

**AGRICULTURAL TRANSFORMATION IN ZAMBIA'S  
CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS,  
DURING THE PERIODS 1980-1990 AND 1997-2008**

By

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for the degree of Master of Philosophy in Geography

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## DECLARATION

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## APPROVAL

This thesis of **Augrey Hicigaali Malambo** has been approved as fulfilling the requirements for the award of a Master of Philosophy (M.Phil.) degree in Geography by the University of Zambia.

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## ABSTRACT

The governance philosophies of the UNIP and MMD governments were very different. These were expected to drastically influence economic performance and livelihoods. The study was undertaken to compare how agricultural crop production among smallholder farmers changed in time and space. The main objective of this study was to establish the patterns of smallholder crop farming and agricultural transformation of Chibombo, Kapiri Mposhi and Mumbwa districts in Central Province of Zambia between the 1980-1990 and 1997-2008 periods. An institutional theoretical framework and a household conceptual approach were used to guide the conduct of this study at the institutional and household levels. The neo-liberal theory framework of the 1990s was the basis of the emergence of post-1997 agricultural institutions while the dependency theory of the 1980s guided the agricultural institutions of the 1980s. The Institutional theory guided analysis of institutional changes while the Household Economic Approach was used to analyze effects of policies on families. The establishment of changes which had taken place in smallholder crop farming after 1997 and emerging transformations justified the study.

Secondary data was obtained through an extensive review of literature. Primary data was obtained through questionnaires distributed to various agricultural officers and 1,367 smallholder farmers in 226 cooperatives. Other pieces of primary data were obtained through Group and personal interviews and observations. Maps were used in the comparison of agricultural patterns existing between 1980-1990 and 1997-2008 periods. Data was analyzed using quantitative and qualitative methods.

The study established that the main crops grown during the 1980-1990 period included maize, cotton and groundnuts. After 1997 only maize and cotton continued to dominate while *solanum macrocarpon* (*impwa*), sweet potatoes and other crops emerged. The mono cropping system of the 1980s gave way to multi-cropping, crop rotation and conservation farming practices. Furthermore, after 1997 maize and cotton production remained relatively stable while production of other crops not prominent during the 1980-1990 period increased. Agricultural support institutions of the 1980s collapsed and their places were taken by new privately owned and more sustainable but less spatially distributed institutions. The quality of transport infrastructure deteriorated while two short roads were tarred in Chibombo District. Liberalization became more entrenched especially around market centres and in easily accessible areas of the study districts. In parts of farming areas where government improved and/or up-scaled its policy implementation, sustainable, rewarding and growing agricultural development emerged while in areas where policies were not well implemented or were not followed or not followed correctly, only marginal and declining agricultural development occurred. It is concluded that maize and cotton were widely grown in both study periods; Sunflower production declined after 1997 while new crops such as *solanum macrocarpon* became common after 1997. The government supported agricultural institutions of the 1980-1990 period collapsed at the end of the 1980s and, new privately and more sustainable institutions emerged. The state of road infrastructure declined after 1997 while positive agricultural transformations characteristic of liberalization emerged near accessible farming areas and market centres. The study concluded that after 1997 changes occurred in cropping systems, the type of crops they grew and crop production; agricultural support institutions; transport infrastructure and new transformations emerged.

**Key Words:** Agricultural Liberalization, Agricultural Support Institutions, Agricultural Transformation, Farmer Response, Smallholder Crop Farming, Transport Infrastructure.

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## **DEDICATION**

To my wife, children, friends and small-scale farmers of Zambia

## DEFINITION OF KEY TERMS

**Agricultural liberalization:** This refers to the policies in agriculture which permit private investment with minimal government interference and an economic system where government plays no direct role in running agricultural activities but allows the private sector to take a leading role in agricultural investment.

**Agricultural support institutions:** This refers to the government and private institutions involved in supporting agricultural activities at various levels for example input supply and provision of extension services.

**Agricultural transformation:** This refers to the changes taking place in farming as a result of government policy changes, environmental conditions.

**Command economy:** This refers to an economy controlled by government through direct investment and regulation as was the case between 1980 and 1990.

**Transport infrastructure:** This refers to roads and rail transport used in the movement of goods and services in Chibombo, Kapiri Mposhi and Mumbwa Districts.

**Economic liberalization:** This refers to an act of freeing or making an economy free for private sector driven investment with minimal government interference as was the case between 1997-2008.

**Liberalized economy:** This refers to an economic environment in which citizens are free to invest in any sector permitted by Government just as was the case between 1997 and 2008.

**Smallholder/small-scale Crop Farming:** This refers to a farming system which is practiced by smallholder farmers usually using basic tools, low investments and with relatively small farms.

**Spatial Pattern:** This refers to an arrangement or distribution patterns of agricultural support institutions in farming areas.



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## ACRONYMS

ACE	Agricultural Commodity Exchange
ADB	Asian Development Bank
AFC	Agricultural Finance Company
AFE	Agricultural Farming Equipment
ARMB	Agricultural Rural Marketing Board
ASIP	Agricultural Sector Investment Programme
BA	Bachelor of Arts degree
BEO	Block Extension Officer
BSA Co	British South African Company
B.Sc.	Bachelor of Science degree
CDCU	Chibombo District Cooperative Union
CEO	Camp Extension Officer
CLUSA	Cooperative League of the United States of America
COZ	Credit Organization of Zambia
CPCMU	Central Province Cooperative Marketing Union
CSO	Central Statistical Office
CUSA	Credit Union and Savings Association
DACO	District Agricultural Coordinator
DC	District of Columbia
DCO	District Cooperative Officer
ECU	Eastern Co-operative Union
EDP	Electronic Data Processing

EPAPB	Eastern Province Agricultural Produce Board
FB	Federal Board
FGMB	Federal Grain Marketing Board
FISP	Farmer Input Support Programme
FMB	Federal Marketing Board
FNDP	First National Development Plan
FRA	Food Reserve Agency
FtNDP	Fourth National Development Plan
GMB	Grain Marketing Board
GNR	Great North Road
GRZ	Government of the Republic of Zambia
GV	Golden Valley
GVRT	Golden Valley Research Trust
GWR	Great West Road
HEA	Household Economy Approach
HQ	Head Quarters
IAHS	International Association of Hydrological Sciences
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
KCE	Kapiri Mposhi Commodity Exchange
KDCU	Kapiri Mposhi District Cooperative Union
KRDCU	Kabwe Rural District Co-operative Union
LINTCO	Lint Company.
LONRHO	London Rhodesia

MACO	Ministry of Agriculture and Cooperatives
MCB	Maize Control Board
MDCMU	Mumbwa District Cooperative Union
MM	Mount Makulu
MMD	Movement for Multi-Party Democracy
MRI	Maize Research Institute
NAMBOARD	National Agricultural Marketing Board
NCZ	Nitrogen Chemicals of Zambia
NGO	Non-Governmental Organization
NRG	Northern Rhodesian Government
PVT	Private
RIF	Rural Investment Fund
SADC	Southern African Development Community
SAO	Senior Agricultural Officer
SEEDCO	Seed Company
SGS	General Society Surveillance
SNDP	Second National Development Plan
SPCMU	Southern Province Co-operative Marketing Union
TAZARA	Tanzania-Zambia Railways Authority
TBZ	Tobacco Board of Zambia
TNDP	Third National Development Plan
UNDP	United Nations Development Programme
UNIP	United National Independence Party
UNZA	University of Zambia

ZAMSEED	Zambia Seed Company
ZCF	Zambia Cooperative Federation
ZNFU	Zambia National Farmers' Union

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the study**

After the change in 1991 from the United National Independence Party (UNIP) government led by Dr. David K. Kaunda to the new Movement for Multi-Party Democracy (MMD) government led by Dr. Frederick T.J. Chiluba, economic policies of liberalization were introduced away from the previous policies of controlled planning (MMD, 1996; Mwanza, 1992a & b; Sichingabula, 2000). The purpose of the switch to economic liberalization was to help improve agriculture and other sectors of the economy (MMD, 1996; GRZ, 1992 and 1995; Mwanza, 1992a & b). It was expected that a change from a command economy to a liberalized economy would probably result into changes in the agricultural activities such as the cropping systems, type of crops grown and production, agricultural support institutions and transport infrastructure in Chibombo, Kapiri Mposhi and Mumbwa Districts, among other farming areas.

The command economic and political policies of the 1980s revolved around direct government support to agriculture and other sectors of the economy. In contrast, the post-1991 economic and political arrangements were based on minimal government involvement in agriculture and other sectors (Mwanza, 1992a & b; World Bank, 1994). It is this marked change of direction in the economic and political arrangements in the country which prompted this study.

The thesis of this study is that the new policies of agricultural liberalization resulted in changes in the crops grown, cropping systems, crop production quantities, agricultural support institutions, the nature and quality of the transport (road and railway) infrastructure and livelihoods of smallholder farmers in the study area.

The purpose of this investigation was to determine which system of government was better in the management of smallholder crop farming in Chibombo, Kapiri Mposhi and

Mumbwa Districts between the 1980-1990 and 1997-2008 periods. This was done in view of policy differences between the pre-and post- 1991 periods. In the current study, the 1980-1990 period represented the era of centralized planning under the United National Independence Party (UNIP) of President Dr. David K. Kaunda while the 1997-2008 represented the period of economic liberalization led by the Movement for Multi-Party Democracy (MMD) under the presidency of Dr. Frederick T.J. Chiluba.

## **1.2 Theoretical Framework**

Thurlow and Wobst (2004) argue that both neo-liberalization policies of the 1990s and the dependency theory policies of the 1980s were aimed at reforming, among others, agriculture albeit with two different goals. While the neo-liberal policies emphasized increased productivity, agricultural competitiveness and reduced dependency of smallholder farmers on government support, the dependency theoretical policies, in contrast, focused on improved agricultural productivity through centralized government control and therefore encouraging dependency of smallholder farmers on government support. In the study, the dependency theoretical framework of the 1980s will be the basis of understanding cropping systems, agricultural support institutions and transport networks of Chibombo, Kapiri Mposhi and Mumbwa Districts for the 1980-1990 period. On the other hand, the neo-liberal theoretical framework of the 1990s will be the basis of understanding various components of smallholder crop farming and agricultural transformations which emerged in Chibombo, Kapiri Mposhi and Mumbwa Districts during the 1997-2008 period. The two opposing schools of thought, hence, were used by respective governments when creating the agricultural practices of centralized planning during the 1980s, one hand, and a free market agricultural environment of the 1990s, on the other hand.

Furthermore, an institutional theory framework was used as guide when collecting and analyzing institutional structural and operational changes in the study areas which resulted from a policy shift from command to liberalization. The theory emphasizes deeper and more resilient aspects of social structures. Furthermore, it considers processes by which a number of structures, including rules and routines become established as authoritative guidelines for social and economic behavior and, thereafter these get diffused, adopted and adapted over space and time. The institutional theory framework was used in the study of agricultural support institutions and smallholder patterns in Chibombo, Kapiri Mposhi and Mumbwa Districts owing to its emphasis on formal and legal parts of government structures and transformational effects on institutions (Whelan, 2016). Thus, for the current study it was used as a diagnostic tool of possible agricultural transformations of smallholder crop farming in the study areas.

But, in order to examine the effects of changed economic policies on the household level, a household economy approach (HEA) was adopted. The framework was adopted for use in this study because it focuses on people's livelihoods and helps to offer insights on how household economies work at different levels of wealth. In the study the HEA helped to synthesize the side effects of individual policies on the recipient smallholder farmer populations in Chibombo, Kapiri Mposhi and Mumbwa Districts especially after 1997.

While effects of the policies of dependency or core-periphery approach of the 1980s were well documented and evaluated, the effects of neo-liberal policies of the 1990s and thereafter in a country such as Zambia needed further study especially with regard to their effects on the systems of smallholder crop farming, agribusinesses and transport infrastructure in Chibombo, Kapiri Mposhi and Mumbwa Districts during the 1997-2008 period. Scholars such as Kuby *et al.* (2001), Thurlow and Wobst (2004), Thapa (2009), World Bank (2003 & 2007), and Joshi, *et al.* (2007) seem to create an impression that neo-liberal policies are a way of making farming operations self sustaining, less dependent on government support, more

competitive and productive. But are these intentions uniform across space, time and culture? According to Kokwe (1997), Gerrard *et al.* (1994) and the World Bank (1994) there is a relationship between agricultural policies of liberalization and the changes occurring in livelihoods of smallholder farming and their economic activities and, the development of road and rail infrastructure in farming communities.

The study examined agricultural transformations and offers a spatial analysis of the effects of the new policies on crop farming and its associated institutional support network, and identifies those new structures which may have emerged to fill the vacuum created by the collapsed institutions preceding liberalization.

### **1.3 Research Problem**

Between 1980-1990 the government uniformly controlled agriculture and agribusinesses through different legal and institutional mechanisms such as provision of subsidies, announcement of the floor prices of crops and provision of marketing services without any consideration to differences in ecological conditions and distances to market centers. The road and railway infrastructure in farming areas was regularly maintained by government agencies (GRZ, 1996; Kokwe 1997).

After 1991, the government discontinued its direct participation in funding and controlling the agricultural sector thereby causing likely problems to farmers in terms of input supply, marketing services and transport. It seems such radical and rapid changes introduced after 1991 would have far reaching effects on the patterns of smallholder crop farming and hence the need for an investigation. Furthermore, the study was prompted by a disparity between government policies and pronouncements, and the reality on the ground.



In line with the emerging agricultural environment, therefore, it was necessary to establish how the post-1991 agricultural policies affected the pre-1991 agricultural patterns of crops, services, transport infrastructure and what the emerging agricultural systems were. This called for a systematic study of the effects of the new agricultural liberalization policies on the pre-1991 agricultural support institutions of smallholder farming, crops they grew and the transport (road and railway) infrastructure, and account for the emerging post-1991 agricultural transformations.

#### **1.4 General Objective**

The general objective of this study was to investigate the changes in smallholder crop farming and agricultural transformation of Chibombo, Kapiri Mposhi and Mumbwa districts in Central Province of Zambia, between the periods 1980 to 1990 and 1997 to 2008.

#### **1.5 Specific Objectives**

The specific objectives of the study were fivefold, namely:

- i. To establish the similarities and differences between the smallholder crop farming practices and crop production of Chibombo, Kapiri Mposhi and Mumbwa Districts between the 1980-1990 and 1997-2008 periods.
- ii. To evaluate the effects of neo-liberal policies on agricultural support institutions and provision of services in Chibombo, Kapiri Mposhi and Mumbwa Districts between the 1980-1990 and 1997-2008 periods.
- iii. To compare and contrast the nature and state of the transport infrastructure in Chibombo, Kapiri Mposhi and Mumbwa Districts between 1980-1990 and 1997-2008 periods on the basis of how they were impacted by the neo-liberal policies of the 1990s.
- iv. To enhance the understanding of the evolution of agricultural practices and transformations resulting from changing political and economic systems in Chibombo, Kapiri Mposhi and Mumbwa Districts between the 1980-1990 and 1997-2008 periods.

- v. To characterize agricultural transformation from a controlled to a free market economic system for Central Province of Zambia.

## **1.6 Research Questions**

The questions of the study were:

- (a) Between 1980 and 1990 what were the major crops and cropping systems in Chibombo, Kapiri Mposhi and Mumbwa Districts and how did they vary from those which emerged during the 1997-2008 period?
- (b) How did the crop production of the 1980-1990 period in Chibombo, Kapiri Mposhi and Mumbwa Districts compare with the production of the 1997-2008 period?
- (c) Has there been a change in the type, quality and source of extension services in the study area since the introduction of agricultural liberalization policies in 1991?
- (c) Which agribusinesses provided smallholder crop farmers with services between the 1980-1990 and 1997-2008 periods
- (d) How did the transport infrastructure in Chibombo, Kapiri Mposhi and Mumbwa Districts compare between 1980-1990 and 1997-2008 periods?
- (e) Has the introduction of agricultural liberalization in 1991, made the smallholder farmers in the study area better (or worse off) during the period 1997-2008 than they were during the period 1980-1990?
- (f) What was the nature of agricultural transformations which emerged after the change of the economy from a controlled to a free market system in Central Province of Zambia.

## **1.7 Justification of the Study**

Based on scholars like Wood and Vokes (1990), Goldman and Holdsworth (1990); Mwanza (1992a & b), Sakamoto (1993), Gerrard *et al.* (1994) and Kokwe (1997) it is clear that the agricultural policies pursued between the time of political independence and the coming to power of the new MMD government in 1991, might have been less than successful, but have had a marked effect on both the economics and the spatiality of smallholder farming in Zambia. The radically different liberalized economic policies introduced in 1991 were meant to have an

impact in all economic spheres, including that of agriculture. As these policies have now been in place for more than 17 years it can reasonably be assumed that they have had a marked impact on spatial patterns of small-scale farming and other sectors of the economy, and can be studied and their effects on various areas of the Zambian economy, including smallholder agriculture can be assessed.

Although scholars such as Mwanza (1992a & b), Sakamoto (1993), Gerrard *et al.* (1994) and Kokwe (1997) have had an assessment of the effects of agricultural liberalization policies on farming, there exists limited information on the effects of these policies on the spatial patterns of crop farming on a large scale and for a longer period of time. It is important to understand effects of changed policies on spatial patterns since these have a direct bearing on the livelihoods of individual smallholder families. This showed a knowledge gap. As such this study investigated the inter-relatedness of the spatial infrastructure for crop farming in the study area and the agricultural policy reforms introduced in 1991.

## **1.8 Organization of Thesis**

The Thesis is organized in nine (9) chapters. Chapter One is the introductory chapter providing, among others, the theoretical framework, research problem, aim of the study, general and specific objectives, research questions and the justification of the study. This chapter lays the groundwork for all the subsequent thesis materials.

Chapter Two reviews relevant literature on the subject. Chapter Two places the study in a contextual framework in order to enable readers comprehend the historical literally works of others on the topic at hand and to help identify the existing knowledge gap which the current study intended to fill.

In this chapter, is provided a historical evolution of smallholder farming from pre-independence era to the time of this study in terms of the crops which farmers have grown, production, diffusion of knowledge, government policies, provision of services, institutional

framework, transport infrastructure, government interventions, periodic transformations and the knowledge gap which this current study intended to fill.

The third chapter provides a detailed description of the study area in terms of location, physical and socio-economic characteristics. The intention of this chapter was to provide the necessary physical and socio-economic factors existing in the study districts with a bearing on the outcome of the study. A number of the identified and described features tended to have direct influence (positive or negative) on the variables of the study.

Chapter Four covers methodology of this study relating to the types of data, data collection and analysis methods, research instruments, sampling frame, sampling unit, sample selection and structure, fieldwork activities and limitations of the study. Largely, this chapter provides an outlook of the various methodologies which were used to cultivate the fieldwork results.

Chapters Five to Eight have taken a thematic approach in the presentation, analysis and discussion of findings. Specifically, Chapter Five presents and discusses characteristics of respondents, research results about crops (types of crops grown and cropping aspects) and crop production. Crop production is comparatively examined per study district and/or among study districts. A comparative analytical approach is used throughout the presentation and discussion for purposes of highlighting relationships and any existing variations. The chapter includes such themes as characteristics of the respondents and their responsibilities.

Chapter Six is a presentation and discussion of agricultural policies on support institutions. The chronologically identified individual agricultural support institutions before and after independence, highlighting the services they provided, their funding and control, and their spatiality among the districts of study.

A comparative presentation and analysis of the road and railway infrastructure is given in Chapter Seven. The intention of this chapter was to bring out the type and state of roads

and railways between 1980-1990 and 1997-2008 study periods' and the effect (positive or negative) of the changing quality of roads and railway network on smallholder farming in Chibombo, Kapiri Mposhi and Mumbwa districts. Furthermore, the study examined the implication of such changes in the road and railway networks on the transformation and spatiality of smallholder institutional networks and service delivery.

Chapter Eight covers the characterization of agricultural transformation and emerging spatial patterns in the three study districts of Central Province over the two time periods. This chapter placed special emphasis on specific transformations which have occurred since the dramatic change of agricultural policy from government controlled economic system of management to a liberalized environment. Influencing factors and implications of the transformations have been highlighted specifically to indicate directions of likely agricultural development where such transformations are experienced.

Chapter Nine is a concluding chapter and therefore summarizes research findings and concludes the study. Additionally, it provides recommendations for consideration by stakeholders such as scholars, government and non-governmental organizations and any interest group for possible corrective measures to be undertaken.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Historical Background of Agriculture**

Present day Zambia developed from the colonial amalgamation of previously two different regions of North-western and North-eastern Rhodesia which joined to make one territory in 1924 called Northern Rhodesia. Between 1890 and 1924 Northern Rhodesia was ruled by the British South African Company (BSA Co.) on behalf of the British Government (Wilson, 1991). In 1924 the British Colonial office took over direct control of the territory. Colonial control of the territory continued until 1964 when Zambia became an independent country with its own elected government under the governance of the United National Independence Party (UNIP) led by Dr. Kenneth D. Kaunda.

Before the arrival of colonial rule and the European settler farming practices, local farmers grew millet, sorghum and cassava using traditional tools and methods. As they relied on traditional technology of the hoe and axe, their crop production was marginal, only being able to meet subsistence needs. However, whenever they had any excess crop for sale, it was exchanged with commodities such as salt and clothing, which they were not able to produce locally, with traders from elsewhere. Such barter trade was conducted with visiting trading groups of people like Arabs, Portuguese and tribes from neighbouring communities. The occasional contact, which indigenous farmers had with Arabs, Portuguese and neighbouring tribes, became the genesis of external knowledge and technological diffusion in these communities. With the passage of time as local farmers learnt new farming practices and obtained new technologies, their productivity also begun to improve beyond subsistence and became regular players in trade. Colson (1960), Muntemba (1977) and Chipungu (1986) have especially pointed out that the acquisition of the ox-drawn plough helped improve the productivity of local farmers to a point where they became active sellers of agricultural produce since they were now able to produce more crops than what their families needed.

Since farming land was still abundant against a background of relatively small populations many agricultural settlements were scattered. The availability of abundant agricultural land enabled farmers to use shifting cultivation methods to grow their crops. Shifting cultivation involved the use of a piece of land for two- to-three years only and then abandoning it for another. A shift to another piece of land permitted the former land to regenerate its fertility. By extension such an agricultural practice tended to promote deforestation because as farmers cut trees to create fields no new trees were planted to replace those which had been cut down. In any case, it seems the practice of afforestation did not exist among local farming communities at the time.

After 1890, farming practices in Chibombo, Kapiri Mposhi and Mumbwa Districts began to change for the better. As the local farming communities began to interact with outside communities like the Portuguese, they acquired new technologies (for example the use of the ox drawn plough) and crops such as maize. Such diffusion of new knowledge and technology increased with time thereby benefitting agricultural production of local communities and helping them enter the commercial markets. Their entry in commercial markets resulted in local farmers increasing their resource base and income levels, which later translated into improved standards of living.

Consequently, by adopting new crops and technologies, smallholder farmers increased crop production and the marketed crops. These changes were notable in many parts of the country especially in Chibombo and Kapiri Mposhi districts, some farming areas of Southern and parts of Eastern Provinces. Such benefits emanated either from direct interaction with settler communities or from government programmes (NRG, 1936; Muntemba, 1977; Chipungu, 1988; Gerrard et al., 1994; Kokwe, 1997). Therefore, if policy changes would impact the African smallholder agriculture in such a way then, it becomes possible that similar

impact (or more) would result at present when there are improvements in technology, agricultural institutional support, transport and general interaction of communities has heightened.

## **2.2 Colonial Agricultural Policy and African Smallholder Agriculture**

### **2.2.1 Evolution of the Agricultural Land Policy in Zambia**

According to Lukanty & Wood (1990) the present day structure of land policy in Zambia emanates from the colonial period of the British South African Company (BSA Co.) and colonial government administration and, has remained almost the same throughout the history of Zambia despite several attempts to change it. Gann (1964) and Kay (1969) argue that the BSA Company perceived the African smallholder farmer as primitive and therefore incapable of engaging in any commercial and profitable agriculture. Such a perception prompted the BSA Company to sale and/or alienate the best agricultural land along the line of railway from Livingstone to the Copperbelt and around Fort Jameson (Chipata) to the settler European farmers it considered more productive, while pushing the African smallholder farmers into more remote and less fertile lands of the country (Baldwin, 1966).

Dodge (1977) states that such land alienation by the BSA Company was done using treaties the company had made with the local chiefs. According to the Northern Rhodesia Government (NRG, 1956) by 1921 over 700 Europeans had settled as farmers in Northern Rhodesia. When the British Government took over control of Northern Rhodesia in 1924 the position of settler farmers was strengthened by the first governor, Sir Herbert Stanley who believed that Northern Rhodesia should be a “white man’s country” (Lukanty and Wood, 1990). Land up to twenty miles on either side of the line of rail was designated as alienated Crown land for European farmers (Table 2.1), uprooting some 60,000 Africans.



**Table 2.1: Land Tenure Categories**

<b>TENURE CATEGORY</b>	<b>1937 (%)</b>	<b>1950 (%)</b>
Native Reserves	18.7	18.8
Barotseland Protectorate	19.8	19.9
Crown land (European farms)	1.4	2.0
Company Concession	3.3	--
Other land alienated to Europeans	--	0.5
Unalienated Crown Land	54.0	--
Native Trust Land	--	55.4
Forest and Game Reserves	2.7	0,6
Towns	0.1	0.1

**Source:** Lukanty and Wood, 1990: 8    **NB:** -- Means no data available.

Furthermore, the rest of the country was designated as unalienated Crown land where Europeans could settle in the future, and the less productive and more remote land as Native Reserves for Africans. Implicitly, alienation of the best land to European settler farmers entailed removal of smallholder farmers from the best agricultural land in the country to the less fertile land in the interior of the country where transport and accessibility to markets were equally difficult. To a large extent, this colonial land alienation policy is responsible for the

present day structure of having more commercialized farming activities along the Livingstone to the Copperbelt region, and around Chipata in Eastern Province where over 90 percent of commercial farming activities take place, farmer spatial distribution and the general form of the land tenure system of State land (formerly Crown land) and Customary land (Native Reserves). Apparently, it may be argued that such land redistribution policies favouring settler farmers and later commercial farmers tended to deepen poverty among smallholder farmers since they were now made less productive as the areas they occupied were less fertile with poor transport networks and less accessibility to profitable markets.

By 1947, land alienated for the settler community proved to be too big for European settler farmers alone and hence part of it was returned to African jurisdiction as Native Trust Land, while the government still kept 2.5 percent of the best agricultural land for Europeans (Table 2.1). On the part of the Colonial government, by giving back to African farmers some fertile land previously alienated for settler farmers implied that the colonial government was admitting an error of over estimating the amount of agricultural land which would be needed by the settler community and, by extension alluding to lower-than-expected number of European farmers who had come to Northern Rhodesia. Thus, the government had set aside bigger land space for farming by European settler farmers than the actual number of European farmers who actually set up base here in the country. To some degree, it may also be concluded that by allowing some African farmers to take up agricultural activities near European farmers, the Colonial government was indirectly creating a future cadre of improved African farmers who benefitted from advantages of effective knowledge diffusion arising from close proximity to Europeans and markets.

At the time of such a vigorous land reform programme, the main intention of the colonial government was to provide adequate farming land to the white settler farmers. What was not appreciated then was the impact of such a land policy on the post-independence

farming communities especially in terms of its impact on spatial distribution of smallholder farmers, markets, transport and general agricultural support institutions. As it will later be seen the immediate post-independence government attempted to address some of the negative effects of such a land policy while enhancing its positive outcomes but only to a limited extent. To a large degree this is partly the reason for this current study.

### **2.2.2 History and Emergence of Maize Dominance over Other Crops**

After the arrival of colonialism, the government introduced maize as the main staple grain food in urban and mining areas such as Kabwe (called Broken Hill then) against established local food crops of millet, sorghum and cassava. This was done through various statutory, logistical and market support services to settler farmers. Since millet, sorghum and cassava had no deliberate logistical support from government and lacked an established market, they began to decline as local and settler farmers switched to growing maize. With time, this precipitated the emergence of maize as a dominant food crop in Chibombo, Kapiri Mposhi and Mumbwa Districts and the rest of the country.

The dominance of maize over other crops was enhanced by the establishment of the Maize Control Board (MCB) in 1936 (NRG, 1935; Lukanty and Wood, 1990). The MCB confirmed maize as the dominant starch staple for sale, beginning a period of almost fifty years in which the state, through marketing arrangements, has generally encouraged the production of this crop rather than other staple foods (Chipungu, 1988; World Bank, 1994). It is also argued that the preference of maize over other crops emanated from the experience which settler farmers brought with them and partly as a result of the farming conditions of the areas in which they settled. Baldwin (1966) adds that this preference for maize was also a result of the purchasing policy of the mining companies who formed the bulk of the market for grain.

By denying millet, sorghum and cassava clear markets in urban and mining areas, the colonial administration was not only reducing their cultivation space among smallholder farmers but also introducing a new appetite for maize as a food crop. Arguably, this is the origin of the present day maize dominance over other crops both as a commercial and staple food crop in the country in general and study districts in particular which existed during the 1980-1990 and 1997-2008 periods. This situation has not changed even after many years after independence because successful governments have tended to uphold the status quo as established during the colonial era. If crops such as millet, sorghum and cassava are to regain their previous prominence there will be need to establish deliberate structures to support their cultivation, marketing and consumption. Perhaps such deliberate steps would improve, with time, the perception smallholder farmers and consumers have about them. It is the researcher's view that deliberate government and/or private sector mechanisms would be needed to reactivate the production, marketing and consumption of millet, sorghum and cassava. Additionally, educational campaigns about the need for people of Chibombo, Kapiri Mposhi and Mumbwa Districts and elsewhere to broaden their food basket would be an added strategy to enable local people to begin consuming these crops at the same level as maize.

### **2.2.3 State's Role in Crop Marketing and Pricing**

According to Baldwin (1966) and, Lukanty and Wood (1990) the colonial government introduced state intervention in crop marketing and pricing in 1936 when it established the MCB, which had the mandate to purchase local maize from both settler farmers and Africans using a state determined price and hence guaranteed farmers a market for their crop. Therefore, the MCB established the principle of the state as a monopoly buyer of maize and giving farmers a guarantee of the floor price, and taking it as its responsibility to buy all maize offered to it.

In essence, this set the precedence for the system of government interventions in maize marketing through future state organizations like the FRA as we know them today (Mwanza, 1992a & b; Kokwe, 1997). One may argue, further, that while government interventions may have varied in extent over the years, its presence in maize marketing and determination of the floor price of crops has remained almost the same throughout the history of Zambia to the present day without due regard to variations in ecological conditions or distances of farmers from market centers. The need to assess the positive and negative effects of changing agricultural policies over time particularly in this area, among others, was an issue of interest to this study. Furthermore, the study also wanted to establish the benefits and negative impact of such an intervention on the market share of other crops produced by smallholder farmers in Chibombo, Kapiri Mposhi and Mumbwa Districts and perhaps establish a way to boost their position both in the consumption basket of households and their share in the market through the private sector involvement.

#### **2.2.4 State's Role in Agricultural Services**

In order to provide settler farmers with cash credit, the colonial government established a Land Board in 1947, which became the Agricultural Land Bank in 1953 (Lukanty and Wood, 1990). Owing to having no legal title to land, African farmers had no official access to credit until 1960 when the African Farming Loan Fund was established to provide credit to African farmers who were members of particular government schemes such as cooperatives. It may be said that such a system of support to African farmers, which existed then, is the forerunner of the Farmer Input Support Programme (FISP) of today as it turned out to be the first government mechanism to directly offer farmers a production subsidy as we know it today. Thus, prior to independence African farmers needed to belong to government schemes to benefit from the government African Farming Loan Fund while in modern day Zambia smallholder farmers

must be members of cooperatives registered with the Ministry of Agriculture if they are to benefit from the Farmer Input Support Programme which is a government subsidized scheme of supporting for less affluent farmers.

Furthermore, the government provided farmers (mainly the settler farmers) extension services through the Department of Agriculture. In the 1950s, the government established staff posts in farming areas for African agricultural extension and a training school for African agricultural assistants (NRG, 1936). After independence, besides extension services from private and quasi government organizations such as research institutions, government continued to provide extension services through the Department of Agriculture under the Ministry of Agriculture and Livestock. It also established agricultural training institutions in the country, for instance, the Natural Resources Development Center (NRDC) in Lusaka.

The provision of agricultural extension to farmers by the Department of Agriculture using camp extension officers, block extension officers and other officers based at the District and Provincial offices of the Ministry of Agriculture has remained the same as was in the colonial era. The only major difference is that through agricultural liberalization many private companies are now also permitted to offer smallholder farmers various extension services in areas of their specialization. But at the time of fieldwork and, to some extent up to the present day, the provision of cash credit to smallholder farmers has proved problematic since the collapse of Lima Bank when agricultural liberalization was introduced in 1991. In the current study it was necessary to establish how the provision of services to smallholder farmers contrasted between the 1980-1990 and 1997-2008 periods. Additionally, the researcher intended to establish how the changed economic environment had impacted both on the provision of agricultural services such as cash credit and the economic standing of individual smallholder farmers in Chibombo, Kapiri Mposhi and Mumbwa Districts. Besides this need,

the study also intended to establish whether new agricultural businesses had emerged after 1997 and evaluate how such a development had helped transform smallholder crop farming in the study area.

### **2.2.5 History and importance of policy Schemes for African Agriculture**

In 1946 three major schemes were established for purposes of improving African agriculture by the Northern Rhodesian government. Thus, the African Farm Improvement Scheme (AFIS) was established in Southern Province and in 1952 it extended its activities to Central Province; in 1948 the Peasant Farming Programme was established in Eastern Province, and in 1956 an Intensive Rural Development Programme was begun in Northern and Luapula provinces (Lukanty and Wood, 1990). In 1951 depots were established along the line of rail in the MCB areas and in parts of Eastern Province to buy maize (Dodge, 1977).

Furthermore, after the Second World War, government encouraged European farmers to take up commercial crop farming (for example cultivation of Virginia tobacco) while Africans were encouraged to grow maize. According to Baldwin, 1966; Cliffe, 1977, all these measures were aimed at transforming the “progressive” African farmers into modern market-oriented producers. As will be seen later, such colonial measures did not only ensure differentiation among classes of African farmers but also established foundations for many farming initiatives of present day governments. Such government policy adjustments and development of agricultural schemes targeting African farmers seemed to, as shall be made clear later, help bring about improvements in productivity of intended farmers.

A foundation was now laid by the colonial government, through positive policy shifts and establishment of schemes for Africans, to deliberately improve agriculture in the same way European settler agriculture developed. However, while recognizing the direct benefits of such policies and schemes on African agriculture, it needs to be pointed out that such deliberate

government measures also became the source of a culture of farmer dependency on government in later years especially as is the case now in modern day Zambia. At the time of this study, the investigation intended to compare support schemes to smallholder farmers which may have existed during the 1980-1990 and 1997-2008 periods, and assess how they impacted smallholder crop farming in Chibombo, Kapiri Mposhi and Mumbwa Districts. Such a focus would help scholars know how sustainable agricultural schemes premised on different policies can impact smallholder agriculture especially in terms of its growth and resource mobilization.

#### **2.2.6 Emergence of Agricultural Support Institutions**

The colonial government established some agricultural support institutions, both for the settler and African farmers, before independence in 1964. Chabala and Sakufiwa (1993) have stated that the first cooperative society in the country was established in 1914 by settler farmers to market farm produce to the Copperbelt and Katanga in Zaire (present day Democratic Republic of Congo). Other cooperative activities were restricted to Southern and Eastern Provinces.

The Maize Control Board was “... established in 1936 with the power to purchase and sell maize, and later groundnuts along the line of railway (that is the area between Livingstone and the Copperbelt)” (Shawa and Johnson, 1990:370). This meant that the Maize Control Board traded only in areas inhabited by white settler farmers. Such a bias of agro-marketing had implications on crop marketing arrangements in later years, especially that the agribusinesses which emerged after independence merely substituted the colonial marketing structures both in space and function.

In 1947 the Colonial Government recognized cooperative societies among indigenous African farmers under the Cooperative Ordinance (Chabala and Sakufiwa, 1993). These two scholars have also stated that in 1948 the government formed the Department of Marketing and



Cooperatives under the Ministry of Agricultural and Cooperatives to register and regulate cooperative enterprises. In 1952 the Eastern Province Agricultural Produce Board (EPAPB) was formed to provide marketing services to farmers in the province (Chabala and Sakufiwa, 1993). This Board worked exclusively in the Eastern Province only. The establishment of the Department of Marketing and Cooperatives under the Ministry of Agriculture and Cooperatives has remained the same throughout the history of Zambia to the present day. Its functions have hardly changed. This study intended to compare and contrast the cooperative establishment which existed between 1980-1990 and 1997-2008 periods. It also aimed at finding out how the new agricultural liberalization policies impacted on the cooperative movement, and by extension know how smallholder crop farmers may have benefitted from such a changed environment.

In 1957, during the the Federation of Rhodesia (Northern Rhodesia (now Zambia) and Southern Rhodesia (now Zimbabwe) and Nyasaland (now Malawi) the Federal Grain Marketing Board (FGMB) was established to replace both the Grain Control Board (GCB) and Eastern Province Agricultural Produce Board (EPAPB). The Federal Grain Marketing Board had an expanded marketing mandate that included beans, sorghum and millet, in addition to maize and groundnuts (Shawa and Johnson, 1990). The network of the Federal Grain Marketing Board was established in already developed places such as towns, along the main roads and the railway line and sparsely into the interior. Agribusinesses which emerged after independence seemed to have just been new by name but the same as the forruners in terms of functions and location.

In addition to the Federal Grain Marketing Board, “...some loosely organized marketing co-operatives existed in the Eastern and Southern provinces, but these only acted as agents for the marketing boards” (Shawa and Johnson, 1990:371). The spatial concentration of these agricultural support institutions tended to be biased towards developed areas.

The facts about the Colonial Agricultural policy, brought out here, seem to suggest that the policy combined government intervention and free markets, particularly with regard to the co-operatives that were controlled by the settler community while being supported through various mechanisms by the colonial government. This period should also be viewed as one when the foundation of commercial agriculture in Zambia was established, in terms of crops grown and cropping systems, road networks, institutional support infrastructure and general agricultural knowledge among the farmers. In this same period, smallholder agriculture was brought into the money economy (Baldwin, 1966; Lombard and Tweedie, 1972; Dodge, 1977; Lukanty and Wood, 1990).

It should be pointed out that the agricultural support institutions discussed hereabove became the direct forerunners of the agricultural support institutions of post-independence Zambia. While their names changed to suit the post-independence mindset, their functions and spatial distribution largely remained the same. In the current study, it was necessary to establish and contrast agricultural support institutions which existed during the 1980-1990 and 1997-2008 periods. The study also aimed at knowing how smallholder crop farmers in the study area may have benefitted from their existence in the farming communities. Largely, the study intended establishing the type, roles and limitations of the agricultural support institutions which existed during the 1980-1990 and 1997-2008 periods. It also intended evaluating how they changed after 1997 and the associated transformations which may have resulted from a shift in agricultural policy.

### **2.2.7 Crop Production during the Colonial Period**

Prior to 1950 the Colonial Government's agricultural policy, particularly towards the African smallholder farmers can be said to have been contradictory. On one hand it appeared to encourage the African farmers to improve production by encouraging them to produce more

maize for sale, while on the other, it discouraged it by not giving them the necessary financial and other logistical support which they needed to succeed (Kay, 1966; Chipungu, 1988; Muntemba, 1977). For example, one negative effect of the land policy by the colonial government on African agriculture, prior to the Second World War, was that African farmers were uprooted from the best fertile lands along the major road and transport networks and relocated to far flung areas in the interior where markets, extension services, and other very basic agricultural services were either in minimal supply or did not exist at all and hence directly reducing the capacity of smallholder farmers to produce crops at the same level as their European counterparts.

The relocation of smallholder farmers to remote parts of the country could have had an adverse impact on crop production, knowledge diffusion and land availability. These possibilities seem to be potent considering that some of the places the farmers were removed from, for example farming areas around the mining town of Broken Hill (now Kabwe), had the best soils in terms of fertility, and were close to markets and sources of new knowledge - the settler community. By settling the African smallholder farmers in the reserves the Colonial Government seems to have induced a shortage of land for growing crops and grazing animals. The overuse of land for growing crops and keeping animals could only lead to land exhaustion, declining production, poor nutrition and ultimately a low standard of living of the people. Muntemba (1977) indicates that the reserves, where the smallholder farmers were settled, had limited or no services such as schools, clinics and shops. So it means that to obtain these services the smallholder farmers needed to walk long distances to reach places where they could be found. Such an effect had a direct impact of reducing crop production on the part of smallholder farmers.

In the late 1950s and early 1960s the agricultural policies suddenly changed. These changes may have come about because of political appeasement, the need for small-scale farmers to have a reliable source of income to enable them to pay hut tax and the government's need to meet the cheap food requirements of the urban centres particularly the Copperbelt Province. Muntemba (1977), Chipungu (1988), Gerrard *et al.* (1994) and Mwanza (1992a & b) have indicated that to achieve the aim of adequate food supply in urban and mining areas the colonial government established marketing boards, training institutions, the African Improvement Fund, and distributed chemical fertilizers to the African farmers, and improved the transport networks in farming areas. Further, this policy of inclusion, rather than exclusion, enabled the African smallholder farmers to gain farming resources, farming know-how and new crops directly from the government and their settler counterparts. Such government efforts helped African agricultural productivity to begin to improve. With an improvement in transport networks and the general farming environment, the Zambian smallholder farmers improved his production capacity (Table 2.2). Only maize sales figures are shown here because the information for other crops, such as cotton and sunflower was scanty.

By incorporating the African smallholder farmers into the main stream of commercial agriculture, the Colonial government enabled the African farmers to improve their perception of farming as a business. This perceptual change brought about an improvement in the general response of the African farmers to farming and their competitiveness. According to Gerrard *et al.* (1994), the results of the change in the colonial agricultural policy towards the time of Zambia's independence proved that smallholder farmers would take advantage of existing market conditions to improve their crop production. Crop production for African farmers revealed a growing trend from 1950 upwards (Table 2.2). Without doubt this was a direct response of African farmers to changed policies and the general improved crop production and marketing environment in the country. Hence, this indicates that when any group of farmers

are given the necessary support environment they become responsive and proportionately improve their production capacity to meet the market and household food needs. Such positive responses by farmers previously thought to be incapable of any change is testimony to the fact that all human beings, regardless of colour, culture, background, religious orientation or nationality, have the inherent potential to change in a manner expected by those in government when supportive conditions exist without any bias to any one grouping of people. There was, therefore, no justification on the part of the colonial government to treat settler farmers different from African smallholder farmers when the two groups of farmers could achieve the same intended goal.

**Table 2.2: Estimated Maize Sales in the line of railway area, 1950-1964**

<b>YEAR</b>	<b>EUROPEAN-GROWN (90 kg bags)</b>	<b>AFRICAN-GROWN (90 kg bags)</b>	<b>TOTAL (90 kg bags)</b>
1950	447,000	344,000	791,000
1951	399,000	290,000	689,000
1952	389,000	173,000	562,000
1953	602,000	435,000	1,037,000
1954	600,000	467,000	1,067,000
1955	664,000	658,000	1,322,000

<b>YEAR</b>	<b>EUROPEAN- GROWN (90 kg bags)</b>	<b>AFRICAN- GROWN (90 kg bags)</b>	<b>TOTAL (90 kg bags)</b>
1956	606,000	433,000	1,039,000
1957	900,000	746,000	1,646,000
1958	1,174,000	883,000	2,057,000
1959	544,000	36,000	580,000
1960	1,021,000	516,000	1,537,000
1961	945,000	738,000	1,683,000
1962	1,298,000	955,000	2,253,000
1963	1,288,000	839,000	2,127,000
1964	655,000	354,000	1,009,000

**Source:** Chipungu (1988:84.)

### **2.3 Post Independence Agricultural Policy**

The agricultural policy of post-Independence Zambia is discussed in two segments: 1964-1979 and post 1980. The 1964-1979 period represents the immediate post-independence period under the United National Independence Party (UNIP) government with centralized planning policies. It was during this period that the post-independence government established

a number of agricultural policies, support institutions and transport infrastructure using the inherited colonial structure, systems and income (Wood, *et al.* (1990) and Mwanza (1992a & b).

The 1980-1990 period is set aside for the current study as it was viewed as a period of policy maturity, stabilization and eventual economic decline due to, among other causes, the general fall in copper prices and a change in the political environment (Mwanza, 1992a & b). The 1980-1990 period witnessed policy implementation difficulties owing to a shortage of government funding, shortages of goods and services and, a general decline in the economic performance of the country, including agriculture. Because of such developments the viability of centralized planning policies was doubted by the general citizenry leading to a heightened mood of discontent especially towards the end of the 1980s. The period between 1991 and 1996 is considered the immediate post-liberalization period and hence could not be included for study because it was generally a period of transition and institutional instability. Consequently, the current study examined the 1997-2008 period as representative of liberalization since policy implementation and institutional structures had shown a degree of stabilization and growing maturity away from the previous path of centralized planning.

### **2.3.1 Agricultural Policy between 1964 and 1979**

At independence in 1964, the government of the new Republic of Zambia followed a path of centralized planning (GRZ, 1979; Wood, *et al.* (1990); Mwanza, 1992a & b). According to this policy, particularly after 1973 when Zambia was declared a one party participatory democracy with Humanism as its philosophy, the government became a central player in all sectors of the economy, including agriculture. Thus, the government set up farms, agricultural support institutions, provided subsidies to farmers, determined and announced the floor prices of agricultural produce, maintained transport networks in farming areas and generally owned and funded over 80 percent of economic activities (Mwanza, 1992a & b;

Gerrard, *et al.* 1994; Wood and Vokes, 1990). This policy had, as is shown later, far reaching implications on the patterns of smallholder farming in Chibombo, Kapiri Mposhi and Mumbwa Districts and perhaps the rest of the country. Therefore, there was need to systematically study the effects of such policy changes on smallholder agriculture both during the 1980-1990 and 1997-2008 periods.

### **2.3.2 Agricultural Support Institutions between 1964 and 1979**

At independence in 1964 the Grain Marketing Board (GMB) and Agricultural Rural Marketing Board (ARMB) were formed to take over from the Federal Board (Shawa and Johnson, 1990). The GMB operated along the railway line from Livingstone to the Copperbelt, while the ARMB was given the task of dealing with the rural areas neglected by the Federal Board. It was the ARMB that was tasked to incorporate the rural smallholder farmers into the cash economy. The GMB and ARMB traded in maize, groundnuts, sorghum, soya beans, cotton, tobacco, fruits and vegetables. Additionally, two provincial unions in Southern Province (Southern Province Marketing Union (SPCMU) and Eastern Province (the Eastern Co-operative Union (ECU) existed. Owing to their poor performance the ARMB and GMB were dissolved and the government formed the National Agricultural Marketing Board (NAMBOARD) in 1969 under an Act of Parliament (Shawa and Johnson, 1990:372). NAMBOARD was given a nation-wide monopoly in agriculture marketing.

