

**UNDERSTANDING THE DIVERSITY OF FARMING SYSTEMS AND ASSESSING
THE PROFITABILITY OF FARMING ACTIVITIES OF BENEFICIARIES OF
ZIMBABWE LAND REFORM PROGRAMME: THE CASE OF CHEGUTU
DISTRICT (WARD 12)**

By

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DECLARATION

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ABSTRACT

The research aimed to investigate and give an understanding of diversity of the farming activities of the beneficiaries of the land reform programme in Chegutu District (Ward 12). The farmers were resettled under both the A1 villagised model and the A2 large scale commercial farming model.

The generalised models of A1 and A2 as given by the Government of Zimbabwe do not really characterise the farming and other activities undertaken by beneficiaries of the land reform programme, the study aimed to understand the diversity of the farming activities and hence put the farmers into groups or types as defined by their practices. Diversity in this context means the variation of farming activities of the farmers in the study area. Based on specific parameters, farmers were put in categories/types thereby giving meaning to the diversity of farming activities in the area. The parameters/variables that were used include age of the farmer, the gender of the farmer, the year the farmer was allocated the plot, quality of home infrastructure, the livestock owned, crops produced, the hectareage under each crop and the quantities produced. The other variables that were considered are job status of the plot/farm owner (whether the plot owner have a salaried job or not), the head of the farming activities on the plot/farm and whether the farmer is farming under irrigation or dry land. These parameters, one way or the other, interact with each other thereby influencing the farmer to make decisions that will eventually determine the type of farmer he or she becomes. An attempt was also made

to do an economic analysis to assess the profitability of each type of farmers' farming operations. By definition, profitability measures the difference between revenue and costs. Revenue is a product of price and quantities of commodities produced while costs are calculated from input quantities and input prices.

The hypotheses that were tested are that:

There is diversity of farming activities amongst the beneficiaries of the Zimbabwe Land Reform Programme in the study area. The farmers in the study area are farming profitably.

The main reason for undertaking the study in the area was that after the Fast Track Land Reform Programme (FTLRP), there was need to understand the dynamics with regard to agricultural production among the farmers. Understanding the diversity of farming activities would then inform policy or intervention strategies to be undertaken in support of the beneficiaries of land reform programme. The other reason why the study area was chosen was because the student is a plot holder in the area and therefore an interested part, in addition to that, general observation points to the likelihood of existence of diversity amongst the farming activities in the area and hence the reason to undertake the study in the area. The administrative, traditional and political authorities were approached to get the authorisation to carry out the study in the area. Random interviews were done as a way of pre-testing the questionnaire and some modifications were done to the initial questionnaire. Several transect walks were also done in the study area to observe and have a general understanding of features and activities in the area. The Extension Officers of sub-divisions/areas within the study area were approached to appraise them of the purpose of the study and also to get their generalised overview of the agricultural set up.

Systematic sampling was used per farm targeting a threshold of 10 per cent of the population. Data collection was done from 82 farmers through a patient interview process with the assistance of the Extension Officers who also assisted with transport (motorbikes) to traverse the area. The farmers were generally very co-operative in most instances even though sometimes it was based on them hoping that the research may bring some material support for their farming activities, a notion that was clarified that the research was not going to bring any material support to them at least in the short-term.

The last step was the processing of the data which involved both quantitative and qualitative methods in line with objectives and the hypotheses put forward by the study. The typology was developed by an iterative method of continuously refining to ensure a valid and meaningful typology of farmers. An analysis of production activities was also done to check if the farming activities of these beneficiaries of the land reform programme were making any economic sense. The farming activities are basically a function of what resources the farmers have, the conditions under which they farm and the external support received from government or other agencies with interest in agricultural development.

The land use practices included a mixture of both irrigated and dry land crop production systems, livestock rearing and vegetable gardening (mainly for home consumption). The farmers are keen to farm on a commercial farming level basis, but non-use of equipment by most farmers in the study area make their production level to remain at subsistence level. Most farmers generally expressed satisfaction with the offer letters as proof of land ownership, but indicated that any strengthening of land ownership especially with title deeds that could allow them to access loans from banks was most welcome.

The farmers were eventually grouped into nine types. The identified nine (9) types of farmers in the study area are: Type 1 – Poor small scale subsistence crop farmers (23 %); Type 2 – Small scale crop and livestock farmers (33 %); Type 3 – Medium scale farmers with fairly diversified agricultural production (11 %); Type 4 – Medium scale farmers with highly diversified agricultural production (9 %); Type 5 – Farmers with formal and salaried jobs (11 %); Type 6 – Medium scale commercial farmers (4 %); Type 7 – Fairly large scale commercial farmer producing wholly under irrigation (1 %); Type 8 – Large scale commercial farmers (1 %) and Type 9 – Non-active plot owners (7 %). Save for Type 9, each type has its own strategies to earn an income that is then used to boost agricultural production. The different types also differ in production and land use patterns.

Though these types of farmers can change depending on parameters used to construct the typologies, understanding of diversity of farmers can prove to be a very useful first step in planning for agricultural development of beneficiaries of Zimbabwe's land reform programme. The economic analysis revealed that farming can still be profitable depending on the crops the farmers choose to produce.

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ACRONYMS

AREX	Department of Agriculture and Rural Extension
CFU	Commercial Farmers Union
DA	District Administrator
DFID	Department for International Development
FTLRP	Fast Track Land Reform Programme
GMB	Grain Marketing Board
JAG	Justice for Agriculture
GNU	Government of National Unity
IFPRI	International Food Policy Research Institute
LRRP	Land Reform and Resettlement Programme
MDC	Movement for Democratic Change
NCA	National Constitutional Assembly
NGO	Non- Governmental Organisation
ZANU PF	Zimbabwe African National Union Patriotic Front

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The Zimbabwe government embarked on the much publicized and often controversial Land Reform programme in 2000. The negatives about this programme mainly stemmed from the methodology (fast track) and the politics behind the drive for land redistribution (Moyo, 2006). These cannot however overshadow the positives about this programme like redressing the past, addressing the real need for land for an ever increasing population, to avert pressure on natural resources in the communal areas and to put to full production non-used or under-used land (Zikhali, 2008).

The Ministry of Lands then, categorised beneficiaries of the Fast Track Land Reform Programme (FTLRP) into two types namely the A1 model which comprises of small holder plots which are anything from three to twenty hectares and the A2 model which are large scale (fifty hectares and more); the majority of beneficiaries in the A2 category were allocated whole farms. In both models the proof of ownership is by an offer letter issued by the District Administration office and it is worth mentioning here that the offer letters emphasize use rights only whilst categorically all the land remains state property. There has been an effort by the government to try and help farmers, starting with the A2 model, to access agricultural finance by giving them ninety-nine- year leases. It is still difficult for financial institutions to give loans to farmers using land as collateral under these conditions (Zikhali, 2008).

During the period from 2000 to date, Zimbabwe has changed its status from being a net food exporter to a net food importer (Kanyenze, 2004). There are so many reasons for this change of status and amongst them are 1) Beneficiaries of the land reform programme have been accused of not using or under-utilising the land they got under the Fast Track Land Reform Programme) FTLRP due to lack of production capacity. 2) The macro-economic environment in the country can also be a major factor hampering agricultural production. The government of national unity (GNU), after the introduction of multi-currency system in 2009 has been hamstrung by shortages of finance to continue to subsidise agricultural inputs for resource poor farmers. 3) The Grain Marketing Board (GMB), a government arm responsible for procurement of grain produce from farmers has also been implicated in the problems found in the

agricultural sector. Late distribution of inputs to farmers and late payment of farmers for their produce are the problems often talked about in the agricultural sector of Zimbabwe. The GMB is a sole buyer of controlled grains like maize and wheat. 4) Erratic rainfall pattern in the Sub-Saharan Africa in recent years with frequent droughts is also affecting or worsening the plight of the beneficiaries of FTLRP. In some areas, there are dams with lots of water but the irrigation infrastructure was vandalised during the era of farm invasions. 5) There is also constant political bickering between the two main parties in the GNU. Zimbabwe African National Union Patriotic Front (ZANU PF) part of the government is accusing the Movement for Democratic Change (MDC) part of the government for sabotaging the agricultural sector in order to reverse the benefits of the FTLRP. This certainly could also be contributing to the problems in the agricultural sector because there is more emphasis on politics than economics in the GNU.

In order to understand what exactly is obtaining within the agricultural sector especially with respect to the beneficiaries of the FTLRP, it is important to carry-out an agrarian diagnosis to understand what really is happening on the farms.

1.2 PROBLEM STATEMENT

The complexion of the agricultural sector in Zimbabwe has completely changed since the advent of the FTLRP. The commercial agricultural sector was severely decimated by transfer of land to the beneficiaries of the land reform programme who were in most cases ill-prepared to continue with commercial production on the land they received from government. This is because the majority of the beneficiaries were coming from a background of subsistence farming in the communal areas and had no adequate farm equipment to kick start agricultural production on a commercial basis, no prerequisite skills to manage comparably bigger pieces of land and lack of funding to assist the beneficiaries of the FTLRP with capital to purchase agricultural inputs to boost agricultural production.

The beneficiaries were put into categories namely Model A1 (Small plot holders) and Model A2 (Large scale commercial farms which are self-contained), this however does not say much about how the farmers are using the land. There is a general tendency to assume that all Model A1 and A2 farmers are the same, this in a way may compromise the tailor-making or coming up with targeted intervention strategies to give the farmers the necessary support they need.

The selection of beneficiaries was also mainly based on political patronage and this caused lack of proper allocation especially of prime agricultural land to would be good farmers. There is also general negativity around FTLRP and conclusions have been drawn from various quarters that the beneficiaries of the programme are highly unproductive. This implies that even if the farmers are given the necessary support, they will not be able to farm profitably.

Regardless of the above, government vowed that the land reform programme was irreversible and it was now a case of trying to understand the situation obtaining in the farms and devise strategies to improve the situation with regard to agricultural production. From available literature on the Zimbabwe FTLRP, it can be seen there is a need to diagnose the situation in the farms in order to understand the diversity of farming activities the farmers are engaged with. There is also a need to assess the profitability of the farming operations the FTLRP beneficiaries are involved in.

1.3 RESEARCH OBJECTIVES

The overall objective of the study was to understand the diversity of farming systems and assess the profitability of farming activities undertaken by the beneficiaries of FTLRP in the study area.

The following specific objectives guided the study:

- To do an agrarian diagnosis using the farming systems approach based on the socio-economic indicators obtaining amongst the beneficiaries of the FTLRP and come up with a typology of farmers in the study area.
- Do an economic analysis of each group of farmers to assess farmers' profitability.
- Do a transversal analysis of the research findings based on Scoones et al.'s (2010) framework of the five myths regarding Zimbabwe's FTLRP.
- To come up with informed recommendations for appropriate policies, intervention strategies, projects and programmes that can improve agricultural production among the beneficiaries of the FTLRP.

1.4 HYPOTHESES TO BE TESTED

- There is diversity of farming activities undertaken by the beneficiaries of the FTLRP in the study area.
- Beneficiaries of the FTLRP in the study area are farming profitably.

1.5 IMPORTANCE AND BENEFITS OF THE STUDY

Much of the work done on FTLRP of Zimbabwe focus on the productivity of the beneficiaries of the programme, quite often, the beneficiaries are categorised simply as Models A1 and A2 farmers. It is however not always true that Model A1 farmers use the same strategies to produce on their plots, have the same resources and are developing or not developing at the same pace. The same cannot also be said for Model A2 farmers. This research aimed to use tools of farming systems approach (typology analysis) to diagnose and understand the existence of diversity within beneficiaries of the FTLRP across the divide of Models A1 and A2 ten years after the programme was first implemented. From available literature on the Zimbabwe FTLRP, it is apparent that little or no research was done to diagnose the agrarian system directly using the farming systems approach. Government and other stakeholders in agricultural development agenda need more information about the farmers in order to formulate focused intervention strategies to boost both agricultural productivity and improve welfare of resettled farmers.

