers?

The study indicates that the farmers' organisations also take advantage of the SSFs when they sell seed on credit to the SSFs. However, has already been highlighted in section 5.9.2.4, the SSFs themselves do not see this as exploitation because they retained more maize than they gave the farmers' groups. This is consistent with Scott's (1976) findings that SSFs' definition is in terms of 'what is let' and not 'what is taken'.

6.2.4 Lack of infrastructure Argument

The lack of infrastructure argument and high cost of transportation are claimed to be major impediments for development of agriculture and an issue that might lead to low prices in rural areas. However, this argument is suspect. Ideally, the government is supposed to set up markets in far flung areas where the private sector does not go because of lack of infrastructure. What is interesting to note is that the study suggests that wherever there was a government market the private sector set up their markets too. In fact the study revealed that there were more private markets in the study areas than government markets. Besides as one buyer revealed, that he followed SSFs who could not transport their produce to his buying point to their homes and buy the maize from there without reducing the price of the maize to cater for transport to fetch the maize from the SSFs' home. This could be an indication that

lack of infrastructure and/or transportation costs does not really hinder the traders from going to far flung areas provided it is in their advantage they go.

6.2.5 SSFs Exploiting other SSFs

Structural exploitation also takes the form of SSFs exploiting other SSFs. The relatively better off SSFs also exploit the food insecure SSFs who turn to them for wage labour in exchange for maize during the rainy season when their maize stocks run out. Gill (1991) argues that ‘because of their vulnerable position they often become both economically and socially subordinate to the rich peasants on whom they depend for assistance during the ‘hungry season’ (cited in Martinussen 1997, 134). The study seems to indicate that the only time that SSFs have power over their produce is when they sell to food insecure fellow SSFs during the rainy season. During this time SSFs dictate the terms of exchange. For example, one SSF said ‘that is cheap labour and we tell them “you will be given a tin of maize if you work up to here”. In fact you are lucky that time there is no counting because people are hungry, so you just say “you go up to that point”’. The better off SSFs take advantage of the food insecure SSFs desperation to exploit them as the better off SSFs know that because of desperation the food insecure SSFs will work regardless of the size of the portion they are give them to till/weed. This form of exploitation can be explained by Bernstein’s (1982) commodity relations intensification through class differentiation. The better off SSFs use their stored maize as capital when they invest it into further production of maize by using it as payment for cheap labour.

6.3 What Factors Exacerbates SSFs’ Vulnerability to Exploitation?

Several factors could be said to exacerbate SSFs’ vulnerability to exploitation. First, government’s delay in opening FRA marketing season. The SSFs sell their maize to private traders and buyers in order to meet their urgent financial needs before FRA markets open. While the SSFs’ appreciate the existence of these market players, they complain that their prices are too low. Second, the government’s delay in paying the SSFs for their maize. As has been alluded to earlier, the government does not pay cash on delivery like the private traders/buyers do, it pays the SSFs after some time. This makes SSFs sale their maize to private traders even when they know that the prices are not as good as those offered by the government. Third, failure by FRA to monitor the activities of its buying agents. The buying agents FRA contracts, have also contributed to increasing the SSFs’ costs by passing on the costs of sewing and stacking to the SSFs. Fourth, incomplete information. The changing

policies have resulted in SSFs not knowing who is responsible for some of the services as such sewing and stacking. It is this weakness which the farmers' groups are capitalising on to pass the extra costs to SSFs.

6.4 Summary

The main objective of this study was to investigate to what extent the changing policies of maize marketing have contributed to the SSFs' vulnerability to exploitation. The study undertook an in-depth examination of the opportunities and problems SSFs experience from the last 2005 maize marketing policy changes to date in order to see if the policy changes have contributed to the SSFs' vulnerability to exploitation.

The study drew from political economy, peasant rationality and risk aversion theories to explain the phenomenon under study. Qualitative research methodology was used in this study to collect and analyse the data.

SSFs in Nyimba still use traditional tools in their maize cultivation. They grow both hybrid and *nseenga* maize varieties. Fertilizer is only applied to the hybrid varieties. To secure their subsistence the SSFs have to contend with storage and changing weather patterns issues. The study indicates that the SSFs are rational and seize the opportunities available to them in order to make more profits as can be inferred from their engagement in gardening and adoption of hybrid maize to be the crop sold.

