

**Livelihood strategies and food security for resettled smallholder tobacco  
and non-tobacco farmers: The case of Manicaland Province in  
Zimbabwe.**

**By**

**Alexander Mapfumo**

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Department of Agricultural Economics and Extension

Faculty of Science and Agriculture

**Supervisor: Prof. A Mushunje**

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## DECLARATION

I, Alexander Mapfumo, hereby declare that this thesis is the result of my own original work and that other scholars' works referred to here have been duly acknowledged. I also declare that this thesis is original and has not been submitted elsewhere for a degree.

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Alexander Mapfumo

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Date

## ABSTRACT

At the end of minority rule in 1980, Zimbabwe adopted the land reform programme to redistribute land to address the imbalances in land access while reducing population pressure in the communal areas, bring underutilised and idle land into full production use and improve the base for productive agriculture in the smallholder farming sector as a means to achieve economic development in the country (Musemwa, 2011). The broad objective of this study was to compare the livelihood strategies and food security situations of resettled smallholder tobacco and non-tobacco farmers and the factors that influence livelihood strategies and food security status for the smallholder farmers in the study areas. The study was conducted in Manicaland Province of Zimbabwe and the respondents were stratified into four groups. These were smallholder farmers resettled under A1 and A2 resettlement models as well as tobacco and non-tobacco smallholder farmers. The two models differ on how they were implemented and supported which might render them to have different livelihood strategies and food security status. A total of 300 respondents were surveyed, consisting of 120 tobacco and 180 non-tobacco farming households in Manicaland province.

Demographic and socio-economic characteristics of the sampled households in Manicaland province were analysed using descriptive statistics. These statistics include gender of the household head, marital status, age of the household head, level of education, household size, farming activities, sources of income, livestock and asset ownership. Response variables that had an effect on the dependence of either tobacco or non-tobacco farming with all the other response variables were tested using the Chi-square test.

The average age of the majority of smallholder farmers for both tobacco and non-tobacco farmers was generally high as it was in the range of 45-55 years. The majority of the sampled households in the resettled areas, A1 (86%) and A2 (88%) were male-headed. The results of this study also revealed that male headed households were 90.8 percent for tobacco and 84.4 percent for non-tobacco farmers. For the tobacco and non-tobacco resettled farmers, all the respondents had at least attained primary education which reveal that all farmers are functionally literate.

The results also established that A2 farmers have exceptionally greater land holdings on average (9.067 hectares) than A1 smallholder farmers (average 3.060 hectares). A2 smallholder farmers have been found to produce more output of tobacco on average (6.584 tonnes) and maize (average 3.489 tonnes) whilst A1 smallholder farmers only managed an average of 2.657 tonnes of tobacco and 1.455 tonnes of maize on average. Smallholder farmers obtained income from selling their tobacco output as well as some of their excess food production. Apart from tobacco and non-tobacco output, sampled households in Manicaland province also obtained their income from hawking, selling liquor, salaries and wages, remittances and from pensions. In both A1 and A2 resettlement models, income from tobacco farming made substantial contributions, 43.6 percent and 55.7 percent respectively, to household income.

Using the main sources of income by smallholder farmers in Manicaland province (tobacco farming household, non-tobacco farming household, household active in off-farm activities and wage-earner household), the study was able to establish the pattern of livelihood strategies in the area of study. Results indicate that the majority of the households were involved in tobacco and non-tobacco farming in both resettlement models (i.e. A1 and A2) as well as in all the sampled provinces (i.e. Makoni, Mutasa and

Mutare rural) with a small percentage of households obtaining their main source of income from off-farm activities and formal employment.

The study used a Multinomial Logit model to investigate factors affecting household livelihood generation. In the model, the dependent variables included four livelihood strategies while the explanatory variables included various household social-economic and institutional factors. The results obtained from the multinomial logistic regression model established that six variables (gender, household size, education, land size, access to inputs and access to credit) were found to be significant in determining the adoption of tobacco farming strategy in the study area up to less than 10% probability level. Smallholder farmers who did not adopt tobacco farming indicated that limited land size, shortage of labour as well as access to tobacco inputs were the major impediments to adoption of tobacco farming. Different livelihood strategies which were undertaken by smallholder farmers had a bearing on the food security status of the households.

Results of the HDDS revealed that on average 82 percent of tobacco smallholder farmers were measured to be food secure whilst only 42 percent of non-tobacco farmers were food secure using the HDDS. Similar trends were observed from the descriptive statistics which showed that tobacco smallholder farmers consumed relatively greater percentage of nutritious food groups than non-tobacco smallholder farmers.

This study revealed that households who diversified their livelihood strategies with the inclusion of tobacco farming were more food secure than those with non-tobacco farming. Results of the Binary logit regression model indicated that the significant factors which explain food security status for smallholder sampled households are farming activity, farm size, number of livestock, remittances, income and access to credit.

Appropriate policies should be employed for resettled smallholder farmers to make positive exits from food insecurity through utilising more land effectively and indulging in high returns farming activities such as tobacco farming. The government and private partners such as Non Governmental Organisations (NGOs) should therefore, channel more financial resources towards beneficiaries of land reform programme for them to be able to access inputs, credit facilities as well as better level of education.

**Keywords:** Livelihood strategies, land reform, food security, Zimbabwe

## **DEDICATION**

To my lovely wife, S. Mapfumo and daughters, Lindsay and Leah Mapfumo

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## LIST OF ABBREVIATIONS

AGRITEX	Agricultural, Technical and Extension Services
ADB	African Development Bank
ARDA	Agricultural Rural Development Authority
BSAC	British South African Company
CFU	Commercial Farmers Union
DDF	District Development Fund
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GNU	Government of National Unity
GoZ	Government of Zimbabwe
Ha	Hectare
HDDS	Household Dietary Diversity Score
HFIAS	Household Food Insecurity Access Scale
HOD	Head of Household
IMF	International Monetary Fund
LDC	Less Developed Countries
LSC	Large Scale Commercial
MDC	Movement for Democratic Change
MDG	Millennium Development Goals
NGOs	Non-Governmental Organizations
NRs	Natural Regions
OLS	Ordinary Least Square
SADC	Southern African Development Community
SPSS	Statistical Package for Social Scientists

TIMB	Tobacco Industry and Marketing Board
USDA	United States Department of Agriculture
US\$	United States Dollar
ZANU PF	Zimbabwe African National Union – Patriotic Front
ZimVac	Zimbabwe Vulnerability Assessment Committee
ZTA	Zimbabwe Tobacco Association
ZTFA	Zimbabwe Tobacco Farmers’ Association

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## CHAPTER 1: INTRODUCTION

### 1.0 Introduction

Generally rural development in many Less Developed Countries (LDCs) is hindered by gross inequality in the control of land (Musemwa, 2011). Bigsten & Shimeles (2003) noted that high inequality in Africa is greatly attributed to skewed distribution of important assets such as land, social, financial, physical and human capital. Land reform is seen as a way to redress the skewed access of land towards the minority, in search of justice and to establish more efficient farming ways and improve livelihoods for suppressed groups in society. Consequently, land reform should be of great importance in the world if socially sustainable development is to be upheld. Though the role of land reform is greatly appreciated, few land reform programmes were undertaken in the last three decades due to lack of political will. According to Moyo & Chambati (2013), results from studies of land reform programmes carried out earlier indicated mixed results, with majority of them showing quite impressive results while fewer studies established devastating effects on livelihoods and food security mainly of the targeted rural poor people.

According to FAO (2012) about three quarters of the poor people reside in rural areas and their main livelihood strategy is farming in many Less Developed Countries (LDCs). Consequently, promoting agriculture could dramatically reduce rural poverty, helping to meet the Millennium Development Goal of halving poverty and hunger by 2015 and further reducing hunger and starvation several decades thereafter. However, agriculture alone was found not to massively reduce poverty, but it has proven to be uniquely powerful for that task (FAO, 2012). The fundamental problem for the majority of rural poor people in many LDCs is how to maintain or improve their limited livelihood

strategies and ensure that they attain food security (Barraclough, 1999). In many LDCs a large proportion of rural poor people are faced with massive livelihood crisis that was brought about by massive commercialization of agriculture and other related economic activities (Moyo & Chambati, 2013).

Ghatak & Roy (2007) established that economic, social and political motives are usually used to justify the need for redistributive land reforms, defined as redistribution of land from the rich to the poor. The utility obtained by the poor are thought to be larger than the corresponding losses by the rich which leads to distributional welfare gains (Deininger *et al*, 2002). Equity considerations can also create the need for land reform, especially in countries where a significant proportion of the population relies on agriculture for its subsistence. Moreover, in countries with a history of social injustice with land ownership, political motives justify redistributive land reforms. In Zimbabwe, the main driving motives for redistribution of land have been equity and political considerations (Musemwa, 2011). The agricultural sector which was inherited by Zimbabwe at independence was characterised by duality comprising of small portions of land owned by the majority black people whilst the minority white people had large tracks of land. As a result, large-scale farms owned by whites existed alongside backward small-scale farms owned by black majority. The government of Zimbabwe, since independence, therefore, had to redress this imbalance of land ownership through acquiring and redistributing land to the landless black majority.

Studies from other countries during the 1980s established positive influence of land reform to improved wellbeing of the poor. Successes were registered in Uganda in the early 1990s where coffee production increased significantly and in Malawi in the early 2000s where tobacco production considerably increased (Matshe, 2009). Moreover in

Zimbabwe, major maize production boost in the 1980s was mainly attributed to land reform programme implemented at independence and therefore, provides a clear example for the success of the land reform programme although subsidized inputs also played a major part in this success story (Matshe, 2009).

### **1.1 Background information**

The agricultural sector in Zimbabwe contributes a significant component of the national economy as it accounts for about 15 to 20 percent of GDP in Zimbabwe but with a majority of the country's population engaged in this sector (WFP, 2009). It generates a large proportion of foreign exchange earnings, although the share of agricultural exports in the country's total exports has declined from 39 percent in 2001 to 14 percent in 2006 (WFP, 2009). According to Muchapondwa (2009), the agricultural sector still plays a critical role in Zimbabwe hence it is necessary to rope in agricultural development strategies if the economy is to be revived in the future.

Results from a study carried out by FAO (2012) also reiterated that Zimbabwe has been dominated by the agricultural sector in Zimbabwe and plays an important role in the economy contributing 15-18 percent to Gross National Product. It also provides an income to over 75 percent of the population and in most years 95 percent of all food and beverages have been produced locally. Agriculture also accounted for a third of formal employment and over 70 percent of Zimbabwe's population derives its livelihood from agriculture (FAO, 2012).

Moyo & Chambati (2013) showed that resettled smallholder farmers cultivated 50 percent more land than non-resettled smallholder farmers. The dominant sources of livelihoods for the resettled smallholder farmers were crops such as maize, tobacco,

cotton and livestock with the income obtained from crop production contributing about 75 percent of annual household income or more (Bourdillon *et al*, 2003). The majority of the consumed food by resettled and non-resettled smallholder farmers comes from the produced crops which they at times sell if they realise bumper harvest (Masters, 1994). Land preparation of land by smallholder farmers is mostly done by ox-drawn plough with some weeding done by ox-drawn cultivator, and some transportation undertaken by ox-drawn carts. Some resettled smallholder farmers own or hire tractors and other mechanical equipment. Moreover, livestock provides animal draught for tillage, transport, manure, milk, meat, some cash income, and a stock of wealth (Moyo & Chambati, 2013).

Very few resettled farmers lived with their relatives as compared to communal farmers, and development associations in their communities served as the only unifying force among them (Barr, 2004). Consequently, resettled households more often used individual strategies (e.g. asset sales or generation of additional income) to cope with crisis situations and found it less easy to access support through their social networks (Chivuraise, 2011).

According to Utete (2003), the main beneficiaries of land reform were men in all provinces in the A1 and A2 models. A1 model was composed of small portions of land starting from 1 hectare whilst A2 model contained self contained farm units for grazing, cropping, residential and woodlot use up to 300 hectares of land. Although land models targeted different beneficiaries, men were however allocated 82 per cent of the land as compared to 18% of women in the A1 model (Utete, 2003). Men also owned 88 percent of land in the A2 model whilst women own only 12 percent in 2002. Although the allocation of land to women was below the set target of 20 percent and much lower than

the overall 38 per cent of rural households in Zimbabwe that are female-headed, it is still relatively high as compared to the 4 per cent of white farms owned by women and 5 per cent of 1980s land-reform farms that were given to women (Government of Zimbabwe, 2006; Moyo, 2011).

In a prosperous agricultural year (2000), tobacco and cotton exports account for 25% of total exports while the sector as a whole accounted for 45% of all exports (FAO, 2001). Tobacco Industry and Marketing Board (TIMB, 2004) estimated tobacco contributing 12% of Gross Domestic Product (GDP) at the peak of its production. Maravanyika (1998) is quoted emphasising the value of tobacco to Zimbabwean agriculture offered returns seven times higher than cotton (the next best crop). The local market consumes 3%, while 97% of the crop is destined for the export market where it is preferred for its high quality and unique flavour used for blending filler tobacco from other tobacco producing countries (TIMB, 2004). Zimbabwe has a comparative advantage fulfilling a unique market niche that is quality based from its tobacco flavour (TIMB, 2012).

## **1.2 Tobacco Production in Zimbabwe**

Statistics obtained on FAOSTAT (2012) show that Zimbabwe is the third highest producer of tobacco in Africa producing 115 000 metric tonnes whilst Malawi is the highest producer with 151 500 metric tonnes followed by Tanzania producing 120 000 metric tonnes. The tobacco industry in Zimbabwe experienced a decline in production to as low of 48,8 million kg in 2008, down from a peak of well over 200 million kg in 2 000 (TIMB, 2009). The tobacco industry is however on a recovery path following the adoption of multiple currencies in 2009 resulting in an increase in production to about 60 million kg being produced in 2009 (TIMB, 2009). Tobacco output continued to increase doubling to 123 million kg in 2010 and to about 144 million kg in 2012 (TIMB, 2012). Tobacco

output further increased to 155 million kg in 2013 and 170 million kg in 2014 (TIMB, 2014).

According to TIMB (2012), the continuous increase in tobacco production was mainly attributed to resettled smallholder farmers who moved to agro-ecological regions which supports tobacco farming (Natural Regions I and II) whilst very few non-resettled smallholder farmers embarked on its production since majority of them are situated in agro-ecological areas which do not support tobacco farming (Natural regions III, IV and V) as explained latter on 2.5.1. The majority of resettled smallholder farmers have and are diversifying into tobacco farming production since they perceive it to be more profitable and is expected to improve their livelihoods and food security status (Chivuraise, 2011). As a result, by 2012, tobacco became the most important agricultural commodity (ranked by value) followed by maize and milk as shown on Figure 1.1 below.

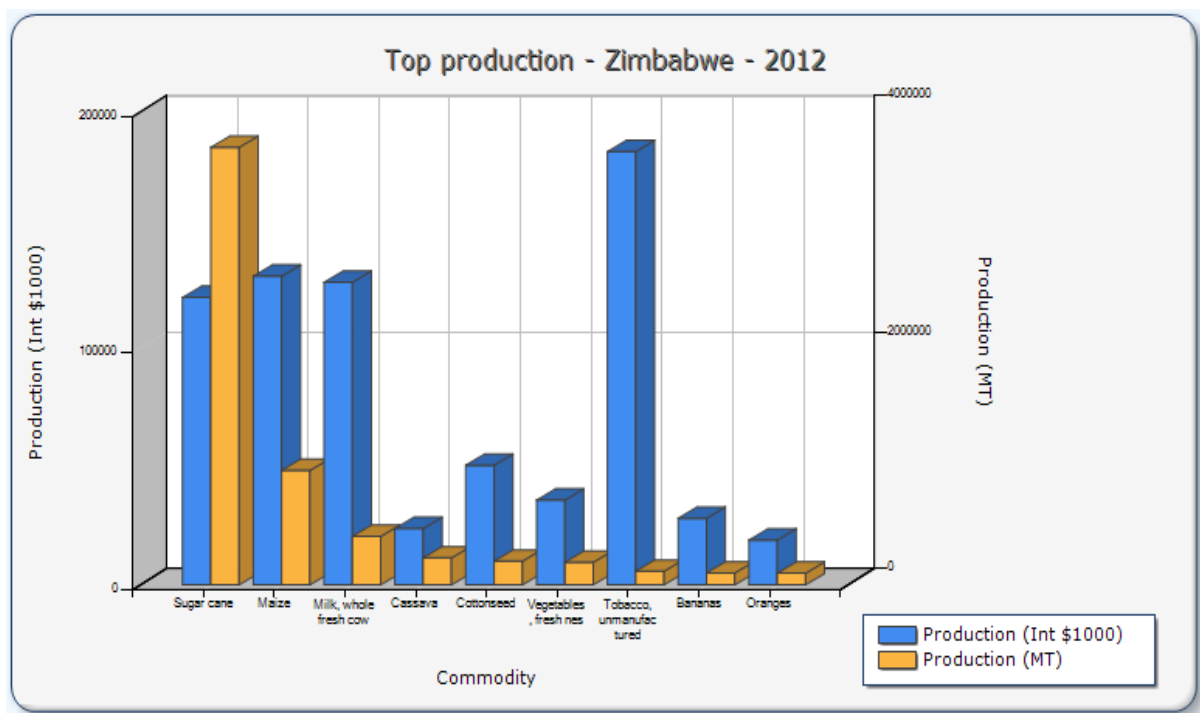


Figure 1.1: Most important food and agricultural commodities

Source: FAOSTAT (2012)

Figure 1.1 shows that tobacco produced in Zimbabwe is the most valued crop followed by maize whilst milk and sugarcane also significantly fetch considerable income. This shows that tobacco has become the most rewarding agricultural commodity for the nation.

### **1.3 Problem Statement**

According to UNCTAD (2008), the majority of the people who are chronically hungry are smallholder farmers in Less Developed Countries (LDCs) who produce mainly for consumption. Moreover, Scialabba (2007) asserted that of the world's 1.2 billion, seventy-five percent of them are poor people who reside in rural areas of developing countries. Poverty has engulfed the rural people who are living in a fragile environment. These people face many challenges to achieve and maintain their livelihood and food security. Studies conducted elsewhere suggest that limited livelihoods and food insecurity translates to households becoming trapped in vicious cycles of poverty. To attain livelihood and food security, people need resources and assets (such as land), which poor people lack. Due to resource constraints the poor are most likely to be concentrated on the most degraded and fragile land with a risky environment, making their livelihoods even more vulnerable (Moyo & Chambati, 2013). Moreover, the erratic rainfall patterns being experienced in Zimbabwe have also played a part in reducing agricultural yields hence poverty and food insecurity (Mushunje, 2005).

While tobacco farming now provides a lucrative way to increase household income in the short run, smallholder farmers are finding themselves in a vicious circle. Tobacco production is linked to relatively high costs of production, labour demands and price risk

all of which are features that the tobacco crop shares with major cash crops. Smallholder tobacco farmers are struggling to adopt use of coal for curing the crop due to the high cost and poor transport systems which increases the risk of deforestation from tobacco-related activities. Manicaland smallholder tobacco farmers are struggling to move coal from Hwange which is over 800km due to high costs. Coal is more effective in curing tobacco, but the low cost wood remains the used energy source among smallholder tobacco growers, increasing the risk of deforestation in areas where the crop is grown thereby reducing the livelihood choices of the future generation.

Rural communities in Zimbabwe have been increasing their interest in growing cash crops such as tobacco. Many smallholder farmers are resorting to cultivation of tobacco crop to supplement their income thereby improving the possibility of them attaining food security despite the criticisms which are being made about the crop such as health risks associated with it (TIMB 2012). According to Jerie and Ndabaningi (2011), the production of food crops (grains) has gradually been declining in recent years as a result of erratic rainfall patterns. As a result, most smallholder farmers are now resorting to the cultivation of cash crops such as tobacco as a risk management strategy and since it tends to reward farmers very well (Jerie & Ndabaningi, 2011).

Smallholder farmers are moving away from production of grains to production of tobacco because they are paid immediately on delivery, as compared to the Grain Marketing Board (GMB) which takes months and in some cases years to pay for grains (mainly maize) delivered. As a result the smallholder farmers view tobacco farming as a better livelihood strategy since they expect to obtain better income levels from selling tobacco and purchase food crops such as maize and attain food security though it remains to be verified by studies to ascertain whether they are succeeding in this endeavour.

Consequently, it is of paramount importance to compare tobacco farmers and non-tobacco farmers to verify if switching of these smallholder farmers from grain production to tobacco farming is achieving the intended goal of improving their livelihoods and food security status.

#### **1.4 Sustainable livelihoods, food security definitions**

- ✚ Sustainable livelihoods are those that can cope and recover from stresses and shocks, maintain and enhance local and global assets, on which livelihoods depend, imparting bequests and opportunities for future generations (Ashley & Carney, 1999).
- ✚ Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life as defined by Faridi & Wadood (2010).

#### **1.5 The Scope and Objectives of the Study**

Land reform is always one of the major components of the processes of agricultural reforms together with the development of small-scale farmers (Moyo & Chambati, 2013). Apart from fulfilling the political and moral imperatives of land distribution, livelihoods and food security for farmers are to be assessed.

The main objective of this research was to compare the livelihood strategies and food security situations of resettled smallholder tobacco and non tobacco farmers and the

factors that affect their livelihood strategies and food security status for smallholder farmers in Zimbabwe.

#### **1.6 The specific objectives of the research were formulated as follows:**

- To provide insight into the patterns of livelihood strategies for resettled smallholder farmers.
- To investigate the factors affecting household livelihood generation.
- To determine food security status as an outcome of different livelihood strategies pursued by resettled tobacco and non-tobacco rural households in the study area.
- To identify the factors that affect food security status for resettled tobacco and non-tobacco smallholder farmers in the study area.

#### **1.7 Research Questions**

- What are the livelihood strategies pursued by resettled smallholder farmers in the study area?
- What are the factors which influence rural livelihood generation in the study area?
- What is the status of food security as outcome of different livelihood strategies pursued by resettled smallholder farmers?
- What are the factors that affect food security status for resettled tobacco and non-tobacco smallholder farmers in the study area?

## **1.8 Significance of the study**

There has been widespread criticism of land reform programmes implemented to redistribute land in Zimbabwe after gaining independence on 18 April 1980. Critics of land reform point to the problem of grain shortages which emanated due to the several land reform programmes which were implemented in Zimbabwe as smallholder farmers switched to cash crops such as tobacco farming. Policy makers might need to consider the livelihood strategies which were adopted by these resettled farmers and how they affected their food security status. The information obtained in this study will be used to assess the contribution of land reform programme to smallholder farmers and assess the potential benefit to other smallholder farmers who are yet to benefit from the land reform programme. Furthermore, results of the study would also be of great benefit to developing countries which are yet to undertake the land reform programme.

Economic development studies are increasingly reiterating the critical need of understanding livelihood strategies (Brown *et al*, 2006). Livelihoods approaches mainly focus on giving the rural poor an important role of contributing and participating in rural development projects which are often left out to improve their livelihoods and food security status.

This study aims to contribute to the knowledge gap of comparing livelihoods strategies for resettled smallholder tobacco and non-tobacco farmers and to explore the current food security situation and factors that affect their livelihood strategies and food security status in Zimbabwe. Furthermore, literature on links between tobacco cultivation and food security is very scanty and comes mainly from Kenya. The analysed causal relationship appears to be based on the tobacco crop displacing food crops and/or

absorbing labour at the expense of labour being allocated to food crop cultivation. However there is no data on farm crop composition or household income portfolios for resettled smallholder farmers in Zimbabwe. Smallholder farmers are targeted specifically since they were the main beneficiaries of land reform programme. They are also the group which is mainly in poverty as shown on Figure 1.2 below as compare to other groups such as the urban poor, rural landless, pastoralists, fishers and forest dependent.

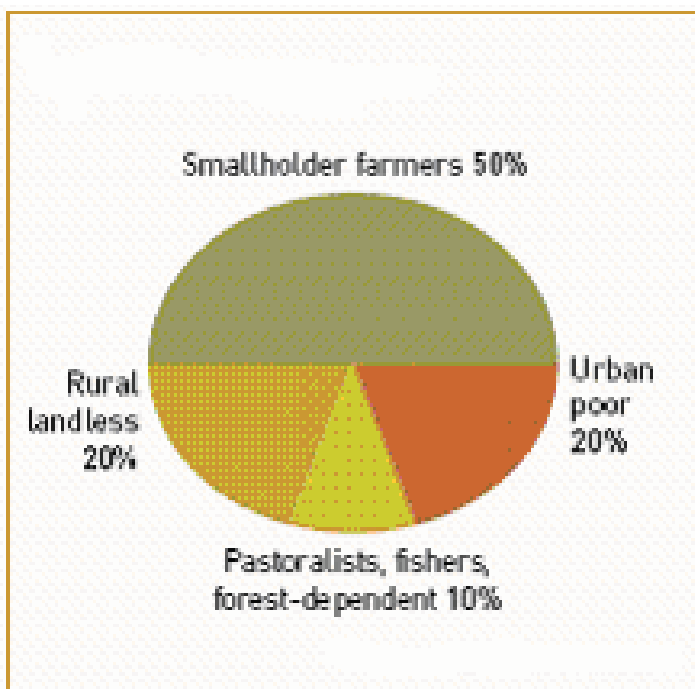


Figure 1.2: World's hungry composition

Source: FAO (2004)

Understanding the livelihood strategies of smallholder tobacco and non-tobacco farmers is of paramount importance as they develop over time for designing interventions and policies. These smallholder's livelihood strategies are prone to the risks of market shocks, drought and floods, crop and animal diseases. It is crucial to understand the patterns of livelihood, food security, vulnerability and problems associated with these issues and how livelihood strategies develop over time. To address livelihood strategies,

we have to look into the matter of how smallholder tobacco farmers generate and maintain their livelihoods over time.

## **1.9 Organization of the Study**

**Chapter one** presents the introduction and background of the research study, specifically looking at issues of livelihood strategies (tobacco and non tobacco farming) and food security status in Zimbabwe. Moreover, problem statement, objectives, research questions and justification of the study are also presented in this chapter.

**Chapter two** sets out to provide changes in land ownership in Zimbabwe. It starts with the ownership of land during the period Zimbabwe was colonised (1888 to 1980) before focusing in greater detail on processes of land reform after independence (after 1980). Moreover, the chapter enter into the discussion to highlight the key aspects of land and agrarian reform in Zimbabwe aimed at improving the standards of living for the African black people who were mainly deprived of their land during colonialism. This chapter also provides a brief overview of Zimbabwean agricultural sector.

**Chapter three** presents the theoretical framework of the study. This chapter discusses the sustainable livelihood approach and the livelihood and food security framework. It also presents a review of literature on other studies done by other scholars on different livelihoods strategies, food security status for smallholder farmers and factors affecting food security situations of smallholder farmers with the application of the sustainable livelihood and the livelihood and food security frameworks. This is important as it presents the basis for comparison with the research findings. In addition, a review of the analytical framework used is also discussed in this chapter.

**Chapter four** describes the methodology of the study. It explains the study area both at national and provincial level. The major issues explained in this chapter include an agro-ecological summary of the study area and the demographic data of the districts. Furthermore it describes instruments used to obtain socio-economic, demographic and household data and the research methodology for data collection and analysis for the study.

**Chapter five** presents socio-economic characteristics of the sampled households. The descriptive analysis of the sampled tobacco and non-tobacco Manicaland province resettled smallholder farmers is presented.

**Chapter six** is a presentation of the results on livelihood strategies and factors that affect food security status for resettled tobacco and non tobacco smallholder farmers in the study area. The farmer's sources of income are identified and ranked and the results of multinomial logit regression model are presented.

**Chapter seven** is a presentation of the status of food security and factors which influence food security status of resettled smallholder farmers in Manicaland province. The results of the Household Dietary Diversity Score and Binary logit regression model are presented and discussed.

Lastly, **Chapter eight** presents the conclusions and policy recommendations of the study. Areas for further research are also presented in this chapter.

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## CHAPTER 2: CHANGES IN LAND OWNERSHIP AND AN OVERVIEW OF THE AGRICULTURE SECTOR IN ZIMBABWE

*“Zimbabwe’s land reform may be unique in the post-Cold War period, but the social and economic conditions which brought it about are not” (Moyo & Chambati, 2013).*

### 2.0 Introduction

Land reform in Zimbabwe has been subject to debate and often criticised for its unorderly implementation. Chapter two sets out to provide changes in land ownership in Zimbabwe. It starts with the ownership of land during the period Zimbabwe was colonised (1888 to 1980) before focusing in greater detail on processes of land reform after independence (after 1980). Moreover, the chapter enters into the discussion to highlight the key aspects of land and agrarian reform in Zimbabwe aimed at improving the standards of living for the African black people who were mainly deprived of their land during colonialism.

This chapter also provides an overview of Zimbabwean agricultural sector. The importance of agriculture in the Zimbabwean economy hardly needs any emphasis. This is as a result of the agricultural sectors’ importance in providing raw materials to the industrial sector and hence the successful expansion and growth of the latter too are significantly related to the improvements registered in the agricultural sector. The majority of the Zimbabwean people depend on agriculture for both employment and economic benefits (FAO, 2012). This is because the majority of Zimbabweans reside in rural areas and also obtain their livelihoods and food requirements from agriculture.

## **2.1 Land ownership in Zimbabwe before 1980**

Just like other Southern African countries, Zimbabwe's rural land ownership systems were greatly influenced by its colonisers (British settlers) (Moyo, 2005). Initially, the first white settlers who came to Zimbabwe in 1888 were mainly focused and interested on mining activities. When the mining activities failed to yield the desired results by white settlers, they then changed their focus to expropriate land from the blacks for them to pursue their farming activities.

According to Nelson (1975), one of the main reasons for European settler colonialism was vast amount of fertile land in Zimbabwe. As a result, in 1888, white colonists confiscated land from black under the leadership of Cecil Rhodes and began colonial rule in Zimbabwe. Decades of unjust racial segregation of land coupled with policies crafted in line to expropriate more fertile land from blacks condoned the black population to infertile pieces of land with sand soils. Legislation was used to forcibly grab land from the black people in Zimbabwe. According to the Ministry of Information (2001) the Pioneer Column in the 1890s passed a number of legislative acts after their arrival. These started with the Lippert Concession of 1889. This concession preceded the actual occupation of Zimbabwe in 1890. It allowed would be settlers to acquire land rights from the indigenous people (Ministry of Information, 2001). This was followed by the Native Reserves Order Council in 1898 which created the Native Reserves. Furthermore the colonisers forced the black population to live in Native Reserves with infertile soils which was not able to feed the growing population. These Native Reserves were set up haphazardly in communal areas which were low potential areas. This restricted and limited the livelihood strategies of the rural poor since their most useful and priced asset (land) was unproductive and in limited supply.

Moreover, the Land Apportionment Act of 1930 legalised and formalised the segregation of land between blacks and whites. This piece of legislation was the result of the recommendations of the Morris Carter Commission of 1925 (Roth & Gonese, 2003). The Land Apportionment Act forced the black population out of half of the country with fertile and productive land, despite the fact that blacks accounted for about 95 percent of the population. As a result of the confinement to the poorest land, Africans were forced into the labour market which also forced some of them to change their livelihood strategies from farming. Consequently, Africans were forced to work for subsistence wages on white farms, mines and factories in virtual servitude (Roth & Gonese, 2003).

In 1951, the white administration amassed more powers of forcefully obtaining more productive land from indigenous blacks for their farming activities through the Native Land Husbandry Act (NLHA). Due to a series of legislation, the majority black population was constrained to the Tribal Trust Lands which were overcrowded, unproductive and degraded (Moyo, 2005). As a result of this punitive measures and policies this resulted in the situation where by 1980:

- ❖ 42 percent of the marginally productive land being reserved for the black population in Zimbabwe
- ❖ 51 percent of the productive land which received good rainfall was reserved for the white minority.