It is assumed that the research results from this study area will also be interpreted to represent what is happening elsewhere to the beneficiaries of the FTLRP with generally similar climatic conditions.

1.6 METHODOLOGY

A thorough literature review was done on the land reform processes in Zimbabwe. The chapter on literature review started by defining land reform and land tenure, this was deemed necessary because the research was based on understanding the diversity of beneficiaries of land reform programme. The small farm versus large farms theories were also discussed. The farm is apparently put forward in the literature as the primary unit for rural development, poverty alleviation and as key to sustainable livelihoods. After this, the Zimbabwe's land reform paradigms since independence from British colonial rule are reviewed to track what happened before and where it eventually led to. Definitions of farming systems approach and tools of this approach namely zoning and typology were given as part of the literature review.

After the review of literature, the following chapter describes how the research was done through the research design and methodology section. The study area boundaries are clearly defined. The population within which the study was done is given and the sampling method is described. The questionnaire sections with broad categories were explained. The data analysis employed used both qualitative and qualitative methods.

The chapter on results and discussion is divided into two parts. The first part comprises of a general analysis, the second part is a typology of farmers based on socio-economic parameters and it also includes an economic analysis to evaluate profitability of the farming activities.

The last chapter discusses conclusions drawn from the results and action items are suggested through recommendations to improve agricultural production in the area.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Land reform in the Zimbabwean context was something that was always going to happen after the war of liberation since land ownership was the basis for the protracted armed conflict in former Rhodesia. This chapter reviews all the land reform processes in Zimbabwe. The chapter also gives definitions of land reform and land tenure, this was deemed necessary because the research was based on understanding the diversity of beneficiaries of land reform programme. The theories put forward by scholars on small farm versus large farms were also assessed since the beneficiaries of land reform are either smallholders or large scale commercial farmers. The farm is apparently put forward in the literature as the primary unit for rural development, poverty alleviation and as key to sustainable livelihoods. The farm level is the basis of the study because most of the data was collected at farm/plot level. The Zimbabwe's land reform paradigms since independence from British colonial rule are reviewed to track what happened before and where it eventually led to. The review of the three land reform periods was to put into perspective the truth about the necessity to redistribute land in Zimbabwe. Definitions of farming systems approach and tools of this approach namely zoning and typology were given as part of the literature review. The farming systems approach through its tools was used in carrying out the research in the study area. Literature of agrarian diagnosis using the same approach in other parts of Africa was also reviewed for comparison purposes.

2.2 LAND REFORM AND LAND TENURE DEFINED

Land reform is a process of changing of laws, regulations or customs regarding land ownership (Batty, 2005). Land reform may be a government-initiated or supported property redistribution programme, generally of agricultural land. Land reform may therefore, mean transfer of ownership from the more powerful to the less powerful: such as from a relatively small number of wealthy (or noble) owners with extensive land holdings (e.g., plantations, large ranches, or agribusiness plots) to individual ownership by those who work the land (Borras, 2006). These transfers of ownership may be with or without compensation; compensation may vary from token amounts to the full value of the land (Adams and Howell, 2001). Land reform may also entail the transfer of land from individual ownership — even peasant ownership in smallholdings — to government-owned collective farms; it has also, in other times and places, referred to the exact opposite: division of government-owned collective farms

into smallholdings (Adams and Howell, 2001). Common features of all land reforms are normally the modification or replacement of existing institutional arrangements governing possession and use of land. Land reform may be done radically by large-scale transfers of land from one group to another or can be less dramatic, just reforming the regulations aimed at improving land administration. The other form of land reform may not necessarily involve transference of land from one individual to the other or from one group of people to the other, but may involve the changing of laws, regulations or customs of how land is owned by the same individuals or groups of farmers; this is referred to as land tenure reform.

Land tenure refers particularly to common law systems, to the laws regulating how land is owned by an individual, who is said to "hold" the land. The term "tenure" is used to signify the relationship between tenant and lord, not the relationship between tenant and land.

Over history, many different forms of land ownership, i.e., ways of owning land have been established. A landholder or landowner is a holder of the estate in land with considerable rights of ownership or, simply put, an owner of land.

Notwithstanding this, any modifications or reform of a country's land laws can still be a complicated political process, as reforming land policies may lead to changes in relationships within and between communities, as well as between communities and the state. This implies that even small-scale land reforms and legal modifications may be subject to intense debate or conflict (Lund, 2008).

2.2.1 Tenure reforms

This section explores the debates over the merits of adopting modern tenure with individual titling in Africa, Latin America, Asia and the Pacific region. The particular focus will be on Africa, in order to provide a contextual background to the question of land tenure in Zimbabwe and that under the FTLRP.

Adams et al. (1999) defined land tenure as the terms and conditions by which land is held, used and transacted. Therefore, for these scholars, tenure reform refers to a planned change of these terms and conditions with the goal of enhancing and securing peoples' land rights. Adams et al. (2000) believed that this would go a long way in preventing evictions, landlessness, breakdown of local arrangements for managing common property resources and social instability and that it would also allow people to invest in and use their land in a sustainable manner.

Kalabamu (2000) described modern land tenure as a system whereby the law defines land rights and documented evidence is often in the form of title deeds, which then stand as proof of ownership of the land. This type of land ownership is referred to as free hold tenure which Shiviji (1998) quoted in Kalabamu (2000:306) calls a ‘bundle of rights... which are defined, secure and guaranteed and most important of all can be transferred on the market at the will of the owner’. Neo-classical economic theorists regard freehold tenure as superior and therefore advocate land ownership, titling and registration (Platteau, 1996; Izumi, 1999).

Firmin-Sellers and Sellers (1999) indicated that proponents of freehold tenure argue that land titling is an essential foundation for economic growth as it provides a precondition for long-term investment, access to credit and the development of land and labour markets because it is deemed secure. These factors are inclusive of financial, natural and physical capital and will therefore provide for improved livelihoods through smallholder farming. This point of view is held by many scholars, administrators, investors, donors, financial credit managers and institutions such as the World Bank, USAID and DFID. Arguably, the lack of titling of land in Zimbabwe has adversely affected the beneficiaries of the FTLRP because they cannot access credit from formal financial markets.

Generally, the line of argument mentioned above is conceived to be a neo-liberal economic framework similar to that propounded in debates over ‘small versus large’ farming. Deininger and Binswanger (1999) held that freehold titling increases incentives to clear and cultivate land, thereby increasing peasant production, as demonstrated in studies on tenure reforms in China, Burkina Faso, Ghana and Niger. They believe that freehold titling would improve rural livelihoods by addressing the shortcomings associated with smallholder farming without title with respect to use of land as collateral or access to capital, as title under market forces allows for the provision of capital. This will in turn address issues of poverty and lead to sustainable livelihoods based on farm productivity for most rural households. So these scholars suggest that titling of acquired land should occur in Zimbabwe for the FTLRP to be a successful rural development strategy.

Conversely, according to Deininger and Binswanger (1999), opposing scholars such as Bruce et al. (1993) as quoted in Lastarria-Cornhiel et al. (1999) argued against titling, because they believe it does not necessarily increase or lead to land security and collateralised lending. Moyo (2004b, 2004c) wrote that empirical evidence of land titling in Africa indicates that, contrary to expectation, benefits with respect to increased financing, investment and productivity have been minimal. He argued that titling

therefore is not a necessary precondition for agricultural development. Moreover, he gives examples of problems associated with titling, such as the exclusion mostly of the poor and women, disputes over inheritances at family level and conflicts at village level over access to commons such as burial and spiritual places. He also noted that instead of benefiting the majority titling has frequently increased the concentration of land in the hands of powerful elites. Furthermore, Deininger and Binswanger (1999) and Lastarria-Cornhiel et al. (1999) revealed that, in some cases, titling had not increased the willingness of banks to lend to the rural sector, particularly to smallholder farmers, because for varying reasons repossession of land cannot occur or where land sales and mortgages are restricted.

2.3 PERSPECTIVES OF LAND REFORM PROGRAMMES

2.3.1 Introduction

In the developing parts of the world, land has been identified as a chief source of livelihood, security and status, since an estimated 70 per cent of their population is rural (Deininger and Binswanger, 1999; Moyo 2000; Toulmin and Quran, 2000; Deininger and Luvandez, 2004). Owing to this, issues to do with land have been the principal sources of grievance between the landowners and the peasants. In most developed countries to the contrary, industrialisation, urbanisation and capital accumulation have provided for broader sources of livelihoods, and therefore minimised conflict related to agricultural land. It is therefore reasonable to expect that Zimbabwe, as a developing country, will exhibit some conflict between those that have tenure over land and the landless.

Zimbabwe's FTLRP has stimulated a lot of debate as to which model of land reform is the best: redistribution of land through market versus radical state-led reforms; smallholder versus large-scale farming and debates over the best form of tenure. Therefore, this section of the literature review will examine these debates and discuss the political and economic ideology on which they are grounded. In order to contextualise the political and economic ideologies in which land reform debates are embedded, the world-historical perspective and the farm size productivity debate have been included in this section.

2.3.2 The world-historical perspective

Based on past evidence worldwide, Adams (1995) described approaches to land reform as either being revolutionary or evolutionary. The premise of a revolutionary approach is drastic, planned, public intervention to redistribute land versus an evolutionary process, which aims at improving access and

security of tenure (Adams, 1995). The implementation of land reform programmes through either a revolutionary or an evolutionary approach (Bernstein 2003), points to the political ideology of the country. This ideology can either be on a capitalist or a communist/socialist framework.

There are three main tenets behind land reform programmes, which are redistribution, tenure reform or restitution. Implementation of these reforms has raised major debates over time. In countries with a colonial history, redistribution as a form of land reform has been favoured, particularly which seek to redistribute land as a form of social justice. Emerging rural development agenda of the 1990s for developing countries began to place land reform programmes, especially through redistribution and tenure reform at the front of poverty alleviation strategies.

Moyo (2004b) and Bernstein (2003) used the world-historical perspective to provide an overall framework for understanding how the capitalist and communist/socialist ideological dispensations have influenced debates and directions of land reform and agrarian transition worldwide, particularly in the case of Zimbabwe. In doing this, Moyo and Bernstein contextualise the path pursued by the post-independence government of Zimbabwe. Bernstein who followed the seminal work by T. J. Byres (Moyo, 2004b), put forward that the ‘classic’ agrarian question ‘was driven by concerns with economic and political problems and prospects of capitalist, and then socialist, development in the peripheries of northwest Europe where industrialist capitalism was first established, this then extended further to the vast colonial, quasi colonial and former colonial zones of Asia, Africa and Latin America’.

Therefore, communist ideology for agrarian transition in countries likes Russia, China, Cuba, Tanzania, Zambia and Mozambique focused on nationalisation of land and collectivisation of agriculture (Bernstein, 2003; Moyo, 2004b). The presupposition, according to Moyo (2004b:6), was that this would resolve the problem of ‘agrarian class accumulation and tensions of the worker-peasant alliance, vis-à-vis landlords and emerging capitalists’. Bernstein (2003) wrote that, where capitalism developed through the transition from the classical agrarian system, land markets and private/freehold tenure were advocated. As is the case in Zimbabwe, the agrarian question was largely due to capitalist development during the colonial era and the attempt to use a socialist approach in the decade after independence. However, the capitalist development that had already been rooted remained prevalent and influenced agrarian and land reform transitions in the country after independence.

Having discussed the ideologies that have shaped the various perspectives of land reform, it is now possible to describe the debates surrounding the different approaches to land reform programmes.