The study is not conclusive on which of the two varieties hybrid and *nseenga* is more risky than the other. However, what seems to come out is that *nseenga* is good for subsistence only in terms of storage. Hybrid on the other hand is good for subsistence in terms of vagaries of the weather and also because its yield are higher than that of *nseenga*.

The profitability of hybrid maize production depends on the SSFs' access to subsidised inputs and/or access to FRA market.

The study indicates that almost all maize buyers with the exception of the food insecure SSFs set the prices at which they buy the maize from the SSFs. These prices are in most cases not negotiable except in some few barter cases. Almost all the maize buyers with the exception of FRA pay cash on delivery or exchange the maize with other products simultaneously. It is only in a few isolated cases that SSFs say FRA has paid them within the ideal two weeks otherwise the SSFs argue that they have received the monies several months later. The study

also seems to indicate that this delay has to somewhat contributed to their vulnerability to exploitation as it has contributed to the further scarcity of ready cash among SSFs who had to resort to the exploitative barter system and/or sell their maize for cash to private traders at relatively low prices in order to meet some of their needs.

The study seems to challenge the lack of infrastructure argument which has been used by many as justification for private sector to offer low prices in far flung areas. The study indicates that some private buyers go to rural areas with or without infrastructure and still charge the same price. The study indicates that by so doing such traders subsidise the SSFs in far flung areas while simultaneously squeeze those located in not so remote areas.

The study indicates that there are more private buyers than there are FRA satellite depots in the study area. The SSFs argued that this scenario has led to more problems than it has solved. Anyhow they appreciated the presence of the private sector because it enable them meet their urgent financial and materials needs because of their almost all year presence and acceptance of any quantity the SSFs wanted to sell. The maize market policy changes resulted in problems that could broadly be categorised into infrastructural and market related, policy related, price related and other problems.

The SSFs mainly depend on MACO officials and the farmers' organisations for government maize market information and on social networks for private maize markets information.

The study indicates that there are two forms of exploitations facing the SSFs in Nyimba: petty and structural. In future buying, the buyers capitalised on the SSFs' desperate need for cash or food to exploit them. The study also indicates that SSFs are exploited when they sell their maize using other tools prescribed by the maize buyers. In such transactions, some maize buyers capitalise on two main aspects to exploit SSFs: moisture content argument and their seemingly ignorance. With respect to moisture content, some maize buyers use this argument to both get more maize than usual as well as offer a lower price for it. Secondly, some maize buyers capitalise on the SSFs' seemingly ignorance of the disparity between the actual amount of maize a 50kg bag can take and the weight indicated on the bag to get more grain from them.

The study also indicates that some maize buyers temper with the scales to the disadvantage of the SSFs. In this regard, the study indicates that maize buyers seem to capitalise on the SSFs' silence about the deception even if they are aware of it to get more maize from them.

In the case of barter system, the SSFs feel that the buyers seem to assume that it was alright for them to demand more maize than usual simply because they travelled to the city to buy the products and presented them at the SSFs' door step. Meanwhile the SSFs feel defrauded because they argue that the prices are exorbitant.

The study indicates that the SSFs do not know that the satellite agents are responsible for costs of sewing and stacking the bags of maize after they sell to FRA, as this cost has now been passed on to them. Due to the changes in policy the SSFs seem to have assumed it is one of the changes and have ignorantly borne the cost. The study indicates that the satellite agents have capitalised on the SSFs' ignorance or lack of knowledge to pass these extra costs on them.

The fact that FRA sets targets of the amount of maize it would buy from SSFs each marketing season exposes SSFs to corruption. The buyers also take advantage of the SSFs' fear of FRA meeting its targets before they sell their maize to solicit bribes from them.

6.5 Recommendations

Based on the findings of the study it is recommended that:

- mechanisms be put in place to monitor the activities of the FRA buying agents
- the FRA come up with measures that will ensure that SSFs receive payments for their maize within the shortest possible time

6.6 Conclusion

Nyimba SSFs are not altogether risk averse as they show in some of their choices that they seek to maximize profits. The changing maize marketing policies have somewhat contributed to the SSFs' vulnerability to exploitation in several ways. Most of the exploitation which was observed was perpetrated by the private traders who came on the scene after policy changes in 1991. The SSFs' weaknesses such as desperate need for cash, lack of alternative markets, incomplete information, fear of not being able to sell to FRA markets before its markets closed, and their silence even when they realised that they were being defrauded are some of the factors which the maize buyers capitalised on to exploit them. The study indicates that

certain factors fuel the SSFs' vulnerability to exploitation: delay in opening of FRA marketing season; FRA's delay in paying the SSFs for their maize after the sale; lack of monitoring of FRA maize buying agents' activities, SSFs' passivity, and incomplete information.