Furthermore, more adjustments were made through the Land Tenure Act for the white minority to have a firm hold on land rights of the well watered and productive land which was enacted in 1969 (Made, 1995). These several policies of legislation gave the white minority the right to own and control almost all productive agricultural land in agro-ecological regions I, II and III in Zimbabwe. Consequently the black population was relegated to unproductive land which was at times tsetse-fly infected and received

unreliable rainfall in agro-ecological regions IV and V which were not suitable for meaningful farming (Stoneman, 1988). This resulted in black population obtaining less agricultural output and hence made the majority of them to become food insecure.

Consequently, due to this unfair racially skewed distribution of land in Zimbabwe, it was highly expected the new government elected at independence in 1980 should tackle this critical issue through land reform programme which would transfer more land from the white minority to the majority of people who are the blacks.

## **2.2 Land Reform in Zimbabwe after 1980**

According to Masilela & Weiner, (1996), the Land redistribution question has been central to Zimbabwe's national political discourse before and after independence. Zimbabwe's agriculture has been dominated by large scale commercial farmers, mainly whites, due to colonial history. The new Zimbabwean government, at independence in 1980, inherited a racially skewed land ownership pattern and production systems (Moyo, 2005). The white population who were the minority (with only one percent population), owned and were in possession of 45 percent of agricultural land and 75 percent of this land was located in areas with high agro-economic potential. However the majority black population had no land tenure since it was vested in the state but were only given the rights to farm by chiefs. It was therefore not surprising the liberation struggle was mainly motivated by the need to take back land and majority rule by the black population (Manzungu, 1999). The rural poor people played an important role in the liberation struggle since they were motivated by their historical attachment to land which was their

source of livelihood and main source of food requirements which significantly contributed to the food security status.

When Zimbabwe obtained independence in 1980, the government put in place eight objectives to obtain social justice and economic growth (Akwabi-Ameyaw, 1997). These objectives were:

- ❖ Alleviating population pressure in black Communal Areas with infertile soils;
- ❖ Extending and improving agricultural development projects in rural areas;
- ❖ Improving the standard of living and food security situation of the rural population;
- ❖ Relieving and rehabilitating the lives of the majority black population who were badly affected by the destructive path of the liberation war;
- ❖ Providing opportunities for the landless black population such as creation of employment opportunities;
- ❖ Equitably allocate and fully utilise all land left behind by Europeans who left the country after the war;
- ❖ Expanding or improving services and infrastructures needed to promote the well-being of the people and of economic production; and
- ❖ Provide a platform for national unity and economic development

Consequently, the government embarked on the Land Reform programme and the first phase of the resettlement programme took place between 1980 and 1997. Land reform programme was targeted at the landless, war veterans, the poor and commercial farm workers. However the overall score card regarding progress in realizing these noble objectives was disappointing. The government only managed to resettle 71 000 families on about 3.5 million hectares bought from the commercial sector. This was far below the

intended target of 162 000 families on 8 million hectares of land leaving the majority of black African people landless (MLARR, 2001a). Moreover, as at the end of 1995, the number resettled was only 60,000 (Akwabi-Ameyaw, 1997). Failure to meet the targets was mainly due to logistical and political problems which confronted the acquisition of land from European owners and distribution of lands to African farm households (Akwabi-Ameyaw, 1997). The restrictions which were outlined by the Lancaster House agreement that made it a prerequisite for all transactions involving land to be made on a “willing seller willing buyer” basis, mainly hindered the successful implementation of the land reform programme (MLARR, 2001a). The white land owners did not make land distribution easy since they were not willing to sell their fertile pieces of land and even land which was either idle or underutilized. Moreover, the government was faced with limited funds to acquire land from the white minority thereby slowing the pace of implementation of the land reform programme. Consequently the majority of smallholder farmers were still restricted to limited livelihood strategies since very few of them managed to obtain land and hence their living standards were not significantly improved.

Land resettlement programme implementation was planned into four different models (i, ii, iii and iv):

- i) Intensive re-settlement of family households: rural landless poor households were allocated pieces of land measuring about five hectares of land meant for cultivation of crops and also had access to communal grazing land. The state would purchase land and then divide it into smaller pieces of land which would then be distributed to the land reform beneficiaries. The beneficiaries would then obtain tenure of the land in the form of permits for settlement, cultivation and for accessing communal grazing land. This was the commonly used model accounting for about 90 percent of the implementation of the land reform programme (Deininger *et al*, 2002).

- ii) Village settlement with cooperative farming. This form of resettlement model involved landless rural poor forming cooperatives and collectively obtain farms acquired by the state and also collectively manage agricultural activities of the originally large commercial farms. This model was not widely used since many people were not in support of the model (Juana, 2006).
- iii) Commercial grazing for communal areas. This model was mostly implemented in the agro-ecological regions iv and v mainly the southern parts of Zimbabwe where livestock development projects were carried out on acquired commercial ranches.
- iv) State farm with out-growers. This model entails the government purchasing land and allocates smaller pieces of land to rural landless poor people around the main state farm as out-growers. These out-growers would then provide labour to state farms and in turn receive inputs and farming knowledge from the estate (Juana, 2006).

Before the commencement of Fast Track Land Reform Programme in the year 2000, the structure of land distribution was as shown in Table 2.1. The demand for land among communal farmers and the landless had not met. The majority of Zimbabweans continued to live in rural areas mostly on small farms in less favoured agro-ecological zones. According to Musemwa (2011), the split between large scale commercial (LSC) and communal area (CA) farms continued primarily along racial lines. Table 2.1 shows that one-third of the land belonged to the 4 500 LSC farms and much of it is found in better agro-ecological regions in Zimbabwe.

The Fast Track Land Reform Programme (FTLRP) was implemented during the 2000s in Zimbabwe comprised radical redistributive land reform since the end of the Cold War (Moyo & Chambati, 2013). The FTLRP extensively reversed the racially-skewed agrarian structure and discriminatory land tenures inherited from colonial rule, whereby over

6,000 large-scale white farmers controlled most of the prime land, water resources and bio-reserves, which were mainly productive. Large scale commercial farms included mixed grain and cash crop farms, irrigated fruit and sugar estates, and cattle and wildlife ranches (Kapuya *et al*, 2013). These were on average 2,000 hectares, comprised 35% of the country's arable land, or 11 million hectares out of a total of 31 million hectares whilst over 6 million indigenous black Zimbabweans lived in the marginal rural lands with poor soils, unreliable rainfall, poor social service provision and poor market infrastructure.

Table 2.1: Zimbabwe: Land distribution by farm sector and natural region, 2001

(000 ha)

Natural region	Large-Scale Commercial Farms (LSC)		Small-Scale Commercial Farms (SSC)		Communal Areas		Resettlement Areas (RA)		ARDA (State Farms)		Parks and Wildlife Areas	
	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%
I	202.2	1.8	7.3	0.6	135	0.8	30	0.9	10	2	310	1.0
II	3687.0	32.8	222.2	17.9	1270	7.8	590	17.9	10	2	60	0.5
III	2405.4	21.5	438.3	35.4	2820	17.2	1240	37.8	160	32	130	11.0
IV	2429.1	21.7	473.3	38.2	7340	44.9	810	24.6	60	12	3.649	50.3
V	2489.7	22.2	97.6	7.9	4790	29.3	620	18.8	260	52	2.190	37.2
Total	11213.4	100	1238.7	100	16365	100	3290	100	500	100	6.339	100

Source: Adapted from MLARR (2001b)

The main objective of government's land reform was premised on developing efficient rural agricultural output techniques, increasing the living standards of the rural poor as well as addressing the unjust racially distribution of land to provide social and political

stability in the country. The land reform policy was to achieve optimal land utilisation and increased productivity so as to deliver growth in employment levels, improve distribution of income and environmentally sustainable use of natural resources (Moyo & Chambati, 2013). As a result, the beneficiaries of land reform were expected to be confronted with more options of using the land given to them thereby adapting better livelihood strategies and become food secure. Land reform should also include economic management and higher agricultural productivity among not only the newly settled, but also those remaining in the communal areas that are to be re-organised at the same time with the resettlement programme (Kapuya *et al*, 2013).

Land ownership patterns changed as a result of the implementation of the land resettlement programme as reflected on Table 2.2. It reveals that the area of land owned by large scale farmers reduced from 45 percent in 1980 to 9 percent in 2010. Moreover, land distributed to small-scale farmers by 2000 had reached 4 percent whilst the amount of land owned by small scale A1 and A2 farmers had drastically increased to 11 and 9 percent respectively by 2010 since the introduction of FTLRP in 2000 This shows that 12.1 million hectares of land was distributed to smallholder farmers from large scale farmers which accounts to about 78 percent of land.

Consequently, by 2010, only about 300 white farmers remained in agriculture, alongside some agro-industrial estates (Moyo & Chambati, 2013). The government managed to officially allocate land to over 150,000 families in two types of schemes (i.e. A1 and A2) under the Fast Track Land Reform Programme. As a result, a more broadly based tri-modal agrarian structure emerged representing competing models of accumulation, based on relatively distinct landholding size, forms of land tenure, social status of landholders and the dominant forms of labour used.

Table 2.2: Changes in land ownership, 1980-2010

Land category	1980		2000		2010	
	Area (million ha)	%	Area (million ha)	%	Area (million ha)	%
Communal areas	16.4	42	16.4	42	16.4	42
Old resettlement	0.0	0	3.5	9	3.5	9
New resettlement: A1	0.0	0	0.0	0	4.1	11
New resettlement: A2	0.0	0	0.0	0	3.5	9
Small scale commercial farms	1.4	4	1.4	4	1.4	4
Large scale commercial farms	15.5	45	11.7	30	3.4	9
State farms	0.5	1	0.7	2	0.7	2
National parks and forest land	5.1	13	5.1	13	5.1	13

Source: GoZ & UNCT (2010)

The FTLRP signalled a major policy change from neoliberal prescriptions on land and agrarian reform by eliminating private land ownership and land markets, while the land redistribution itself also undermined the supply of cheap labour from largely landless reserves (Moyo & Chambati, 2013). Land distribution called into presumed norm that agricultural growth and viability required large-scale farms, which in Zimbabwe were pegged at a minimum of 500 hectares. However, since land redistribution, black commercial farmers were provided with relatively large individual plots ranging in size on average from 50 to 300 hectares which retained the idea of large-scale farms and the reliance on cheap labour expected to be provided by abundant labour supplies from the majority of people who are unemployed in the country (Cousins & Scoones, 2010).

Changes in land ownership due to the implementation of land reform programme had an effect on the agricultural dynamics and production patterns in Zimbabwe.

## 2.3 Zimbabwe's Agrarian Structure and Production patterns

### 2.3.1 Agrarian structure

About 33 million hectares of the total land area are reserved for agriculture out of 39.6 million hectares whilst the remaining part is set aside for urban settlements, national parks and forests (FAO, 2012). Land in Zimbabwe is divided into five natural regions taking into account the type of soil and rainfall pattern as illustrated on Figure 2.1 below.

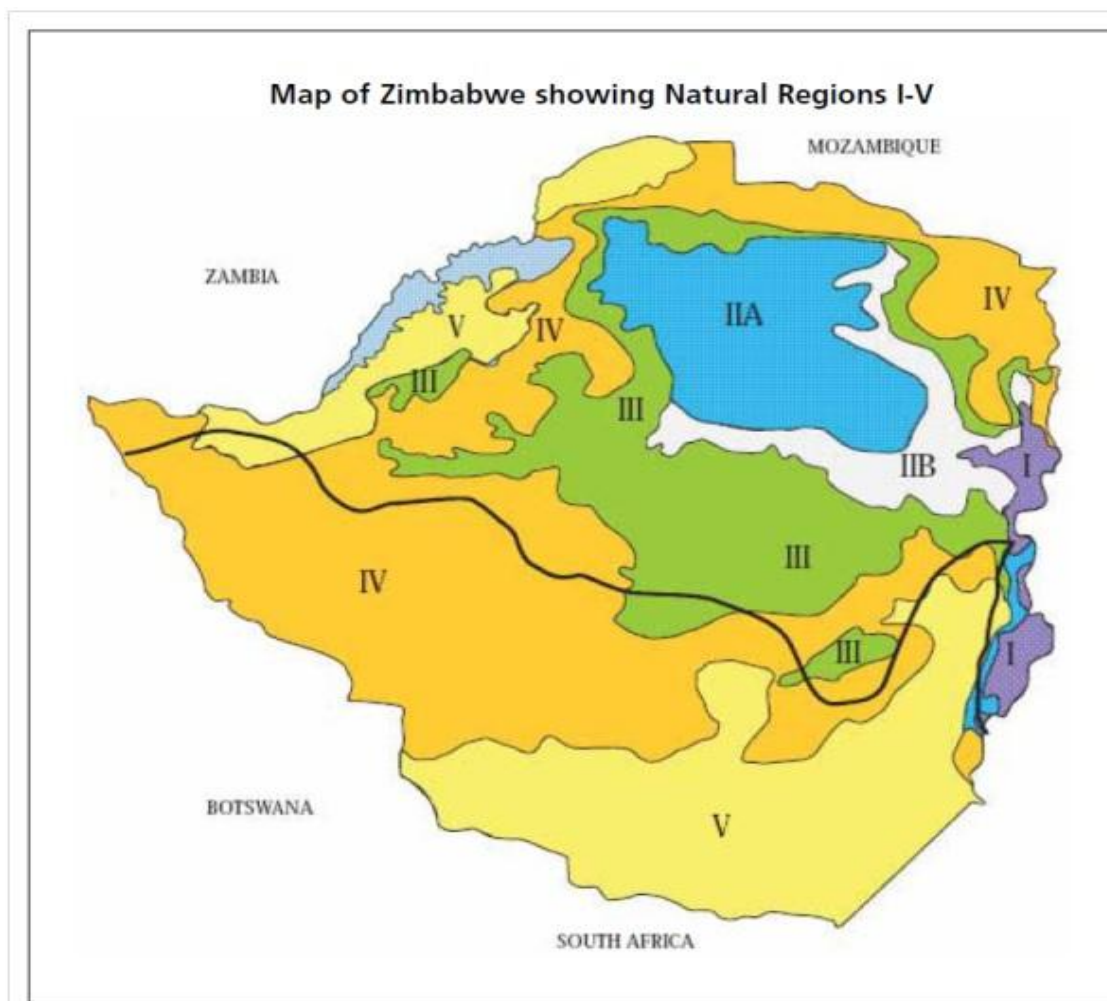


Figure 2.1: Agro-ecological zones in Zimbabwe

Source: FAO (2012)

Most parts of Manicaland as well as Mashonaland Provinces are classified under ecological regions I and II which are more conducive to growing tobacco, maize and other crops which require rainfall above 700mm. Midlands, Matabeleland (North and South) and Masvingo Provinces are under natural regions III, IV and V where crops (e.g. sorghum, rapoko) and animals which require less rainfall are cultivated and reared. Zimbabwe's farming sector has the potential of producing more than adequate output for exporting and has also reached those level before 2000 (FAO, 2012).

According to GoZ & FAO (2012), more than a third of the country has the capacity to support gainful farming activities. Region I was deemed suitable for specialized and diversified farming, especially activities related to forestry, fruit, intensive livestock production and tobacco farming. Region II was seen as suitable for diversified farming that includes production of flue-cured tobacco, maize, cotton, sugar, beans, coffee, sorghum, groundnuts, seed maize, barley and related horticultural crops. The region was also deemed appropriate for irrigated winter wheat, dairy farming as well as poultry. Due to the suitability of agricultural potential of these two natural regions, it is not therefore surprising that tobacco farming is extensively undertaken in Manicaland Province. Most parts of Natural Region III with suitable terrain were seen as being marginally suitable for semi-intensive farming especially the production of grains and livestock. According to ZimVac (2011), the largest number of rural residents is found in Natural Region IV (NRIV) (just over 2.5 million in 2002), and it is also clear that the largest number of rural poor is found in this natural region. Land classification generally in Zimbabwe reflects recommended cropping and livestock production patterns. Natural regions represent land-use potential according to average rainfall quantities and their variability is also summarised on Table 2.3 below.

Table 2.3: Land Areas by Natural Regions

<b>Natural region</b>	<b>Suitable intensity of land use</b>	<b>Characteristics</b>
I 613 233 ha (1,56%)	Specialised and diversified crops	1,050 mm plus rainfall per annum with some rain in all relatively low temperature periods
II 7 343 059 ha (18,68%)	Intensive	700-1,050 mm rainfall per annum with rainfall confined to summer
III 6 854 958 ha (17,43%)	Semi-intensive	500-700 mm rainfall per annum with relatively high temperatures and infrequent, heavy falls of rain and subject to seasonal drought
IV 13 010 036 (33,03%)	Semi-extensive	450-600 mm rainfall per annum and subject to frequent seasonal droughts
V 10 058 460 (26,21%)	Extensive	Characterised by poor soils and erratic rainfall pattern usually receiving less than 500 mm annum.

NB: The remainder of 1,220,254 ha (3,1%) is unsuitable for any form of agricultural use

Source: Mushunje (2005)

### **2.3.2 Production patterns**

In Zimbabwe, production patterns are significantly shaped by agro-ecology (ZimVac, 2011). The five agro-ecological regions in the country are spread across the highveld, middleveld and the lowveld (FAO, 2012). Much of central and northern part of Zimbabwe is in the middleveld, sitting on a high plateau which averages about 900 m above sea level. According to ZimVac (2011), the central plateau is prime agricultural land, which allows for intensive and semi intensive production of a diversified base of cash (e.g.

tobacco) and food crops, and livestock production which is also supported by high summer rainfall that can reach 1000 mm annually between November and April. As a result, these middleveld zones are dominated by cereal production. Maize, sorghum and millet are the three main livelihood types which are found in this region (FAO, 2012).

Maize is the preferred food crop but sorghum and millet are cultivated to reduce the effects of periodic droughts. Subsequently, groundnuts and leafy vegetables are the main cash crops, and where land holdings permit, cotton is cultivated. Moreover, livestock production mainly comprises of cattle and goats. These livestock are particularly for the better-off households, and its contribution to household food security grows further south into the middleveld (ZimVac, 2011). Resettled smallholder households in these regions have more livelihood options and hence they have better livelihood options since their climate and good soils support a variety of food crops hence they are likely to be food secure.

According to Kapuya *et al*, (2013), the beneficiaries of the land reform programme hold up to 15 acres of prime land in the mid/highveld re-settled zones. These farmers benefit from various government inputs and mechanization which they use to cultivate crops such as maize, winter wheat, groundnuts, tobacco, cotton and vegetables for both food and cash income. According to FAO, (2012) these areas have generally well developed market infrastructure which offers smallholder farmers in these areas incentives to produce crops such as tobacco which are more rewarding and then buy food products with the income obtained hence higher chances faced by smallholder farmers residing in this region to be food secure.

The lowlands circle the country from the north east, north and the west (ZimVac, 2011). These lowlands are broken on the eastern border with Mozambique, where the topography rises to due to a rugged mountain range. Consequently, the location of households in the lowlands affects how they secure food. The common feature of these lowlands is the riskiness of agriculture due to hot and dry climate resulting in poor soils and rainfall erratic. Both semi-extensive and extensive farming is practised in this area. Hot and humid temperatures support a mixed agricultural base of cotton and maize in the Zambezi valley (FAO, 2012). Livelihoods in this region are mainly obtained through cultivating cereals and cotton. Although there is lower population density and relatively larger land holdings in these areas, agriculture is a riskier proposition due to its climate. Livestock are also an important component of the lowland economies as well as seasonal work in sugar plantations such as Triangle and Hippo Valley. Smallholder farmers situated in these lowlands are faced with limited livelihood strategies since they are faced with hot and dry climate resulting in poor soils which do not support much agricultural activities which will in turn result in food insecurity being faced in these areas.

Furthermore, there are also lowveld re-settled areas where game ranches were transformed into A1 and A2 smallholder farms (FAO, 2012). Moreover, ZimVac (2011) noted that in the Save valley, pockets of re-settled ex-commercial irrigated areas are found where cereal and cotton producing resettled smallholder farmers live which are mingled with communal lands and also irrigated commercial sugar and fruit estates that provide opportunities of seasonal labour to mainly surrounding people. Casual work is also available either in game parks, on commercial ranches or in nearby abandoned mines or in rivers which are also of primary importance to the occupants of these lowland areas (FAO, 2012).

The lowveld and middleveld also extend to the eastern highlands in Manicaland province which in cooperate mountainous border range between Zimbabwe and Mozambique (ZimVac, 2011). These areas are blessed with fertile soils and sufficient rainfall which provide conducive agricultural for intensive agricultural production of tobacco, grains, legumes, tubers, fruit and vegetables. In the communal lands, own-crop production provides families with most of their food requirements during the year despite the difficult rugged terrain which prevents wide use of ploughs for cultivation. According to ZimVac (2011), harvest outcomes of these communal farmers mainly influence their food security outcome. Crops such as tea, fruit, and coffee are grown for export on specialized commercial estates in the eastern highveld resettled zone.

### **2.3.3 Agriculture and agricultural production in Zimbabwe**

According to Scoones *et al*, (2011) agriculture plays a critical role in the Zimbabwean economy through its contribution to livelihoods, food security of the rural people and economic growth of the nation. Zimbabwe produces a diversity of crops and animals ranging from maize, soyabeans, sunflower, barley, wheat, groundnuts, sorghum, coffee, cotton and tobacco to cattle, sheep, goats, pigs and chickens (ZimVac, 2013). Horticultural crops like flowers, fruits and vegetables are also produced for foreign markets.

According to (GoZ & FAO, 2012), Zimbabwe's farming sector has potential to produce excess food crops such as maize as well as cash crops such as tobacco and cotton. However, agricultural output for both food crops particularly maize and wheat and cash crops such as tobacco and cotton, have been declining since the implementation of the

Fast Track Land Reform in 2000 (Ministry of Finance, 2011). Production trends of some of the major crops are summarized in Table 2.4.

Table 2.4: Trends in production ('000 tonnes) of selected crops (1994-2012)

<b>Crop</b>	<b>1994</b>	<b>2000</b>	<b>2005</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Maize	2110	1545	750	575	1240	1300	1452	968
Small grains	205	77	66	93	270	200	156	109
Wheat	239	350	229	39	48	41	42	Na
Tobacco	180	200	83	70	59	123	131	144
Horticulture	34	64	60	60	35	43	Na	Na

Source: GoZ & FAO (2012)

Some of the major causes of negative production trends of main staple cereals in the country have been controlled prices for agricultural inputs and commodities. Price controls of maize and wheat led to farmers mainly resettled smallholder farmers transferring from producing them to cash crops such as tobacco and cotton whose prices were not controlled. Changes in the composition of agricultural output produced by resettled smallholder farmers is also linked to the changes in land ownership patterns and land redistribution which was implemented since independence in 1980.

The Zimbabwean agricultural sector was dualistic at independence in 1980, consisting of smallholder farmers and large scale farmers. Until the year 2000 the large scale farmers were around 4000 with better farming techniques and comprising about 11 million hectares of fertile land which was mainly situated in high agricultural potential areas

(Tekere & Hurungo, 2003). However, smallholder farmers occupied mainly infertile sandy soils situated in low agricultural potential areas with low and unreliable rainfall pattern (Moyo, 2011). Agricultural production for large scale farmers was mainly meant for commercial purposes while that of smallholder farmers was primarily for home consumption. The main agricultural output from large scale farmers mainly was high returns crops such as cash crops particularly tobacco and horticultural produce whilst smallholder farmers mainly produced food crops which were of low value (Juana & Mabugu, 2005).

After the implementation of land reform programme in Zimbabwe, resettled smallholder farmers started moving from producing only for consumption to agricultural activities for commercial purposes such as tobacco farming. This enabled them to diversify and improve their livelihood strategies as well as contributing to the economic growth of the country through exporting some of their agricultural produce such as tobacco hence contributing towards agricultural trade in Zimbabwe.

#### **2.3.4 Agricultural trade in Zimbabwe**

The main agricultural commodities exported include tobacco, cotton lint, sugar and horticultural products (Anseeuw *et al*, 2012). According to GoZ & FAO (2012), imports have been growing because of the increased shortages of cereals caused mainly by drought, population growth, increased urbanization and the shift of production from cereals to cash crops.

The agricultural sector has been the largest single source of export earnings, contributing 40 percent to 45 percent of total exports from 1980 to 2010 (GoZ & FAO,

2012). Due to resettled smallholder farmers transferring to cash crops particularly tobacco, the crop has remained one of the most contributing agricultural products towards bringing the much needed foreign currency into the country even during difficult years such as 2002 when the country was faced with a drought as shown on Table 2.5.

Table 2.5: Contribution of various commodities to agricultural export earnings (%)

<b>Year</b>	<b>Tobacco</b>	<b>Sugar</b>	<b>Horticulture</b>	<b>Cotton Lint</b>	<b>Others</b>	<b>Total agricultural exports</b>
<b>2000</b>	54	9	12	15	9	100
<b>2001</b>	65	8	13	9	5	100
<b>2002</b>	62	9	18	8	3	100
<b>2003</b>	55	9	20	12	4	100
<b>2004</b>	45	11	17	24	4	100
<b>2005</b>	47	10	18	22	3	100
<b>2006</b>	43	17	11	23	5	100
<b>2007</b>	46	16	12	22	5	100
<b>2008</b>	50	11	5	26	8	100
<b>2009</b>	61	11	3	22	3	100

Source: (Anseeuw *at al*, 2012)

### **2.3.5 Tobacco production in Zimbabwe**

According to Keyser (2007), tobacco farming in Zimbabwe is carried out in high potential agro-ecological regions such as natural regions I and II. However these greatly attractive

agricultural potential regions only accounts for less than 15 percent of the country's total land area. These regions generally receive reliable rainfall ranging from 750 to 1000 mm which is ideally suitable for intensive farming practices such as tobacco farming. Before the land reform programme was implemented redistribution, large scale farmers were in possession of almost 63 percent of these high agricultural potential regions. Although these large scale tobacco farmers were less than 2000 growers, they contributed around 87 percent of area which was placed under tobacco farming and 95 percent of the crop was produced by this small group of farmers.

According to Keyser (2007), the majority of tobacco farmers had diverse sources of income including wheat, soyabeans, maize and groundnuts although tobacco was the main source of income for these farmers. Furthermore, many large scale tobacco farmers also produced high yielding crops such as flowers, paprika and coffee as a way of reducing the risk of being over depended on tobacco farming alone in case of unforeseen failure of the crop or low prices faced on the world market. Consequently, there was a boom in the production of horticultural exports in the late 1990s by tobacco farmers accounting to about 80 percent of all horticultural exports in the country. However, smallholder farmers only produced a very insignificant amount of tobacco as they lacked productive land and climate suitable for tobacco farming (Keyser, 2007).

According to GoZ & FAO (2012), there has been a growing interest in tobacco farming in by smallholder farmers after they were allocated land through different phases of land reform programme in Zimbabwe. Consequently the organisation of Zimbabwe tobacco sector has changed as reflected by box 2.1 below.

“Approximately 98% of tobacco produced in Zimbabwe is exported, to over 80 countries. The remaining 2% is processed locally by four cigarette-manufacturing plants, of which three produce for export. In recent years, processing companies had to resort to importing tobacco, given serious shortages of raw material, particularly cut-rag (semi-processed tobacco), as a direct result of declining crop size.

Traditionally, tobacco has been marketed through an auction marketing system overseen by the Tobacco Industry Marketing Board. Three Harare-based auction floors have been the platform of exchange, with buyers on the auction floors being approved by the Board. A prerequisite for buyers is proof of offshore funds, since all price bids and payments are made in United States dollar. In 2003, an important policy decision was made to transform the tobacco marketing system from auction sales to a dual system that involves the adjacent operation of contract growing/marketing and auctions. This initiative was meant to augment production through input provision and the extension of technical advice by contractors. Not only has this led to the timely availability of inputs, but it has also seen contract growing accounting for 61% of tobacco sales in 2007. The contractor’s options are either to export directly to foreign markets or to trade the tobacco on the auction markets. The main attraction for the contracting firms has been the ability to retain a portion of export proceeds for their own import needs.

A number of challenges have confronted tobacco marketing in recent years. A long-standing problem was the overvaluation of the Zimbabwean dollar, which reduced the effective price farmers obtained from tobacco growing and, hence, adversely affected grower viability. The suspension of the Zimbabwean dollar as a medium of exchange and the subsequent adoption of a multi-currency system in 2009 have addressed this critical problem” (Anseeuw *at al*, 2012)

Moreover, the profile of tobacco farmers has significantly changed as well. Prior to 2000, approximately 1 500 of the then about 4 500 white commercial farmers produced 97 percent of the tobacco delivered to sales floors (TIMB, 2012). However by 2011, about 67 000 tobacco growers were resettled smallholder farmers. Many smallholder farmers are transferring from farming food crops to tobacco farming as a way of improving their livelihood strategies, diversify their livelihoods as well as improving their income and become food secure.

## **2.4 Summary**

Zimbabwean's land question is inextricably interlinked between the past and the present. When the country attained its independence in 1980 from the British colonialists, it was inevitable that land redistribution had to be adopted which aimed at redressing historical imbalances in resource distribution and access to institute greater participation by indigenous black households in agricultural production. The land reform programme was thus of implementation propelled by social, economic as well as political motivation. The land reform was mainly characterised by land redistributed from large-scale commercial farmers to the indigenous landless blacks. Its main objective is to give new black farmers some access to land, markets, credit and training.

When Zimbabwe gained political independence in 1980, the agricultural sector was characterized by duality and racially skewed land ownership and access pattern which favoured the white minority. Consequently, smallholder farmers had limited access to both credit and extension services before independence. Many potential black farmers had little acceptable loan collateral, heavy reliance on family labour, a general poor resource base, inadequate technologies, under-developed infrastructure and weak

institutional support which resulted in low production levels. To try and rectify the imbalances in land ownership, soon after independence, the new government acquired some land from the large scale sector that was used to resettle some landless peasants.

Since independence about 12.1 million hectares of land was transferred mainly from large scale commercial farmers to smallholder and resettled families. Although this can be said to be no mean achievement, what remains to be seen is whether livelihood strategies and food security status for smallholder farmers will be improved and the economic performance of the country can be improved. It is expected that land redistribution will result in increased and better livelihood strategies and poverty reduction. The following chapter will detail the theoretical and empirical literature that was obtained in explaining livelihood strategies and food security.

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## **CHAPTER 3: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

### **3.0 Introduction**

This chapter is going to outline theoretical and empirical literature linked to livelihoods and food security accumulated by different researchers over time. Literature on the livelihoods and food security situation in Manicaland province in Zimbabwe is also discussed. It is also going to dwell on the modified livelihood and food security conceptual framework which will be adopted for this study. Moreover, this chapter explains the natural capital, investigating the nature and distribution of poverty and vulnerability, identifying a number of key livelihood determinants, livelihood strategies and food security among different households in the study area.

### **3.1 Theoretical literature on livelihoods**

#### **3.1.1 Origins of the sustainable livelihood approach.**

The sustainable livelihood approach became popular in the middle of the 1980s to augment the basic needs development discourse of the 1970s, and the top down approaches that had dominated the development discourse for some time (Ellis, 2000). One of the strongest critics of the top down approach was Robert Chambers who emphasised the need for enhanced focus on the poor people themselves since they are key actors of development (Chambers, 1983). The idea behind this motive was to replace the trickle down approach with participation and action from below. Furthermore, Chambers (1983) argues that the sustainable livelihood thinking was formed by combining the best environment, development, and livelihood thinking. This implies,

focusing on production, sustainability, productivity, poor people's livelihoods and wellbeing.