2.3.3 The farm size productivity debate (small versus large scale farming)

Proponents of smallholder agriculture (World Bank, 1974, Berry and Cline, 1979; Lipton, 1996; Faruque and Carey, 1997; Deininger and Binswanger, 1999; van der Brink, 2003; Twyman et al., 2004) argued that smallholder farms are efficient and are able to sustain the local economy and that they are desirable from both an equity and efficiency perspective. Based on observed empirical evidence, these scholars argued that smallholder farmers generated more profit for every dollar invested (either in cash or in kind). However, according to them, this does not mean that they are richer than large-scale farmers are, but it shows that they make relatively more out of the little they have. These arguments rest on the notion that family labour is more efficient than hired labour, smallholders use their resources intensively and they have the ability to provide for economic growth, poverty reduction and sustainable livelihoods through farming.

Since the publication of its land reform policy paper in 1974, the World Bank has favoured smallholder farming rather than large-scale or plantation farming. Scholars (Lipton, 1996; Quan, 2000, Moyo, 2000, 2004b, 2004c) and those sponsored by the World Bank (Deininger, 1999; Deininger and Squire, 1998; Deininger and Binswanger, 1999), as well as a number of donor agencies such as the Department for International Development (DFID) and the International Food Policy Research Institute (IFPRI) are supportive of this policy. They argue that smallholder farming is efficient and can induce growth and development, thereby alleviating poverty and improving livelihoods. Scholars such as Bernstein (2003), Dyer (2004), Sender and Johnston (2004) have emerged as strong proponents of the theoretical supposition mentioned above.

Subsequent debates put forward in the literature concerning smallholder farming are put into three subsections that are: arguments over labour and efficiency, the inverse relationship of farm size to productivity, and arguments over the right means to achieve poverty alleviation and sustainable livelihoods.

2.3.3.1 Labour and efficiency

Based on their studies of smallholder farming in Latin America and Asia, Berry and Cline (1979) argue that smallholder farmers applied higher inputs per unit of land. Deininger and Feder's (1999) studies in Latin America, which showed successful changes from mono-cropped large plantation farms to labour intensive and diversified all year round smallholder farming, confirmed this supposition.

Deininger and Binswanger (1999) and van der Brink (2003) indicated that beneficiaries of small farms make sure that their individual farms work by taking greater care of their land making independent entrepreneurial decisions and using their land and labour resources more intensively compared to their larger counterparts. It is however important to note that the abilities of farmers to take good care of their land and to make good independent entrepreneurial decisions are to a large degree, dependent on factors that are specific to the individual smallholder farmer and their particular situation. In Africa, review of literature has shown that not all smallholder farmers in Africa have experienced the same level of success as those in Latin America and Asia.

However, according to panel studies of some resettled households, and empirical research in resettlement areas in Zimbabwe since its independence in 1980, conducted by Weiner et al., (1985), Kinsey (1999), Hoogeveen and Kinsey (2001), indicated varying degrees of success among smallholders following land redistribution and resettlement. Similarly, Moyo (1987) and Nagayets (2005), pointed to varying degrees of success of smallholders in Kenya, Malawi and Ethiopia, following the switch to smallholder farming.

Van der Brink (2003) postulated that large farms are inefficient compared to smallholder farms, largely due to the transaction costs of hired labour and supervision thereof by the farmer. Arguments put forward by Lipton (1996) and van der Brink (2003) against large-scale commercial farming included its failure to contribute to employment. They argued that due to mechanisation, large farms employ fewer people and therefore their contribution is negligible compared to smallholder agriculture. Moyo (2004a) held this perspective and believed smallholder farming in Zimbabwe would contribute to aggregate employment, despite the initial setbacks incurred under the FTLRP. This outlook implies a positive impact on livelihoods in the long term, as long as smallholder farmers are able to satisfy their needs from farming and are not forced to supplement their income by partially returning to formal employment or seeking aid.

Arguments against the above by the Commercial Farmers Union (CFU) Zimbabwe criticise the conceptual notion of labour as the basis for efficiency in smallholder farming (Justice for Agriculture [JAG], 2003 Lipton, 1996). Those who oppose (Dyer, 2004; Sender and Johnson, 2004) argue there are several factors besides labour that should be taken into account when evaluating the viability and productivity of the two farming systems. These factors include economies of scale, access to credit, information technology, markets, financial institutions and risk aversion. It is argued that when one aggregates these factors, smallholder farming does not fare well compared to large-scale farming.

2.3.3.2 Inverse relationship between farm size and land productivity

According to Dyer (2004), many authors regard the work of Berry and Cline (1979) as the definitive work on the inverse relationship between farm size and productivity. Berry and Cline concluded, based on a wide range of empirical studies, that an inverse relationship exists between farm size and productivity in developing countries and that this relationship is in fact the norm. In support of Berry and Cline (1979), studies of 15 developing countries conducted by Cornia (1985) showed that, in the majority of cases, the output per acre declined with increasing farm size. Cornia (1985) went on to suggest that redistribution would, if well implemented, provide immediate beneficial effects in terms of output growth, enhanced income distribution, poverty alleviation and improved livelihoods.

Rosenzweig and Binswanger (1993) used econometric models to argue for the inverse relationship by comparing the profit to wealth ratio of large-scale versus smallholder farming. In this model, they illustrate that the profit to wealth ratio of the smallest category of farmers is always at least twice that of the largest. On the other hand, Dorward (1999) and Sender and Johnston (2004) indicated that there are few studies in sub-Saharan Africa that have shown the success of the inverse relationship in smallholder production. Dorward (1999) held that in his study of the farm-size productivity relationship in Malawi, evidence showed a positive relationship between size and productivity. He argued that in the absence of capital intensive technology, the inverse relationship may not hold for smallholder farmers.

Sender and Johnston (2004) contributed to this line of argument in Kenya where they realised that the 'inverse relationship' was weaker in areas that were less fertile, suggesting that this relationship was, in part, determined by the agro-ecological potential of the area, rather than farm size per se. Deininger and Binswanger (1999) previously collected data that showed large-scale commercial farms, particularly plantations in Zimbabwe, to have been more productive, achieving higher yields than smallholder farmers from the communal and resettlement areas. In the Zimbabwean case, however, large-scale plantations were not necessarily located in areas with the same agro-ecological potential as the communal and resettlement areas. This suggests that the relationship between farm size and productivity is dependent on many variables and that farm-size/productivity relationships may have many methodological flaws, due to the complexity of issues involved, particularly in developing countries (Binswanger et al., 1995; Dyer, 2004). Berry and Cline's inverse relationship between farm size and productivity in developing countries may therefore not apply in much of sub-Saharan Africa and may in fact not be the norm.

2.3.3.3 Rural development, poverty alleviation and sustainable livelihoods

According to Singh (1990: xix), quoted in Ellis and Briggs (2001: 441), ‘the growth of non- farm economy depends on the vitality of the farm economy, without agricultural growth in rural areas, redressing poverty is an impossible task’. This has subsequently placed the need to develop smallholder agriculture as the engine for growth and sustainable livelihoods at the centre of land policy and reform programmes in Africa.

The sustainable livelihood framework developed in the 1980s and 1990s by Sen (1981), Chambers (1983), Swift (1989) and Chambers and Conaway (1991) cited in Ellis and Briggs (2001) is presently being said to be the appropriate form of rural development particularly where land reform programmes are concerned in developing countries. This framework evaluates levels of social, natural, physical and financial capital that a farmer or community possess. An increase in these forms of capital is likely to increase the sustainability of the livelihoods of these farmers (World Bank, 1999; Neefjes, 2000; Ellis and Briggs, 2001; Scoones, 2005). Parayil (1996) and Banerjee (1999) attributed the achievement of poverty alleviation and a comparatively better standard of living and development of the state of Kerala, India, to meaningful land reforms based on smallholder redistribution. According to these scholars, land (natural capital) was the catalyst for the attainment of high levels of social capital advocated in the sustainable livelihood paradigm and hence the high levels of development in Kerala compared to other states in India. Furthermore, Parayil (1996) emphasised that these successes coupled with political stability amongst the three religious groups, contributed to improving environmental stability through frugal and efficient uses of energy and the natural resources. Although Parayil (1996) did not use political ecology per se in his analysis of the development of the state of Kerala, the fact that he acknowledged political and economic factors contributing to environmental stability and sustainable livelihoods lends itself to this paradigm.

Empirical evidence from Hoogeveen and Kinsey’s (2001) studies of households in some resettlement schemes in Zimbabwe indicated that redistribution of land to smallholder farmers in the 1980s was associated with improved agricultural productivity, increased assets and incomes and, in turn, improved livelihoods. Adams (1995) and Lipton (1996) noted that the industrial take off in East Asian countries was preceded by the redistribution to smallholders of farms in Japan, Taiwan and China, which led to economic growth and rural development. Van der Brink (2003) therefore held that smallholder agriculture as an economic system can reduce poverty. However, it must be noted that key

components of the successes of the above mentioned cases were state support for the smallholder farmer and also assistance from the donor community.

Human Rights Watch (2002), Sachikonye (2003), Sender and Johnston (2004) and Hartnack (2005) noted that land reform programmes in countries like Ethiopia and the present FTLRP in Zimbabwe have exacerbated rural poverty, particularly amongst the former commercial farm workers. This is because land redistribution has resulted in a substantial decline in casual and seasonal 'wage employment, without providing sufficient alternative sources of income for former labourers.

2.4 MARKET-ASSISTED VERSUS STATE-LED LAND REFORM

There has been on-going debate over what role the state or the market should play in land reform programmes, particularly in the cold war context and since emergence of neo-liberal economic paradigms. These debates have characterised the Zimbabwean land reform scenario since independence with the eventual application of state-led market-assisted land reform programmes in the 1980s and 1990s.

Adams (1995) and Deininger and Binswanger (1999), amongst others, advocated the distribution of land under market forces as propounded by the neo-liberal economic theory. Market-assisted reforms are believed to provide efficiency and equitable distribution of land with minimal loss of production and to result in an expansion of commercial agricultural activities. These reforms favour private tenure of land.

Arguments that have emerged from populist media, some farmer organisations and the World Bank are that radical state-led redistribution of land is likely to reduce agricultural productivity and adversely affect the food self-sufficiency of the particular country. This view is supported by the food shortages and reduced self-sufficiency of Zimbabwe since the FTLRP. However, Moyo (2002) argued against this notion because he believed that market-assisted land reforms generally lead to foreign ownership and local elites benefiting rather than the majority of the rural poor. Furthermore, he argued that market-assisted approaches tend to slow radical redistribution of land and this leads to land conflicts and occupation movements, as exemplified by the intensive land occupation movements of 2000 in Zimbabwe. Moyo (2002) argued that state-led reform, which allows for radical redistribution, addresses demands for land and quantitatively is able to redistribute more land to beneficiaries in a shorter period of time compared to market-assisted land reforms.

In Latin America and the Caribbean, evidence indicates that poor people have not been able to secure land from the market and therefore, according to Shearer *et al.* (1991) this created constraints on their ability to participate in the land reform process, leading Adams (1995) to argue that market-assisted reform would not necessarily transfer land to smaller farmers, unless these groups are able to secure grants and credit. This was the case in Zimbabwe prior to the FTLRP, when the black elite were able to purchase more land than the poor.

After realisation of failures of mainstream neo-liberal theories to provide for the equitable redistribution of land, several countries like Brazil, Colombia, Guatemala, the Philippines and South Africa, are experimenting with a 'community-based' model of land reform. Deininger (1999) and Deininger and Binswanger (1999) noted that this type of land reform is based on voluntary land transfers based on negotiations between buyers and sellers, and that the role of government is restricted to availing a land purchase grant to eligible beneficiaries and the provision of technical support. These scholars said this programme is advantageous because it allows beneficiaries to seek run-down unproductive farms and prevents a negative effect on aggregate production as happens with radical land reforms. They believe that, because of the collaborative attitude associated with this model, it is supposed to stimulate rather than undermine land markets. Furthermore, the involvement of the private sector, non-governmental organisations (NGOs) and the community in developing, financing and administering the projects would improve the capacity of the smallholder farmers to make productive use of the land.