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Appendix 1: Interview Guides

Interview Guides

Themes to pursue:

- Problems associated with selling maize
- Price changes for both inputs and output
- Exploitation
- Changes if any before and after liberalisation
- Interests

SSFs' Interview Guide

1. What types of crops do you cultivate and how long have you been cultivating?
2. What agricultural activities are you involved in and for how long? Wage labour, poultry, animal husbandry
3. How important is maize farming for you?
4. I would like you to tell me about the opportunities that you have seen now that there are many maize buyers than before.
5. I would also like to know if you experience any problems with respect to selling the maize you harvest
6. Who are your customers?
7. When do you normally sell your maize and why?
8. How do you sell your maize? Is it for cash or barter? If barter, what kind of items do you exchange your maize. What are the terms of trade?
9. Who determines the price at which you sell your maize? **OR** How is the price at which you sell your maize arrived at?
10. How do you get information about government floor prices?
11. What about the fertilizer and seed who supplies you with them and what are the terms of payments?
12. How do you pay for your inputs? (cash or barter) **OR** What are the modes of payment for the inputs?
13. In your opinion how are the prices of the inputs?

Appendix 1: Interview Guides

14. Do you experience any problems to access inputs? What kind of problems (if any) do you experience?
15. What other costs from sowing to marketing of maize do you incur? How much do they amount to?
16. I would like to discuss the seed varieties that you grow.
 - Could you please share with me what maize varieties do you grow?
 - Are there any differences in the requirement of fertilizer and insecticides with the varieties that you grow?
 - What changes in terms of output/yield have you observed since you started growing these varieties?
 - How long can you store the harvested maize and how different are they from the local maize variety?
 - Do you experience any problems with storage of your maize?
17. Are you a member of any farmers' union, cooperative?
18. Why did you join the organisation? What benefits does the organisation offer you?
19. How close are you to the nearest satellite depot?
- 20.

Interview Guide for Interview with Other Research Participants

A. Staff at MACO and Extension Worker

1. Maize marketing policies have undergone several transformations over the years, could you tell about them and why this has been the case?
2. What do you see as the problems facing the rural-based small scale maize farmers in the area/country?
3. What do you think are the solutions to those problems?
4. What is or has the government done to mitigate these problems?
5. How effective do you think the current government's intervention measures in mitigating the problems faced by rural-based small scale maize farmers?
6. How does the government relate with the small scale maize farmers?

Appendix 1: Interview Guides

7. I would like to discuss the seed varieties grown in this area? (just for the extension worker)
 - Could you please share with me what maize varieties are mostly grown in this area?
 - Are there any differences in the requirement of fertilizer and insecticides with these varieties?
 - What changes in terms of output/yield have you observed since the start of growing these varieties?
 - How long can one store the harvested maize and how different are they from the local maize variety?
 - What problems are associated with storage of these maize varieties?

B. Farmers Union Official

1. What is the mission of the Union and how does it go about achieving this mission?
2. Who are your members and how does one become a member?
3. What services both direct and indirect does your organisation offer its membership?
4. How does the Union relate with its members?
5. How does your organisation relate with government and what are the main issues on which the Union engages with government?
6. How responsive is government to these same issues?
7. In your opinion what are the problems facing the small scale maize farmers in this area/Zambia?
8. How is the Union helping to mitigate these problems?
9. In your opinion how effective are the intervention measures put in place to mitigate the small scale maize farmers' problems?

Appendix 1: Interview Guides

C. Traders

1. May you share with me what is involved in buying maize from the farmers in the rural areas and selling the same **OR** could you please tell me about your experiences in trading in maize?
2. Who are your maize suppliers?
3. How do you acquire your maize supplies?
4. What are the modes of payments? And how much?
5. Who are your customers, and how do they pay for it?
6. What are the costs involved and profitability?
7. What problems do you encounter to buy maize from remote areas and why?
8. Do you pay different prices for the maize you buy from the remote areas and why?
9. What do you think should be done to mitigate the problems that you encounter as traders?
10. What do you think about the liberalisation policy which has facilitated your participation in the maize markets?