The government also established the Land Bank to provide farmers with cash credit (Mwanakasale, 1996). The Land Bank was the forerunner of the Credit Organization of Zambia (COZ). In later years, the Land Bank was dissolved and its place was taken over by the Credit Organization of Zambia (COZ), which, too, was later dissolved to give way to the Agricultural Finance Company (AFC). Later in years the government established Lima Bank to support farmers financially.



Klepper (1979), Shawa and Johnson (1990), Mwanza (1992a & b) and Mwanakasale (1996) argue that by 1979 operational problems of NAMBOARD and other agricultural institutions (involving their inability to efficiently and effectively handle farming problems, repay government loans, be financially self sustaining and diversify agriculture) had become very apparent. So, there emerged a strong feeling in government circles to restructure the institutions by streamlining their operations. Mwanza (1992a & b), Chabala and Sakufiwa (1993) have stated that the shortage of qualified and experienced manpower in these institutions made them operate as social equity institutions tailored towards government political goals rather than businesses with a profit motive. In the current study there was need to establish and/or contrast which agribusinesses existed during the 1980-1990 and 1997-2008 periods. Such a comparison needed to account for their sources of finance, management, what kind of services they provided and their sustainability. Thus, the study intended to compare and contrast the institutions of the 1980-1990 and 1997-2008 periods in terms of their funding, ownership, operations, spatial distribution, sustainability and benefits to the smallholder farmers in both periods.

### **2.3.3 Transport Infrastructure between 1964 and 1979**

Besides setting up policies and agricultural support institutions, the UNIP government established a transport network of roads and railways in Chibombo, Kapiri Mposhi and Mumbwa Districts and the country as a whole (GRZ, 1966; GRZ, 1971; GRZ, 1979; 1985a & b; Shawa and Johnson, 1990). The main roads established during this period included the Chipembi-Kabwe gravel road and Landless Corner–Mumbwa gravel roads in Chibombo District; the Kabwe-Lukanga Swamps and Kabwe-Mukonchi gravel roads in Kapiri Mposhi District; the Mumbwa-Itezhi tezhi and Mumbwa Central-Kasempa gravel roads in Mumbwa District. The Livingstone-Copperbelt and TAZARA railways through the Chibombo and Kapiri Mposhi Districts continued to exist from the previous period. Several feeder roads

roads and bush tracks were also established in farming areas. The road infrastructure helped open up rural areas to human settlements and contributed to diffusion of agricultural development to once undeveloped parts of Central Province and the rest of the country.

Furthermore, the government used this infrastructure as a basis to encourage farmers and spatial structural patterns to distribute widely across the county instead of congesting in a few selected areas. Thus, this prompted farmers to settle along main roads, railways and near market centers. The transport infrastructure in farming areas also helped stimulate crop production and general development of farming areas (GRZ, 1979; GRZ, 1985a & b; Shawa and Johnson, 1990). Additionally, it is the establishment of the road and railway infrastructure which helped open up remote areas of Chibombo, Kapiri Mposhi and Mumbwa Districts to human settlements as we know them today. In the resulting study there was a need to contrast the quality and length of the road and railway networks between the 1980-1990 and 1997-2008 periods. The researcher also intended to establish how the state and nature of roads and railways impacted on smallholder crop agriculture during the same periods.

#### **2.3.4 Agricultural Policy between 1980 and 1990**

The agricultural policy of the UNIP government covering the 1980-1990 was premised on a background of changing economic conditions in the country. The government had been in power for 16 years at the time and therefore, it was expected that it must have been well established both in terms of administration and economic policies and structures. However, due to a changed world economic and political environment, especially with regard to crude oil and copper prices, and the independence struggle for some countries in Southern Africa such as Zimbabwe and South Africa, the Zambian economy was not performing well (Mwanza, 1992a & b; GRZ, 1979; GRZ, 1985a & b; Shawa and Johnson, 1990). This period, however, was selected for this investigation as it represented the period of centralized planning, matured

political and economic policies of the UNIP government. Gerrard, et al. (1994), Chabala and Sakufiwa (1993) and GRZ, (1979) have all alluded to the general maturity of centralized planning in the late 1970s and 1980s, and that signs of decline had started to show. The implication of centralized planning policies on crops and production, agricultural support institutions and transport infrastructure are comparatively examined in chapters 5, 6 and 7; while Chapter 8 deals with emerging transformations in smallholder agriculture resulting from the changed agricultural and economic policies of Zambia.

### **2.3.5 Agricultural Policy between 1991 and 2008**

The post-1991 period represents a new administration and, economic policies in Zambia-the period of the new government of the Movement for Multi-Party Democracy (MMD) and economic liberalization (Mwanza, 1992a & b; Gerrard, *et al.*, 1994). Unlike the previous administration of UNIP, the new government pursued economic liberalization policies after 1991. Between 1997-2008, the MMD government implemented several measures in order to improve the productivity, efficiency and profitability of agriculture. The policy of liberalization, as will be explained later, proved to have far-reaching effects on the agricultural sector in the years ahead thereby necessitating a systematic study.

According to Gulhati (1992), Mwanza (1992a & b), Gerrard *et al.* (1994), World Bank (1994 & 1996); Ali, *et al.*, 2002; Asian Development Bank (ADB), 2009; Deacon, 2005; Dorward, *et al.*, 2004; and Dixon, *et al.*, 2003) the economic reforms taking place in Zambia are not unique to this country alone. In this part of Africa (Eastern, Central and Southern Africa) countries such as Kenya, Malawi, Tanzania and Zimbabwe have been transforming their agricultural sectors through liberalization by permitting the private sector to play a bigger role in input supply, crop marketing and provision of extension services, too (Gerrard *et al.*, 1994; Kadenge *et al.*, 1992; Kaluwa *et al.*, 1992; Omosa, 2000; Shao *et al.*, 1992; Sichingabula,

2000). According, Kadenge *et al.* (1992), Kaluwa *et al.* (1992) and Mwanza (1992b), the general intention of transforming countries has been to make agriculture more efficient, productive and responsive to the needs of society, but they have differed in approach and rate of transformation. The difference in approach by each Sub-Saharan African country transforming their agricultural sectors emanates from their differences in political environments and population needs, among others. This is despite these countries sharing common political, economic and cultural backgrounds.

In Latin America, Argentina, Chile, Cuba and Guatemala; and in Eastern Europe countries such as Bulgaria, Romania and Poland have also been transforming their agricultural sectors from centralized planning to liberalization (World Bank, 1995, 1996 and 1997; Valdes and Schaeffer, 1995; Sato and Humphrey, 1995; Jacobsen *et al.*, 1995). While in Asia, Pakistan, Bangladesh, India and Vietnam, among others, have also been transforming their agricultural sectors. Like the case for African countries, Asian, Latin American and Eastern European countries have embarked on agricultural transformation in order to achieve improved productivity, efficiency in resource use and profitability of the agricultural sector.

According to Jacobsen *et al.* (1995), Sato and Humphrey (1995), Valdes and Schaeffer (1995), Gerrard *et al.* (1994), Kaluwa *et al.* (1992) and Kadenge *et al.* (1992), many similarities (such as removal of subsidies and liberalization of markets) and differences (slower rate of price decontrol and involvement of state funded organizations in agriculture ) between Zambia and these countries exist particularly in the rate and stage of implementation, management of effects and the ultimate benefits within each political, cultural and ecological environment. Kadenge *et al.* (1992), Gerrard *et al.* (1994), Shao *et al.* (1992) and Mwanza (1992a & b) have argued that due to similar political, cultural and ecological conditions African countries such as Tanzania and Zambia have more similarities (nature and scope of transformation) than what

obtains in other continents (for example Pakistan where they have been more cautious) where conditions are fundamentally different.

But, it is also noted that even in countries like Tanzania and Zambia which share a lot of similarities differences exist in terms of the rate of implementation of liberalization policies in that Tanzania has been much slower and more cautious than Zambia. Scholars like Hansen (1981) and Howell (1985) have called for caution when implementing foreign generated agricultural ideas. No wonder, then, any conclusions made about how liberalization has affected agriculture of countries such as Zambia has to bear in mind the existing political, cultural and ecological conditions of an individual country involved. Wholesome blanket conclusions across political, cultural and ecological boundaries need to be minimized because of fundamental variations existing in different parts of the world. Therefore, trans-continental adoption of ideas may have to be done only after such innovations have been subjected to a cultural, political and ecological adaptation.

According to Gerrard *et al.* (1994), Mwanza (1992a & b), Kokwe (1997), World Bank (1994 and 1996) have stated that any policy shift, especially at the magnitude of what took place after 1991, was bound to result into positive and/or negative changes in various sectors of the economy, including agriculture. These scholars have, furthermore, pointed out that marked differences in political and economic policy are bound to bring about effects to be felt by people with a weak resource base, institutions previously supported by government and those areas which are targeted for transformation by government policies. Based on this premise, hence, the researcher felt that such projected effects could abound in Zambia just as was the case in other countries undergoing similar political and economic transformations. In order to concretize the possible agricultural transformations and spatial patterns of smallholder crop farming, it was thought, perhaps correctly, that the investigation focuses on Chibombo, Kapiri Mposhi and Mumbwa districts in a region which has an agricultural orientation.

## CHAPTER THREE: DESCRIPTION OF THE STUDY AREA

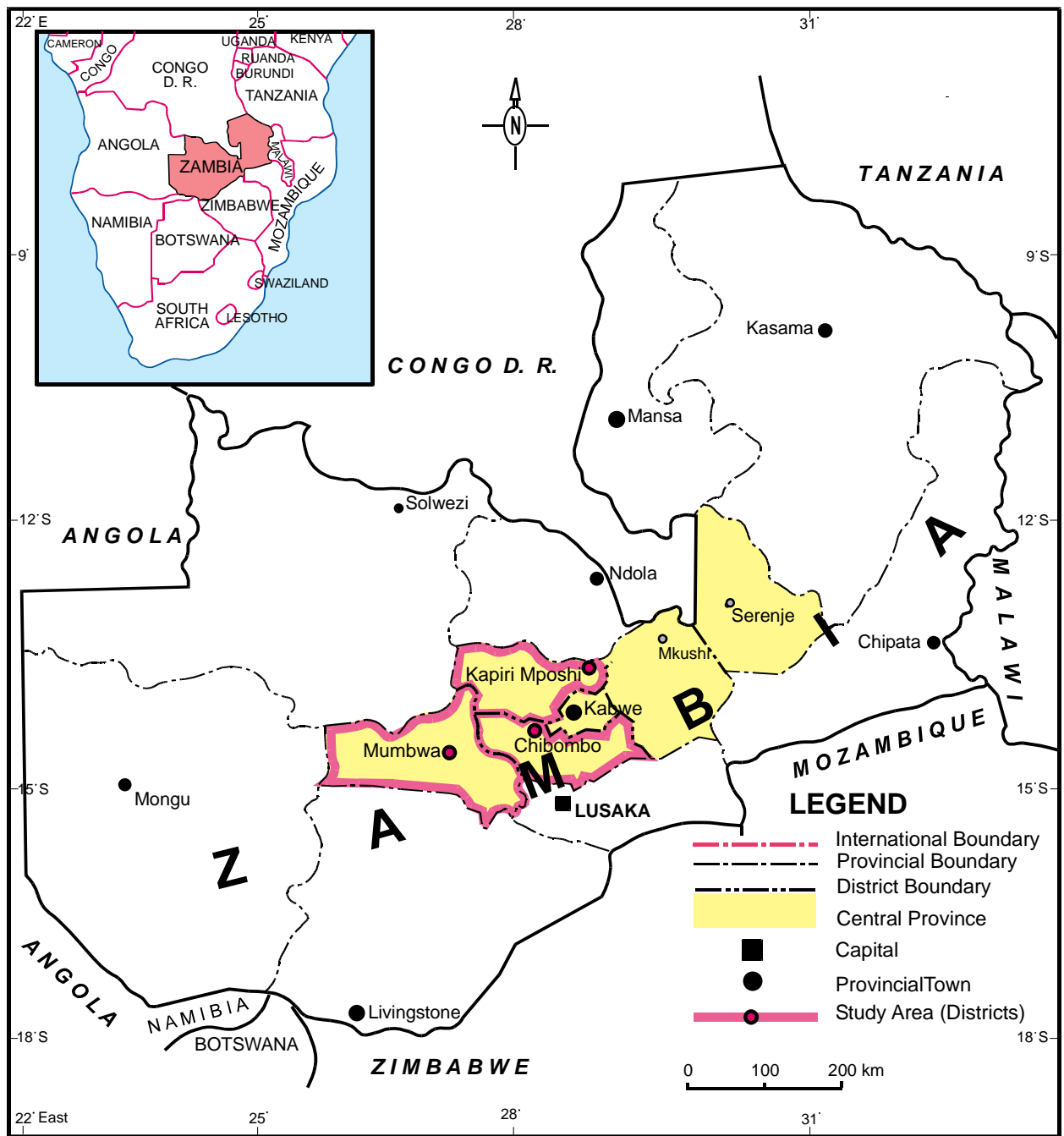
### 3.1 Location of the Study Area

Zambia is located in the southern-central part of Africa between the Equator and Tropic of Capricorn and east of the Prime Meridian (Table 3.1, Figures 3.1 and 3.2). Table 3.1 includes the Central Province within which Chibombo, Kapiri Mposhi and Mumbwa Districts are located. Figure 3.1 presents the map of the study area within Zambia while Figure 3.2 deals with the three study districts of Chibombo, Kapiri Mposhi and Mumbwa. At the time of the fieldwork, Chibombo District had a land area of 13,670 square kilometers; Mumbwa District had an area of 21, 103 square kilometers (with a large area of the district taken up by Kafue National Park) while Kapiri Mposhi had an area of 17,219 square kilometers (with part of the western part covered by Lukanga Swamps). Since a large section of the western part of Mumbwa District was taken up by the Kafue National Park agricultural land was reduced in extent. Lukanga swamps occupied the the western and north western part of Kapiri Mposhi District thereby reducing farming land, too. Because Chibombo District only had a small portion of the western section under the Lukanga swamp it turned out to have the largest agricultural area among the three study districts.

**Table 3.1: Geographical Location of the three Study Districts in Central Province of Zambia**

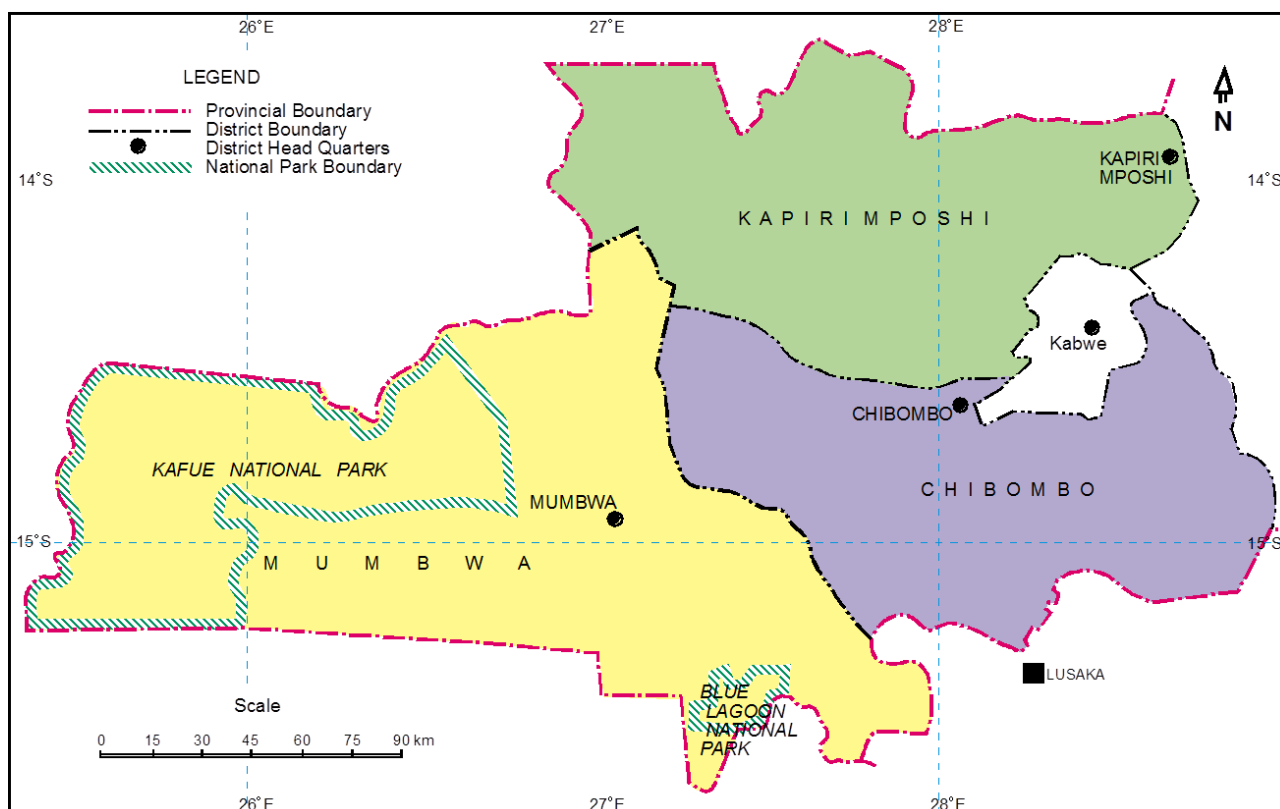
	Central Province		Chibombo		Kapiri Mposhi		Mumbwa	
Latitude	12°04'S	15°45'S	14°40'S	15°25'S	13°45'S	14°50'S	14°10'S	15°36'S
Longitude	25°11'E	31°30'E	27°10'E	29°00'E	26°50'E	28°40'E	25°20'E	27°57'E

**Source:** Bwalya, *et al.* (1997)



**Figure 3.1: Location of Study Districts in Central Province of Zambia**

**Source:** Adapted from Bwalya, *et al.* (2008).



**Figure 3.2: Map of Chibombo, Kapiri Mposhi and Mumbwa Districts**

**Source:** Survey Department, Ministry of Lands, Zambia. 1994.

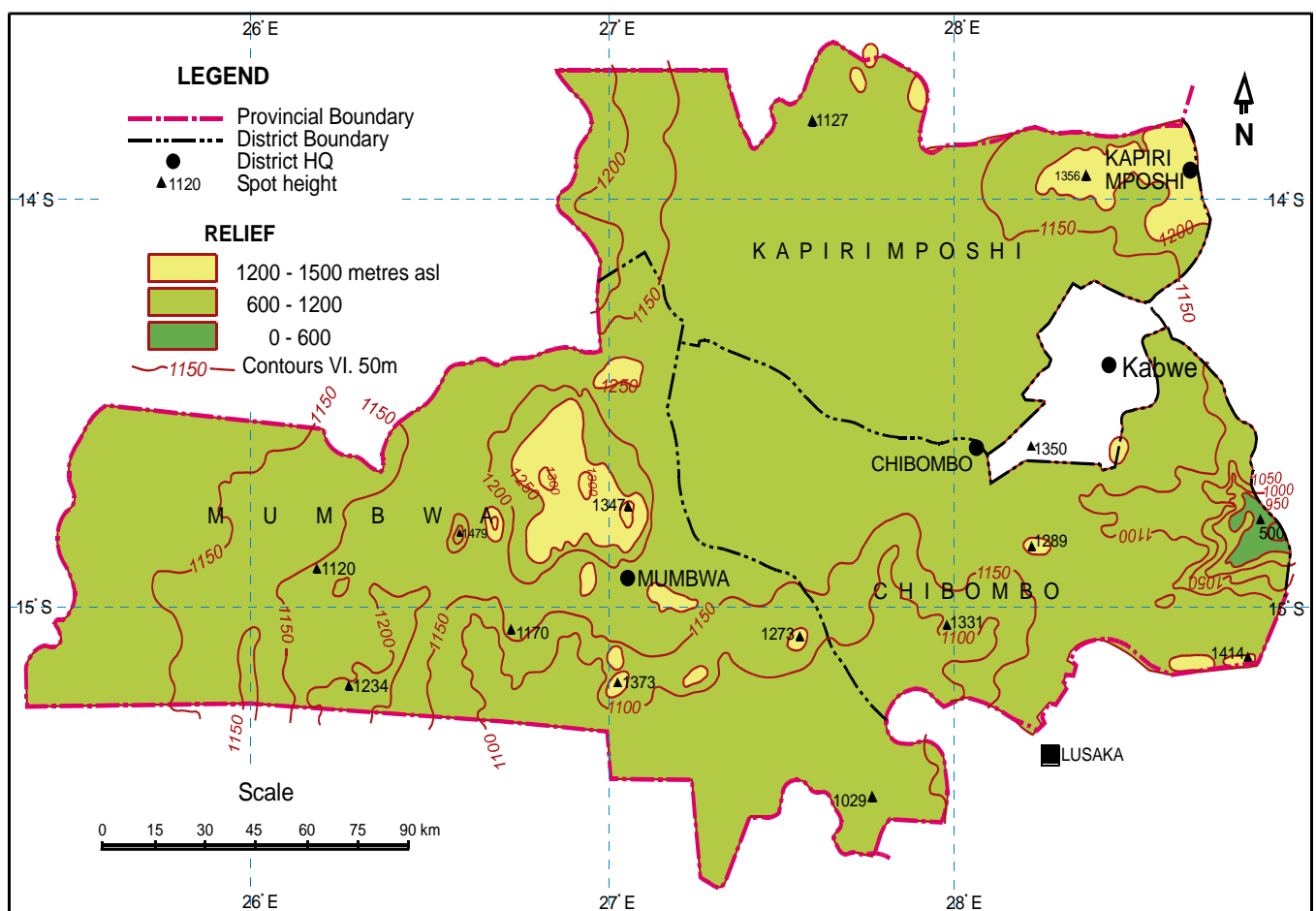
### 3.2 Physical Characteristics

#### 3.2.1 Relief

Central Province lies on the Zambian plateau with an mean altitude of between 900 and 1200m above sea level. Although this land is generally flat, it has scattered hills in places (Figure 3.3). The western part of Central Province is flatter and lower while the eastern and southern regions have hills in a few places which form part of the Muchinga escarpment (Figure 3.3). It was noted that the central parts of the province with more flatish relief had more smallholder farmers than the hilly eastern sections or the swampy western sections. Probably this may be attributed to the fact that many people in this part of the country find it easier to cultivate in an area which is flat than a hilly area where they may need to terrace the land in order for it to hold surface running water. Moreover, it is also true that hilly areas are less



fertile and surface water supply is difficult except in areas where streams exist. Historically, most pre-independence farmers had equally settled on the plateau and therefore the present day farmer spatial distribution is merely a continuation of the pre-independence distribution pattern of farmers and infrastructure. Comparatively, Chibombo and Kapiri Mposhi have more plateau areas that Mumbwa especially in the central sections. Mumbwa district has a number of hills scattered in a number of places.



**Figure 3.3: Relief of Chibombo, Kapiri Mposhi and Mumbwa Districts**

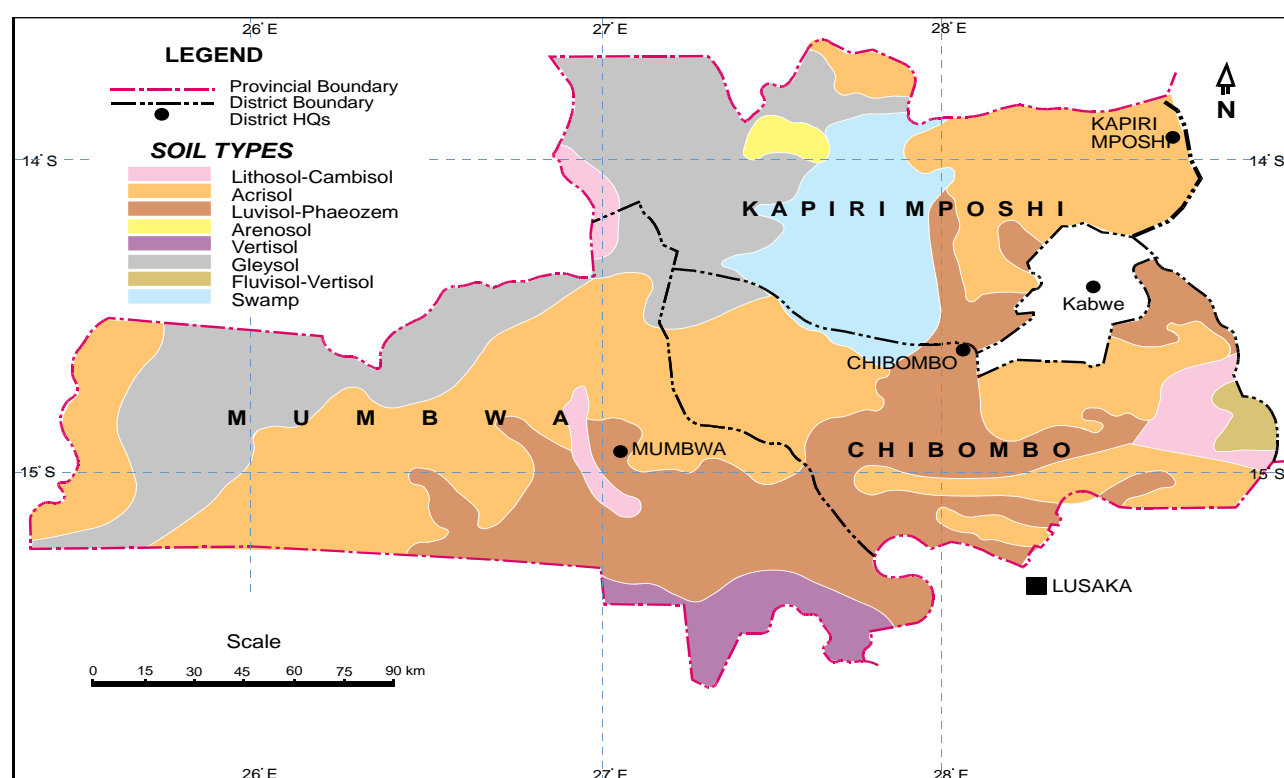
**Source: Surveyor General of Zambia 1986.**

### 3.2.2 Drainage

Kafue, Mulungushi, Mwembeshi and Luswishi are the main rivers found in Chibombo, Kapiri Mposhi and Mumbwa Districts (Figure 3.4). The districts also have many streams



Cambisol, Vertisol, Greysol, Fluvisol-Vertisol and swampy/dambo soils (Figure 3.5). The actual nature and distribution of particular soils, in each of the six districts of Central Province, may vary depending on other factors in each local area such as relief, rain intensity, presence of dambos and rocks. Predominantly, Chibombo District has Acrisol and Luvisol-Phaeozem soils while Kapiri Mposhi is dominated by Lithosol-Cambisol, Acrisol and swampy/dambo soils. Mumbwa District has gleysol, acrisol and luvisol-phaeozem soils. Generally, these soils support various crops grown by both smallholder and commercial farmers in the three districts.



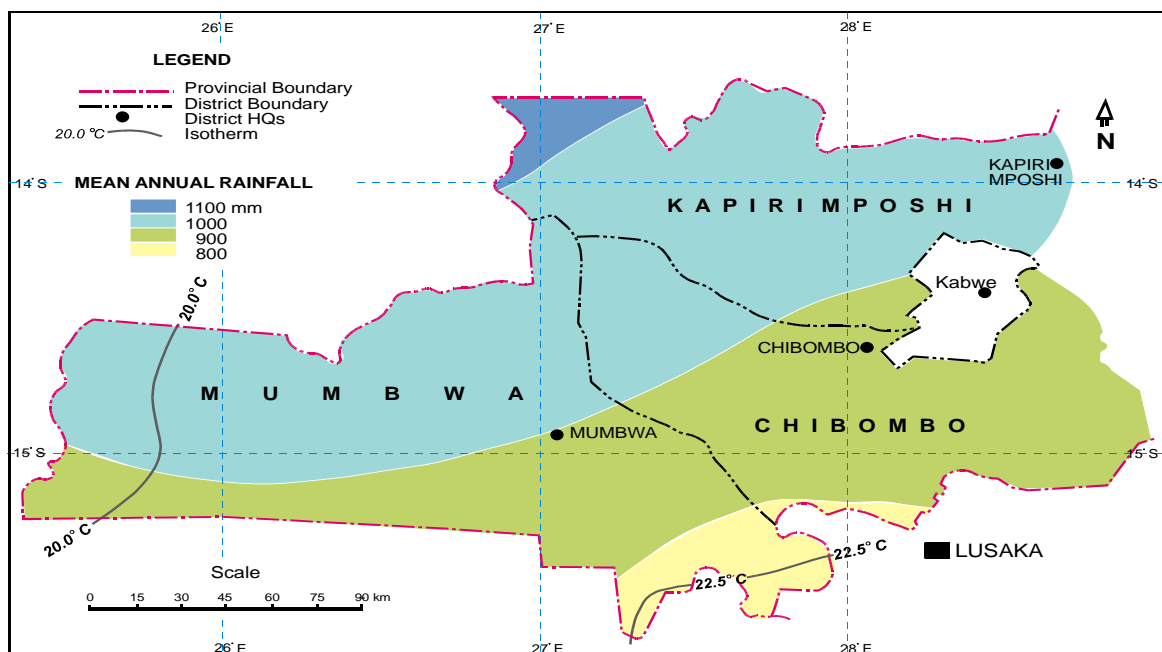
**Figure 3.5: Soils of Chibombo, Kapiri Mposhi and Mumbwa Districts**

**Source: Surveyor General of Zambia, 1986.**

### 3.2.4 Rainfall Distribution

According to Figure 3.6 as one travels northwards from the southern parts of Chibombo, Kapiri Mposhi and Mumbwa Districts the amount of rainfall received increases in amount and the rainy season is longer in terms of months it lasts (Meteorological Department, 2000). Thus, in the southern areas of the study area the rainy season is between mid/late November to the

end of March while in northern areas it lasts until early April. In terms of the actual amount of rain received the southern areas of the districts receive an average of between 900-1,200 millimeters while parts of the northern Chibombo, Kapiri Mposhi and Mumbwa Districts rainfall amounts average above 1,200 millimeters. The increase in rainfall towards the northern parts of the study areas is attributed to the position and movements of the Inter-Tropical Convergence Zone (ITCZ), proximity to the Equator and existence of more vegetation cover. Furthermore, the northern areas also have more surface water areas than the drier southern areas. Table 3.2 gives rainfall information for Chibombo, Kapiri Mposhi and Mumbwa Districts in Central Province from 1980 to 2008. Although over the years, the region has experienced changes in rainfall patterns the overall distribution pattern has remained generally the same. Thus, any seasonal increase or decrease in the amount of rainfall and overall distribution pattern, all districts have generally been affected equally. Hence, this makes information in Table 3.2 remain valid.



**Figure 3.6: Rainfall and Temperature Map of Chibombo, Kapiri Mposhi and Mumbwa Districts**

**Source:** Meteorological Department of Zambia, 1986.

**Table 3.2: Estimated Rainfall data (mm) for Central Province**

<b>Year</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Total (mm)</b>
<b>1980</b>	2.5	4.6	11	191.3	302.5	94.2	45	14.2	0	0	2.5	<b>665.3</b>
<b>1981</b>	0	26.4	22.6	181.6	106.1	315.4	19	16.1	0	0	0	<b>687.2</b>
<b>1982</b>	0.7	54	82	286.2	386	227.2	99.4	36.8	36.6	0	0.7	<b>1208.9</b>
<b>1983</b>	0	0	165.1	265.4	161	207.7	49.9	6.3	2.5	0	0	<b>857.9</b>
<b>1984</b>	0	0.1	110.6	194.3	154.7	132.5	258.9	35.2	14.6	0	0	<b>900.9</b>
<b>1985</b>	0	0.8	37.4	27.3	293.2	98.1	157.8	149.5	0.2	0	0	<b>764.3</b>
<b>1986</b>	0.1	0	31.2	298.8	284.4	326.8	238.9	89.6	11.9	0	0.1	<b>1284.1</b>
<b>1987</b>	0	31.6	34.2	426.9	122.4	61.6	80.2	6.5	0	0	0	<b>763.4</b>
<b>1988</b>	0	7.4	256.1	269.3	105.5	177.4	108.4	28.6	0	0	0	<b>952.7</b>
<b>1989</b>	8.8	40	160.8	360.8	248.7	254.4	111.3	91.4	0	0	0	<b>1276.2</b>
<b>1990</b>	0	0	20.3	62.3	287.5	229.5	31.7	9.5	12.7	0	0	<b>653.5</b>
<b>1991</b>	0	27.2	206	121.1	256.8	181.5	94.6	39.9	2.6	0	0	<b>929.7</b>
<b>1992</b>	0	18.9	111.8	246	76	181.1	99.7	13	0	0	0	<b>746.5</b>
<b>1993</b>	0	0	97	405.6	254.9	173.5	138.4	14.7	10.4	0	0	<b>1094.5</b>
<b>1994</b>	0	0	62.2	300.9	289.1	129.5	81.4	137.7	0	0.1	0	<b>1000.9</b>
<b>1995</b>	0	37.9	67.2	180.7	251	88.8	38.3	0	0.9	0	0	<b>664.8</b>
<b>1996</b>	0	2.5	47	197.2	169.3	148.3	66.6	2.9	0	2.8	0	<b>636.6</b>
<b>1997</b>	0	43.3	55	114.7	233.8	279	92	5	0	0	0	<b>822.8</b>
<b>1998</b>	0	1.7	46.5	179.6	374	147.4	53.4	43	1.7	0	0	<b>847.3</b>
<b>1999</b>	0.9	0.3	98.2	143.1	281.9	171.5	70.8	0	1.1	0	0.9	<b>767.8</b>
<b>2000</b>	0	75.8	43.6	159.6	69.6	92.8	153	24.3	0.2	0	0	<b>618.9</b>
<b>2001</b>	0	5.7	121.1	322.3	182.2	234.7	139.9	20.5	0	0	0	<b>1026.4</b>
<b>2002</b>	0.9	0	106.7	87.1	277.6	196	2.7	0.6	0	0	0.9	<b>671.6</b>
<b>2003</b>	0	15.6	25.9	154.7	209.6	231.4	0	0	0	0	0	<b>637.2</b>
<b>2004</b>	0	11.9	119.9	63.9	138.9	205.4	76.4	0.3	42.5	0	0	<b>659.2</b>
<b>2005</b>	0	0	115.9	356.1	196.9	176.2	99.3	127	0	0	0	<b>1071.4</b>

<b>2006</b>	33.1	0	110.1	171.3	197.4	78.4	69.5	0	0	0	33.1	<b>659.8</b>
<b>2007</b>	0	0	123	312.5	343.4	151	182.6	0	0	0	0	<b>1112.5</b>
<b>2008</b>	0	0	26.6	125.9	196.8	207.9	194.5	0	8.4	0	0	<b>760.7</b>

**Source: Meteorological Station, Kabwe, 2010**

### **3.2.5 Vegetation**

The vegetation of this region is open woodland and savannah grassland. Northern districts of Central province with higher rainfall tend to have taller trees. Dambo areas around Lukanga swamps have trees in places but are dominated by grasslands because of poor drainage of the area. Areas around scattered hills have a mixture of vegetation. The main tree species found around the study area include mopane, munga woodland and elephant grass. The vegetation distribution of the study area is closely linked to soils, relief, and drainage and rainfall distribution. Because of this strong link with these factors, no separate map has been set aside for vegetation. The distribution of vegetation is closely linked to the distribution of rainfall and types of soil. Chibombo and Kapiri Mposhi Districts have mainly open woodland and giant grass around the Lukanga Swamps. Mumbwa District has mopane woodland in the western half and open woodland in the central and eastern parts.

## **3.3 Socio-economic Characteristics**

### **3.3.1 Administrative Divisions**

Central Province is divided into six districts (time of fieldwork): Mumbwa, Chibombo, Kabwe, Kapiri Mposhi, Serenje and Mkushi (Figures 3.1 and 3.2). Civic authorities administer each of these districts. The civic authorities are elected council officials at the local level who implement various government programmes, such as investment in agriculture and land allocation. Tribal chiefs and headmen help the civic authorities implement government programmes at the grassroots. The duties of the two authorities (civic leaders, the tribal chiefs and headmen, respectively) include distribution of land to the people that live in their locality

either through the statutes (title deeds) or traditional land holding (GRZ, 1995). The power of allocating land to the citizens helps the local leadership influence population distribution in their areas.

District councils are responsible for allocating agricultural land under their jurisdiction. Plots of land allocated by Councils enable the holders to obtain certificates of title. Conversely, the tribal chiefs and headmen are responsible for allocating traditional land to their subjects, with or without certificates of title (GRZ, 1995). Land wholly under the tribal chiefs' control is not given certificates of title. However, according to the Lands Act (1995) land held under traditional or customary tenure can be converted to leasehold (land held with title of ownership) with the recommendation of the headman, chief and district to the Ministry of Lands (GRZ, 1995). While the majority of smallholder farmers in Central Province hold land under customary land tenure, a small percentage (estimated to be less than five percent of the entire population) hold theirs under leasehold (Department of Agriculture, 1996). The implication of holding land under customary tenure is that the land the farmer owns cannot be used as collateral when applying for financial loans, while those holding land under leasehold can use the land as collateral. In Chibombo, Kapiri Mposhi and Mumbwa districts, like in other parts of Central Zambia, the act of holding land under traditional tenure has proved a major drawback to the development of smallholder agriculture (Department of Agriculture, 1996).

### **3.3.2 Economic Activities**

In Central Province, farming (both smallholder and commercial scale) is an important economic activity. The dominant type of farming practised here is smallholder farming. It accounts for over 90 percent of economic activities in the region (CSO, 1994; Sichingabula, 2000). The people not involved in agriculture are found in careers such as teaching; health related professional activities such as nursing; engineering; civic duties; retailing and

quarrying. These professions, however, employ less than 10 percent of the people in Central Province (CSO, 1994; CSO, 2010) and hence, in comparison to smallholder farming, they are less significant.

### **3.3.3 Education Sector**

The study districts have a number of pre – schools, 310 primary schools and 25 secondary schools (Ministry of Education-MOE-, 2009). Chibombo District, during the time of fieldwork, comprised 137 primary schools (87 in the new Chibombo District and 50 in new Chisamba District), nine (9) secondary schools (four in Chibombo and five in Chisamba districts in the present district arrangement). These included Banani International School (private), Chibombo, Chipembi, Chisamba, Kafushi and Moomba Secondary Schools (government owned). It also has Keembe (in present day Chibombo District) and Chipembi Farm Training Institutes (now in Chisamba District but was in Chibombo District at the time of fieldwork). In Mumbwa District there are 70 primary schools and five (5) secondary schools (Ministry of Education-MOE-, 2009). This includes, Nambwa, Nangoma and Mumbwa Secondary Schools. Kapiri Mposhi District comprises 103 primary schools and 11 secondary schools (Ministry of Education-MOE-, 2009).

Secondary schools include Mukonchi Secondary school, St Pauls Secondary School, Mpunde Girls Secondary school and Kapiri Mposhi Girls Technical Secondary School. This district has no training institute or college. According to the District Agricultural Coordinator (DACO)-Chibombo (2006), the general educational levels of people range from primary to university. Many crop farmers are either primary, Grade 9 or Grade 12 level graduates. Only a few (less than 10 percent) have college education. From the preliminary survey done by the researcher, the few available University graduates are employed either by the private sector or government departments.



The distribution of primary schools was wide while secondary schools were located either along the main roads or within the main settlement areas such as district headquarters of the study areas. It seems such a distribution of secondary schools in relation to primary schools precipitated overcrowding in a few nodal areas since all children in need of such an educational level migrated to these places during the school terms.

### **3.3.4 Health Sector**

According to the DACO for Mumbwa (2006) and the Situation Analysis Reports showed that several government Health Centres and hospitals exist in the study area. At least one district hospital was found in each study district. Chibombo District comprises 36 Health Centres and One (1) hospital (up to 2010)-after Chibombo and Chisamba were partitioned, Liteta Hospital was made part of Chisamba District, thereby making Chibombo have no district hospital; Kapiri Mposhi District comprises 26 Health Centres and two (2) hospitals and Mumbwa has 30 health centres and two (2) hospitals (Ministry of Health-MOH-, 2009). Some of the notable health institutions are Liteta Hospital, Kapiri Mposhi District Hospital and Mumbwa District Hospital. From these health institutions people receive medicines for and/or advice on numerous diseases, ante natal and post natal facilities, midwifery services, disease prevention help and other services.

### **3.3.5 Population composition, distribution and size.**

The rural people of the three districts include Lenje (Chibombo), Swaka (Kapiri Mposhi), Lunda Ila (Mumbwa), Tonga, Ndebele and other small settler tribes from different parts of the country (Muntemba, 1977). Most of these rural people are smallholder farmers. Table 3.3 presents the general distribution of the urban and rural population of the three study districts relative to that of the province. In Chibombo, Kapiri Mposhi and Mumbwa Districts the majority (65 percent) of the farmers (male and female) are over 45 years of age with farmers

below 45 years of age in the minority (35 percent) and, yet with a better capacity to adjust to new market conditions, especially those of agricultural liberalization which demanded that a farmer operates independent of government and makes decisions suitable to ever changing market conditions.

**Table 3.3: Rural and Urban Population Sizes of the three Study Districts**

Area	Rural Population	Urban Population	Total Population
Central Province	769,202	243,055	1,012,257
Chibombo	237,657	3,955	241,612
Kapiri Mposhi	167,533	27,219	194,752
Mumbwa	142,912	15,949	158,861

Source: CSO (2003).

### 3.3.6 Transportation

The main transport infrastructure of Central Province includes the Livingstone to Copperbelt railway, the Tanzania and Zambia Railway Authority (TAZARA) railway from Kapiri Mposhi to Nakonde, the Lusaka to Mongu tarred road (Great West Road) and the Great North road which runs from south to northern Zambia. Additionally, there are several gravel and dirty roads in the study area.

These transport networks were mainly established in the period of the First National Development Plan (FNDP) of 1966 to 1970. The Livingstone to Copperbelt railway was established during the colonial period. Through the years, the Government of the Republic of Zambia and the local community has mainly been maintaining these roads to keep them passable, especially during peak farming seasons when inputs and/or outputs are moving. It

seems that in places where the transport infrastructure was established a long time ago, it has contributed, largely, to the spatial pattern of the settlements in Central Province as they are today. According to the Department of Agriculture (1996), this is particularly so along the Great North road and the old railway line.

The establishment of this infrastructure was part of the ambitious government programme of rural development in the early years of independence (GRZ, 1966, 1979 & 1986). From the time of construction during the FNDP until the early 1980s, the Chisamba turnoff to Chisamba siding road was tarred and the road from Landless Corner to Mumbwa was a very well maintained gravel road that could be used by any automobile. Seasonal grading and general maintenance of the roads in rural areas seems to have been a priority of the pre-1991 government (GRZ, 1986). According to available information, grading and general maintenance of rural roads was common between April and the beginning of June in readiness for crop marketing that started at the end of June. The government's policy of regular road maintenance helped to keep roads passable during most parts of the year. With a widespread social infrastructure of schools, clinics and shops the rural population was helped to settle in many places of the district including those previously considered to be too remote.

The Great North Road passed through Chibombo and Kapiri Mposhi Districts while the Lusaka-Mongu tarred road (Great West road) passed through Chibombo and Mumbwa Districts. The Livingstone-Copperbelt railway passed through Chibombo and Kapiri Districts. No railway existed in Mumbwa District. Chibombo, Kapiri Mposhi and Mumbwa Districts comprised several gravel, dust roads and bush tracks leading to different farming areas and settlements. The existence of roads in farming areas helped smallholder farmers to settle in different parts of the study districts especially in areas where weather patterns, soils and relief of the land were generally suitable.

## **CHAPTER FOUR: METHODOLOGY**

### **4.1 Data Collection Methods**

#### **4.1.1 Secondary Data**

Secondary data such as literature, maps and figures were obtained from various documented sources like the University of Zambia library, Central Statistics Office in Lusaka, various Ministry of Agriculture and Cooperatives offices found in the three districts of Mumbwa, Chibombo and Kapiri Mposhi, periodicals and other relevant sources. They provided information on agricultural policies, hectares of land for farmers in farming blocks, names of agricultural support institutions, crop production, number of farmers in farming blocks and transport infrastructure. Secondary data was used to supplement primary data and also to enhance analysis and discussion of findings. It was also needed to provide a historical perspective of the study.

#### **4.1.2 Primary Data**

Primary data was obtained through questionnaires (Appendices 1, 2 & 3), group interviews (Appendix 4) and observations. The information obtained covered cropping patterns, types of crops and production levels, agricultural support institutions and transport infrastructure between the 1980-1990 and 1997-2008 periods.

Questionnaire 1 was distributed to 226 cooperative societies involving 1,367 farmers of a wide age range and educational backgrounds. Thus, 96 Cooperatives from Chibombo, 77 Cooperatives from Kapiri Mposhi and 53 Cooperatives from Mumbwa District. Membership of individual cooperatives varied greatly. Thereafter group interviews were organized with purposely selected men and women in order to triangulate information obtained from the questionnaires. During group interviews men and women were engaged separately.

The second questionnaire was administered to the Ministry of Agriculture officials in order to obtain information about cropping patterns and crop production, agricultural support institutions and transport infrastructure in each study district from a government perspective.

Questionnaire 3 solicited responses from institutions which support agriculture in various ways for example information empowerment, supply of inputs for the vulnerable groups. Institutions supporting smallholder agriculture included the ZNFU, AFRICARE and PLAN International. The purpose of this questionnaire was to establish the specific role of the ZNFU and other non-governmental organizations in supporting smallholder farmers in improving their knowledge on crop marketing and financial management in each study area.

Group interviews with ordinary members of Cooperative Societies (Appendix 4) were used as supplement/support instrument to Appendix 1 and observations. Thus, the group interview schedule was administered by the researcher to selected groups of men and women, of various age groupings, to establish their group recollections about crops, production, agricultural support institutions and transport networks for both the 1980-1990 and 1997-2008 periods. Group recollections were needed because such farmers maintain no reliable written records of their farming activities. In the Group interviews women and men were spoken to separately in order to give each group a chance to speak freely without undue pressure from the other group. Separation of groups by gender and age was to permit group members to speak freely. Only once did the researcher put the group of men and women together for verification of some conflicting information.

In order to enhance data collected through questionnaires and group interviews, observations on farming activities and spatial units were made by the researcher and his assistants. During these observations, the researcher and his assistants recorded specific

information about crops, farmer and institutional activities as they existed in the study areas at the time of the fieldwork.

#### **4.1.2.1 Questionnaire 1 for Cooperative Members**

Questionnaire 1 (Appendix 1) targeted members of the Cooperative Societies and their leaders. The instrument aimed at getting information about types of crops and production, agricultural support institutions, transport networks, emerging agricultural trends in each district and how smallholder farmers compared the effects of the 1980-1990 and 1997-2008 policies on their farming activities. At the end of the fieldwork, it was apparent that farmers with different backgrounds, age and sex groups, and education experiences gave different information. This instrument was particularly important for this study because it provided the household farmer-input on the information which the study intended to obtain. It also gave farmers a platform to give information about how they perceived the agricultural policies of the 1980-1990 and 1997-2008 periods, and the emerging trends thereafter.