Deininger and Binswanger (1999) and Deininger (1999) indicated that pilot programmes in Colombia showed superior results to previous land reform programmes and that the formerly landless were able to establish highly productive agricultural systems. However, Moyo (2002) criticised this model of land reform on the basis of its idealism and presumptuousness in thinking that fair negotiations can take place between those with land and those who do not have land in a capitalist society. He commented that negotiations are often curbed through repression by local political organisations, rural communities under a chieftaincy and dominant political parties. Moyo did not believe that such a model would be equally successful in Africa as it had been in Latin America. He based his argument on the fact that land reform in Latin America is strongly supported by radical NGOs, whilst Africa is faced by a weak civil society, which, in the case of Zimbabwe, is repressed by government. Moyo further stated that in South Africa the effectiveness of this model is likely to be compromised by the often hidden agendas of private consultants and NGOs in the process of negotiations.

2.5 ZIMBABWE'S LAND REFORM PARADIGMS SINCE INDEPENDENCE IN 1980

The Zimbabwe land reform can basically be divided into three paradigms since the country got independence from British rule in 1980. The first phase was executed from 1980 – 1996, the second from 1997 – June 2000 and the FTLRP phase from July 2000 to present. This research will briefly touch on the three paradigms to give an insight to what is obtaining presently with respect to the beneficiaries of the FTLRP in the study area.

2.5.1 The phase from 1980 – 1996

When Zimbabwe attained independence in 1980, 6000 white commercial farmers retained 15.5 million hectares of land found in the prime Natural Farming Regions (Sachikonye, 2003; Moyo et al., 2004; Goebel, 2005). On the other hand, there were one million black households remaining in the communal areas and subsisting on 16.4 million hectares of marginal land, mostly in areas of lower agro-ecological potential (Moyo, 1998). The new black government, according to Herbst (1990) and McCandless (2000), leaned strongly towards socialist ideals and aimed to achieve an equitable distribution of land, in order to achieve social justice. However, according to Bernstein (2003:213) and Goebel (2005:348), Zimbabwe, like South Africa acquired independence in an era of 'post-developmentalism' and 'globalisation'. This era was dominated by neo-liberal thinking and favoured the capitalist mode of production and marketing, and this constrained the government's intentions for a rapid structural and social transformation of the land and agrarian pattern in Zimbabwe. The terms of the Lancaster House Constitution, which envisaged ending the protracted war of liberation and bringing independence to a Zimbabwe were binding in two ways. First it prescribed a 10-year restriction period to prevent changes to the Constitution. Second it had a clause to do with the 'preclusion of expropriation of private property' (Moyo, 1995:106), land was to be acquired on a willing buyer and willing seller basis, and compensation paid in foreign currency (Lebert, 2003). This prevented the expropriation of private property and advocated market-assisted land reform, followed this neo liberal framework and forestalled a radical land reform programme (Palmer, 1990; Moyo, 1995).

Under the market-assisted approach, landowners led in the identification and supply of land. This was a supply-led approach, which, coupled with a stable economic environment, consequently resulted in the price of land increasing and according to Moyo (1995), resulted in the failure by government to purchase the farms on offer, thereby stalling radical redistribution in the 1980s. Ranger (1985),

Stoneman and Cliffe (1989) and Palmer, (1990) noted that the policy of ‘national reconciliation’ pursued by the government at independence prevented radical redistribution of land. Reconciliation was aimed to prevent an exodus of skilled white commercial farmers, who at independence were producing 90 per cent of the country’s food requirement, and therefore were seen as invaluable to the country’s food self-sufficiency. International sanctions against the country during Unilateral Declaration of Independence (UDI) had forced Rhodesian farmers to produce for, and sell on the domestic market. In addition to this, peasant production at independence had decreased because almost one fifth of the rural population had migrated to escape the war; three quarters had been put in protected villages and a quarter of a million had left the country (Palmer, 1990).

Notwithstanding this the government targeted 8.3 million hectares of land to resettle 162 000 families under Phase One of its Land Redistribution and Resettlement Programme (LRRP) (Thomas, 2003). In order to access land, applicants needed to be either:

- people displaced by the war or;
- landless people/families or;
- unemployed and poor, prepared to forgo all land rights in the communal areas or;
- destitute or;
- experienced communal farmers, prepared to forgo communal land rights and give up paid employment or;
- communal farmers with Master Farmer Certificates (Moyo, 1995; Masiwa, 2004).

(These farmers had received training in farm management and operations from extension officers from the Department of Agriculture Research and Extension (AREX) and had qualified as farmers); Moyo (2004b) and Waeterloos and Rutherford (2004) wrote that in the early 1980s beneficiaries were systematically resettled according to planned settlement schemes, under the ‘Normal Intensive Resettlement Programme.

Palmer (1990) and Moyo (1995) commented that, of the 56 000 families resettled on 2.6 million hectares between 1980 and 1989, 70 per cent were resettled by 1983. Redistribution slowed down considerably after 1983. Factors such as droughts between 1982 and 1984 forced the government to provide for drought relief rather than for redistribution. Furthermore, the government prioritised socio-economic needs such as education, health and rural development to the detriment of redistribution.

Even though Government amended the Land Acquisition Act again in 1992 to quicken and improve the facilitation of land redistribution, the process continued to be slow throughout the 1990s. However, the Act provided the tool for embarking on the second phase of LRRP. According to Moyo (1995), land reform during this period could be termed state-led market-assisted reforms because land acquisition was state-led, but compensation to farmers was to be according to a liberal market approach (Waeterloos and Rutherford, 2004).

2.5.2 The phase from 1997 – June 2000

Government adopted The National Land Policy 1997 based on compulsory acquisition, but with compensation (Thomas, 2003), this signalled the initiation of the second phase of the LRRP. Based on this policy the government published a notice of intention to compulsorily acquire 1 471 commercial farms in November 1997 (Masiiwa, 2004). Financial constraints placed limitations on the ability of the government to compensate farmers and provide for resettlement. Therefore, government convened in 1998 the Donor Conference in order to inform donors on land issues in Zimbabwe and source funds for land reform. At the Donor Conference President Mugabe warned that anarchy would prevail in the country if Zimbabwe did not get financial assistance (McCandless, 2000). The government needed 1.5 billion Zimbabwean dollars (Thomas, 2003) from donors to compensate the white farmers whose land had been gazetted for compulsory acquisition. Stakeholders acknowledged the urgency for land reform and pledged technical and/financial support (Government of Zimbabwe, 1998). Britain and United States of America however expressed dissatisfaction saying the land policy failed to recognise property rights and needed to be reformulated as a precondition for aid.

It was agreed at the conference to begin the second paradigm of land reform with the inception expected to cover one year in which a million hectares of commercial farmland was to be transferred for resettlement purposes (Thomas, 2003; Masiiwa, 2004). According to Masiiwa (2004) beneficiaries; for this phase of the redistribution programme were to include, the landless, overcrowded families in the communal areas, graduates from agricultural colleges and other people with experience. These criteria represented a change to those employed from 1990 to 1997 and a move back towards the criteria used in 1980. However, of the intended 150 000 beneficiaries for resettlement only 4 697 were resettled by 2000 (Moyo, 2000; Waeterloos and Rutherford, 2004). Indicating that the inception phase had failed to achieve meaningful resettlement and therefore the land crisis persisted.

2.5.3 The FTLRP from July 2000 – present

Government sought to make it easy for it to acquire land for resettlement and set up a constitutional committee to draft a new constitution in 1999. This constitution provided for compensation only for improvements on the land rather payment dictated by the market. In the same year the National Constitutional Assembly (NCA) had drafted its own Constitution and on the political front a new party, the (Movement for Democratic Change) MDC, was formed.

In February 2000, a referendum held resulted in the national majority rejecting the Government-sponsored draft Constitution. The rejection consequently resulted in a series of farm occupations led by war veterans and ‘landless’ villagers countywide (Masiiwa, 2004) who were said to be angered and frustrated by the results. Thomas (2003) added that this frustration had been compounded by the withdrawals of the majority of the 1 471 gazetted farms, which had been successfully contested in the courts by landowners, and the slow pace at which land was transferred during the inception of the LRRP II. Kanyenze (2004) suggested that farm occupations were politically motivated and a form of retribution to the white commercial farmers for campaigning against the draft Constitution and sponsoring the MDC.

After the politically significant rejection of the government draft Constitution in February 2000, the government amended the Constitution in April 2000 to allow for compulsory acquisition without the obligation to pay compensation (Masiiwa, 2004). Thereafter, the FTLRP was officially launched on the 15th of July 2000 (Government of Zimbabwe, 2004). The programme has been criticised and condemned internationally, regionally and locally for the land occupations, the lack of rule of law, disrespect for property rights, inadequate planning and financial support.

Under the FTLRP, resettlement was to take place on two settlement variants, put forward in the 1997 Land Policy, the A1 and A2 models. The A1 model mainly targeted landless people and was to facilitate in decongesting the communal areas. However, 20 per cent of the land was reserved for the war veterans. Beneficiaries would be resettled in either villages or self-contained small farm units (Government of Zimbabwe, 2004). The A2 scheme is a commercial farming land use model aimed at increasing the number of black indigenous commercial farmers. All citizens of Zimbabwe can apply to be resettled according to this model, provided they have entrepreneurial skills, some form of agricultural experience, as well as financial resources (Government of Zimbabwe, 2004). The tenure arrangements of these schemes remained ambiguous. However, Maunganidze (2004) indicated that 99

and 25 year leases were to be provided to beneficiaries under the A2 and A1 self-contained models respectively and that these beneficiaries would have the option to purchase within the lease period.

2.6 AGRARIAN DIAGNOSIS USING THE FARMING SYSTEMS APPROACH

2.6.1 The farming systems approach

A farming system is an assemblage of components which are united by some form of interaction and interdependence and which operate within a prescribed boundary to achieve a specified agricultural objective on behalf of the beneficiaries of the system. This definition is analogous to the general definition of any artificial (i.e., man-made) system of which all managed farming systems (including specifically the farm-level systems) form one sub-division (Bertalanffy, 1973). The farming systems approach consists of a multi-disciplinary study of the operation and dynamics of agriculture based systems in rural environments and testing possibilities of improving these systems through analysis and modelling of the transfers and interactions. It requires a combination of research and development structures, negotiations with stakeholders at different levels and highlight socio-political implications and institutional problems.

The principles of the farming systems approach are

- Problem oriented, contribution to solving concrete problems of the farmers
- Holistic, studying the interactions within a whole system of activities, relations, transfers and stocks (money, matter or information)
- Interdisciplinary, including life science, technical science, economics and social science
- Peasant-oriented, taking into account the objectives, constraints, opportunities of the rural household, the local know-how, the practices and skills
- Development-support oriented, promoting partnership and providing relevant information to decision-makers, to training and extension services
- Dynamic and interactive processes, involving assessments, knowledge exchange and learning

The farming system approach used in this study is typology. Typology is an attempt to group farms according to their main structures and modes of operation. The objectives and purposes of a typology analysis are to prepare a stage for a development project at village/community level and to assess ex post the impact of such programmes or for monitoring-reorientation purposes.

Demont et al (2007:226) tried to understand the evolution of farming systems in Northern Cote d'voire by revisiting the Boserup versus Malthus theories. Firstly, they realised that the two theses coexist rather than contrast. In the beginning stage demographic pressure engenders Malthusian mechanisms (deterioration of biophysical environment, multiplication of weeds, reduction of fertility and profitability of the ancient production system) leading to migrations and resulting in Malthusian natural population control. At the same time, however, favourable conditions are created for Boserupian intensification of cropping systems, and mechanisation of labour tasks through the use of animal traction (Demont et al 2007:226).

Following this, adjustment in the production system reaffirms the Boserupian response to the situation and hence the traditional system cannot not adapt anymore to the changing socioeconomic environment. This case- study suggests that Boserupian improvements in both scales of operation and through intensification has been to a large extend been able to compensate for the Malthusian repercussions of increasing demographic pressure.