D. Millers

1. Who are your suppliers of maize?
2. How do you get your maize supplies?
3. How much do you buy the maize for it?
4. How you determine the maize prices?
5. What types of processed maize products to you produce?
6. Who are your customers for these products?
7. What are the prices for these products?

Appendix 1: Interview Guides

E. FRA Official

1. I learnt that that you buy maize specifically from SSFs, may I know the reason why this is the case?
2. I learnt that there are specific quantities that the government says they buy from each farmer, a minimum and maximum. For example I heard that 10 bags is the minimum and the maximum as 153 bags. I would like to find out the rationale for that?
3. Are there plans or discussions about maybe looking at those SSFs who are not able to sale that minimum number of bags?
4. I would like to find out who your maize customers are, as I know that you sometimes sell maize.
5. Coming back to the standards, what I got is that previously, there was nothing like sorting the maize to remove the coloured grains, cleaning it to ensure that there was chaff which thing from last year and this year. What is the motivation behind or why have things changed these past two years?
6. I was wondering if nationwide you haven't had more requests for more requests for satellite depots than you have established?
7. What are the payments modalities like, could you describe that for me?
8. Who is responsible for rebagging, sewing and stacking the maize that FRA buys at the satellite depots now?
9. Who are your buying agents?
10. What are the main determinants of the FRA price? I was wondering what are the main determinants of how do you arrive at that price?

FGD Topic:

1. *What are the effects of Maize marketing Policies on the small scale maize farmers?*
2. *What are the effects of government set maize floor price on the small scale maize farmers?*

Appendix 1: Interview Guides

3. *What are the effects of the government buying the maize through FRA on the small scale farmers?*
4. *What effects does the proliferation of maize traders have on the small scale maize farmers?*
5. *What effects does government provision of subsidised inputs have on the small scale farmers?*

Appendix 2 Calculations for Cost and Return of Maize Farming ^{Table A2: 7. Maize Price per Kilo Gram, to whom and when sold}

Buyer	Price per Kilo Gram in Zambian Kwacha											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Large Scale Traders					600 (USD0.12)	600 (USD0.12)	650 (USD0.13)	600-650 (USD0.12-0.13)	*	800 (USD0.16)	900-1,000 (USD0.18-0.20)	1,000 (USD0.20)
Medium Scale Traders					400 (USD0.08)	500 (USD0.10)	600-650 (USD0.12-0.13)	650 (USD0.13)	*	*	*	*
Small Scale Traders				300 (USD 0.06)	400 (USD0.08)	500 (USD0.10)	500-600 (USD0.10-0.12)	600-650 (USD0.12-0.13)	*	*	*	*
FRA/Govt					1,400 (USD0.26)	1,400 (USD0.26)	1,400 (USD0.26)	1,400 (USD0.26)	1,400 (USD0.26)	1,400 (USD0.26)		
Fellow Villagers	1,000-1,400 (USD0.20-0.28)	1,000-1,400 (USD0.20-0.28)									600-1,400 (USD0.12-0.26)	600-1,400 (USD0.12-0.26)

Source: 2010 Fieldwork interviews *Data was not available

Appendix 2 Calculations for Cost and Return of Maize Farming^{Table}

A2: 8. Estimation of Production Costs for Nseenga for 1lima (were oxen are used in Land Preparation, Planting and Weeding)

Item Description	Quantity	Unit Cost (ZMK)	Total (ZMK)
Land Preparation	1 <i>Lima</i>	45, 000.00 (USD9.05)	45, 000.00 (USD9.05)
Planting	1 <i>Lima</i>	45, 000.00 (USD9.05)	45, 000.00 (USD9.05)
Weeding	1 <i>Lima</i>	45, 000.00 (USD9.05)	45, 000.00 (USD9.05)
Harvesting Ox Carts	1 ¼	12, 000.00 (USD2.41)	15, 000.00 (USD3.02)
Total Cost			150, 000.00 (USD30.16)
Marketing Costs			
Shelling	12	3, 000.00	36, 000.00
Transport to Market	12	3, 000.00	36, 000.00
Empty grain bags	12	2, 000.00	24, 000.00
Sewing	12	100.00	1, 200.00
Stacking	12	200.00	2, 400.00
Total Marketing Costs			99, 600.00 (USD20.02)
Grand Total Cost			249, 600.00 (USD50.18)