According to Juma (2009), a livelihoods approach takes into account the livelihood strategies as its starting point. Several authors also have modified versions of the description of the livelihood approach and organisations (Cahn, 2002; DFID, 2001; Ellis, 2000; Scoones, 1998, Wanyama *et al*, 2010). Scoones (1998) described a livelihood as assets, activities and capabilities which are required to obtain the minimum standard of living. Moreover, sustainable livelihood is attained when households are able to cope with uncertainties enhanced by the assets and capabilities they possess whilst taking into consideration their resource as land (DFID, 2001). Furthermore, a livelihood includes five main assets which are natural, human, social, physical and financial capital which predominantly influence the living standards of individuals and households over time (Wanyama *et al*, 2010).

Ashley & Carney (1999) also explained that, sustainable livelihoods are obtained when households are able to cope with uncertainties and shocks and able to improve the assets which they depend upon and also able to leave a bequest for the future generations. The shocks and uncertainties refer to unforeseen disturbances and activities that occur in the economy which may become cycles or trends with time. Thinking and making decisions which focus on the future generations being able to attain their livelihoods without any hindrances from the activities which are carried out today. The Sustainable Livelihood Approach which describes how decisions on livelihood strategies influence livelihood outcomes is illustrated on Figure 3.1 below.

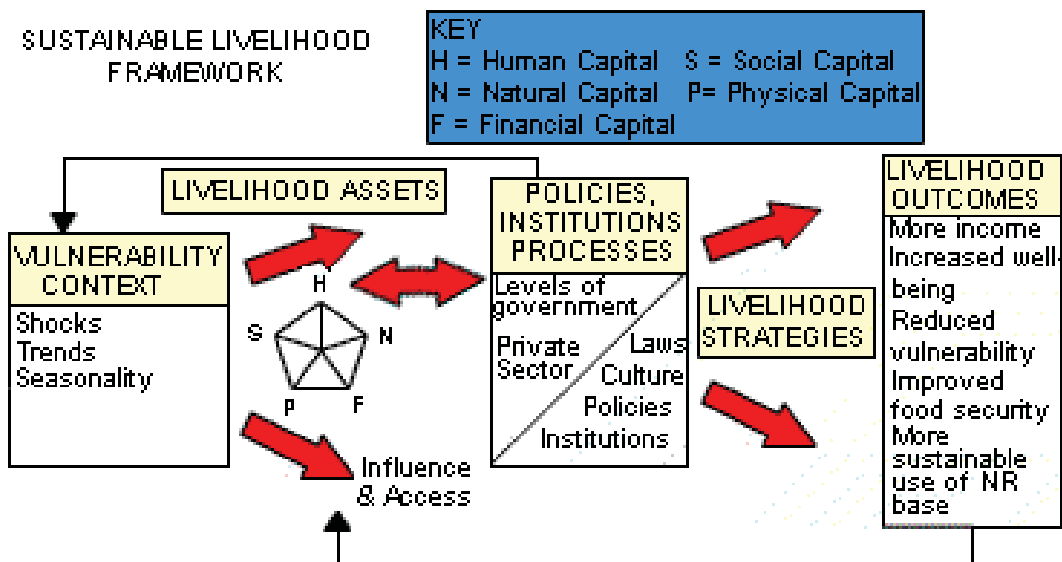


Figure 3.1: Sustainable livelihood framework

Source: DFID (2001)

The Sustainable Livelihood Approach establishes how livelihood strategies in rural areas influence the resultant livelihood outcomes over time. Furthermore, this approach is not restricted to analysing the livelihoods strategies of individuals and households over time alone but also dwell on how the important factors such as the ownership of livelihood assets (as explained below on 3.1.1.1) influence the wellbeing of people over time (Scoones, 1998, Ellis, 2000 & DFID, 2001).

### 3.1.1.1 Livelihood assets

The livelihood assets which are owned and available for use by individuals or household represent a foundation upon which the household livelihood strategies may be built. These assets in the sustainable livelihood framework are classified under five different categories as follows;

### **a) Natural Capital (N)**

According to Berkes & Folke (1992), natural capital is comprised of three main categories:

- ✚ Biophysical environment such as land, maintenance of the quality of the atmosphere, climate, operation of the hydrological cycle including food controls and drinking water supply, water assimilation, recycling of nutrients, pollution of crops, provision of food from the sea and the maintenance of a vast genetic library
- ✚ Non-renewable resources such as oil and minerals that are extracted from the ecosystems
- ✚ Renewable resources such as fish, wood and drinking water that are produced and maintained by the processes and functions of the ecosystems.

Ownership of natural capital is an important factor which determines the livelihood strategies which households will dwell on (Wanyama *et al*, 2010). Furthermore, inequitable access to natural capital such as land in rural areas of Less Developing Countries has provided a stamping block to reduction of poverty and attainment of food security since land is of paramount importance to the attainment of livelihoods by future generations (Gebru & Beyene, 2012). Land is the most important natural asset which was transferred to resettled smallholder farmers through land reform programme in Zimbabwe. Though land is the key natural resource it is not enough on its own without other augmenting capital assets such as availability of agricultural equipment. Whilst beneficiaries of land reform programme have obtained land, there are other several assets which also need to support smallholder livelihood activities such as human, physical, social, and financial capital.

**b) Human capital (H):** comprise of human mental and physical abilities such as the body structure, skills, and knowledge of individuals to contribute towards the livelihood strategies which will be pursued by households;

**c) Physical capital (P):** constitute the infrastructure which is important to support agricultural activities such as provision of transport, shelter, production equipment, water, energy and communications;

**d) Social capital (S):** this entails the social resources obtained by individuals or household as a result of belonging to a particular group or people or society such as networks, relationships of trust or membership of various groups which influence the livelihood strategies pursued by households over time; and

**e) Financial capital (F):** comprises of the financial resources which can be assessed by households for use such as savings, credit, pensions and remittances. These financial resources which are available to households make it possible for them to access different livelihoods strategies and tend to influence their livelihood outcomes (Berkes & Folke, 1992).

The main livelihood asset which was considered in this study is the increase in natural assets (increase in land holdings) for smallholder farmers as a result land reform programmes carried out in Zimbabwe. As a result, the Sustainable livelihood framework was modified to come up with the conceptual framework which explicitly shows how the ownership of the key natural assets together with other factors influences livelihood strategies as well as food security status of resettled smallholder farmers.

### **3. 2 Conceptual framework**

Based on theoretical findings of sustainable livelihood framework for explaining livelihood strategies from the literature and its contribution to food security, a conceptual framework was developed to guide the research as shown on Figure 3.2. The model shows how increase in land given to smallholder farmers together with different environmental factors influenced the household livelihood strategies and decision-making processes through time, taking the role of household characteristics into account. Households make strategies and decisions to develop and maintain livelihood and consequently attain food security. Livelihood strategies and food security tend to change with the passage of time as land distribution takes place as reflected by the historical time axis. Resettled smallholder farmers finds themselves with choices of either to engage in food crops production such as grains or cash crops such as tobacco farming. These livelihood strategies (as explained on 3.2.1) in turn will have a significant influence on the livelihood outcomes and consequently influence the food security situation for smallholder farmers in Zimbabwe.

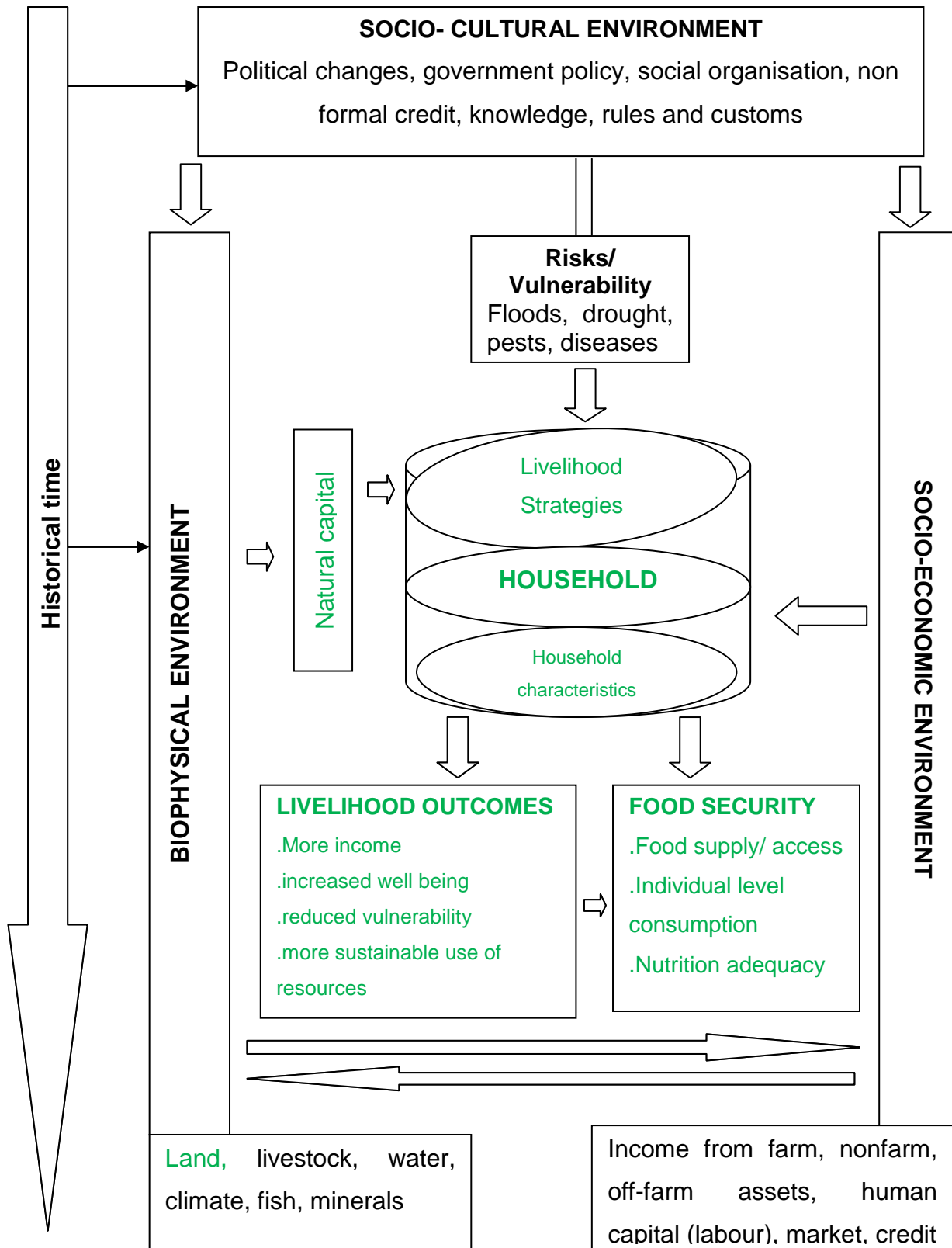


Figure 3.2: Conceptual framework for livelihood and food security in rural households

Source: Modified livelihood and food security framework by Ahmed (2005).

### 3.2.1 Livelihood strategies

Livelihood strategies comprise of various household activities or behaviour patterns are various activities or adopted household behaviour patterns and choices undertaken in order to meet their livelihood objectives (Doss, 2006). There are three different ways which can be pursued by members of the household in order to meet their livelihood goals, which are farming activities, non-farming activities and migration with the given available resources. Furthermore each direction offers more choices which are available to the household such as the farming techniques to be used, the types of crops to be undertaken, diversification methods and whether temporary or permanent movement to another area. Scoones (1998) and Swift (1998) explained that rural livelihood strategies can be divided into three categories namely agricultural intensification or extensification, livelihood diversification and migration according to the nature of activities undertaken as shown on Box 3.1.

**Box 3.1 “Agricultural intensification or extensification, livelihood diversification, and migration**

- **Agricultural intensification/extensification:** These strategies mainline continued or increasing dependence on agriculture, either by intensifying resource use through the application of greater quantities of labour or capital for a given land area, or by bringing more land into cultivation or grazing. The strategy pursued by the household will depend on agro-ecological potential and the implications for labour and capital. Technical developments in agriculture may also operate as a key determinant. The availability or not of this option, and the extent to which it is undertaken by the household, will determine in major part the need for, and the household resources available to, off-farm livelihood diversification.

• **Livelihood diversification:** Diversification here may be to broaden the range of on-farm activities (e.g. adding value to primary products by processing or semi-processing them), or to diversify off-farm activities by taking up new jobs. It may be undertaken by choice for accumulation or reinvestment purposes, or of necessity either to cope with temporary adversity or as a more permanent adaptation to the failure of other livelihood options. The former motivation might be associated with a wide income-earning portfolio to offset all future types of shocks or stress, whereas the latter would more likely be a narrower, rehearsed response to a particular type of shock or stress.

• **Migration:** Migration may be voluntary or involuntary. As a critical strategy to secure off-farm employment (i.e. needs driven), it may rely on and/or stimulate economic and social links between areas of origin and destination. Kinship structures, social and cultural norms may strongly influence who migrates. Migration will have implications for the asset status of those left behind, for the role of women and for on-farm investments in productivity”.

Source: Scoones (1998) and Swift (1998)

Doss (2006) noted that agriculture is undoubtedly the major livelihood strategy which significantly contributes towards the livelihood outcomes and employment generation of the rural smallholder farmers’ livelihoods. Furthermore, the 90 percent of households in Southern Africa are involved in producing agricultural output meant for consumption (Heltberg & Tarp, 2002). Moreover, off-farm activities in Southern African countries like Zimbabwe, South Africa, Lesotho, Malawi and Swaziland where transfer payments like remittances and pension payments significantly contributes to sources of income. Rural to urban migration is prevalent as the young people move to cities in a bid to obtain formal employment and better living standards since agriculture generally offers low and unreliable income. Other off-farm activities also supports rural households income such

as hawking, lending money and selling liquor particularly in Zimbabwe, Malawi and Mozambique to supplement household income (Heltberg & Tarp, 2002).

### 3.2.1.1 Livelihood strategies in Manicaland Province in Zimbabwe

Livelihoods in Manicaland province are mostly agro-based and the major source of food is own production through agricultural activities and casual labour (Ndlovu, 2011). Furthermore Ndlovu (2011) noted that farmers in Manicaland own livestock, which are a source of income during years farmers experience drought. Literature reveals that livelihood strategies are reflected through sources of income for households over time. According to ZimVAC (2013) Rural Livelihood Assessment report, the dominant source of income is casual labour with 23.1% followed by food crop production sales at 12.4% and remittances at 11.7% as illustrated on Figure 3.3. The major crops grown by smallholder resettled farmers are tobacco, maize, potatoes, groundnuts, roundnuts and wheat.

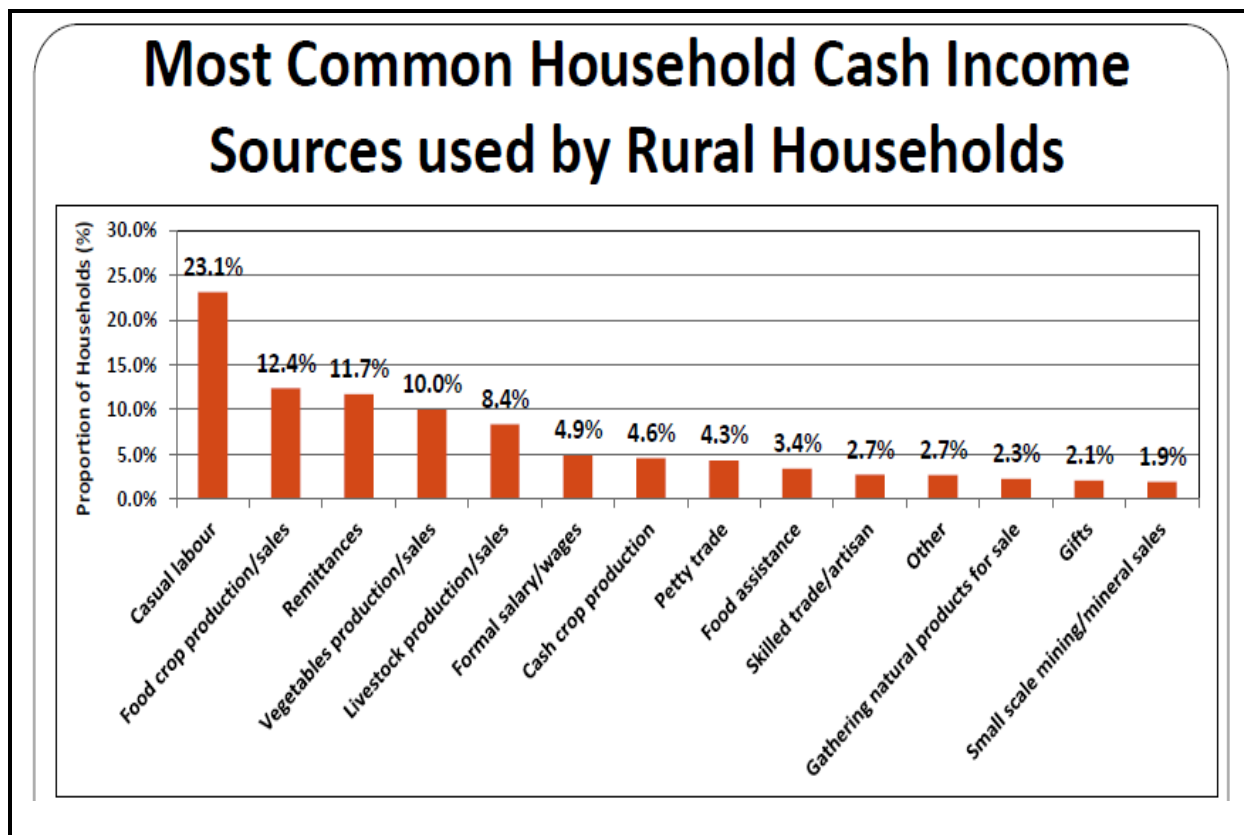


Figure 3.3: Most common household cash income sources used by rural households in Zimbabwe

Source: ZimVac (2013)

### **3.2.2 Livelihood outcomes**

The main aim of all individuals is to maintain or achieve better livelihood outcomes as well as to improve their standards of living (DFID, 2001). However specific objectives such as raising income or improving food security are identified according to the individual's choice and desires. It is of paramount importance to identify the resultant effects of these livelihood strategies as some other non-intentional outcomes maybe realised and/or the intended benefits may not be realised over time. As a result, an overall outcome of the livelihood strategy can either produce positive or negative effects on livelihood outcome and/or on food security status of the household. The choice of the strategy made can also impact positively or negatively on the economy or environment.

Consequently, it is not sufficient for the livelihood strategy to only achieve the intended household objectives but there is also need to ensure that it is sustainable. It is important to ensure that the adopted livelihood strategy is yielding the intended goals whilst it is not eroding the productive capacity of resources to meet the needs and productive aspirations of the future generation (DFID, 2001). The obtained livelihood outcomes of different livelihood strategies will have an influence of the household's food security situation over time.

### **3.2.3 Theoretical literature on food security**

The definition of food security has been changing over time leading to several definitions in published writings (Faridi & Wadood, 2010). The wider recognition of the complexities of the technical and policy issues involved of food security is reflected its continuous evolution as an operational concept in public policy.

The concept of food security originated only in the mid-1970s, in the discussions of international food problems at a time of global food crisis (Faridi & Wadood, 2010). The initial focus of attention was mainly on assuring the availability of basic foodstuffs at the international, national and regional levels. In trying to solve the supply problems, international negotiations were carried out, leading to the World Food Conference of 1974. As a result of this conference, a new set of institutional arrangements which included resources for promoting food security and forums for dialogue on policy issues were established (Faridi & Wadood, 2010). Moreover, issues of famine, hunger and food crisis were also extensively examined following the supply problems of the mid-1970s. The outcome of the World Food Conference of 1974 recognised that the critical aspect of food security was the behaviour of potentially vulnerable and affected people. Food security was defined as: “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” in the 1974 World Food Summit (FAO, IFAD & WFP, 2013).

Results obtained from the successful Green Revolution which however also revealed that that was no dramatic decline in the poverty levels and levels of malnutrition was an important factor in changing the definition of food security. This was as a result of poor people failing to afford to purchase food stuffs which meant that there was no significant increase in demand of food (Faridi & Wadood, 2010). As a result, FAO in 1983 expanded the concept of food security to include securing access by vulnerable people to available supplies, implying that demand and supply of food should be balanced. This will ultimately result in all people at all times to have both physical and economic access to the basic food that they need (FAO, 1983). In other words enough basic food products have to be supplied to people backed by the willingness and ability of the people to purchase them for them to be food secure.

The World Bank report in 1986 “Poverty and Hunger” (World Bank, 1986) focused on the temporal dynamics of food insecurity. The report managed to distinguish the difference between chronic food insecurity, associated with problems of continuing or structural poverty and low incomes, and transitory food insecurity, which involved periods of intensified pressure caused by natural disasters, economic collapse or conflicts between countries which usually result in wars. This concept of food security made the definition of food security to be altered to include that all people should be able to access enough food at all times, have a healthy life and be able to work normally for their wellbeing.

The concept of food security, in mid 1990s, was then changed from the spectrum of the individual to the international level (Faridi & Wadood, 2010). However, access now involved the quantity and quality of food, indicating continuing concern with protein-energy malnutrition. Moreover, the definition was broadened to include the safety of food and also nutritional balance, which reflected concerns about food composition and nutrient needs for an active and healthy life. Furthermore, tastes and preferences of different societies were taken into consideration. This was as a realisation that the tastes and preferences of people differ from one area to the other hence the satisfaction derived from the same basket of goods differs with changes in places and therefore had to be included in the definition of food security.

The definition of food security was also modified by Gurkan (1995) to mean the prevailing food access to nutritious and safe food at all times by individuals so as to maintain an active and healthy life. According to FAO (1996), food security is achieved by people in the economy when they have access to adequate, safe, preferred and nutritious food which makes it possible for them to meet their dietary needs and healthy life. According to FAO (2002), “Food security is a situation that exists when all people, at

all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

FAO (2006) noted that food insecurity is of major concern in the world with over 854 million people being affected. Furthermore Less Developing Countries were most affected since 96 percent of the people in the world affected by food insecurity were situated in the region. Different nations in the world have undertaken to reduce or eliminate poverty through consenting to the first Millennium Development Goal of reducing poverty by half by 2015 thereby improving food security (FAO, 2006). This was as a realisation that food insecurity was closely related to poverty, unemployment and income obtained by household from the findings in the UNDP report of 2006. Loss of employment usually ignites poverty, which ultimately result in decline in the standards of living of households. Furthermore, poverty provide a deterrent and barrier for individuals to be able to seek for employment since they will waste a lot of time looking for food thereby trapping households in a vicious cycle of lack employment opportunities. As a result, individuals will be faced with limited income which will ultimately lead to social exclusion and food insecurity. The findings in the UNDP report of 2006 were supported by the FAO report of 2008 which also suggested that food insecurity creates a vicious cycle of unemployment, poverty and hinders development of households.

Hart (2009) also established that the most agreed definition of food security encompass the phrase “at all times” hence the duration and extend of food insecurity is disregarded. Moreover, food insecurity can be temporal and also the intensity of food insecurity differs. Temporal food insecurity can be long term (chronically), short term (transitory) or cyclical. The magnitude of the food gap on the other hand reflects the intensity dimension of food security (Hart, 2009).

The working definition which is going to be used in this thesis is that; food security is attained when all people have economic, social and physical access to enough nutritious and safe food which meets their dietary needs for a healthy and active life at all times as defined by Faridi & Wadood (2010). Household food security is obtained by applying this concept to individual members of the household. Consequently, food insecurity exists members of the household do not have sufficient economic, physical and social access to nutritious and healthy food. For households to have better opportunities of becoming food secure, they need to be capacitated with essential livelihood assets such as land which is bolded on the conceptual framework. This was specifically achieved through land distribution to the majority landless smallholder farmers as a result of land reform programme which was carried out in Zimbabwe.

### **3.2.4 Land and rural development**

Land is one of the most key factors which are used for agricultural purposes for rural development by smallholder farmers. Consequently, successful land reform programmes are expected to offer smallholder farmers more and better livelihood options thereby improving their livelihood outcomes (Ahmed, 2005). This is as a result that land reform is provides an opportunity to narrow inequalities in income distribution and ensuring that the expansion of agricultural production which benefits more people and therefore reducing food insecurity of a greater proportion of the population. Furthermore, the land rights given to the rural smallholder farmers tend to translates to rural development. Box 1 summarises the critical elements linking land rights and rural development. However there is considerable evidence that land redistribution tends to have adverse effects on output over time (Johnston & Clark, 1982).

### **Box 1: Linking land rights and rural development**

“The poor can only realise the benefits of more equal land distribution and secure land tenure if they can also participate in wider development through:

Better access to input and product markets, including savings and credit;

Appropriate technologies for higher, sustainable productivity;

Education and the skills to use the new technologies;

Opportunities to diversify both within and beyond agriculture;

For the landless, being able to access land;

Equitable opportunities for private sector development e.g. in high value crops for export”.

Source: Ahmed (2005)

### **3.2.5 Time**

According to Niehof & Price (2001), time is generally classified as a non-human resource, but it can also be seen as a dimension of other resources rather than as a resource itself; all activities have a time dimension. There are four categories of time which influence livelihood strategies by individuals through their life which are life time, family time, social time and historical time (Elder, 1985). However, Pennartz & Niehof (1999) argued that there are several sorts of time: historical time, daily time, individual time (age or phase in the life course). Historical time is mainly going to be considered in this thesis. Historical time is part of the environment, influencing households (Pennartz & Niehof, 1999). In Zimbabwe, the political developments since its independence in 1980 provide the historical context for present-day life mainly through land reform which in turn influences changes in livelihood strategies, livelihood outcomes and food security status for resettled smallholder farmers. Changes in the historical time also imply that

household characteristics, which are also important to livelihood generation, would be changing which also influence the resultant food security dynamics over time.

### **3.2.6 Household characteristics**

Household characteristics influence how communities and institutions are organized, how livelihood strategies decisions are made and how resources such as land are used (Niehof & Price, 2001). Household characteristics therefore are expected to influence the decisions of resettled smallholder farmers to either engage in tobacco farming or non-tobacco farming and how to diversify with other off-farm activities. Moreover, Niehof & price (2001) also reiterated that household characteristics strongly influence livelihood strategies and possibly food security status.

Winchester (1992) also noted that the type of family (indicator of how people live, assets they share, nature of support network) and family size (indicator of labour power and productivity) also have great influence on the economic status of household. Family size may influence the livelihood strategy undertaken by resettled smallholder farmers since tobacco farming is labour intensive and therefore is likely going to be undertaken by households with large family size.

Niehof & price (2001) also reiterated that gender is a strong organizing principle within the household and that the way gender roles manifest themselves in livelihood strategies will intersect with ethnicity, class and other variables such as age and wealth. Women usually have significantly less access to the resources and services they need to increase their income and they also usually engage in production of food crops while cash crops are usually referred to as men cops (IFAD, 2011) hence tobacco farming is

likely to be associated mainly with men. The section below will dwell on empirical literature pertaining to livelihood strategies and food security.

### **3.3 Empirical literature on livelihood strategies and food security**

#### **3.3.0 Introduction**

This section is going to focus on the results of studies carried out mainly on the agricultural activities of smallholder farmers. It also dwell on changes in ownership of land, food security situations, of smallholder farmers, trends in rural poverty before and after implementation of land reform programmes especially in Less Developed Countries (LDCs). Furthermore, results of studies on success stories established for resettled smallholder farmers of other LDCs are also outlined and analysed.

#### **3.3.1 Vulnerability of smallholder farmers**

Nkala *et al*, (2011) established that poor soils, extreme weather patterns and acute and dwindling support towards smallholder farmers are some of the factors contributing to their vulnerability in Sub-Southern Africa (SSA). Furthermore, smallholder farmer's plight is also worsened by cultivating on infertile and low potential soils as well as low productivity (Norton, 1995). However, Barrios *et al*, (2008) explained that low agricultural output by smallholder farmers was caused by climate change towards the end of the 20th century in SSA. Jones *et al*, (2008) also supported the significant role played by climate change in reducing the output of crops by 20 to 30 percent 2050 as a result shifting from crop production to livestock production for the marginally situated farmers is becoming a necessity for poor rural households. Frequent occurrence of natural disasters such as veld fires and floods has also compounded the problems of distraction of agricultural output and transportation respectively (Kassie & Zikhali, 2009).

Vulnerability of smallholder farmers is also exacerbated by inadequate provision of extension services, backward modes of transportation and poorly organized farmers' organizations (Nkala *et al*, 2011). As a result of the extent of vulnerability of smallholder farmers in remote and unproductive areas, this has necessitated governments of SSA such as in Zimbabwe to distribute land to landless rural poor people in a bid to improve their welfare and subsequently develop the economy.

### **3.3.2 Distribution of land, growth and development: Are there links available?**

According to World Bank (2001), the trend of economic growth, its distribution and changes in distribution to the citizens together with the resultant poverty and food security status of individuals and households are a result of the history and policies of the country. Furthermore, the magnitude of how economic growth of a country translates to poverty reduction and improvement in livelihood outcomes and food security is linked to the distribution of income and critical livelihood assets such as land (World Bank, 2001). Provision of the important livelihood assets to the poor rural people will enable them to significantly contribute towards economic development and improve their livelihood outcomes and become food secure. Consequently, economic growth should occur in sectors where the majority of the poor people obtain their livelihood such as agriculture for it to make a meaningful impact towards poverty reduction and improve the living standards of the majority of people in the economy. Therefore it is necessary to remove inequalities in the distribution of assets in these critical sectors of the economy such as unequal distribution of land.

Bigsten & Shimeles (2003) however, noted that inequality in the distribution of assets such as land is very high in Africa. Furthermore, Ravallion & Datt (2002) also established

that asset distribution and educational level have an influence on the relationship between poverty level and economic growth particularly in the agricultural sector. This view was also supported by the study by Bigsten *et al*, (2003) found that distribution of land, literacy level, geography and the type of crops cultivated were the important factors which influenced economic development and the level of poverty in Ethiopia using panel data. Bigsten *et al*, (2003) also further established that the production of cash crops mainly meant for exporting such as tobacco increased the amount of money spend by households on consumption goods hence improving their nutritious status and improving the probability of them to become food secure.

Other factors which were obtained in studies carried out in Malawi (NEC, NSO & IFPRI, 2001; Mukherjee & Benson, 2003) included the distribution of land, diversification out of food crops to cash crops such as tobacco farming and participation in off-farm activities such as petty trading were obtained to significantly contribute towards economic growth and improve food security status of rural smallholder farmers. Various studies carried out in Less Developing Countries also revealed that ownership of land by households (depended on agriculture) is a key factor for determining their livelihood strategies and living standards (food security status) of the population. Access to land was found to result in increased growth and reduction in poverty. As a result, land reform is therefore likely thought to translate to economic development and to reduce the level of poverty in a country.

Bigsten and Shimeles (2003), Ravallion and Datt (2002) also explained that the ownership of land by smallholder farmers due to land reform programme can capacitate them to obtain the much needed collateral security to be able to access formal credit from financial institutions he improving the probability of increasing agricultural output

and national output. Moreover, distribution of land to landless smallholder farmers will empower them to diversify their livelihood strategies and venture into producing high returns cash crops such as tobacco. (World Bank, 2001) explained that the main determinant for improved opportunities for the poor, livelihood outcomes, food security status and poverty reduction by smallholder farmers in Vietnam as well as economic development was the land redistribution policy. Moreover, the progress achieved by the People's Republic of China to achieve economic growth and poverty reduction was largely depended on a drastic distribution of land (Johnston & Clark, 1982).

### **3.3.3 Land, Livelihoods, Food Security and development**

According to FAO, IFAD & WFP (2013), the majority of the world's poor people in LDCs, particularly in Asia and sub-Saharan Africa, reside in rural areas and depend on agriculture for their livelihoods and food security. As a result, agricultural output plays a major role towards overall economic activities and development of a nation. The agro-ecological potential of land is therefore of critical importance to the smallholder farmers for them to be able to improve their livelihood outcomes and food security as well as contributing meaningfully towards the development of the country. Land rights (formal or informal) for this precious resource to smallholder farmers are therefore important for them to be motivated to develop permanent structures such as barns which are key to increasing agricultural output for tobacco farmers.