The farming system concept in general terms, is useful for farm holdings which are the primary production unit, which is usually family-focused. This is a very important stage of analysis as farms are the origins of rural social fabric, where production processes are organized and production chains cross each other. Farm holdings are regarded elemental links that connect villages, giving rise to solidarities, contradictions or conflicts. This level of analysis is particularly important because this is where the field researcher makes first “contact”, by interviewing farmers.

The farming systems approach or method in general and typology analysis in particular, aims to define and characterise a somewhat complex system of interconnected activities and features. For instance, farmers behave in a certain way because they respond to the circumstances they find themselves in, these circumstances could emanate from the social, economic, political, cultural or environmental situations resulting in them devising strategies in response to these various situations.

Typology can therefore be seen as an attempt to group activity units according to their main modes of operation and their common characteristics (Perret, 1999). Through the use of typology, decision-makers at regional level can be given an image or a vision of local agricultural activities (Perret, 1999). While typology can serve as a guideline for initiating specific development operations and for focusing the total project (Laurent, Van Rooyen, Madikizela, Bonnal & Carsten, 1998), it also seeks to constitute

a range of types that simplify reality whilst accounting for the main particularities which allow for the classification and analysis of each type in a collection to be studied (Perrot & Landais, 1993).

It does not matter which method is chosen, the analysis of all the socio-economic factors is a vital first step in coming up with a diagnosis. A schematic representation of the diversity of the farming systems can then be viewed as an outcome, but also as a launch-pad for further studies.

Notwithstanding this, it is necessary to note some of the limitations of typology, for example, the results are only valid for a short period of time. While it may be of importance in giving an instant picture of farming systems diversity, it cannot be a long-term tool destined for routine use (Perrot and Landais, 1993). Finally, it is also important to highlight that any typology analysis remains relative. From the same sample and questionnaire, different typologies may be constructed, depending on the objectives, viewpoints or prospects of the researchers (Perrot and Landais, 1993).

Main characteristics of a typology analysis are that it focusses on functioning and strategies not constrained to a restricted number of types, focus on dynamics and interactions between types and include socio-economic and political dimensions. This research employed mainly one tool of the farming systems approach which is the typology analysis.

2.6.2 Agrarian diagnosis using farming systems approach in other parts of Africa

In trying to understand the farming systems in a small region of Ethiopian highlands Cheveau et al (2011:45) implemented an agrarian diagnosis method revealed that most families are currently faced with a dire situation of high vulnerability and great poverty. The agrarian system present at the time of diagnosis will probably not be able to feed the growing population.

In Sub-Saharan Africa, smallholder farming systems have changed with respect to land use, productivity and sustainability. It is now imperative to understand causes of change to land use patterns in these systems and factors that influence systems' sustainability, the reason being able to guide appropriate targeting of intervention strategies for improvement. Ebanyat et al (2010:483) compared low input Teso farming systems in Eastern Uganda with similar low input systems in southern Mali from 1960 to 2001 in a place based comparative analysis. The study showed that policy-institutional factors next to population growth have driven land use changes in the Teso systems, and that nutrient balances of farm households are useful indicators to identify their sustainability.

Ideo (2010:56) used the following indicators to distinguish between categories of Matta farmers: age, labour input, other inputs, plot type, crop selection, inter and intra specific crop diversity, knowledge type, degree of market involvement and dependency, market strategy, innovativeness and off farm income. Combining all indicators brought about a typology consisting of three major farmer types: full time farmers; part time farmers and traditional farmers.

A household's wealth (endowment of livelihood assets) is fundamental to rural socio-economic differentiation (Tefera et al 2004:134). A typology is a procedure which can then be used to qualitatively or quantitatively develop and describe relatively homogenous groups of households and or communities who face more or less constraints and incentives. Tiftonell et al (2010:96) did a typology of households in East Africa that distinguished farms that differed in fertiliser use intensity, hence in management-induced soil variability, and in total carbon and nutrient stocks per farm and per family member.

2.7 CONCLUSION

The chapter on literature review started by giving definitions to land reform and land tenure, this was deemed necessary because the research was based on understanding the diversity of beneficiaries of land reform programme. The theories put forward by scholars on small farm versus large farms were also assessed. The farm is apparently put forward in the literature as the primary unit for rural development, poverty alleviation and as key to sustainable livelihoods. Tenure reforms and the reasons why they are inevitable are also reviewed. After this, the Zimbabwe's land reform paradigms since independence from British colonial rule are reviewed to track what happened before and where it eventually led to. Definitions of farming systems approach and tools of this approach namely zoning and typology were given as part of the literature review. The farming systems approach through its tools was used in carrying out the research in the study area. Literature of agrarian diagnosis using the same approach in other parts of Africa was also reviewed for comparison purposes.

Agriculture is a complex field; this is premised on the fact that it is directly linked to human life through the provision of food for mankind. This then implies that how a society manages its agricultural sector determines the social well-being of its people. Agriculture is affected and affects the macro-economic climate of a country or a region and in some cases triggering social unrest that in turn results in political tension that can cause war. In trying to understand agriculture, the farm level is a primary unit that is

normally comprised of a management system (household) whose functions include production, consumption, reproduction and conflict resolution. The farming systems approach is a tool used to assess and understand the diversity, complexity and dynamism of agricultural processes under realistic conditions.

The literature review chapter gave enough background to the land reform processes in Zimbabwe in preparation of agrarian diagnosis of the farming activities of the beneficiaries of the FTLRP. The farming systems approach based on socio-economic parameters used sought to put farmers in categories according to their farming activities. Having categorised the farmers, an attempt was then made to assess profitability of their farming activities.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Mashonaland West Province used to be one of major agricultural production provinces in Zimbabwe. Chegutu district where the study was done is part of the province. Most of the agricultural production was done by white commercial farmers prior to the FTLRP. It was therefore one of the reasons why the province was affected by FTLRP with the majority of the white farmers losing their land to new farmers during the period from 2000 onwards. The study aimed to assess whether after the FTLRP the beneficiaries maintained the same level of agricultural production to the previous farm owners.

The order of sequence of the methodology was first to use socio-economic parameters to put farmers in categories. Thus, the farming systems approach was used to do a typology of farmers in the study area. Secondly, having categorised the farmers assess the profitability of the groups' farming activities. Profitability was based on subtracting total production costs from gross income obtained by selling each commodity produced by each type of farmers. This approach is relevant because the farming systems approach looks at the farm/plot, the farmer and his surroundings holistically. It is therefore a better method of understanding why farmers behave in a certain way in response to their circumstances. The approach was therefore deliberately chosen because it helped the researcher to achieve the objectives of the study.

The weakness of the typology analysis is that members in a group are not permanently in that same group since any slight change on one of the defined parameters can easily move them to the next category farmers. The categories were therefore as at the time of the study.

The overall objective of this study was to understand the diversity of the farming activities of the beneficiaries of the FTLRP and also to assess the profitability of their farming activities. Farmers employ different strategies to work on their land, based on what resources they have, interaction with natural environment and with fellow farmers, the institutional environment and also the infrastructure like the road networks around their farming communities. It is a combination of these and other factors around the farmers that determine the type of farmers they are. The study undertook an in-depth analysis of the farmers' agricultural activities as well as the socio-economic characteristics of their households. The approach used involved soliciting for both qualitative and quantitative data using the questionnaire attached in the annexures (Annexure III): such multi-method approach enriches data for

analysis. The data analysis produced results that were then used to put the farmers in groups (types) according to their agricultural activities and the socio-economic characteristics of their households.

3.1 STUDY AREA

The area of the study is the eastern part of Chegutu district (Chegutu East Constituency), Ward 12 to be specific. This area spans for a radius of about 15 kilometres and it stretches from the boundary of Mhondoro communal areas and former commercial farmland in the east; in the west, Ward 12 boundary is formed by a stretch of a small stream called Chimbo that runs from the north into Mupfure River. The southern boundary is formed by a relatively big perennial river called Mupfure. The northern border of the study area is more complex to define since it is only found in the administrative books but with no particular physical feature that forms the boundary. The beneficiaries are a mixture of the two models of land reform, namely model A1 and A2.

Two agro ecological regions are found in this area, these are regions two and three (Region II 750-1000 mm of rainfall per year and Region III 650-800 mm of rainfall per year) (USDA, 2004). The average rainfall received in the area in summer therefore suffice to sustain a rain fed production system for all the summer crops grown in the area in a normal rainfall season. This basically means that in a normal rainfall season, this area receives sufficient rainfall for the farmers to practice rain fed agriculture. The soils are very good, ranging from sandy clays to red clays. The former commercial farmers in this area used to farm crops like tobacco, wheat, sugar beans, soya beans and maize. The resettled farmers in this area have to a large extent followed the same pattern of cropping though most of them show a bias towards staple crop farming (maize). The area is also known for its abundant mineral deposits and gold panning is a common activity in the area. The informal mining activities, if properly managed can result in a viable non- farm economy in the area. See the map below.

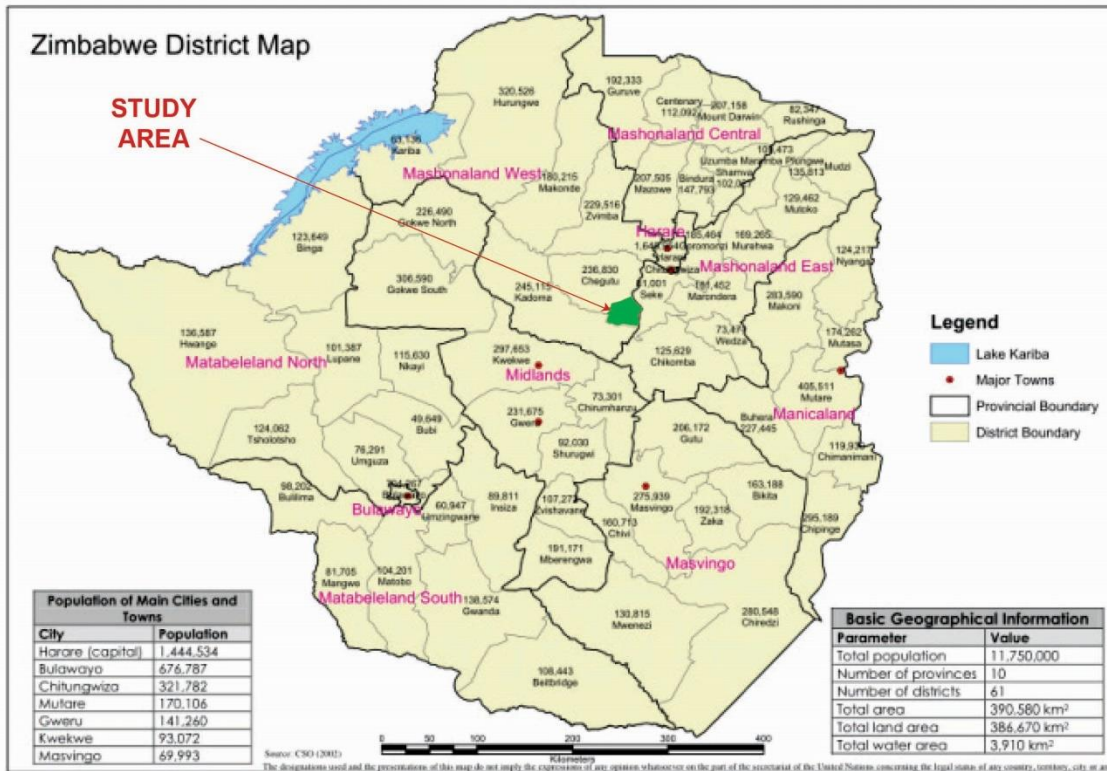


Figure1: Zimbabwe map showing districts and the study area

Source: Google Maps

As indicated in Chapter 1, the area used to be agriculturally highly productive and hence the need to do the study in the area to assess the impact of FTLRP on agricultural production in the area. This area of study was also chosen because the student owns a plot in the area (Plot Number 24 Emojeni Farm) and hence has a fair knowledge of the area. The area used to be agriculturally highly productive before the FTLRP and hence an interest to assess if the beneficiaries of the programme are continuing with the same production trends as the previous white commercial farm owners. Mining is generally the main economic activity in the district but agriculture contributes significantly to the local economy due to good and fertile soils and good rainfall received in the area in normal rainfall seasons. There is no data for the purposes of this research to describe the economic structure of the study area but agriculture and mining remain the leading economic activities in the study area and the whole Chegutu District.