#### **4.1.2.2 Questionnaire 2 for the Ministry of Agriculture and Livestock officials**

Questionnaire 2 was given to purposely sampled officers of the Department of Agriculture in the Ministry of Agriculture and Livestock based in the farming blocks and at the district level, including District Agricultural Coordinators (DACOs), Senior Agricultural Officers (SAOs), District Cooperative officers (DCOs) and Block Extension officers (BEOs). The questions given ranged from cropping patterns and crops grown, agricultural support institutions and transport networks in their respective districts to their perception of agricultural transformations and spatial patterns between 1980-1990 and 1997-2008 periods. Unlike information from farmers and cooperatives, it was expected that government officers would provide information from an administrative perspective.

Due to their small number, all the three DACOs, SAOs and DCOs provided responses for this study. Because of their educational level, the DACOs and their immediate subordinates filled in the questionnaires on their own and were collected later. A fifty percent (50%) randomly sampled BEOs per district were included in the study. Thus, three agricultural blocks in Chibombo and Kapiri Mposhi Districts respectively were randomly sampled out of a total of six blocks, while four blocks out of eight were sampled in Mumbwa District.

Although one type of questionnaire was given to all the Ministry of Agriculture and Livestock officers, their information varied and complimentary. Comparatively, block extension officers provided more specific on-the-ground information about the agricultural transformations and spatial patterns using both files which they possessed in their offices and their recollections covering the 1980-1990 and 1997-2008 periods. Officials at the district level provided more generalized data.

#### **4.1.2.3 Questionnaire 3 for the Zambia Farmers Union and Other Organizations**

Through Questionnaire 3 the researcher collected general information about the trends unfolding in the three districts from systematically sampled officials representing non-government organizations supporting smallholder farming in each study district. To a certain extent, this instrument aimed at getting information about smallholder agricultural activities from a neutral source who was neither a farmer nor government official. As the officials from each organization could read and write, they answered the questions unaided.

#### **4.1.2.4 Group Interviews (GIs)**

Each GI was based on the interview schedule given in Appendix 4. The Group interview schedule was designed in a manner that it contained questions which covered each aspect of the study, almost resembling the nature of questions found in structured questionnaires 1 and 2. The researcher and his assistants asked the questions to each group of

informants and recorded their responses. If the group interviews precipitated new data, the researcher was prompted to seek more clarification from both the group concerned and the previous informants in government institutions and cooperatives. Such a measure helped remove any distortions of facts or any misinformation. Group interviews were held where Cooperative Society leaders were willing and able to mobilize their members. In areas where cooperative leaders and the researcher could not manage to bring farmers together no GIs were held.

A total of four GIs were conducted in Chibombo district (two group interviews in Chibombo Farming block and another two interviews were held in Keembe Farming block). The four GIs had a gender and age segregation. One GI was for women alone (10 women), the second for men (8 men) and the third one was for young men (nine) and fourth one for young women (14).

The two GIs held in Mulungushi Farming Block of Kapiri Mposhi district involved 20 women and 17 men spoken to separately. The GI held in Mumbwa Central Farming Block of Mumbwa district involved one group of 15 women and another group comprised 7 men. After the initial separate group interviews in Mumbwa Central Farming Block, a combined group interview of both men and women was held for purposes of information verification. All the GI schedules were conducted in Lenje or Tonga languages. This was done in order to obtain as much recollected information about spatial patterns for the 1980-1990 and 1997-2008 periods as possible. A total of eight (8) gender biased group interviews were conducted in the three districts.

#### **4.1.2.5 Observations**

Observations were used both as a tool of research in itself and as a strategy to verify information collected through questionnaires or GIs. The researcher and the assistants made



observations about various aspects of crops, agricultural support institutions and transport infrastructure in the study areas as they went round meeting cooperative members, government officials and other people. Important observations made were photographed as proof of what was observed. Some notable observations made included hybrid maize seed poster advertisements placed by some seed companies at the edge of fields to show how good the varieties were for given conditions as opposed to others. Names of some seed companies were also written in bold letters accompanied with drawings of big maize cobs on retail outlets as another way to win customers. Such evidence based observations are discussed in Chapter Five.

Observations were adopted as a further method of collecting primary data in order that there was an avenue which could be free of input from other people. However, due to its high degree of subjectivity, the general use of evidence from this method was kept to a minimum. This was done to safeguard the reliability of field data.

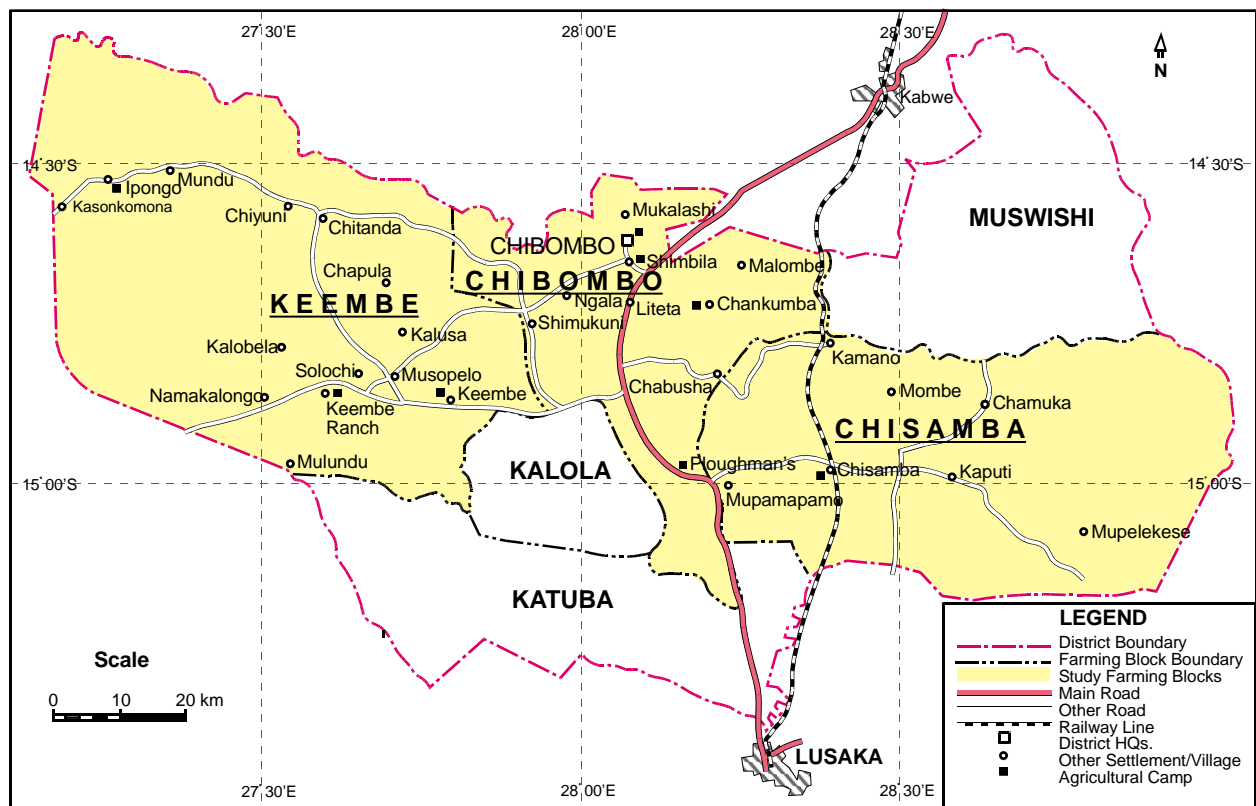
## **4.2 Sampling Frame**

For this current study a sampling frame for farmers in cooperatives, government officials responsible for administering agricultural activities in each district and support organizations were used.

## **4.3 Sampling Unit**

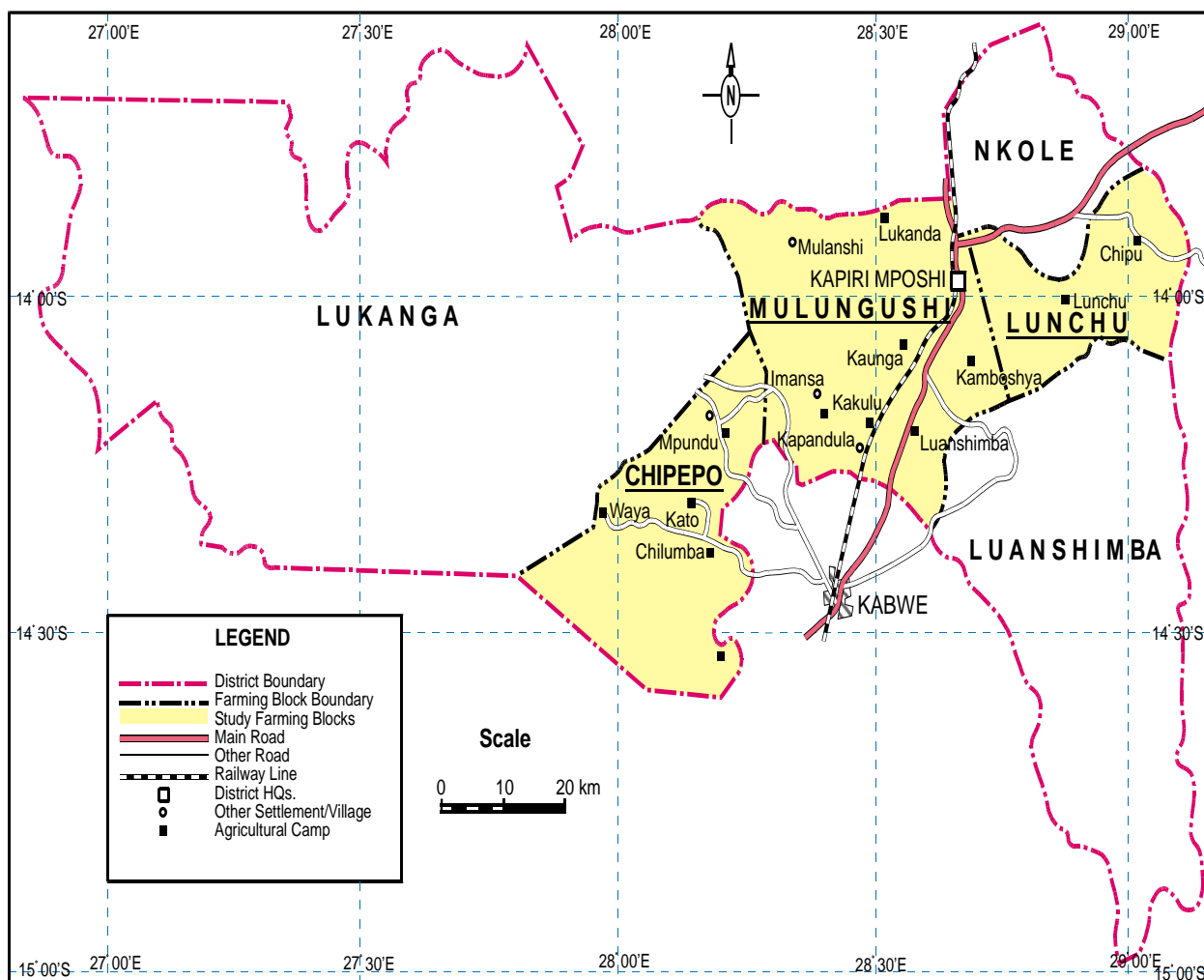
The farm block was used as the sampling unit for this study. Three farming blocks in Chibombo and Kapiri Mposhi districts and four farming blocks in Mumbwa district, representing fifty percent of Farming Blocks in each district, were selected on the basis of purposeful sampling. For Chibombo District the following blocks selected were included in the study: Chibombo, Chisamba and Keembe (Figure 4.1) while in Kapiri Mposhi District, Chipeco, Lunchu and Mulungushi farming blocks were sampled (Figure 4.2). Kapyanga,

Mukulaikwa, Mumbwa Central and Nambala farming blocks were sampled in Mumbwa District (Figure 4.3).



**Figure 4.1: Chibombo, Chisamba and Keembe Farming Blocks in Chibombo District.**

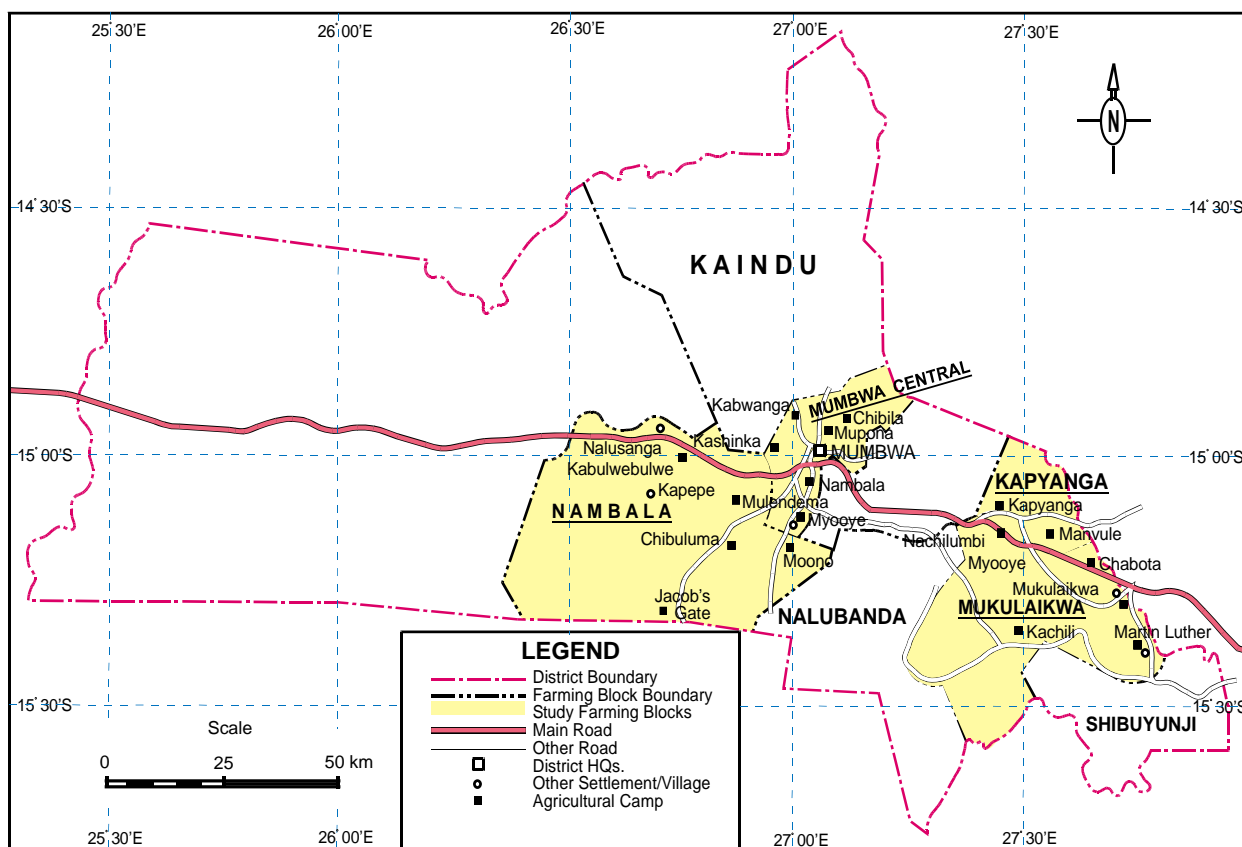
**Source:** Adapted from Agricultural Support Programme (ASIP), Ministry of Agriculture and Cooperatives, Zambia, 2000.



**Figure 4.2: Chipepo, Lunchu and Mulungushi Farming Blocks in Kapiri Mposhi District**

**Source:** Adapted from Agricultural Support Programme (ASIP), Ministry of Agriculture and Cooperatives, Zambia, 2000.

The selection of Farming Blocks took into account agricultural activities in each farming area, accessibility of each farming block and availability of transport networks. Between 20 percent and 50 percent Agricultural Camps in each Farming Block were used as the secondary sampling unit for purposes of selecting Cooperative Societies at the village level.



**Figure 4.3: Kapyanga, Mukulaikwa, Mumbwa Central and Nambala Farming Blocks in Mumbwa District**

**Source:** Agricultural Support Programme (ASIP), Ministry of Agriculture and Cooperatives, Zambia, 2000.

## 4.4 Sample Selection and Structure

### 4.4.1 Cooperative Societies

Out of 1,132 cooperatives in the three districts, 226 cooperatives were randomly sampled (Table 4.1). The District sample size was calculated at 20 percent of the total number of registered Cooperatives ( $20/100 \times 1132 = 226$ ). Individually, 96 cooperatives in Chibombo, 77 in Kapiri Mposhi and 53 cooperatives in Mumbwa were randomly sampled for the study.

**Table 4.1: Sample Selection of Cooperatives in the Study Districts and Farming Blocks**

District	Cooperative Sample Size Per Farming Block		Sample Size of District	Total No. of Cooperatives in Sampled Farming Blocks
Chibombo	Chibombo	54(180/321x96)	96(20/100 x 481)	321
	Chisamba	16(54/321x96)		
	Keembe	26(87/321x96)		
Kapiri Mposhi	Lunchu	13(32/190x77)	77(20/100 x 383)	190
	Mulungushi	23(56/190x77)		
	Chipepo	41(102/190x77)		
Mumbwa	Kapyanga	6(15/139x53)	53(20/100 x 268)	201
	Mukulaikwa	9(24/139x53)		
	Mumbwa Central	21(56/139x53)		
	Nambala	17(44/139x53)		
<b>Total</b>			<b>226</b>	<b>712</b>

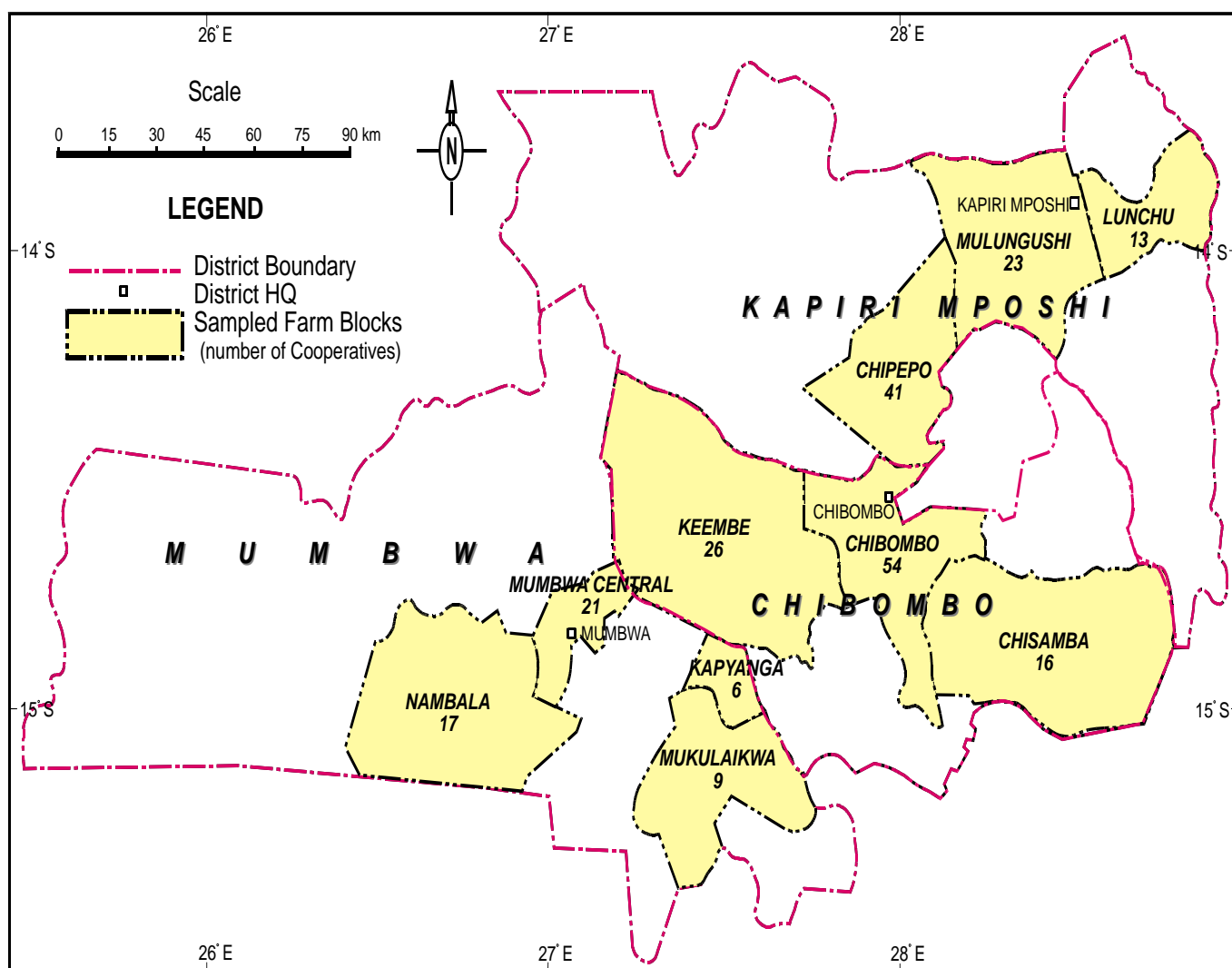
Source: Field data, 2009.

This entailed a total of 1,367 smallholder farmers in all the three districts. At the district level, there were 624 smallholder farmers randomly sampled in Chibombo, 433 in Kapiri Mposhi and 311 in Mumbwa Districts. Of this number, 213 farmers (34 percent) in Chibombo, 103 (24 percent) in Kapiri Mposhi and 84 (27 percent) in Mumbwa Districts respectively failed to respond to the questionnaires. Therefore, in terms of questionnaire responses from individual farmers Chibombo district had a success percent of 66 percent, Kapiri Mposhi 76 percent and Mumbwa District 72 percent.

Farming blocks were purposely sampled at 50 percent of the total number of farming blocks existing at the time of survey in each district. Chibombo and Kapiri Mposhi Districts had a total of six farming blocks each and therefore three farming blocks were sampled per district. On the other hand, four farming blocks were purposely sampled in Mumbwa District because eight farming blocks existed at the time of fieldwork.

To achieve a fair and proportionate representation, a multi-stage sampling procedure involving random, stratified and purposeful methods was adopted for this study. Firstly, the three study districts were purposely sampled from six districts in the province representing a fifty percent (50%) sample size (Figure 4.4). Secondly, the cooperative population was divided into non-overlapping groups such that  $n_1 + n_2 + n_3 + \dots + n_i = N$ . Then, a random sample of  $f = n/N$  was calculated in each stratum to determine the sample fraction, where  $f$  = sample fraction,  $n$  = number of cases in the sample and  $N$  = number of cases in the sampling frame.

In order to select the actual cooperatives in each stratum, computer generated random numbers were used. These numbers were generated as follows: firstly, cooperatives were coded in ascending order from the first cooperative to the last one on the register. Then, the cooperative codes were thoroughly mixed by a computer generated programme until every number lost its original position. These methods were used for this study because of their simplicity, flexibility to permit the use of other methods and ability to reduce degree of bias. For the study to be successful, 1, 367 cooperative members were covered in the interviews and their inclusion in this schedule was based on the selection of their cooperative in the randomized selection system.



**Figure 4.4: Number of Cooperatives in Sample Farming Blocks.**

**Source:** Department of Agriculture & Cooperatives, 2009.

#### 4.4.2 Extension Staff

All extension officers of the Ministry of Agriculture and Cooperatives present in the sampled districts and blocks were purposely selected for the study. Thus, the three DACOs, three SAOs, three DCOs, three block extension officers in Chibombo and Kapiri Mposhi Districts and four block extension officers in Mumbwa Districts were sampled. This was done because they were few and manageable and they all were responsible for very important

information which was needed for this study. These officers provided data from both active and dead files, and in some in some instances from their personal recollections.

## **4.5 Characteristics of Respondents**

Respondents interviewed included the three DACOs, SAOs, DCOs, three BEOs in Chibombo and Kapiri Mposhi respectively, four BEOs in Mumbwa district and other officials in the Ministry of Agriculture and Cooperatives (MACO); 226 cooperatives involving 1,367 members (624 in Chibombo, 433 in Kapiri Mposhi and 311 in Mumbwa District), and several members of non-governmental organizations (NGOs) supporting smallholder farming in a number of ways. The employment characteristics of respondents from the government departments and non- governmental organizations are described below.

### **4.5.1 Occupation of Respondents by Title**

This category of the study examines the nature of employment for the key informants in the Ministry of Agriculture and Livestock. The categorization of informants by employment helps make clear why they were selected to provide information for the current study. These individuals, due to the nature of their work, proved vital for the study.

#### **4.5.1.1 Ministry of Agriculture and Livestock Officers**

The respondents from the Ministry of Agriculture and Cooperatives included government officers managing agricultural activities in each district such as the District Agricultural Coordinators (DACO). The job description for these officers is outlined below.

##### **4.5.1.1.1 District Agricultural Coordinators (DACOs)**

The DACOs are the overall leaders of government agricultural and cooperative activities in each district. A total of three DACOs were sampled for this study: one for each study district. At the time of the investigation, Chibombo District had a female DACO, while those at Kapiri Mposhi and Mumbwa districts were males. These DACOs were interviewed



as key informants being responsible for agricultural developments in the districts. All the three DACOs were in possession of a Bachelor of Science degree in Agriculture.

The DACOs for Chibombo and Mumbwa districts were found to have been the heads of the two districts for a number of years at the time the investigation was in progress, while the DACO for Kapiri Mposhi had been in the district for less than a year at the time, but was supported in administering the district by the Senior Agricultural Officer (SAO) and District Cooperative Officer (DCO) that had been in the district much longer and hence possessed better knowledge of what was obtaining on the ground.

The main tasks of the DACO, among others, include coordinating government programmes on agriculture and cooperatives in the whole district, working hand in hand with other government departments in matters related to MACO, compiling data and reporting on agricultural activities in the district, attending to matters under his/her jurisdiction such as crop forecasts, planted hectares, distributing inputs to approved members of cooperatives under the Fertilizer Input Support Programme (FISP), supervising the SAO, Cooperative Officer, Senior Extension Officer, Administrative Officer, District Accountant for Agriculture, Cooperatives, Livestock and Fisheries (a new Ministry at the time of this research), Transport Officer, Drivers, Secretaries, Block Extension Officers, Camp Extension Officers, Security men and Office Orderlies.

As the main government representative on agriculture and cooperative matters, the DACOs also attend seminars whenever they are required to do so, on behalf of the district. DACOs also interpret and implement various government policies and programmes at the district level in relation to agriculture and cooperatives. As part of the bottom-up government reporting structure, they inform government of various happenings in their districts. This aspect tends to enable the provincial and national leadership to appropriately adjust policies and programmes to suit the grassroots. The DACOs were also found to be the official

spokespersons on all government agricultural and cooperative matters in their districts. According to facts obtained at the time of the fieldwork, this was done in order to reduce on multiple statements from individual officers, which would lead to confusion in the district.

During this research DACOs provided information on crops, crop patterns, agricultural systems, crop production, land hectares, number of farmers, institutional support networks, transport infrastructure and responses of farmers to new policy changes as obtained from new and old files and experiences at the district level. In comparison to the information from Block Extension Officers their information was less specific but more generalized on account of being based at the district.

#### **4.5.1.1.2 Senior Agricultural Officer (SAO)**

The SAO was reported to be the immediate subordinate to the DACO. Like the DACOs, SAOs were holders of a Bachelor of Science degree (B.Sc.) in Agriculture. The role of the SAO included performing any job assigned to him/her by the DACO. Thus, helping the DACO to supervise, coordinate, plan, and implement programmes in the district. The researcher was informed that the SAO also performs the role of DACO in his/her absence.

In this study, the three SAOs provided supplementary information to that of the DACO. In Kapiri Mposhi district the SAO provided more information than what the DACO did because he had been in the district longer. The information provided ranged from crop patterns to responses of farmers to agricultural transformations and spatial patterns. All the SAOs found in the three districts were male.

#### **4.5.1.1.3 District Cooperative Officer (DCO)**

The District Cooperative Officer (DCO) is the officer responsible for cooperative activities in the district and holds a B.Sc. degree in Agriculture or its equivalence for example a BA in Economics. Some of his/her functions are to register new cooperatives in the district, recommend them for registration with the Registrar of Societies at the national office, monitor

their activities in the district, keep the copies of their constitutions, advise and/or deregister those cooperatives which are not active, and relay the functions of the cooperatives to the DACO. The DCO is, hence, the principal officer on all cooperative affairs in the district. At the time of the study, the DCOs in the three study areas were all male. For this study, the DCOs provided information about the names, physical addresses of cooperatives, contact persons in each cooperative, years of registration and their activities.

#### **4.5.1.1.4 Block Extension Officer (BEO)**

A Block Extension Officer is in charge of a single farming block in a district. Such an officer reports to the DCO, SAO and DACO at the district about all agriculture and cooperative affairs in his/her block. They compile and submit reports to their superiors, coordinate agriculture and cooperative activities in the block, supervise camp extension officers and attend to any matter referred to them by the district or any person interested in the activities under their jurisdiction. Chibombo and Kapiri Mposhi districts had six BEOs each while Mumbwa had eight BEOs. For reasons of proportional representation, a 50% sample was adopted for this study. In Chibombo district the BEOs for Chibombo, Chisamba and Keembe farming blocks were interviewed while in Kapiri Mposhi district BEOs interviewed were for Chipepo, Lunchu and Mulungushi farming blocks (Figures 8 and 9). The BEOs for Kapyanga, Mukulaikwa, Mumbwa Central and Nambala farming blocks were interviewed in Mumbwa district (Figure 10). Each BEO was in possession of a diploma in Agriculture Science.

The BEOs (Figures about specific details about crops, agricultural systems, land uses and hectares, number of farmers, their resources, crop production figures, agricultural support institutions, communication infrastructure, agricultural transformations and spatial patterns, and responses of the farmers to new policy changes.

Furthermore, the BEOs coordinated the fieldwork activities in the sampled blocks working very closely with the researcher and camp extension officers. Their work was made

practical and easier because they all had motor bicycles which were not found with the camp extension officers. The BEOs also proved to know farmers and cooperative activities more than the district officers. Their proximity to the farming and cooperative communities positively benefited this study to a marked degree. They also helped to organize the group interviews held in their blocks. The information obtained from BEOs was based on their field observations, experiences over the years, information from new and old files, maps, and their contacts with the extension officers. The BEOs also helped to clarify or correct inaccurate information obtained from the DACO, SAO or other higher organs through triangulation. It was noted that eight BEOs (80%) out of ten (except those for Lunchu and Mumbwa Central farming blocks) were male. While all of them resided in their farming blocks, the BEO for Lunchu lived in Kapiri Mposhi town away from her block. This arrangement was necessitated by her marital status. However, she still was able to travel to her farming block regularly.

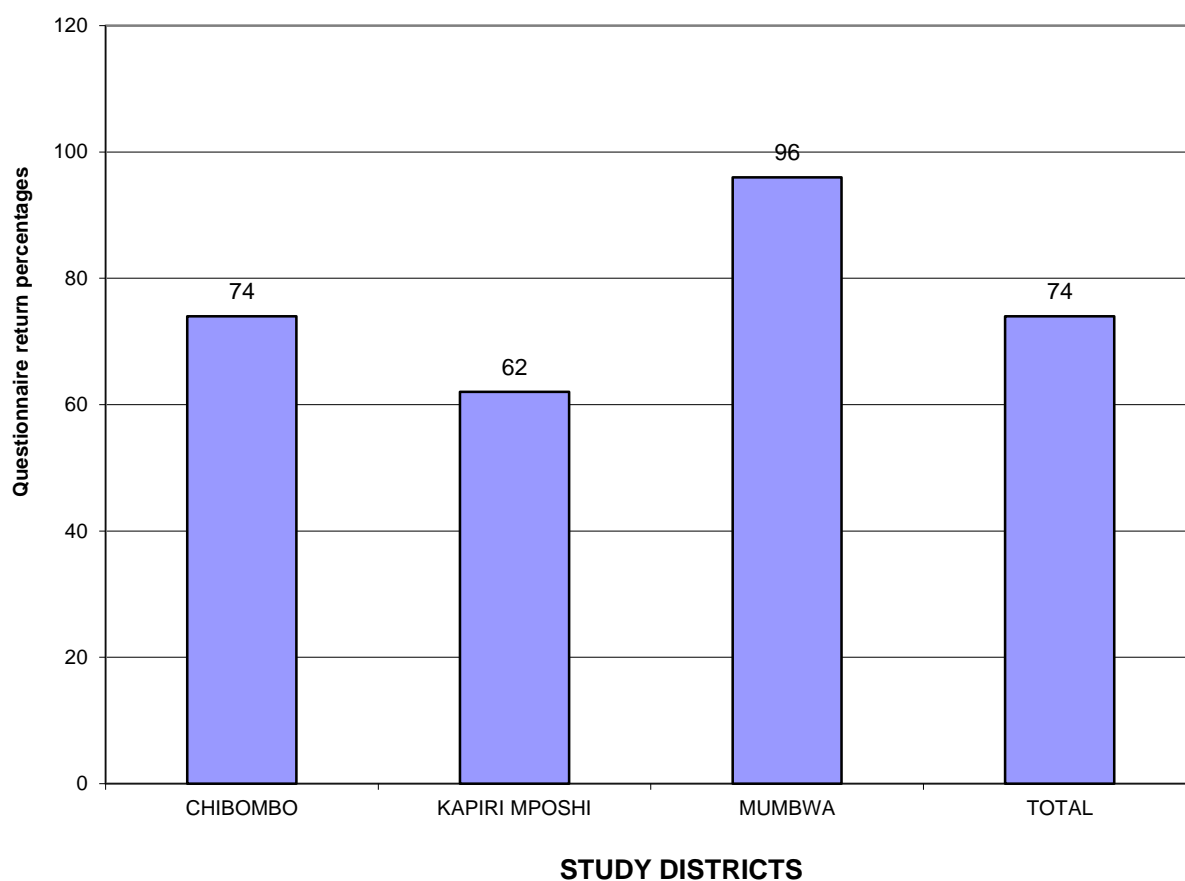
#### **4.5.2 Members of Cooperative Societies**

As stated earlier 1,367 cooperative members were randomly sampled for this study. These were members of the 226 cooperatives sampled in the three study districts (Figure 4.5). Out of this number 168 cooperatives (74 percent) responded.

The members of cooperatives included youths, women and men. The majority of the cooperative members (1,230 or 90 percent) either had a primary, junior secondary or senior secondary education and only about 137 (10 percent) had college or university education. It was noted that those who happened to be highly qualified (College or university graduates) were both retired men and women who settled in rural areas after spending many years working in various employment sectors in urban areas.

In comparison, men were better educated than women. The education composition of youths was fairly mixed between young males and females. When questioned about the quality

of their school certificates it was learnt that over 51 percent who had settled in rural areas had not performed well.



**Figure 4.5: Administration Analysis of the Number of Questionnaire Returned from informants in the three Study Districts. Source:** Field data.

Members of cooperatives and their leaders provided information about when their cooperatives were formed, membership at the time cooperatives were formed, farming activities they were involved in, crops grown between 1980-1990 and 1997-2008. Furthermore, they talked about the size of land used for farming, agricultural support institutions, transport infrastructure, importance of education to farming activities and changes which had occurred over time. They also gave their recollections on various issues and views

about agricultural transformations emanating from liberalization policies. Evidently, the investigation benefited from group recollections as some information could not be found on file in government offices. Individual cooperative members provided information about the type of crops which they grew, crop production, cropping patterns, agricultural support institutions and the transport infrastructure before and after 1997. Most of the data they provided was through their personal recollections since they did not keep any reliable records. Because of this limitation, this data had to be reconciled with information from group discussions, government and documentary sources found in various government and/or private institutions NGOs supporting peasant farming. Although not in all cases the majority of the data provided conformed with information from other informants.

The field research and records found with cooperative officers indicated that all members of cooperatives needed to have green national registration cards and be active farmers with their own fields. Generally, it was found that over 81 percent of the members were above 18 years of age. However, some farmers reported that some members who met the age minimum limit were included on the register by their parents just to meet the minimum number of ten (10) required to register a cooperative. The three DACOs confirmed this fact but had no way of stopping farmers from such misconduct because young people in some farming areas owned their own fields.

#### **4.5.3 Officials of Agricultural Support Organizations**

The following officials representing various organizations were spoken to about their support to smallholder farmers: an official of the Zambia National Farmers' Union in Chibombo District near Landless Corner, another one in Kapiri Mposhi District near Kato and one in Mumbwa town; two representatives of Plan Zambia; one official from CLUSA; two officials representing Africare and three officials working for the Agricultural Support Programme (ASIP). These officials all spoke of the kind of extension work they provided the

farmers (such as extension on entrepreneurship, financial management and crop marketing strategies), how farmers were responding to policy changes and their adaptation, difficulties, challenges and opportunities arising from the liberalization environment.

#### **4.6 Fieldwork Activities**

Before the actual fieldwork which took place in 2008 and part of 2009, questionnaires were first distributed to smaller pilot groups in July of 2007 in order to establish their effectiveness in terms of question simplicity, structure, clarity and focus. After the pilot survey the clarity, structure and in certain situations the depth and focus of some questions were modified. This helped to make the research instruments more effective and user-friendly. Fieldwork activities took place between October, 2008 and August 2010, mainly during the dry season when roads were fairly passable. Very limited fieldwork was undertaken during the rainy season due to poor roads except in circumstances where the researcher visited selected farming areas which were along main roads. These activities involved visiting farming blocks and the district coordinators' offices in the three study districts, various organizations supporting peasant farmers, the Central Province Agricultural office and the Ministry of Agriculture and Cooperatives head office in Lusaka. During the field visits, the researcher and the four research assistants visited and conducted the actual interviews, distribution and collection of questionnaires from informants in the farming blocks in each of the three districts. With the help of cooperative extension officers and block extension officers, the researcher and his assistants also made field observations and follow up visits to informants.

The data provided in Table 4.2 about the number of questionnaires distributed to cooperatives and those returned is attributed to the fact that the DACOs for Mumbwa and Chibombo districts together with their subordinate officers were better organized, more supportive and effective at managing the fieldwork activities assigned to them. Furthermore, the researcher accompanied the BEOs and DACOs on many fieldtrips in order to ensure that

they conducted the tasks correctly. The DACO for Kapiri Mposhi District with his junior officers were largely less organized, less cooperative and at one point lost some information prompting the researcher to conduct a second visit to Lunchu Farming Block. Partly this was because the BEO for Lunchu resided in Kapiri Mposhi town instead of the farming block. The BEOs for Chipeco and Mulungushi farming blocks did not coordinate the fieldwork activities in time and to the best expected level.

**Table 4.2: Cooperative Societies Questionnaire Schedule**

<b>District</b>	<b>Sample Size</b>	<b>Number of returned questionnaires</b>	<b>Number of questionnaires not returned</b>	<b>Success percentage (%)</b>
Chibombo	96	71	25	74
Kapiri Mposhi	77	48	29	62
Mumbwa	53	49	4	93
Total	226	168	58	74

**Source: Field data, 2009.**

Data on transport infrastructure was collected from questionnaires given by respondents, observations in the district by the researcher and his assistants and, from old and new transport maps existing at the district councils, Department of Agriculture and Central Statistical Office. The District Councils provided detailed information on the state of the transport infrastructure within their boundaries. This information was verified using the data from farmers and the field visits by the researcher and research assistants. To make these



investigations possible the researcher camped in each district in certain instances for three weeks continuously at a time. In each visit to the study area the researcher accompanied the field staff or made independent visits to selected study areas in order to confirm information collected when he may have been in another district or area. Although this was an arduous task it helped to achieve the intended goals of the study and this motivated the assisting staff being with the researcher even in areas which were considered to be too remote. The other advantage of the researcher's presence in the field was that it made the assistants more committed to their tasks.

#### **4.7 Analysis of Data**

Both quantitative and qualitative methods of analyzing field data were used. Empirical and objective data was analyzed using Microsoft Excel and the Statistical Package of Social Sciences (SPSS) to generate descriptive statistics on central tendencies and dispersion of the data. The results were presented in form of graphs, maps and charts, and thereafter these were discussed in conformity with the set objectives. Subjective information helped to explain the views, values and evolving perceptions of individual farmers in cooperatives, government circles and the supportive non-governmental organizations on the implications of the new agricultural policies on the 1980-1990 set-up of crops, agricultural support institutions, transport networks and the emerging trends in the post-1991 period. A comparative analysis of old and new maps was the basis of spatiality of institutions, transport networks and crop aspects.

#### **4.8 Limitations of the Study**

This investigation faced some limitations. While the underlisted limitations were faced during fieldwork, the accuracy of field data was ensured through mitigations which were put in place.

- (a) The rainy season made many feeder roads impassable making it difficult to reach some areas which were meant to be visited. This delayed the researcher and his assistants for some important appointments. As such, part of the fieldwork was undertaken during the dry seasons. However, under some critical situations the researcher made arrangements to meet some informants during the rainy season even in areas which were difficult to reach because of the need to obtain critical field data (such as cropping patterns) which could only be obtained at that time of the year.
- (b) Some officials at Chibombo and Kapiri Mposhi district offices failed to fully cooperate in the provision of required information on time. The researcher had to make several visits to these places or find junior officers to provide the information needed.
- (c) Some information needed for the study, especially for the late 1980s could not be found at the Kapiri Mposhi office because some old files were misplaced. The researcher, hence, had to rely on verbal explanations from members of staff who had been in the Ministry for a long time and/or get the complementary data from the provincial office and Central Statistics office.
- (d) One block extension officer, in the company of the researcher and two assistants, had to revisit some camps because the officer had lost some questionnaires returned earlier by the farmers. In a way, the researcher felt this affected the accuracy of some responses as some respondents could have given second-thought responses.

## **CHAPTER FIVE: COMPARISON OF SYSTEMS OF CROP FARMING AND PRODUCTION BY DISTRICT**

### **5.1 Systems of smallholder crop farming**

#### **5.1.1 Types of crops grown**

##### **5.1.1.1 1980-1990 Period**

Out of 1,367 questionnaires sent out to smallholder farmers, 967 responses were received (71 percent success rate). From the 226 cooperatives surveyed in the study districts, 198 cooperatives responded (88 percent). When smallholder farmers were asked about the type of crops that they grew between 1980 and 1990, 803 smallholder farmers out of 967 responses (83 percent) indicated that they grew maize, cotton, groundnuts and sunflower. At the district level this translated into the following landscape (Table 5.1):

**Table 5.1: Type of crops grown by smallholder farmers between 1980-1990 period**

<b>DISTRICT</b>	<b>MAIZE</b>	<b>COTTON</b>	<b>GROUNDNUTS</b>	<b>S/NFLOWER</b>	<b>TOTAL No. of Respondents</b>
<b>CHIBOMBO</b>	411 (100%)	263 (64%)	380 (92%)	161 (39%)	<b>411</b>
<b>KAPIRI MPOSHI</b>	330 (100%)	202 (61%)	263 (80%)	101 (31%)	<b>330</b>
<b>MUMBWA</b>	198(100%)	142 (72%)	151 (76%)	106 (54%)	<b>198</b>

**Source:** Field data, 2009.

When asked to give reasons why these crops were favoured against other crops, a number of reasons were given. The reasons given included the existence of a government policy of subsidies; cheap chemical fertilizers and available market which was given by government agribusinesses. This finding is supported by Kokwe (1997), Mwanza (1992b),

World Bank (1994; 1996). The responses from cooperatives about crops grown and farming systems in the three districts gave similar results as those given by individual farmers (Table 5.2).

**Table 5.2: Cooperative Society Responses in each District on crops grown and cultivation system used.**

DISTRICT	No. of Questionnaires given	Responses	Maize (Mono system)	Cotton (Mono system)	G/nuts (Mono system)	S/flower (Mono system)
Chibombo	96	71 (74%)	71 (100%)	49 (69%)	65 (92%)	27 (38%)
Kapiri Mposhi	77	48 (62%)	48 (100%)	26 (54%)	40 (83%)	30 (63%)
Mumbwa	53	49 (96%)	49 (100%)	44 (90%)	37 (76%)	17 (35%)
Total	226	198 (88%)	198 (100%)	119 (60%)	142 (71%)	74 (37%)

**Source:** Field data, 2009.

Besides crop farming, smallholder farmers from 124 cooperatives (63 percent) indicated that they practiced mixed farming between 1980 and 1990 in Chibombo, Kapiri Mposhi and Mumbwa districts as they kept both livestock and grew crops on their farms. This was done both as a way of living and a strategic measure to survive. It was a way of life in that farmers, both male and female, were used to growing crops and keeping various types of livestock as a part of their tradition. Strategically this helped each household to maintain food security, provide animals needed to help in farming activities, act as a source of nutrients and a means to deal with any arising costs which families needed to meet such as paying bride price when a male member of the family got married. About seven percent of the farmers who could not afford to buy chemical fertilizers used animal dung to fertilize the soils.

In the same period, farmers practiced mono cropping (Plate 5.1) largely because of government policy which provided cheap inputs in terms of seed, chemical fertilizers and a

ready market. Evidence of crop rotation, multi-cropping and other practices were minimal since no direct benefits seemed to accrue for such activities as the government policies focused on the abundance of preferred crops such as maize, cotton, sunflower and groundnuts which they gave adequate support at all levels. Such crop preference of the post-independence government of UNIP resembled the colonial crop approach in which maize was deliberately promoted among both settler farmers and the African peasantry (Lukanty and Wood, 1990; Chabala & Sakufiwa, 1993 and Gerrard *et al.*, 1994).

While these percentages give a general picture of what farmers favoured to grow during the 1980-1990 period, the statistics need to be accepted with caution because they included both farmers who had been in the agricultural industry during that period and to a limited degree those farmers who either were not in the industry at the time because of age or just heard from those who practiced farming during the period of centralized planning in the 1980s. Nevertheless, the percentage of error was kept below five percent in order to make the results reliable.

#### **5.1.1.2 1997-2008 Period**

Between 1997 and 2008, 133 cooperatives (67 percent) stated that maize and cotton continued to dominate other cultivated crops while sunflower and groundnut cultivation showed a degree of decline (falling below 30 percent of the cultivation levels of 1980-1990 period) owing to reduced government logistical support and market opportunities (Plate 5.1). At the district level, 100 percent of smallholder farmers in the three districts still favoured maize as the leading food crop.



**Plate 5.1: Large Maize Field (Mono farming system), adjacent is a Beans Field, at a smallholder farm in Kapiri Mposhi District, March, 2008.**

**Source:** Field data, 2008.

But only 48 percent of respondents in Chibombo District still favoured to grow cotton as a commercial crop, 53 percent went for groundnuts and 32 percent indicated they still grew sunflower. In Kapiri Mposhi District 54 percent of respondents favoured cotton cultivation, 38 percent favoured groundnuts and only 22 percent grew sunflower. In Mumbwa District

slightly above 68 percent favoured the cultivation of cotton, 43 percent groundnuts and 29 percent grew sunflower.