Source: 2010 Fieldwork (Interviews and FGD with SSFs)

The computation in table A2:2 is based on the data given by the farmers. The computation is based on expenses incurred by the SSFs for 2009/2010 farming season. For example, with respect to seed, they said that they do not buy seed, as they continue recycling from the previous harvests. Furthermore, they said that they do not use fertilizer to grow *nseenga*. Even the storage of the same maize is also traditional as in most cases the grain does not need chemicals/herbicides to protect it from insect infestation. The farmers also said that one expects to harvest about 12 bags of *nseenga* from a *Lima*. It was on the basis of this data that table 3 above was computed. Based on the above, when marketing costs are ignored, twelve

Appendix 2 Calculations for Cost and Return of Maize Farming

bags of *nseenga* maize would cost a SSF ZMK150, 000.00 (USD 30.16) to produce. One bag of the same maize would therefore cost ZMK12, 500.00 (USD 2.513) to produce. Marketing costs have been ignored because the SSFs said they grow *nseenga* for home consumption.

Several variations were observed in the costs of labour to produce maize as opposed to production using oxen which was almost like standardised among the SSFs. The figures given for labour were usually given as a block amount. So to establish the per *lima* charge the data about the total surface area owned and farmed by the farmer was used to arrive at the approximate payment to labour. I now take a case of one of the SSFs who gave data about all the expenses he incurred to produce maize in order to provide some idea of how much it cost him to produce maize using labour.

What can be observed from table A2:3 below is that the cost of producing twelve bags of *nseenga* maize from *Ilima* in 2009/2010 farming season when land preparation, planting and weeding was done using hired labour was ZMK108, 750.00 (USD21.87), or ZMK9, 062.50 (USD1.82) per bag (exclusive of marketing costs). When marketing costs are taken into account, a SSF in Nyimba spent ZMK208, 350.00 (USD41.89) to produce twelve bags of *nseenga*, and ZMK17, 362.50 (USD3.49) to produce one bag of the same maize.

Appendix 2 Calculations for Cost and Return of Maize Farming

Table A2: 9. Estimation of Production Costs for Nseenga for 1lima (were Labour is used for Land Preparation, Planting and Weeding)

Item Description	Quantity	Unit Cost (ZMK)	Total (ZMK)
Land Preparation	1 <i>Lima</i>	50,000.00 (USD10.05)	50, 000.00 (USD10.05)
Planting	1 <i>Lima</i>	25,000.00 (USD5.03)	25, 000.00 (USD5.03)
Weeding	1 <i>Lima</i>	18,750.00 (USD3.77)	18, 750.00 (USD3.77)
Harvesting Ox Carts	1 ¼	12,000.00 (USD2.41)	15, 000.00 (USD3.02)
Total Cost			108, 750.00 (USD21.87)
Marketing Costs			
Shelling	12	3, 000.00	36, 000.00
Transport to Market	12	3, 000.00	36, 000.00
Empty grain bags	12	2, 000.00	24, 000.00
Sewing	12	100.00	1, 200.00
Stacking	12	200.00	2, 400.00
Total Marketing Costs			99, 600.00 (USD20.02)
Grand Total Cost			208, 350.00(USD41.89)

Source: 2010 Fieldwork (Interviews and FGD with SSFs)

What can be observed from table A2:3 is that the cost of production of maize is ZMK108, 750.00 (USD21.87) for a *lima*. It was also observed that those who exchange labour with maize actually paid more in monetary terms. For example one SSF who owns 9 *limas* said ‘for weeding we paid using maize and we used about 17 bags at ZMK65, 000.00 (USD13.07) per bag’. This translates into ZMK1, 105, 000.00 (USD222.16) for 9*limas* or ZMK122, 777.78 (USD24.68) per *lima*.