When land rights are not well outlined and enforced this result in conflicts over land ownership and other natural resources. Land redistribution especially the implementation of the Fast Track Land Reform programme has been the source of conflicts in Zimbabwe as a result of un-orderly land occupations in some cases

(Marongwe, 2002). Given the importance of land rights, the government of Zimbabwe is currently trying to correct the problem of the conflicts of land ownership and give assurance to the smallholder farmers through issuing land permits during the ongoing land audit exercise. Land reform in Zimbabwe therefore is thought to have provided bases for improving livelihood strategies with the main purposes of improving the wellbeing of the smallholder beneficiaries as well as improving their food security status.

### **3.3.4 Land reform and national development**

Land reform, in literature, is viewed as a key component in agriculture for agricultural development and national development to take place. This relationship which exists between national development and land reform was observed to be inextricably interwoven during 1950s to 1970s though its practical application was not widespread (Yeros, 2002). However the period after 1980 onwards saw a change of stance when neoliberal economists were replaced by state-led land reform programmes. Under this policy framework, it involved the commercialisation of land where market forces were used to acquire land for distribution purposes (Moyo & Yeros, 2005). The neoliberal policy framework abandoned the aggregation of the agricultural sector with the industrial sector but rather fostered the agricultural sector into global markets and analysed the economic and social insecurity pattern changes as a result of land reform programmes. Recent debates also focused on the potential of land reform programmes to contribute towards changes to livelihood strategies, food security. Furthermore, land reform opportunities debates have underscored national development reform by including three categories views which are the economic, social and the political.

According to Moyo and Yeros (2005), the economic view of land reform encompass two components which are that the smallholder farmers has the potential to increase

agricultural output as well as agricultural productivity and that rural agricultural development is necessary to feed the ever growing urban population due to rural to urban migration. Middle sized farms were also noted to be important since they absorb labour and hence reduce unemployment though this process undermines technological development (Moyo & Yeros, 2005). The economic view point to the need for specialisation of large scale farmers in high returns crops while smallholder farmers concentrate on food crop production. However this view contradicts with the aims of land redistribution since imbalance in income distribution will remain between smallholder farmers and large scale farmers though the ownership is transferred to local people. Another economic view point places more importance to large scale farmers since they were noted to have the potential to provide substantial forward and backward linkages to other sectors and significantly contribute to national development (Yeros, 2002). However, critics of this view point argue that the benefits associated with large scale farming are overestimated since costs to society are disregarded and do not contribute to improvement of livelihoods and food security of the majority of people.

The social view is widely used in Africa to support land reform programme (Yeros, 2002). Providing fair provision of land to majority of people gives them the opportunity to improve their livelihoods, widen the base for sources of income, provision of some security to the displaced farm workers as well as improving the standard of living of the majority population (Moyo & Yeros, 2005). Furthermore, it can also be argued that the problem of unemployment can be solved by distributing productive land to the disposed workers as well as the landless rural poor people and capacitate them so that they can embark on better livelihood strategies such as tobacco farming thereby providing them with employment and better chances of improving their food security status. Political

versions can also be used to support or discourage the implementation of land reform programmes.

The political version of land reform has the micro and macro aspects which are not very distant from economic views (Yeros, 2002). The micro aspect views political motive as redressing the social injustice of land distribution at a local or regional level but not at a national level. However, the macro aspect is focused on diluting political power from the minority large scale farmers to the majority beneficiaries of land reform programmes. This view point seeks to redistribute both land and political power so that smallholder farmers would be capacitated to be able to participate in policy formulation thereby enforcing political stability (Moyo & Yeros, 2005). Furthermore, smallholder farmers would have the power and livelihood assets which enables them to choose high returns and productive crops such as tobacco farming which in turn would probably translate to better livelihood outcomes and improved food security situation.

### **3.3.6 Trends of food insecurity and rural poverty in Zimbabwe**

Results of the survey carried out in Zimbabwe by FAO, IFAD & WFP (2013) revealed that about 98 percent of households relying on cereal stocks alone were food insecure as of 1 April 2013 (See Figure 3.4). Furthermore, the survey established that households with more diversified livelihood strategies and more income sources were more food secure than those households with fewer livelihood strategies. Eighty five percent of food insecure households were involved in own food production whilst those households who obtained income from cash crops in addition to food crops had only a prevalence rate of food insecurity of 81 percent.

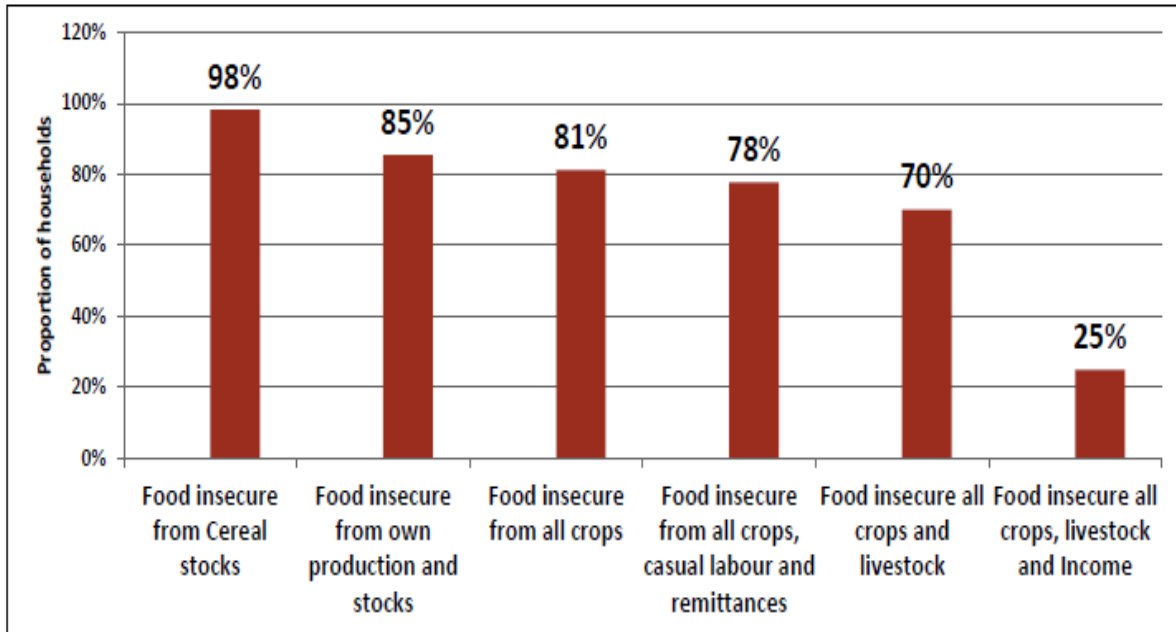


Figure 3.4: Food Insecurity Progression by Income Source

Source: FAO, IFAD & WFP (2013)

Further diversification into other off-farm activities such as casual labour and remittances resulted in further decline in food insecurity to 78 percent. The results also established that the most diversified households whose sources of income included other off-farm activities such as livestock production, petty trading, hawking and employment (formal and informal) apart from crop production were the most food secure households with only 25 percent of food insecurity prevalence. The majority of households who are smallholder farmers were able to increase their livelihood strategies as a result of the land they obtained through the land redistribution excise carried out hence this had an influence on the trend of poverty levels observed over years in Zimbabwe.

According to ZimStat (2013), the proportion of extremely poor rural households has been falling since 1995 mainly due to land reform programmes which were carried out in Zimbabwe as shown in Figure 3.5. The proportion of extremely poor rural households

gradually fell from 50.4 percent in 1995/1996 to 42.3 percent in 2001 which further deteriorated to 22.9 in 2011.

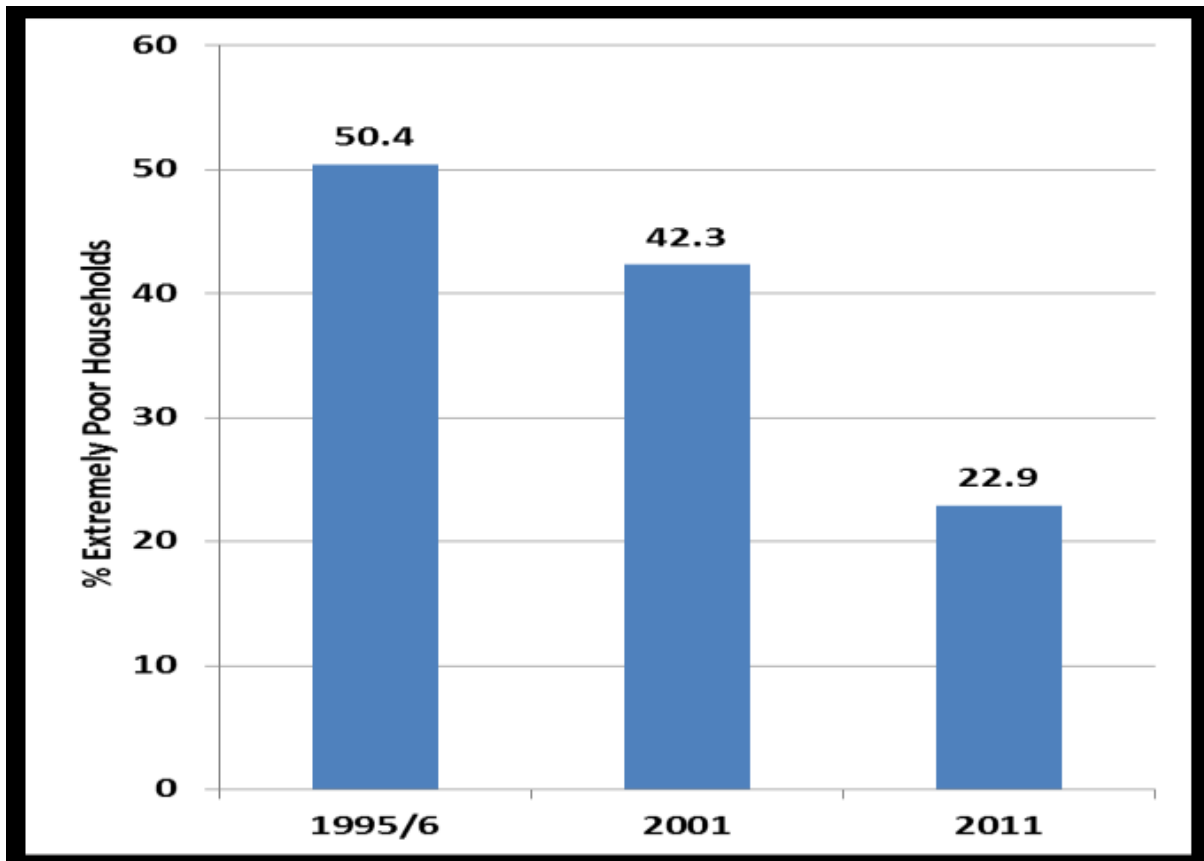


Figure 3.5: Rural poverty overview in Zimbabwe

Source: ZimStat (2013)

The continuous fall in the poverty levels can be attributed to the majority of resettled rural smallholder households who increased their livelihood strategies into high returns crops such as tobacco farming thereby obtaining higher incomes which were used to acquire more and a variety of nutritious and health food products. This also may imply that the land reform programme was successful in Zimbabwe since it managed to reduce poverty level of the majority of households thereby increasing their food security

level. Land reform was also established to have amassed successful stories in other Less Developed Countries such as Malawi and Kenya as explained on 3.3.6 below.

### **3.3.6 Export success story for smallholder tobacco producers in Malawi**

The government in Malawi supported large estate agriculture during the colonial era (McCracken, 1983). For instance, during the colonial era, the state enacted the Native Tobacco Board in the 1920s which restricted black smallholder farmers from cultivating tobacco through their discriminate registration process and further monopolising purchasing of tobacco grown by the few successfully registered black smallholder farmers at very low prices (McCracken, 1983). As a result of these restrictions, black smallholder farmers were discouraged to engage in tobacco farming thereby limiting their livelihood strategies and consequently rendering food insecure.

At independence, in 1964, Malawi started its land reform to correct the social injustices in favour of large scale farmers (Keyser, 2001). As a result of the land redistribution which was carried out, smallholder tobacco farmers became the main players in the production of burley tobacco thereby diversifying their livelihood strategies (Jaffee, 2003). The focus of the Malawian government policies shifted in support of the majority smallholder farmers which in turn enabled them to boost their production of tobacco and generally led to increase in income obtained by smallholder farmers and improved their food security status. Land reform therefore was successful in that it spread the benefits of engaging in high returns crops such as tobacco farming from the minority large scale farmers to the majority smallholder farmers which improved the living standards of the majority of the population thereby reducing the level of food insecurity in the country (Jaffee, 2003).

### **3.3.7 Outcomes of land reform in Kenya**

In Kenya, Britain provided the funds used to compensate large scale farmers which were mainly the white colonialists. As a result, more than one thousand large scale farms were successfully transferred to black farmers between 1962 and 1966 when the 'one million acre scheme' was implemented (Klopp, 2002). Land reform was initially planned to transfer white owned land to blacks through three established categories of black farmers which are smallholder farmers, large scale farmers and the small scale commercial farmers. However, when the implementation hurdle was reached, the government realised that the majority of people required smallholder farms than the land set aside for that category and therefore there was the need to adjust the allocation of land to the three categories with more bias towards the majority smallholder farmers.

The majority of small-scale farmers who benefited from the land reform programme managed to expand their livelihood strategies and ventured into cash crops and dairy farming during the 1970s (Klopp, 2002). The majority of smallholder farmers who switched to cash crops were those who obtained fertile soils in the so called former 'White Highlands' which were situated to the north of Nairobi. The majority of the resettled smallholder farmers successfully increased their livelihood outcomes and also improved their food security status. However, black farmers who managed to obtain large scale farms were less successful since the beneficiaries were expected to pay back the government loans which were used to acquire the land which the majority of them defaulted. Moreover, the beneficiaries of these large scale farms also found difficulties of fully utilise their land and ended up renting part of their land to the landless peasants which made it possible for many people to benefit from the redistributed land thereby reducing food insecurity of the rural households in Kenya (Klopp, 2002).

### **3.4 Summary**

This chapter commenced with theoretical literature on livelihoods analysing the sustainable livelihood framework. Furthermore, evolution of the definition of food security and how it originated was explained and discussed. A review of empirical studies on livelihoods farmers risk sources globally and in Zimbabwe was presented. A conceptual framework for livelihoods and food security was then outlined and explained. The next chapter gives a description of the study areas; the physiographic features, the people and the general infrastructure of the areas.

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## CHAPTER 4: METHODOLOGY

### 4.0 Introduction

Description of the study area (both at national level and the provincial level) is included in this chapter. Description at national level includes information on Zimbabwe's profile, macro-economic environment, political environment, socio-economic situation, poverty and vulnerability, agricultural production and food security policy framework. The natural resources of an area, such as land, are among the major determinants of its production potential. These natural resources together with human and capital resources (socio-economic factors) dictate the viability of the agricultural enterprise and the economic development of the area (Sebotja, 1985). Information on provincial level includes geographical location, population of the study, population and population distribution, main languages and religion, communication and educational delivery, agro-ecological potential and land use patterns in Manicaland. This chapter also describes instruments used to obtain data and how it was analysed. Information on the sampling technique is presented and the data collection methods. The sampling procedure is then outlined. The primary data collection involved personal interviews with the head of the household using a structured questionnaire.

### 4.1 Area of Study

#### 4.1.1 Zimbabwe: Country profile

The study was carried out in Manicaland which is a province situated in Zimbabwe. Zimbabwe is a small (390,000 square kilometres) land locked country in Southern Africa. The country lies between the Zambezi River in the north and the Limpopo River in the

south, which are its main drainage systems. Zimbabwe is bounded in the north and east by Mozambique, in the north by Zambezi, in the south by South Africa and south west by Botswana (FAO, 2011).

As shown in Figure 2.1 and explained in Chapter 2, Zimbabwe is divided into five natural regions, geophysically, in which the dominant natural factor conditioning agricultural production is climate, mainly rainfall. The country has a total land area of 39, 6 million hectares. The physiographic features or natural resources of an area are among the major determinants of its production potential. These natural resources together with human and capital resources (socio-economic factors) determine the viability of the agricultural enterprise and the economic development of the area (Mushunje, 2005). Another important factor is also soil types.

#### **4.1.2 Macro-economic environment and trends**

From the year 2000 to 2008, Zimbabwe experienced severe macro-economic instability, characterized by hyperinflation (GoZ & FAO, 2012). Moreover, according to IMF (2011), Gross Domestic Product (GDP) declined by over 40 percent during this period and agricultural output shrank. Consequently, the country has become a net importer of food, while a large proportion of the population are relying on food aid. However after the formation of the formation of a Government of National Unity (GNU) in September 2008 and introduction of the multiple currency system, national output improved considerably. According to Zimstat (2013) GDP rose from about USD6.1billion in 2009 to USD6.7billion in 2010 and USD7.4billion in 2011 as shown on Figure 4.1. However, economic growth rates slowed down to about 4.6 in 2012 due to subdued performance of the agricultural sector due to low rainfall experienced in the country. As a result of the maintenance of the multi-currency system and pursuit of the economic stabilisation and

growth policies, the country has been able to experience general macro-economic stability.

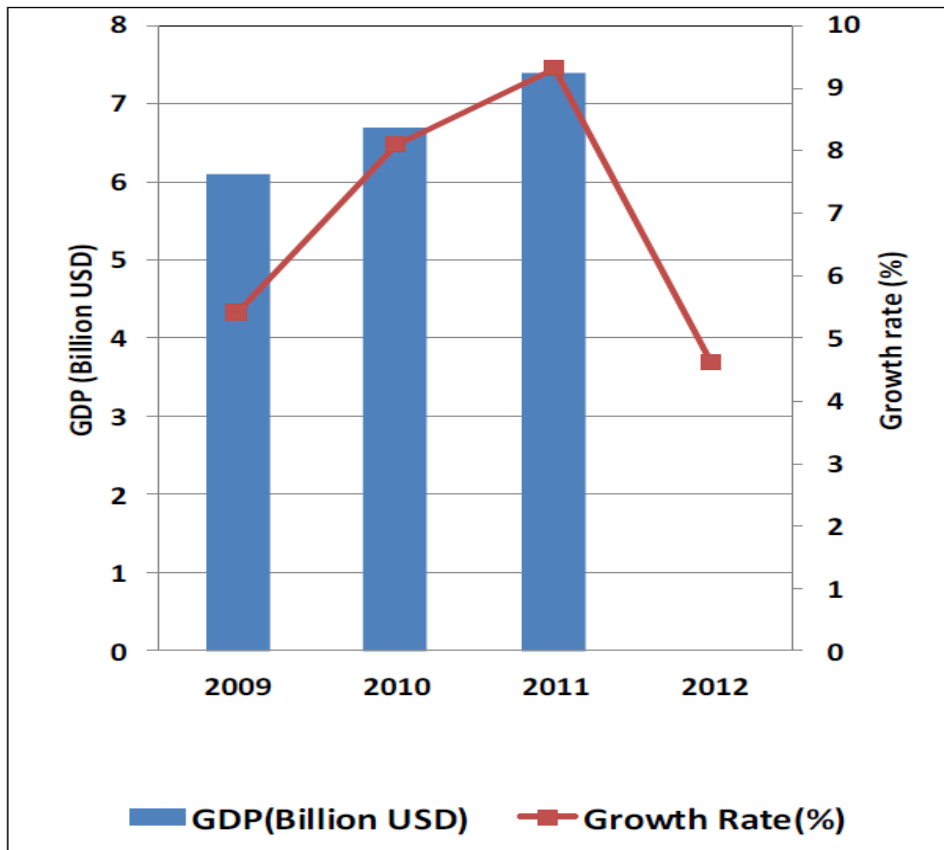


Figure 4.1: Economic overview 2009-2012

Source: ZimVAC (2013)

Due to improved economic performance of the country, more beneficiaries of the land reform programmes managed to switch to cash crops such as tobacco farming and also increase diversification of the sources of income since agricultural activities hence increasing their livelihood strategies. As a result, there are encouraging signs of improved agricultural production outcomes and decline in food insecurity as described on 3.3.6 by resettled A1 and A2 smallholder farmers (ZimVAC, 2013). Although basic farming systems in the various FTLRP schemes seem just like communal area systems, resettled farmers inherited better soils and more land often in areas with better climate

and marketing infrastructure; moreover for several years they were supported with government inputs. As inputs from the State to resettled smallholder farmers are now being reduced, it will be critical to ensure that these farmers can utilize input market outlets and maintain the output advantage. Population changes have also influenced the macro-economic environment in Zimbabwe.

Changes in the population in Zimbabwe influenced the rate of employment and poverty as well as increasing pressure on the environment and the provision of utilities such as water and electricity (GoZ & UNCT, 2010). The population size of Zimbabwe greatly increased from 7.5 million in 1982 to around 11.6 million in 2002, which further increased to almost 13 million in 2012 the population of Zimbabwe was 12 973 808 (Zimstat, 2012). However, the country has also experienced a substantial human capital flight (brain drain) to other countries (mainly neighbouring countries) which is estimated to be around 25 to 33 percent of the population (UNDP, 2010). Moreover, high mortality of the working population who are aged between 15 to 49 years due to the HIV and AIDS pandemic resulting in high dependency ratio. Consequently, the child headed households and orphans have increased thereby rendering them generally food insecure.

#### **4.1.3 Political environment in Zimbabwe**

Zimbabwe obtained its independence from the British colonialists in 1980 after which it managed to obtain a stable political environment due to several policies which empowered the local black majority such as land reform programme among others. Land reform enabled beneficiaries to expand their livelihood strategies since they were allocated productive and fertile areas with high agricultural potential. However the

political instability in the country from 1997 to 2009 due to economic sanctions which were passed to the country left many Zimbabweans with limited livelihood strategies and realising that their livelihoods and standards of living were destined to be in other countries thereby creating human capital flight mainly to the neighbouring countries mostly South Africa. Many professional and skilled workers migrated to neighbouring countries or overseas, which affected the delivery of services in all sectors and creates challenges in reaching development goals. However the country managed to stabilise due to the formation of the Government of National Unity in 2009 between the two factions of Movement for democratic change and the Zanu PF party.

Elections on 31 July 2013 saw Zanu PF party clinching a landslide victory in Zimbabwe (securing a two thirds majority) allowing them to form a government which ended the problems associated with Government of National Unity like policy announcement inconsistencies due to power struggles. The main priority of the current government is to revive the economy anchored on indigenisation and mining in a bid to attain food security for the nation, reduction of poverty and vulnerability for the majority of the population and economic growth though time will tell whether the policy will achieve its intended objectives before the next elections scheduled to be carried out in 2018.

#### **4.1.4 Agricultural production and vulnerability in Zimbabwe**

Agriculture is a critical livelihood activity for rural households and rural development projects should be focused on agricultural development for them to achieve their intended goals of improving rural people's livelihood outcomes. Land reform programme had been a welcome intervention to the rural landless smallholder farmers since it is one of the key livelihood assets for agricultural production (GoZ & UNCT, 2010). Surprisingly,

agricultural production in Zimbabwe from 2000 to 2008 have been on a downward trend particularly of tobacco, maize, wheat, and sorghum mainly due to economic hardships faced by the country due to economic sanctions placed on the country after implementing the FTLRP as well as high transportation costs due to poor road maintenance services (GoZ & UNCT, 2010).

Though faced with several challenges, smallholder tobacco farmers have successfully managed to continuously increase their output of the golden leaf as explained on 1.2. A levy system used by farmers to support tobacco research which is led by the Tobacco Research Board has been successful in improving their output and quality of the crop. Tobacco research is aided by the research station institutions such as the Kutsaga Research Station where the laboratories used by scientists are situated. Tobacco output by resettled tobacco farmers has been increasing due to availability of information and productive land as a result of farmers diversifying their livelihood strategies (TIMB, 2012). Furthermore, smallholder farmers have also been diversifying their livelihood strategies by embarking on livestock production.

Though, smallholder farmers diversify the livelihood activities with the inclusion of livestock production their contribution towards livelihood outcome and economy has been limited (GoZ & UNCT, 2010). Livestock production for smallholder farmers includes animals such as cattle, goats, sheep, pigs and chicken in Zimbabwe (IMF, 2011). There has been a notable reduction in livestock production particularly cattle from 2000 to 2009 due to increase in disease incidence and increased occurrence of natural disasters (GoZ & UNCT, 2010). Decline in agricultural output can also be attributed to natural disaster such as droughts and floods.

Natural disasters such as droughts and seasonal floods have been occurring at a frequent rate since 2000. These are threats to productive agricultural activities thereby limiting the sources of income for the majority of the population. This had an effect of restricting the livelihood strategies of people situated in areas mostly affected by mainly droughts as well as floods since these extreme weather conditions do not support meaningful agricultural activities.

Declining agricultural output due to uneven rainfall distribution in most of the seasons from 2000/2001 to 2011/2012, coupled with a weakened social protection systems and the HIV/AIDS epidemic, have resulted in high incidence of poverty and vulnerability among the population (GOZ & FAO, 2012). As a result, the livelihood strategies of the majority of people became limited thereby constraining their livelihood outcome and consequently rendering them food insecure.

#### **4.1.6 Food Security Policy Framework in Zimbabwe**

According to ZimVac (2013), the Government of Zimbabwe in 1995 established a Task Force for Food and Nutrition which was empowered by Government to develop a comprehensive national Food and Nutrition Policy in response to the recurrent droughts the nation was facing. Furthermore, FAO (2012) noted that since the 1980s, food and nutrition has been given high priority in Zimbabwe. Government has also been encouraging a multi-sector approach and an extensive food and nutrition management framework with structures established at the National, Provincial and District levels. The Food and Nutrition Steering Committee which comprised of a number of government departments involved in food and nutrition issues was established at the national level.

The Ministry of Agriculture led the Committee with membership from other ministries such as Economic Planning, Local Government, Education and Social Welfare. The objectives of these policy frameworks was to ultimately improve the food security status mainly of the poor smallholder farmers through identifying and advising them of better livelihood strategies which can be used to improve their livelihood outcomes and also improving their contribution towards agricultural national output.

ZIMVAC has played an essential role in supporting and leading a number of assessments and surveys in Zimbabwe however the absence of a clear way forward for the livelihood strategies, the scope and role of ZIMVAC and how it fits into nationally defined structures has hindered its influence on improving the food security situation for smallholder farmers and the country as the whole (FAO, 2012). Consequently, there was a growing recognition that livelihood strategies and factors which influence them as well as food security status and factors which influence them for smallholder farmers needs to be critically analyzed with a longer term perspective. The study focused on Manicaland province which is described in the section below.

#### **4.2 Manicaland Province: description**

The study will focused on the province of Manicaland which is one of the ten provinces in Zimbabwe as shown in Figure 4.2. Manicaland province has an altitude of 1695m and mean summer temperature of 26°C. Manicaland Province stretches across Natural Regions I to V. However, most of the province lies in Natural Regions I and II, which have high rainfall and temperatures range from 3°C to 28°C, though there is some probability of frosts in winter along the mountain regions (Jerie & Ndabaningi, 2011).

The province was chosen because it contributes significant amount (23 percent) of tobacco in the country (third highest tobacco producing province with Mashonaland West highest on 30 percent and Mashonaland Central on 26 percent) and that the resettled smallholder farmers in the chosen districts of Mutasa, Mutare and Makoni survive mainly from income obtained from tobacco farming (Jerie & Ndabaningi, 2011). According to Jerie and Ndabaningi, tobacco is the most important cash crop and a potential major earner of foreign currency in Zimbabwe which is mainly produced in Manicaland Province. Manicaland province receives average rainfall of between 600mm and 800mm per annum which is enough to support tobacco cultivation which requires about 50mm to 60mm of rainfall every month (Jerie & Ndabaningi, 2011).

#### 4.2.1 Geographical location

Manicaland province is in the eastern province of Zimbabwe and it stretches north and south along the eastern border with Mozambique as shown on Figure 4.2. A range of mountains forms the border with Mozambique in the east and it stretches for 300 km (Samimi & Wagensel, 1999).

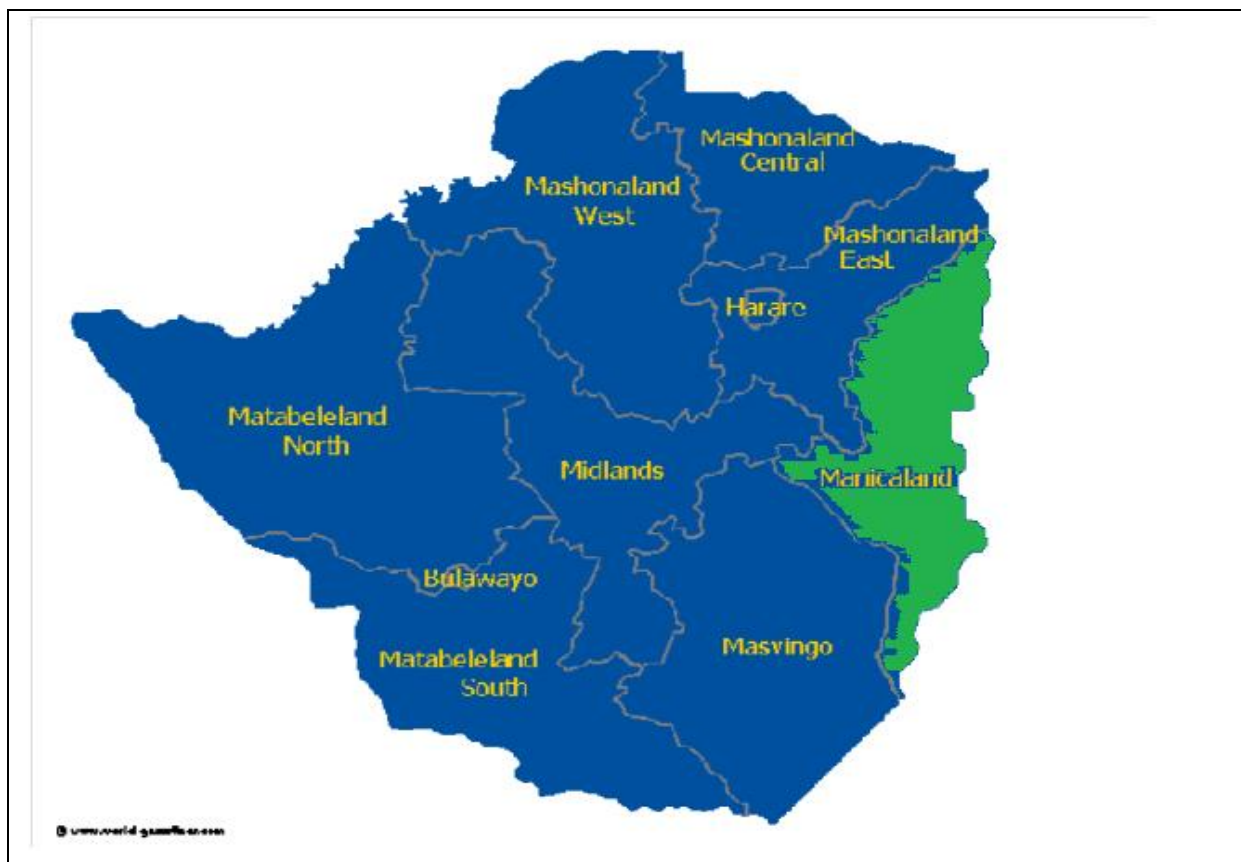


Figure 4.2: Map of Zimbabwe showing different provinces.