Furthermore, about 156 cooperatives (79 percent) indicated that crop farming and livestock keeping persisted as a mixed agricultural system among smallholder farmers in Chibombo, Kapiri Mposhi and Mumbwa districts. When asked to justify the continued practicing of mixed farming, about 57 percent farmers in the districts gave tradition, 30 percent talked about the need to spread risks, ten percent said they got food from both crops and animals and the remaining three percent gave a mixture of reasons.

When farmers were asked about any new agricultural practice which emerged in the 1990s, 105 cooperatives (53 percent) gave Conservation farming or zero tillage as the major new practice. Over 91 percent respondents stated that conservation farming system did not exist during the 1980-1990 period and hence it became a phenomenon of the 1990s and beyond. According to the Golden Valley Research Trust, this method involved zero tillage or potholing of the agricultural land (Plate 5.2). A farmer dug holes at intervals of 30 centimeters within each line and one meter between the lines. Thereafter, farmers planted two or three seeds of maize in each hole. For those farmers with either biotic or chemical fertilizers at the time of planting, they also applied spoonful of manures together with the seed. About eighty-one percent of farmers interviewed in cooperatives said that such a practice helped maize seedlings to grow faster as they were guaranteed of moisture and localized manure. This view was given by slightly above 735 smallholder farmers interviewed out of 967 responses (76 percent) who indicated that potholes had the added advantage of keeping moisture for a longer period of time than when seeds are planted using conventional methods such as the use of the ox-plough. farmers to produce crops.





**Plate 5.2: Pot-holing in a Conservation Field in Lunchu area of Kapiri Mposhi District in October, 2008.**

**Source:** Field data, 2008.

According to research, these holes were dug soon after harvesting and dry planting was also encouraged. The use of potholes proved popular among 73 percent of farmers interviewed in the three districts, especially those who did not have animal draught power. The Golden Valley Research Trust (GVRT) reported that this method of farming improved crop production



markedly by over 47 percent from the crop production of the 1980-1990 period. Farmers, as well as GVRT, stated a further advantage of potholing as improved soil fertility.

Other agricultural systems which became common after 1997, as was reported by 96 cooperatives (49 percent) in Chibombo, Kapiri Mposhi and Mumbwa Districts, included crop rotation, intercropping, multi-cropping (Plate 5.3) and irrigation practices. Crop rotation, multi-cropping and intercropping were reported by 42 percent smallholder farmers in Chibombo, 53 percent in Kapiri Mposhi and 20 percent in Mumbwa to have emerged as strategies to decrease crop failure while increasing chances of improved food security and better soil management. Irrigated agriculture was reported by a total of 66 percent of farmers in all the three districts to be common in areas where perennial wells and streams existed.

According to farmers, it was practiced during the dry periods of the year and in times of poor rainfall. Conservation farming, crop rotation, intercropping and multi-cropping were reported to be prominent along main transport routes and near market areas. One such area was John Chinena along the Great North Road in Chibombo district. It may be argued that this may be so because farmers in these areas had access to better information, had better education levels and were able to quickly adjust to new market dictates than their counterparts in more remote areas where traditional practices held sway. Close to 11 percent of older farmers with a low resource base showed unwillingness to adopt new farming practices. This group of smallholder farmers displayed a fear of trying a farming strategy whose results they were not sure about.



**Plate 5.3: An Intercropped Maize field with Vegetables and Beans at Lwiimba  
Smallholder farm with owner of the land in the mid ground, Chibombo,  
March, 2008.**

**Source:** Field data, 2008.

Additionally, out of 967 respondents, 629 (65 percent) farmers interviewed reported that farming land was being utilized all year round now than before. They indicated that traditional crops such as maize were grown during the rainy season while non-traditional crops

such as impwa, water melons and vegetables were grown during the dry season. This was done to improve income levels and take advantage of market opportunities which emerged after the introduction of market liberalization. The intensive use of farm land in both dry and wet seasons was reported to be common in areas near markets, along main roads and in areas with perennial water supply. Slightly over 676 (70 percent) of respondents argued that such a practice worked well as a survival strategy in a competitive environment in which farmers needed alternative income generating ventures.

Due to expensive chemical fertilizers which 484 respondents (50 percent) of smallholder farmers surveyed could hardly afford, the use of animal manure was reported to be increasingly becoming common among farmers with cattle and goats. This practice was more pronounced in Mumbwa District and Lunchu farming block of Kapiri Mposhi District where slightly over 69 percent of respondents affirmed the practice. Apparently, in these areas the number of cattle and goats was higher than in other areas of the study. Coincidentally, these areas reported a high settler population of Tonga speaking people who seemed to have the use of animal manure as part of their farming tradition, too. Changes in agricultural systems after 1997 seemed to have been a direct response to increased cost of inputs and liberalized markets.

Another smallholder farming practice worth mentioning was the difference in the number between smallholder farmers with a higher level of education (grade 12 and above) and those with a low level of education (below grade 12). Thus, it was noted that new agricultural practices suitable to a liberalized environment, such as conservation farming, had a prevalence rate of 65 percent (629) among the 967 farmers surveyed in the districts had higher than grade 9 level of education. Further inquiry about such a prevalence rate revealed that better educated smallholder farmers were more prepared to take risks than their counterparts with a more traditional approach to farming (35 percent). Similarly, better educated farmers

seemed to be more exposed to new technologies and better travelled than their counterparts with less educational attainment.

In brief, it must be re-emphasized that agricultural practices of the 1980-1990 and 1997-2008 had both similarities and marked differences. Similarities were that in both periods 81 percent of farmers interviewed stated that maize and cotton continued being cultivated on large scale. Comparatively, however, the hectareage of cotton reduced by 32 percent compared to the previous 1980-1990 period where it was cultivated in all the three study districts. Furthermore, while mono and seasonal cultivation were dominant during the 1980-1990 as stated by 91 percent (880) of farmers interviewed, the 1997-2008 saw the emergence of crop rotation, multi cropping and conservation farming practices (58 percent farmers reported such developments across the three study districts). The new farming practices were innovations in response to expensive chemical fertilizers and a means to mitigate crop failure.

After 1997, slightly over 445 smallholder farmers (46 percent) in areas such as John Chinena of Chibombo District, with adequate surface water and an effective access to an all-year-round market, resorted to smallholder irrigation of various crops including maize, impwa and tomatoes during the dry season. Unlike in the 1980s where over 745 farmers (77 percent) depended on chemical fertilizers, after 1997, 493 smallholder farmers (51 percent) relied on cow dung and other means of fertilizing their fields than chemical fertilizers. Furthermore, between 1997-2008 slightly over 174 farmers (18 percent) adopted new technologies such as the use of treadle pumps which were not in use during the 1980-1990 period. Adoption of new technologies in the 1980s did not seem to attract investment and economic interest from farmers because there seemed to have been no comparative advantage and economic justification since the cost of production was uniform in all farming areas due to government institutional support and subsidies which were provided between 1980-1990 period.

The hybrid seed companies which emerged after 1997 were highly competitive in order to win a share of the market existing among farmers. Some of the strategies used included the following: each company developed varieties of seed which had distinct characteristics. Some of the notable features were short, medium or long term maturity abilities, capacity to withstand droughts, flood conditions and/or diseases. Findings of this study in the three districts revealed that short term seed varieties were numbered between 200 and 500; medium term seeds were in the 600 series while late maturing varieties were between 700 and 900 series.

Early maturing varieties were for ecological regions with short rainfall seasons or those prone to droughts, hence receiving less than 700 millimeter of rainfall per annum for example the valley areas of Central Province. The medium term varieties were for medium range rainfall regions receiving between 700 to 900 millimeters of rainfall. The late maturing seed varieties were grown in areas with long rainy seasons or those areas prone to flooding. Medium term varieties were suitable for large areas of the study districts. The northern parts of Kapiri Mposhi and Mumbwa districts with higher rainfall amounts were advised to use late maturing varieties. Early maturing varieties were recommended for periods of the year with low rainfall amounts or in the valley areas of the eastern parts of Kapiri Mposhi District.

Cotton continued to be a common crop among smallholder farmers between 1997 and 2008 because of extension and market support from Dunavant Zambia Limited, Clark Cotton and Cargill Zambia Limited. Comparatively, it seemed to enjoy a sustained high market price than the other crops on a year-to-year basis. Furthermore, these companies helped farmers with low cost loans. In terms of prominence, Mumbwa District was reported to have over 2,500 cotton farmers, followed by Chibombo District reported to have slightly over 1000 cotton farmers while Kapiri Mposhi District had the least number totaling just above 600 (DACO-Mumbwa, 2006). This was based on the amount of efforts instituted in respective districts. In Mumbwa District cotton was regarded as ‘white gold’ to emphasize its ability to make farmers

become rich in a short period of time. Nevertheless, some farmers complained that it was labour intensive in terms of needing regular spraying and weeding.

Other crops grown by smallholder farmers between 1997 and 2008 included soya bean, cowpeas, sweet potatoes, *solanum macrocarpon* (impwa), water melons and common vegetables. It seemed these crops were becoming popular among smallholder farmers because of available markets in Lusaka and other towns (DACO-Chibombo, 2008). Water melons were particularly popular in John Chinena area of Chibombo District where they are grown on a commercial scale using smallscale irrigation methods during the dry season. When farmers were asked why water melons could not be grown on a large scale during the rainy season, 63 percent of those interviewed said that the cost of chemicals for spraying made it unprofitable while 30 percent pointed to the existing tradition where everyone only grew the crop during the dry season and seven percent said they did not know why it was done so. The researcher visited Golden Valley Research Trust to confirm the farmers' views. At the Research station it was confirmed that the cost of chemicals for spraying was higher during the rainy season. The Research Trust was of the view that the smallholder farmers needed to adopt other methods to control pests and diseases affecting water melons during this time of the year. *Solanum macrocarpon*/Impwa and vegetables were also grown widely around Chankumba, Liteta and Mungule areas of Chibombo. Sweet potatoes, though grown in many areas of the three districts, were more dominant in Kapiri Mposhi District. However, the prominence of each crop in these farming areas corresponded with the size of hectares cultivated (Table 5.3).

**Table 5.3: Estimates of Planted Crop Hectarage in the two study periods**

Crop	1980-1990	1997-2008
Maize	Large	Large
Cotton	Large	Large
Sunflower	Medium	Negligible
Groundnuts	Medium	Small
Sweet Potatoes	Small	Medium
Cow Peas	Nil	Notable
Impwa/ <i>Solanum macrocarpon</i>	Nil	Medium
Water Melons	Nil	Medium

**KEY:** Large= a hectare or more; Medium=An acre to a hectare; Small= An acre; Nil=Too small for recording

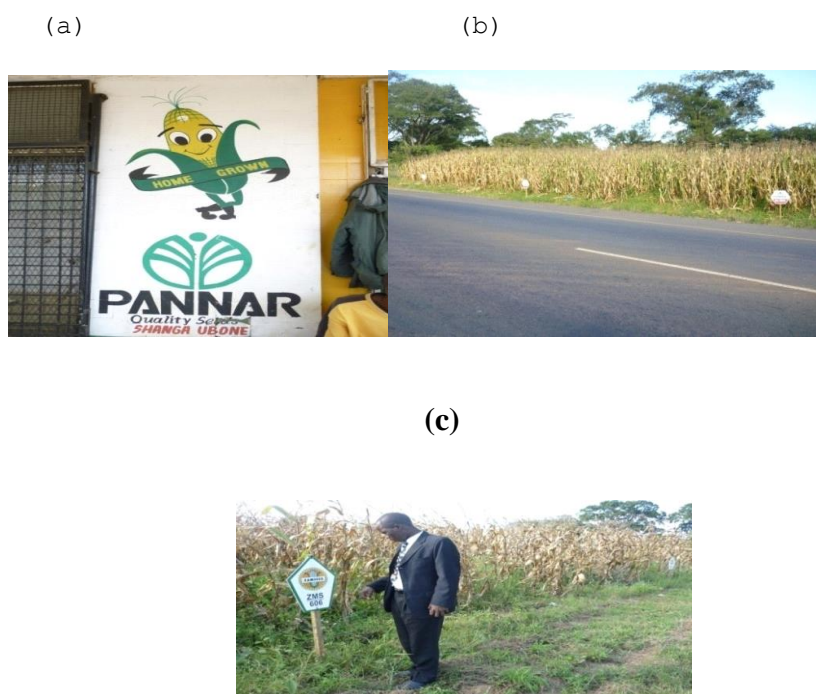
**Source:** Field data, 2008.

In terms of cropping patterns, farmers tended to plant maize with creeping crops while cotton was planted alone. Sunflower and groundnuts were planted as single crops. Among smallholder farmers who had a better resource base there was a tendency to plant the various crops alone but on a larger hectareage.

In summary, it can be argued that there were similarities and differences between the crop diversity of the 1980-1990 and 1997-2008 periods. Thus, maize and cotton were dominant crops in both periods, and farmers continued to have a bias towards crops which were either government supported or were food crops. The major differences between the two periods were largely that after 1997 farmers increased the variety of crops grown such as maize, cotton, impwa, soya beans, sweet beans, sweet potatoes, tomatoes and many types of vegetables for both subsistence and sale. Crop diversity during the 1980-1990 was more government driven and limited to few crops while during the 1997-2008 it was both government and privately driven and wide. Evidently, the share of crops influenced by the private sector increased markedly while maize remained as the crop influenced by government through FRA and FISP. While sunflower and groundnuts were common crops grown by smallholder farmers both in quantity and hectareage during the 1980-1990, they diminished during the 1997-2008 owing to lack of viable support and markets after 1997. The 1997-2008, unlike the 1980-1990 period, saw the emergence of seed varieties with differing maturity periods and suitable to particular ecological regions. For example, maize types like Pan 53, Pan 513 and others are used in areas with short rainy seasons and those such as GV 602 are for medium rainfall areas (Plate 5.4a, b & c). While government was the sole provider of extension services during the 1980-1990 period for crops grown then, individual private companies joined the department of Agriculture and Cooperatives in the provision of this service for individual crops grown after 1997.

Nonetheless, a small percentage of older farmers (less than ten percent or 97 respondents) were also among farmers who were adopting new farming methods. Additionally, new innovations were common near towns, along main transport networks and

areas accessible to markets. Farmers with an educational level above Grade 9 seemed to adopt new innovations faster than those with a low level of education.



**Plate 5.4: Maize Seed Company Advertisements for: (a) Pannar advertisement on a wall in Kapiri Mposhi District, May, 2008; (b) Pioneer advertisement by Maize field in Mumbwa District, May, 2008; (c) ZAMSEED advertisement by Maize field in Chibombo District, May, 2008.**

Additionally, 289 farmers ((30 percent) reported that land was now being used all year round by some farmers that grew traditional crops such as maize on a large scale during the rainy season while other crops were grown during the dry season depending on water availability and market dictates. In order to reduce on the use of expensive chemical fertilizers, evidence was provided by respondents (76 respondents or 24 percent) that animal manure and crop rotation as systems of agriculture were becoming common.

The adoption of new varieties of hybrid seeds by smallholder farmers was evident in all the three study districts. Over 772 smallholder respondents (80 percent) agreed that they



used new hybrid seeds from different companies suiting their ecological conditions in the area and general rainy patterns from one season to the other.

## **5.2 Crop Production**

### **5.2.1 Crop Production in Central Province between 1980-1990 and 1997-2008**

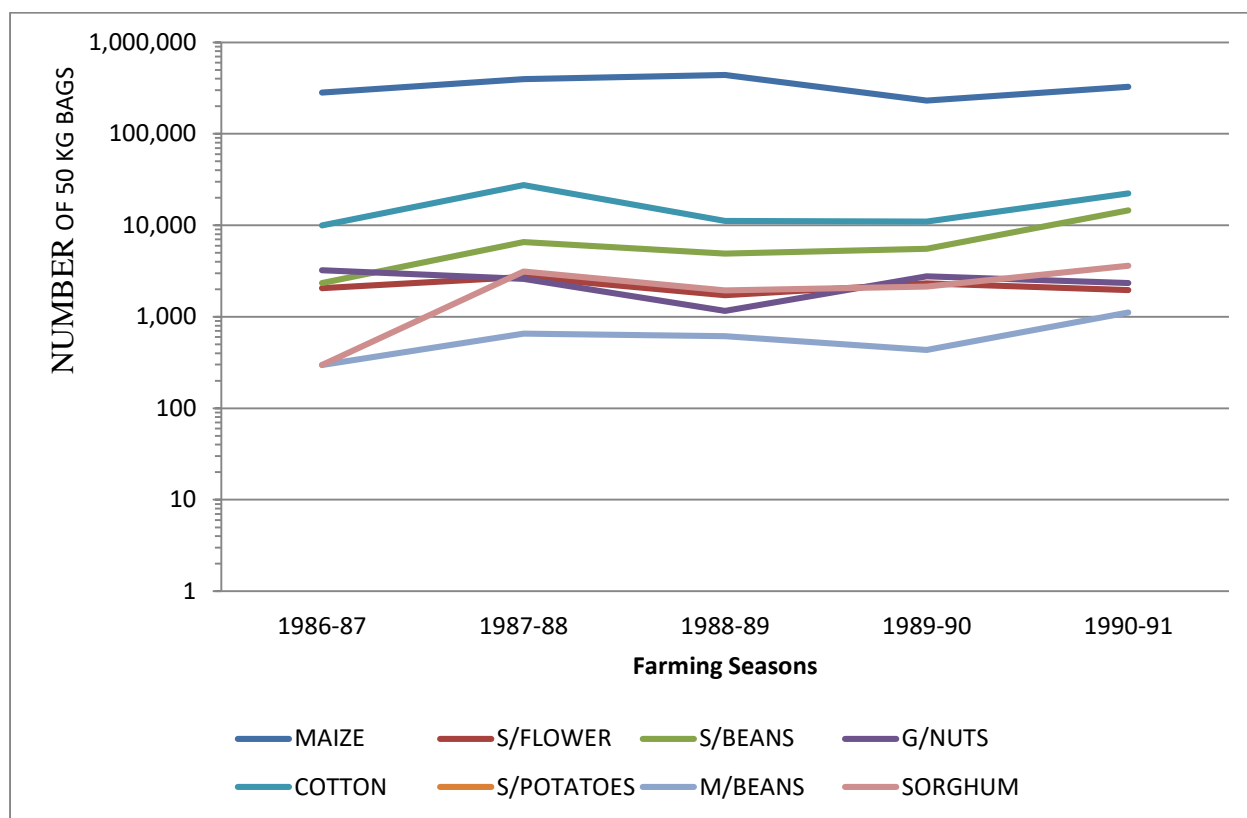
In Central Province, like in other provinces of Zambia, crop production varied from year to year both in the 1980-1990 period and thereafter. According to Kokwe (1997), Mwanza (1992a & b), Gerrard *et al.* (1994), Sichingabula (2000) and MACO (2008), crop production amounts varied from year to year because of numerous intervening factors. Some factors at play included changing rainfall patterns, distribution of fertilizer and hybrid seeds, provision of cash loans and government policy. Before looking at crop production in the study districts, provincial crop production for a number of years both in the 80s and 90s is provided (Figures 5.1a, b & c). An interesting feature of the crop production set of information is the traditional crops such as maize and cotton, though fluctuating from year to year, had minimal variations on a year-on-year comparison. Interestingly sweet potatoes reveal a marked variation between the 1980s and the subsequent years. The lack of statistical figures for the period of the 80s shown either is an indication of just having no records or a fact that the crop was not grown on a saleable scale. Based on research findings which revealed low production output for sweet potatoes during the 1980s one can conclude that the crop could not be grown on a large scale due to poor markets.

Furthermore, it seems clear from Figures 5.1a, b & c that fluctuations in crop production varied from year-to-year. These variations may be attributed to varied government responses between years, weather conditions and other shocks which the farming community suffers. It is apparent that maize and cotton were the dominant crops in the region both in the 1980s and post 1990 period. The dominance of the maize and cotton had historical and logistical basis. Sweet potatoes emerged as a new crop entering the market in the 1990s as a direct response to

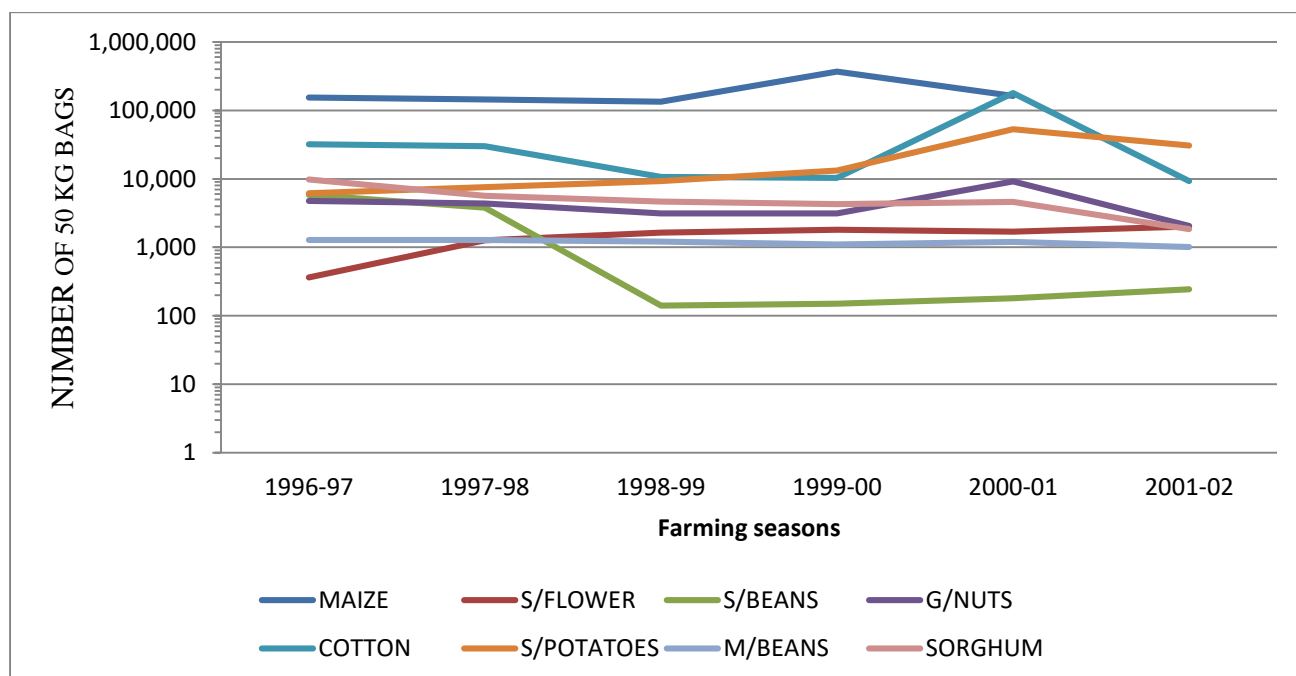
the favourable market conditions existing in the new environment especially in towns and cities. In the 1980s, depending on weather conditions, government subsidies and other logistical support, crop production either increased, remained stable or declined. After 1997, cotton production increased in Mumbwa District and parts of Chibombo District owing to the establishment of two ginneries in Kabwe and one ginnery in Mumbwa (DACO Mumbwa, 2008; Kokwe, 1997; World Bank, 1994; DACO-Chibombo, 2008).

The purpose of the crop production information in Figure 5.1a, b & c was to give a picture of what was obtaining in Central Province to enable a reader have a bigger picture of crop production so that comprehension of the district-to- district conditions in Chibombo, Kapiri Mposhi and Mumbwa would be easier. To emphasize this perspective similar years of crop production both in the 1980-1990 and 1997-2008 period were included although with a few omissions because of unavailable crop data for some years. On the overall, it is clear that crop production varied from year to year. There were years of low production for example during the 1986-1987 farming season due to poor weather conditions and years of high production, such as the 1987-1988 farming season when the weather conditions were generally favourable. Low crop yields seems to have been a result of either poor rainfall patterns or delayed input supply to farmers especially the supply of seed and chemical fertilizers from government sponsored agribusinesses existing during the 1980s. After 1997, crop production fluctuations continued to happen because of unstable weather conditions or unreliable input supply from government sponsored programmes or delayed payment of farmers by the Food Reserve Agency.

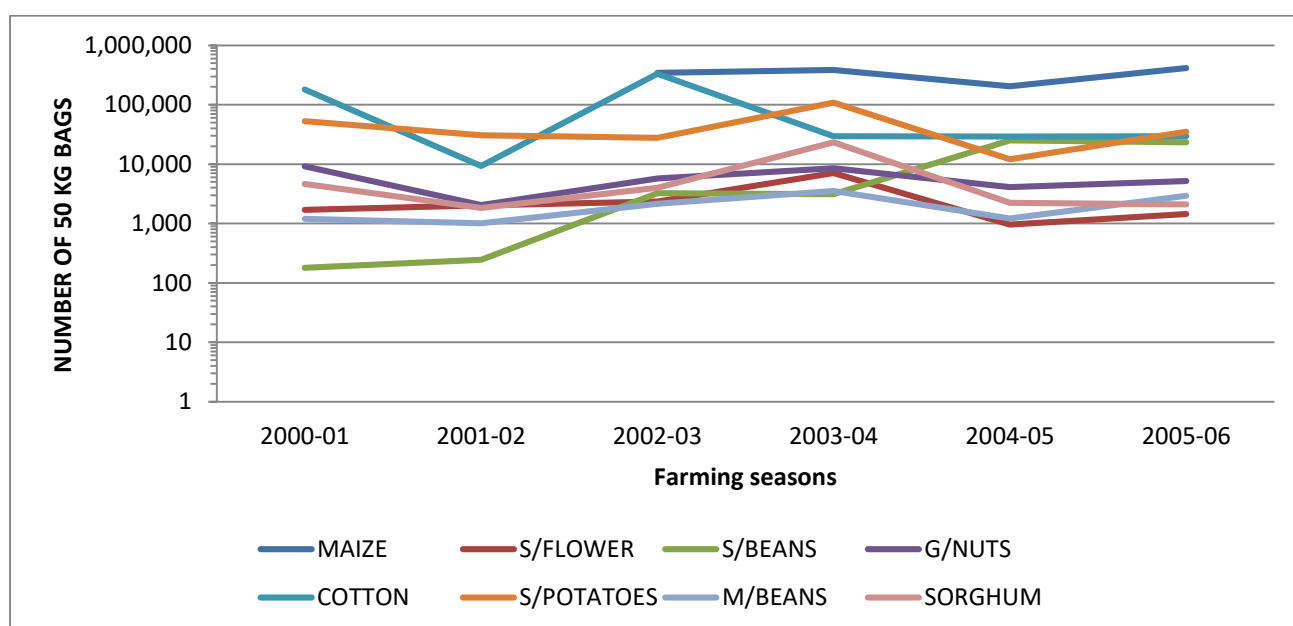
(a)



(b)



(c)



**Figure 5.1: Estimates of Crop Production in Central Province: (a) 1986-1991, (b) 1996-2002, and (c) 2000-2006 period. Source: Field data, 2009.**

### 5.3. Crop Production per Study District

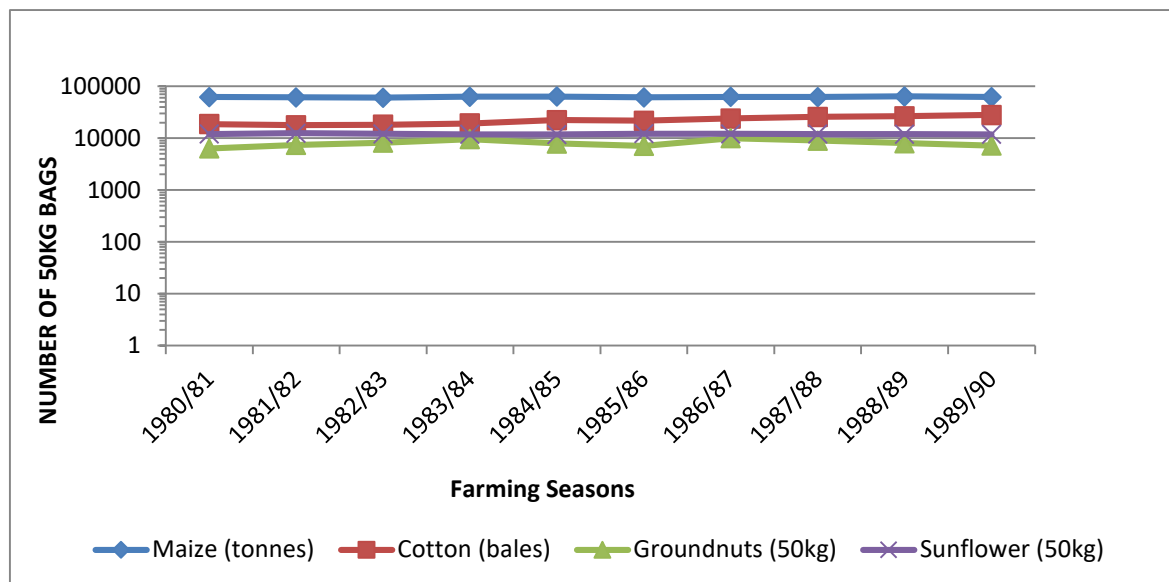
In this section, the discussion has been organized per district over the 1980-1990 and 1997-2008 periods. The approach has been adopted for easy understanding and logical presentation.

#### 5.3.1 Crop Production in Chibombo District between 1980-1990 and 1997-2008

##### 5.3.1.1 1980-1990 Period

During the 1980-1990 period crop production for Chibombo reveals a consistent pattern of production for maize and cotton, and an extraordinary high level of production for sunflower (Figure 5.2). According to research evidence the traditional crops such as maize performed consistently over 75 percent because of government subsidies and other logistical support. Sunflower had an extraordinary performance during this period because of available markets and a processing plant in the district (DACO Chibombo, 2008). The DACO argued strongly that the existence of government support in various forms and available processing facilities in

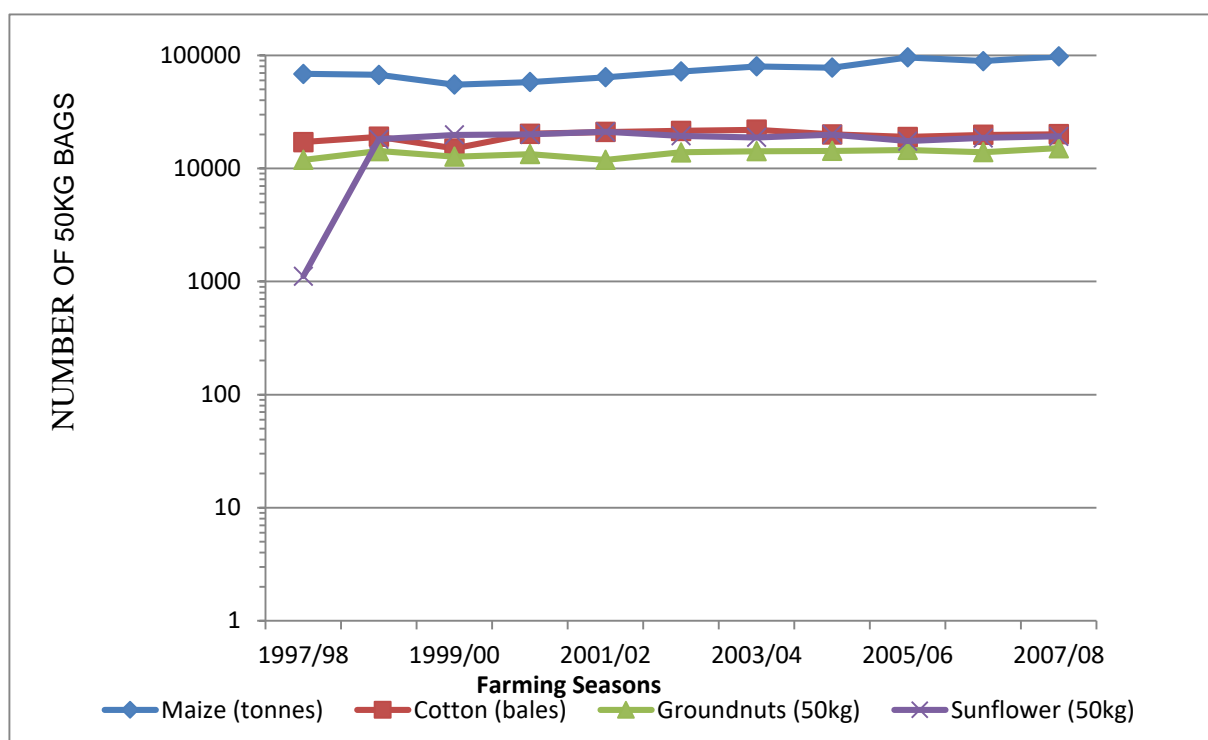
the district tended to have a multiplier effect on production of sunflower between 1980 and 1990.



**Figure 5.2: Crop Production by years, Chibombo District 1980-1990.** Source: DACO-Chibombo, 2008.

### 5.3.1.2 1997-2008 Period

According to research evidence, maize and cotton continued to dominate production in the 1997-2008. Figure 5.3 indicates that crop production during the 1997-2008 period especially for maize and cotton were higher than the other crops, replicating the crop production condition of the 1980-1990 period. However, Sunflower also effectively competed with the two traditional crops because of ready market in some years, introduction of the Yenga Press machine used by farmers to extract cooking oil locally and numerous buyers from urban centers (DACO-Chibombo, 2008). In the same period maize production was boosted by the introduction of the Farmer Input Support Programme (FISP). According to the DACO this was the new way of subsidizing maize production by the government.



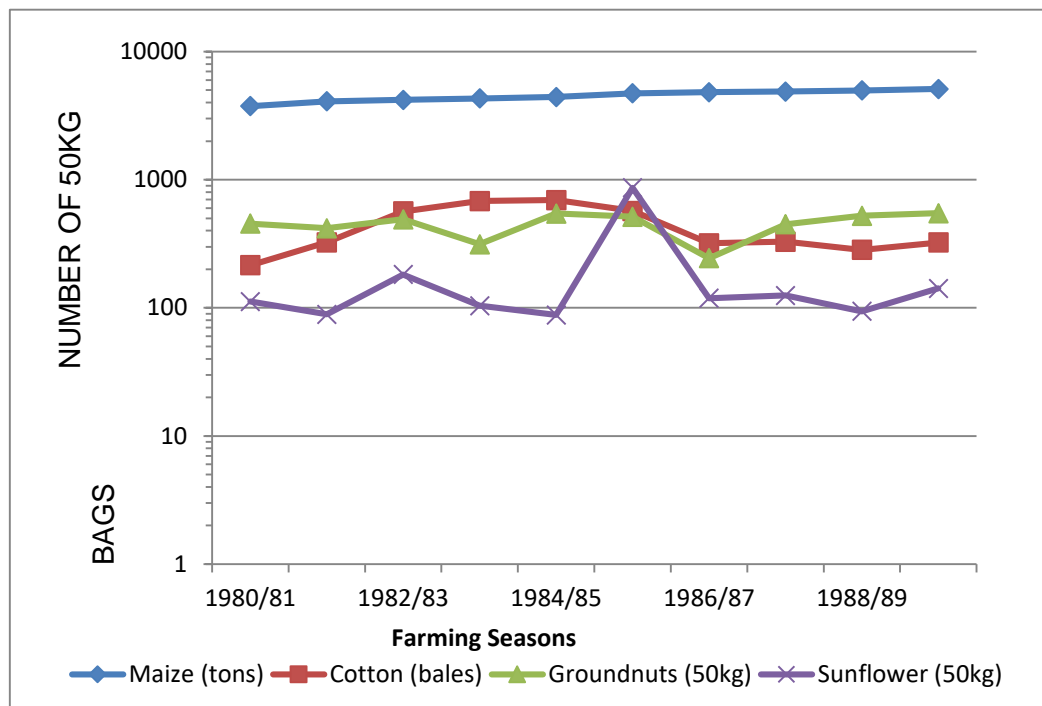
**Figure 5.3: Crop Production by years, Chibombo District, 1997-2008.**

**Source:** Field data, 2009.

### 5.3.2 Crop Production in Kapiri Mposhi District between 1980-1990 and 1997-2008

#### 5.3.2.1. 1980-1990 Period

Maize, cotton and groundnuts were the dominant crops among the smallholder farmers in Kapiri Mposhi District between 1980 and 1990 (Figure 5.4). While maize production reveals a consistent high pattern, while cotton, groundnuts and cotton fluctuated from year to year. The consistence of maize may be attributed to favourable weather patterns and available inputs among farmers. The fluctuation of other crops is said to have been caused by inconsistent prices for each crop from government agribusinesses.



**Figure 5.4: Crop Production by years-Kapiri Mposhi District, 1980-1990.**

**Source:** DACO-Chibombo, 2008.

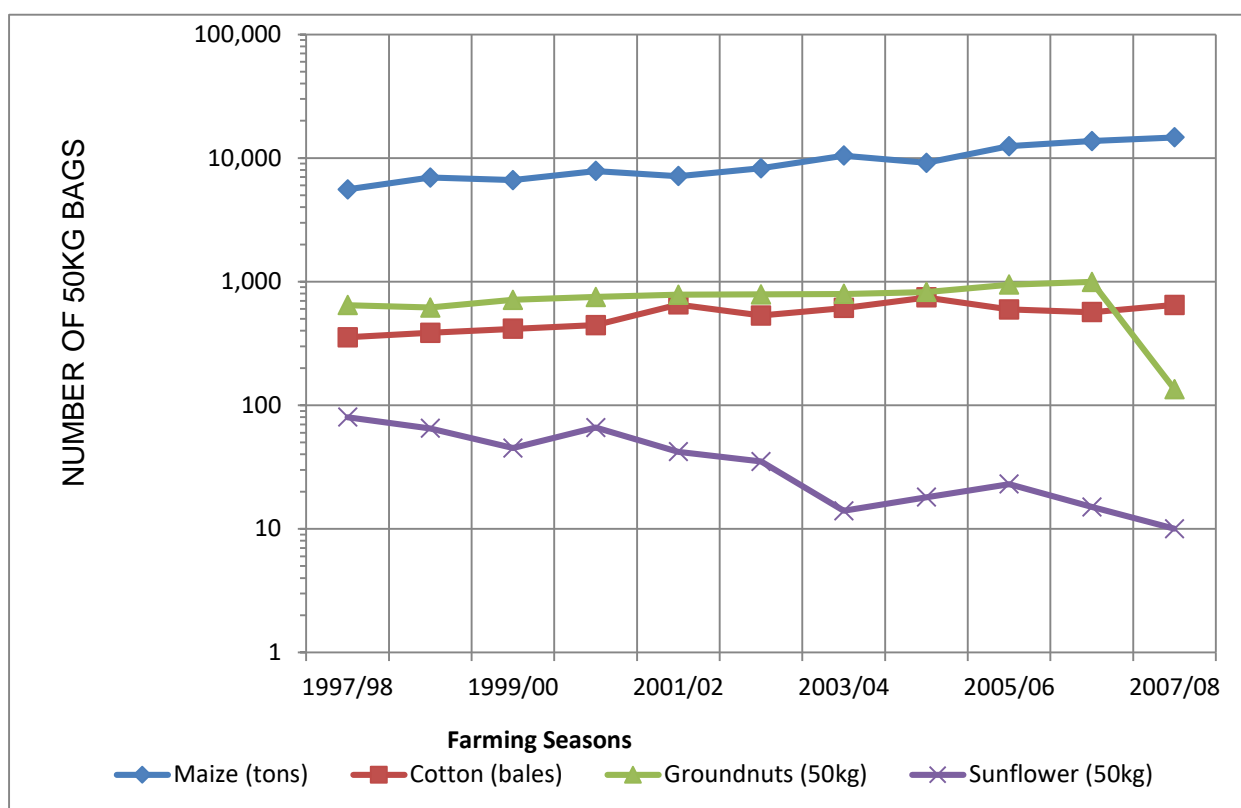
Furthermore, the DACO (2009) for Kapiri Mposhi District also argued that the overall fairly high production for all the crops arose from the assured government subsidies and logistical support. He also indicated that sandy soils seemed to favour the cultivation of groundnuts and sweet potatoes. These two crops seemed to benefit from the fact that the district was a transport center and hence advantaged in marketing activities. When asked about why the crop production seemed generally lower than for the other districts surveyed, the DACO pointed to poor record keeping by the previous administrators and that the district was part of Kabwe Rural District together with Chibombo District until 1989 when they were split into two separate districts. He suspected that some information may have gotten lost in the process of shifting items and this suspicion turned out to be true. To mitigate the effect of the loss of some vital information the researcher relied on facts at the provincial agricultural office and individual farmers. Nevertheless, just like for the other districts the trend and sequence of crop

production seemed to be maintained. Thus, despite the possibility of some missing information, the general trend of production did not change markedly. The production figures provided, like for other areas, fell within expected limits.

#### **5.3.2.2 1997-2008 Period**

Just like for the 1980-1990 period, maize and cotton production was comparatively high in the district (Figure 5.5). Unlike 1980-1990 period, maize production was improving from year to year after 1997 owing to favourable weather conditions and markets on the Copperbelt and other urban areas. Maize also continued to enjoy preferential attention from farmers because of being the main food crop. Furthermore, 79 percent of farmers interviewed in the district argued that sweet potatoes were performing competitively due to the available markets in neighbouring towns and the nature of the soils. Conversely, groundnuts and sunflower were showing a substantial degree of decline over the years. The trend of decline seemed to have affected sunflower more than any other crop because of a shortage of a market and lack of support from both the private sector and government. In fact, the decline of sunflower production in the district has not recovered its previous production levels up to now. Although groundnuts started to decline after 2005, it continued to be grown by smallholder farmers because it is used as a food crop by many households, especially to make groundnut powder which they add as a flavor to vegetables and to a limited extent they make peanut butter from it.





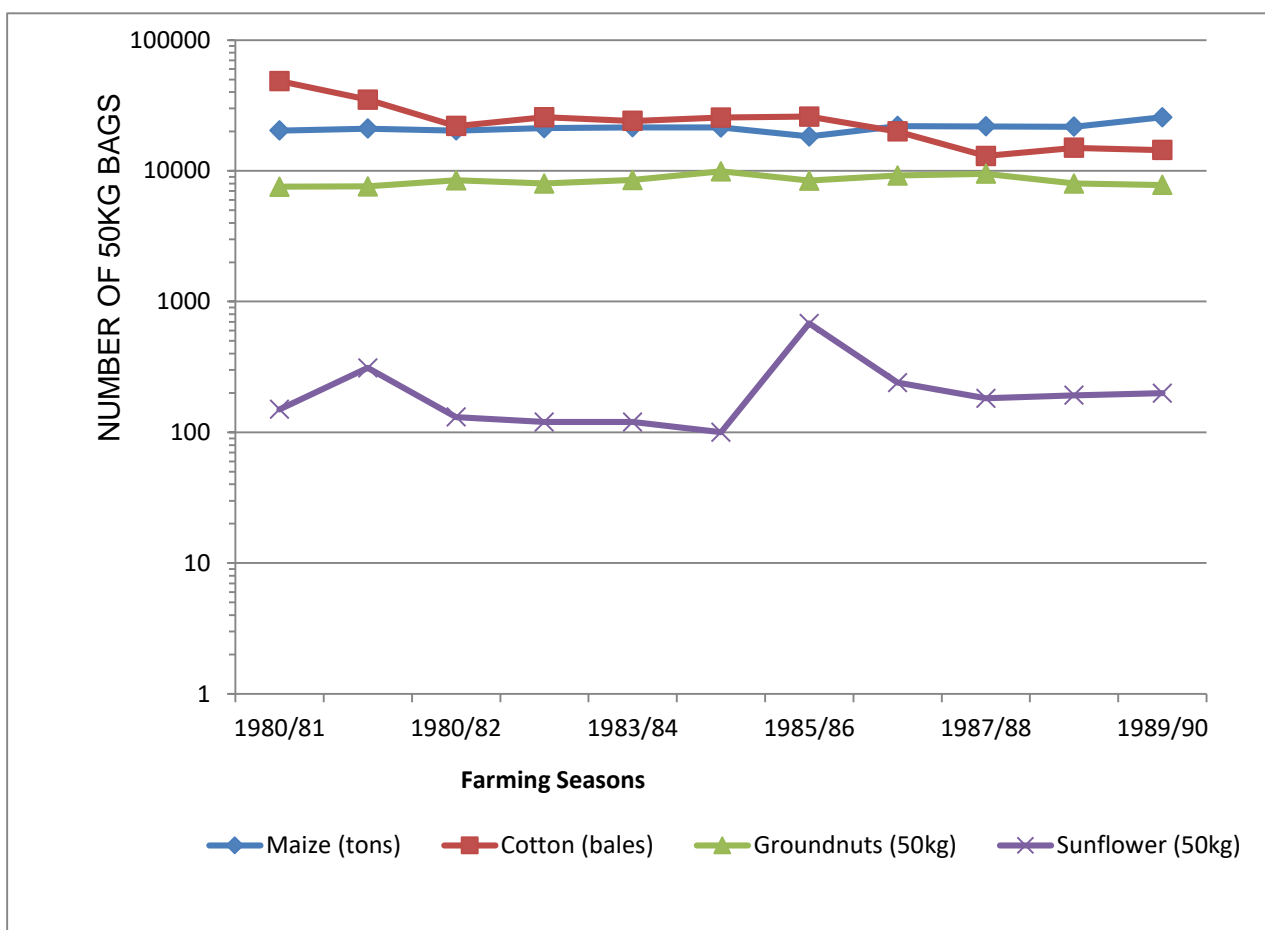
**Figure 5.5: Crop Production, Kapiri Mposhi District, 1997-2008.**

**Source:** Field data, 2009.

### 5.3.3 Crop Production in Mumbwa District between 1980-1990 and 1997-2008

#### 5.3.3.1 1980-1990 Period

In the 1980-1990 period cotton, groundnuts maize and sunflower were the main crops grown by the smallholder farmers in this district (Figure 5.6). This pattern of production was consistent with the situation obtaining in Chibombo and Kapiri Mposhi Districts over the 1980-1990 period in which crop production was propped up by various government interventions such as subsidies. These factors responsible for a high maize, cotton, groundnut and sunflower production in Mumbwa District did not vary from those in the other two study districts, except for a higher settler community of African farmers from Zimbabwe and Southern Province.