Appendix 2 Calculations for Cost and Return of Maize Farming

A2: 10. Estimation of Production Costs for Hybrid Maize for 1lima (when Land Preparation, Planting and weeding is done using oxen)

Item Description	Quantity	Unit Cost (ZMK)	Total (ZMK)
Production Costs			
5kg Hybrid Seed	1	63, 000.00	63, 000.00
Land Preparation	1 <i>Lima</i>	45, 000.00	45, 000.00
Planting	1 <i>Lima</i>	45, 000.00	45, 000.00
Weeding	1 <i>Lima</i>	45, 000.00	45, 000.00
50 kg bag Top dressing Fertilizer	1	186, 000.00	186, 000.00
	1	*50, 000.00	*50, 000.00
50kg bag Basal Fertilizer	1	160, 000.00	160, 000.00
	1	*50, 000.00	*50, 000.00
Transport for fertilizer	2	8, 000.00	16, 000.00
Transport to buy inputs	2	15, 000.00	30, 000.00
Harvesting Ox Carts	2 ½	12, 000.00	30, 000.00
Total Production Cost (using fertilizer bought at market price)			620, 000.00 (USD124.65)
*Total Production Cost (using subsidised fertilizer)			*374, 000.00 (USD75.19)
Marketing Costs			
Shelling	25	3, 000.00	75, 000.00
Transport to Market	25	3, 000.00	75, 000.00
Empty grain bags	25	2, 000.00	50, 000.00
Insecticide (Shumba Super)	6	24, 000.00	144, 000.00
Sewing	25	100.00	2, 500.00
Stacking	25	200.00	5, 000.00
Total Marketing Costs			351, 500.00
Grand Total Cost			971, 500.00 (USD195.32)
*Grand Total Costs (using subsidised fertilizer)			*725, 500.00 (USD145.86)

Source: 2010 Fieldwork

*Cost with subsidised fertilizer

Appendix 2 Calculations for Cost and Return of Maize Farming

The computations for tables A2:4 and A2:5 are based on data from the SSFs. On that basis several assumptions have been made. For example, the yield used in the computation is 25 bags (50kg) based on the expected yield of about 20 – 25 bags from *1lima* as stated by the SSFs. Further, SSFs gave data of the standard required quantities of seed and fertilizer that are supposed to be used on *1lima*. As such one 50kg bag of each of the types of fertilizer has been adopted as that is the recommended amount of fertilizer that has to be applied per *lima* (Donovan et al 2002). 5kg of seed was used in the computation because that is the recommended quantity that is supposed to be planted on *1lima*. Apparently there is not much difference with the standard requirement used in other countries such as Bangladesh where Karim et al (2010) in their studies attest that the recommended amount of maize seed is between 19 to 21 kg per hectare. The SSFs did not provide explicit data about how much it costs to harvest the maize from *1lima*. They however, provided data about cost per ox cart load. In addition, they said that from one ox cart load one is expected to get about 10 bags of shelled maize. It is on that basis that the cost of harvesting was calculated.

Based on computation in table A2:4 (see appendix2) which shows the cost of production for 25 bags of hybrid maize (expected yield from *1lima*) when land preparation, planting and weeding is done by oxen, production costs are presented for both production with use of fertilizer bought from retail shops and subsidised fertilizer. 25 bags of hybrid maize produced with fertilizer bought from the retail shop cost a SSF ZMK620, 000.00 (USD124.65) to produce in the 2009/2010 farming season (exclusive of marketing costs). And a bag of hybrid produced with fertilizer bought from the retail shop on average would cost ZMK24, 800.00 (USD4.99) (exclusive of marketing costs). On the other hand, if the price of fertilizer is pegged at the government subsidised price of ZMK50, 000.00 per 50kg bag, then the cost of production for 25 bags was ZMK374, 000.00 (USD75, 19) and that of a bag was ZMK14, 960.00 (USD3.01) (exclusive of marketing costs). To produce 25 bags of hybrid maize using subsidised fertilizer based on assumption of 25 bags yield per *lima* and taking marketing costs into account would cost ZMK725, 500.00 (USD145.86) and that of a bag would be ZMK29, 020.00 (USD5.83). Whereas, to produce 25 bags of maize using fertilizer bought from the retail shops, based on the assumption of 25 bags per *lima* and taking marketing costs into account would cost ZMK971, 500.00 (USD195.32) and that of a bag would be ZMK38, 860.00 (USD7.81).