Source: Nhundu (2013)

The province covers an area of about 36 459km<sup>2</sup> (14,077 sq mi) and is divided into seven districts namely Mutare, Chipinge, Mutasa, Buhera, Chimanimani, Makoni and Nyanga as shown in Figure 4.3.

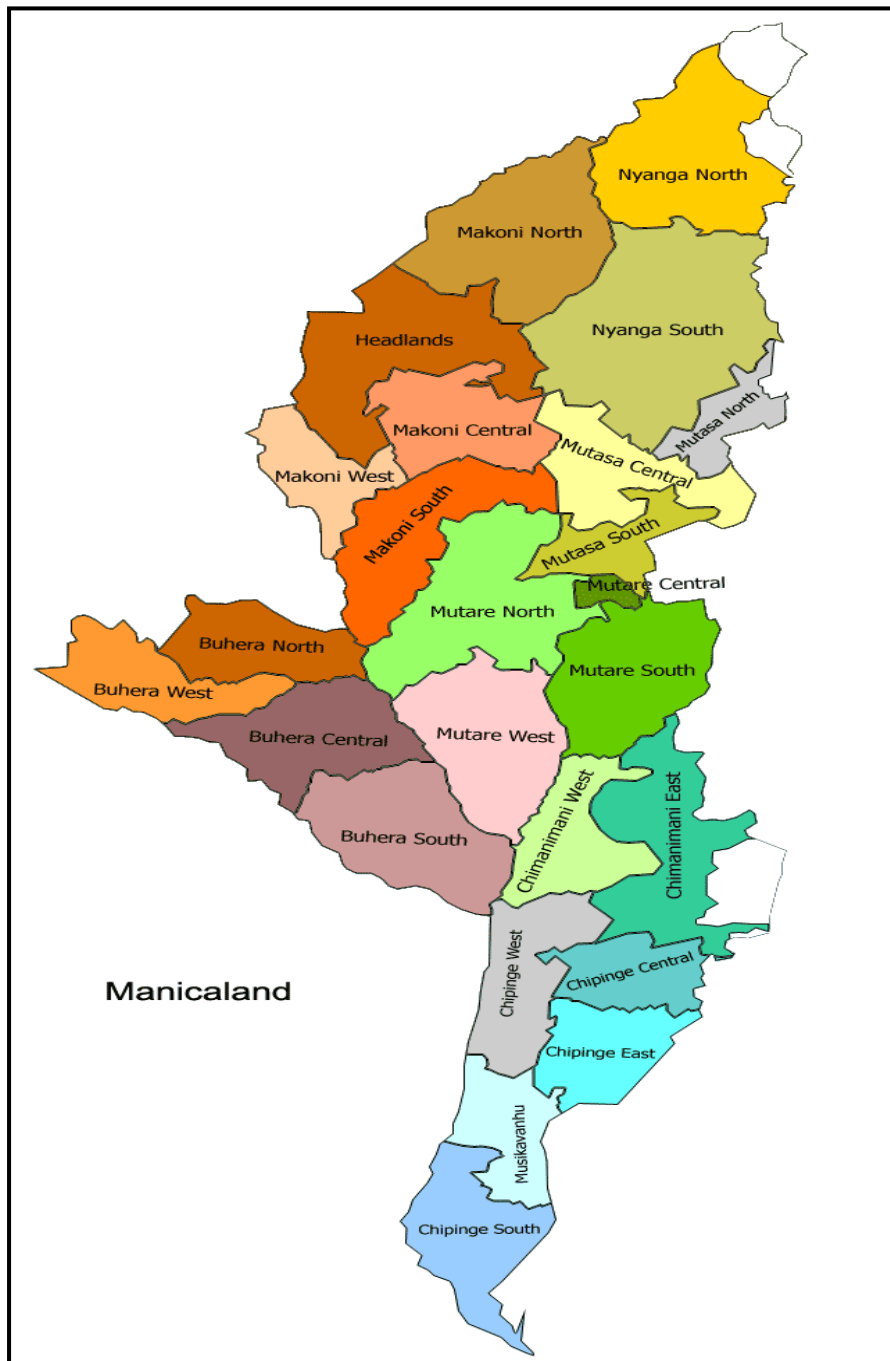


Figure 4.3: Map of Manicaland province

Source: Zimstat (2012)

The largest district in Manicaland province is Mutare district which is divided into Mutare urban and Mutare rural. Moreover, Mutare rural district is divided into three; that is Mutare south, Mutare west and Mutare North. It encompasses Zimunya which covers areas from Bvumba to the Odzi river as well as Marange which stretches from the Odzi river to the Save river. To the north it starts from the confluence of Odzi and Save up to the Odzi resettlement areas. Makoni district (Natural Region IIb), borders with Murehwa and Marondera in the West and Nyanga and Mutare in the East. The district receives 600-800mm of rainfall annually. Mutasa district is situated to the northeast of Mutare and stretches from around 30 km from Mutare and ends after about 100km (at Honde Valley) along the tarred road to Eastern Highlands estates such as Katiyo and Aberfoyle on the Nyanga road (Manenji, 2004).

#### **4.2.2 Population distribution and population density**

According to the statistics from Zimstat (2012), the distribution of the population by province indicates that Manicaland Province is the second populous province in Zimbabwe with 14 percent. Harare has the highest population with 16 percent while Midlands province is third with 13 percent followed by Masvingo and Mashonaland West both with 11 percent while Mashonaland Central has 9 percent, Matabeleland North with 6 percent, and lastly both Bulawayo and Matabeleland South tied on 5 percent each as shown on Figure 4.4.

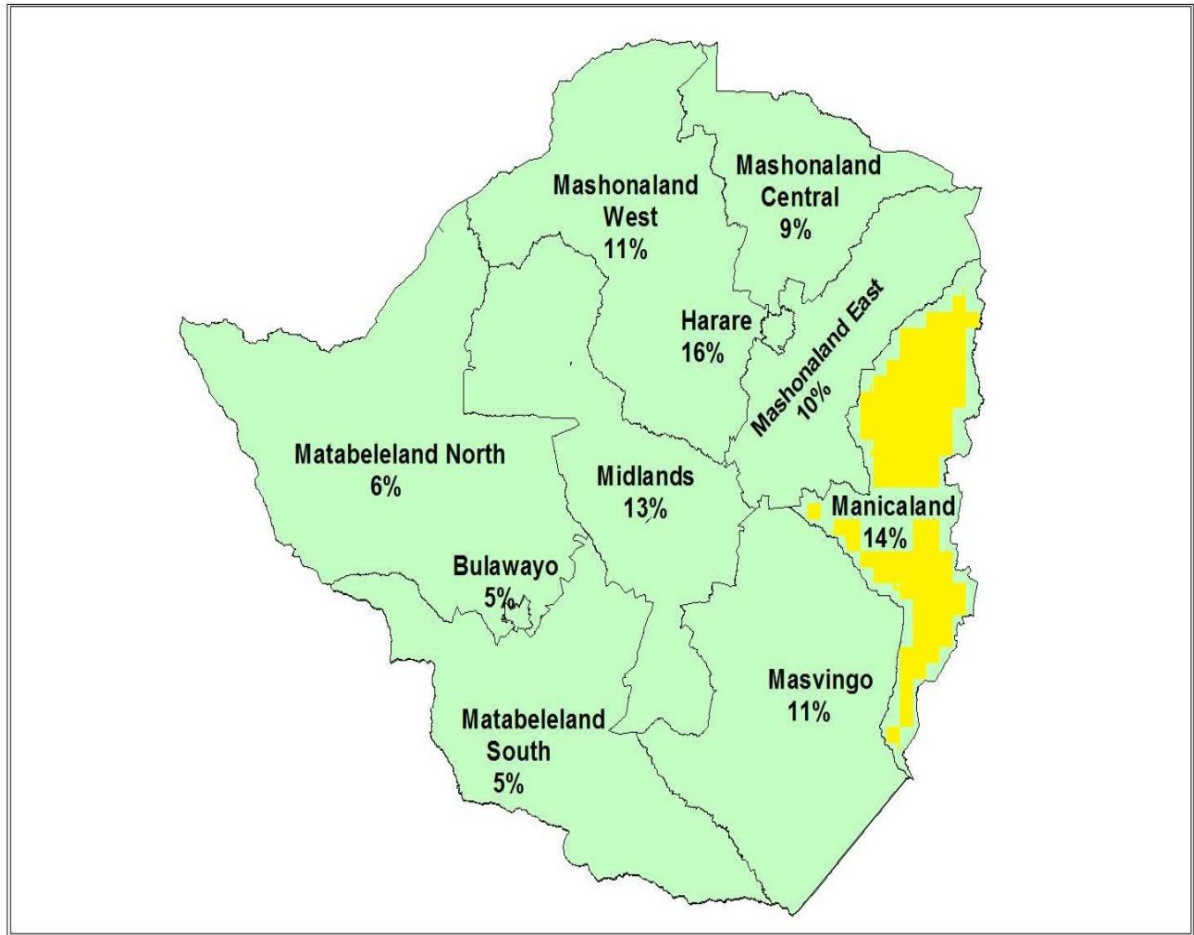


Figure 4.4: The provincial distribution of the population

Source: Zimstat (2012)

Population distribution in Manicaland province is shown on Table 4.1 below. It shows that Chipinge rural with 66 403 households is the most populous district while Makoni with 63 887 households is the second populous district followed by Mutare rural district with 58 400 households.

Table 4.1: Population Distribution by District in Manicaland province

<b>District</b>	<b>Population</b>	<b>Households</b>
Makoni	273 289	63 887
Mutare rural	260 567	58 400
Mutasa	169 756	42 479
Mutare urban	188 243	48 258
Nyanga	125 688	32 359
Rusape	30 718	80 301
Buhera	246 462	57 126
Chimanimani	133 810	32 801
Chipinge urban	25 675	6 857
Chipinge rural	300 792	66 403
Provincial Total	1 755 000	488 871

Source: Zimstat (2012)

Furthermore, Manicaland (48 persons per kilometre) has the third highest population density while Harare and Bulawayo are first and second with 2406 and 1369 persons per kilometre respectively (Zimstat, 2012). This imply that generally people in Manicaland are overcrowded which puts pressure on natural resources and also result in people having access to limited livelihood strategies hence the justification of land reform in Manicaland province. Furthermore, high population density is mainly associated with food insecurity since the source of income for households would be limited. Land reform beneficiaries are expected to be faced with lower population density

resulting in more and better livelihood strategies which would most likely result in them becoming food secure.

#### **4.2.4 Main languages and religion**

In Zimbabwe, approximately 74% of the population speak Shona as their mother language, while 18% speak Ndebele, 4% English and 4% other languages (FAO, 2001). Several other minor languages spoken include Tonga, Venda, Chewa and Kalanga. Shona is mainly associated with the provinces of Masvingo, Manicaland, the three Mashonaland provinces and some parts of Midlands (Mushunje, 2005). Ndebele is mainly spoken in the two Matebeleland provinces and some parts of Midlands province. English is the major language of communication in government, schools and business. All three major languages are officially taught in schools. Christianity is the main religion in Zimbabwe, but traditional ethnic beliefs do persist on a limited scale (FAO, 2001). Although the majority of the population speaks Shona in Manicaland, different districts have their own sub-dialects. For example Mutasa district uses the Manyika sub-dialect (Manenji, 2004). However, in Makoni, the people use the Maungwe dialect while in Chipinge, the Ndau and Mutare, the Bocha and Jindwi dialects. However all these dialect are not distinctively different from the Shona language. Communication is vital for information dissemination hence the smallholder farmers in Manicaland benefit from information exchange since almost all people who reside in the province understand the Shona language.

About 65 percent of people in Manicaland province practise their own traditional way of worshiping, but also practice Christianity (FAO, 2001). The majority of the population fall under the traditional churches which are Methodist Church, Seventh-Day Adventist

Church, the Anglican Church and the Roman Catholic Church. Approximately half of the population situated in Mutasa district practise their own traditional way of worshipping and others practice Christianity with the majority falling under the Methodist and Anglican churches. The situation is much the same province wise but the majority of people in Mutare and Buhera district belong to the Apostolic church (Manenji, 2004). Both the traditional way of worshipping and Christianly encourage individuals to work hard in their fields and enjoy the fruits of their labour hence it is easy for the smallholder farmers in Manicaland to share their farming experiences, livelihood strategies such as tobacco farming as well as other important information relevant to farming for them to be able to succeed and obtain better living standards which propels them to become food secure.

#### **4.2.5 Communications and Educational Delivery Systems**

In Zimbabwe, primary roads are paved, an indication that Zimbabwe has a much better transportation infrastructure than surrounding countries (World Bank, 2009). However rural roads are not well maintained particularly during rainy season due to the fact that the District Development Fund (DDF) department with the mandate of keeping the roads in good shape has been hit by a shortage of funds to maintain these roads (POTRAZ, 2012). As a result about 50 percent of rural roads are in a dilapidated state making accessibility of rural areas difficult. Consequently, most transporters are said to be shunning the roads due to lack of road maintenance. The few transporters who sacrifice their vehicles in these bad roads charge very high amounts of money which are out of reach of many smallholder farmers. Even accessing some of the rural centres is a nightmare hence obtaining information and inputs from these places is also a challenge which also negatively impact on the livelihood activities of smallholder farmers.

Furthermore, transporting agricultural output to markets is also a challenge due to bad roads and in some cases deters smallholder farmers from undertaking cultivation of crops which are perishable and require frequent transportation to the urban markets. Some smallholder farmers who are faced with difficulties to transport their produce to the market end up selling their output to middlemen at very low price which negatively affect their livelihood outcomes and hence may lead them to become food insecure. Furthermore, poor infrastructure results in smallholders farmers to be faced with limited livelihood strategies since they would find it difficult and too costly to transport agricultural commodities to markets thereby restricting some of them to produce for own consumption and for local trading. As a result the majority of smallholder farmers who reside in areas such as Zimunya are most likely going to be food insecure. Communication is also influence information dissemination which also influences adoption of other livelihood strategies such as tobacco farming and other off-farm activities which farmers are not familiar with (POTRAZ, 2012).

Zimbabwe has three mobile phone service providers (which enhance communication among farmers) namely Netone, Econet and Telecel whilst Tel One continues to be the government owned fixed line network provider (POTRAZ, 2012). Zimbabwe's three mobile operators had 266,441 subscribers, accounting for 2.1 mobile phone subscribers per 100 people in 2000 (Figure 4.5). However, by 2007, total subscribers were around 1.2 million, indicating that only one million new subscribers were added in seven years. However, the number of mobile phone accounts increased rapidly during 2007- 2009, increasing by an average of more than 60 percent a year which led to mobile subscribers in Zimbabwe increasing to 28 per 100 people by 2009. Figure 4.5 further indicates that the market for voice services in Zimbabwe is increasingly dominated by

one provider, Econet. Econet Wireless had a 73 percent market share of mobile subscribers and 66 percent of all telephone subscribers by 2009. This shows that growth in the mobile sector has outperformed that of fixed lines. In Manicaland, Internet and e-mail services are available in all areas except very few remote areas. This improves information exchange among smallholder farmers on the current better returns and sources of income which positively influences the spread of new and better livelihood strategies hence framers would be faced with better chances of them becoming food secure. Furthermore education is an important factor in the choice of livelihood strategies since households would be in a better position to evaluate the gains and drawbacks of adopting a new livelihood strategy.

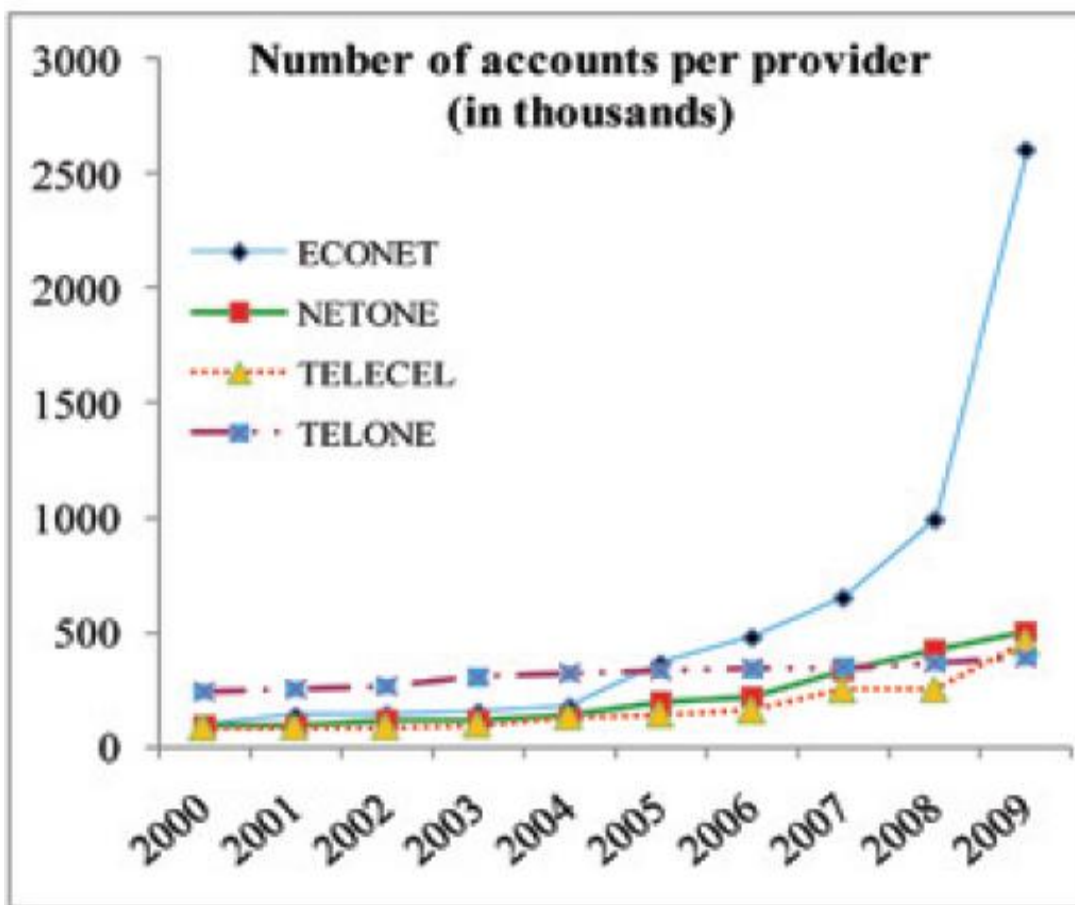


Figure 4.5: Growth in subscriber Accounts with main service providers

Source: POTRAZ (2012)

When Zimbabwe gained its independence in 1980, the majority of its people did not have access to quality schooling. Most only finished seven years of primary schooling. Since independence, the government in partnership with local communities made great strides in the building of schools and teacher training. Consequently, Zimbabwe boasted of one of the highest literacy rates in Africa with the literacy rate of 91.86 percent in 2009 when it was last measured (World Bank, 2009). Manicaland province has a number of both primary and secondary schools are dotted around the province. Moreover, in general, there is a school within a 5 km radius. The distribution of schools in the province is as shown in Table 4.2. This shows that the people in Manicaland province have access to educational facilities. As a result the majority of the household leaders are likely to be endowed with higher level of education and therefore are likely going to combine livelihood assets efficiently and obtain better livelihood outcomes and become food secure.

Table 4.2: Distribution of schools by district

District	Primary	Secondary
Buhera	140	55
Chimanimani	68	24
Chipinge	125	40
Makoni	170	60
Mutare	172	67
Mutasa	72	27
Nyanga	75	25
<b>Total</b>	<b>822</b>	<b>298</b>

Source: Mushunje (2005)

#### **4.2.6 Agro-Ecological Potential in Manicaland Province**

Each of the five NRs is represented in Manicaland Province (See Figure 2.1). The specific study areas within the province (Mutasa, Makoni and Mutare) were chosen in terms of two main criteria. These have almost the same type of agro-ecological zone (NR I and II) and they have tobacco and non-tobacco farming smallholder households. Moreover, these districts generally have the same type of soils which are fersiallitic soils (Galang, 2002). This type of soil is derived from granite which originated from granite rocks. The soils have different colours which include dark grey and light colours. Furthermore, these soils mostly include sandy soils which can easily be eroded and therefore possess poor nutrients. As a result these soils require good conservation and use of several inputs such as manure and fertilisers. This entail that smallholder farmers resettled in Manicaland require several livelihood assets for them to successfully undertake there preferred livelihood strategies and obtain the desired livelihood outcomes and improved food security status.

Agro-ecological potential of the study area implies that households in the study area have almost the same soil type to carry out their livelihood strategies and hence their livelihood strategies will differ due to other factors. The soil type and rainfall patterns in the study area support the production of tobacco farming as well as other crops such as maize and livestock production. Consequently, this will also imply their food security status will mainly depend on their livelihood strategies they will be carrying out.

#### **4.2.7 Agricultural land use patterns and economic activities in Manicaland**

The land use pattern in Manicaland province is predominantly agricultural in nature and is characterised by small-scale farming. According to Agergaard & Thomsen (2006),

farming provides the potential for earning income at a time when the population pressure is increasing and urban incomes are diminishing for a household. Tobacco grown by resettled smallholder farmers has continuously been increasing since the launch of FTLRP in 2000 (TIMB, 2012). Manicaland province recorded the third highest number of growers with 16 649 whilst Mashonaland West has the highest number with 28 676 followed by Mashonaland Central province with 28 305 farmers (TIMB, 2012). Figure 4.6 shows a typical barn of a tobacco farmer in Manicaland.



Figure 4.6: Typical barn of a tobacco farmer (Mr Nyamukondiwa) at Oaker B farm in Makoni district.

The other main component of agricultural produce in Manicaland is grains such as maize, wheat, sorghum, rice and millet. Maize is the most commonly and widely grown crop in Zimbabwe since it is the staple food and in every smallholder farming household in Manicaland it has been part of their crops grown. Cultivation of maize starts around end of October when the rain season in Manicaland most of the time begins. This staple

crop is commonly first consumed before harvesting as green mealies which also contributes towards attainment of food security by households. The consumption of green mealies therefore greatly reduces the likelihood of smallholder farmers to starve before harvesting of the dry crops. A typical maize field in Manicaland province is shown on Figure 4.7 below.



Figure 4.7: Typical maize field in Mutare rural: Mr Makusha's farm at Chigodora area.

Harvesting of maize is mainly undertaken using traditional means. The crop is harvested by bundling it in upright sheaves and is then transported to their homesteads using either wheelbarrows or scotch carts. When the crop is dry, it is then shelled into grain which is later grinded to form maize meal used to prepare the staple food called sadza.

Apart from tobacco and grains as the most commonly grown crops in the study area, households have also diversified into other crops such as beans, groundnuts, roundnuts, coffee, cotton, sunflowers and horticultural produce. Diversification is mainly done to

supplement and smoothen household's consumption patterns and hedge against risk of other crops not performing well as it is well accepted that monoculture is a thing of the past in many communities.

Another economic activity pursued by households in the study area apart from crop production is livestock production. Types of livestock reared in the study area included cattle, rabbits, goats, sheep, pigs and broilers. Livestock rearing in the study area provides a source of income and contributes towards food consumption. However it was not considered as an alternative livelihood strategy in this study because it was not a dominant strategy for households since the 50 percent threshold was used for categorising the livelihood strategies. Other economic activities pursued in Manicaland province included formal employment, hawking, selling of liquor (traditional beer) and lending money. These different economic activities have a heavy bearing on the livelihood strategies as well as food security status of resettled smallholder farmers. The research methodology which was used in this study is outlined in the section below.

### **4.3 Research methodology**

#### **4.3.1 Data collection methods and instruments**

Both qualitative and quantitative research approaches were used in this study. Data was collected through flexibility and triangulation methods. These two methods allows for the continuous collection of data to explore and explain the issues as they surface throughout the research period. Triangulation allows verifying data collected by different

methods using a holistic approach (Gittleston & Mookherji, 1997). A primary cross-sectional study of smallholder farmers was carried out in Manicaland province.

The functional unit of the study was a household, from which the data was primarily collected. A household is commonly understood as a form of social organization and is also classified as part of the economic and social environment (Ahmed, 2005). It is seen as an important piece of the puzzle in the social environment and livelihood generation. A household is also an environment where its occupants mostly work for the same cause though there are some conflicts encountered at time (Sen, 1990). Juma, (2009) noted the importance of being able to classify individual people's values, behaviours and experiences so that general conclusions (about their livelihoods and food security) can be made about the specific group of people. This is in line with the conventional livelihoods and food security literature where a household is usually taken to represent the appropriate social unit for livelihoods and food security research (Mikkelsen, 2005). However national food availability data is calculated from national food production and food import data which gives little information on how this food is distributed between communities, individuals and households. Moreover, there is too much emphasis on food production data and too little attention for data that captures the multiple factors that have an impact on people's food security.

Due to the drawbacks of the national food availability data mentioned above authors such as Barrett (2010) envisaged that measures based on the household should be used since they provide in-depth information on approaches to respond to shocks and past consumption. As a result, in terms of data collection the household was used in this study and targeted the head of the household. In the absence of household heads, any adult member of the household was interviewed. However, some household heads

refused to be interviewed, either because of misinformation about the purpose of the study (sensitivity regarding the land reform process) or because they did not see any benefit from the study. In the event that after careful explanation, the household representative still was not willing to participate, the next household was chosen.

Though Bless & Smith (2000) noted that there are advantages associated with interviewing all households (the whole population) since data obtained from the whole population is more reliable, when compared to sample data. However, due to limited time and financial resources, in this research study, a sample was used.

The study was conducted in the Manicaland Province of Zimbabwe. This province was purposively selected because the majority of its areas fall under agro-ecological regions I and II (Galang, 2002). In this region, a wide variety of field crops are grown by resettled farmers including tobacco. Furthermore, the main economic activity in Manicaland province is farming and most of the people live in rural areas where formal non-farm employment opportunities are minimal.

This study employed a multi-stage sampling technique with stratified and random components. Samples were drawn from three districts namely Mutare rural, Mutasa and Makoni. Stratification was carried out initially according to the model of land reform that is A1 model or A2 model farmers and latter according to whether smallholder farmers are tobacco or non tobacco farmers. The reason for the former type of stratification is that land reform emerged from different models. According to Moyo (1998), differences in the amount of land households obtained ultimately influences the livelihoods and food security situation of households.

Initially, purposive sampling technique was applied to ensure tobacco growing districts such as Mutare, Mutasa and Makoni will be included. Purposive sampling technique is particularly useful since this is an evaluation research which involves identifying the smallholder tobacco and non tobacco farmers who were resettled being evaluated. According to Lisa (2008), purposive sampling enables the researcher to understand the actual situation on the ground better, and to identify and differentiate the needs of all relevant groups involved.

Random sampling was applied in each stratum to obtain respondents for the study. A total of three hundred respondents were interviewed using a researcher administered structured questionnaire to obtain information on livelihoods systems; livelihoods strategies and food security situation (see Table 4.3).

Table 4.3: Stratification of sampled population

Location	Households	Sample size	A1		A2	
			Tobacco farmers	Non-Tobacco farmers	Tobacco farmers	Non-Tobacco farmers
Mutare rural	58 400	106	21	32	21	32
Mutasa	42 479	78	16	23	16	23
Makoni	63 887	116	23	35	23	35
Total	164 766	300	60	90	60	90

The reason for the unequal distribution of respondents between tobacco and non-tobacco farmers is that there are more non tobacco farmers than tobacco farmers in Manicaland province (Jerie & Ndabaningi, 2011).

Enumerators were recruited for the questionnaire administration process. These enumerators were trained on the whole process of questionnaire administration (introductions until the interview is completed) to capacitate them with the requirements of the questionnaire before getting into the field. A pilot study was also carried out to ensure that unnecessary questions were not included in the questionnaire and to ensure that unforeseen problems were detected early.

The questionnaire included all household activities (farm and non-farm), type of activities, crop areas and production levels, inputs and sales for the past season. The questionnaires also captured Household characteristics which influence livelihood strategies such as, family size, gender, education, employment status, land size, size of arable land, assets owned, access to credit, access to extension services, access to farmers' associations and farming skills was carried out. Further questions were linked to farmers' management, technical and financial management skills.

#### **4.3.2 Data analysis**

Data which was collected was coded, entered and ran in the Statistical Package for Social Scientists (SPSS Version 20) software and Microsoft Excel program for analyses. Descriptive statistics was applied to the demographic and socio-economic characteristics of the sampled households in Manicaland province. These statistics include gender of the household head, marital status, age of the household head, level

of education, household size, farming activities and sources of income. Response variables that had an effect on the dependence of either tobacco or non-tobacco farming with all the other response variables were tested using the Chi-square test.

The major distinguishing livelihood strategies were whether smallholder farmers in the study area were tobacco or non-tobacco farmers. However, further categories were identified in the study area depending on whether the resettled smallholder farmers were formally employed or involved in other off-farm activities.

Identifying livelihood categories was done using the source of income since they provide a clear direction on how livelihoods are conducted and obtained (Mohamed, 2006). Furthermore, livelihoods outcomes are also derived and directly linked to the sources of income due to the income which is derived from these sources (Chambers & Conway, 1992). Four main categories of livelihood strategies which were identified are as follows:

- (a) Tobacco farming household
- (b) Non-tobacco farming household (crops and livestock)
- (c) Household active in off-farm activities
- (d) Wage-earner household (formal employment)

Livelihood strategies in the study area were identified to be diversified which is supported by contemporary literature which reiterates the presence of diversification in rural livelihoods. Recent studies established consistently similar results showing the presence of households diversifying their livelihoods in Zimbabwe and elsewhere as a mitigating strategy to manage risk in the face of unpredictable events occurring. With this widespread knowledge of diversification, classification of livelihood strategies for smallholder farmers was done considering the most prevalent source of income.

Tobacco farming household were household that derived at least 50 percent of their total income from tobacco sales. Non tobacco farming household were households that derived at least 50 percent of their total income from sales of other crops. Household active in off farm activities were households that derived 50 percent or more of their total income from off farm activities such as building, repair work and producing or selling goods. Wage-earner households were those who earned 50 percent or more of their total income from temporary work or fixed (regular) formal employment. Descriptive statics were used to identify and order distinct livelihood strategies.

### 4.3.3 Definition of variables

The definition of both the livelihood strategies and food security status performance variables are explained in this section. To facilitate a better understanding of the explanatory variables used in the study, range of values and expected signs were used. The socio-economic and performance variables and the range of values of the variables which explain livelihood strategies are defined in Tables 4.4 below.

**Table 4.4 Livelihood strategies and explanatory variables**

<b>Dependent variable</b>	<b>Explanatory variables</b>	<b>Definition</b>	<b>Values/measure</b>	<b>Expected sign</b>
<b>Livelihood strategies</b>	Gender	Whether male or female	Dummy (Male=1, otherwise 0)	-/+
	Education	Highest education level obtained	Years	+
	Household size	Number of	Number of	-/+

		family members in a household	members	
	Land size	The size of land owned by the household	Hectares	+
	Credit	Access to credit for farming activities	Access = 1; No access = 0	+
	Inputs	Access to inputs by households	Access = 1; No access = 0	+

**Gender** of the household head plays an important role in determining the livelihood strategies which are going to be adopted by the household. This is as a result of different roles fulfilled by males and women especially in the African culture where some crops are branded male crops such as growing of cash crops and staple foods (Eneyew & Bekele, 2012). Gender also influence the type and amount of resources available to the household head since most of the livelihood assets and endowments in the African culture are allocated to the male counterparts hence they have an edge over their female counterparts. Gender analysis provides qualitative information on how the gender of the household head influences the livelihood strategies which are pursued by the household.

**Education** level of the household head is likely going to influence the livelihood strategies which are undertaken by the household (Ayuya *et al*, 2012). Household head with better educational qualification are expected to analyse the benefits and drawbacks of different livelihood strategies better and therefore, are expected to engage in high returns livelihood strategies such as tobacco farming and obtain rewarding livelihood outcomes.