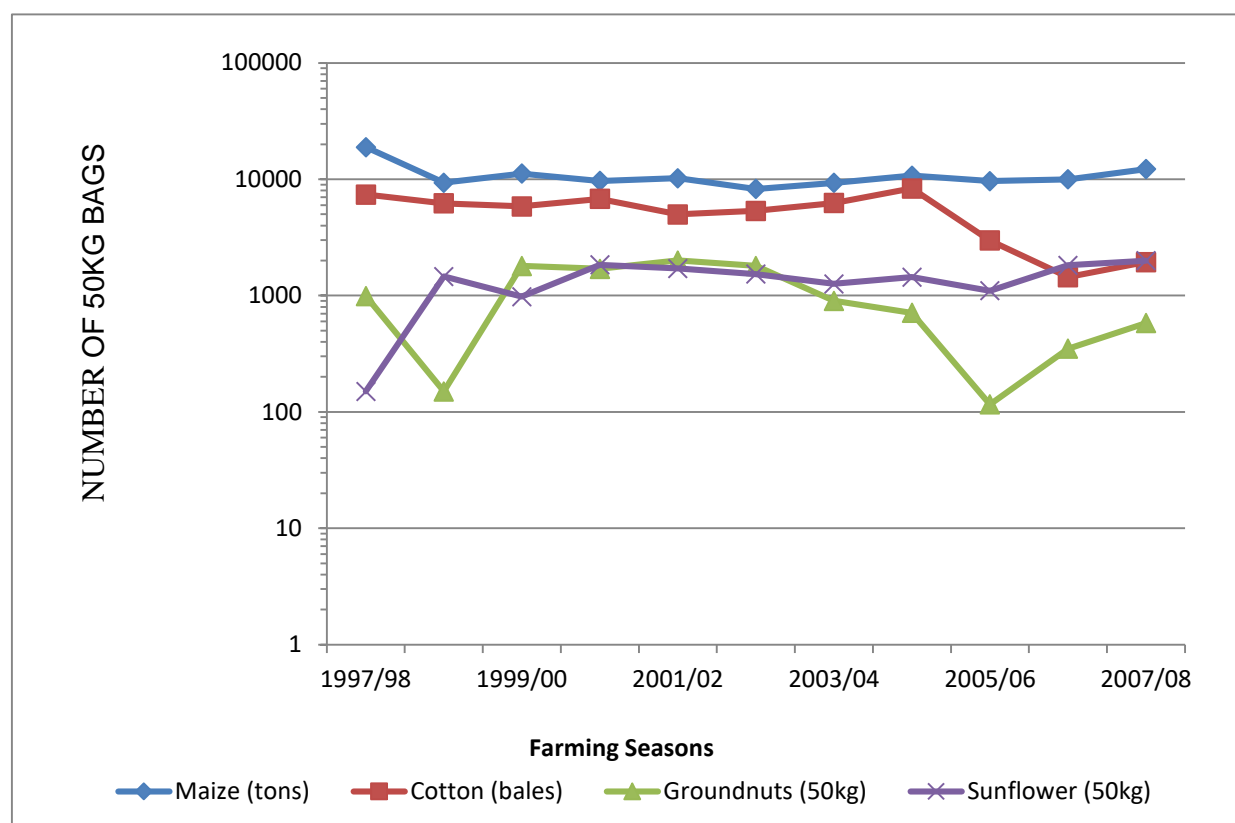
**Figure 5.6: Crop Production by years, Mumbwa District, 1980-1990**

**Source:** DACO-Mumbwa District, 2008.

### 5.3.3.2 1997-2008 Period

Between 1997-2008 the dominance of maize and cotton in the district remained unchanged (Figure 5.7). According to the DACO (2009), his officials and farmers interviewed, maize production remained generally stable in this period because of being the staple food and deliberate steps taken by the government through the FRA and the FISP. For cotton the positive trend continued because Dunavant had established a ginnery within the district and promoted out grower schemes among the farmers. The other crops maintained their second level position because they did not have the same support from government and the business community. According to research findings, farmers grew crops such as sorghum and sunflower, either

because a limited occasional market existed in urban areas or they processed the produce on the farm for immediate use.



**Figure 5.7: Crop Production by years, Mumbwa District, 1997-2008.**

**Source:** Field data, 20009.

The production of groundnuts and sunflower, although it persisted at a low level, failed to compete with maize and cotton because of a clear market support and infrastructure both from government agencies and the private sector. If the two crops were to regain their previous 1980-1990 status of high production, there was need for farmers to find an alternative way to either market the crop in an unprocessed state or have on-the-farm processing facilities so that they could sell by products with added value to urban markets or livestock farmers. Whatever the situation, a way needed to be found if groundnuts and sunflower were to regain their prominence among smallholder farmers.

#### **5.4 Trends of Crop Production in Central Province between 1980-1990 and 1997-2008**

According to Kokwe (1997), Mwanza (1992a & b), Sichingabula (2000), MACO (2008) and farmers surveyed, year-to-year changes in crop production could be attributed to a number of factors. Thus, changing rainfall patterns, time and extent of fertilizer and hybrid seeds distribution, provision of cash loans (if any), general government policy and market dictates.

To a large extent, because provincial crop production data was for the whole region, it masked individual district differences. But, equally important is that the data indicates general upward, downward or stable trends at the macro level. For instance, the 1980-1990 period shows a more stable trend unlike some years in the 1997-2008 period. Chabala and Sakufiwa (1993) and Kokwe (1997) noted that the noted stability was due to favourable weather conditions and persistent government interventions through subsidies.

The Gerrard (1994), World Bank (1994), Kokwe (1997), Sichingabula (2000) and MACO (2008) have argued that any instability arising after 1991 could be attributed to occasional droughts, unstable market conditions and inconsistent government interventions especially between 1991 and 1996 before the government introduced the Farmer Input Support Programme (FISP) in 1998.

On a year-to-year comparison, sweet potatoes reveal a marked improvement between 1997 and 2008, unlike in the 1980s. The lack of statistical data for the 1980s maybe an indication of lacking proper records or that production was below economic levels warranting government attention. Based on research findings, however, the latter interpretation seems to hold more water than the former. Evidently, the volume of sweet potato production, especially in Kapiri Mposhi District, had attained the level warranting government attention and records.

It should also be stated that maize production when weather conditions were conducive and markets available against a background of persistent government support through the FISP

either remained stable or revealed a percentage increase. Such stability and/or increase in maize production on a provincial scale may have benefitted from large scale land use especially from areas of high production which safely compensated deficits in other areas. Farmer respondents in the three districts alluded to this fact.

Overdependence of smallholder farmers on rainfall and government support was stated to be the main cause of production fluctuations from year to year (Mwanza, 1992a & b; Chabala and Sakufiwa, 1993; Gerrard, *et al.* 1994; DACO-Chibombo, 2008, and Mumbwa, 2008). These two agricultural officers indicated that if farmers had irrigation facilities and were self supporting in terms of inputs, major shocks whenever there was poor rainfall or late delivery of inputs could be avoided or mitigated. Over 85 percent of farmers surveyed in the three districts shared similar sentiments.

Other factors which seemed apparent as causes of fluctuations in crop production included, among others, the availability or non availability of farming equipment especially among female headed households, or among families that lost animal draught power through foot and mouth disease. Families with farming equipment performed better than those without farming equipment. Other factors included the failure to adjust to new technologies such as conservation farming, rigidity to known traditional practices or poverty levels among some households especially those who could not afford even subsidized inputs.

Furthermore, it must be stated that high producer prices, available effective extension service networks, low cost loans and the setting up of ginneries in Mumbwa and Kabwe seemed to have benefitted cotton production both between 1980-1990 and 1997-2008. The provincial figures emanated more from Chibombo and Mumbwa Districts, with Kapiri Mposhi District contributing limited figures. However, Kapiri Mposhi District, in addition to being the main producer of sweet potatoes in the 1990s and thereafter, fared well in maize production and hence made an effective contribution to the available provincial data. Crops such as sorghum,

millet and sunflower seemed to perform better between 1980 and 1990 because of some government support which they had through marketing. With a collapsed support infrastructure for these crops between 1997 and 2008, it seemed the farmers' production was negatively affected.

Soya beans and mixed beans seemed to have shown a degree of improvement between 1997 and 2008 unlike in the period between 1980 and 1990 (Table 5.4). Their emergence as notable crops could be attributed to high market demand from major towns especially among milling companies, export enterprises and other buyers. In Kapiri Mposhi District farmers reported that mixed beans was also becoming a popular food crop among local people unlike in the 1980s when it was viewed as a food crop mainly for Mambwe and Namwanga speaking people of Northern Province. Definitely, if this was the case then it was a sure evidence of changing food patterns among people. Such a reported adaptation to alternative foods indicated an improvement in food security.

**Table 5.4: Comparison of Crop Production at three levels of magnitude**

<b>Crop</b>	<b>1980-1990</b>	<b>1997-2008</b>
Maize	High	High
Cotton	High	High
Sunflower	High	Low
Groundnuts	High	Medium
Sweet Potatoes	Low	High
Cow Peas	Nil	Notable
Impwa	Nil	High
Water Melons	Nil	High
Soya bean	Low	High

**Source:** DACO-Mumbwa, 2008.

**NB:** Nil-Zero production; Low-0 to 10 bags; Medium-10 to 49 bags; High-50 bags and above.

## **5.5 Comparison of Crop Production within Districts between 1980-1990 and 1997-2008 study periods**

### **5.5.1 Crop Production within Districts**

#### **5.5.1.1 Crop Production in Chibombo District between 1980-1990 and 1997-2008**

Between 1980 and 1990, maize, cotton and sunflower were the dominant crops produced in larger quantity in Chibombo District. High maize, cotton and sunflower production is directly a result of favourable weather conditions, available market, extension services and government subsidies. Mwanza (1992a & b), World Bank (1994 and 1997), Chabala and Sakufiwa (1993) and Kokwe (1997) share this view. During this period, inputs such as chemical fertilizers were relatively cheap and widely available on time, and the government support infrastructure through NAMBOARD, NCZ, Lima Bank and the cooperative movement was stable and predictable. Owing to assured government logistical support and abundant markets, farmers seemed to find it easy to plan and implement their ideas. At this time, the major limiting factor, as reported by older farmers, was changing weather patterns. This category of farmers further argued that draught power was available, hence making it easy to cultivate large areas.

It was revealed by 47 percent of farmers interviewed, however, that payment delays emerged towards the end of the 1980s. Farmers argued that at this time it was evident that the government was having liquidity problems to enable it to pay farmers on time. As a way to allay fears of no payment, the government resorted to giving farmers promissory notes for any delivered crops to the market. Mwanza (1992b), Chabala and Sakufiwa (1993) and Kokwe (1997) have stated that such problems eventually led to the government abolishing NAMBOARD in 1989. After NAMBOARD was abolished in 1989, its functions were transferred to the ZCF and district cooperative unions. But, problems were reported to have continued in Chibombo and other parts of the country since the economy was going through a

depression. The World Bank (1994; 1997) indicated that the economic problems Zambia was experiencing towards the end of the 1980s were not unique to the country alone but also in many parts of the world.

As evidenced by research data, maize and cotton production continued to dominate other crops in the 1997-2008 period, like was the case previously in the 1980-1990 period. Government support through the FRA and FISP, favourable weather conditions seemed to boost maize production. The FRA was initially set up as a buyer of last resort especially in remote areas where private companies could not manage to reach but later changed to buy the crop from all areas (DACO-Chibombo, 2008).

The FISP supplied selected smallholder farmers from registered cooperatives with 20 kilograms of hybrid seed and eight bags of Urea and D-compound chemical fertilizers at government subsidized prices. Under this scheme, a farmer paid about half of the price of these inputs (DACO-Chibombo, 2008).

Furthermore, maize production seemed to have benefited from the emergence of numerous competing hybrid seeds from private seed producers such as Mount Makulu Research Station, Maize Research Institute, Pannar and SEEDCO, in addition to the government ZAMSEED. As stated earlier, the hybrid seeds were able to perform well under different ecological regions of the country. Despite having no physical infrastructure of their own, the seed companies elaborately distributed their products through existing retail outlets both in farming and urban areas.

Cotton, on the other hand seemed to benefit from the introduction of private companies such as Clark Cotton, Cargill and Dunavant. According to research evidence, these companies set up a field support infrastructure in Chibombo District. Through the support infrastructure the companies provided farmers with an effective and elaborate extension system, low cost input loans, and satellite and/or permanent depots. In Kabwe, Kafue, Lusaka and Mumbwa



ginneries were built to process cotton lint into cloth. The cotton companies guaranteed farmers with a market at a competitive price which was not regulated by government.

Evidently, sunflower also performed relatively well in some years when markets were available in urban areas where it was used as a raw material for cooking oil and stock feed. The introduction of the Yenga Press (an oil extracting machine) among peasant farmers, in areas such as Chibombo and Chisamba Farming blocks, to some degree, helped to also boost production of the crop among peasant farmers since they were now able to add value to the crop before it entered the market (DACO-Chibombo, 2008). According to the results of the study, 79 cooperatives (40%) positive responses showed an improvement in incomes of some smallholder farmers. Improved income at the household level helped farmers to re-invest in their operations and also to acquire new assets for their families.

#### **5.5.1.2 Crop Production in Kapiri Mposhi District between 1980-1990 and 1997-2008 Periods**

Farmer respondents indicated that between 1980-1990 maize, cotton, sunflower and groundnut production dominated other crops in this period among all categories of farmers. During this period, maize production in Kapiri Mposhi District was increasing from season to season. According to surveyed farmers and the DACO, this could have been due to favourable weather conditions, available government support through subsidies and marketing arrangements, and the increase of farmers from other parts of the country. Similarly, the crop benefited from the central position of the district in communication networks.

Cotton production was generally stable due to government support through LINTCO and other structures. Prices, though regulated by government to some degree, were competitive. Mwanza (1992a & b) argues that the price for cotton was in fact more competitive than other crops during this period. The older farmers (farmers over 55 years of age) interviewed supported this view.

Similarly, groundnuts and sunflower benefitted from established government infrastructure, loans, input support and marketing arrangements. Occasionally, relatively small scale private buyers from urban areas also managed to buy the crops from farmers. However, such trading was on a limited scale because there were no available benefits since buying from government agencies was cheaper and more convenient (DACO-Kapiri Mposhi, 2008).

Like for the 1980-1990 period, maize, cotton and sunflower production dominated other crops in Kapiri Mposhi District during the 1997-2008 period. Just like for the previous period, available evidence showed that maize production was increasing annually due to a combination of factors. In addition to the role of the FRA and FISP, the district benefitted from a continued influx of farmers from other parts of the country especially the Southern Province (DACO-Kapiri Mposhi, 2008). These farmers proved to be more productive because they possessed better farming skills, farming resources and were highly motivated. Furthermore, hybrid seed companies helped farmers to obtain new improved seeds which could perform well in low, medium or high rainfall periods and varying soil conditions. Sweet potatoes showed a marked improvement during this period because of favourable weather, soils and available markets in urban areas especially the Copperbelt and Lusaka.

The other crop which showed prominence during this period was cotton. Its prominence was due to extension services and available markets from Dunavant and other private companies. Comparatively, nevertheless, the level of cotton production in the district could not be compared to the level of production in Mumbwa District where the crop was considered to be 'white gold'. Despite the proximity of Kapiri Mposhi District to Kabwe town where the cotton ginnery was, production was comparatively low. Groundnuts continued to be produced as a traditional food crop mostly eaten as a grain or made into powder to be added to vegetables. It was also sold to buyers from urban areas.

### **5.5.1.3 Crop Production in Mumbwa District between 1980-1990 and 1997-2008**

Cotton, maize and sunflower were the dominant crops produced in Mumbwa District during this period. Maize revealed a more stable trend while cotton was very prominent in some years. According to officials of the Ministry of Agriculture and Cooperatives and farmers surveyed, this was due to the nature of soils in the district, competitive prices and readily available market through LINTCO. The presence of a ginnery in the district seemed to have encouraged farmers to produce a lot of cotton. The DACO for Mumbwa also stated that farmers had role models of their friends who had improved their livelihoods through the cultivation of cotton and hence the reason why it was known as ‘white gold’.

For maize, factors which seemed to favour it included government subsidies and other logistical support through NAMBOARD, Lima Bank, CUSA and the cooperative movement. As for Chibombo and Kapiiri Mposhi Districts, these parastatals companies provided affordable inputs, extension services, storage facilities, markets and other benefits to the farming community. Their presence from year to year tended to ensure stability and predictability of crop production as long as the weather conditions remained favourable.

However, Mwanza, 1992a & b), Chabala and Sakufiwa (1993), Gerrard, *et al.* (1994) and World Bank (1994) have argued that towards the end of the 1980s, farmers in the district, like in other parts of the country experienced delayed payments due to poor government funding. According to Gerrard, *et al* (1994), Kokwe (1997), Mwanza (1992a & b), World Bank (1994) and GRZ, (1990) the government poor liquidity condition arose from the general poor economic performance dating back to 1975. Consequently, delayed payments to farmers made many of them fail to plan properly for the subsequent farming seasons.

The collapse of NAMBOARD in 1989 and subsequent takeover of its functions by the cooperative movement seemed to have added to more confusion and problems on the part of the smallholder farmers. Thus, it seems that after the demise of NAMBOARD there emerged

confusion on which institution could perform functions which previously were being handled by NAMBOARD. Clearly, delivery of inputs became erratic, purchase of crops and their subsequent storage also suffered (World Bank, 1994). Furthermore, farmers were no longer paid for their crops on time (Mwanza, 1992a & b).

During the 1997-2008 period, crop production in Mumbwa District was dominated by maize, cotton and sunflower, among other. Like for the 1980-1990 period, maize production continued to be dominant because of support emanating from the FRA, FISP, extension services from the department of Agriculture, hybrid seeds from various privately owned seed companies such as SEEDCO, MRI, Pannar, GV, MM and the government owned ZAMSEED. FRA provided marketing and storage services.

Chemical fertilizers were sourced from NCZ, Omnia, Nyiombo and other companies. Before the introduction of subsidies through the FISP in 2005, fertilizer was expensive since Nyiombo, Omnia and other private companies imported the product from abroad. NCZ was unable to produce the fertilizers in sufficient quantities because it was experiencing serious operational difficulties (MACO, 2008). Until government intervened again through the FISP to reduce the cost of chemical fertilizers, the cost remained high making it difficult for most farmers to afford it.

The sustainability of relying on imported fertilizer in Mumbwa District, like in many other parts of the country, was held in question by farmers and officials at different levels. Many of them argued, perhaps correctly, that sustainability could only be guaranteed if the product was locally produced but at affordable cost.

Cotton production continued to dominate other crops between 1997 and 2008. The popularity of the crop among smallholder farmers was attributed to conducive weather conditions, favourable markets and producer prices, extension services and storage services from Dunavant, Clark Cotton and Cargill. In comparison to the other two districts under study,

Mumbwa District was number one in the production of cotton. It seems the better production of cotton in the district was attributed to the existence of a cotton ginnery within the district, appropriate weather conditions, and promotion campaigns by Dunavant and Clark Cotton.

#### **5.5.1.4 Crop Production between the Two Time Periods**

Based on various production tables provided above, it is evident that between 1980 and 1990 the production of cotton, groundnuts, sunflower and maize was common across the three districts almost uniformly because of deliberate government programmes followed under the controlled economic system. This uniformity in production was done despite the different ecological conditions of the districts. After 1997, however, differences started to emerge between these districts. While, generally, the production of cotton and maize continued to be common and high in all districts, Chibombo District performed better in the production of maize, vegetables, impwa and water melons. Kapiri Mposhi was dominant in the production of sweet potatoes and, only to a limited extent, cotton. Mumbwa District was the overall dominant force in cotton production.

Between 1980 and 1990 government logistical support in various forms including subsidies and environmental conditions dictated crop production across the districts. After 1997, on the other hand, market forces, environmental conditions, farmer adjustment to new conditions of production and marketing, private sector support, state of communication infrastructure and other factors influenced crop production. Furthermore, farmers paid attention to differences in ecological conditions of their areas when deciding what to produce, when, how and why. This explains why for example, farmers near cotton ginneries in Mumbwa District where soils and rainfall amounts were more suitable to cotton production concentrated on that crop as a comparative advantage over other crops. In Chibombo District, especially around Liteta, Chankumba, Kasukwe, Chibombo Central and John Chinena areas farmers grew vegetables, impwa, tomatoes, maize and other crops suitable to perennial springs, dambo areas

and available markets along the Great North Road and nearby towns. Sweet potatoes were dominant in Kapiri Mposhi District because of sandy soils and rainfall amount. Kapiri Mposhi District was second to Mumbwa District in cotton production because of the sandy soils, proximity to Kabwe town where a Dunavant ginnery was located and favourable rainfall amount. Overall, maize continued to be common in all the three districts because of its position as the staple food of the people.

Specifically, it can be re-stated that the production of maize and cotton was consistently high and common both in the 1980-1990 and 1997-2008 periods because of government interventions through institutions such as NAMBOARD, FRA and EISP. Sunflower and groundnut production was high during the 1980-1990 period but diminished in the 1997-2008 era. Production of water melons, sweet potatoes, solanum macrocarpon (impwa), soya beans improved markedly after 1997 unlike the 1980-1990 period.

An examination of such local trends elsewhere seems to replicate similar trends whereby crops that have logistical and material support tend to do better than those without. According to Joshi, *et al.* (2007), Hazell, *et al.* (2007), Hazell, (2009), Kirk and Nguyen (2009), Nagayets (2005), Pingali and Traxler (2002), Reardon, *et al.* (2009) and World Bank (2003 & 2007) it is observed that crop production fluctuates in countries that are transforming their technologies, strategies of production and marketing approaches in a sense that those favoured by market conditions or receiving deliberate logistical support from either government or private sector tend to show signs of improvement while crops without such support reveal a tendency of decline while those where government interventions persist remain relatively stable. Such trends are typical of the Zambian smallholder agriculture scenario in which maize production has less remained stable during the 1980-1990 and 1997-2008 periods because of continued government interventions through the previous support network of the 1980s and through FRA and FISP after 1997. Mwanza (1992a & b), Gerrard, *et al.*, (1993), World Bank

(1994, 2003 & 2007) all seem to agree that as long as governments such as that of Zambia take measures to intervene in the market or through subsidies, agricultural trends will continue to react along what the political structures want them to. Many times governments intervene for purposes of influencing the final price of agricultural products purely for political expediency or gain. However, others have argued that this is done to help poor members of society to meet the food costs (Mwanza, 1992a & b; Sichingabula (2000); World Bank (1994, 2003 & 2007).

## **CHAPTER SIX: AGRICULTURAL POLICIES ON SUPPORT**

### **INSTITUTIONS BETWEEN 1980-1990 AND 1997-2008**

#### **6.1 Agricultural Support Institutions in Central Province between 1980-1990 and 1997-2008**

According GRZ (1986, 1989 & 1995), Wood, *et al.* (1990), Chabala and Sakufiwa (1993), Gerrard, (1994), World Bank (1994) the agricultural support institutions which existed in Central Province between 1980 and 1990 included those that supplied farmers with cash credit, commodity inputs, marketing and extension services (Table 6.1). After 1997 some institutions of the 1980s continued to exist, others ceased to exist and new ones emerged to replace those that had collapsed especially after 1989 (Table 6.1).

To a large extent, institutions that supplied smallholder farmers with various support services in Central Province between the 1980-1990 and 1997-2008 periods, are similar to the ones found in other parts of the country. The similarity in character and function of the institutions responsible for supplying inputs such as hybrid seeds, chemical fertilizers, spraying chemicals, extension services, marketing and storage services emanated from centralized control and funding by government (GRZ, 1966, 1971, 1986 & 1989; Wood, *et al.* 1990; Mwanza, 1992a & b; Gerrard, *et al.* 1994; DACO-Chibombo, 2006). These similarities in the nature and operations of institutions were in conformity with the policy of centralized planning in which the government hoped to enhance similar development patterns throughout the country (GRZ, 1986, 1971, 1986, 1989 and 1990).

Wood, *et al.* (1990), Mwanza (1992a & b), Chabala and Sakufiwa (1993), Gerrard *et al.* (1994) and World Bank (1994) have observed that such a uniform approach to agricultural development tended to overlook cultural and ecological differences between regions. Because of such an approach, regions like the Central Province which had fairly fertile soils, relatively good amounts of rainfall with a fair distribution and located in an area with better transport



infrastructure tended to perform better than those regions which were more remote and yet made to embark on the same agricultural activities.

**Table 6.1: Agricultural Support Institutions in Central Province for the provision of Agricultural Services in the 1980-1990 and 1997-2008 periods**

Type of Service	Institution	
	1980-1990	1997-2008
Cash Loan	CUSA	None
	CLUSA	
	Lima Bank	
	ZCF Financial Services	
Supply of cotton inputs	LINTCO	Clark Cotton
		Cargill
		Dunavant
Supply of maize seed	ZAMSEED	SEEDCO
		Pannar
		MRI
		ZAMSEED
Supply of fertilizer	NCZ	Nyiombo
		Omnia
		NCZ (limited extent)
Provision of Extension services	LINTCO	Clark Cotton
		Cargill
		Dunavant
		MACO
	MACO	
Provision of Storage and Marketing	District Cooperatives	Clark Cotton

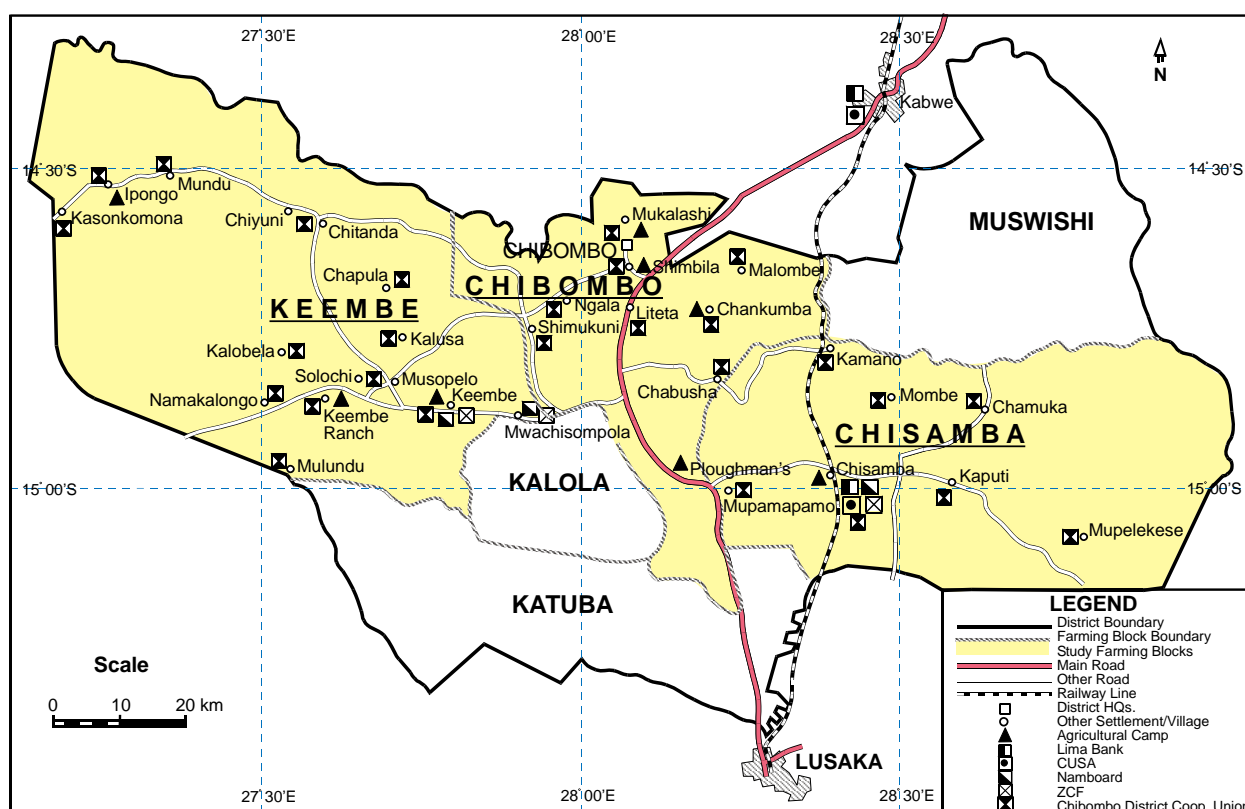
Type of Service	Institution	
	1980-1990	1997-2008
	LINTCO	Cargill
	NAMBOARD	Dunavant
	ZCF	FRA
Provision of subsidies by Government	District Cooperatives	FISP
	LINTCO	
	NAMBOARD	
	ZCF	

**SOURCE:** Field data, 2008.

## **6.2 Agricultural Support Institutions in Chibombo District between 1980-1990 and 1997-2008 Periods.**

### **6.2.1 1980-1990 Period**

Between 1980 and 1990 it was reported by over 80 percent of farmers in the district and the DACO that several agricultural support institutions existed in the district. Some of these organizations were CUSA (Credit Union and Services Association) and ZCF, NAMBOARD (National Agricultural Marketing Board) and ZCF (Zambia Cooperative Federation) (Figure 6.1). NAMBOARD, ZCF, CPCMU, CDCU and LINTCO provided farmers with commodity inputs such as seed and chemical fertilizers, and bought the produce mainly at government set prices. GART provided research services (DACO, 2008). LINTCO together with MACO Extension Services provided farmers with extension services for cotton and other crops. Lima Bank, ZCF Financial Services and CUSA provided farmers cash credit but had no field infrastructure (Mwanza, 1992a & b). ZAMSEED (Zambia Seed Company) was the main source of hybrid seed which was distributed to the farmers through NAMBOARD and the Cooperative field network (Figure 6.1).



**Figure 6.1: Agricultural Support Institutions: Chibombo, Chisamba and Keembe Farming Blocks in Chibombo District, 1980-1990.**

**Source:** Field data, 2008.

Chemical fertilizers were manufactured by NCZ (Nitrogen Chemicals of Zambia) but distributed to the farming community through NAMBOARD and the Cooperatives. NAMBOARD and the cooperatives distributed chemical fertilizers to farmers on using loans which were given by Lima Bank, CUSA and ZCF Financial Services. The production, distribution of fertilizers and the cash loans were all funded by the government (GRZ, 1986, Gerrard *et al.*, 1994, DACO, 2008).

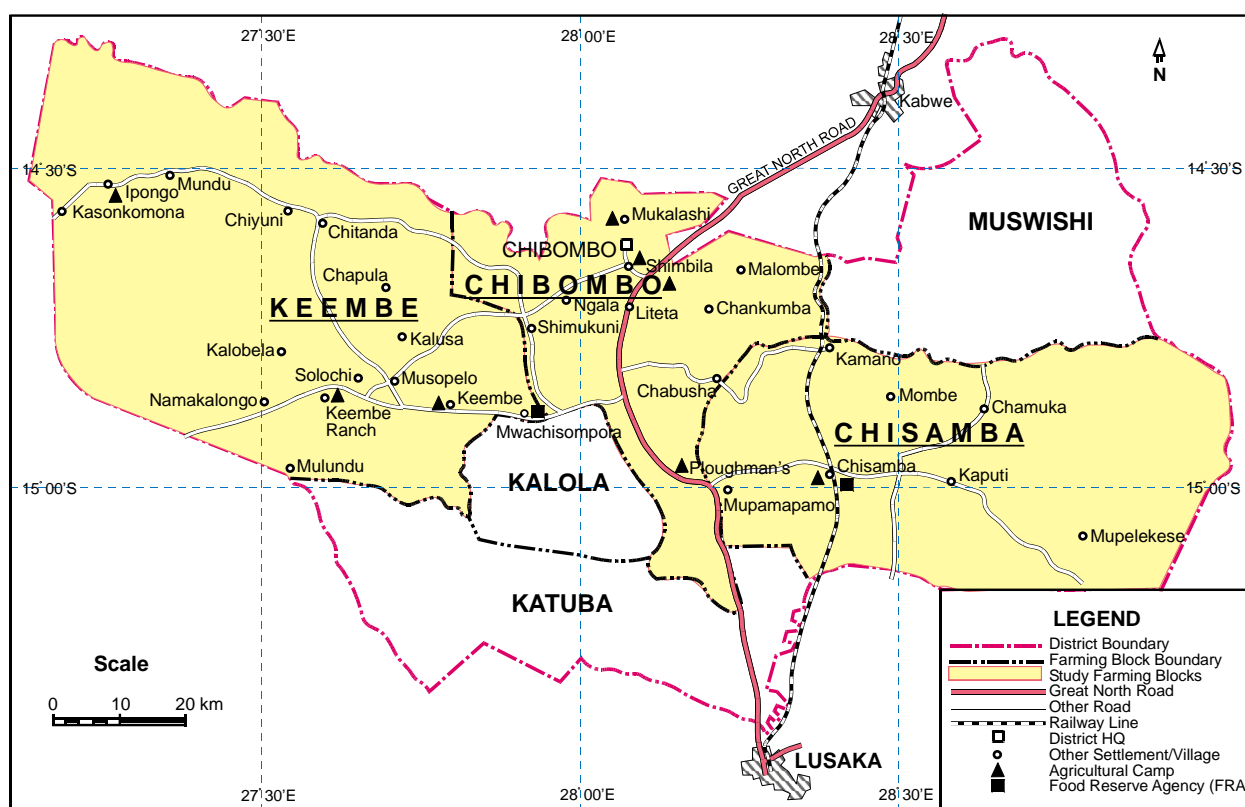
### 6.2.2 1997-2008 Period

During the 1997-2008 period, no institution existed to provide cash credit to smallholder farmers (DACO, 2008). However, other institutions existed in farming blocks to provide smallholder farmers with various services. Some notable institutions found in the field

included ZAMSEED, SEEDCO (Seed Company Limited), Pannar Limited and MRI (Maize Research Institute) (Figure 6.2). Figure 6.2 provides a complete list of various institutions which operated in farming areas between 1997 and 2008.

The maize hybrid seed sold to farmers were under the name labels of producing companies and were distributed to the farming community either through the government sponsored FISP or through ordinary retail outlets in the district. Chemical fertilizers originated from Nyiombo Investments, Omnia Company Limited and occasionally by NCZ. Comparatively, the general agricultural support system of the 1980-1990 period (Figure 6.2) was more wide spread and elaborate in Chibombo district than the agricultural support system of the 1997-2008 period (Figure 6.2). The only area in which the 1997-2008 period agricultural support system seemed to perform better was in the provision of maize and cotton hybrid seeds which were provided by more than two companies. Thus, in the 1980-1990 cotton was managed by LINTCO alone (providing inputs, marketing and extension services) while after 1997 Cargill, Clark Cotton and Dunavant managed cotton production, marketing and extension services. In the 1980s maize hybrid seed was provided by ZAMSEED alone while after 1997 ZAMSEED was joined by Pannar, Pioneer, MRI, SEEDCO and other companies (Figure 6.2). Evidently, this sector registered marked growth.

In each district, just like in other areas of the province, the FRA took over the operations of NAMBOARD and the cooperative movement in marketing and storage of maize. Fertilizers were now provided by the government through the FISP, Omnia, Nyiombo and other private traders. The FRA and the FISP were government sponsored, controlled and owned and therefore only carried out government programmes. The use of government money made them lack self sustainability. According to the government officials spoken to this made the two organizations vulnerable to political manipulation.



**Figure 6.2: Agricultural Support Institutions: Chibombo, Chisamba and Keembe Farming Blocks, Chibombo District, 1997-2008.**

**Source:** Field data, 2000.

### 6.3 Agricultural Support Institutions in Kapiri Mposhi District between the 1980-1990 and 1997-2008 Periods.

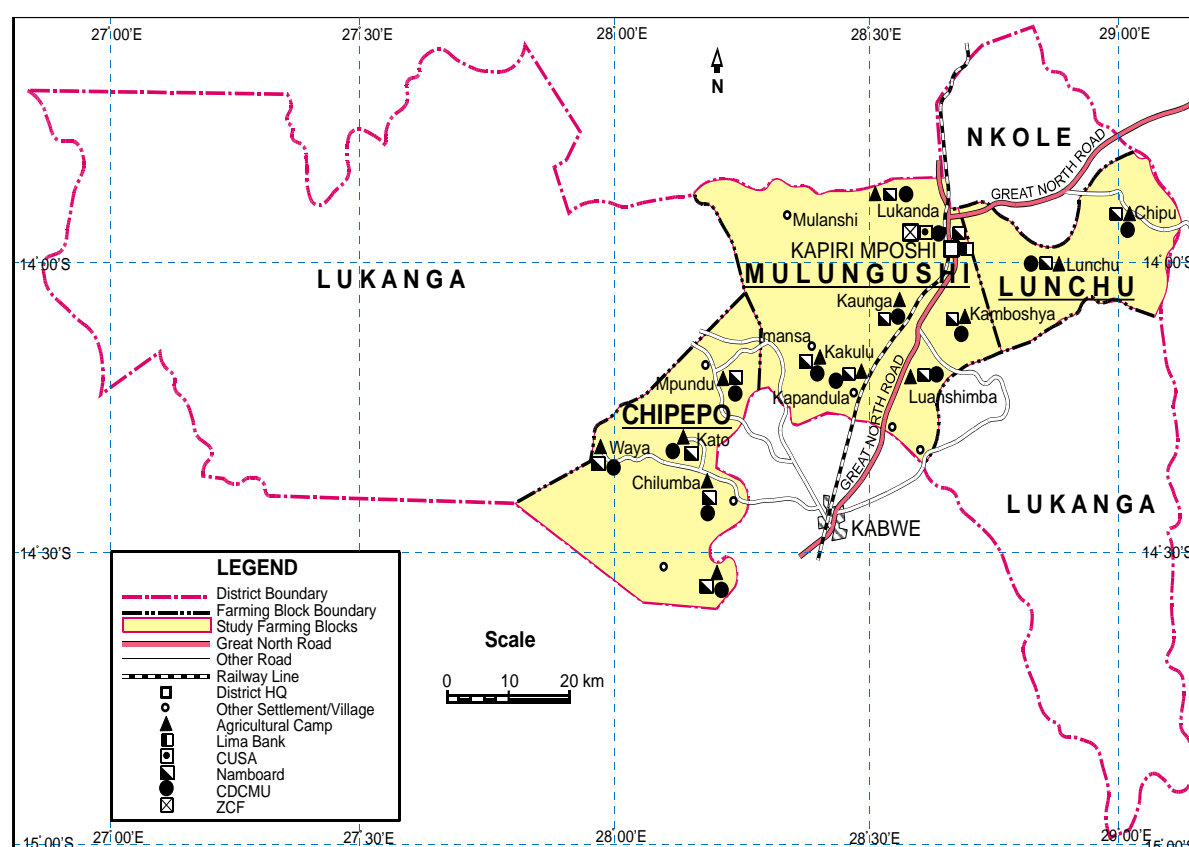
#### 6.3.1 1980-1990 Period

Lima Bank, CUSA and ZCF Financial Services provided farmers in Kapiri Mposhi District with cash credit while inputs such as seed and chemical fertilizers and services like extension and storage were provided by other organizations (Figure 6.3). NCZ manufactured chemical fertilizers but distributed them to the farmers through NAMBOARD and other organizations which had a field network. GART and MACO provided extension services to farmers. As shown in Figure 6.3, NAMBOARD, the cooperatives, MACO and LINTCO all had an elaborate network of depots in the farming areas of the district in order to provide the smallholder farmers with the necessary services within reasonable distances. The cash lending

institutions were based in the nearby urban centers possibly because they needed more security because of dealing in money.

### 6.3.2 1997-2008 Period

After the collapse of Lima Bank, CUSA and ZCF Financial Services around 1989 no institution emerged to provide smallholder farmers with cash credit during the 1997-2008 period. However, the FRA, MACO Extension Services, ZAMSEED, SEEDCO, Pannar, MRI, Pioneer, Dunavant, Nyiombo and Omnia were the main agricultural support institutions found in Kapiri Mposhi District providing farmers directly or indirectly with commodity inputs and other services (Figure 6.3). NCZ occasionally manufactured chemical fertilizers which were distributed through the government sponsored FISP.



**Figure 6.3: Agricultural Support Institutions: Chipepo, Lunchu and Mulungushi Farming Blocks in Kapiri Mposhi District, 1980-1990.**

**Source:** Field data, 2008.

Depots previously owned by the defunct NAMBOARD was the network through which government distributed farming inputs such as chemical fertilizers which were under the Farmer Input Support Programme. The depots which government did not use were either leased out to private agribusinesses or were left unused, which resulted into such an infrastructure to fall into dilapidation or collapse.

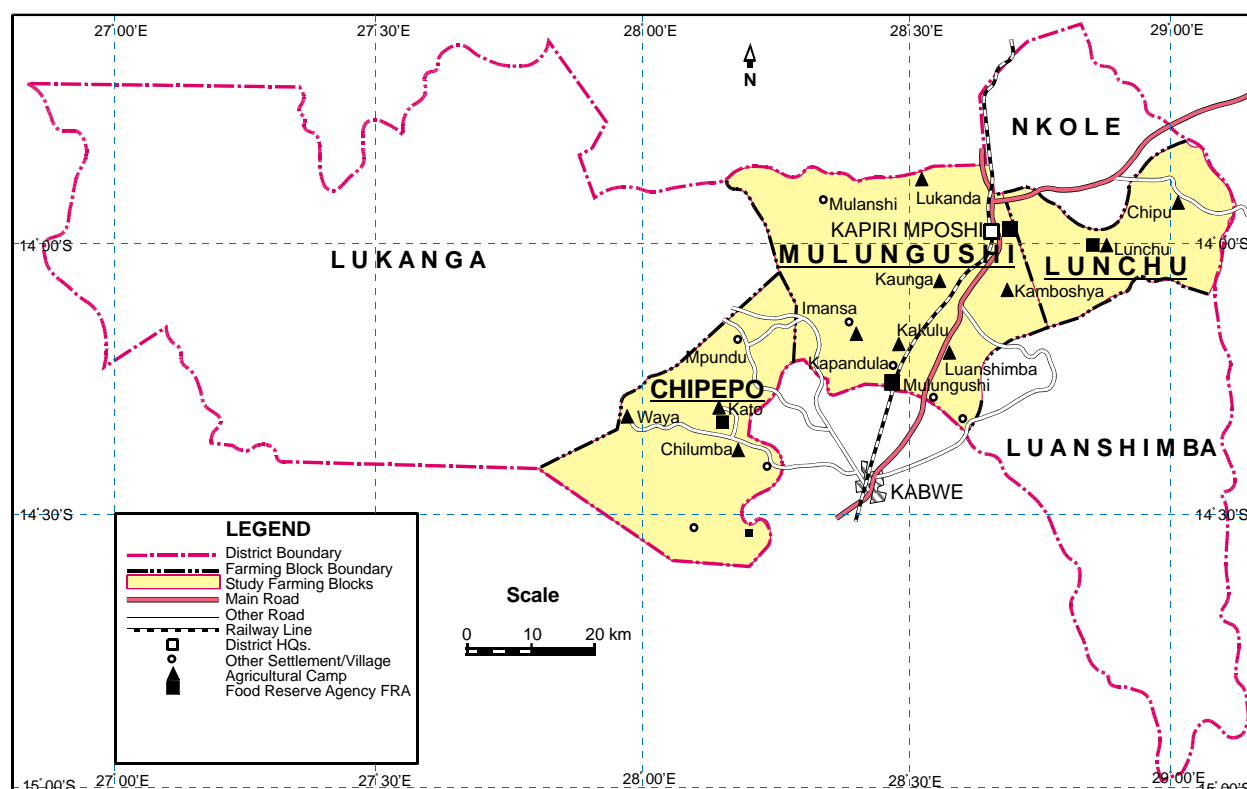
It is clear from Figure 6.4 that the agricultural support institutions of the 1997-2008 were not as widely distributed as those of the 1980-1990 period. Nonetheless, it is also evident that new institutions emerged to fill the vacuum created by the collapsed support institutions of the 1980s. The majority of the new agricultural support institutions supplied smallholder farmers with seed, a variety of chemicals and extension services. Nevertheless, the government continued to influence agricultural production, marketing, storage and extension services through FRA, FISP, MACO, ZAMSEED and formulated agricultural policies. The vacuum created by NAMBOARD and the cooperative movement was filled by the FRA and FISP. MACO and ZAMSEED continued to offer smallholder farmers the same services which they offered them in the 1980s. The main difference between institutions of the 1980s and those of the 1990s was that the latter were more competitive and efficient. Additionally, most of the new organizations had a private owner character.

## **6.4 Agricultural Support Institutions in Mumbwa District between 1980-1990 and 1997-2008 Periods.**

### **6.4.1 1980-1990 Period**

Lima Bank, CUSA, NAMBOARD, LINTCO, ZAMSEED, ZCF, MDCU and MACO Extension Services were the main agricultural support institutions which existed in Mumbwa District in the 1980-1990 period providing various services to the farming community (Figure 6.5). While Lima Bank, CUSA and ZCF Financial Services had their offices only at Mumbwa town, NAMBOARD, MDCU and MACO Extension Services had an elaborate and widely distributed network in farming areas. Such a widely spread network was needed to provide farmers with needed services at close

proximity averaging a five kilometer range (DACO, 2008). A short distance of this nature helped farmers to avoid incurring heavy transport costs to and/or sources of input supply. The distance to market depots was similar to that of input supply.

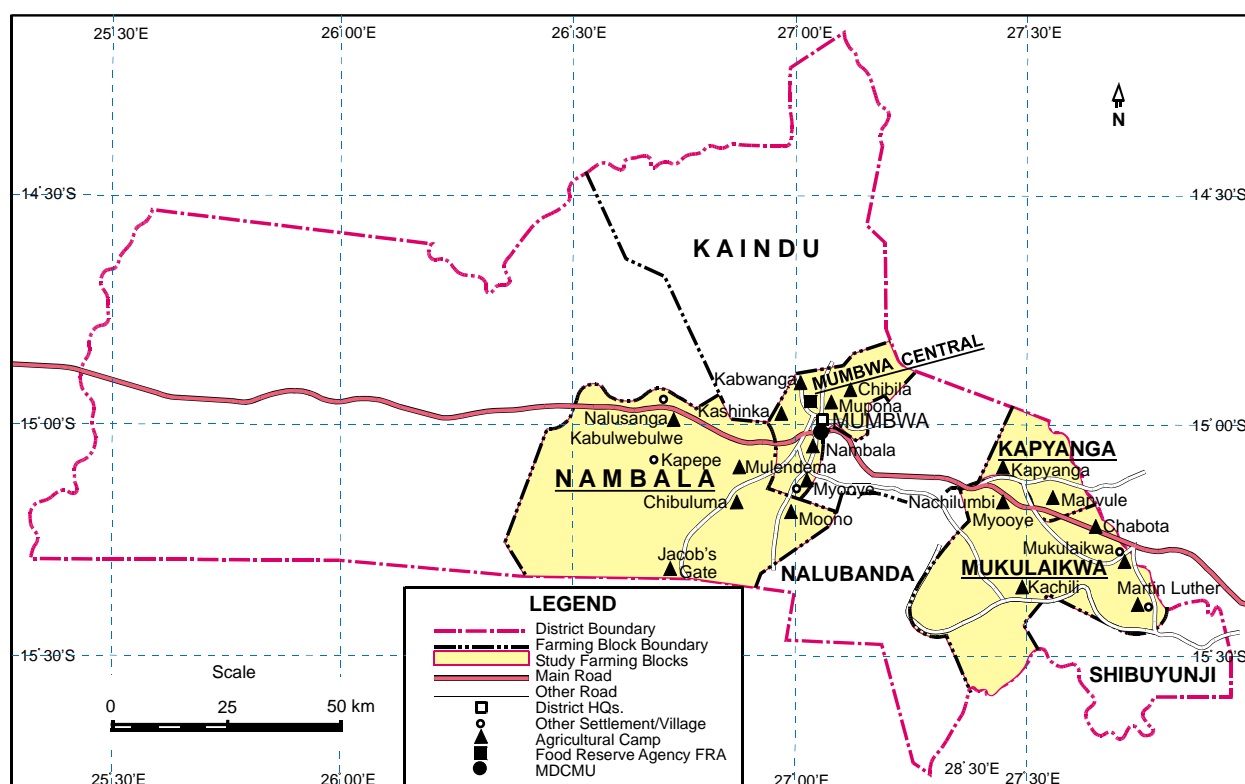


**Figure 6.4: Agricultural Support Institutions: Chipepo, Lunchu and Mulungushi Farming Blocks, Kapiri Mposhi District, 1997-2008.**

**Source:** Field data, 2008.

Like was the case in other districts the network of these organizations helped to deliver inputs to farmers and obtain the produce at reasonably minimal transport costs which many farmers could afford. According to 81 percent farmers interviewed this network helped to sustain agricultural production from season to season. Farmers interviewed and the DACO also reported that government logistical support to Agribusinesses helped the companies to operate smoothly at minimal cost. Furthermore, the DACO (2008) argued that the government's programme of grading the transport infrastructure before the beginning of the crop marketing season helped the agricultural support institutions such as NAMBOARD to operate with minimal difficulties.