Appendix 2 Calculations for Cost and Return of Maize Farming^{Table}

A2: 11. Estimation of Production Costs for Hybrid Maize for 1lima (when land Preparation, Planting and Weeding is done using hired labour)

Item Description	Quantity	Unit Cost (ZMK)	Total (ZMK)
Production Costs			
5kg Hybrid Seed	1	63, 000.00	63, 000.00
Land Preparation	1 <i>Lima</i>	50, 000.00 (USD10.05)	50, 000.00 (USD10.05)
Planting	1 <i>Lima</i>	25, 000.00 (USD5.03)	25, 000.00 (USD5.03)
Weeding	1 <i>Lima</i>	18, 750.00 (USD3.77)	18, 750.00 (USD3.77)
50 kg bag Top dressing Fertilizer	1	186, 000.00	186, 000.00
	1	*50, 000.00	*50, 000.00
50kg bag Basal Fertilizer	1	160, 000.00	160, 000.00
	1	*50, 000.00	*50, 000.00
Transport for fertilizer	2	8, 000.00	16, 000.00
Transport to buy inputs	2	15, 000.00	30, 000.00
Harvesting Ox Carts	2 ½	12, 000.00	30, 000.00
Total Production Cost (using fertilizer bought at market price)			578, 750.00 (USD116.36)
*Total Production Cost (using subsidised fertilizer)			*332, 750.00 (USD66.90)
Marketing Costs			
Shelling	25	3, 000.00	75, 000.00
Transport to Market	25	3, 000.00	75, 000.00
Empty grain bags	25	2, 000.00	50, 000.00
Insecticide (Shumba Super)	6	24, 000.00	144, 000.00
Sewing	25	100.00	2, 500.00
Stacking	25	200.00	5, 000.00
Total Marketing Costs			351, 500.00
Grand Total Cost (using fertilizer bought at market price)			930, 250.00 (USD187.03)
*Grand Total Costs (using subsidised fertilizer)			*684, 250.00 (USD137.57)

Source: 2010 Fieldwork *Cost using subsidised fertilizer

Appendix 2 Calculations for Cost and Return of Maize Farming

Table A2.5 shows an estimation of the 2009/2010 farming season cost of production for hybrid maize for SSFs in Nyimba where land preparation, planting and weeding is done using hired labour. As in is the case with table 5, the production costs are presented for both production with use of fertilizer bought from retail shops and subsidised fertilizer. On average, a SSF spent ZMK578, 750.00 (USD116.36) to produce 25 bags of hybrid maize using fertilizer bought at retail price while ignoring marketing costs. To produce 25 bags hybrid maize using subsidised fertilizer but ignoring marketing costs cost a SSF ZMK332, 750.00 (USD66.90). when marketing costs are taken into account, 25 bags of hybrid maize produced with fertilizer bought at market price cost ZMK930, 250.00 (USD187.03) while that produced with subsidised fertilizer cost ZMK684, 250.00 (USD137.57).

When the calculations are based on the expected yield per *lima* according to MACO of 15-20 bags, the cost of production using the lower limit of 15 bags per *lima* to allow for poor management, a bag produced with subsidised fertilizer inclusive of marketing costs would cost ZMK39, 633.33 (USD 7.97), while a bag produced with fertilizer bought from the retail shops including marketing costs would cost ZMK56, 033.00 (USD 11.27) to produce. To produce a bag of hybrid maize using subsidised fertilizer based on assumption of 15 bags yield per *lima* but ignoring marketing costs would cost ZMK24, 933.33 (USD5.01). Whereas, to produce a bag of maize using fertilizer bought from the retail shops, based on the assumption of 15 bags per *lima* but ignoring marketing costs would cost ZMK41, 333.00 (USD8.31)

Table A2:6 below shows the net returns for the two varieties, that is, *nseenga* and hybrid. The table has been computed to show the net returns for production when both labour and oxen are used for land preparation, planting and weeding in the production of both hybrid and *nseenga* maize varieties. Further, in the case of hybrid, the table shows net returns for both productions with subsidised fertilizer and with retail priced fertilizer. Two prices are used to calculate the total returns: FRA price and the private traders' price prevailing at the time the research was undertaken (see table A2:1 in appendix). The total costs figures have been imported from tables A2:2-5 (see appendix2).