**Household size** is also a key determinant of livelihood strategies since it provides the labour force required to perform different livelihood activities (Takane, 2007). Livelihood activities such as tobacco farming which require more labour force therefore is expected to be positively related to household size and the opposite is true for the relationship between off-farm activities such as hawking and household size. Furthermore, **land size** has a higher likelihood of influencing the livelihood strategies which are undertaken by households (Demeke & Haji 2014). Households with larger land sizes are likely going to have more and better livelihood strategies since they have more land area to utilise and allocate different crops such as tobacco and different types of non-tobacco crops such as grains, legumes and horticulture.

If a household has access to **credit** and **inputs**, it implies that the household has the capacity to be engaged in producing high returns crops such as tobacco farming as well as being able to diversify into different types of livelihood activities such as non-tobacco farming and off-farm activities. This is as a result that the household will be more endowed with more livelihood assets and hence should be able to utilise them and produce more livelihood outcomes such as more income from different livelihood activities. The main sources of credit for farmers in Zimbabwe are from Agribank as well as other financial institutions and micro-finance institutions whilst inputs are mainly

obtained from farmers' purchases, government through Presidential Input Scheme and from tobacco contractors. Access to inputs as well as credit has a bearing on the livelihood strategies carried out by resettled smallholder farmers.

Different livelihood strategies used have a bearing on the livelihood outcomes and hence are most likely going to influence food security status of households. The socio-economic and performance variables and the range of values of the variables which explain food security status of households are defined in Tables 4.5 below. The dependent variable in the empirical estimation is the food security status for this study. Table 4.5 summarizes the explanatory variables ( $X_i$ ) used for empirical estimation and develops some hypotheses about their expected influence on food security status.

Table 4.5 Food security status and explanatory variables

<b>Dependent variable</b>	<b>Explanatory variables</b>	<b>Definition</b>	<b>Values/measure</b>	<b>Expected sign</b>
Food security status (1, if household is food secure; 0, if household is food insecure)	Farming activity	Farming activity carried out by household	Tobacco cultivators = 1; Non- tobacco cultivators = 0	-/+
	Age group	Age group of household head	Number of years	-/+
	Household size	Number of family members in a household	Number of members	-/+
	Education	Highest education level obtained	Years	+
	Farm size	The size of cultivated land	Hectares	+

		by the household		
	Livestock	Number of livestock owned	500kg live mass (cattle, sheep, goats and pigs)	+
	Remittances	Access to remittances	Access = 1; No access = 0	+
	Annual gross income	Annual gross income	US Dollars	+
	Credit	Access to credit	Access = 1; No access = 0	+
	Extension services	Access to extension services	Access = 1; No access = 0	+

**Household size** is a key determinant of the food security status of the occupants (Hollaway *et al*, 2002). The higher the number of people in the household also implies the more food is required for consumption. However, the higher the number of people in the household also reveal that more labour force will be available for agricultural activities mainly tobacco farming which is a labour intensive crop. Consequently, it is hypothesized that household size and food insecurity are negatively or positively related.

**Age of household head** is also a factor which influences food security status of the household (Mahelet, 2007). The majority of rural households spend their time on agricultural activities hence the older the household head, the more information and experience he/she farming activities and timing of planting and harvesting. Older household heads tends to be risky averters hence they usually diversify their agricultural

activities and consequently usually become food secure than younger headed households.

**Education** is expected to be a key tool for capacitating individuals with vital information peculiar to their means of living (Destaw, 2003). Educated individuals usually find it easy to understand and analyse new livelihood strategies. Literate individuals do not face much difficulties in finding new information and able to apply it in their livelihood activities such as improving the quality of the tobacco output or disease controlling pesticides (Ayuya *et al*, 2012). Household heads who have obtained at least informal or primary education are likely to understand and evaluate new livelihood strategies and able to benefit from its use and therefore become food secure.

**Farm size** has a higher likelihood of influencing food security status of the household (Bogale & Shimelis, 2009). When households possess large farm size they have better opportunities of increasing food production as well as other agricultural output such as tobacco through increasing the area of land under cultivation. As a result a household will be in a better position to become food secure since agricultural output obtained can be consumed or sold to obtain income which can be used to purchase a variety of food groups to attain food security.

Nyikahadzoi *et al*, (2012) noted that **remittances** provide households with an alternative source of income. When households have access to remittances, this imply that they have better alternatives in terms of the food groups to purchase since they will have more disposable income at hand. As a result, recipients of remittances have better chances of becoming food secure than the households who do not have access to this

source of income. Consequently, this study expects access to remittances to affect food security status of households positively.

**Income** is also an important factor in determine food security status of the household since it provides the household head with the ability to acquire inputs and other important livelihood assets (Bashir *et al*, 2012). As a result the household would have better platform of producing enough livelihood outcomes such as food production or cash crop output such as tobacco which would be sold and be used to acquire food thereby enabling the household to become food secure. Access to credit for farming purposes is also a crucial factor which determines food security for the household. The obtained credit can be used to acquire inputs and also other livelihood assets such as tractors which are important for farming purposes. This therefore improves the potential for the household to increase agricultural output thereby acquiring more food or income from agricultural output hence improving the food security status of the household.

**Agricultural extension** is also a key factor of improving rural development and increased agricultural output (Eneyew & Bekele, 2012). It provides vital information to smallholder farmers on better farming techniques and new technologies which improve the rewards and profits obtained by farmers from agricultural activities. Moreover, it provides solutions to farmers obtained from researches for the problems they may have been facing and pass information to extension workers about their new problems which can be passed on to researchers for further studies which will ultimately provides new information to farmers. Groups of farmers organised through extension services can also be utilised to acquire inputs and credit which also provides a better platform to produce more output and become food secure.

## **4.4 Data analysis models**

The different models which were used in the analysis are presented below. These are multinomial logit regression model, Household Dietary Diversity Score (HDDS) and binary logit regression model.

### **4.4.1 Analysis of factors affecting livelihood strategies**

#### **4.4.1.1 Introduction and application of the Multinomial logit regression model**

Various activities are performed by different households to gain and maintain their livelihoods. The nature of these activities depends on the availability of assets (land), resources, labour, skills, education and gender. Within a household, members perform different activities in accordance with their culturally defined gender roles and age. Generally men in Zimbabwe are mostly involved in providing for the households and on the other hand women are mostly involved in taking care of the household members are to some extent on the productive sphere, though their productive role is not well recognized.

These rural household head (generally men) make a number of decisions in their daily activities. When there are alternatives to choose from, economic theory tells that agents choose what maximizes their expected utility given the existing situation (Moti, 2007). A multinomial logit regression on livelihood strategy choice (Tobacco farming household, non tobacco farming household (crops and livestock) and off farm activities household that is  $(A_i = j)$  as a function of household characteristics was carried out.

According to Demeke & Haji (2014), a multinomial logit regression model can be used to analyse the impact of various explanatory variables on the probability of being in one or another category (livelihood strategy). Moreover, this model has the advantage that it permits the analysis of decisions across more than two categories, allowing the determination of choice probabilities for different categories of strategies (Wooldridge, 2002). A multinomial logistic regression model is also used to predict categorical placement in or the probability of category membership on a dependent variable (livelihood choices) based on multiple independent variables.

#### **4.4.1.2 Related Literature**

Most studies broadly classify livelihood strategies as agricultural intensification, diversification and migration of livelihoods sources, at the household level (Barrett *et al*, 2001; Galab *et al*. 2002; Adugna, 2005; Berehanu, 2007). Diminutive attention is, however, given to the specifics of what comprises the non-farm activities and under which localities these are constituted. As a result, gaps still exist in literature with regard to the specific activities that comprise the on-farm and non-farm activities at various household localities and their relative contribution to food security.

Moreover, other studies also cited the general influence of household and institutional factors towards the adaptation of livelihood strategies, ranging from gender, education to credit and extension (Bezemer & Lerman, 2002; Rao *et al*, 2004; Holden *et al*, 2004; Brown *et al*, 2006). However, more effort is focused on econometric modelling with regard to the direction and significance of influence at the expense of soliciting for specific reasons, as reported by respondents. More often than not, policy insights based on such approaches bear errors of commission and omission. Thus, this study targets the on-farm and off-farm livelihood activities, as reported by smallholder tobacco and

non-tobacco farmers with the implicit goal of understanding locality based livelihood adaptation strategies to improve food security in their communities.

#### 4.4.1.3 Mathematical representation of the multinomial logit regression model

A multinomial logit regression model highlights key household attributes such as age, gender of household head, family size, farming skills, access to credit, land size, income and constraints that differentiate households pursuing different livelihood strategies. The assumption is that, to identify the determinants behind rural household decision to pursue various livelihood strategies in a given period, a rational household head choose among the four mutually exclusive livelihood strategy alternatives that will make the household to derive maximum utility. Following Greene (2003), suppose for the  $i^{th}$  respondent faced with  $j$  choices, the utility choice  $j$  is specified as:

$$U_{ij} = Z_{ij}\beta + \varepsilon_{ij} \dots\dots\dots (1)$$

If the respondent makes choice  $j$  in particular, then we assume that  $U_{ij}$  is the maximum utility the  $i^{th}$  respondent could obtain among the  $j$  utilities. So the statistical model is derived by the probability that choice  $j$  is made, which is:

$$\Pr(U_{ij} > U_{ik}) \text{ for all other } K \neq j \dots\dots\dots (2)$$

Where,  $U_{ij}$  is the utility to the  $i^{th}$  respondent from livelihood strategy  $j$

$U_{ik}$  the utility to the  $i^{th}$  respondent from livelihood strategy  $k$

According to Brown *et al*, (2006), the household's choice is the optimal allocation of its asset endowment if the  $i^{th}$  respondent's utility is maximised as a result of the selected

livelihood strategy. As a result, the  $i^{\text{th}}$  household's decision can ultimately be modelled as maximizing the expected utility by selecting the  $j^{\text{th}}$  livelihood strategy among  $J$  discrete livelihood strategies, i.e,

$$\max_j E(U_{ij}) = f_j(x_i) + \varepsilon_{ij}; j = 0 \dots J \dots \dots \dots (3)$$

For an outcome variable with  $J$  categories the  $j^{\text{th}}$  livelihood strategy that the  $i^{\text{th}}$  household chooses to maximize its utility could take the value 1 if the  $i^{\text{th}}$  household choose  $j^{\text{th}}$  livelihood strategy and 0 otherwise. Consequently, the probability that a household with characteristics  $x$  chooses livelihood strategy  $j$ ,  $P_{ij}$  can be modelled as:

$$P_{ij} = \frac{\exp(X_i' \beta_j)}{\sum_{j=0}^J \exp(X_i' \beta_j)}, j=0 \dots J \dots \dots \dots (4)$$

Applying the requirement that  $\sum_{j=0}^J P_{ij} = 1$  for any  $i$

Where:  $P_{ij}$  = probability representing the  $i^{\text{th}}$  respondent's chance of falling into category  $j$

$X$  = Predictors of response probabilities

$\beta_j$  = Covariate effects specific to  $j^{\text{th}}$  response category with the first category as the reference.

To remove an indeterminacy in the model, appropriate normalization which is to be carried out should assume that  $\beta_1 = 0$  (this arises because probabilities sum to 1, so only  $J$  parameter vectors are needed to determine the  $J + 1$  probabilities), so that  $\exp(X_i \beta_j) = 1$ , (Greene, 2003) implying that the generalized equation (4) above is equivalent to

$$\Pr(y_i = j / X_i) = P_{ij} = \frac{\exp(X_i \beta_j)}{1 + \sum_{j=1}^J \exp(X_i \beta_j)}, \text{ for } j = 0, 2 \dots J \text{ and}$$

$$\Pr(Y_i = j) = \frac{e^{\beta_j x_i}}{\sum_{k=0}^j e^{\beta_k x_i}}, j = 0, 1, \dots, J \dots \dots \dots (5)$$

Where

$\beta_i$  = a vector of coefficients on each of the household attributes  $i x$ ;

$\beta_k$  = the vector of coefficients of the base alternative;

$j$  denotes the specific one of the  $j + 1$  possible livelihood choices,

#### 4.4.2 Analysis of Food security status

##### 4.4.2.1 Related literature

Regassa & Stoecker (2011) examined household food insecurity and hunger in Sidama Zone in Ethiopia and used the Household Food Insecurity Access Scale (HFIAS) and the Household Hunger Scale (HHS), both developed by the Food and Nutrition Technical Assistance Project to calculate food insecurity. The HFIAS measures the prevalence and severity of food insecurity mainly depicted by the experiences of households when faced with limited access of food requirements whereas the HHS is used to rank households according to the severity of food insecurity with regard to food access (Regassa & Stoecker, 2011).

Gandure *et al*, (2010) used the Household Food Insecurity Access Scale (HFIAS) and The Household Dietary Diversity Score (HDDS) to provide an analysis of the indicators which can be used to measure food security status in Zimbabwe. Although the results

the two approaches complemented each other HDDs showed a clearer picture of the food security situation since it revealed that access of food obtained is not enough to determine the food security situation but it was important to examine the variety and nutrition of the food which households consume over time. Consequently, the (HDDS) is adopted in this study over the HFIAS method because the former, according to FAO (2008), have the following strengths;

- ❖ Quick and easy to measure and analyze
- ❖ Does not necessitate high skills
- ❖ Timely: sensitive to change
- ❖ Allows measuring trends
- ❖ Indicator is straightforward to calculate
- ❖ Easy to adapt with examples of local foods

#### **4.4.2.2 The Household Dietary Diversity Score (HDDS)**

The Household Dietary Diversity Score (HDDS) which was developed by the Food and Nutrition Technical Assistance (FANTA) programme of the Food and Agriculture Organization (FAO) will be adapted in this study. The HDDS is meant to reflect the various food groups which the household afford to consume. Various studies carried out using HDDS established that increase in food groups consumed by the household is directly related to improved food security status (Hoddinot & Yohannes, 2002; Hatloy *et al*, 2000). The Household Dietary Diversity Score (HDDS) reflect the dietary diversity consumed by members of the household in the previous 24 hours (which also includes food consumed outside the house). This type of measure shows that household possess the means of acquiring different food groups and the ability to access nutritious and health food.

Respondents were asked to recall all foods consumed by any household member in the day preceding the interview. The score is found by summing the number of food groups from which food had been consumed (FAO, 2008). The 14 food groups which were used are cereals; roots and tubers; vegetables; fruits; meat; eggs; fish; legumes; dairy products; foods made with fats or oils; insects; beverages; spices and sweets. The lowest possible HDDS therefore is zero and the highest possible score is 14. An increase in the average number of different food groups consumed reflects improved household food access (Swindale & Bilinsky, 2006). A list of food groups consumed in the study area was gathered before conducting household interviews. The list was used to create the 14 food groups consumed by selected households during the pilot study in the previous 24 hours. Dietary diversity was assessed using a modified version of Food and Agriculture Organization Diet Diversity Questionnaire (FAO, 2008).

#### **4.4.3 Analysis for factors affecting food security**

##### **4.4.3.1 Related literature**

According to Bogale & Shimelis (2009), linear regression models are widely used in most economic and social investigation because of availability of simple computer packages, as well as ease of interpreting the results. However, results derived from linear regression analysis may lead to fairly unreasonable estimates when the dependent variable is dichotomous (Arene & Anyaeji, 2010). Therefore, the use of the logit or probit models is recommended to counter the drawbacks of the linear regression models (Gujarati, 2003). Which model to choose between logit and probit is, however, difficult for they are similar in most applications. However for its comparative mathematical, interpretational simplicity and close approximation to the cumulative normal distribution many researchers tend to choose the logit model (Hosmer & Lemeshew, 1989). Consequently, this study employed the binary logistic regression

model following the footsteps of Bogale & Shimelis (2009), Arene & Anyaeji (2010) and Sekhampu (2013).

#### 4.4.3.2 Mathematical representation of the binary logistic regression model

The parameter of the logistic regression model was estimated with the Maximum Likelihood Estimation (MLE) technique. A binary response function (food secure and food insecure) was specified and estimated by the logistic procedure. The binary logistic specification is suited to models where the endogenous variable is dichotomous, which in this case are the households who are food secure and those who are food insecure. Food security status will be measured using a bid value of one or zero, where one represents food secure and zero represents food insecure. The logistic regression then provides a model of observing the probability of a household becoming food secure or food insecure. The binary logistic model adopted from Bogale & Shimelis (2009) is econometrically specified explicitly as:

$$P_i = F(Z_i) = \frac{1}{1 + e^{-(\alpha + \sum \beta_i X_i)}} \dots\dots\dots (1)$$

Where  $P_i$  is the probability that an individual is being food insecure,

$X_i$  stand in for the  $i^{\text{th}}$  explanatory variables,

$\alpha$  and  $\beta$  are regression parameters to be estimated,

and  $e$  is the base of the natural logarithm

Furthermore, for simplicity and ease of interpretation of the coefficients, a logistic model could be written in the form of the odds and log of odd. The odds ratio is the ratio of the probability that an individual or household would be food insecure ( $P_i$ ) to the probability of a household would not be food insecure ( $1 - P_i$ ). There by yielding;

$$\left( \frac{P_i}{1 - P_i} \right) = e^{Z_i} \dots\dots\dots (2)$$

Taking the natural logarithm of equation (2) yields:

$$\ln\left( \frac{P_i}{1 - P_i} \right) = Z_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots\dots\dots (3)$$

If the disturbance term  $U_i$  is taken into account, the logit model becomes:

$$Z_i = \alpha + \sum_{i=1}^n \beta_i X_i + U_i \dots\dots\dots (4)$$

Where  $\alpha$  and  $\beta$  are parameters of the model and can be estimated using the maximum likelihood (ML) method.

Where  $Z_i$  = Food security status (1, if household is food secure; 0, if household is food insecure) and  $\beta_i$  is the slope of the equation in the model,

#### 4.5 Limitations of the study

- The research was restricted to only one province of Zimbabwe because of budgetary constraints.
- Respondents' willingness to report information as accurately as possible could have biased data due to difficulties in recalling information
- The information could have errors that resulted from respondent bias.

However, greatest precaution was taken to ensure that the results obtained in the study are reasonable and more accurate, e.g. probing further in cases where a respondent could have given conflicting responses.

#### **4.6 Chapter summary**

This chapter described the study area both at national (Zimbabwe) and at provincial (Manicaland) level. The methodological approaches which were used by other authors as well as those which were used in this study also were outlined. Combinations of different methods were required, where each serves a different but complementary role within the overall research design. A total of 300 resettled smallholder farmers were interviewed in the study. A structured questionnaire was used to establish livelihoods strategies, food security status and factors which affect food security in Manicaland. A multinomial logit regression was used to analyse livelihood strategies, the HDDS was used to establish the food security status and Binary logistic model was used to estimate the factors affecting household food security for smallholder farmers in Manicaland province.

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## CHAPTER 5: DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF HOUSEHOLDS IN MANICALAND PROVINCE

### 5.0 Introduction

This chapter presents the descriptive statistics for the study. Mainly, it presents the results of the demographic and socio-economic characteristics of the survey farmers. The mean and standard deviation values on the main variables that have been studied in this study were mainly used. The chapter begins with the demographic characteristics followed by the socio-economic characteristics. Summary tables of respective variables are presented in both cases. Detailed analysis is made on variables requiring any further interpretation. This chapter also presents descriptive results on access of assets and sources of household income.

### 5.1 Demographic characteristics of the farmers

The summary statistics of age, gender and education of the sampled tobacco and non-tobacco farmers are presented in Table 5.1.

Table 5.1: Summary statistics of age group, household size and gender for respondents

	<b>Tobacco farming</b> <b>N=120</b> <b>Mean</b> <b>(Std dev)</b>	<b>Non-tobacco farming</b> <b>N=180</b> <b>Mean</b> <b>(Std dev)</b>
<b>Age group</b>	4.142 (0.737)	4.228 (0.761)
<b>Household size</b>	8.783 (3.035)	6.978 (2.025)
<b>Female headed HH</b>	9.2%	15.6%

Source: Field Data 2014

### **5.1.1 Age of Respondents**

Kisaka –Lwayo (2012) established that how an individual thinks and behaves are all closely related to his/her age. Although, Kisaka –Lwayo (2012) also observed that age may have a significant effect on physical abilities, which are important on family holdings, several research studies have established little or no mental deterioration at least up to 60 years of age. Furthermore, age of the head of household is of paramount importance since the head of household makes most of the decisions about livelihood strategies and the farming operations of the household.

The average age of respondents in the study area was generally high as it was in the range of 45-55. However the average age of smallholder tobacco farmers was slightly less than that of non-tobacco farmers. These findings were consistent with the findings of the study carried out by Mushunje (2005) in Manicaland province who estimated the average of farmers to be 50.6 years. Moloi (2008) concluded that farming in many rural areas is undertaken by farmers who are over 50 years. The results lay credence to previous findings e.g Kisaka –Lwayo (2012), which noted that older persons are more likely to be found in rural areas. The main reason for this age pattern might be due to the fact that farming is mostly considered as an alternative job for people who are retiring from formal wage employment. Consequently, the educated young and active people in society migrate to the urban areas to seek wage employment and only return to farming upon retrenchment or retirement.

### **5.1.2 Household size**

The average household size for tobacco farmers was 8.783 whilst for non-tobacco farmers it was 6.978. These results indicate that tobacco farmers had larger households

than non-tobacco farmers and are consistent with the findings of Takane (2007) which noted that tobacco farming households not only held and operated larger farms but they also tended to have more family labour. The household size is used as a proxy for family labour which is one of the most important inputs to smallholder farm production. The availability of family labour especially during peak labour demand is important for households that have adopted tobacco farming as it is labour intensive. However, large family sizes may also put pressure on household food requirements and hence has implications on the food security status of households.

### **5.1.3 Gender of heads of household**

For the smallholder farmers, the gender of the household head have a direct bearing on the decisions regarding the livelihood strategies to be undertaken and the food security status of the household. Furthermore, the leadership of the household plays an important role on the household's access to critical livelihood assets such as land, inputs and credit lines which greatly influence livelihood strategies and ultimately food security status.

The results of this research show that female headed households were 9.2 percent for tobacco and 15.6 percent for non-tobacco smallholder farmers as shown on Table 5.1. This was in line with the findings of Utete (2003) and Mushunje (2005) who established that the main beneficiaries of land reform were men in all provinces. Furthermore, results of this study (see Figure 5.1 below) also indicate that female headed households sampled under A1 model were 14 percent whilst those sampled under A2 were only 12 percent which is also in line with the findings of Utete (2003) which revealed that land was allocated to 18% of women under the A1 model whilst only 12 percent of land was

allocated to women under A2 model. This might be due to the reason that few women applied to be resettled. However, this contradicts with the general notion that most households in rural areas are women headed as a result of male migration to urban areas to find formal employment which was supported by the findings of Lubwana (1999) in a study carried out on smallholder farmers in Zimbabwe.

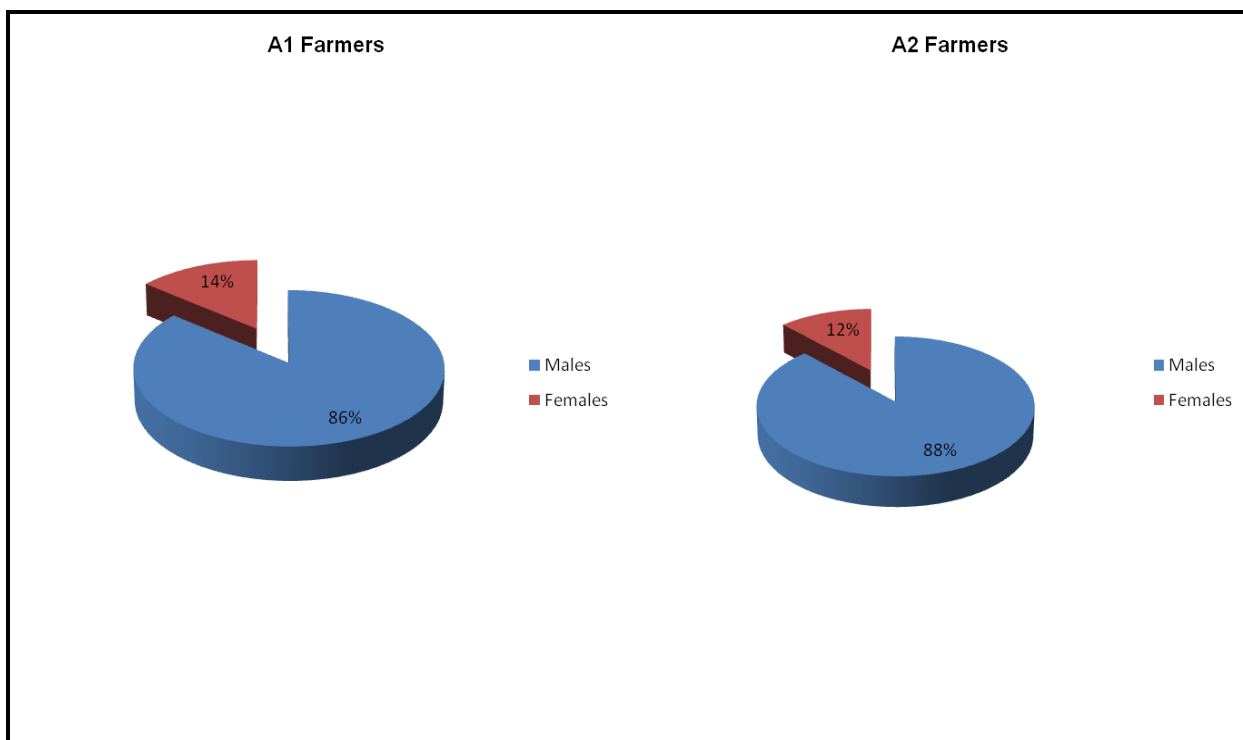


Figure 5.1: Gender Distribution of A1 and A2 smallholder farmers

Source: Field Data 2014

These results imply that male headed households obtained a large chunk of fertile land which is the crucial livelihood asset for rural households to carry out their livelihood activities. Furthermore, the land obtained by smallholder farmers in the study area is located in the agro-ecological area which support tobacco farming hence male headed households have better chances of adopting higher returns agricultural livelihood

strategies than female headed households and hence are more likely to become food secure.

#### 5.1.4 Marital Status of respondents

The marital status of the respondents for tobacco and non-tobacco farmers is shown on Table 5.2 below.

Table 5.2 Distribution of respondents according to marital status

Marital status	Tobacco farmers N=120		Non-tobacco farmers N=180	
	Number	Percentage	Number	Percentage
<b>Married</b>	102	34	142	47.3
<b>Separated</b>	1	0.3	3	1
<b>Divorced</b>	1	0.3	5	1.7
<b>Widowed</b>	16	5.3	30	10

Chi square = 2.588

d.f. = 3

p > 0,1

Cramer's V = 0.093

Source: Field Data 2014

The marital status is not significantly different ( $p > 0,1$ ) between tobacco and non-tobacco farmers since the Pearson Chi square indicates that the relationship is not statistically significant. Furthermore, Cramer's V of 0.093 indicates that there is virtually no relationship between marital status and choice of tobacco or non-tobacco farming. The small number of farmers who are separated or divorced is not surprising to people well

versed with the Zimbabwean culture since at a certain stage in life every man and woman is expected to marry and land is normally given to married people.

### **5.1.5 Education Levels**

According to Mushunje (2005), the farmers' success in farming depends on education and practical experience (apart from individual talents). One of the main factors which have been noted to limit adoption of new and better livelihood strategies in less developed countries is illiteracy. The level of education for the household head usually measures the ability of a farmer to perceive and adopt better livelihood strategies. On the other hand, Jerie & Ndabaningi (2011) argues that although some studies indicate that literacy enhances the adoption of innovation, there is not much evidence of adoption of better livelihood strategies attributable directly to schooling experience.

Educational level is significantly different ( $p < 0,1$ ) between tobacco and non-tobacco smallholder farmers since the Pearson Chi square indicates that the relationship is statistically significant as shown on Table 5.3. Furthermore, Cramer's V of 0.3 indicates that there is statistically significant relationship between educational level and choice of tobacco or non-tobacco farming. For the tobacco and non-tobacco resettled farmers, all the respondents had at least attained primary education indicating that all farmers can understand basic information about farming. This illustrates high level of literacy for farmers in Zimbabwe. Furthermore, results on Table 5.3 indicate that the rate at which smallholder farmers, in the study area understand and be receptive to better livelihood strategies such as tobacco farming increases with the level of education.

Table 5.3: The educational level of the respondents for tobacco and non-tobacco farmers

Educational Level	Tobacco farmers N=120		Non-tobacco farmers N=180	
	Number	Percentage	Number	Percentage
No formal education	0	0	0	0
Primary education	57	47.5	149	82.8
High school education	46	38.3	29	16.1
Tertiary education	16	13.3	2	1.1
Graduate	1	0.8	0	0

Chi square = 6.25

d.f. = 3

p < 0,05

Cramer's V = 0.3

Source: Field Data 2014

## 5.2 Farming activities and land ownership by the respondents

According to Jerie & Ndabaningi (2011), the land ownership and farming activities of resettled smallholder farmers have greatly changed for resettled farmers. Resettled smallholder farmers in the study area now own larger piece of land as a result of land redistribution carried out the Zimbabwean government after independence. Some resettled smallholder farmers have switched from food production to cash crop

production (mainly tobacco farming) whilst others have diversified their livelihood strategies. Results obtained in this study (see Table 5.4 below) however establish that some of the land allocated to the resettled smallholder farmers is deemed not suitable for crop production. Furthermore, these resettled farmers in the study area are also not fully utilising the arable land which was allocated to them with arable land usage of about 90 percent. Some of the land which was not arable and the remaining 10 percent of the land which was not cultivated were being used for livestock production in the study area as explained on Section 5.4.

Table 5.4: Summary statistics of farming activities and land ownership by smallholder farmers in Manicaland

	Farming activity		Resettlement Model	
	Tobacco farming N=120 Mean (Std dev)	Non-tobacco farming N=180 Mean (Std dev)	A1 N=150 Mean (Std dev)	A2 N=150 Mean (Std dev)
<b>Land size (Hectares)</b>	6.092 (3.357)	4.3778 (3.694)	3.060 (1.433)	9.067 (2.569)
<b>Arable land (Hectares)</b>	5.733 (2.998)	4.190 (3.496)	2.985 (1.358)	8.630 (2.263)
<b>Crop production land (Hectares)</b>	5.208 (2.833)	3.746 (3.170)	2.898 (1.298)	7.763 (2.431)
<b>Tobacco production land (Hectares)</b>	3.295 (2.246)	N/A	1.530 (1.168)	4.760 (2.109)

<b>Maize production land (Hectares)</b>	1.213 (0.985)	2.826 (1.044)	1.127 (0.772)	2.408 (2.369)
<b>Tobacco production (Tonnes)</b>	3.896 (2.123)		2.657 (1.292)	6.584 (2.732)
<b>Maize production (Tonnes)</b>	2.018 (1.044)	3.605 (2.627)	1.455 (0.259)	3.489 (1.767)
<b>Other crops production (Tonnes)</b>	0.985 (0.570)	1.259 (0.782)	1.013 (0.285)	1.826 (0.546)

Source: Field Data (2014)

The results on Table 5.4 also reveal that tobacco farmers possess more land holdings (average of 6.092 hectares) and utilise more land for crop production (average of 5.208 hectares) than non-tobacco farmers (average of 4.3778 and 3.746 hectares respectively). Generally smallholder farmers with more land find it easy to pursue other livelihood activities (e.g. tobacco farming) since their land permit them to produce other crops whilst keeping enough piece of the land for food crops such as maize (staple food in Zimbabwe) production. The results indicate that tobacco smallholder farmers allocate about 63 percent of land they cultivate towards tobacco crops whilst the remaining 37 percent is set aside for maize production. Due to the diversification of farming activities by tobacco farmers, maize production also contribute a substantial amount (about an

average of 2 tonnes) of their agricultural output. Furthermore, non-tobacco farmers allocated about three quarters of their cultivated land towards maize production indicating that the crop is an important food crop in the study area. The results therefore, indicate that the main farming activities which are pursued by resettled smallholder farmers in the study area are tobacco and maize production.