The land reform process in this area is narrated (oral evidence) to have been of a violent nature with most of the white commercial farmers said to have been forced off their farms violently without being given time to take most of their equipment. There was however no death of white commercial farmer reported in the area during the process of land reform. There were about 23 farms before the FTLRP, the names of the farms and the numbers of plots allocated per each farm are shown on the table below:

Table 3.1: Names of farms and number of plots per farm

Name of farm	Number of plots per farm	A1 farms	A2 farms
Emojeni	50	A1	
Beersheba	79	A1	
New farm	46	A1	
Masden	37	A1	
Kelvington	33	A1	
Nugget	38	A1	
Norwood	32	A1	
Homedale	29	A1	
Dorothyhill	18	A1	
Menard	20	A1	
Zimbo	46	A1	
Ruanda	82	A1	
Lucasters	51	A1	
Chingwiri	15	A1	
Farnley	19	A1	
Beverley	57	A1	
Malharm	120	A1	
Tilford	25	A1	
Dorothyhill Extension	9	A1	
Essex	1		A2
Mont Marie	1		A2
Total	808		

Source: Self-generated from study data set

Please note there are two farms in the area namely Essex and Mont Marie that were allocated to individuals as whole farms and only one of them was part of the sample. The former farm names have been maintained and they are now village names headed by village heads. The target population therefore becomes 808 plots/farms which the sample was taken from.

3.2 SAMPLING

A systematic sampling method was employed to do the study. The sampling was done at farm level and 10 per cent of the population in each farm was targeted. For example: five plots were sampled in Emojeni farm (50 plots). To begin with, 10 per cent sample was chosen based on a threshold of representativity and diversity. It was tested in the first three farms that were assessed and indeed confirmed that no significantly different data could be found beyond the 10 per cent sample target and that the diversity of plots and farm structures was covered. This then translated to 10 per cent of the population of the plots in the study area. The plot holder register kept by the village head was used for sampling purposes. In this method every k^{th} unit is selected from a list of sampling units, where k is

defined by: $k = N/n$ the reciprocal of the sample fraction. See the box below for an example of how the systematic sampling method was done (See box 1).

Box 1: Sampling example

The case of Beersheba farm

An example of Beersheba village/farm is used to illustrate how the systematic sampling method was employed: There are 79 plots in the villagised settlement, 10 per cent of 79 will give a sample of about eight plots. The selection interval k is determined as $k = 79/10 = 7.9$ (which when rounded off to the nearest whole number gives 8). In the study, the village head's plot number was the generative number, this was so because of protocol, that is, before interviews were done permission was sought from the village head. It made sense then to immediately interview the village head after permission was granted. The village head's plot number in the Beersheba farm example used is 18; therefore, the sample included plots 8, 18, 28, 38, 48, 58, 68 and 78. This was the method and pattern used for sampling in the study area for it was deemed satisfactory to achieve the required level of randomness and representativity of the overall sample.

A table is given below showing the break-down of number of plots sampled per village (farm). A sample of 82 plots/farms was taken.

Table 3.2: Number of plots sampled per village (farm)

Name of farm	Number of plots per farm	Number of plots sampled per farm
Emojeni	50	5
Beersheba	79	8
New farm	46	5
Masden	37	4
Kelvington	33	3
Nugget	38	4
Norwood	32	3
Homedale	29	3
Dorothyhill	18	2
Menard	20	2
Zimbo	46	4
Ruanda	82	8
Lucasters	51	5
Chingwiri	15	2
Farnley	19	2
Beverley	57	6
Malharm	120	12
Tilford	25	2
Dorothyhill Extension	9	1
Essex	Whole farm	1
Mont Marie	Whole farm	0
Total	808	82

Source: Self-generated from study data set

3.3 RESEARCH TOOLS

The basic research tools that were used in the study were questionnaires that were used to collect data during the interviews.

Questionnaire questions (open and closed) were grouped into broad categories as listed below:

- Demographic questions (Sex and age)
- Year of plot/farm allocation and land size
- Head of farming operations on the plot/farm
- Formal employment status
- Home infrastructure (by observation)
- Agricultural production (both crop and livestock)

The questionnaire used to do the preliminary interviews had both closed and open-ended questions where farmers were given an opportunity to express themselves in terms of their farming strategies and challenges. This was important in order to link and introspect with what key informants said during interviews.

A laptop was occasionally used for data capturing even though electricity black-outs caused a lot of inconveniences each time the researcher went to town for data capturing. A camera was also used to take a number of photographs to assist in understanding situations.

3.4 DATA ANALYSIS

The study employed both qualitative and quantitative analysis methods. Qualitative research methods emphasize studying things in their natural settings, trying to make sense of, or interpret phenomena in terms of meanings people bring to them. The objective of qualitative research aims at comprehending human or social problem from many perspectives. On the other hand, quantitative analysis involves descriptive analysis, in this particular case, for the status of productivity among the beneficiaries of the land reform programme. Quantitative analyses are employed in the evaluation of profitability of farming activities using simple statistical tools such as averages or frequencies. In the general analysis of data, qualitative method was used to group farmers. In the typology development both qualitative and quantitative methods were used while only the quantitative method was used in the economic analysis.

A number of socio-economic factors were considered in order to come up with a typology of farmers. The study sought to firstly analyse farming systems and then after that to represent them for further modelling purposes.

The study focused on categorizing and group farmers according to their farming activities. The variables that were used include age of the farmer, the gender of the farmer, the year the farmer was allocated the plot, quality of home infrastructure, the livestock owned, crops produced, the hectareage under each crop and the quantities produced. The other variables that were considered are job status of the plot/farm owner (whether the plot owner have a salaried job or not), the head of the farming activities on the plot/farm and whether the farmer is farming under irrigation or dry land. These parameters, one way or the other, interact with each other thereby influencing the farmer to make decisions that will eventually determine the type of farmer he or she becomes.

3.5 EFFECTIVE IMPLEMENTATION OF THE RESEARCH PROCESS

Prior to the actual execution of the field work, a letter from the University of Pretoria through the Research Supervisor (Dr Ward Anseeuw) was requested to seek permission from the responsible authorities in the study area. The office of the District Administrator (DA) was deemed high enough to be able to grant the sought permission to do the research though the Councillor of the ward was also informed. This permission from the DA proved to be vital as it was used to allay any fears all the interviewees might have about the intentions of the research, particularly since land reform remains sensitive in Zimbabwe. At the local level, permission was sought from local and paramount chief of the area, Chief Chivero, in line with the tradition and norms of the local culture. The political environment in the study area also required the researcher to hold meetings with the ZANU PF district committee to clarify the purpose of the research. The same procedure was followed with the village heads who are in charge of their local areas and have information on the goings on of their respective areas.

After the above processes was accomplished, several transect walks across the study area were done to observe and take note of the general outlook of the area. Besides photographs taken to cement the understanding of the study area, the preliminary steps of the research followed a specific methodological sequence. Firstly, several random interviews with farmers across the study area were carried out during the transect walks for the purposes of pre-testing the questionnaire and necessary adjustments to some of the questions were effected on the questionnaire.

Preliminary interviews were done with 17 farmers with the aim of getting a better understanding of the people in the study area. It was observed from the preliminary interviews that both the closed and open-ended questions were necessary in order to have a deeper understanding of the diversity of farmers and were therefore retained in the final questionnaire. The questions were made simple and cases of ambiguity were removed so that both the interviewer and the respondents understood each other during the interview process. This preliminary process took about three weeks to complete and was a worthwhile initiative that set up the data collection stage of the study.

Wide-ranging interviews were done with the Extension Officers and other key informants to gather a lot of information about farming practices in the area to include cropping patterns,

livestock issues and programmes in the area (calendar of events). The interviews with the Extension Officers were held to explain to them intention of the research especially the objectives of the study and to make them understand how they could assist. In that regard, they were asked to characterise the farming activities in their respective areas and they generally agreed that there were three types of farmers with respect to agricultural production. The random interviews to pre-test the questionnaire were done amongst the identified three categories of farmers.

The second step in the methodological sequence of the research process was the soliciting for data from 82 farmers through a well-planned and very long interview process. The interviews were conducted with the assistance of the Extension Officer of the respective area who would start by introducing the researcher and hint briefly about the study before handing over for the actual interview process. Sometimes the Extension Officers were not available due to their work commitments and the researcher would follow the same procedure allaying any fears or suspicions the respondents might have about the intentions of the study. The data gathering through interviews took 75 days; this was due to the size of the study area and lack of transport (personal and extension officer). By and large, the farmers were very cooperative through the interview process though others were anxious about what the research would bring to them, and a few who had grown cotton for the 2011/2012 season were very upset because of the low cotton producer price that was being offered by the cotton buyers. One cotton farmer almost refused to be interviewed.

Following this was the third step in the methodological sequence of the research process which is the actual processing of the data. Farmers develop different strategies as a way of adapting and coping with an ever-changing and uncertain environment, allowing them to duplicate or transform a given lifestyle that corresponds to a particular objective, either as a group or as individuals (Perret and Touchain, 2002). It took considerable time to do an iterative process of refining the typology to the required level of validity.

3.6 CONCLUSION

The technique and method applied made it possible for the study to address the problem statement and achieve the objectives of the study. Typology analysis resulted in the grouping of farmers according to their diverse farming situations. In the end, it was also possible to make

some recommendations and draw certain conclusions based on the findings of the study. The next chapter discusses the results; firstly, a general analysis is done, secondly the typology of farmers is developed using socio-economic characteristics and thirdly an economic analysis is done to evaluate profitability of the farming activities.

CHAPTER 4

RESULTS

The preliminary interviews with randomly sampled farmers and interviews with key informants (Extension officers) guided the researcher to come up with the criteria for typology boundaries. For instance, cattle ownership by the farmers ranged from farmers with none to those with a herd of more than twenty.

Chapter 4 reports on the analysis, findings and results of the study. The first section of the results chapter is a general analysis of all the data gathered during the survey, both observed and from the interviews. The general analysis gives useful additional data and indicators to the actual construction of the typology of farmers in the study area. Following the general analysis section is the presentation of the typology of farmers in the area which forms the second section of the results chapter. The second section of the results (typology of farmers) includes an economic analysis per type of farmers per crop to assess how each group of farmers is faring, that is, to see if farmers are making profit or loss from their farming practices. A conclusion based on the results discussion will close this chapter.

4.1 GENERAL ANALYSIS

With a total of 80% of the sample, males dominate in the beneficiaries of the land reform programme in the study area (Figure 2). The domination of men in the study area is contrary to the Government of Zimbabwe's women empowerment policy. In addition, for both male and female, there is generally an aging population with 53.4 % of the farmers in the study area being more than 50 years old (Figure 3). Old age could compromise the farmers' ability to continue working or managing farming activities on the land in the future.