**Figure 6.5: Agricultural Support Institutions: Kapyanga, Mukulaikwa, Mumbwa Central and Nambala Farming Blocks, Mumbwa District. 1980-1990**

**Source:** Field data, 2008.

While agribusinesses of the 1980s seemed to benefit from government support, the cost of subsidizing them was heavy on the national treasury. Partly this was the reason why in the late 1980s they started to give farmers promisory notes after farmers supplied them with crops. The farmers were advised to either use the promisory notes for transactions with government companies or kept them until they were paid whenever government sourced money for such a venture.

#### 6.4.2 1997-2008 Period

Between 1997 and 2008, FRA, Omnia, Nyiombo, Dunavant, Clark Cotton, MACO, some milling companies, ZAMSEED, SEEDCO, Pannar, MRI and others provided smallholder farmers with a variety of services either directly or indirectly (Figure 6.6). The FRA (Plate 6.1), MACO Extension Services, Clark Cotton and Dunavant were the only institutions with a field network after 1997 (Figure 6.6). Just like for Chibombo and Kapiri Mposhi districts, no

institution existed to provide financial credit to the smallholder farmers in the district. Lack of financial credit support tended to limit the agricultural productivity of smallholder farmers. Ultimately such a negative effect resulted into increasing the poverty levels of individual households and further reduced the smallholder farmers' resource base. To a degree this made the government come under pressure to revisit its involvement in the agricultural industry. The DACO speculated, perhaps correctly, that this could be one of the reasons why the government started to intervene once more in the agricultural sector through FISP and FRA.

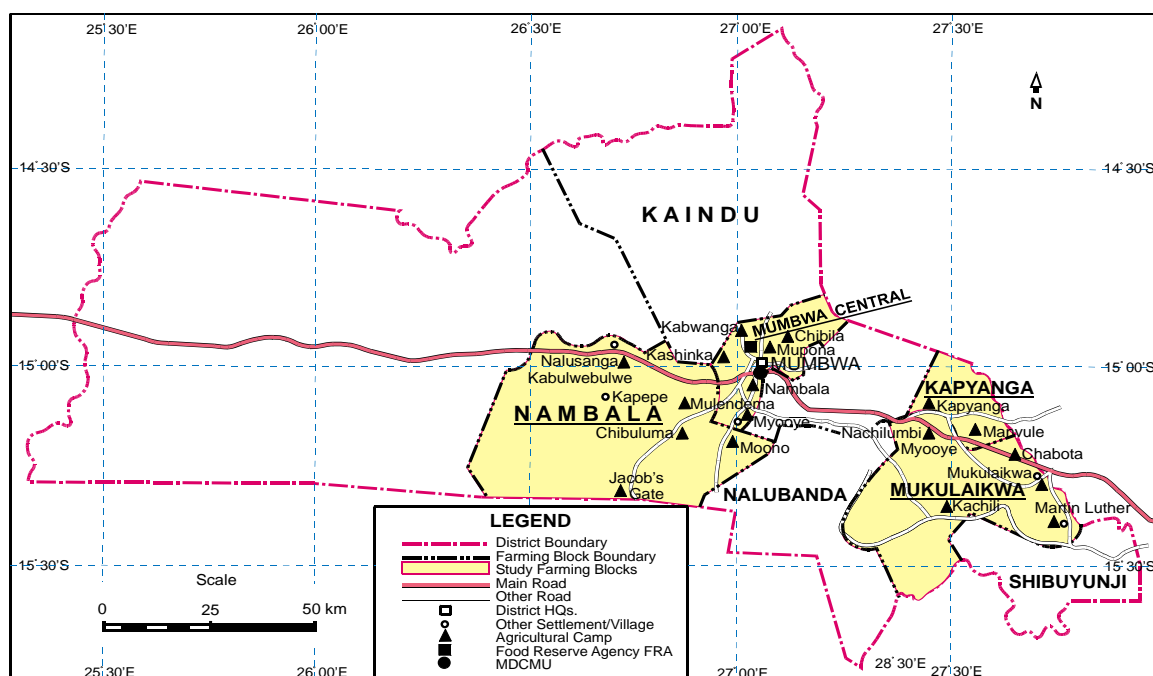
It is apparent from research findings that the agricultural support institutions of the 1980-1990 period operating in Mumbwa District were, like the case for Chibombo and Kapiri Mposhi districts, much elaborate and wide spread than those that emerged between 1997 and 2008.



**Plate 6.1: Stack of Maize in one depot in Nambala Farming Block of Mumbwa District, 2007. In the foreground is the depot clerk and his assistant.**

However, the agricultural support institutions of the 1990s were more efficient and sustainable than those of the 1980s which wholly depended on government support. While FISP, FRA, MACO, NCZ are funded and controlled by the government like was the case in the 1980s, ZAMSEED and GVRT, although owned by government, operated as autonomous organizations. Pannar, SEEDCO, MRI, Nyiombo, Omnia, Dunavant, Cargill and Clark Cotton are private companies with their own funding and management.

Cargill, Clark Cotton and Dunavant were the new private companies dealing in cotton. Thus, supplying inputs, chemicals for spraying, extension services, and storage facilities and buying the produce. These companies, though with a much leaner field network in the districts, enjoyed a comparative advantage over LINTCO in the sense that they were free of government control and manipulation. Their services such as input supply, storage of agricultural produce, marketing and processing, were largely influenced by market conditions thereby making them very competitive. Over 89 percent cotton farmers interviewed in Mumbwa District and 63 percent interviewed in Kapiri Mposhi District all agreed that the new cotton companies were offering better services than LINTCO. These farmers also argued that the extension services provided were also better than before. However, about 20 percent of those interviewed in Mumbwa also stated that from time to time the cotton companies acted as a cartel whereby they agreed on a particular price which they all bought cotton from farmers. Such tactics on the part of cotton buyers tended to restrict the negotiation power of smallholder farmers.



**Figure 6.6: Agricultural Support Institutions: Kapyanga, Mukulaikwa, Mumbwa Central and Nambala Farming Blocks, Mumbwa District, 1997-2008.**

**Source:** Field data, 2008.

MACO continued to supply farmers with extension services, registration and monitoring of cooperatives. Extension services were provided by the Department of Extension Services while cooperatives were under the Department of Cooperatives. Both services were provided by MACO through a network of camp and block extension officers in sections of the farming community but coordinated by DACOs, SAOs and BEOs based at the district headquarters or in individual farming blocks. The elaborate network of camp and block extension officers, close of farmers, enabled the effective delivery of services to smallholder farmers. The only major problem which extension officers faced was transport to enable them visit farmers regularly. The most affected were camp extension officers who only had bicycles which were not maintained by the government. Block Extension officers, on the other hand, had motor cycles but did not have a regular supply of fuel for operations. In all the three districts this study found that Block Extension officers bought fuel using their own money and yet they were on official duty. Such an act made them feel de-motivated block extension officers thereby causing them to fail to visit smallholder farmers regularly. Two block extension officers in Mumbwa District explained that because they were not regularly provided with fuel to visit farmers, some of their friends tended to either charge farmers who had problems which they wanted attended to or in a number of times they were busy with their own private jobs.

Milling companies and other traders bought crops, especially maize, directly from farmers. This means they competed with the FRA. Millers either bought crops at government set prices or they negotiated prices with individual farmers. According to the three DACOs, the ability of private buyers to negotiate prices depended on the abundance of crops, educational level of farmers, their economic base or the desperation of farmers for money. To some extent, the kind of market information farmers possessed also played a role in their ability to negotiate favourable prices with briefcase businessmen or millers. In Chibombo and Kapiri

Mposhi Districts over 66 percent of smallholder farmers spoken to indicated that millers and private individual buyers usually bought crops at lower prices than the government determined prices because they visited individual farmers to buy crops at the time farmers were in great need of money for subsistence or to send their children to school. Over 71 percent of smallholder farmers interviewed in Mumbwa District agreed with their counterparts in Chibombo and Kapiri Mposhi Districts that millers and private buyers usually took advantage of delayed payments from FRA to exploit farmers.

## **6.5 Comparison of Agricultural Support Institutions by Districts within and between 1980-1990 and 1997-2008 Study Periods**

### **6.5.1 Comparison of Agricultural Support Institutions during the 1980-1990 period**

The agricultural support institutions which had a physical presence in Chibombo, Kapiri Mposhi and Mumbwa Districts between 1980 and 1990 were CUSA, ZCF, NAMBOARD, CPCMU, LINTCO and MACO Extension Services. The CDCU and GART were only found in Chibombo District; while KDCU was found in Kapiri Mposhi District and MDCU was in Mumbwa District. These institutions were government owned, funded and controlled. Because of sufficient funding and government policy in the 1980s, these institutions had a widely distributed network in the districts in order to provide farmers with the required services as demanded of by government.

CUSA, ZCF Financial Services and Lima Bank did not have a physical presence in farming areas but in towns such as Kabwe and Mumbwa. Cash loan applications were made within the districts through the Ministry of Agriculture and Cooperatives but actual loans were obtained from the lending institutions located in urban areas. According to the DACO this was done because of the nature of the product which these businesses were dealing in. However, it must be noted that moving to towns caused farmers problems of finding transport money which was not readily available since they had to travel long distances to towns. While NCZ had no

physical presence in farming areas, chemical fertilizers reached farmers through NAMBOARD and the cooperative movement.

Nevertheless, the act of locating the agricultural support institutions close to farmers (five kilometer radius) helped reduce problems associated with transportation of inputs and farming produce to markets. Fortunately, cash payments for the delivered crops to buyers were done at NAMBOARD and cooperative depots close to farmers. In a way, the risk of thefts was avoided since farmers were paid near their homes. Farmers who had been in farming for over 25 years and the three DACOs responded that LINTCO, although a monopoly company, performed very well with a high loan recovery rate. Mwanza (1992b) and World Bank (1994) supported this argument. The two scholars stated that high loan recoveries were due to the fact that LINTCO, unlike the other government parastatals, enjoyed a higher degree of freedom to make decisions which were based on economic sense than to meet political needs. Furthermore, it had a good collection of qualified and experienced labour force which other companies lacked. Even in the late 1980s when other government businesses were not performing well, LINTCO continued to be economically viable (GRZ, 1986, 1989, 1995; Mwanza, 1992a & b; Chabala and Sakufiwa, 1993 Gerrard, *et al.* 1994).

The DACO for Mumbwa argued that in each five kilometer distance range they had a depot to serve farmers. This was corroborated by over 66% farmer reports received by the researcher during fieldwork. NAMBOARD's close proximity to farmers had the advantage of convenience and low transport costs on the part of the farmers. Anyhow, their services were highly subsidized by government (Mwanza, 1992b; Chabala and Sakufiwa, 1993; Kokwe, 1997). Hence, it can be argued that during the 1980s farmers benefitted positively from such an infrastructure especially in the early years. Towards the end of the 1980s, however, they started to experience operational difficulties because of low government funding arising from the poor economic performance (Mwanza, 1992b). LINTCO, Mulungushi Textiles and Kafue

Textiles were owned, funded and controlled by government. This entailed that their operations were always sustained by government funding and logistical support.

ZAMSEED was the monopoly company to supply hybrid maize seed during this period. Unlike NAMBOARD, Mumbwa District Cooperative Union and ZCF which had an elaborate field network, ZAMSEED had no physical presence in the farming areas but relied on those businesses that had a network on the ground. At the time the variety of seeds sold to farmers did not compare to the situation after 1997. It had only limited varieties since conditions on the ground did not compel it to be innovative and competitive. The DACO (2008) argued that farmers had no option but to buy whatever they were given because that was all there was on the market and had no comparison to make or choose from. Many farmers (70 percent) interviewed in all the three districts agreed with this view. The only advantage farmers had was that the maize seed was relatively cheap because it was highly subsidized by government. For ZAMSEED lack of competition made the company to relax thereby offering farmers with low grade services. But in terms of professional employees, ZAMSEED fared better than cooperatives since over 83 percent of its management and middle management staff were appropriately qualified. Perhaps this is the reason why the company found it easy to adjust to market conditions after 1997. In this sense it was only seconded by LINTCO who also had few unqualified staff.

#### **6.5.2 Comparison of Agricultural Support Institutions during the 1997-2008 Period**

The collapse of CUSA, Lima Bank and ZCF Financial Services after 1991 left farmers without any institution to provide cash loans (DACO, 2008). This caused serious cash problems on the part of smallholder farmers and, to some degree, this development deepened the degree of poverty. According to 172 (87%) cooperatives surveyed, the lack of readily affordable cash loans from established institutions exposed farmers to the risk of being cheated by bogus financial businessmen and women who tended to charge extremely high interest rates

for any cash loan which they gave. In parts of Chibombo, Kapiri Mposhi and Mumbwa Districts, the researcher was informed by 140 (71%) cooperatives that in some instances they were made to pay as much as 100 percent interest on cash loans received. Over 81 percent households interviewed in the three districts agreed with this assertion.

While FRA and FISP took over the place of the collapsed NAMBOARD and the cooperative movement after the introduction of liberalization in the 1990s, their network was not as elaborate as that of the former institutions (6.2). According to 119 (60%) cooperative responses, the lack of infrastructural support in some farming areas made farmers walk long distances to the depots and made them fail to have a strong bargaining power for their crops when visited by buyers at their farmers. Ultimately this made them lose out on profits since they sold crops out of desperation. Satellite depots, which were set up by the FRA, either came up late or were too far to be reached easily by farmers. Payment points were also few and too far apart. In one instance, the researcher was informed that the nearest FRA depot was 43 kilometers away from one farming community in Kapiri Mposhi District. In a way this is one area FRA needed to improve its depot distribution if it was to serve farmers effectively as intended. It can also be argued that with a low depot network in farming areas FRA would not effectively implement the government policy of bringing government services at the doorsteps of farmers. Once government agencies failed to provide important services to farmers such as timely purchase of crops and prompt payments, bogus businessmen and women easily take advantage as reported earlier. It is prudent, therefore, that departments charged with the responsibility of carrying out important services need to do so if farmers are to survive the manipulation of the private sector, especially briefcase businessmen and women from nearby towns. But it must also be accepted that the latitude of government companies to carry out their functions as they wish is limited by government controls, governing policy and funding.



Until government agribusinesses are allowed to operate independently can problems of this nature be resolved.

**Table 6.2: Agricultural Support Institutions in the three Study Districts between 1980-1990 and 1997-2008 Periods**

Services	Institutions	
	1980-1990	1997-2008
<b>Chibombo District</b>		
Cash	CUSA	Nil
	CLUSA	
	Lima Bank	
	ZCF Financial Services	
Commodity inputs	CDCMU	Clark Cotton
	LINTCO	Cargill
	NAMBOARD	Dunavant
	NCZ	FISP (maize seed from GV, MM, MRI, Pannar, SEEDCO, ZAMSEED)
	ZCF	Nyiombo
		NCZ
Extension Services	LINTCO	Clark Cotton
		Cargill
		Dunavant
	MACO	MACO
Marketing and Storage	LINTCO	Clark Cotton
	CDCMU	Cargill
	NAMBOARD	Dunavant
	ZCF	FRA
<b>Kapiri Mposhi District</b>		
Cash	CUSA	Nil
	Lima Bank	
	ZCF Financial Services	
Commodity inputs	KDCMU	Clark Cotton
	LINTCO	Cargill
	NAMBOARD	Dunavant

Services	Institutions	
	1980-1990	1997-2008
	NCZ	FISP (maize seed from GV, MM, MRI, Pannar, SEEDCO, ZAMSEED)
	ZCF	Nyiombo
		NCZ
		Omnia
Extension Services	LINTCO	Clark Cotton
		Cargill
		Dunavant
	MACO	MACO
Marketing and Storage	LINTCO	Clark Cotton
	CDCMU	Cargill
	NAMBOARD	Dunavant
	ZCF	FRA
<b>Mumbwa District</b>		
Cash	CUSA	Nil
	Lima Bank	
	ZCF Financial Services	
Commodity inputs	MDCMU	Clark Cotton
	LINTCO	Cargill
	NAMBOARD	Dunavant
	NCZ	FISP (maize seed from GV, MM, MRI, Pannar, SEEDCO, ZAMSEED)
	ZCF	Nyiombo
		NCZ
		Omnia
Extension Services	LINTCO	Clark Cotton
		Cargill
		Dunavant
	MACO	MACO
Marketing and Storage	LINTCO	Clark Cotton
	CDCMU	Cargill
	NAMBOARD	Dunavant
	ZCF	FRA

**Source:** DACO/Field data.

After 1997 the field network established by Clark Cotton, Cargill and Dunavant was effectively comparable to the network of LINTCO in the 1980s. As a result, in terms of field

infrastructure, there was no marked difference between the depot infrastructure of the 1980s and after 1997. The main visible change was the increase in the number of field players and a competitive nature of the services they offered. During periods when each company operated independent of its competitors, the price of cotton and quality of services to farmers were highly competitive and beneficial to farmers.

The involvement of milling companies in buying maize only helped those farmers who could manage to deliver to respective milling companies. It was reported by over 41 percent respondents in Mumbwa District that when farmers delivered crops to millers the price was better than if such buyers visited them at the farms. Research evidence supported this accusation. Evidently, information obtained from farmers tended to show that in remote areas of the districts farmers were still being exploited by bogus traders.

After 1997, the most expanded sector of agricultural institutional support was the hybrid seed sector. In the three districts, like in other parts of the country, the main suppliers of hybrid seed maize included ZAMSEED, SEEDCO, Pannar, MRI (Table 6.2 above). Dunavant and Clark Cotton provided farmers with hybrid seed cotton, chemicals and extension services. The hybrid maize seed companies, as stated earlier, provided farmers with early, medium and late maturing varieties of seed suiting different ecological conditions such as the low rainfall valley areas of Luano valley for early maturing varieties, and high rainfall areas of northern districts of Central Province which included parts of Kapiri Mposhi and Mumbwa districts for the late maturing varieties. Medium maturing varieties were found to be suitable areas of medium rainfall such as the southern parts of Kapiri Mposhi and Mumbwa districts, and the larger sections of Chibombo District (DACO-Chibombo, 2008).

The development of many maize seed varieties improved the pool of choice, productivity and reduced the cost of maize seed since these companies needed to win markets and therefore undercut their competitors. Farmers also benefitted from better quality seed

arising from competition among the companies. This development also helped to reduce and/or eliminate bogus traders. The only downside of the new privately owned companies was that they had no infrastructure of their own on the ground but relied on retailers and other institutions existing in farming areas. Farmers indicated that there was need to change this scenario so that prices of seed could further reduce to their benefit.

While it can be argued that FRA, Clark Cotton, Dunavant, Milling Companies and several small-scale buyers provided marketing services to farmers, it should be added that they also provided storage and extension services. Furthermore, they acted as payment points for crops delivered either on spot cash or at periods of weeks, or at times months. Among these institutions, the FRA was the guiltiest organization for delayed payments. Investigations at MACO at the time of fieldwork revealed that delays were caused by government who were in the habit of releasing money late due to the long bureaucracy of administration. Table 6.7 provides a summary of these institutions in the three study districts. Omnia and Nyiombo emerged as the main privately owned and managed suppliers of chemical fertilizers to farmers although NCZ continued to exist after 1997 (Table 6.2). NCZ could not meet annual chemical fertilizer needs of farmers because it was experiencing serious operational problems emanating from a low liquidity base as government was not funding it like was the case during the 1980-1990 period.

The depots for Omnia and Nyiombo were located either in urban centers or in the main depots which were previously owned by cooperative societies (DACO-Mumbwa, 2008). However, in the farming areas, their products were distributed through the FRA, FISP and a host of retail outlets. In a sense, Omnia and Nyiombo were self sustaining unlike NCZ which depended wholly on government handouts and directives. Nevertheless, by not having a limited field network of their own made Nyiombo and Omnia fail to effectively cater for the needs of farmers as much as they could have wished to do. But, a self-financing base ensured

that they had a more solid base than NCZ. The overdependence of NCZ on government handouts made it vulnerable to operational difficulties whenever government failed to play its role.

Clack Cotton, Cargill and Dunavant took over the depots previously occupied by the closed LINTCO. All the three companies were privately owned, funded and controlled. Like LINTCO, they established an elaborate field network of depots which they used to provide inputs for cotton, extension and marketing services. Additionally, through the same network they provided storage services. While it may be argued that their services were as good as those which were provided by LINTCO in the 1980s, these new companies established their own ginneries in Mumbwa, Lusaka and Kabwe to process their products and were financially self sustaining unlike LINTCO which depended on government funding. These companies were more competitive than LINTCO which was a monopoly company. Through competition farmers benefit by enjoying better services since each company wants to buy more cotton than its competitors. One step which they were reported to have implemented in order to be guaranteed of enough cotton supply from farmers is the use of out-grower schemes. In the out-grower scheme these companies contract farmers to grow the cotton for them at an agreed price. Out-grower schemes proved to be very popular among farmers in Mumbwa. However, if the price of cotton declined farmers lost out since they did not have the right to sell the crop to alternative buyers. It seems that the contracts signed did not permit farmers a stronger negotiating hand.

From the above, it is apparent that NCZ and ZAMSEED existed both in the 1980-1990 and 1997-2008 periods as government institutions. In contrast, however, LINTCO, Lima Bank, NAMBOARD and several cooperatives operated on government funding and control only during the 1980-1990 period but collapsed after 1997 to be replaced by FRA and FISP, which are government funded and controlled; and numerous private companies including Cargill,

Clark Cotton, Dunavant, Nyiombo, Omnia, Pannar, SEEDCO and others. The main difference in the landscape of these organizations was in terms of funding, control and spatial distribution. The 1980-1990 institutions were government funded, controlled and widely distributed, and hence lacked self sustenance. The 1997-2008 institutions were privately funded, controlled, self sustaining but less spatially distributed. The FRA and FISP as government programmes were widely spread just like government institutions of the 1980-1990 period. Thus, the institutional landscape within the study districts was largely similar to the provincial institutional infrastructure though with very limited differences only.

### **6.6 Spatial Analysis of Agricultural Support Institutions among the three Study Districts**

The spatial distribution of agricultural support institutions among the three districts varied markedly between the periods 1980-1990 and 1997-2008. Generally, during the 1980-1990 period the institutional distribution was wide spread in all farming areas in accordance with the government deliberate policy of establishing input suppliers and purchasers of farm produce in each average range of five kilometers. Lima Bank was, however, exempt from such a policy as it was mainly in towns and/or more accessible market areas. A change in distribution of agricultural support institutions occurred after 1997 when the old infrastructure collapsed and the new ones emerged but was confined to limited parts of farming areas only. Largely, this was due to their limited capital outlay and profit-oriented attitude which made them not to locate in areas which they considered unprofitable. A comparative spatial analysis of the 1980-1990 and 1997-2008 periods of agricultural support institutions is given in Tables 6.3 to 6.5 using a 0 to 3-unit scale. Based on this scale, 0 represents lack of spatial distribution in an area, 1 few numbers of spatial distribution, 2 represents a higher spatial presence and 3 indicated the highest number of spatial distribution. The scale was cumulative in nature.

Close scrutiny of the spatial analysis tables reveal that the 1980-1990 agricultural support infrastructure of the centralized planning era was generally more widely distributed

than the post 1997 era of liberalization. This was more prominent with NAMBOARD and the cooperatives which scored 9 and 6 points respectively on the spatial analysis scale. The second most widely distributed infrastructure in all the three districts was CUSA while the least one was Lima bank. The high score for NAMBOARD and cooperatives is attributed both to government policy and the importance of the services provided which included input supply and purchase of agricultural produce. On the other hand, the low score for Lima bank (1) is mainly due to the sensitive nature of money which could only be dealt with in areas where adequate security could be provided by the police service and other security agencies. ZAMSEED scored poorly because its products were distributed through NAMBOARD and cooperatives.

**Table 6.3: Agricultural Support Institutions Distribution Pattern in Chibombo District**

Institution	Farming blocks in Chibombo		
	1980-1990		
	Chibombo	Chisamba	Keembe
CUSA	1	1	1
Lima Bank	0	1	0
NCZ	0	0	0
NAMBOARD	3	3	3
ZCF	2	2	2
ZAMSEED	0	0	0
<b>TOTAL</b>	<b>6</b>	<b>7</b>	<b>6</b>
		1997-2008	
Cargill	1	0	1
Clark cotton	2	0	1
Dunavant	1	0	2
FISP programme	3	3	3
FRA	3	3	3
GV	1	0	1
MM	0	0	0
MRI	1	2	2
Pannar	1	2	2
SEEDCO	1	2	1
ZAMSEED	2	3	2
<b>TOTAL</b>	<b>16</b>	<b>15</b>	<b>18</b>

**Source:** Field data, 2008.

Key: 0=Non-existent; 1=Limited distribution; 2=Moderate distribution; 3=Widely distributed.

**Table 6.4: Agricultural Support Institutions Distribution Pattern in Kapiri Mposhi District**

Institution	Farming blocks in Kapiri Mposhi		
	1980-1990		
	Chipeco	Lunchu	Mulungushi
CUSA	1	0	2
Lima Bank	0	0	0
NCZ	0	0	0
NAMBOARD	3	3	3
ZCF	2	2	2
ZAMSEED	0	0	0
<b>TOTAL</b>	<b>6</b>	<b>5</b>	<b>7</b>
		1997-2008	
Cargill	1	0	1
Clark cotton	1	1	1
Dunavant	2	2	2
FISP programme	3	3	3
FRA	3	3	3
GV	0	0	0
MM	0	0	0
MRI	0	0	0
Pannar	1	0	0
SEEDCO	1	1	1
ZAMSEED	1	1	1
<b>TOTAL</b>	<b>13</b>	<b>11</b>	<b>12</b>

**Source:** Field data, 2008.

Key: 0=Non- existent; 1=Limited distribution; 2=Moderate distribution; 3=widely distributed.

**Table 6.5: Agricultural Support Institutions Distribution Pattern in Mumbwa District**

Institution	Farming blocks in Mumbwa			
	1980-1990			
	Kapyanga	Mumbwa Central	Mukulaikwa	Nambala
CUSA	2	3	1	2
Lima Bank	0	1	0	0
NCZ	0	0	0	0
NAMBOARD	3	3	3	3
ZCF	2	2	2	2
ZAMSEED	0	0	0	0
<b>TOTAL</b>	<b>7</b>	<b>9</b>	<b>6</b>	<b>7</b>
		1997-2008		
Cargill	2	2	2	2
Clark cotton	3	3	3	3
Dunavant	3	3	3	3
FISP programme	3	3	3	3
FRA	3	3	3	3
GV	0	0	0	0
MM	0	0	0	0
MRI	1	1	1	1
Pannar	2	2	2	2
SEEDCO	1	1	1	1
ZAMSEED	2	2	2	2
<b>TOTAL</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>19</b>

**Source:** Field data, 2008. Key: 0=Non- existent; 1=Limited distribution; 2=Moderate distribution; 3=Widely distributed.



During the 1997-2008 FRA and FISP scored highest (9) because of being government supported programmes with an intention to implement government policies in farming areas regardless of whether they were profitable or not. The scores for private institutions such as Dunavant and others which emerged after the introduction of liberalization reveal a biased distribution pattern to limited and mainly accessible places near market centers and along major transport routes. This was a major change from the 1980-1990 distribution landscape in which institutions were widely distributed in many farming areas. Such a changed pattern confirms the assertion that the introduction of agricultural liberalization had resulted into a marked shift in the spatial patterns of agricultural support institutions in farming areas of the three study districts. However, the leaner agricultural support network which emerged after 1997 ensured more sustainability both in terms of operational capital and service provisions to farmers because they were independent of government influence and used their own capital. But their leaner nature also disadvantaged farmers in the sense that this tended in increasing distances farmers covered in order to obtain a service and by extension increased the transport costs as well.

Additionally, the emerged support agricultural institutions ensured more sustainability in their operations because they were able to employ appropriately qualified workforce unlike the 1980-1990 institutions which employed mainly political cadres without adequate training and education, especially in the context of the skills which such institutions had expected of them. Interestingly, ZAMSEED's score on the spatial analysis scale after 1997 reveal an improved distribution pattern unlike what it was during the 1980-1990 period when it was confined to very limited sites only because its presence on the market was guaranteed by NAMBOARD and Cooperative movement which used to market its products, government protection and monopolistic nature of its operations. It seems that the transformation which ZAMSEED underwent helped the company to become more competitive and sustainable in its

operations in line with the new liberalized market in which monopolistic tendencies and government protection were discontinued. Furthermore, an improvement of such magnitude in spatial distribution for a government corporation indicates the potential such institutions latently have. In the researcher's view this also indicates that given more space and latitude to make their own independent and business friendly decisions government corporations can compete with any other business. This is perhaps one lesson governments in transiting economies need to learn.

## **CHAPTER SEVEN: THE STATE OF TRANSPORT**

### **INFRASTRUCTURE BETWEEN 1980-1990 AND 1997-2008**

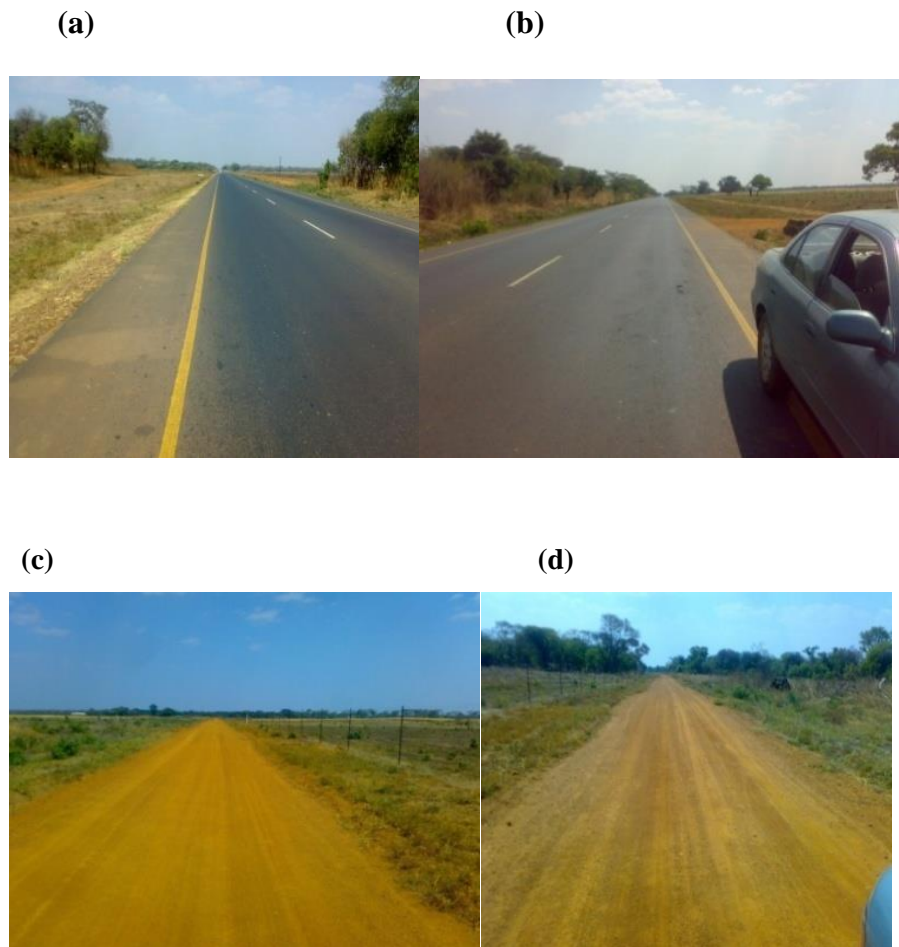
#### **7.1 Transport Infrastructure in Central Province between 1980-1990 and 1997-2008 Periods**

In Central Province the transport infrastructure included small bush tracks, regularly maintained gravel roads, tarred roads and the old line of rail passing through Chibombo and Kapiri Mposhi Districts, and the Tanzania-Zambia Railway (TAZARA) starting from Kapiri Mposhi to Dar-es-laam in Tanzania through Northern Province (GRZ, 1986, 1989, 1990; DACO-Chibombo-2006). Plate 7.1 below show samples of tarred and gravel roads in the study area.

According to GRZ 1966, 1971, 1986 and 1989; Mwanza (1992a & b), Gerrard *et al.* (1994) and World Bank (1994) over 95 percent of this infrastructure was established during the period of centralized administration between 1964 and 1990. Before the oil crisis of 1975 and the eventual decline of copper prices on the world market in the late 1970s and the intensification of independence wars in the region, the Zambian government managed to establish several roads, the main railway infrastructure in the entire country when its financial standing was still strong (GRZ, 1966; 1971 and 1986; Mwanza, 1992b; World Bank, 1994).

The establishment of an elaborate road infrastructure and railways was undertaken in order to meet political expectations of the citizenry and to modernize/develop the economy especially the remote areas which were neglected by the colonial administration (GRZ, 1966, 1971 and 1986; Wood, *et al.* 1990; Mwanza, 1992a & b; Gerrard, *et al.* (1994) and World Bank (1994). Through the establishment of such infrastructure, the UNIP government stimulated agricultural and economic growth in remote areas which previously lagged behind urban centres. By extension, such a measure also helped to reduce the rural-urban population drift which was essentially being promoted by the difference in the state of the rural economy

against urban centres where better roads and social amenities existed both before and after the attainment of independence.



**Plate 7.1 Photographs showing roads in 2007 and 2008: (a) Great North Road, 2007; (b) Lusaka-Mongu Road (GWR), 2007; (c) Landless Corner-Mumbwa Gravel Road, 2007; (d) Kabwe-Mukonchi Gravel Road, 2008.**

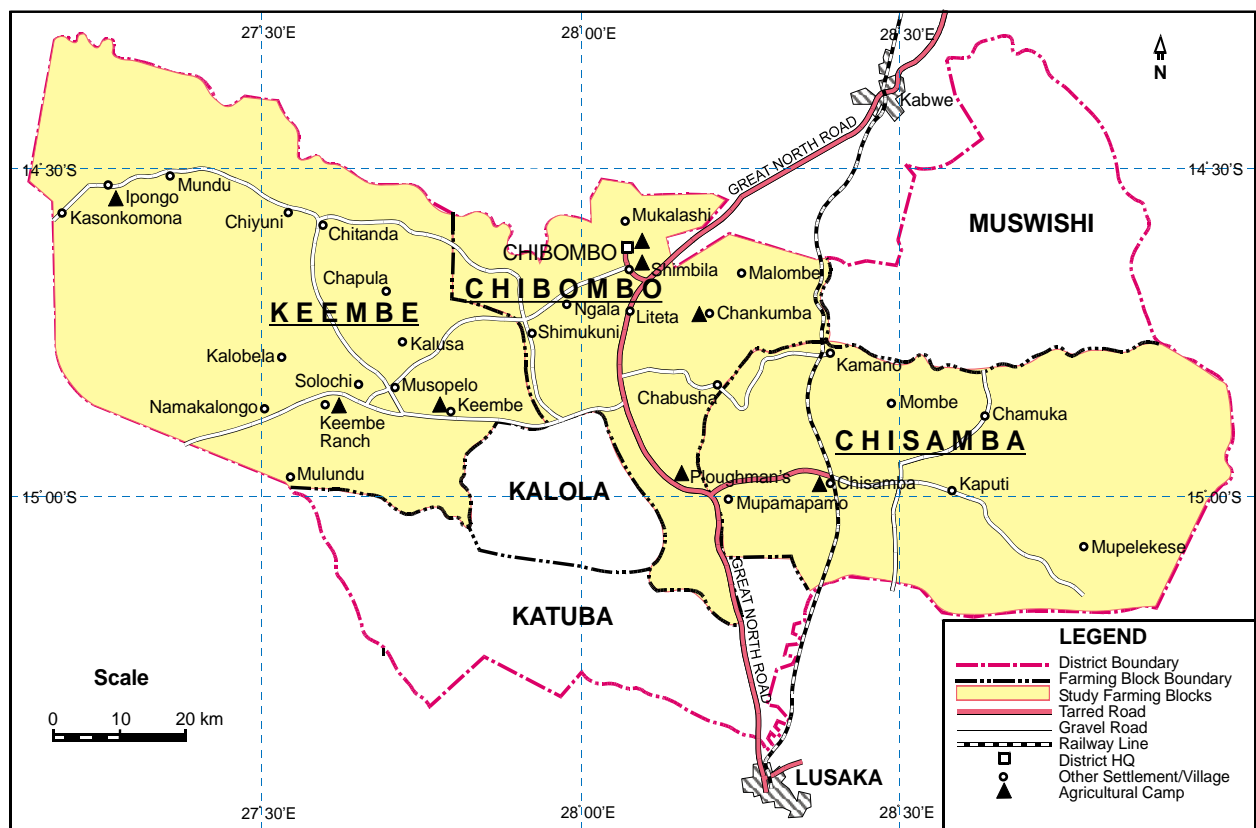
## **7.2 Transport Infrastructure among the three Study Districts**

### **7.2.1 Transport Infrastructure in Chibombo District between 1980-1990 and 1997-2008**

For purposes of effective comparative analysis, the transport infrastructure in Chibombo District, as the case for the other two districts, is described under the 1980-1990 and 1997-2008 periods. This classification has been done, partly, to attain clarity. Additionally, under each category, maps have been used in order to emphasize the spatial infrastructural dimension.

### 7.2.1.1 1980-1990 Period

According to the Chibombo District Council (2008) and information from the fieldwork, the main transport infrastructure in the district between 1980 and 1990, among others, were the old line of railway (71 kilometers), Great North Road (107 kilometers), Lusaka to Mumbwa Great West Road (39 kilometers), the Landless Corner to Mumbwa gravel road (98 kilometers), Chisamba turnoff to Chisamba sub-boma through to Chipembi until Kabwe (133 kilometers) and numerous feeder roads in the farming community (Figure 7.1).



**Figure 7.1: Transport Infrastructure: Chibombo, Chisamba and Keembe Farming Blocks, Chibombo District, 1980-1990.**

**Source:** Field data, 2008.

This gave the following totals 71 kilometers of railways, 171 kilometers of tarred roads, 363 kilometers of gravel roads and slightly over 583 kilometers of bush tracks across the district. According to the District Council (2008), the Lusaka-Mumbwa Great West Road,

Lusaka –Kabwe Great North Road were tarred while a portion of the Chisamba turnoff-Chisamba sub-boma (25 kilometers) was tarred in the early 1980s only. Owing to lack of regular maintenance, the tar was damaged and later removed towards the end of the 1980s and early 1990s.

This made the 25 kilometer section of the road to transform into a gravel road. From the farmers' recollections and the District Council officials, gravel roads and the main feeder roads leading to active farming areas were graded at the end of each rainy season just before the crop marketing season was launched around May/June of each year. According to the farmers and Council officials, such regular maintenance entailed that the roads remained passable almost throughout the year.

#### **7.3.1.1 1997-2008 Period**

Based on the recollections of farmers in 67 cooperatives (87%), the Chibombo District Council (2008) and field observations, the transport infrastructure of the 1980-1990 period largely remained the same in nature but changed in quality after 1997 (Figure 7.1). Thus, the old railway line (71 kilometers), Great North Road (107 kilometers), Lusaka to Mumbwa Great West Road (39 kilometers), the Landless Corner to Mumbwa gravel road (98 kilometers), Chisamba turnoff to Chisamba sub-boma through to Chipembi until Kabwe (133 kilometers) and several feeder roads leading to various farming areas.

However, two major developments took place towards the end of the 1990s. The government tarred a stretch of seven kilometers from Chibombo turn-off to Chibombo District Council offices, and the 25 kilometer Chisamba turn-off to Chisamba sub-boma roads (Figure 7.1). This resulted into an increase of 32 kilometers of tarred roads (19 percent). According to seven council officials interviewed at Chibombo District Council, this was done because these roads were politically and economically important since they led to established administrative and agricultural centres. The other notable change since 1997 was the state of many gravel and dust roads. According to the District Council (2008), over 70 percent of the

feeder roads leading to farming areas were irregularly graded and/or maintained. The lack of regular maintenance made many roads to become impassable especially during the rainy season. This translated into the following estimated road quality decline: 221 kilometers of gravel roads and 408 kilometers of bush tracks. The decline in the useability of gravel and bush tracks by this extent shows the extent to which transport costs also increased and the number of difficulties smallholder farmers faced in their areas to be able to move easily between places or to transport their goods and services.

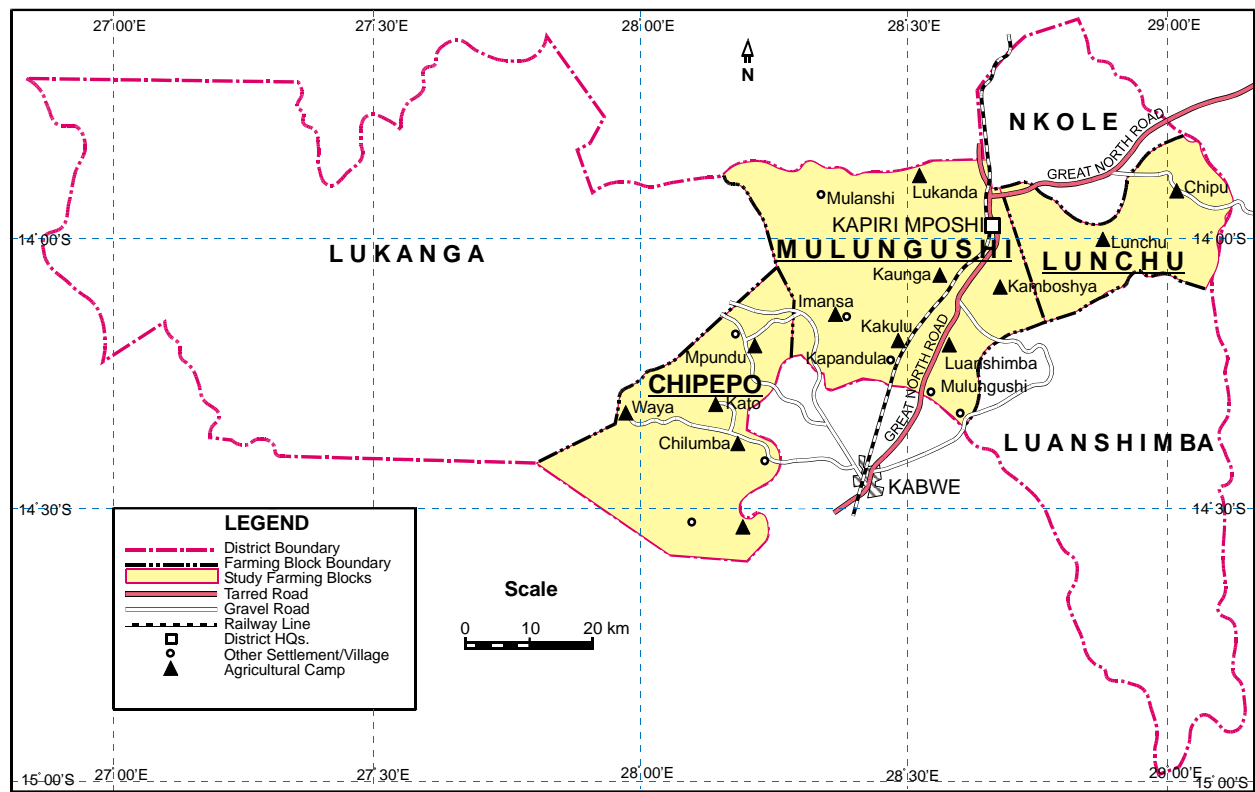
## **7.2.2 Transport Infrastructure in Kapiri Mposhi District between 1980-1990 and 1997-2008**

### **7.2.2.1 1980-1990 Period**

According to research findings, Kapiri Mposhi District had the following transport infrastructure in the 1980-1990 period: the old rail line from Kabwe covering 54 kilometers, the Tanzania-Zambia railways (TAZARA) with a length of 68 kilometers, the Great North Road (98 kilometers), Kabwe-Chipepo gravel road (72 kilometers), Kabwe-Lunchu gravel road (121 kilometers, Mukonchi turnoff-Kapiri Mposhi town 58 kilometers, Kapiri Mposhi town-Lukanga swamps (78 kilometers) and several dust roads leading to a number of places within the district (Figure 7.2). Thus, the district had a total of 122 kilometers of railways which was the longest among all the three districts, 98 kilometers of tarred roads, 329 kilometers of gravel roads and about 506 kilometers of dust tracks.

The DACO (2008) and Director of Works (2008) both pointed out that the gravel roads were regularly graded and hence passable the larger part of the year. Over 63 percent of farmers interviewed in Chipepo, Lunchu and Mulungushi Farming Blocks concurred with this view. According to farmers interviewed, regular maintenance guaranteed easy and effective communication in the district throughout the year. Farming inputs and farm produce could be moved from and/or to depots easily and relatively cheaply. Nonetheless, regular maintenance

of roads during this period was only sustained by government funding and other logistical support (DACO, 2008).



**Figure 7.2: Transport Infrastructure: Chipepo, Lunchu and Mulungushi Farming Blocks, Kapiri Mposhi District, 1980-1990.**

**Source:** Field data, 2008.

#### 7.2.2.2 1997-2008 Period

The DACO (2008) and the Director of Works (2008), pointed out that the nature of transport infrastructure of the district remained the same as it was in the 1980-1990 period (Figure 7.2). Thus, the old railway line from Kabwe (54 kilometers), the Tanzania-Zambia (TAZARA) railways (68 kilometers), the Great North Road (98 kilometers), Kabwe-Chipepo gravel road (72 kilometers) and numerous gravel and dust roads leading to a number of places within the district.