The results also established that A2 farmers (as explained on Section 2.2) have exceptionally greater land holdings on average (9.067 hectares) than A1 smallholder farmers (average 3.060 hectares). A2 smallholder farmers have been found to produce more output of tobacco on average (6.584 tonnes) and maize (average 3.489 tonnes) whilst A1 smallholder farmers only managed an average of 2.657 tonnes of tobacco and 1.455 tonnes of maize on average. As a result, A2 smallholder farmers are likely to be food secure since they obtain more food output for consumption as well as more tobacco output whose income can be used to purchase a variety of nutritious and health food for consumption. Income is also obtained from other various sources by households in the study area as explained below.

### **5.3 Sources of household income**

Sampled households in Manicaland province obtained their income from multiple sources namely tobacco farming, non-tobacco farming, hawking, selling liquor, salaries and wages, remittances and from pensions. In both A1 and A2 resettlement models, income from tobacco farming made substantial contributions, 43.6 percent and 55.7 percent respectively, to household income (see Table 5.5). The mean annual income per household is presented on Table 5.5 for A1 and A2 as well as for resettled tobacco and non-tobacco farmers in Manicaland.

Table 5.5: Annual contributions of various sources to household income

Source of income	Resettlement Model				Farming activity			
	A1		A2		Tobacco farming household		Non-tobacco farming household	
	\$	%	\$	%	\$	%	\$	%
Tobacco farming	3720.67	43.6	11691.67	55.7	7706.17	51.8	N/A	N/A
Non-tobacco farming (crops)	706.89	8.3	3831.02	18.3	1439.51	9.7	2887.50	39.8
Non-tobacco farming (livestock)	987.69	11.6	1526.22	7.3	1707.14	11.5	1198.94	16.5
Hawking	362.22	4.2	800.00	3.8	1080.00	7.3	378.00	5.2
Selling liquor	175.00	2.0	300.00	1.4	0	0	228.57	3.2
Salaries and wages	1527.20	17.9	1793.33	8.6	1629.09	11.0	1646.83	22.7
Remittances	71.00	0.8	96.66	0.5	56.25	0.4	102.22	1.4
Pensions	988.97	11.6	935.17	4.5	1254.00	8.4	808.42	11.1
<b>Total</b>	<b>8539.64</b>	<b>100</b>	<b>20974.07</b>	<b>100</b>	<b>14872.16</b>	<b>100</b>	<b>7250.48</b>	<b>100</b>

Source: Field Data (2014)

These results are similar to those of a survey conducted in the same Province by (ZimVac, 2013) since they obtained the same sources of income. Consequently, the results of the survey carried out by ZimVac (2013) show that resettled farmers are better off than the average of all other households in the province since the mean annual income obtained for the whole province of \$1080.00 was less than \$8539.64 for A1

smallholder farmers obtained in this study. Furthermore, the results presented on table 5.5 reveal that tobacco farmers earn more income from sale of mainly tobacco output hence they can afford to purchase more varieties of food groups for consumption as a result they are more likely to become food secure than non-tobacco farmers.

#### 5.4 Livestock and asset ownership

The resettled smallholder farmers in the study area kept cattle, rabbits, goats, sheep, pigs and broilers as shown on Table 5.6.

Table 5.6: Livestock ownership by respondents

Livestock	% smallholder farmer's livestock ownership			
	Tobacco farmer		Non-tobacco farmer	
	A1	A2	A1	A2
<b>Cattle</b>	82	98	61	87
<b>Rabbits</b>	0	9	0	4
<b>Goats</b>	60	88	59	65
<b>Sheep</b>	23	41	12	25
<b>Pigs</b>	8	29	2	11
<b>Broilers</b>	95	97	93	96

Source: Field Data (2014)

Results on Table 5.6 indicate that tobacco farmers owned relatively more livestock than non-tobacco farmers. Furthermore, tobacco farmers own more cattle which mainly provide draught power to smallholder farmers in Manicaland. This may imply that tobacco farmers can cultivate more land which will provide them with more option with

regard to the type of crops to be grown and more cattle mean that some cattle may be slaughtered to supplement food requirements hence tobacco farmers are likely to be food secure than non-tobacco farmers. A2 smallholder farmers also have more livestock than A1 smallholder farmers which also imply that A2 smallholder farmers are likely to be more food secure than A1 smallholder farmers. Livestocks owned might also influence the type of assets owned by households for example usually ox-cart are owned by households who own cattle in the study. Assets which were owned by smallholder farmers in the study are were mainly ox-cart, trucks and tractors (see Table 5.7).

Table 5.7: Assets ownership by respondents

Assets	% resettled smallholder farmer's asset ownership			
	Tobacco farmer		Non-tobacco farmer	
	A1	A2	A1	A2
<b>Ox-cart</b>	22	48	18	38
<b>Truck</b>	0	9	0	4
<b>Tractor</b>	6	8	5	7

Source: Field Data (2014)

The assets percentage ownership of assets statistics by respondents on table 5.7 revealed that resettled smallholder tobacco farmers own relatively more assets than non-tobacco farmers. Since resettled tobacco smallholder farmers have more assets at their disposal, they may use them to pursue different livelihood strategies hence they may be able to pursue better and high returns livelihood strategies and become more food secure than resettled non-tobacco smallholder farmers. Consequently, A2

smallholder farmers with relatively more asset ownership may also possess better and high returns livelihood strategies hence might become food secure than A1 smallholder farmers.

## **5.5 Discussion**

The socio-economic characteristics of households for tobacco and non tobacco smallholder farmers were presented in this chapter. The average age of the majority of smallholder farmers for both tobacco and non-tobacco farmers was generally high. Furthermore, the average family size for both tobacco and non-tobacco farmers was at least about seven, which is an indication of high dependency ratios.

The majority of the sampled households in the resettled areas, A1 (86%), A2 (88%) and were male-headed. The results of this study also revealed that male headed households were 90.8 percent for tobacco and 84.4 percent for non tobacco farmers. For the tobacco and non-tobacco resettled farmers, all the respondents had at least attained primary education which reveal that all farmers are functionally literate.

The results also established that tobacco farmers have exceptionally greater land holdings on average than non-tobacco smallholder farmers. Sampled households in Manicaland province obtained their income from seven sources namely tobacco farming, non-tobacco farming, hawking, selling liquor, salaries and wages, remittances and from pensions. In both A1 and A2 resettlement models, income from tobacco farming made substantial contributions, 43.6 percent and 55.7 percent respectively, to household income.

## 5.6 References

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## CHAPTER 6: LIVELIHOOD STRATEGIES AND FACTORS AFFECTING LIVELIHOOD STRATEGIES

### 6.0 Introduction

It is important to understand the livelihood strategies used in Manicaland to mainly attain different levels of food security status. According to Cousins and Scoones (2010), choices on livelihood activities as well as sources of income indicate various livelihood strategies pursued by households. Four major combinations which can be taken by households that would make them achieve their preferred livelihood outcomes given the available livelihood assets in the study area are whether to indulge in tobacco farming, non-tobacco farming, off-farm activities and formal employment. Within the direction of non-tobacco farming, a household is confronted with further choices such as the choice the kinds of crops and animals to adopt. Different livelihood strategies pursued by respondents will also ultimately influence their food security status. Several factors influence livelihood generation by smallholder farmers in the study area which are also going to be analysed in this study.

### 6.1 Livelihood strategies pursued by respondents

Apart from separating smallholder farmers into tobacco and non-tobacco farmers, four main livelihood categories mentioned on Section 4.3.2 were used depending on the main source of income by smallholder farmers in Manicaland province and these are, tobacco farming household, non-tobacco farming household (crops and livestock), household active in off-farm activities and wage-earner household (formal employment). Results of livelihood strategies obtained from this study are given on Figure 6.1 below.

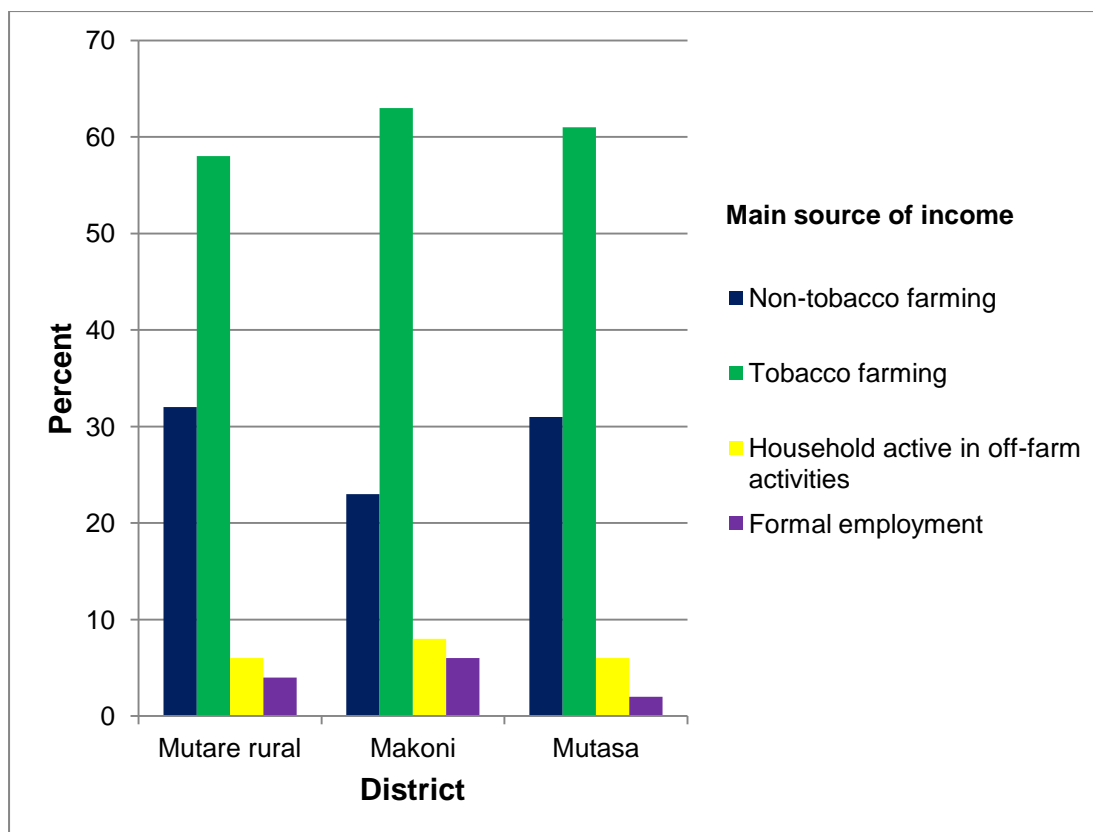


Figure 6.1: Livelihood strategies for smallholder farmers in the study area

Source: Field Data 2014

Figure 6.1 indicate that the main sources of income for all the smallholder farmers in the sampled districts were tobacco and non-tobacco farming. This reveals that farming activities are the main source of income for resettled smallholder farmers. This is in line with the findings of the study by Mahelet (2007) which established that the main source of income for smallholder famers is obtained from agricultural activities. Furthermore, the results show that the majority of income is obtained from tobacco farming although the majority of sampled smallholder farmers were resettled non-tobacco smallholder farmers. This shows that resettled tobacco smallholder farmers are earning more income from this high return crop than resettled non-tobacco smallholder farmers, which can be used to acquire a variety of nutritious and health food for consumption and therefore are expected to be food secure. On the other hand resettled non-tobacco smallholder

farmers form the majority of the respondents but they are obtaining less income from their livelihood strategies hence they are more likely to be food insecure.

## **6.2 Factors affecting household livelihood generation by respondents**

The estimation of factors affecting livelihood generation was carried out using the multinomial logistic regression model as explained on Section 4.4.1. The results of the multinomial logistic regression model are shown in Table 6.1 below. In the multinomial logistic regression model the dependent variable is ordered where 1=tobacco farming household; 2= non tobacco farming household (crops and livestock); 3= household active in off farm activities and 4=wage-earner household (formal employment). Examination of literature shows that the category which is redundant should be taken as the reference category hence formal employment was considered to be the reference category in the model. Consequently, a positive sign for the variable in the multinomial model reflects the higher the likelihood of participating in the main source of income (livelihood strategy) indicated. However, a negative sign for the variable in the multinomial model reflects a lower likelihood of participating in the main source of income indicated.

The chi-square value is significant at one percent implying that the explanatory variables taken together influence the livelihood strategies adopted by smallholder farmers in Manicaland. The Pseudo-R<sup>2</sup> refers to the Nagelkerke's Pseudo-R<sup>2</sup>. Verbeek (2008) suggests that the interpretation of the pseudo R<sup>2</sup> (Nagelkerke) be done with great caution since it does not have the same interpretation as the R<sup>2</sup> in the ordinary least square regression. A positive value means that the explanatory variable increases the chances of pursuing the livelihood strategy with an increase in its magnitude.

After including all variable which might influence household livelihood generation results indicated that there was an unexpected singularity in the Hessian matrix and therefore no meaningful conclusions could be drawn. To correct for the unexpected singularities in the Hessian matrix it was necessary to exclude some of the predictor variables which were not significant in the model such as age group, income, access to extension services, skills, and other several constraints. As a result, variable which were significant at 0.1 levels were included as shown on Table 6.1 below.

Table 6.1: Results of the factors affecting household livelihood generation by respondents

Variable	Tobacco farming			Non- tobacco farming			Off- farm activities		
	Estimate	SE	P(Sig)	Estimate	SE	P(Sig)	Estimate	SE	P(Sig)
<b>Intercept</b>	-25.797	3.673	.000	-27.692	3.669	.000	-25.352	3.984	.000
<b>Gender</b>	14.908	.653	.000***	15.014	.594	.000***	0.791	0.0230	0.200
<b>Household size</b>	.505	.208	.015**	.422	.205	.180	.344	.225	0.127
<b>Education</b>	0.376	.183	0.04**	.0800	.527	.129	1.114	.620	0.072*
<b>Land size</b>	2.271	.712	.001***	0.278	.712	.132	.881	.752	0.242
<b>Access to credit</b>	3.581	1.404	.011**	5.051	1.412	.000***	0.451	0.624	0.34
<b>Access to inputs</b>	2.010	.920	.029**	1.587	.906	0.080*	1.457	.990	.141

The Multinomial Logistic Regression Model (Model included only significant variables at 0.1 level)  
 N= 300 (tobacco farming household = 114; non tobacco farming household = 149; household active in off farm activities =24 and wage-earner household = 13).  
 Model chi-square =149.994;  $p < 0.0001$ ,  $-2 \log \text{likelihood} = 402.994$  Pseudo  $R^2$  (Nagelkerke) =0.887.  
 Significance levels: \*\*\*  $p < 0.01$ : \*\*  $p < 0.05$ : \*  $p < 0.1$ . The reference category is: 4 (Formal employment).  
 (Source: Field Data)

## Interpretation of econometric results

The multinomial logit regression model successfully estimated the significant variables which influenced livelihood strategies used by resettled smallholder farmers in Manicaland. The results showed that the model had strong explanatory power since the p value was obtained to be less than 0.0001. Furthermore, Pseudo R<sup>2</sup> (Nagelkerke) of 0.887 revealed that the explanatory variables managed to predict about 89 percent of variations in livelihood strategies for the respondents indicating that the model was well specified. The following variables were found to be significant determinants for tobacco farming adoption decision by smallholder farmers in the study area: gender, number of household, crop production land, and access to markets challenge access to credit. The results of the estimated equations of the final multinomial logistic regression model were discussed in terms of the significance and signs on the parameters. Table 7.2 shows that the set of significant explanatory variables varies across the groups in terms of the levels of significance for all livelihood choice categories.

**Gender** or sex of household head was significantly affected the choice of livelihood strategies (both tobacco and non-tobacco smallholder farmers) due to culturally defined roles and differential cultivation of crops since cash crops such as tobacco farming are considered to male crops whilst grains and legumes are considered to be women crops mainly in Africa and particularly in Zimbabwe which is in line with the findings of Adugna (2005) and stated by Zimstat (2013) respectively. Household characteristics like being male headed household increases the probability of being a tobacco farmer for the respondents in Manicaland. The result is consistent with results obtained by Demeke & Haji (2014) who established that male headed household increases the probability of being a commercial farmers as opposed to women who are usually involved in

subsistence farming. In this study, gender of household head is found to positively and significantly ( $p < 0.01$ ) as expected.

**Household size** coefficient is positive and statistically significant at 5% level of probability for tobacco farming. A larger family size is an important determinant for adoption of tobacco farming which is labour intensive farming practice. These results are in line with the findings of Hollaway *et al*, (2002), Takane (2007) and Kisaka –Lwayo (2012) who established that large family sizes are an indication of availability of labour required for cash crops such as tobacco. Family labour is also of paramount importance to meet peak labour demand required for tobacco farming.

Educational level of household head (**Education**) proves that it is one of the key factors which positively influence the likelihood of choosing the livelihood strategies of tobacco farming and off-farm activities. Educational attainment is crucial for understanding and adopting better returns livelihood strategies such as tobacco farming as well as understanding the need for diversifying into other non-farm activities so as to reduce farming risks such as low output prices and bad weather conditions. These results are in line with the findings of Ayuya *et al*, (2012) which established that farmers who have attained higher education are able to analyse and respond to new and better livelihood strategies. Barret *et al*, (2001) also revealed that educational level is an important determinant of adoption of off-farm activities in order to diversify earnings which is also in line with the findings of this study. However, the results contradict with the findings of Destaw (2003) who established that education has no effect on livelihood strategies.

The coefficient of **land size** was positive and statistically significant at 1% level of probability for tobacco farming. The positive coefficient for tobacco farming household

reflects that larger farms appear to have greater propensity to adopt tobacco farming as also indicated on Section 5.2 hence the necessity of more land to be given to smallholder farmers to be able to cultivate high returns cash crops such as tobacco. Smallholder farmers consider off-farm activities as a last resort income source and hence the need for more land to be made available to them and also to utilise it for them to be productive. These results are consistent with the studies of Balint (2005), Mahelet (2007), Takane (2007) and Demeke & Haji (2014) which showed that cultivated land size positively influenced the share of sale of cash crops and established a highly significant positive relationship between cultivated land and production of cash crops.

As expected, **access to credit** for farming activities was found to have a positive and significant impact on the likelihood of choosing tobacco and non-tobacco farming. It also explains why most of the households were diversified since the majority of the smallholder farmers in the study area lacked access to credit lines. These results also imply that both formal and informal credit facilities are a very important livelihood asset for rural farmers not only to finance agricultural inputs activities, but also to acquire crucial livelihood assets such as cattle, trucks and building barns. The results of the study consequently suggest that farmers' access to credit would play important role in promoting smallholder farmers' agricultural output leading to agricultural development. These results are in agreement with the findings of Brown *et al*, (2006); Holden *et al*, (2004) and Berehanu (2007). This implies that making credit lines available to smallholder farmers will accelerates agricultural production and positively contribute to economic growth of a country like Zimbabwe. These findings were also supported by the report by Poverty Reduction Forum Trust (2013) which noted that agricultural production in rural Zimbabwe generally is on a decline as a result of lack of credit lines for farmers.

**Access to inputs** variable has a positive and statistically significant at 5% and 10% level of probability for tobacco and non-tobacco smallholder farmers respectively. This shows that access to inputs is a key component for both tobacco and non-tobacco smallholder farmers in Manicaland. These results were in agreement with findings of the survey carried out by ZimVac (2013) which established that the major reasons for reduction in the area planted by smallholder farmers was due late availability and unavailability of crop inputs. Moreover, these findings are also in line with the findings of the report by Poverty Reduction Forum Trust (2013) which reiterated that generally the downward trend in agricultural output by farmers in Zimbabwe is attributed to insufficient agricultural inputs.

### **6.3 Conclusion**

Using the main sources of income by smallholder farmers in Manicaland province (tobacco farming household, non-tobacco farming household, household active in off-farm activities and wage-earner household), the study was able to establish the pattern of livelihood strategies in the area of study. Results indicate that the majority of the households were involved in tobacco and non-tobacco farming in all the sampled provinces (i.e. Makoni, Mutasa and Mutare rural) with a small percentage of households obtaining their main source of income from off-farm activities (remittances, hawking, livestock production, trading, pensions etc) and formal employment.

The study used a Multinomial Logit model to investigate the factors influencing a household's decision to choose different livelihood strategies. In the model, the dependent variables included four livelihood strategies while the explanatory variables included various household social-economic and institutional factors. The results obtained from the multinomial logistic regression model established that six variables

(gender, household size, education, land size, access to inputs and access to credit) were found to be significant in determining the adoption of tobacco farming strategy in the study area up to less than 10% probability level. Smallholder farmers who did not adopt tobacco farming indicated that limited land size, shortage of labour as well as access to tobacco inputs were the major impediments to adoption of tobacco farming.

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## **CHAPTER 7: FOOD SECURITY STATUS AND FACTORS AFFECTING FOOD SECURITY IN MANICALAND**

### **7.0 Introduction**

The aspect of household food security has received increased attention particularly due to deteriorating economic conditions worldwide (Regassa & Stoecker, 2011). The Household Dietary Diversity Score (HDDS) was used to measure food security status of smallholder farmers in this study due to the advantages mentioned in Section 5.3.3.2. Furthermore, this study investigates the factors affecting food security for resettled (tobacco and non-tobacco) smallholder households in the three selected regions of the Manicaland Province of Zimbabwe. To obtain the factors affecting food security, a Binary Logistic regression model based on primary data source from three districts of Mutare rural, Makoni and Mutasa for resettled tobacco and non-tobacco smallholder farmers was used. This chapter presents results on food consumption patterns, food security status, livelihood strategies and food security status and factors affecting food security for sampled smallholder households.

### **7.1 Food consumption by sampled households**

Food groups consumed by households in the study area are shown on Figure 7.1 below. The information presented includes 14 different types of food groups for both tobacco and non-tobacco farmers.

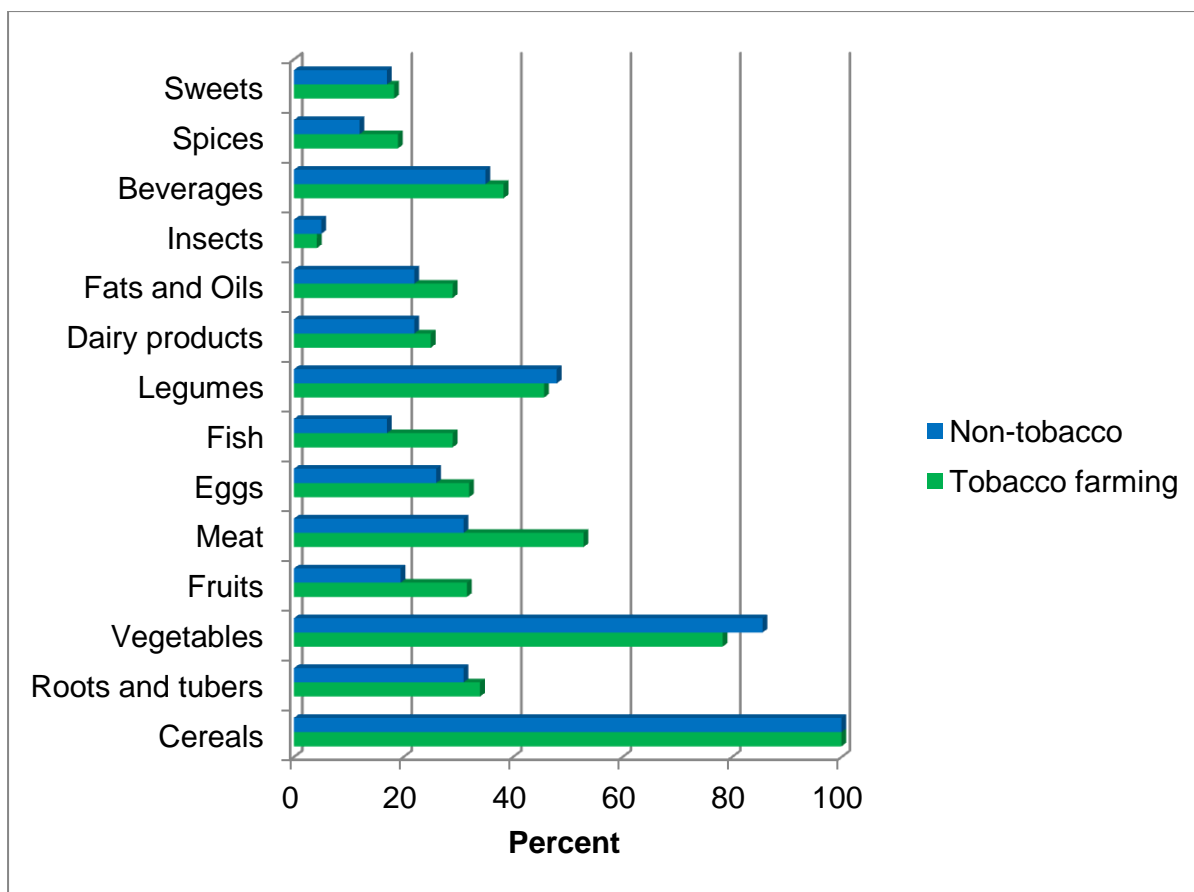


Figure 7.1: Percentages of food groups consumed by tobacco and non-tobacco smallholder sampled households

Source: Field Data 2014

Results revealed that the main types of food groups consumed in the study area are cereals, vegetables, meat, legumes and beverages. This is in agreement with the findings Gandure *et al*, (2010) which established that cereals and vegetables are the main food crops consumed in rural Zimbabwe and that of Monde (2003) which also established that cereals, vegetables and meat are the main food crops consumed in rural areas in South Africa.

The results show that tobacco farmers consumed relatively greater percentage of nutritious food groups such as roots and tubers, fruits, meat, eggs and dairy products.

Consequently, tobacco farmers are more likely to be more food secure than non-tobacco farmers since they afforded to purchase and consume more food varieties which are nutritious than the latter.

Results on Figure 7.2 also established that A2 smallholder farmers who were allocated more land consumed greater percentage of all food groups (except cereals which were consumed by all households in the study area) than A1 smallholder farmers.

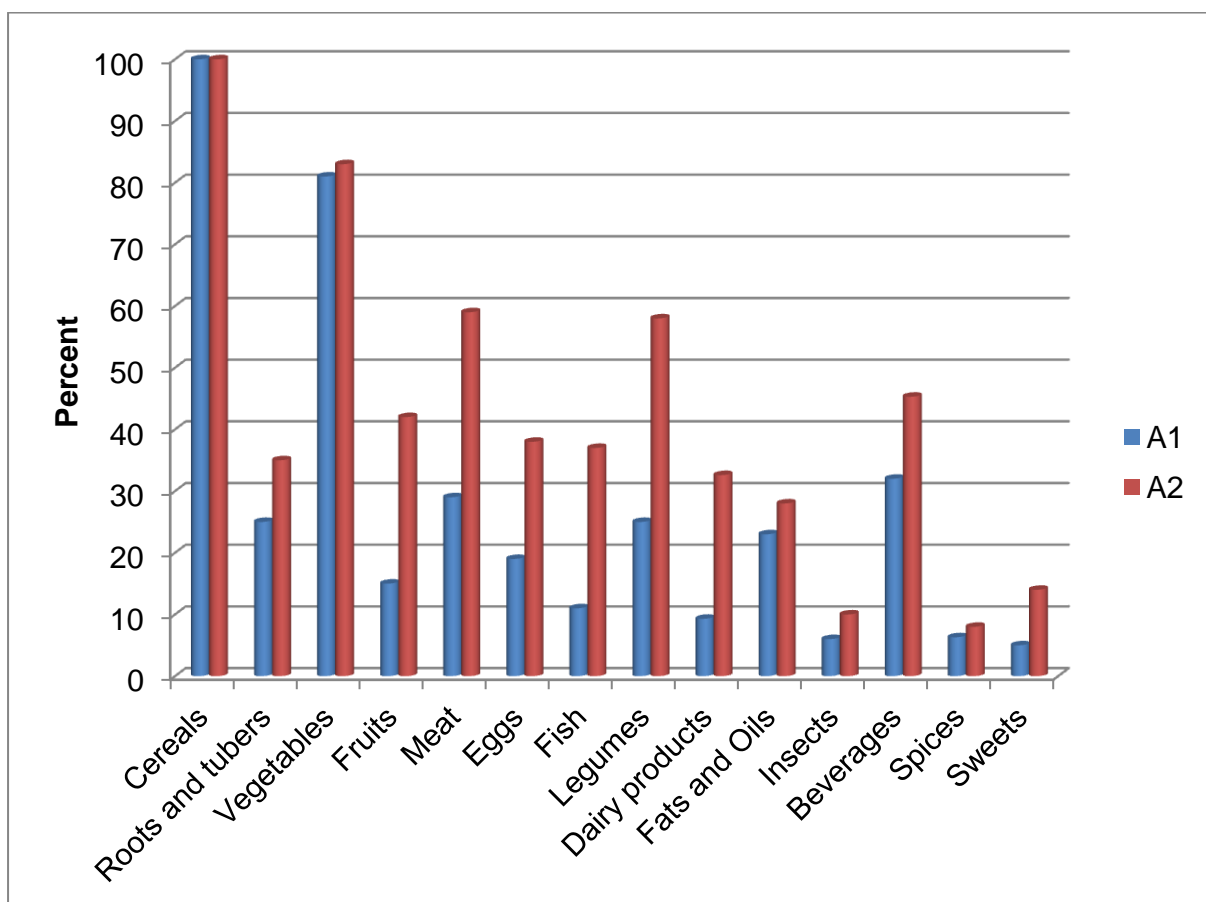


Figure 7.2: Percentages of food groups consumed by A1 and A2 smallholder farmers in the study area

Source: Field Data 2014

Notable A2 smallholder farmers consumed significantly a greater percentage of roots and tubers, fruits, meat, eggs, fish, legumes, dairy products, beverages and sweets than A1 smallholder farmers. This is in line with a plethora of studies which reveal that households with more natural resources (land in this study) are more likely to consume greater percentage of food groups which they will obtain directly from agricultural output or indirectly from sale of agricultural output (e.g. Bashir *et al*, 2012, Takane, 2007 and Eneyew & Bekele, 2012). As a result, A2 smallholder farmers are likely to be more food secure than A1 smallholder farmers. Food consumption patterns in the study area also influenced food security status for sampled smallholder farmers.

## **7.2 Food security status for smallholder farmers in the study area**

Household food consumption information obtained from sampled resettled smallholder households during the previous day was used to establish their food security status. The Household Dietary Diversity Score (HDDS) was used to determine food security status of resettled smallholder farmers by summing the number of food groups from which food had been consumed; the 14 food groups which were used are cereals; roots and tubers; vegetables; fruits; meat; eggs; fish; legumes; dairy products; foods made with fats or oils; insects; beverages; spices and sweets. The lowest possible HDDS therefore is zero and the highest possible score is 14. Consequently, households with less than the HDDS of seven were classified as food insecure whilst those with seven to fourteen were classified as food secure as prescribed through the guidelines by FAO (2011). Results of the food security status of resettled smallholder farmers using the HDDS are presented on Figure 7.3.

The obtained results show that a greater percentage of tobacco farmers are food secure as compared to non-tobacco farmers. Furthermore, more than 50 percent of non-

tobacco farmers reflected that they were food insecure. This indicates that tobacco farming households had access to a greater variety of foods which they afforded to purchase using mainly income obtained from sale of the cash crop as compared to non-tobacco farming households. These results are in line with the findings of Naher & Chowdhury (2002) in the study on the economics of tobacco cultivation from an empirical study of 300 tobacco farmers (with few non-tobacco farmers included in the sample) in 19 villages in Rangpur and Kushtia districts in Bangladesh. The study noted that tobacco farmers were more food secure compared to non-tobacco farmers.