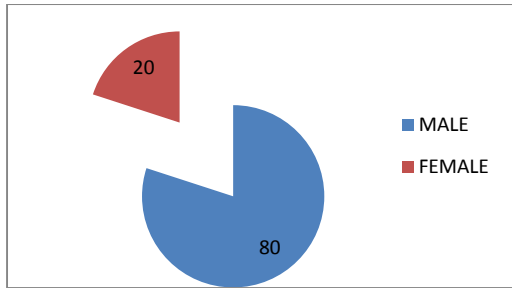


Figure 2: Farm/Plot owner gender representation (%)

Source: Self-generated from study data set

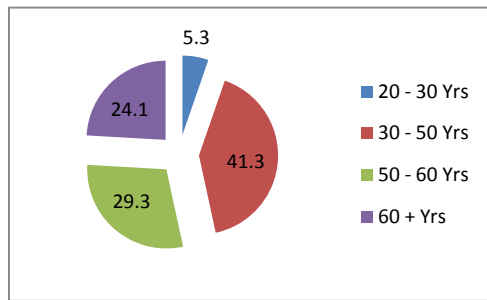


Figure 3: Farm/Plot owner age representation (%)

Source: Self-generated from study data set

78.7 % of the plot owners (both male and female) live on the plots and 8 % represents spouses¹ of farm/plot owners heading farming operations on the plot/farm. The 13.3% represented as other are farm/plots that are managed by a third part, for example an employee who runs the day to day operations of the farm/plot with the owner occasionally visiting to oversee (Figure 4). Figure 4 gives a clear indication that contrary to what has been generally said about the FTLRP that most beneficiaries do not stay on or use the land they were allocated is not true since in this case, 78.7% are farm/plot owners who actually stay and head operations on their farms/plots.

Figure 5 distinguishes the beneficiaries of FTLRP or farmers according to whether they have access to other sources of income which they use for agricultural production on their farms/plots. 34.7% represents farmers who do not have formal jobs and do not receive any remittances and hence their income is solely from agricultural production. 33.3% represents farmers who do not have formal jobs themselves but receive remittances from children or other relatives working in towns in Zimbabwe or in other countries. 9.3% represents farmers who in addition to farming engage in other income generating activities, 13.3% represents farmers who have formal employment either in the public or private sectors and hence support their agricultural production with income from their salaries. The remaining 9.4% represents farmers who retired from formal employment and earn a pension which they use to support their agricultural production.

¹ The word spouse refers to instances where plot owner is female but the head of farming operations is the husband and vice-versa.

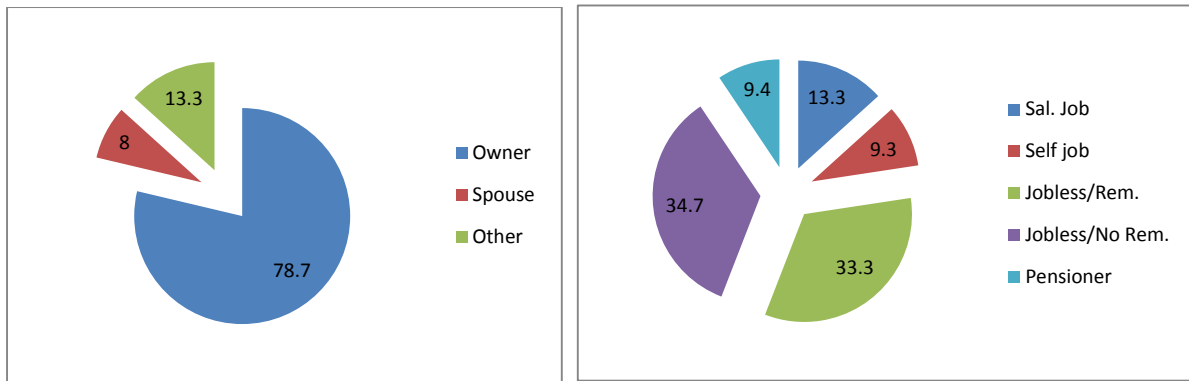


Figure 4: Farm/Plot based head of farming activities representation (%) **Figure 5: Job status representation (%)**

Source: Self-generated from study data set

Source: Self-generated from study data set

Figure 6 illustrates that most beneficiaries of FTLRP were allocated land between 2000 and 2002 (54.9%), which was the peak period of land distribution. After that period, land distribution slowed with 29.3% of beneficiaries being allocated land between 2003 and 2006 and only 7.3% between 2007 and 2010. The 8.5 % presented as unknown represents the plots/farms of non-active owners because information about allocation could not be obtained.

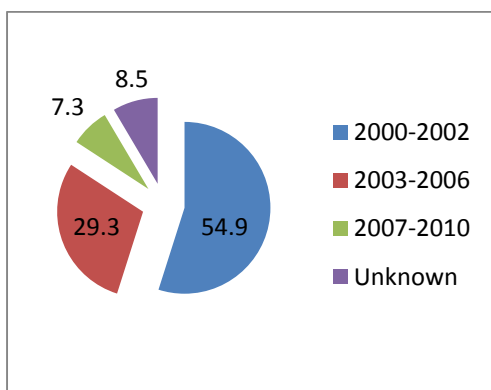


Figure 6: Year of farm/plot allocation (%)

Source: Self-generated from study data set

The quality of homesteads on the farm/plots varies and were generally categorised as poor, medium and advanced home infrastructure² (Figure 7). The greater proportion of farmers had put permanent structures on the plots (69.3%, medium + advanced) while those still living in poor dwellings is mainly because of lack of resources to build better houses. Generally, the

² Poor home infrastructure refers to pole and dagga shelters, medium refers to a mixture of pole and dagga shelters and not so well- built brick houses, advanced refers to well-built four-roomed or bigger brick houses (plastered and painted) and with toilets on the homestead

building of permanent structures on the plots shows that the farmers are confident that the land has been transferred permanently to them.

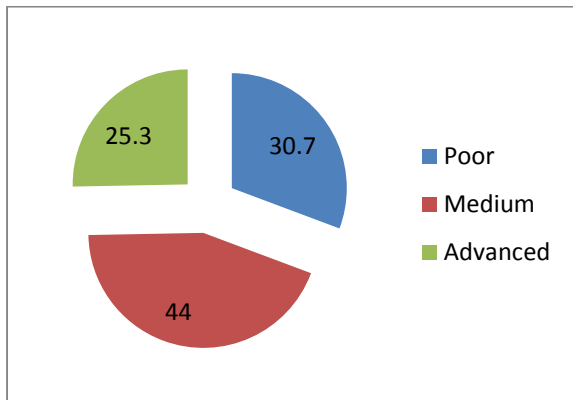


Figure 7: Quality of home infrastructure representation (%)

Source: Self-generated from study data set

4.2 A TYPOLOGY OF THE DIFFERENT FARMERS OF THE CHEGUTU DISTRICT (WARD 12) REGION (ZIMBABWE) - OVERALL PRESENTATION

Nine types of farmers and farming systems have been identified from the typology analysis (Table 3). This typology is based on a large number of variables, including cattle ownership, job status, level of mechanisation, level of diversification of farming enterprises, ownership of other non-farm business enterprises, practicing irrigation farming and commercially oriented farming, and income (farm, non-farm, total).

Table 4.1: The typology of farmers

Type	Name of the type	Basic Characteristics	Number of Farmers	Percentage (Sample size 82)
1	Poor small-scale subsistence crop farmers	No formal job, no cattle, very poor households	19	23
2	Small-scale crop and livestock farmers	No formal job, 1 – 10 cattle, poorly mechanised	27	33
3	Medium scale farmers with fairly diversified agricultural production	Own 10 – 20 cattle, produce staple and cash crops, fairly mechanised with ox-drawn implements	9	11
4	Medium scale Farmers with highly diversified agricultural production	Own 20+ cattle, highly mechanised with ox-drawn implements, earn considerable agricultural income, have advanced home infrastructure	7	9
5	Farmers with formal and salaried jobs	Use salaries to aid their agricultural production, Run poultry projects, market oriented production	9	11
6	Medium scale commercial farmers	Own other non-agricultural businesses and use money from businesses to support agricultural activities, commercial agricultural production	3	4
7	Fairly large scale commercial farmer producing wholly under irrigation	Highly diversified commercial crop farming with bias towards cash crops, also engaged in horticultural production	1	1
8	Large scale commercial farmer	Highly diversified commercial crop and livestock farming, mixture of rain-fed and irrigated agricultural production, highly mechanised with tractors and other tractor drawn modern implements, use of both casual and permanent labour, contract farming with seed houses, intensive horticultural production	1	1
9	Non-active plot owners	No agricultural production	6	7

Source: Self-generated from study data set

As the types of farmers vary significantly, each of them will now be described in-depth. These descriptions combine an overall description based on the above mentioned variables with a more in-depth economic analysis of their farming activities.

The profitability of farming activities per type of farmers was assessed as follows: The total output of the commodity less the self- consumed quantity (for the commodities consumed by

the farmers) multiplied by the commodity price per kilogram (2012 commodity prices) gave the gross income. The production costs included the costs tillage, costs of seed and fertilisers, costs of transporting the seed and fertilisers from the Norton or Harare to the study area, costs of planting, costs of weed management (hoe weeding or use of herbicides), costs of harvesting, costs of bags/packaging to contain the commodities where applicable, costs of pesticides, costs of labour (hired or family labour were both costed) and costs of transport to the market. Therefore, for each type of farmers and for each commodity, the net farm income was the difference between gross income and production costs.

4.2.1 Type 1: poor small-scale subsistence crop farmers (23%) – typology analysis

Type 1 farmers, 19 in number representing 23% of the sampled plots/farms, are the poorest group of farmers, engaged in subsistence crop farming. The type 1 farmers have households averaging five individuals, 70% of type 1 farmers are males with an average age of 48 years. Overall, their homesteads are comprised of very poor home infrastructure because of lack of resources to build brick houses (Figure 8).



Figure 8: A photograph taken showing poor home infrastructure

This group of farmers till on average about one hectare per season and though they produce for subsistence and auto-consumption they also sell the surplus commodities to earn cash. This is largely due to the fact that they have smaller families. Type 1 farmers also keep some indigenous chickens and some few goats (Table 4.3).

Households in this category do not engage in any irrigation farming and they mainly plant maize (on average 0.77ha) and sometimes some small areas of groundnuts (0.06ha), cotton (0.15ha), sunflower (0.01ha) and tomatoes (0.04ha), during the summer season under a rain-fed agricultural farming system. Farmers in this group have no farm implements besides wheelbarrows. (The scotch cart in the photograph belongs to the father of the plot owner). Type 1 farmers' crop production is based only on household labour.

These farmers' farming income is thus dominated by maize: Maize production results in a gross income of US\$292.50 from sales of surplus maize. Overall, the average total cost of production incurred by type 1 farmers amounts to (US\$) 157.38, resulting in an average net income of (US\$) 135.12 for this group of farmers. Except for tomatoes which earned type 1 farmers a net income of US (\$) 72.37, the other crops earned the farmers very little income. No marketing of livestock was reported by this group of farmers; their farm income is thus entirely based on the few crop sales (Table 4.2).

Table 4.2: Type 1 farmers' economic analysis per crop

23 %		Maize	Cotton	Sunflower	Groundnuts	Tomatoes	Total
	Area Planted (ha)	0.77	0.15	0.01	0.06	0.04	1.03
19 farmers	Produced (kg)	1925	130	26.30	62.10	280	2423.40
	Self-consumed(kg)	800	0	0	35.00	50	885.00
Type1	Surplus sold (kg)	1125	130	26.30	27.10	230	1538.40
	Gross Income (US \$)	292.50	42.90	7.89	16.26	115.00	474.55
	Production Costs (US \$)	157.38	27.03	3.47	11.11	42.63	241.62
	Net Farm Income (US \$)	135.12	15.87	4.42	5.15	72.37	232.93

Source: Self-generated from study data set

As a way of supplementing their agricultural production income members of type 1 households often render their services to their wealthier peers engaging in activities such as weeding and

harvesting tobacco for a fee. Type 1 farmers also do brick-moulding and sell the bricks to fellow farmers who are building houses, toilets and tobacco barns. Gold-panning is also a common activity in the area and is famously referred to as ‘chikorokoza’. Income from these activities is used to buy food stuffs, clothing and paying school fees for their children. In some instances, the farmers are paid in kind for their labour in the form of agricultural inputs which they use for their own agricultural production.