The only major change witnessed after 1997 was that the government programme of regular grading had become erratic and unpredictable. Such a practice induced a decline of



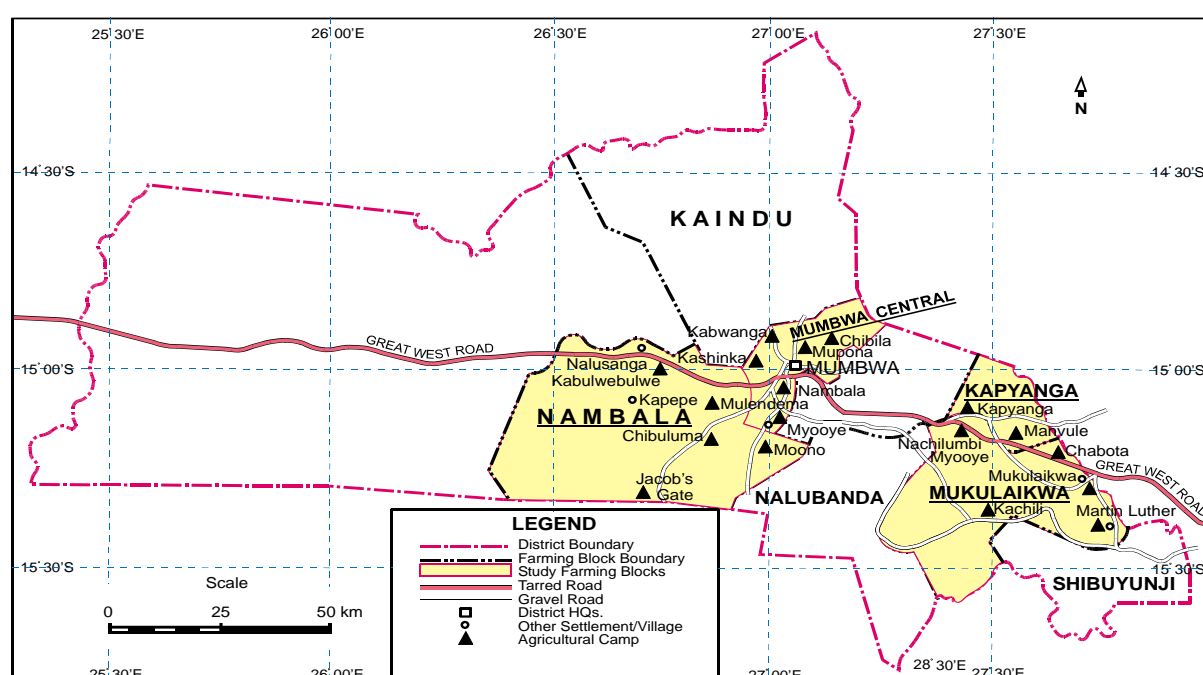
well above 80 percent in the quality of gravel and bush tracks in farming areas. The two railways remained in place. According to these two officials and farmers surveyed erratic grading of roads made them be in poor state especially after each rainy season. The most affected roads were those leading to the farming areas away from the Central Business District of Kapiri Mposhi District. The poor state of the transport infrastructure had made the delivery of inputs and farm produce from suppliers and/or to markets difficult and expensive. Some of the farming areas negatively affected by the deterioration in the quality of the road network included Chipepo, Lunchu and Mulungushi farming blocks. The deterioration in the quality of road network affected slightly above 52% of the feeder roads in the district. This meant, therefore, the cost of transportation in the affected farming areas went up by the same margin. Such a negative development meant that smallholder crop farmers either spent more money for same distances where they previously used less money or relied on crooked businessmen and women to sell them inputs or buy farming produce.

### **7.2.3 Transport Infrastructure in Mumbwa District between 1980-1990 and 1997-2008**

#### **7.2.3.1 1980-1990 Period**

The DACO (2008) and Director of Works (2008) stated that Mumbwa District had the following transport infrastructure between 1980 and 1990: the Lusaka-Mongu Road (Great West Road) estimated at about 117 kilometers, Landless Corner-Mumbwa gravel road (68 kilometers), Kaposa-Mwoongo gravel road (29 kilometers), Kaindu-Mpusu dust road (48 kilometers), Chibuluma-Mulendema dust road (13 kilometers), Mumbwa-Namwala gravel road (50 kilometers), Mumbwa-Kasempa gravel road (106 kilometers), Mumbwa-Itezhi Itezhi gravel road (119 kilometers) and numerous other regularly maintained roads leading to various places in the district (Figure 7.3). This gave the district the following totals: 117 kilometers of tarred roads, 372 gravel roads, 61 of dust roads and an estimated average of 548 kilometers of bush tracks.

The Lusaka-Mongu Road was the only tarred road in the district. According to the two officials and 57 percent farmers interviewed in the four farming blocks, the government regularly graded the gravel and dust roads soon after each rainy season in preparation for the crop marketing season. Regular grading tended to keep over 80 percent of the roads passable throughout the year except in very few places where they got damaged by heavy rains (DACO, 2008).



**Figure 7.3: Transport Infrastructure: Kapyanga, Mukulaikwa, Mumbwa Central and Nambala Farming Blocks, Mumbwa District, 1980-1990.**

**Source:** Field data, 2008.

### 7.2.3.2 1997-2008 Period

Between 1997 and 2008, the nature of transport infrastructure in the district largely remained as it was in the 1980-1990 period, but the government opened up an 89 kilometer Mumbwa-Kasempa gravel road through Kafue National park (DACO, 2008). Therefore, apart

from the 89 kilometer Mumbwa-Kasempa gravel road through the national park, the roads of the 1980-1990 period remained the same (Figure 7.3).

According to the DACO (2008), Director of Works (2008) and 107 farmers interviewed in Nambala, Mukulaikwa, Kapyanga and Mumbwa Central Blocks, the practice of regular grading of gravel roads after each rainy season became erratic and unpredictable. It was reported by the 107 farmers interviewed and the Director of works at Mumbwa District Council that over 80 percent of gravel and dust roads were negatively affected by this practice.

According to the 107 farmers interviewed, the poor maintenance practice of roads made the majority of gravel and dust roads (about 63 percent) leading to farming areas impassable especially during the rainy season. Furthermore, it increased the transportation costs of inputs from sources and delivery of farm produce to markets almost by the same margin (DACO, 2008).

For instance, farmers complained about the state of the Landless Corner to Mumbwa road from Chibombo which they reported to be almost completely impassable during the rainy season and soon after. The Director of Works (2008) agreed with farmers when he stated that if this road was well maintained travelers from the north to Mumbwa could save over one hour. According to him and several farmers interviewed in Kapyanga Farming Block, the poor state of this road prompted many travelers to Mumbwa to pass through Lusaka instead. The government, however, had graded the Mumbwa-Kasempa Road passing through the Kafue National Park for the first time in many years (Director of Works, 2008). By opening this road, the government was hoping to reduce the physical distance from Mumbwa to Kasempa by over 89 kilometers. It should also be stated that of the three districts, Mumbwa was the only district without a line of railway.

### **7.3 Comparison of Transport Infrastructure among the three Districts in the 1980-1990 Period**

Between 1980 and 1990, the main transport infrastructure in Chibombo and Kapiri Mposhi districts comprised the GNR, several gravel and bush tracks, and the old railway from Livingstone to the Copperbelt and the TAZARA; while in Chibombo and Mumbwa there was also the Lusaka-Mumbwa GWR. The GNR, GWR and the Chisamba Turnoff to Chisamba Railway Siding were tarred. The rest of the road network was regularly graded and hence passable throughout the year. The Chisamba Turnoff to Chisamba Railway Siding remained tarred until the late 1980s when it became a gravel road due to lack of maintenance.

Despite financial difficulties which the country was facing towards the end of the 1980s, grading of roads was regularly done after every rainy season (DACO-Mumbwa, 2008). Regular maintenance of roads in the districts, like in other parts of the country, ensured an effective delivery of inputs and produce. Such a network also helped to encourage farmers to settle even in remote parts of the districts. Chabala and Sakufiwa (1993) and Kokwe (1997) have argued that part of the reason was the uniformity of prices of goods and regulated costs of transportation of inputs to any farming area regardless of the distance. Due to government policy of regular maintenance of the transport infrastructure, over 85 percent of the network remained effectively usable throughout the year. Evidently, such a policy must have demanded a lot of money but it was, according to farmers, the right way to go. It was admitted by respondents during the fieldwork that financial pressure on the government towards the end of the 1980s started to show some stress on the quality of the transport networks.

Thus, at the provincial level, it can be argued that the railway and road infrastructure of the 1980-1990 and 1997-2008 were similar in nature but mainly differed in quality since the government had a better maintenance policy during the 1980-1990 than during the 1997-2008 period. There was no evidence to suggest the creation of any new infrastructure during the

1997-2008 apart from the tarring of the Chisamba turnoff to Chisamba railway siding and the Chibombo turnoff to Chibombo Council office stretches of roads of 25 km and 7 km respectively.

#### **7.4 Comparison of Transport Infrastructure for the three Districts in the 1997-2008 Period**

According to the DACO-Chibombo (2008) the transport infrastructure in the study districts between 1997 and 2008 included the GNR, GWR, Landless Corner to Mumbwa, Chipembi to Kabwe, Chisamba Turnoff to Chisamba Railway Siding and many other gravel and bush roads, the railway from Livingstone to the Copperbelt and TAZARA. The tarred roads were the GNR, GWR, and Chisamba Turnoff to Chisamba Sub-boma and Chibombo Turnoff to Chibombo District Council offices. The 25 kilometer stretch of Chisamba Turnoff to Chisamba Sub-boma and the seven kilometer stretch from Chibombo Turnoff to the District Council were the newly tarred roads in this period. The GNR and GWR continued to be the main tarred roads passing through the districts.

The length of the gravel and bush roads remained the same after 1997 but their quality changed markedly. According to the District Council (2008) and farmers surveyed over 85 percent of roads were no longer regularly graded. Grading took place either when elections were about to take place or some important dignitary was visiting the concerned area (DACO-Chibombo: 2008). The decline in the quality of gravel roads resulted into increased cost of transportation and difficulties to access sources of inputs and markets. According to farmers, government was paying too much attention to urban roads where political pressure seemed to be more severe among the more affluent communities. Additionally, the poor state of the communication infrastructure in three districts, like in other parts of the rural areas, was beginning to promote migrations of populations to areas near towns and major roads (DACO-

Mumbwa, 2008). Poor roads also increased poverty levels among those communities found in remote areas since the privately owned agro companies were hesitant to service them.

Thus, the transport infrastructure of the 1990s in the districts remained as it was in the 1980-1990 period. Specifically, the GNR was the only tarred road in Kapiri Mposhi District, while the GWR the only tarred road in Mumbwa but Chibombo had the GNR, Chibombo Turnoff to Chibombo District Council offices and the Chisamba Turnoff to Chisamba Railway Siding as the three tarred roads.

The gravel and bush roads were numerous. For example, some of the key gravel roads in Kapiri Mposhi District included, among many, the Kapiri Mposhi-Chipepo-Lukanga road, Kapiri Mposhi-Lunchu road, Kapiri Mposhi-Mulungushi road and several other roads in the district. The Kapiri Mposhi-Chipepo-Lukanga road, a stretch of about 91 kilometers, remained well graded between 1997 and 2008 just as was the case in the 1980s. Similarly, the Kabwe-Mukonchi-Mulungushi road, a stretch of about 87 kilometers, was also comparatively well graded even after the economic situation had changed for the worst. The other roads, unfortunately, were almost forgotten. The sad part, though, was that these roads which were no longer regularly graded formed over 85 percent of the road network in the districts. The government seemed to have lost its political will to implement the road grading programme like it used to in the early 1980s (DACO-Mumbwa, 2008). Farmers complained that lack of regular road maintenance had imposed pressure on the transport system in the districts which ultimately increased the cost of doing business.

The Zambia Railway network and TAZARA continued to exist after 1997. But, owing to changes in management and poor funding, the quality of service offered in terms of efficiency also deteriorated markedly. Delays of train arrivals and increased length of time taken for trains to cover distances were reported. Train accidents arising from poor maintenance of the railway trucks were also reported to have become common after 1997. The

Director of Works-Kapiri Mposhi (2008) felt all this was an indication of low funding to the sector. He further stated that the poor state of the railways was promoting an emergence of heavy trucking in the country to carry the cargo which previously carried by trains. The use of heavy trucks on roads was evidently having a negative impact on the quality and lifespan of tarred roads which were being damaged every so often. Regrettably, the government seemed not to have paid attention to this emerging problem on Zambia's major tarred roads.

Generally, the Livingstone to the Copperbelt rail line and TAZARA existed in both 1980-1990 and 1997-2008 periods as well as the Great North and Great West Roads as the major tarred road networks. Furthermore, the bulk of the gravel and bush roads which existed during the 1980-1990 continued to exist during the 1997-2008 period but in a poorer state. The Chisamba turnoff to Chisamba Railway Siding and Chibombo turnoff to Chibombo district council which were gravel earlier were now tarred after 1997.

Another area of concern to farmers was the inability of the government to realize that the majority of the population in the districts resided in rural areas. It was, hence, important that the transport infrastructure of these places where the majority of the people resided and, where production of food took place needed top priority if the economy was to grow. According to the Central Statistics Office (CSO) about 80 percent of poor people lived in rural areas (CSO, 2010). Such a high level of poverty needed to receive due attention on the part of the government.

Generally, it must be stated that the transport infrastructure in Chibombo, Kapiri Mposhi and Mumbwa districts which existed in the 1980-1990 period was similar to the infrastructure of the 1997-2008 period, except for its poor state due to lack of regular maintenance after 1997, and the tarring of the 7 and 25 km stretches of the Chibombo turnoff to Chibombo district offices and Chisamba turnoff to Chisamba railway siding respectively.

## **CHAPTER EIGHT: THE NATURE OF AGRICULTURAL TRANSFORMATION IN CENTRAL PROVINCE OF ZAMBIA**

### **8.1 Agricultural Transformation before and after 1997**

Chapter Eight examines the agricultural transformation which occurred after 1997 arising from the introduction of agricultural liberalization policies in Zambia. The chapter outlines the nature of the agricultural transformation per district in each time period on a given theme of agriculture, the probable cause and effects on smallholder agriculture in Chibombo, Kapiri Mposhi and Mumbwa Districts. It has also brought to the fore reasons why the Zambian government decided to liberalize the agricultural sector despite many years of centralized control.

#### **8.1.1 Reasons for Agricultural Liberalization**

To understand the need why Zambian agriculture had to transform, the World Bank argues that for many years poor government policies had led to stagnation and decline in an environment in which the state played a prominent role in production and general regulation of economic activities (World Bank, 1994). Furthermore, the Bank adds that while agriculture remained vital for Africa's growth it performed worse than other sectors of the economy. This is exemplified by the following argument: "Between 1965 and 1980, agricultural growth rose only 2 percent a year less than the rate of population growth and between 1981 and 1985, it fell by 0.6 percent a year, compared with agriculture growth of 3.2 percent a year in East Asia, 2.5 percent in South Asia, and 3.1 percent in Latin America" (World Bank, 1994: 19). With such decimal performance, the Bank argues, it was "Clearly...time for African economies to begin to adjust" (World Bank, 1994: 19). Loxley & Young (1990) have also argued that "Zambia has not met its potential in terms of agricultural production.



Recent suggestions for reform have included raising producer prices, initiating more market-oriented commodity procurement and transportation policies and less reliance on the state for distribution and pricing of inputs” (Young & Loxley, 1990: 45). Wood and Vokes (1990), Mwanza (1992a & b); Gerrard *et al* (1994); Jacobsen *et al.* (1995); Kokwe (1997) and Valdes and Schaeffer (1995) share this view. Having placed the reasons for transformation in a context, an examination of the specific transformation areas of Zambian agriculture are discussed below.

### **8.1.2 Transformation on the type of Crops Grown in the 1980-1990 and 1997-2008 Periods**

During the 1980-1990 period maize, cotton, sunflower and groundnuts were commonly grown by smallholder farmers on a mono cultural system. The cultivation of these crops had little or no regard to variations in ecological conditions and therefore was spatially wide spread. The main determinant was the government support through subsidies and other logistical mechanisms (Mwanza, 1992a & b; World Bank, 1994 and Sichingabula, 2000). In the 1980s, the government provided operational capital and subsidies to agricultural support companies in order to keep prices of inputs affordable to farmers. Furthermore, they encouraged farmers to grow various crops such as maize, cotton, groundnuts, sunflower, millet and sorghum by providing favourable producer prices and guaranteeing markets. Since prices of inputs and ultimately the producer prices of individual crops were uniform throughout the country regardless of distance from markets, farmers were motivated to only grow crops which government encouraged them to grow. At this point, the influence of market forces, farmer initiatives and ecological variations were not the main consideration. Similarly, Crops were largely grown on a mono cultural system as the farmers did not have any particular need to adopt alternative methods. “There was little diversification by the traditional farmers out of food crops, because of the remoteness of the farming areas” (Gerrard *et al.*, 1994: 67).

Through a shift in policy from centralized planning to liberalization in 1991, many agribusinesses which previously supported farmers through inputs, extension services and marketing collapsed. This development created a vacuum in terms of input institutional support to farmers and hence inducing price variations of chemical fertilizers, chemicals, seed and producer prices of crops. Changes at the level of input and producer prices induced changes in crops grown and systems of cultivation, and consideration of what was suitable to be grown in individual ecological regions. Such emerging developments became more noticeable after 1997. While maize and cotton persisted to dominate due to continued government interventions through the FRA and FISP, and emergence of Dunavant and Clark Cotton support, cultivation of groundnuts and sunflower declined due to lack of profitable markets and inducements either from the government or the private sector. The vacuum created by the decline of sunflower and groundnuts seemed to have been taken over by impwa (*solanum macrocarpon*), vegetables and other cash crops which farmers grew in line with market conditions in their areas (Table 8.1).

**Table 8.1: Comparison of Crops Cultivated and Cultivation Methods used by Farmers in the two Study Periods**

1980-1990		1997-2008	
Crop	Cultivation Method	Crop	Cultivation Method
Cotton	-Mono cultivation used -Crop Cultivation done only during rainy season	Cotton	-Mono, Crop Rotation, Multi-cropping, conservation farming. -Cultivation for all crops, except cotton, done throughout the year
Groundnuts		Impwa	
Maize		Maize	
Sunflower		Vegetables	
		Sweet Potatoes	

**SOURCE:** Field data, 2008.

In the 1980-1990 period cultivation of crops on a mono cultural system was done widely across all districts but after 1997 crops such as cotton, impwa and vegetables became common in parts of the study districts where irrigation was possible or along main roads and near markets, for example around John Chinena area of Chibombo District. Furthermore, unlike the previous situation where cotton was widely grown in all study districts, after 1997 it was confined more in Mumbwa District largely because of a ginnery which had been set up by Dunavant. Comparatively, therefore, the spatial distribution of crops apart from maize was more during the 1980-1990 than the 1997-2008 periods. Between 1997-2008 several new hybrids of maize, cotton and other crops were made available to the farmers. Unlike the 1980-1990 period when ecological conditions were not considered, the new varieties of seed were designed to suit ecological conditions of particular areas including rainfall patterns. This resulted in the development of early maturing varieties for short rainy seasons, medium maturing varieties for medium rainfall seasons and late maturing varieties for longer rainfall regions. The new hybrid seed varieties had added advantages of disease resistance and improved productivity.

### **8.1.3 Farming Practices and Area Planted**

While the main farming practice in the 1980-1990 period was mono cultivation, the 1997-2008 period experienced the emergence of conservation farming, multi cropping, intercropping and crop rotation systems of cultivation. This was a major change in cultivation methods especially among smallholder farmers where inputs such as chemical fertilizers were either difficult to find or expensive. The size of land cultivated for individual crops in some instances declined by over fifty percent (50%) from the previous cultivation hectareage (DACO-Mumbwa, 2006). The most affected crops included sunflower and groundnut.

The decline in sunflower and groundnuts cultivation was compensated by an increase in the cultivation of sweet potatoes, impwa and vegetables especially in parts of the study districts where irrigation was possible or were near markets (DACO-Mumbwa, 2006). Crop production for crops with adequate support infrastructure remained unchanged while there was a marked decline for those crops that had lost any support infrastructure like market services. New crops which emerged after 1997 seemed to fair competitively because of urban markets, travelling briefcase buyers and existence of new environment conditions.

#### 8.1.4 Agricultural Support Institutions

In the 1980-1990 period various agro institutions existed to render service to farmers in terms of cash loans, input supply, extension services, crop marketing and storage (Table 8.2). The institutions which had a field presence were widely spread in the farming communities to an extent that on average every 5 kilometer distance had a depot (GRZ, 1986 & 1989). After 1989 many of the 1980-1990 agrobusinesses collapsed due to lack of government financial support. The collapse of such elaborate support infrastructure created a vacuum in the provision of many services.

**Table 8.2: Existing Agricultural Support Institutions in the 1980-1990 and 1997-2008 Periods**

District	Services & inputs	1980-1990		1997-2008	
		Service providers	Spatial distribution	Services providers	Spatial distribution
Chibombo	Cash	CUSA, Lima Bank, ZCF Financial Services	Distributed Widely in towns and other selected areas of districts	Non	N/A
	Chemical Fertilizers	NCZ	Factory in Kafue and depots in some towns	Miombo, Omnia FISP	Depots in several towns
	Chemicals	LINTCO	Distributed Widely in districts	Dunavant, Cargill, Clark Cotton	In Kabwe and other cotton growing areas
	Hybrid cotton seed	LINTCO	Distributed Widely in districts	Dunavant, Cargill, Clark Cotton	In Kabwe and other cotton growing areas

		1980-1990		1997-2008	
District	Services & inputs	Service providers	Spatial distribution	Services providers	Spatial distribution
	Hybrid Maize	ZAMSEED	Distributed Widely through NAMBOARD depots in study areas	GV, MM, MRI, Pannar, SEEDCO, ZAMSEED	Distributed Widely through FRA, FISP
	Marketing and Storage	NAMBOARD, CDCMU, CPCMU, ZCF	Distributed Widely in districts	FRA, Millers, Dunavant, Cargill, Clark Cotton and private companies	Limited to accessible areas and FRA reaches remote areas
	Other services: Extension services	MACO	Distributed Widely through block and extension camp	MACO, Cargill, Clark Cotton, Dunavant, NGOs, ZNFU	Distributed Widely
<b>Kapiri Mposhi</b>	Cash	CUSA, Lima Bank, ZCF Financial Services	Distributed Widely	Non	N/A
	Chemical Fertilizers	NCZ	Factory in Kafue and depots in some towns	Miombo, Omnia FISP	Depots in several towns
	Chemicals	LINTCO	Distributed Widely in districts	Dunavant, Cargill, Clark Cotton	In Kabwe and other cotton growing areas
	Hybrid cotton seed	LINTCO	Distributed Widely in districts	Dunavant, Cargill, Clark Cotton	In Kabwe and other cotton growing areas
	Hybrid Maize	ZAMSEED	Distributed Widely though NAMBOARD and cooperative depots	GV, MM, MRI, Pannar, SEEDCO, ZAMSEED	Distributed Widely through FRA and FISP
	Marketing and Storage	NAMBOARD, CDCMU, CPCMU, ZCF	Distributed Widely in districts	FRA, Millers, Dunavant, Cargill, Clark Cotton and private companies	Limited to accessible areas and FRA reaches remote areas
	Other services: Extension services	MACO	Distributed Widely through block and extension camps	MACO, Cargill, Clark Cotton, Dunavant, NGOs, ZNFU	Distributed Widely in districts
<b>Mumbwa</b>	Cash	CUSA, Lima Bank, ZCF Financial Services	Distributed Widely in towns of districts	Non	N/A
	Chemical Fertilizers	NCZ	Factory in Kafue and depots in some towns	Miombo, Omnia FISP	Depots in several towns

		1980-1990		1997-2008	
District	Services & inputs	Service providers	Spatial distribution	Services providers	Spatial distribution
	Chemicals	LINTCO	Distributed Widely	Dunavant, Cargill, Clark Cotton	In Kabwe and other cotton growing areas
	Hybrid cotton seed	LINTCO	Distributed Widely in districts	Dunavant, Cargill, Clark Cotton	In Mumbwa and other cotton growing areas
	Hybrid Maize	ZAMSEED	Distributed Widely through NAMBOARD depots	GV, MM, MRI, Pannar, SEEDCO, ZAMSEED	Distributed Widely through FRA, FISP
	Marketing and Storage	NAMBOARD, CDCMU, CPCMU, ZCF	Distributed Widely in districts	FRA, Millers, Dunavant, Cargill, Clark Cotton and private companies	Limited to accessible areas and FRA reaches remote areas
	Other services: Extension services	MACO	Distributed Widely through block and extension camps	MACO, Cargill, Clark Cotton, Dunavant, NGOs, ZNFU	Distributed Widely in districts

**Source:** Field data, 2008. **NB:** Only main institutions given because they played a more pronounced role.

However, new privately funded and controlled institutions like Nyiombo emerged (Table 8.2). Like the organizations of the 1980-1990 period these institutions had a service-supply network in farming areas including depots. In contrast, nonetheless, their infrastructure though competitive and more efficient, was not as widely distributed in farming areas. Hence, smallholder farmers needed to cover longer distances than done previously. In certain instances, some depots were as far as forty kilometers (40 Km) from farmers. Such an increase in distance brought about increased cost of transportation, increased risk of losses and a reduction in profits.

The agricultural support infrastructure of centralized planning which existed between 1980 and 1990 compromised fewer companies while the post-1991 landscape improved markedly in the number and variety of businesses that provided services to smallholder farmers. Another, change which occurred after the introduction of liberalization is that the new

companies provided sustainable services of a higher quality than the services of the government monopolistic companies whose availability depended entirely on government funding and political choices. The new private companies of post-1997 were more competitive and efficient in their service provision unlike the monopolistic agribusinesses of the 1980-1990 period. The better and competitive services provided to smallholder farmers compensated for the loss of a widely distributed network. Also because the new companies were many farmers benefitted from competitive pricing of inputs, chemicals and other services.

## **8.2 Spatial Distribution of Support Infrastructure before and after 1997**

### **8.2.1 Agricultural Support Institutions before and after 1997**

Another important transformation emerging after 1997 was the reduction in the spatial distribution of the new support institutional infrastructure (Table 8.2). The distance between depots markedly increased from a previous range of 5 square kilometers to over 25 square kilometers per depot and a number of such field infrastructures was restricted to a few notable areas along major roads or near established settlement areas.

### **8.2.2 Transport Infrastructure before and after 1997**

The transport infrastructure of the 1980s was regularly graded by government just before the crop marketing season in order to make them easily passable (DACO-Mumbwa 2006). Several roads were created in farming areas. However, apart from the main GNR and GWR (Lusaka-Mongu road) the majority of the roads were either gravel or bush tracks in nature. After 1997, the Chibombo turnoff to the Council offices seven kilometers away and a stretch of 25 kilometers from the Chisamba turnoff to Chisamba were tarred. This was a major change after 1997 (Table 8.3). The rest of the road networks persisted as gravel and bush roads but the majority declined in quality as grading became irregular.

The decline in the quality of most roads due to lack of regular maintenance was the major transformation which occurred after 1997. The decline of the quality of roads in certain incidences was as high as 49 percent! After 1997 the government neither constructed new roads nor maintained existing ones. Nine (9) government officials interviewed attributed this state of affairs to inadequate government funding and lack of consistence on the part of government to implement maintenance policies. The World Bank (World Bank, 1995: 19) confirms the decline of transport infrastructure in farming communities when it argues that “The physical infrastructure...deteriorated from lack of maintenance, and the quality of government services suffered”. Without doubt this change in the quality of road infrastructure brought about poor transportation services, increased cost of transport and to some degree it led farmers to walk long distances in search of services because transporters were unwilling to reach their places. It was discovered that about one percent of smallholder farmers migrated away from farming areas without well maintained roads in order to live near markets or along better road networks.

**Table 8.3: Description of the State of Transport Infrastructure in the Study Area**

<b>Type of transport infrastructure</b>	<b>1980-1990 Period</b>	<b>1997-2008 Period</b>
Bush roads	Regularly maintained and passable throughout year	Irregularly maintained and some impassable during rainy season
Gravel roads	Regularly maintained passable throughout year	Irregularly maintained and over 60% of gravel roads in bad state especially during rainy season and soon after.
Tarred roads such as GNR, GWR	Well maintained	Well maintained though occasional potholes exist in places
Railway-Zambia Railways and TAZARA	Efficient and regularly well maintained	Inefficient and irregularly maintained

**Source:** Field data.

While the Livingstone-Copperbelt railway and TAZARA continued to exist after 1997, their quality of services declined by over 50 percent owing to lack of re-capitalization. Because of this decline in the quality of services, 73 percent of the farmers interviewed



indicated that bulky goods were now being transported by road, a change which put tarred roads under severe pressure as some trucks were carrying loads beyond what they could manage to hold and hence the creation of gullies/furrows on some roads. This shift from the railway transport to roads also increased the cost of road maintenance and shortening of their life spans.

### **8.3 Characterization of Agricultural Transformation between 1997 and 2008 In Central Province**

From the findings, to a large extent, it can be argued, that cropping patterns and production, agricultural support networks and transport infrastructure showed signs of positive adjustment to liberalization conditions and/or were declining due to failure to adjust to the new market dictates. Therefore, structures on the ground in farming areas did not display universal characterization of agricultural development after introduction of liberalization. Differences in responses to market dictates after 1997 were premised on the influences of internal and external factors (Figure 8.1).

Internally, some influences which affected the smallholder agricultural infrastructure included the following: introduction of the FISP programme; continuation of government crop marketing policy and the liberalization of land ownership rights which affected the size of customary land each smallholder farmer held under his/her control and would use as collateral for any planned loans wherever possible. These internal forces propelled the country to wholesomely adopt liberalization policies. This step was taken by government, in part, to improve the performance of the agriculture and other sectors of the economy. By adopting liberalization policies, the government helped farmers to achieve minor independence and self reliance in terms of input acquisition, resource mobilization, seasonal income generation and productivity but only to a limited extent.

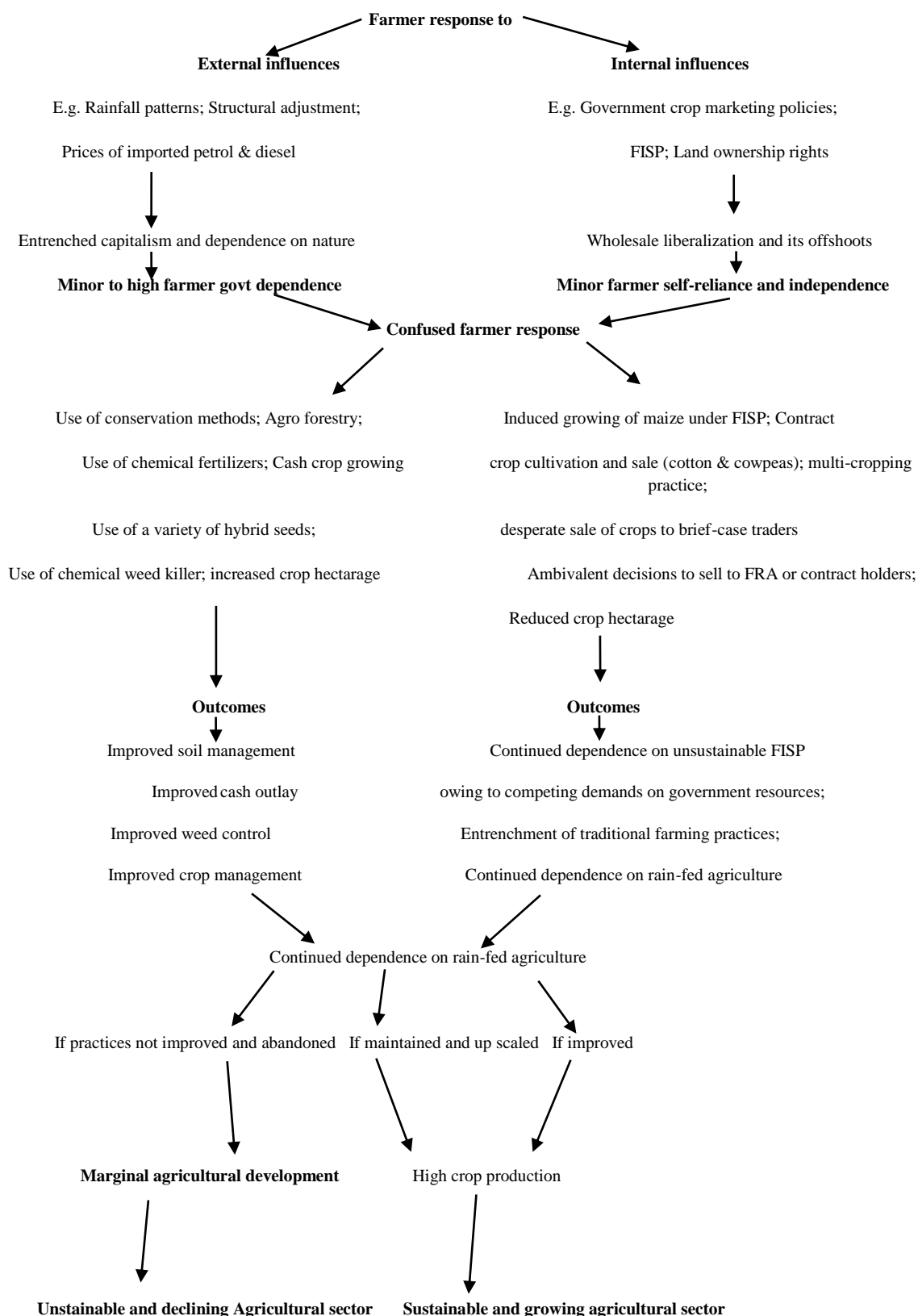


Figure 8.1: Characterization of Internal and External Factors influencing Agricultural Transformation.

On the other hand, factors beyond government control, such as varying rainfall patterns, economic structural adjustment and prices of petroleum products (mainly petrol and diesel) imposed pressure on agriculture especially on the cost of production which generally increased as prices of petroleum products increased. The external influences led government to tendencies of entrenched capitalism and continued dependence on nature instead of introducing irrigated agricultural practices and use of locally generated economic strategies.

The continued dependence on nature and adoption of capitalistic economic culture was attributed partly to a continued weak resource base of the country in general, and smallholder farmers in particular. This drove farmers to a point of minor dependence on the government systems which they occasionally introduced (for example nearby satellite depots which operated for very short periods before they were closed) and some private institutions which emerged to support smallholder agriculture for example some Non-Governmental Organizations which bought cowpeas for a few seasons before collapsing. In the course of time, a combination of influences from internal and external forces precipitated a confused response from farmers. In a desperate act of survival, farmers were induced to grow maize under FISP and engaged in contract cultivation of crops such as cotton. Furthermore, they adopted conservation practices, used chemical fertilizers and weed killers which were largely imported, grew more of cash crops instead of food crops, and planted a variety of hybrid seeds of maize, cow peas, watermelons, cotton and other crops.

As a result of such a confused farmer response, a number of outcomes could be noted. There was a continued dependence on FISP which was evidently not sustainable as it relied on competing government resources; there was massive loss of livestock owing to failure to control animal diseases and hence negatively affecting draught power and reduced incomes; there was entrenchment of traditional practices such as multi-cropping and use of animal manure; and farmers continued to practice rain-fed agriculture instead of irrigated farming

practices which had a higher chance of sustainability. On the other hand, by adopting some imported practices such as the use of chemical fertilizers, weed killers and more productive hybrid seed varieties, there emerged an improvement on soil management; weed control; crop management and the farmers' cash outlay.

Where positive outcomes were perpetuated and up-scaled there was a high probability that high crop production would be guaranteed among farmers thereby leading to a sustainable and growing agricultural sector scenario observed in Chibombo, Kapiri Mposhi and Mumbwa districts. To some degree, this study noted a high percentage of growth in areas such as Mumbwa among cotton farmers who relied on the private sector which seemed more stable and sustainable due to self financing practices and less government interference. However, where new practices were either not improved or abandoned, only marginal and declining agricultural development was attained. This assertion is premised on a number of agricultural features noted among smallholder farmers such as their continued dependence on rain-fed agriculture, largely unstable government funded programmes such as FISP, confusion in crop marketing from year to year which continues to negatively impact on the farmers' incomes and general resource base.

Apparently, the agricultural transformation being discussed here is not in any way unique to Zambia alone. Scholars such as Wood and Vokes (1990), Gerrard *et al.* (1994), (Enriquez, 2000), Mwanza (1992a & b), Wilson (2013), World Bank (1994), Ali and Byerlee (2002), ADB (2009), Dorward, et al. (2004), Fans and Rao (2008), Gaiha *et al.* (2009) and Joshi *et al.* (2007) have noted similar trends in other parts of Africa in countries such as Burkina Faso, Ethiopia and Ghana; in Latin America for countries such as Cuba, Chile and Argentina; in Asia in countries like India and Pakistan.

For instance, Wilson (2013: 7) states that “In Ghana and Burkina Faso, export-led growth in cocoa and cotton has contributed to improved development outcomes and substantial poverty reduction ...have decreased by more than 44 percent in Ghana and by 37 percent (37%) in Burkina Faso, and in the latter country cotton farmers’ incomes have risen by twenty to forty percent (20-40%).” Furthermore, while writing about Ethiopia Wilson (2013: 7) says “While in previous decades’ famine and drought have ravaged the country, recent investments in extension workers, rural roads and modern market-building mechanisms, such as commodity exchange, have enabled cereal production to increase and have helped improve nutrition outcomes by increasing the number of calories that rural people consume by roughly 50 percent.”

Enriquez (2000: 5) postulates that in Cuba “The changes affecting agriculture have become more significant each year, addressing important aspects of both production and distribution.” He outlines that the first change was that of “...spread of the *autoconsumo* system or the setting aside of land on all farms for subsistence production (self provisioning). This transformation was a move from the ‘bigger is better’ approach to agricultural production and commercialization.

The other changes have been the “*Vinculando el hombre con el area*” or linking the worker to a particular area and the “*tiro directo*” or “direct throw”. In this arrangement it was expected that farmers in small groups would be involved in delivering their produce directly to urban markets. This move reflected implicit recognition that the producers themselves can contribute to resolving distribution problems in a way that the state is unable to. Additionally, and perhaps most importantly, was the change of opening up of agricultural markets announced on September 23, 1994 through government decree number 1991/94 whose legalization took effect on October 1, 1994 (Enriquez, 2000). “Although initially they were few in number, by the spring of 1998 there were more than 300 Agricultural Markets throughout the country and

approximately 65 in the city of Havana alone.” (Enriquez, 2000: 13). It is further argued that these changes were making Cuban agriculture to be more productive and responsive of the needs of farmers than it was in previous years when it was under state control. Although in the scale of state control Cuba and Zambia may not be paralleled, they share a lot in common when looked at in terms of ultimate transformation which both countries embarked on after introducing liberalization. A similar argument of shared similarity is given between Zambia and other transforming countries of Africa and elsewhere.

In a way, transformations recorded in Chibombo, Kapiri Mposhi and Mumbwa Districts after 1997 in terms of cropping systems and production, agricultural support institutions and transport infrastructure are representative of changes which may have taken place in the entire Central Province of Zambia with similar conditions to the study area and, perhaps to the rest of the country. It is important to note that while transformations in these areas occurred to the extent they did largely because of the policies which were being implemented by the government at the time, the pace, direction and magnitude of changes may have also been influenced by other intervening variables. Therefore, while accepting that liberalization policies impacted on smallholder crop agriculture the way it did and, led to the transformation of cropping systems and production, agricultural support institutions and transport infrastructure, the influence of other variables need to be accommodated but for purposes of this study, this aspect was held as constant.

## **CHAPTER NINE: SUMMARY OF MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **9.1 Summary**

This current study made the following key findings for the 1980-1990 and 1990-2008 periods:

1. There were institutions such as CUSA and LIMA Bank which provided cash loans to smallholder farmers during the 1980-1990 period and none during the 1997-2008 period. The lack of a specific institution to lend cash loans to smallholder farmers was a negative transformation which needed urgent resolution because of its negative impact on agricultural development in the study districts.

2. During the 1980-1990 period chemical fertilizers were supplied by a state owned and funded NCZ which had a monopolistic character. During the 1997-2008 period, the operations of NCZ became erratic. The vacuum left behind NCZ was filled by privately funded and owned agribusinesses such as Nyiombo and Omnia. The emergence of privately funded and controlled agricultural support institutions in this sector ensured stability and sustainability, and therefore needed to be upheld.

3. Mono cropping patterns existed during the 1980-1990 period while multi cropping, crop rotation, intercropping and conservation farming practices became common in the 1997-2008 period as a response to liberalization policies and practices. The emerged farming practices helped to improve soil management and fertility. Therefore, there was need to up-scale them to ensure sustainability in smallholder agricultural development.

4. Land hectareage under maize, cotton, sunflower and groundnuts was extensive during the 1980-1990 period due to deliberate government support. While the hectareage for maize and cotton remained relatively large during the 1997-2008 period due to government interventions and emergence of private companies, the hectareage for sunflower and groundnuts

diminished markedly while the hectareage for water melons, solanum macrocarpon (impwa), sweet potatoes and soya beans, among others, expanded. The shift to new crops, apart from maize and cotton, both in terms of cultivation and production seemed to be a direct response to new market conditions. Such a conclusion is drawn because such transformations in cropping patterns and production were more prominent near markets, along main transport networks and areas near town.

5. During the 1980-1990 period the provision of crop marketing, storage and extension services were monopolized by government institutions while between 1997-2008 period new private companies emerged to provide these services either exclusively or working together with government agribusinesses. Comparatively, both government and private agribusinesses which emerged after 1997 were generally more competitive, efficient and sustainable than those of the 1980-1990 period.

6. It was established that in the 1980s government subsidies were targeted at input supply, extension service, storage facilities, crop production and marketing. These subsidies tended to promote certain crops only in line with the existing policy of government then. After 1997, government provided subsidies to maize through the FRA and FISP while no subsidies were given to other crops.

7. It was also established that the agribusinesses of the 1980-1990 period were more widely distributed in farming areas than those of the 1997-2008 period which were restricted to a few areas only.

8. During the 1980s two railway networks existed and these continued after 1997 albeit a deterioration in quality of services and efficiency. On the part of roads, the GNR, GER and GWR (Lusaka-Mongu tarred road) were the only tarred roads in the study districts. During the 1997-2008 period, besides these tarred roads which continued to exist and operate, a seven kilometer and twenty-five kilometer roads were tarred in Chibombo District.



9. It was also established that the effects of liberalization in agriculture had become visible after 1997 influencing types of crops farmers grew, how and when they grew them; provision of extension services, marketing, storage of agricultural produce, supply of inputs and the general behavior of farmers in terms of their choices and marketing of their crops. Hence, the character of sustainable and rewarding agricultural development had started to emerge in some sectors of the agricultural industry and while in others only marginal development could be noted.

## **9.2 Conclusions**

Arising out of this study, a number of conclusions were drawn. Firstly, it was established by the current study that certain trends in cropping patterns and crop production had changed after 1997 while others remained the same. For example, while maize and cotton continued to be grown on a mono cultural basis in all districts, sunflower and groundnut cultivation and production declined after 1997. Similarly, after 1997 new cropping systems and crops emerged to respond to new market conditions. This included, among others, emergency of multi-cropping, conservation farming and irrigation of some crops during the dry season. The cultivation of green maize for sale during the dry season became apparent after 1997 as a positive response by farmers to take advantage of better prices during off peak periods of the year. This positive change ensured sustainability and rewarding agricultural development which needed to be up-scaled and upheld. Hence, the study was able to show that during the 1997-2008 period smallholder farmers shifted to growing cash crops and changed their farming practices.

Based on the foregoing discussion, it is apparent that all except two agricultural support institutions which existed in the 1980s collapsed after the change from centralized to free market economy. ZAMSEED and NCZ were the only two quasi government agribusinesses which survived after liberalization policies took root. New private companies emerged to fill

the vacuum created by the collapse of the old support infrastructure. While the support institutions were more widely distributed in farming areas, the agribusinesses which emerged after 1997 were private and had a limited spatial distribution. The the post-1997 industries had the comparative advantage of being more competitive, efficient and sustable. The continued government intervention through FRA and FISP after 1997 ensured stability in maize production and the size of cultivated hectares for maize. Additionally, it was found out that the number of institutions providing extension services after 1997 increased in number unlike during the 1980-1990 period. The quality of extension services during liberalization improved significantly to the benefit of smallholder farmers. Therefore, the study managed to provide evidence that, apart from two agricultural support institutions, new and self-sustaining agricultural support institutions emerged after 1997.

It is concluded the quality and nature of the transport infrastructure of the 1980-1990 and 1997-2008 periods differed. Thus, while the transport infrastructure of the former period was more widely distributed and better maintained that of the latter period was not. In certain instances, the quality of roads declined by more than fifty percent. Such a negative trend resulted in increased cost of transportation and reduced profits for smallholder farmers. Furthermore, two short roads in Chibombo District which were gravel during the 1980s were tarred after 1997. The gravel and dust roads of the 1980s continued to exist after 1997 but were no longer regularly maintained. The Livingstone-Copperbelt and Kapiri Mposhi-Dar-es-laam railway networks which existed during the 1980s continued to operate after 1997 but their quality and effciencie significantly deteriorated. To a large extent, evidence was provided by this study that after 1997 the nature and quality of transport networks had deteriorated markedly in Chibombo, Kapiri Mposhi and Mumbwa Districts.

The study also established that farmers who were unable to adjust to the new economic environment during the 1997-2008 period in Chibombo, Kapiri Mposhi and Mumbwa Districts

were affected negatively by the new policies while those who managed to transform their farming activities in line with the new market dictates became better off than before to an extent of increasing their resource base. Such positive adjustments were prominent among young and better educated smallholder farmers.

It was equally shown by the study that agricultural support institutions, practices and processes which emerged after 1997 in Chibombo, Kapiri Mposhi and Mumbwa Districts took a liberal character in order for them to be adequately competitive, efficient and profitable in the new market environment which demanded such a response.

To a large extent, after over 15 years of the existence of liberalization policies in Zambia, one can say that the post-1991 policies, especially in agriculture, were getting deep rooted in many sectors of the economy. For instance, agricultural marketing and provision of inputs, especially hybrid seeds of maize and cotton, showed a remarkable transformation and competitiveness typical of a free market economy and therefore needed to be expanded in order to enhance agricultural development. Although the government has continued to intervene in the provision of subsidized seed and chemical fertilizers to farmers through cooperatives, FRA and FISP, the emergence of private agrobusinesses at various levels of agriculture are now evident.

Furthermore, it is concluded that smallholder farmers along main transport networks, near towns and areas easily accessible to markets tended to respond more positively to the dictates of liberalization policies than those farmers in remote areas far away from market centers. It is also concluded, hence, that because of being comparatively disadvantaged, remote areas suffered from poor prices of their produce by briefcase buyers, except for maize which was still prone to government interventions through FRA. However, where FRA has delayed to purchase maize from farmers, the crop is sold to private buyers at lower prices.