Appendix 2 Calculations for Cost and Return of Maize Farming Table A2: 12. Net Returns

Details	Yield / <i>lima</i> (1)	Price/50kg bag in ZMK (2)	Total Revenue in ZMK (3)	Total Cost in ZMK (4)	Net Returns/ <i>lima</i> in ZMK (5)	Net Returns/bag in ZMK (6)
	(1)	(2)	(1).(2)	(4)	(3)-(4)	(5)/(1)
<i>Nseenga</i> (land prep, planting & weeding by labour)	12	*32, 500.00	*390, 000.00	208, 350.00	181, 650.00 (USD36.52)	15, 137.50 (USD3.04)
	12	**65, 000.00	**780, 000.00	208, 350.00	571, 650.00 (USD11.93)	47, 637.50 (USD9.58)
<i>Nseenga</i> (land prep, planting & weeding using oxen)	12	*32, 500.00	*390, 000.00	249, 600.00	140, 400.00 (USD28.23)	11, 700.00 (USD2.35)
	12	**65, 000.00	**780, 000.00	249, 600.00	530, 400.00 (USD106.64)	44, 200.00 (USD8.87)
Hybrid(land prep, planting & weeding using oxen) produced with market price fertilizer	25	*32, 500.00	*812, 500.00	971, 500.00	-159, 000.00 (-USD31.97)	-6, 360.00 (-USD1.28)
	25	**65, 000.00	**1, 625, 000.00	971, 500.00	683, 500.00 (USD137.42)	27, 340.00 (USD5.50)
Hybrid(land prep, planting & weeding using oxen) produced with subsidised fertilizer	25	*32, 500.00	*812, 500.00	725, 500.00	87, 000.00 (USD17.49)	3, 480.00 (USD0.70)
	25	**65, 000.00	**1, 625, 000.00	725, 500.00	899, 500.00 (USD180.85)	35, 980.00 (USD7.23)
Hybrid (land prep, planting & weeding by labour) produced with market price fertilizer	25	*32, 500.00	*812, 500.00	930, 250.00	-117, 750.00 (-USD23.67)	-4, 710.00 (-USD0.95)
	25	**65, 000.00	**1, 625, 000.00	930, 250.00	694, 750.00 (USD139.68)	27, 790.00 (USD5.59)
Hybrid(land prep, planting & weeding by labour) produced with subsidised fertilizer	25	*32, 500.00	*812, 500.00	684, 250.00	128, 250.00 (USD25.78)	5, 130.00 (USD1.03)
	25	**65, 000.00	**1, 625, 000.00	684, 250.00	940, 750.00 (USD189.14)	37, 630.00 (USD7.57)

Source: 2010 Fieldwork (Interviews with SSFs) **Private traders price **FRAPrice

Appendix 3: Problems Associated with Maize Selling Experienced by SSFs

Table A3: 2. Problems Linked to selling of Maize

<p>Infrastructure and/or market access related problems</p>	<ul style="list-style-type: none"> • Long distance to the point from which they are supposed to receive payment • Sparse distribution (long distance to the market) of government maize markets which increase transport costs • Insufficient number of markets • Bad roads
<p>Policy related problems</p>	<ul style="list-style-type: none"> • Poor logistical preparations by government leads to delay in opening of the market • Government targets breed corruption thus increasing production cost especially for farmers with many bags of maize to sell • Government's inability to buy all the maize produced by the SSFs • Farmers selling their maize at giveaway prices because government targets have been met but farmers have to dispose off their produce anyway • Laborious procedure of ensuring adherence to quality standards • Government's delay in paying the farmers for the maize it buys from them

Appendix 3: Problems Associated with Maize Selling Experienced by SSFs

<p>Price related</p>	<ul style="list-style-type: none"> • Buyers not only set the prices in most cases/times but they also set low prices • Piece meal selling of grain especially to the petty and private traders eventually leads to the farmer not realising the full benefits of his/her labour because the grain runs out before they could even sell to a good market. Piecemeal sells also facilitates hunger • Terms of exchange results in farmers making losses
<p>Other</p>	<ul style="list-style-type: none"> • Farmers feel <i>kunyengelelewa</i> and <i>kupondelezedwa</i> because traders/buyers refuse to buy at price they demand • Buyers/traders tempering with their scales in order to defraud farmers of their maize • Extra costs such as sewing and stacking passed on to farmer thus further increasing his/her production cost • Farmers feel <i>kuibiliwa</i> • Farmers feel <i>kufyengewa</i> • Farmers feel <i>kuzyelelewa</i> • Farmers feel they have no power over their produce

Source: 2010 Fieldwork interviews and focused group discussions