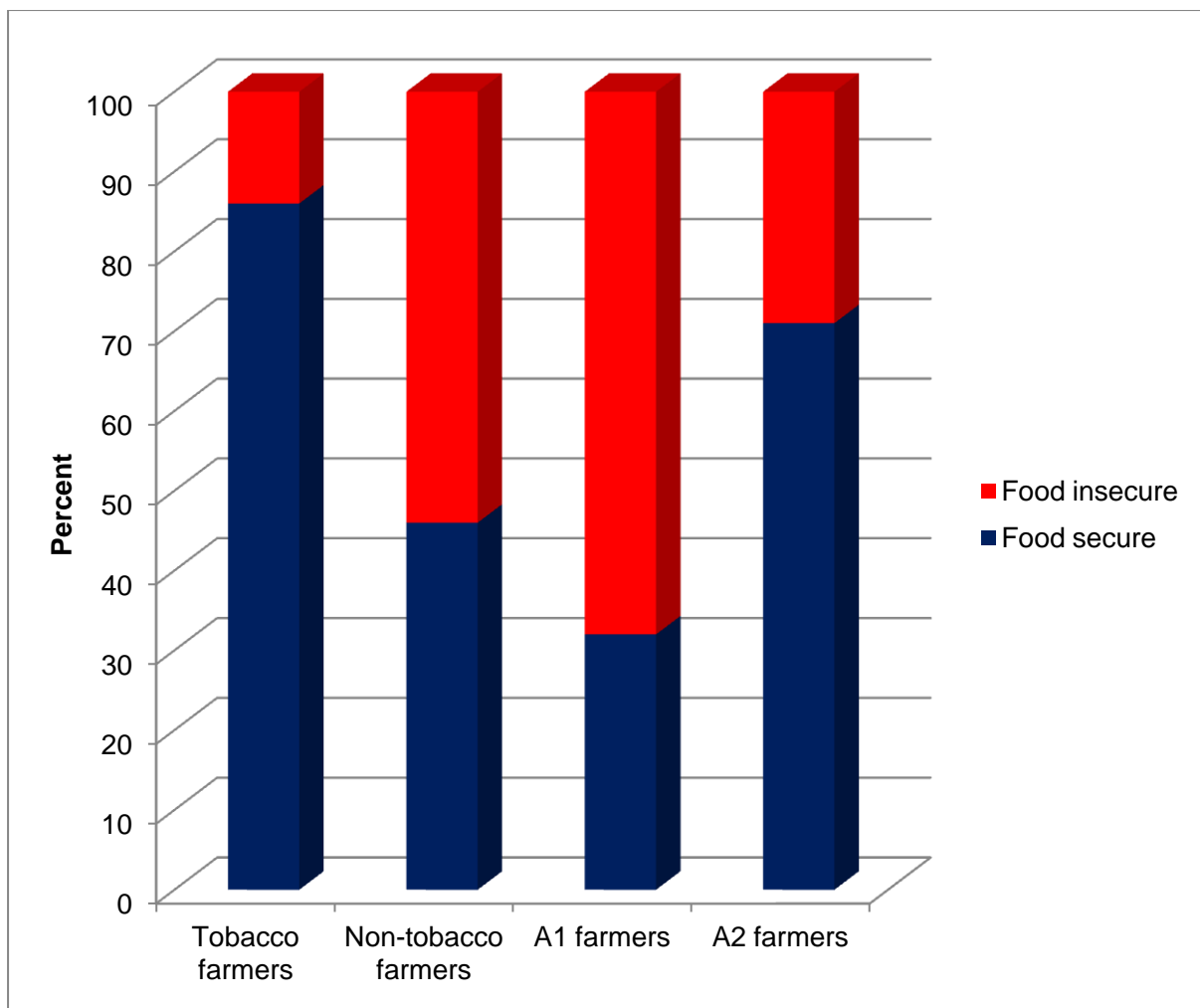


Figure 7.3: Food security status by respondents

Source: Field Data 2014

The results from the study also revealed that the majority of A1 farmers were food insecure than A2 farmers. This reflects that land size significantly influenced the food security status of smallholder farmers. These results are also in agreement with the findings of the study by Takane (2007) and Minh *et al*, (2008) in rural Malawi and rural Vietnam respectively which established that increase in land owned significantly contributed to farmers to cultivate more land, produce more agricultural produce and become food secure than those with less land. Food security status of households is also affected by the diversification of livelihood strategies in the study area.

### **7.3 Livelihood strategies and food security status of respondents**

For classification of livelihood strategies and food security status, formal employed households were in-cooperated into the off-farm activities category hence three livelihood strategies (tobacco farming, non-tobacco farming and off-farm activities) were used. The chi-square test results on Table 7.1 established a statistically significant among the three livelihood strategies at one percent probability level.

The results reveal that most common livelihood strategy in the study area is agriculture with 60.7 percent of the households involved in agricultural activities alone. Diversification is also noted to be dominant since 82 percent of the respondents were engaged in tobacco farming and off-farm activities besides non-tobacco farming and 39.3 percent of the respondents were involved in other livelihood strategies apart from agriculture. Due to the key role played by grains in Zimbabwe, tobacco farming households preferred not to transfer all their land towards the high returns cash crop but rather keep part of their land for grains production particularly maize.

Table 7.1: Distribution of livelihood strategies and food security for the respondents

Livelihood strategies	Food security status of households					
	Food secure		Food insecure		Total	
	n	%	n	%	n	%
Non-tobacco farming alone	21	12.2	33	25.8	54	18
Tobacco + Non-tobacco	83	48.3	45	35.1	128	42.7
Tobacco + Off-farm	4	2.3	1	0.8	5	1.7
Non-tobacco + Off-farm	55	32	43	33.6	98	32.7
Tobacco + Non-tobacco + Off-farm	9	5.2	6	4.7	15	5
<b>Total</b>	172	100	128	100	300	100
$\chi^2$	47.256					
<b>P-value</b>	0.000					

Source: Field Data 2014

The results indicate that resettled smallholder farmers who were diversified with tobacco output component were more food secure than the households who were engaged in non-tobacco farming livelihood strategy alone or together with off-farm activities. Apart from diversification of livelihood strategies, there are several socio-economic factors which influence the food security status of resettled smallholder farmers in the study area.

#### 7.4 Factors affecting food security of respondents

Table 7.2 shows a summary of Binary logistic regression results for socio-economic factors which influence the food security status of resettled smallholder farmers in Manicaland province.

Table 7.2: Estimated parameters of factors that influence food security of respondents

Predictor Variables		$\beta$	S.E	Wald Statistics	Significance
<b>Constant</b>	$\beta_0$	-10.922	5.440	4.030	.045
<b>Farming activity</b>	$\beta_1$	1.325	.795	4.189	.043**
<b>Age group</b>	$\beta_2$	.958	.822	1.865	.185
<b>Household size</b>	$\beta_3$	.198	.356	1.137	.213
<b>Employment status</b>	$\beta_4$	.577	.446	1.676	.196
<b>Education</b>	$B_5$	.396	.988	1.166	.361
<b>Farm size</b>	$B_6$	.856	1.869	4.156	.065*
<b>Number of livestock (TLU)</b>	$B_7$	.039	.186	3.356	.068*
<b>Remittances</b>	$B_8$	.701	.102	3.393	.081*
<b>Annual gross income</b>	$B_9$	.827	.483	4.456	.026**
<b>Access to credit</b>	$\beta_{10}$	.753	2.112	4.989	.073*
<b>Access to extension services</b>	$\beta_{11}$	0.971	1.123	1.427	.251

- 1) Chi-Square (df = 14) = 273.305
- 2) (- 2) Log Likelihood = 36.476
- 3) Accuracy of prediction; Overall (%) =89.3
- 4) Nagelkerke  $R^2$  = .844

**Note:** \*\*\*, \*\* and \* indicate significance at 0.01; 0.05 and 0.10 probability level respectively

### Interpretation of econometric results

The Hosmer and Lemeshew Goodness-of-Fit test statistic was used to test the model fit and the value of 1.000 was obtained, implying that the model's estimates fit the data at an acceptable level. The *Nagelkerke*  $R^2$  was computed in this study, which was noted by Norusis (2004) to measure proportion of the variation in the response that is explained by the model as a proxy estimate to  $R^2$  in OLS regression. In this study, *Nagelkerke*  $R^2$  of 0.844 was obtained indicating that more of the variation was explained by the model with an overall prediction percentage of 84.4 as shown in Table 7.2 above.

From the six significant predictor variables all had positive signs (farming activity, farm size, number of livestock, remittances, income and access to credit) meaning that an increase in one of these variables would be associated with an increase in households' likelihood of being food secure. The detailed explanations of these significant explanatory variables and food security status as well as how they are related to other studies is analysed below.

**Farming activity** of the household was found to be an important factor which significantly influences the food status of the smallholder farmers in Manicaland province. The study reveals that food security is higher for those engaged in tobacco farming than non-tobacco farming. This category of households earns relatively higher annual incomes mainly from the sale of tobacco than non-tobacco farming households. The implication of the coefficient is that the probability of being food secure increases by a factor of 1.325 for households engaged in tobacco farming.

The variable **farm size** was expected to positively influence food security which is in line with the results obtained on Table 7.2 using the binary logit regression model in the study area. The coefficient of 0.856 indicates that the probability of the household to become food secure increases by the factor 0.856 as a result of cultivating one more hectare of land. This is in line with the findings by Bogale & Shimelis (2009) carried out in Ethiopia which established a positive relationship between farm size and food security. However this outcome is in contradiction with the results obtained by Sikwela (2008) who obtained a negative relationship between farm size and food security in Zimbabwe.

**Number of livestock** is a significant factor in determining food security status of the household at 10 percent probability level. The positive relationship is explained by the fact that rural households with large herd size have better chances of earning more income from selling livestock. As a result, this enables them to purchase food when they are faced with food shortages (which may indicate that ownership of livestock, in the study area, acts as a hedge in case of crop failure) and also invest in purchase of farm inputs that increase food production. Ownership of livestock such as cattle provides draught power and timely cultivation of land which improves the likelihood of smallholder farmers to obtain better agricultural output for consumption or sale which directly or indirectly increase the chances of the household to become food secure. These livestock can also be consumed by the households thus ensuring food security at household level. The implication of the coefficient is that the probability of being food insecure decreases by a factor of 0.039 for households owning livestock. This is in agreement with the findings of the study by Eneyew & Bekele (2012) in Ethiopia which established that livestock holdings were negatively related to the probability of being food insecure.

Access to **remittances** was obtained to positively influence the likelihood of the household to become food secure. The sign of the coefficient of access to remittances variable showed a positive relationship with food security and is significant at 10 percent probability level. Households with access to remittances stand better chances of affording to purchase farming inputs, livelihood assets which increase the potential of smallholder farmers to increase agricultural output. Households with access to remittances also can afford to purchase a variety of nutritious and health food hence increasing the probability of becoming food secure. This is in line with the findings by Mango *et al*, (2014) which established a positive relationship between access to

remittances and food security on a study carried out on smallholder farmers in Zimbabwe (Case study of Mudzi district).

The variable **annual gross income** was hypothesized to positively affect food security in the study area. In line with the expected sign, its coefficient was obtained to be positive and statistically significant. This implies that resettled smallholder households who obtain more income mainly from tobacco farming have better chances to become food secure than those households who are involved in non-tobacco farming and off-farm activities. The results indicate that an increase in income will increase the chances of a household to be able to afford more nutritious and health food varieties at all times and become food secure. This is in agreement with the findings of Bashir *et al*, (2012) which obtained a positive and significant relationship between monthly income and food security in three different regions of the Punjab Province of Pakistan.

**Access to credit** for farming activities was obtained to positively related to food security and is statistically significant at 10 percent probability level. The positive relationship obtained entails that smallholder households who have access to credit service have more chances to be food secure than without access ones. This result is fully in agreement with the expected relationship since credit for farming activities capacitates smallholder farmers to be able to purchase necessary farming assets and inputs hence increasing probability of the household to obtain more income from increased agricultural output which can be used to purchase more food varieties and become food secure. These results are in conformity with the findings of the study by Gebre (2012) which showed a negative relationship between credit use for agricultural activities and food insecurity in Ethiopia.

## **7.5 Conclusion**

From the results presented in Figure 7.3, it may be concluded that on average 82 percent of tobacco smallholder farmers were measured to be food secure whilst only 42 percent of non-tobacco farmers were food secure using the HDDS. Similar trends were observed from the descriptive statistics which showed that tobacco smallholder farmers consumed relatively greater percentage of nutritious food groups than non-tobacco smallholder farmers.

The study revealed that households who diversified their livelihood strategies with the inclusion of tobacco farming were more food secure than those with non-tobacco farming. Results of the Binary logit regression model indicated that the significant factors which explain food security status for smallholder sampled households are farming activity, farm size, number of livestock, remittances, income and access to credit.

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## CHAPTER 8: RESEARCH SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

### 8.0 Introduction

Zimbabwe implemented land reform programme after attaining independence in 1980. However the country has experienced grain shortages, since implementing fast track land programme in 2000. Grain shortages may be attributed to a greater percentage of farmers have switched to the production of cash crops such as tobacco which resulted in the majority of the rural poor to be depend on food aid (Richardson, 2005). Other challenges which led to the decline in grain production included lack of inputs, access to markets, economic decline and inadequate funding of the agricultural sector from government. Consequently, this implies that generally the Zimbabwean land reform programme did not deliver the expected results of combating poverty, revitalize the rural economy and improving the contribution of agriculture to GDP.

Although the overall picture show disastrous results mainly due to economic meltdown experienced by the country since 2000, the same could not be said for some resettled smallholder farmers who adopted better livelihood strategies such as tobacco farming and productively utilised their land. If land reform is to meet its wider objectives, livelihood strategies have to be improved amongst the resettled farmers. The identification of factors affecting livelihood strategies and food security amongst the smallholder land reform beneficiaries could assist in the formulation of land reform policies. This would capacitate the resettled smallholder farmers to improve their livelihood outcomes, food security as well as contributing positively to the economic development of the country.

## **8.1 Research summary**

At the end of minority rule in 1980, Zimbabwe adopted the land reform programme to redistribute land to address the imbalances in land access while reducing population pressure in the communal areas, bring underutilised and idle land into full production use and improve the base for productive agriculture in the smallholder farming sector as a means to achieve economic development in the country (Musemwa, 2011). The broad objective of this study was to compare the livelihood strategies and food security situations of resettled smallholder tobacco and non-tobacco farmers and the factors that influence livelihood strategies and food security status for the smallholder farmers in the study areas. The study was conducted in Manicaland Province of Zimbabwe and the respondents were stratified into four groups. These were smallholder farmers resettled under A1 model and A2 model as well as tobacco and non-tobacco smallholder farmers. The two models differ on how they were implemented and supported which might render them to have different livelihood strategies and food security status. A total of 300 respondents were surveyed, consisting of 120 tobacco and 180 non-tobacco farming households in Manicaland province.

Demographic and socio-economic characteristics of the sampled households in Manicaland province were analysed using descriptive statistics. These statistics include gender of the household head, marital status, age of the household head, level of education, household size, farming activities and sources of income. Response variables that had an effect on the dependence of either tobacco or non-tobacco farming with all the other response variables were tested using the Chi-square test.

The average age of the majority of smallholder farmers for both tobacco and non-tobacco farmers was generally high as it was in the range of 45-55 years. Furthermore,

the average family size for both tobacco and non-tobacco farmers was at least about seven, which is an indication of high dependency ratios. The majority of the sampled households in the resettled areas, A1 (86%), A2 (88%) and were male-headed. The results of this study also revealed that male headed households were 90.8 percent for tobacco and 84.4 percent for non-tobacco farmers. For the tobacco and non-tobacco resettled farmers, all the respondents had at least attained primary education which reveal that all farmers are functionally literate.

The results also established that A2 farmers have exceptionally greater land holdings on average (9.067 hectares) than A1 smallholder farmers (average 3.060 hectares). Moreover, A2 smallholder farmers have been found to produce more output of tobacco on average (6.584 tonnes) and maize (average 3.489 tonnes) whilst A1 smallholder farmers only managed an average of 2.657 tonnes of tobacco and 1.455 tonnes of maize on average. Smallholder farmers obtained income from selling their tobacco output as well as some of their excess food production. Apart from tobacco and non-tobacco output, sampled households in Manicaland province also obtained their income from hawking, selling liquor, salaries and wages, remittances and from pensions. In both A1 and A2 resettlement models, income from tobacco farming made substantial contributions, 43.6 percent and 55.7 percent respectively, to household income.

Using the main sources of income by smallholder farmers in Manicaland province (tobacco farming household, non-tobacco farming household, household active in off-farm activities and wage-earner household), the study was able to establish the pattern of livelihood strategies in the area of study. Results indicate that the majority of the households were involved in tobacco and non-tobacco farming in both resettlement models (i.e. A1 and A2) as well as in all the sampled provinces (i.e. Makoni, Mutasa and

Mutare rural) with a small percentage of households obtaining their main source of income from off-farm activities and formal employment.

The study used a Multinomial Logit model to investigate the factors influencing a household's decision to choose different livelihood strategies. In the model, the dependent variables included four livelihood strategies while the explanatory variables included various household social-economic and institutional factors. The results obtained from the multinomial logistic regression model established that six variables (gender, household size, education, land size, access to inputs and access to credit) were found to be significant in determining the adoption of tobacco farming strategy in the study area up to less than 10% probability level. Smallholder farmers who did not adopt tobacco farming indicated that limited land size, shortage of labour as well as access to tobacco inputs were the major impediments to adoption of tobacco farming. Different livelihood strategies which were undertaken by smallholder farmers had a bearing on the food security status of the households.

Results of the HDDS revealed that on average 82 percent of tobacco smallholder farmers were measured to be food secure whilst only 42 percent of non-tobacco farmers were food secure using the HDDS. Similar trends were observed from the descriptive statistics which showed that tobacco smallholder farmers consumed relatively greater percentage of nutritious food groups than non-tobacco smallholder farmers.

The study revealed that households who diversified their livelihood strategies with the inclusion of tobacco farming were more food secure than those with non-tobacco farming. Results of the Binary logit regression model indicated that the significant factors

which explain food security status for smallholder sampled households are farming activity, farm size, number of livestock, remittances, income and access to credit.

## **8.2 Conclusion**

Food shortages and high poverty levels being experienced in Zimbabwe can be attributed to several challenges which resettled smallholder farmers are facing in their livelihood strategies they are pursuing such as lack of access to inputs and credit. Consequently, the poor performance of the agricultural sector in Zimbabwe explains greatly the slow progress towards reducing poverty and hunger. There are also other several factors which impeded non-tobacco smallholder farmers from engaging in high returns crops such as tobacco farming which included low level of education, lack of access to credit and tobacco inputs.

## **8.3 Policy recommendations**

The main livelihood strategies in the study area are mainly concentrated on farming activities though a small percentage of households took part in off-farm activities and formal employment. Appropriate policies therefore, need to reflect on the most suitable ways of supporting farming activities in rural areas in Zimbabwe. As a result, with appropriate policies, it will be possible for more resettled smallholder farmers to make positive exits from food insecurity through utilising more land effectively and indulging in high returns farming activities such as tobacco farming. The government and private partners such as Non Governmental Organisations (NGOs) should therefore, channel more financial resources towards beneficiaries of land reform programme for them to be able to access inputs, credit facilities as well as better level of education.

Livelihood strategies and food security amongst the smallholder resettled farmers could be increased through improving the ability of the resettled farmers to be able to afford purchasing required inputs by availing credit lines, mobilising and fair distribution of inputs as well as provision of better and appropriate learning environment. Adoption of better livelihood strategies will result in increased agricultural output which will ultimately lead to economic development of the nation. Increasing agricultural output not only relies on improved livelihood strategies, such as through adoption of modern or high yielding crops but also predominantly relies on several other factors such as access to adequate productive resources such as fertile land, infrastructure, well-functioning markets and stable economy. The government should also channel more resources towards improving the level of education for resettled smallholder farmers.

Improving the level of education for resettled smallholder farmers can be achieved through implementing learning techniques which best suit the average age group in the range of 45-55 years obtained in this study. These learning models can include short courses which take the form of visual aids, pictures and practical work since the majority of these smallholder farmers have only attained primary education and also taking into account their age group. The government and private partners such as Non Governmental Organisations (NGOs) should also provide workshops and training for resettled smallholder on the best livelihood strategies mix they can adopt as well as various livelihood activities they can undertake in order to improve their food security status.

The level of education for future household heads in the resettlement areas in the study area can also be improved through capacitating their children if improved livelihood strategies, food security and rural development are to be sustainable. The majority of the

A1 beneficiaries of land reform programme were rural poor people who struggle to educate their children hence it is of paramount importance for the government and the private sector to unveil scholarships and bursaries to some of their siblings. The government should also improve the working conditions of teachers who work in resettlement (mostly remote) areas so as to attract and motivate them. This can be done through offering them free accommodation and attractive rural allowances. The government should also endeavour to establish and develop schools in these resettlement areas since there were no schools for farm workers. Agricultural potential and livelihood strategies can also be improved through making inputs available to smallholder farmers.

Access to inputs by smallholder farmers should be made a priority by the government through provision and fair distribution of adequate agricultural inputs. This can be done through allocating adequate funds to the Ministry of Agriculture as well as supporting the Presidential Input Scheme. Private players also should play their role to ensure adequate supply of inputs to smallholder farmers. Tobacco contractors should also mobilise more funds in order to give enough inputs such as fertilizers and chemicals to contracted tobacco smallholder farmers and also extend the facility to potential tobacco smallholder farmers. This will enable more resettled smallholder farmers to engage in tobacco farming thereby improving their livelihood strategies and enhancing their chances of being food secure.

The government should also support the efforts by smallholder farmers to increase livelihood strategies, food security as well as contribution of agriculture towards GDP through unveiling credit lines for farming activities. This will go a long way in enabling smallholder farmers to engage in better and high returns livelihood strategies such as

tobacco farming. Non-tobacco smallholder farmers reported that they failed to adopt tobacco farming (during data collection) due to lack of access to credit hence, mobilising and increasing rural credits to smallholder farmers in Zimbabwe should be prioritised during policy formulation. Consequently, Agribank needs to be capacitated so that it will be able to effectively extend financial support to smallholder farmers in the country. Moreover, it is not entirely up to the government alone to fund agriculture other players such as private companies and Non Governmental Organisations (NGOs) should also chip in to help the cause and also systems should be put in place for the bulk of agricultural production to be self-financing.

#### **8.4 Areas of further research**

Other researchers can also consider undertaking a bigger study in all the provinces of Zimbabwe where tobacco farming is undertaken such as Mashonaland east. However, the results obtained in this study provide a guideline on what actually transpire in the country. There is also need to do such a study not only among the resettled farmers but communal farmers should also be included in the sample. Other researchers should also consider including other factors which were omitted from this study due to time constraints such as soil quality and health factors which influence livelihood strategies which are undertaken by households. More studies should also be undertaken to determine factors affecting food security status of farmers across different cash and food crops which will help in advising farmers to specialize in the production of crops that has highest likelihood for them to become food secure.

## 8.5 References

Musemwa L (2011). *Economics of Land Reform Models used in Mashonaland Central Province of Zimbabwe*. Unpublished. PhD Thesis. University of Fort Hare, Alice, South Africa.

Richardson CJ (2005). How the Loss of Property Rights Caused Zimbabwe's Collapse. Cato Institute Economic Development Bulletin, no. 4, November 14, 2005, Washington, DC: Cato Institute

**APPENDIX 1**  
**INTERVIEW SCHEDULE**  
**HOUSEHOLD QUESTIONNAIRE**

**Preamble**

The information contained herein this questionnaire shall be treated with all the confidentiality it deserves and shall be used for the purposes of this study only. Feel free to answer all the questions with as honestly as possible.

**Your cooperation is greatly appreciated.**

**Thanking you in advance!!!**

**A. General information**

Name of HH head	
District	
Name of the Interviewer	
Date of Interview	
Questionnaire Number	

**B. Demographic information**

**Q1.** Gender of respondent

1. Male	
2. Female	

**Q2. Marital status of respondent**

1. Single	
2. Married	
3. Separated	
4. Divorced	
5. Widowed	

**Q3. Which of the following age groups do you fall in?**

1. 18 - 24 years	
2. 25 -34 years	
3. 35 -44 years	
4. 45 - 55 years	
5. More than 56 years	

**Q4. How many people live in your household?**

Total number of adults? ( age  $\geq 18$ )

Total number of children? ( age  $\leq 18$ )

**Q5. What is the highest education level you have completed?**

1. No formal education	
2. Primary education	
3. High school education	
4. Tertiary education	
5 Graduate	

**Q6.** What is your employment status?

1. Employed	
2. Unemployed	
3. Self employed	
4. Full time farmer	
5. Farm labourer	
6. Student	

**B. Livelihoods strategies and factors affecting food security or insecurity**

**Q1.** Under which model of resettlement was the household allocated land?

1. A1	
2. A2	

**Q2.** Amount of farmland owned by the household?  Hectares

**Q3.** How much land is arable?  Hectares

**Q4.** How much land is used for crop production?  Hectares

**Q5.** What crops did you produce last season?

Crop	Area (Hectares)	Harvest (Tonnes)
1. Tobacco		
2. Maize		
3. Cotton		
4. Wheat		
5. Groundnuts		
6. Sorghum		
7. Soyabeans		
8. Sunflower		
9. Rice		
10. Coffee		
11. Millet		
12. Horticultural produce		

**Q6.** What did you do with the production of your crops during the year?

Crop	Use of production (quantity)			
	Own consumption	Sell	Exchange	Other (detail)
6.1. Tobacco				
6.2. Maize				
6.3. Cotton				

6.4. Wheat				
6.5. Groundnuts				
6.6. Sorghum				
6.7. Soyabeans				
6.8. Sunflower				
6.9. Rice				
6.10. Coffee				
6.11. Millet				
6.12. Horticultural produce				

**Q7.** Indicate the number of livestock owned by your household.

Type	Number owned
7.1.Cattle	
7.2.Rabbits	
7.3.Goats	
7.4.Sheep	
7.5.Pigs	
7.6.Broiler	
7.7.Other (specify	

**Q8.** What is the household's main source income?

**Local sources: Agriculture**

<b>Source</b>	<b>Amount (\$)</b>
1. Tobacco farming	
2. Non tobacco farming (kind): crops	
3. Non tobacco farming (cash): crops	
4. Non tobacco farming (kind): animals	
5. Non tobacco farming (cash): animals	

**Local sources: trade**

<b>Source</b>	<b>Amount (\$)</b>
1. Hawking (food)	
2. Hawking (other)	
3. Selling liquor/shebeen	
4. Lending money	
5. Other trade	
Total	

**External sources**

<b>Source</b>	<b>Amount (\$)</b>
1. Salaries and wages	
2. Remittances (cash)	
3. Remittances (kind)	
4. Pensions	
Total	

**Aggregate sources of income**

Source	Amount (\$)
1. Tobacco farming household	
2. Non tobacco farming household (crops and livestock)	
3. Household active in off farm activities	
4. Employment	

**Q9.** What is your household's approximate annual gross income (internal and external sources)?

Annual gross income	Tick	Annual gross income	Tick
1. less than US \$500		6. US \$2 501-\$3 000	
2. US \$501 – \$1 000		7. US \$3 001- \$3 500	
3. US \$1 001- \$1 500		8. US \$3 501- \$4 000	
4. US \$1 501- \$2 000		9. US \$4 001- \$4 500	
5. US \$2 001-\$2 500		10. Greater than US \$ 4 500	

**C. Food security status**

**Q1.** How many meals does your family normally eat per day?

1	2	3	4
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**Q2.**Which food products have you consumed yesterday?

<b>Question number</b>	<b>Food group</b>	<b>Examples</b>	<b>Yes=1 No=0</b>
2.1	Cereals	bread, noodles, sorghum, maize, rice, wheat, porridge, rapoko, millet, biscuits, cookies	
2.2	Roots and tubers	white potatoes, white yams, cassava, carrots, sweet potatoes	
2.3	Vegetables	leafy vegetables, including wild ones, locally available vitamin-A rich leaves, mushroom, pumpkin, squash, tomato, onion	
2.4	Fruits	ripe mangoes, cantaloupe, dried apricots, dried peaches, bananas, other fruits, wild fruits	
2.5	Meat	liver, kidney, heart or other organ meats or blood based foods, beef, pork, lamb, goat, rabbit, wild game, chicken, duck, or other birds	
2.6	Eggs		
2.7	Fish	fresh or dried fish or shellfish	
2.8	Legumes nuts and seeds	beans, peas, lentils, nuts, seeds	
2.9	Dairy products	milk, cheese, yogurt or other milk products	
2.10	Foods made with fats or oils	oil, fats or butter added to food or used for cooking	
2.11	Insects	insect larvae, lake fly, ants	
2.12	Beverages such as tea	coffee, tea, alcoholic beverages, traditional alcohol beverages	

	and coffee		
2.13	Spices	spices(black pepper, salt), condiments (soy sauce, hot sauce),	
2.14	Sweets	sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies	
2.15	Did you or anyone in your household eat anything (meal or snack) OUTSIDE of the home yesterday?		

**Q3.** What is the main source for obtaining the bulk of your food requirement?

1. Own production of food	
2. Sale of agricultural produce	
3. Salary from fixed (regular) employment	
4. Salary from temporary work	
5. Remittances	
Other: specify	

#### **D. Institutional and Technical factors**

**Q1.** Do you have access to credit for farming activities?

1. Yes	
2. No	

**Q2.** Do you have access to extension services?

1.Yes	
2.No	

**Q3.** What other organizations/institutions do you have access to?

<b>Organization/institution</b>	<b>Yes=1</b> <b>No=0</b>
3.1.Farmer's association	
3.2.Farmer cooperative	
3.3.Village committee	
3.4.Religious groups	
3.5.Political groups or movements	
3.6.Other groups or associations	

**Q4.** Do you own ox cart?

1.Yes	
2.No	

**Q5.** Do you own a truck?

1.Yes	
2.No	

**Q6.** Do you own a tractor?

1. Yes	
2. No	

**General Questions**

**1.** Do you have necessary knowledge and skills for farming?

	Yes=1; No=0
1. Technical farming skills	
2. Management skills	
3. Financial management skills	
4. Other, specify	

**2.** In general, what are the challenges you faced as a farmer?

	Yes=1 No=0
1. Access to credit?	
2. Land?	
3. Information?	
4. Access to inputs?	
5. Lack of incentives?	
6. Social cohesion?	
7. Access to markets?	
Other, specify .....	

3. Which of the following factors are important constraints concerning your farming activities?

Constraint	Yes=1 ; No=0
<b>Arable activities</b>	
Land scarcity	
Drought	
Low product prices	
Lack of market outlets	
Other .....  .....	
<b>Livestock</b>	
Shortage of grazing area	
Lack of water	
Animal diseases	
Other .....  .....	

## APPENDIX 2



**University of Fort Hare**  
*Together in Excellence*

### **ETHICAL CLEARANCE CERTIFICATE REC-270710-028-RA Level 01**

Certificate Reference Number: MUS0101SMAP01

Project title: **Livelihood strategies and food security for resettled smallholder tobacco and non-tobacco farmers in Zimbabwe: The case of Manicaland Province**

Nature of Project: PHD

Principal Researcher: Alexander Mapfumo

Supervisor: Prof A Mushunje

Co-supervisor:

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

**Special conditions:** Research that includes children as per the official regulations of the act must take the following into account:


Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
  - Any unethical principal or practices are revealed or suspected
  - Relevant information has been withheld or misrepresented
  - Regulatory changes of whatsoever nature so require
  - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely

  
**Professor Gideon de Wet**  
**Dean of Research**

06 June 2014