Based on research findings, it is also concluded that farmers with a better level of education, such as those with grade 12 level of education, made more market oriented decisions than their counterparts with very poor educational background. Over 119 cooperatives (60%) surveyed in Chibombo, Kapiri Mposhi and Mumbwa districts that made market friendly decisions had a grade 9 level of education or better. Many of these farmers adopted conservation farming methods, cultivation of water melons, impwa and did small scale irrigation to grow crops such as maize even during the dry season.

Areas along major transport routes, like roads and railways, and near major trading centers had witnessed greater agricultural transformation after 1997 than the structures in more remote areas. Their type and quality of services and spatiality had markedly expanded in the post-1997 period. Therefore, is concluded that there existed some evidence that sustainable and rewarding agricultural development traits had emerged in some sectors after 1997 while due to continued dependence on nature and limited government resources, among others, marginal development ensued in others.

Finally, the author is of the view that a study of the foregoing discussion here and above accords readers to appreciate an improved understanding of changes which occurred in smallholder crop agriculture in Chibombo, Kapiri Mposhi and Mumbwa Districts between the 1980-1990 and 1997-2008 periods. Furthermore, it is hoped that readers of the discussion herein will appreciate that smallholder agricultural processes and institutions in the post-1997 period had assumed a transformational character commensurate with liberalization environments.

### **9.3 Recommendations**

Arising out of this study, the following recommendations were made to stakeholders:

1. The Zambian Government in collaboration with the private sector should establish an institution which would be able to supply smallholder farmers with cash loans if their economic base is to be made strong and sustainable.

2. The Government and private sector should setup local chemical fertilizer manufacturing companies in order to reduce its cost. This may be done exclusively by government or by the private sector or they can work in partnership. Chemical fertilizers manufactured locally would lessen the delays of input supply to farmers since they would be sourced within the country.

3. Government should increase the number of packs available in the FISP in order to adequately meet the ever increasing demand among smallholder farmers in the study districts so that more smallholder farmers can improve their crop production capacity. The practice of merely increasing the number of farmer beneficiaries from FISP without increasing the number of packs should be reconsidered. Equally, a way should be found to make FISP self sustaining and more efficient in its operations than what is obtaining at the moment in which it wholly relies on government hand-outs. One possible way would be to bring on board the private sector in its management and resource mobilization.

4. Government, in collaboration with the private sector, should revamp the 1980-1990 programme of grading gravel and dust roads leading to farming areas every year after the rainy season if the cost of transport is to be reduced and ultimately enable farmers to move around with minimal difficulty. Furthermore, such a measure would also help to encourage businesses to setup bases even in the remotest area of the study districts.

5. Through an Act of Parliament, government should transform the FRA into an agricultural and marketing board to be able to handle all major crops, unlike the present status it has of being a buyer of last resort for maize and maintaining the national food reserve. An expanded mandate of a statutory board would guarantee farmers with a stable and profitable marketing structure within the districts. Such a new statutory board with an expanded mandate needs to be managed by the private sector without government interference and, be able to

generate its own capital. The involvement of the private sector in its management would make it more competitive and more efficient.

**6.** Smallholder farmers involved in growing water melons and other cash crops should develop processing structures, even on a small-scale, to add value to their crops and earn a better income. This can be done in cooperatives or any type of organized grouping.

**7.** Future research should focus on assessing and confirming how agricultural transformations and spatial patterns arising from liberalization policies have evolved in other parts of the country and affected the smallholder farmers so that corrective measures by appropriate authorities are put in place to enhance their productive capacity.

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## APPENDIX

### APPENDIX 1: QUESTIONNAIRE FOR COOPERATIVE SOCIETIES IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS.

**RESEARCH TOPIC: CHANGES IN SMALLHOLDER CROP FARMING AND AGRICULTURAL TRANSFORMATION IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS OF CENTRAL PROVINCE OF ZAMBIA BETWEEN 1980-1990 AND 1997-2008.**

Number of Questionnaire:.....

#### INSTRUCTIONS

Dear official,

This questionnaire is from a Ph.D. Geography student at the University of Zambia. He is carrying out an investigation to compare changes of smallholder crop farming and agricultural transformations in your area. The information generated from this activity is needed purely for academic purposes. Answer questions as per instruction given or as per structure of each question.

#### A. IDENTIFICATION PARTICULARS

1. (a) What is the name of your Cooperative Society?.....

(b) What is the contact address of your Cooperative Society?.....

.....

(c) In the event of any future transport, which person(s) should be contacted for further information?.....

(d) What position does this person(s) hold in your Cooperative Society?.....

2. In which farming block and district is your Cooperative Society found?

(a) Farming block.....

(b) District.....  
.....

## **B. BACKGROUND**

3. State the year when your Cooperative Society was established.....

4. (a) How many members did your Cooperative Society have when it was formed?.....

.....

(b) How many members does your Cooperative Society have at the moment?.....

.....

## **C. FARMING ACTIVITIES**

5. What farming activities is your Cooperative Society involved in?.....

.....

6. (a) Between 1980 and 1990, which crops did your members grow?.....

.....

(b) What factors influenced your members to grow particular crops between 1980 and 1990?.....

7. (a) Between 1997 and 2008, which crops did your members grow?.....

.....

(b) Why did your members grow such crops between 1997 and 2008?.....

.....

(c) In terms of crop combinations, did your members grow more crops between 1997 and 2008 than they did between 1980 and 1990?.....

.....

8. (a) From your farming experience of the period 1997 to 2008, did your members use less land or they used more land to grow crops than they did between 1980 and 1990?.....

.....

.....

(b) State the estimated land hectare your members may have used between the following time periods:

	Maize	Groundnuts	Sunflower	Sorghum	Millet	Others-state
1980/81.....						
1981/82.....						
1982/83.....						
1983/84.....						
1984/85.....						
1985/86.....						
1986/87.....						
1987/88.....						
1988/89.....						
1989/90.....						
1997/98.....						
1998/99.....						
1999/2000.....						
2000/01.....						
2001/02.....						
2002/03.....						
2003/04.....						
2004/05.....						
2005/06.....						
2006/07.....						
2007/08.....						

(c) Why did the amount of land they used for growing crops change?.....  
 .....

9. (a) In terms of the number of 50 kg bags of maize and other crops, did your members produce more crops between 1997 and 2008 than they did between 1980 and 1990?.....

(b) Give reasons why your members' crop production for the period 1980 to 1990 and 1997 to 2008 differed.....  
 .....

## D. INSTITUTIONAL SUPPORT

10. (a) Which institutions supplied your members with the following services between 1980 and 1990?

- (i) Cash loans.....
- (ii) Seeds.....
- (iii) Extension services.....
- (iv) Markets.....
- (v) Storage facilities.....
- (vi) Fertilizers.....

(b) From your recollections, how far were the institutions of the period between 1980 and 1990 from your villages were (give approximate distances in kilometers):

- (i) Cash loan suppliers.....
- (ii) Seed suppliers.....
- (iii) Extension services suppliers.....
- (iv) Buyers of produce/markets.....
- (v) Providers of storage facilities.....
- (vi) Suppliers of fertilizers.....

(c) Which institutions supplied your members with the following services between 1997 and 2008?

- (i) Cash loans.....
- (ii) Seeds.....
- (iii) Extension services.....
- (iv) Markets.....
- (v) Storage facilities.....
- (vi) Fertilizers.....

- (d) Between 1997 and 2008, how far were the institutions supplying your members with the following services from your villages (Give approximate distances in kilometers):
- (i) Cash loans.....
  - (ii) Seeds.....
  - (iii) Extension services.....
  - (iv) Markets.....
  - (v) Storage facilities.....
  - (vi) Fertilizers.....
- (e) Between the institutions of 1980 to 1990, and 1997 to 2008, which institutions supplied your members with better quality services?.....
- (f) Explain your reason of choosing either the institutions of 1980 to 1990 or those of the 1997 to 2008.....
- .....

#### **E. TRANSPORT INFRASTRUCTURE**

11. (a) What was the state of the transport infrastructure in your farming area between 1980 and 1990?.....
- .....
- (b) Why do you think the road/railway infrastructure was in such a state between 1980 and 1990?.....
- (c) Between 1997 and 2008, what was the state of the road/railway infrastructure in your farming area?.....
- (d) Why do you think the road/transport infrastructure was in this state between 1997 and 2008?.....
- (e) In your opinion as a Cooperative Society, how do you think the state of the road infrastructure affects your farming activities in your area?.....
- .....

#### **F. IMPORTANCE OF EDUCATION IN AGRICULTURE**

12. As a Cooperative Society, do you think the level of education of a farmer positively influences their farming activities such as amount of crop production, response to policy changes, etc?.....
- .....

## **G. RELATIONSHIP OF GENDER AND FARMING**

13. (a) As a Cooperative Society, do you think male headed households produce more crops than female headed households?.....

.....

(b) Explain why you think that either male headed households or female headed households produce more crops.....

.....

(c) As a Cooperative Society, do you think male headed households faired better than female headed households between 1997 and 2008?.....

.....

(d) Explain why, as a Cooperative Society, you think either male headed households or female headed households faired better between the 1997 and 2008.....

.....

## **H. EFFECTS OF AGRICULTURAL LIBERALIZATION POLICIES ON FARMERS**

14. (a) In your opinion as a Cooperative Society, was the smallholder farmer better off or worse off between 1997 and 2008 than he/she was between 1980 and 1990?.....

.....

(b) Explain why the smallholder farmer of the period between 1997 and 2008 was in such a state.....

15. (a) On the overall, does your Cooperative Society think that Agricultural liberalization has been more beneficial to smallholder agriculture since its introduction in the early 1990s? .....

(b) Why do you think Agricultural liberalization has brought about such effects on smallholder agriculture in your area?.....

(c) If the effects of Agricultural liberalization on the smallholder farmer have been negative, what do you think could be done to improve his/her state.....

Thank you very much for your responses in this discussion.

A.H. Malambo

Researcher.

0966-463139

0973-208135

## **APPENDIX 2: QUESTIONNAIRE FOR MINISTRY OF AGRICULTURE AND COOPERATIVES OFFICIALS**

**RESEARCH TOPIC: CHANGES IN SMALLHOLDER CROP FARMING AND AGRICULTURAL TRANSFORMATION IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS OF CENTRAL PROVINCE OF ZAMBIA BETWEEN 1980-1990 AND 1997-2008.**

NUMBER OF QUESTIONNAIRE:.....

### **INSTRUCTION TO RESPONDENT**

Dear respondent,

This questionnaire is from a Ph.D. Geography student who is carrying out an investigation to compare spatial patterns of smallholder crop farming and agricultural transformations in your area.. Information provided is for academic purposes only. Answer questions as per instructions given or as per structure of each question.

### **A. IDENTIFICATION DETAILS**

1. (a) What is your name? (optional).....
- (b) What is your position at work?.....
- (c) What is your main duty?.....
- (d) In which place do you operate? (State district, province or farming area).....

### **B. POPULATION OF SMALLHOLDER FARMERS IN STUDY AREA**

2. (a) In the following farming seasons how many smallholder farmers were in your district or farming area?

FARMING SEASON	NUMBER OF SMALLHOLDER FARMERS
1980/81	
1981/82	
1982/83	
1983/84	
1984/85	
1985/86	
1986/87	
1987/88	
1988/89	
1989/90	

(b) In the following farming seasons how many peasant farmers were in your district or farming block?

FARMING SEASON	NUMBER OF SMALLHOLDER FARMERS
1997/98	
1998/99	
1999/00	
2000/01	
2001/02	
2002/03	
2003/04	
2004/05	
2005/06	
2006/07	



2007/08	
---------	--

### **C. FARMING ACTIVITIES AND CROP PRODUCTION IN THE STUDY AREA**

3. (a) State the main crops which smallholder farmers grew in your district or farming block between 1980 and 1990.....
- (b) Between 1997 and 2008 which crops did smallholder farmers in your district or farming block grow?.....
- (c) If there was a change in the type of crops grown between 1980 and 1990 to what was grown between 1997 and 2008, briefly explain why there was such a change. ....
- .....
- (d) State the crops in which the cultivated hectares have increased since the introduction of agricultural liberalization. State the estimated land hectare increase.....
- .....
- (e) State the crops in which the cultivated hectares have decreased since the introduction agricultural liberalization. State the estimated land hectare decrease.....
- .....
- (f) In terms of land hectare used between 1980 and 1990, list the crops grown in order of dominance from highest to lowest.....
- .....
- (g) In terms of land hectare used between 1997 and 2008, list the crops grown by farmers in order of dominance from highest to lowest.....
4. Based on information on your file state the production figures for the following crops in the farming seasons given below:

- (a) 1980 to 1990 period

	Maize	Cotton	Groundnuts	Sunflower	Sorghum	Other
1980/81						
1981/82						
1982/83						
1983/84						
1984/85						

1985/86						
1986/87						
1987/88						
1988/89						
1989/90						

(a) 1997 to 2008 period

	Maize	Cotton	Groundnuts	Sunflower	Sorghum	Other
1997/98						
1998/99						
1999/00						
2000/01						
2001/02						
2002/03						
2003/04						
2004/05						
2005/06						
2006/07						
2007/08						

5. Using the statistics provided in 4 above, what factors have caused the following to occur:

(a) Increase in production of some crops between 1997 and 2008.....

.....

(b) Decrease in production of some crops between 1997 and 2008.....

.....

#### **D. INSTITUTIONAL SUPPORT**

6. (a) List the names of institutions which provided smallholder farmers with the following services between 1980 and 1990:

Cash credit.....

Seed.....

Fertilizer.....

Chemicals.....

Farming equipment.....

Extension services.....

Markets.....

Storage facilities for crops.....

Other.....

(b) List the names of institutions which provided peasant farmers with the following services between 1997 and 2008:

Cash credit.....

Seed.....

Fertilizer.....

Chemicals.....

Farming equipment.....

Extension services.....

Markets.....

Storage facilities for crops.....

Other.....

(c) In your opinion which institutions (those of 1980 – 1990 or the 1997 - 2008) above served the smallholder farmer better?

1980 to 1990.....

1997 to 2008.....

(d) Briefly explain your answer in (c) above.....

7. In terms of spatial spread, between the institutions of 1980 to 1990 and those of 1997 to 2008, which institutions were better spread and closer to the farmer?

1980 to 1990.....

1997 to 2008.....

### **E. TRANSPORT INFRASTRUCTURE**

8. (a) What was the state of the transport infrastructure in terms of length in your district or farming block between 1980 to 1990?

Passable throughout the year.....

Passable during the dry season only.....

Impassable at one time of the year.....

- (b) What was the state of the transport infrastructure in your district or farming block between 1997 and 2008?

Passable throughout the year.....

Passable during the dry season only.....

Impassable at one time of the year.....

- (c) Briefly explain how the state of transport infrastructure has been affecting crop production in your district or farming block.....

### **F. FARMING EQUIPMENT/RESOURCES**

10. (a) List the main farming equipment which smallholder farmers own in your district or farming block.....

- (b) Was the number of smallholder farmers owning farming equipment such as oxen and ox drawn ploughs less or more in number between 1997 and 2008 than they were between 1980 and 1990 in your district or farming block.....

### **G. RELATIONSHIP OF EDUCATION TO LIBERALISATION**

11. (a) To what extent does the level of education a farmer has affect their response to the challenges of agricultural liberalization such as the need to find own markets? (State 'high extent' if response is positive; 'low extent' if response is poor; 'not certain' if you have no information)

High extent.....

Low extent.....

Not certain.....

- (b) Briefly explain your answer in 11 (a) above.....

### **H. SMALLHOLDER FARMER UNDER LIBERALISATION**

12. (a) Was the smallholder farmer better off, worse off, or the same between 1997 and 2008

- .....
- (b) Explain your answer in 12 (a) above .....
- (c) In your opinion did agricultural liberalization bring about more opportunities for the smallholder farmer between 1997 and 2008 than the planned economic policies of 1980 to 1990?.....
- (d) Explain your answer in 12 (c) above.....
13. How do you view the future of the peasant farmer in your district with regard to the current agricultural policies being pursued in Zambia at the moment?
- Bright.....
- Bleak.....
- Uncertain.....

Thank you very much for your great help in this task.

A.H. Malambo (Researcher)

0966-463139/0973-208135

### **APPENDIX 3: QUESTIONNAIRE FOR ZAMBIA FARMERS UNION AND OTHER ORGANISATIONS SUPPORTING SMALLHOLDER FARMERS IN VARIOUS WAYS**

**RESEARCH TOPIC: CHANGES IN SMALLHOLDER CROP FARMING AND AGRICULTURAL TRANSFORMATION IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS OF CENTRAL PROVINCE OF ZAMBIA BETWEEN 1980-1990 AND 1997-2008.**

NUMBER OF QUESTIONNAIRE:.....

#### **INSTRUCTION TO RESPONDENT**

Dear respondent,

This questionnaire is from a Ph.D. Geography student. He is carrying out an investigation to compare spatial patterns of smallholder crop farming and agricultural transformations in your area.. He needs your help to supply information which is needed for academic purposes only. Answer questions as per instructions given or as per structure of each question.

#### **A. IDENTITY OF ORGANISATION AND RELATED DETAILS**

1. (a) State the name of your organization.....
- (b) In which part of Central Province do you operate.....
- (c) State the year when you started to operate in the area where your organization is found.....
- (d) State the exact work which you do in this farming area.....
- (e) How many offices do you have in the area where you operate?.....
- (f) State the names of the places where these offices are located.....
- (g) How far are your offices to the smallholder farmers? Estimate distance in kilometers.....  
.....

#### **B. TARGET GROUP AND SERVICES PROVIDED**

2. How many farmers are benefiting from your program in the areas where you operate?  
State the area and number of peasant farmers benefiting from your program.

.....

3. (a) If you started operating in this area before 1990, give the services which you provided the peasant farmer in your area.....
- (b) If you started operating in this area after 1997, give the services which you provided the smallholder farmer.....
- (c) If you started your operations before 1990, how did your functions relate to the government agricultural policies of Centralized planning?.....
- (d) If you started your operations after 1997, how do your functions relate to the government agricultural policy of Liberalization?.....
4. If your operations involve close links with smallholder farmers, have you noted the following trends in your area since the introduction of agricultural liberalization?
  - (a) A shift to cash crops.....
  - (b) A decline in production of crops without markets.....
  - (c) Continued dependency of the smallholder farmers on government and non-governmental organizations.....

### **C. INTITUTIONAL SUPPORT**

5. Based on your experience of smallholder agriculture, are there more institutions or less number of institutions supporting peasant agriculture in your area?
  - (a) More institutions .....
  - (b) Less institutions.....
  - (c) Same number of institutions.....

### **D. TRANSPORT INFRASTRUCTURE**

6. (a) How do you describe the state of transport infrastructure in the area where you operate since the introduction of Agricultural liberalization policies?
  - (i) Passable throughout the year.....
  - (ii) Passable during the dry season only.....
  - (iii) Impassable at one time of the year.....
- (b) How do you compare the state of the transport infrastructure in the areas where you operate to what it was in the 1980s?

- (i) Better now than before.....
- (ii) Worse now than before.....
- (iii) Same as before.....
- (c) Do you think the state of transport infrastructure in your area is affecting crop production among smallholder farmers? Yes.....No.....
- (d) Explain your answer in 6 (c) above.....

### **E. SMALLHOLDER FARMER UNDER AGRICULTURAL LIBERALISATION**

7. In your opinion, how have the agricultural liberalization policies affected the smallholder farmer in your area?
  - (i) Negatively affected.....
  - (ii) Positively affected.....
  - (iii) Not affected in any way.....
8. Based on your experience of smallholder farming since you started to operate in this area, is the smallholder farmer better off today, worse off today or the same as before?.....  
.....
9. (a) In terms of crop production, resource base and general welfare, how do you view the future of the smallholder farmer in the area where you operate?
  - (i) Bright.....
  - (ii) Bleak.....
  - (iii) Uncertain.....
- (b) Explain your answer in 8 (a) above.....
10. (a) In your opinion, are the agricultural liberalization policies achieving their intended goals? Yes.....No..... Uncertain.....
- (b) Explain your answer in 9 (a) above.....
11. Is there anything else you would like to say about agricultural liberalization and the smallholder farmer in your area today.....

Thank you very much for your help in answering this questionnaire.

A.H. Malambo (Researcher)

0973-208135/0966-463139



## **APPENDIX 4: GROUP INTERVIEW SCHEDULE**

**TARGET GROUP: MEMBERS OF COOPERATIVE SOCIETIES IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS.**

**RESEARCH TOPIC: CHANGES IN SMALLHOLDER CROP FARMING AND AGRICULTURAL TRANSFORMATION IN CHIBOMBO, KAPIRI MPOSHI AND MUMBWA DISTRICTS OF CENTRAL PROVINCE OF ZAMBIA BETWEEN 1980-1990- AND 1997-2008.**

### **A. IDENTIFICATION AND BACKGROUND DETAILS**

1. (a) What is the name of your Cooperative Society?.....  
(b) What is the contact address of your Cooperative Society?.....  
(c) In the event of any future transport, which person(s) should be contacted for further information?.....  
(d) What position does this person(s) hold in your Cooperative Society?.....
2. In which farming block and district is your Cooperative Society found?
  - (a) Farming block.....
  - (b) District.....
3. When was your Cooperative Society was established.....
4. (a) How many members did your Cooperative Society have when it was formed?.....  
(b) How many members does your Cooperative Society have at the moment?.....

### **B. CO-OPERATIVE FARMING INFORMATION**

5. What farming activities is your Cooperative Society involved in?.....  
.....
6. (a) Between 1980 and 1990, which crops did you grow?.....  
(b) What factors influenced you to grow particular crops between 1980 and 1990?.....  
.....
7. (a) Between 1997 and 2008, which crops did you grow?.....  
(b) Why did you grow such crops between 1997 and 2008?.....

- (c) In terms of crop combinations, did you grow more crops between 1997 and 2008 than you did between 1980 and 1990?.....

### **C. LAND UNDER CULTIVATION**

8. (a) From your farming experience of the period between 1980 and 1990, did you use less land between 1997 and 2008 or you used more land between 1997 and 2008 to grow crops?.....

- (b) Why did the amount of land you used for growing crops change?.....

.....

### **D. CROP PRODUCTION**

9. (a) In terms of the number of 50 kg bags of maize and other crops, did you produce more crops between 1997 and 2008 than you did between 1980 and 1990?.....

.....

- (c) Give reasons why your crop production between 1980 and 1990, and the period between 1997 and 2008 changed.....

.....

### **E. INSTITUTIONAL SUPPORT**

10. (a) Which institutions supplied you with the following services in the 1980s?

(i) Cash loans.....

(ii) Seeds.....

(iii) Extension services.....

(iv) Markets.....

(v) Storage facilities.....

(vi) Fertilizers.....

- (b) From your recollections, how far were the institutions of the 1980s from your villages were (give approximate distances in kilometers):

(i) Cash loan suppliers.....

(ii) Seed suppliers.....

(iii) Extension services suppliers.....

(iv) Buyers of produce/markets.....

(v) Providers of storage facilities.....

- (vi) Suppliers of fertilizers.....
- (c) Which institutions have been supplying you with the following services in the period 1997 to 2008?
  - (i) Cash loans.....
  - (ii) Seeds.....
  - (iii) Extension services.....
  - (iv) Markets.....
  - (v) Storage facilities.....
  - (vi) Fertilizers.....
- (d) Between 1997 and 2008, how far have been the institutions supplying you with the following services from your villages (Give approximate distances in kilometers):
  - (i) Cash loans.....
  - (ii) Seeds.....
  - (iii) Extension services.....
  - (iv) Markets.....
  - (v) Storage facilities.....
  - (vi) Fertilizers.....
- (e) Between the institutions of the 1980 and 1990, and 1997 and 2008, which institutions supplied you with better quality services?.....
- (f) Explain your reason of choosing either the institutions of the period 1980 and 1990, or those of the period 1997 to 2008.....

## **F. TRANSPORT INFRASTRUCTURE**

11. (a) What was the state of the road/railway infrastructure in your farming area between 1980 and 1990?.....
- (b) Why do you think the road/railway infrastructure was in such a state between 1980 and 1990?.....  
.....
- (c) Between 1997 and 2008, what has been the state of the road infrastructure in your farming area?.....

(d) Why do you think the road infrastructure has been in this state between 1997 and 2008?.....

(e) In your opinion as a Cooperative Society, how do you think the state of the road infrastructure affects your farming activities in your area?.....

#### **G. SMALLHOLDER HOUSEHOLD EXPERIENCES OF LIBERALISATION**

12. As a Cooperative Society, do you think the level of education of a farmer positively influences their farming activities such as amount of crop production, response to policy changes, etc?.....

13. (a) As a Cooperative Society, do you think male headed households produce more crops than female headed households?.....

(b) Explain why you think that either male headed households or female headed households produce more crops.....

(c) As a Cooperative Society, do you think male headed households have fared better than female headed households between 1997 and 2008?.....

(d) Explain why, as a Cooperative Society, you think either male headed households or female headed households have fared better between 1997 and 2008.....

14. (a) In your opinion as a Cooperative Society, is the smallholder farmer better off or worse off between 1997 and 2008 than he/she was between 1980 and 1990?.....

.....

(b) Explain why the smallholder farmer of the period 1997 to 2008 is in such a state.....

15. (a) On the overall, does your Cooperative Society think that Agricultural liberalization has been more beneficial to smallholder agriculture since its introduction in the early 1990s? .....

(b) Why do you think Agricultural liberalization has brought about such effects on smallholder agriculture in your area?.....

(c) If the effects of Agricultural liberalization on the smallholder farmer have been negative, what do you think could be done to improve his/her state.....

Thank you very much for your responses in this discussion.

A.H. Malambo (Researcher.)

0973-208135

0966-463139

## APPENDIX 5: LIST OF COOPERATIVE SOCIETIES

### A: CHIBOMBO DISTRICT SAMPLE COOPERATIVE SOCIETIES

S/N	District	Name of Co-operative/Organization	Certificate No.	Year of Registration	Block /Camp	No. of Farmers female/male		Total	Type of Coop	Activity status
1	Chibombo	Amaka Agric	9027	20/11/00	Chisamba	9	35	44	Agricultural	Dormant
2	Chibombo	Agape	7953	04-05-00	Chisamba	11	42	53	Women & Youth	Active
3	Chibombo	Bwafwano	5641	26/10/00	Chibombo	8	28	36	Agricultural	Active
4	Chibombo	C. D A. M. C. U.	11060	22/08/2002	Union	5000	12000	17000	District Union	Active
5	Chibombo	Chaambwa	9541	28/8/03	Chibombo	9	35	44	Women & Youth	Active
6	Chibombo	Chabanene	11990	10-01-03	Chibombo	8	28	36	Women & Youth	Dormant
7	Chibombo	Chabona	1521	21/11/02	Chisamba	8	29	37	Agricultural	Active
8	Chibombo	Chabota	8784	26/10/00	Chibombo	9	32	41	Women & Youth	Active
9	Chibombo	Chabusha	2231	21/11/02	Chisamba	8	30	38	Agricultural	Active
10	Chibombo	Chachisi	11234	21/11/02	Chibombo	12	45	57	Agricultural	Dormant
11	Chibombo	Chipako Women	2145	10-10-00	Chibombo	31	2	33	Women & Youth	Active
12	Chibombo	Chisamba	6987	21/11/02	Chisamba	6	21	27	Agricultural	Active
13	Chibombo	Chisamba Batumbu	10748	14/3/01	Keembe	9	34	43	Agricultural	Active

14	Chibombo	Chisamba East	11115	09-05-02	Chisamba	7	26	33	Agricultural	Active
15	Chibombo	Chisamba Ranch	6325	10-10-00	Chisamba	12	43	55	Agricultural	Active
16	Chibombo	Fambas	3265	26/10/00	Chibombo	14	52	66	Agricultural	Active
17	Chibombo	Forest	2541	16/11/99	Chibombo	11	40	51	Women & Youth	Active
18	Chibombo	Hamuchila Village	11597	07-01-03	Chibombo	8	31	39	Agricultural	Active
19	Chibombo	Hanyama	10866	15/5/02	Chibombo	18	65	83	Women & Youth	Active
20	Chibombo	Ipongo Women	6325	01-03-01	Keembe	47	5	52	Women & Youth	Active
21	Chibombo	Jatisha	11668	25/7/03	Keembe	8	28	36	Agricultural	Active
22	Chibombo	John Chinena Irrigation	7574	26/10/00	Chibombo	10	37	47	Saving & Credit	Active
23	Chibombo	Kabakombo	9631	16/11/99	Muswishi	8	29	37	Agricultural	Active
24	chibombo	kabalange M.P	13007	07-01-05	Chibombo			0	Agricultural	Active
25	Chibombo	Kabangwe	9222	30/11/00	Katuba	9	35	44	Agricultural	Active
26	Chibombo	Kabanje	75482	23/8/99	Keembe	10	36	46	Agricultural	Active
27	Chibombo	Kabeleshi	9862	10-10-00	Katuba	6	24	30	Agricultural	Active
28	Chibombo	Kabemba	11866	19/9/03	Katuba	8	29	37	Agricultural	Active
29	Chibombo	Kafululu	9723	06-07-01	Chibombo	12	43	55	Agricultural	Active
30	Chibombo	Kakoma	10571	28/1/02	Chibombo	12	45	57	Agricultural	Active
31	Chibombo	Lifwambula	4665	28/3/02	Muswishi	28	95	123	Agricultural	Active

32	Chibombo	Likumba		10-10-00	Chisamba	11	42	53	Agricultural	Active
33	Chibombo	Liteta		06-07-01	Chibombo	3	10	13	Agricultural	Active
34	Chibombo	Lubobo		10-10-00	Katuba	8	31	39	Women & Youth	Active
35	Chibombo	Lubundi	5207	22/99/99	Keembe	9	35	44	Women & Youth	Active
36	Chibombo	Lusumpuko	5135	20/9/99	Chibombo	6	21	27	Women & Youth	Active
37	Chibombo	Luyandano Agric	12187	12-08-03	Chibombo			0	Agricultural	Active
38	Chibombo	Lwamabwe		07-07-99	Chibombo	3	12	15	Agricultural	Active
39	Chibombo	Lwiinga		01-03-01	Keembe	12	45	57	Women & Youth	Active
40	Chibombo	Lyansa		28/3/02	Chibombo	14	51	65	Agricultural	Active
41	Chibombo	Lyowa	12344	26/8/04	Chibombo	8	31	39	Agricultural	Active
42	Chibombo	Mafunda		10-10-00	Muswishi	7	25	32	Agricultural	Active
43	Chibombo	Mafupa	12478	08-04-04	Katuba	13	47	60	Agricultural	Active
44	Chibombo	Mafuwa	8407	09-12-00	Keembe	11	41	52	Agricultural	Active
45	Chibombo	Makabo	13024	13/7/05	Chibombo	13	13	26	Agricultural	Active
46	Chibombo	Makainga	10890	21/5/02	Keembe	12	43	55	Agricultural	Active
47	Chibombo	Malambanyama		07-07-99	Keembe	8	31	39	Agricultural	Active
48	Chibombo	Malembe Main		01-03-01	Chibombo	7	25	32	Agricultural	Active
49	Chibombo	Malombe		28/3/02	Chibombo	6	24	30	Agricultural	Active

50	Chibombo	Malombe Farmers		06-07-01	Chibombo	8	31	39	Agricultural	Active
51	Chibombo	Malombe Womens		06-07-01	Chisamba	34	1	35	Women & Youth	Active
52	Chibombo	Malongo	10885	20/5/02	Chibombo	3	12	15	Agricultural	Active
53	Chibombo	Malundu		23/8/99	Katuba	4	14	18	Agricultural	Active
54	Chibombo	Malyatilo		06-07-01	Chisamba	9	34	43	Agricultural	Active
55	Chibombo	Mango	10842	15/5/02	Chibombo	6	21	27	Agricultural	Active
56	Chibombo	Mano Mbubile	8083	26/6/00	Katuba	7	27	34	Agricultural	Active
57	Chibombo	Manomabulanwa	11689	08-06-03	Katuba	8	29	37	Agricultural	Active
58	Chibombo	Manombubile		06-07-01	Katuba	9	35	44	Agricultural	Active
59	Chibombo	Masaka	11612	07-10-03	Keembe	8	31	39	Agricultural	Active
60	Chibombo	Masalasambwe		10-10-00	Katuba	6	24	30	Agricultural	Active
61	Chibombo	Mashikili		06-07-01	Keembe	2	6	8	Agricultural	Active
62	Chibombo	Matabu		07-07-99	Chibombo	6	21	27	Agricultural	Active
63	Chibombo	Matayela		01-03-01	Chibombo	13	47	60	Agricultural	Active
64	Chibombo	Matimba		28/3/02	Keembe	16	58	74	Agricultural	Active
65	Chibombo	Matubila		23/8/99	Muswishi	5	20	25	Agricultural	Active
66	Chibombo	Mavule	6603	10-10-00	Chibombo	7	26	33	Agricultural	Active
67	Chibombo	Mayota	6068	18/10/99	Keembe	6	21	27	Agricultural	Active



68	Chibombo	Mbalasa Agricultural	13036	20/07/05	Chibombo	12	12	24	Agricultural	Active
69	Chibombo	Mbalele	8078	22/6/00	Keembe	12	45	57	Agricultural	Active
70	Chibombo	Mboozi Farmers	12881	13/07/2005	Keembe			0	Agricultural	Active
71	Chibombo	Monday Market		01-03-01	Chibombo	9	34	43	Marketers	Active
72	Chibombo	Moobelo	11662	25/7/03	Keembe	11	39	50	Agricultural	Active
73	Chibombo	Moomba	8944	14/11/00	Katuba	16	58	74	Agricultural	Active
74	Chibombo	Mubimba		10-10-00	Chibombo	7	25	32	Agricultural	Active
75	Chibombo	Mubula	11918	10-08-03	Chibombo	9	35	44	Agricultural	Active
76	Chibombo	Muchembele	8746	23/10/00	Chibombo	7	25	32	Agricultural	Active
77	Chibombo	Muchenje		06-07-01	Chibombo	6	24	30	Agricultural	Active
78	Chibombo	Muchinali	10696	28/3/02	Chibombo	6	21	27	Agricultural	Active
79	Chibombo	Muchinga Kwelesha	6206	20/10/99	Katuba	7	26	33	Agricultural	Active
80	Chibombo	Mudenda		23/8/99	Chisamba	11	42	53	Agricultural	Dormant
81	Chibombo	Mufupatu		10-10-00	Chibombo	6	21	27	Agricultural	Active
82	Chibombo	Mufwambe		26/10/00	Chibombo	6	23	29	Agricultural	Active
83	Chibombo	Mukachembe		16/11/99	Katuba	11	41	52	Agricultural	Active
84	Chibombo	Mukaika		28/8/03	Chisamba	6	24	30	Agricultural	Active
85	Chibombo	Mukalashi		07-07-99	Chibombo	7	27	34	Agricultural	Active

86	Chibombo	Mukamonze		01-03-01	Katuba	8	31	39	Agricultural	Active
87	Chibombo	Mukuni		10-10-00	Chibombo	3	12	15	Agricultural	Active
88	Chibombo	Mukuni-Utontola	11688	08-06-03	Katuba	9	34	43	Agricultural	Dormant
89	Chibombo	Mukuyu		06-07-01	Chisamba	7	25	32	Agricultural	Active
90	Chibombo	Mulabo		23/8/99	Chibombo	9	35	44	Agricultural	Active
91	Chibombo	Mulungushi agro Women		10-10-00	Muswishi	52	4	56	Women & Youth	Active
92	Chibombo	Muswishi Central	5168	20/9/99	Muswishi	11	41	52	Agricultural	Active
93	Chibombo	Mutenga M.P	12922	26/6/05	Muswishi	9	23	32	Agricultural	Active
94	Chibombo	Nalufwi	8652	13/10/00	Chibombo	7	25	32	Agricultural	Active
95	Chibombo	Pambashe		17/10/03	Chisamba	9	35	44	Agricultural	Active
96	Chibombo	Tulangilile	12843	18/05/2005	Chibombo	8	30	38	Agricultural	New

**SOURCE:** Chibombo District Agricultural Coordinator, 2009.

<b>B: KAPIRI MPOSHI DISTRICT SAMPLE COOPERATIVE SOCIETIES</b>								
<b>Name of Farmer Org</b>	<b>Cert No</b>	<b>DATE OF REG.</b>	<b>(Camp)</b>	<b>Block</b>	<b>Ward</b>	<b>Constituency</b>	<b>STATUS</b>	
Twashala Coop-	4112	2005	Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chankomo	15263	29-06-05	Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Natwisa Agric co	11790	2005	Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Fikola W/C	14205		Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Twasanga Agric coop	14301	2006	Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chamishinge Women	15608	2006	Chankomo	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chibwe mp	1442	1999	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Natubombeshe	4211	2006	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Lupafya	6032	2005	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Nosa CPS	6241	2005	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Limbikani	8049	2005	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Kalundu C/S	8566	2005	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Kankomba Farmers Agric	12613	2005	Chibwe	Changondo	Changondo	Kapiri-Mposhi	Active	
Chilumba Coop-	2367	2001	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Mulimya Women	10476	2004	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Atusebense Coop-	12896	2006	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Katwi Women Coop-	12923	2005	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Luyando	12924	2005	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Atulime	12955	2005	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Crop Life	13000	13-07-05	Chilumba	Chipeco	Kapandwe	Kapiri-Mposhi	Active	

Bwafwano Youth	13880	2006	Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chikamoneka			Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chipuluka Youth	13878		Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chundu	15098	2007	Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Fitalo Women			Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Kabwato		2006	Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Kaloko Farmers Association			Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Kampelembe		2006	Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Lubuto			Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Twashuka			Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Twatemwa women		2007	Chipuluka	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Imansa		2008	Imansa	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Imansa youth	15636	2008	Imansa	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Mafita	15344	2008	Imansa	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Chenda	3969	2000	Kakulu	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Chilunga Small Scale	11176	2001	Kakulu	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Kaluchimu Youth	15614	2007	Kakulu	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Powerline Community	14026	2005	Kakulu	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Sazombo	14591	2007	Kakulu	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Kashila Bunga	8135	2001	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Chipungu w/ Youth	13557	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Chiyowela Women	13850	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Ituna	13852	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Titandizane Plha	13908	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	

Butotelo Agric	13945	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Munwa Agric	13946	2006	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Tafimbwa Tubilo	117725	2009	Kakwelesa	Changondo	Kakwelesa	Kapiri-Mposhi	Active	
Butotelo	13945	2006	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Butotelo Coop	10354	2007	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Chipungu Women and Youth	13557	2006	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Ngoma	15335	2007	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Ntasa			Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Tukose	14848	2007	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Tutandizane	13908	2006	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Twatasha Community PLH	13743	2006	Kakwelesa	Chang'ondo	Kakwelesa	Kapiri-Mposhi	Active	
Kawama Agric	156	1999	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Maoma	4267	2004	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Kamulombwe Coop-	9116	2005	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Chisamba 'b'	10358	2004	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Powerline Commu	14026	2005	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Mulonda Women	14167	2006	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Chankomo	15263	2005	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Chifungo	14474	2006	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Kamulobwe	9116	2005	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Kantwite	14263	2006	Kamboshya	Mulungushi	Chibwelelo	Kapiri-Mposhi	Active	
Katimba Kampumba	2096	2003	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	

Ilungu	6033	2002	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Tiyende Pamodzi	8737	2001	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kampangala	13609	06-06-06	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kantengwa	13611	2006	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Chabota		2006	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kampumba MPCs	15610	12-11-07	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Buyantanshi Y/P	13706	2006	Mkonchi	Changondo	Likumbi	Kapiri-Mposhi	Active	
Lisowa		2005	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Mikotwe		2006	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Muchinjilii	15341	2006	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Mulila kazembe		2007	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Mulungushi Women	12003	2005	Kampumba	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Tupange	13565	2006	Kapandwe	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Tusakamane	10315	2005	Kapandwe	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Twesa	13559	2006	Kapandwe	Chipeco	Kapandwe	Kapiri-Mposhi	Active	
Lupuka Agrs	4266	2003	Kashitu	Nkole	Kashitu	Kapiri-Mposhi	Active	
Rocky CP SC	5225	2002	Kashitu	Nkole	Kashitu	Kapiri-Mposhi	Active	
Kashitu Women	9645	2003	Kashitu	Nkole	Kashitu	Kapiri-Mposhi	Active	
Kwelesha	13558	2005	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Tusumpuke MPCs	13985	2006	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Atunyufwane	13690	2005	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Bunene Donkey Association	8273	2004	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Chibwebwe	13733	2006	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Chafumbwa	12398	2005	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	

Chinsubya		2006	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Kamafuwa	13088	2005	Kato	Chipeco	Chipeco	Kapiri-Mposhi	Active	
Toma MP	4195	2002	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Manyinya	4422	2003	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Luamabwe	5870	2004	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Likumbi Donkey	8163	2004	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Chishinka	11837	2005	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Lusampukila Agric	12425	2005	Likumbi	Mulungushi	Likumbi	Kapiri-Mposhi	Active	
Chishinka	11837	2005	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kabanana	14925	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kabandola Women	15390	2007	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Kamisenga women	8066	2004	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Likumbi Youth Coop	15616	2007	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Lusampukila	12452	2005	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Lusumpuko	13949	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Lwanga	14916	2007	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Makubi Women	11903	2005	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Manyinya Women	13235	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Mapalo	13526	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Mubofwe Women	13194	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Ngalamusamba	13122	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Toromba		2005	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Twikatane Women			Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	

Zama Kapoka	12009	2006	Likumbi	Chang'ondo	Likumbi	Kapiri-Mposhi	Active	
Muteteshi Agric	3433		Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Njanji MP	3977	2001	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Luanshimba Coop-	4417	2001	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Lyuba	5799	2003	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Kambishi Agric	6031	2003	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Mulungushi MP	8132	2004	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Lubembe	9820	2004	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Chilando Women	9874	2004	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Chabota Coop-	10899	2005	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Munde Coop-	10923	2005	Luanshimba	Mulungushi	Mpunde	Kapiri-Mposhi	Active	
Chimbanzila	9719	2002	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Lukanda (C) Agric	10242	2004	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Bulumbwa	12123	2005	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Kamisaka F.C	13094	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Lima Bulongo	13104	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Chimbo MPCs	13214	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Tuswangane	13711	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Lukoba Farmers	13757	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Kabwale MPCs	13924	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	
Kabwale MPCs	13924	2006	Lukanda	Mulungushi	Kapir central	Kapiri-Mposhi	Active	



Mutaba	8735	2002	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Samba Kuminwe	9045	2003	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Gundapati	9294	2003	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Chitambala	10934	2004	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Nkumune	11089	2004	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Kabulamenda	11441	2004	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Mukwamba Coop-	11702	2005	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Timbwa Agric	11935	2005	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Tubalumbe	12960	2006	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Mulasa Coop-	12962	2006	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Lambwe Munongo	13218	2006	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Fisonge MP	13822	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Buyantanshi MPCS	14994	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Chambulumina Main	14915	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Chambulumina Youth Agric	10221	2005	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Fikola Men	15621	29-06-05	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Fikola MPCS	13348	2006	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Fikola Women	14205	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	

Good hope Youth		2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Misoma Womens	14094	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Mulasa		2004	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Mutebwa		2006	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Nakutimba	11562	2005	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Tutemwane	12956	2005	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Twafweniko Women MPCs	15562	2007	Lukomba	Nkole	Mushimbili, Lunchu	Kapiri-Mposhi	Active	
Vision	4104	2001	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Lunchu 'B' Donkey	7813	2002	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Lunchu 'B'	9343	2003	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Kabonga C.S	10348	2004	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Fikoko Agric	12961	2005	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Chantungulu Co-	13567	2006	Lunchu	Lunchu	Lunchu	Kapiri-Mposhi	Active	
Mubofwe Women	13194	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Mulundu MP	13610	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Uya Ntashi Y/P	13706	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Katobo Women	13751	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Yongwe Wamutulilwa	13756	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Tulibonse	13846	2006	Mkonchi	Changondo	Changondo	Kapiri-Mposhi	Active	
Mpunde Coop-	5167	2004	Mpunde	Chipeco	Mpunde	Kapiri-Mposhi	Active	
Kafusa	11840	2005	Mpunde	Chipeco	Mpunde	Kapiri-Mposhi	Active	

**SOURCE:** Kapiri Mposhi District Agricultural Coordinator, 2009.

<b>C: MUMBWA DISTRICT SAMPLE COOPERATIVE SOCIETIES</b>				
	<b>COOPERATIVE</b>	<b>MEMBERS</b>	<b>REGISTERED</b>	<b>STATUS</b>
1	Tubalange	28	2005	Active
2	Kawena	16	2006	Active
3	Mutalili	21	2006	Active
4	Hillside	25	2007	Active
5	Penga Ujane	26	2006	Active
6	Muyaaya	20	2007	Active
7	Chibote	29	2006	Active
8	Twangane	41	2006	Active
9	Kapyanga	19	2006	Active
10	Kabuyu	15	2007	Active
11	Kayanga	23	2006	Active
12	Malende	30	2008	Active
13	Mambule	22	2006	Active
14	Kamulya Katuseka	30	2006	Active
15	Nachilumba	28	2006	Active
16	Lubemba B	18	2005	Active
17	Shooka	25	2006	Active
18	Nakalundu	20	2006	Active
19	Twalomba	17	2007	Active
20	Katemo A.C.S	33	2006	Active
21	Mumbwa Orphanage	41	2005	Active
22	Kandeshe Depot	37	2006	Active
23	Tata Ansi Uvube	29	2006	Active
24	Kabwanga ACS	30	2006	Active
25	Bulungu PTA	40	2006	Active

26	Kashinka	33	2006	Active
27	Mumbwa Seed Coop	34	2006	Active
28	Chitukuko	39	2005	Active
29	St. Edmunds	14	2006	Active
30	Lusamba	22	2007	Active
31	Mutumbi ACS	38	2006	Active
32	Ntaka ACS	25	2006	Active
33	Mapambwa	30	2006	Active
34	Shikatundwe	29	2005	Active
35	Kamuzhiba	19	2006	Active
36	Twabane	20	2007	Active
37	Muleke	11	2006	Active
38	Namunde	33	2006	Active
39	Kamushabo Water Users	38	2006	Active
40	Chibila ACS	30	2006	Active
41	Mundawanga	40	2007	Active
42	Mupuminino	29	2006	Active
43	Chibila Women Club	44	2006	Active
44	Kalibwe	23	2006	Active
45	Kulya Uzumanane	25	2006	Active
46	Mumbwa Farmers ACS	26	2008	Active
47	Bukana	18	2008	Active
48	Mumbwa Marketeers	30	2005	Active
49	Mumbwa PTA High School	51	2005	Active
50	Twapenga	26	2006	Active
51	Salanga ACS	16	2005	Active
52	Lusumpunko	33	2006	Active

53	Twapona	28	2004	Active
54	Kabwanga MPCS	38	2005	Active
55	Mumbwa FCS	40	2006	Active
56	Moomba	40	2006	Active
57	Salanga Nutrition CS	40	2007	Active
58	Benachoo	24	2005	Active
59	Nalungwana	30	2006	Active
60	Maili	20	2006	Active

**SOURCE:** Mumbwa District Agricultural Coordinator, 2009.