Despite farmers involving themselves in the activities mentioned above, their yearly average overall income remains low at US\$457.95. Agricultural income represents about 50.9 % of the overall income. Despite their limited agricultural production (due to lack of resources); their livelihoods largely depend on agriculture.

Table 4.3: Summary of characteristics of Type 1 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	5	8	3	0.98
Gender of head (% male)	70	Not applicable	Not applicable	Not applicable
Average age of head (years)	48	88	30	16.02
Average farm size (ha)	4.50	6.00	3.00	2.12
Average size of planted area (ha)	1.03	2.50	0.50	0.68
Average number of cattle	0	0	0	0
Average number of pigs	0	0	0	0
Average number of goats	2	6	0	2.63
Average number of Indigenous chickens	19	34	0	8.99
Livestock (cattle) sales	0	0	0	0
Average net farm income (US\$)	232.93	298.14	188.06	77.84
Average other income (US\$)	225.02	369.84	114.25	67.68
Average overall income (US\$)	457.95	652.97	195.02	323.82

Source: Self-generated from study data set

4.2.2 Type 2: small-scale crop and livestock farmers (33%) – typology analysis

There are 27 farmers making 33 % of the sample in the small-scale crop and livestock farmer category (type 2). Similar to type 1 farmers, type 2 farmers have small households averaging five individuals. 74% of the farmers in this category are male and the average age of farmers in this category is 52 years. 80 % of their home infrastructure is in the poor category and the remaining 20 % are in the medium category.

In the 2011/12 season Type 2 farmers put an average of 1.89 hectares of land under a wide range of crops in summer under a rain-fed agricultural farming system. Type 2 farmers planted maize (1.11 ha), cotton (0.30 ha), tobacco (0.17 ha), sugar beans (0.01 ha), groundnuts (0.07 ha), sorghum (0.04 ha) and soya beans (0.19 ha) during the 2011/12 farming season. The maize crop dominates in terms of hectareage under the crop and earns type 2 farmers an average net income of US\$70.64 from surplus maize sales by type 2 farmers. Type 2 farmers also earn an average net income of US\$409.64 from tobacco crop sales which is far more than that earned from the maize crop (US\$70.64). Even though the area under the tobacco crop (0.17 ha) is even less than half that under the maize crop (1.11 ha), tobacco prices were comparatively higher (US\$4.00/kg) at the tobacco auction floors in the 2011/12 selling season and also because tobacco is strictly a cash crop. Sugar beans and groundnuts have a negative average net income because the farmers auto-consume but they incur production costs when producing the two crops. Cotton also has a negative net average income (US\$-14.53) because the 2011/12 season selling price (33 cents per kilogram) was too low to recover the production costs. Similar to the type 1 farmers' scenario, no livestock sales were reported by type 2 farmers. The farm income is entirely from crop sales (Table 4.4).

Table 4.4: Type 2 farmers' economic analysis per crop

		Maize	Cotton	Tobacco	Sugar beans	Ground nuts	Soya beans	Sorghum	Total
33 %	Area Planted (ha)	1.11	0.30	0.17	0.01	0.07	0.04	0.19	1.89
	Produced (kg)	2220	210	230.11	0.02	0.12	0.08	0.57	2660.90
27 farmers	Self-consumed(kg)	800	0	0	0.02	0.12	0.00	0.00	800.14
	Surplus sold (kg)	1420	210	230.11	0.00	0.00	0.08	0.57	1860.76
	Gross Income (US \$)	369.20	69.30	690.33	0.00	0.00	41.60	148.20	1318.63
Type 2	Production Costs (US\$)	298.56	83.83	280.69	7.33	10.89	38.37	82.01	801.68
	Net Farm Income (US\$)	70.64	-14.53	409.64	-7.33	-10.89	3.23	66.19	516.95

Source: Self-generated from study data set

Based on average overall income, type 2 farmers are better than type 1 farmers. Type 2 farmers' average overall income is US\$525.44 and is higher than that of type1 farmers (US\$457.95). The major difference between these two types of farmers is that type 2 farmers are almost wholly dependent on agriculture as 98.4 % of their income is farm income (Table 4.5).

Table 4.5: Summary of characteristics of Type 2 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	5	7	3	1.48
Gender of head (% male)	74	Not applicable	Not applicable	Not applicable
Average age of head (years)	52	80	27	13.51
Average farm size (ha)	4.50	6.00	3.00	1.22
Average size of planted area (ha)	1.89	2.50	0.50	0.72
Average number of cattle	4	8	1	2.17
Average number of pigs	0	0	0	0
Average number of goats	2	6	0	2.63
Average number of Indigenous chickens	11	34	0	8.99
Livestock (cattle) sales	0	0	0	0
Average net farm income (US\$)	516.95	698.14	188.06	159.42
Average other income (US\$)	8.49	19.84	0	6.07
Average overall income	525.44	652.97	195.02	131.35

Source: Self-generated from study data set

4.2.3 Type 3: medium scale fairly diversified agricultural production (11%) – typology analysis

There are nine farmers in the type 3 category which is 11 % of the sample. The type 3 farmers have households with an average of six individuals. 81% of the farmers in this category are male. The average age of type 3 farmers is 59 years. Home infrastructure is mainly medium (76%), followed by advanced which is 20% and the remaining 4 % still have poor type of home infrastructure. The general observation was that there was building of houses and other infrastructure at most of the type 3 farmers' homesteads.

Type 3 farmers were found not to be better than type 2 farmers in terms of crop production but in livestock production. In the 2011/12 season Type 3 farmers put a total average of 0.9 hectares of land under maize (0.89 ha) and cotton (0.01 ha) in summer under a rain-fed agricultural farming system like type 1 and 2 farmers. Type 3 farmers are more productive than type 2 farmers because for a smaller hectareage under maize (0.89 ha) in comparison to that of type 2 (1.11 ha) under the same crop, they produce more maize (2225 kg) (Table 4.6) which is 5 kilograms more than that of type 2 farmers. Type 3 farmers also keep significant number of livestock like cattle (11), goats (7) and indigenous chickens (15), these livestock numbers are averages.

Table 4.6: Type 3 farmers' economic analysis per crop

11% 9 farmers Type 3		Maize	Cotton	Sugar beans	Ground nuts	Sorghum	Total
	Area Planted (ha)	0.89	0.01	0.00	0.00	0.00	0.00
Produced (kg)	2225	7	0.00	0.00	0.00	0.00	2232
Self-consumed(kg)	850	0	0.00	0.00	0.00	0.00	850
Surplus sold (kg)	1375	7	0.00	0.00	0.00	0.00	1382
Gross Income (US \$)	357.50	2.31	0.00	0.00	0.00	0.00	359.81
Production Costs (US \$)	113.56	13.00	0.00	0.00	0.00	0.00	126.56
Net Farm Income (US \$)	243.94	-10.69	0.00	0.00	0.00	0.00	233.25

Source: Self-generated from study data set

Cattle sales were reported by type 3 farmers earning the group an average of at least US\$200.00 for the farming season of 2011/12. Sales of milk also earned the farmers an average of US\$80.55 for the same season (2011/12). Cattle and milk sales contribute significantly (53.4 %) to the average net farm income. Overall, agricultural income contributes about 98.4 % of the total income of type 3 farmers and only 1.6 % comes from other non-agricultural sources (provision of labour for a fee to fellow farmers). Type 3 farmers have an average of 5.6 hectares of land but only put 0.9 hectares under crop in the 2011/12, there was therefore under-utilisation of land by farmers in this group (Table 4.7).

Table 4.7: Summary of characteristics of Type 3 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	6	11	2	2.35
Gender of head (% male)	81	Not applicable	Not applicable	Not applicable
Average age of head (years)	59	72	36	12.57
Average farm size (ha)	5.60	6.00	3.00	0.99
Average size of planted area (ha)	0.90	2.50	0.50	0.68
Average number of cattle	11	15	11	1.39
Average number of pigs	0	0	0	0
Average number of goats	7	14	3	3.00
Average number of Indigenous chickens	15	27	8	6.11
Livestock (cattle) sales (US\$)	200.00	350.00	100.00	93.54
Milk sales (US\$)	80.55	105.95	40.55	20.71
Average net farm income (US\$)	525.24	698.14	188.06	159.42
Average other income (US\$)	10.49	21.84	0	8.16
Average overall income (US\$)	535.73	692.79	199.92	139.31

Source: Self-generated from study data set

4.2.4 Type 4 farmers: medium scale highly diversified agricultural production (9%) – typology analysis

Seven farmers make the type 4 farmer category and they make 9 % of the sample. Type 4 farmers have households averaging 6 individuals. Male farmers are 88 % of the farmers in the type 4 category. The average age of farmers in the group is 62 years. Three farmers (43 %) have medium home infrastructure and four (57 %) have advanced home infrastructure.

Farmers in this category have a highly diversified agricultural production system comprising of both crop and livestock. Type 4 farmers put a combined average total of 2.20 hectares under crop in the 2011/12 season and they all planted in summer under a rain-fed agricultural system. The two crops planted by type 4 farmers were maize (average of 1.57 ha) and cotton (average of 0.63 ha) (Table 4.8). Type 4 farmers rear four species of domestic animals namely: indigenous chickens (19), pigs (4), goats (8) and cattle (31). The numbers given in brackets are averages and the main feature about this group of farmers is that they keep the largest number of cattle (group average of 31 cattle) compared to all the other types of farmers except for Type 8 (Table 4.17).

Table 4.8: Type 4 farmers' economic analysis per crop

9 %		Maize	Cotton	Sugar beans	Groundnuts	Sorghum	Total
	7 farmers	Area Planted (ha)	1.57	0.63	0.00	0.00	0.00
Produced (kg)		3925	441	0.00	0.00	0.00	4366
Self-consumed(kg)		850	0	0.00	0.00	0.00	850
Surplus sold (kg)		3075	441	0.00	0.00	0.00	3516
Gross Income (US \$)		799.50	145.53	0.00	0.00	0.00	945.03
Type 4	Production Costs (US \$)	587.14	213.57	0.00	0.00	0.00	800.71
	Net Farm Income (US \$)	212.36	-68.04	0.00	0.00	0.00	144.32

Source: Self-generated from study data set

Type 4 farmers are relatively wealthier than type 1, 2 and 3 farmers because their average overall income (US\$ 984.32) is almost double the averages of the first three (type 1, 2 and 3). Livestock (cattle) and milk sales were significant contributors to the average net farm income, contributing about 85 % of the total average income. Income from cattle sales was a major contributor. The total average planted area of 2.2 hectares is also bigger than those for type 1, 2 and 3 farmers. The income was reported to be used to buy inputs (seed and fertiliser), for tillage (hiring tractors) and hiring casual labour to assist with weeding and harvesting of crops. Cattle manure use was found to be very common among type 4 farmers and direct benefit of keeping large herds of cattle (average 31 cattle) (Table 4.9). The remaining 15 % of the average overall income was earned from crop sales since there were no reported other sources of income. Type 4 farmers were found therefore to be wholly dependent on agriculture.

Table 4.9: Summary of characteristics of Type 4 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	6	8	2	1.83
Gender of head (% male)	88	Not applicable	Not applicable	Not applicable
Average age of head (years)	61	76	52	9.40
Average farm size (ha)	4.80	6.00	3.00	1.23
Average size of planted area (ha)	2.20	3.50	0.5	1.11
Average number of cattle	31	37	22	5.38
Average number of pigs	4	8	3	1.80
Average number of goats	8	12	3	2.98
Average number of Indigenous chickens	19	37	8	10.51
Livestock (cattle) sales (US\$)	715.00	800.50	355.75	93.54
Milk sales (US\$)	125.00	145.50	110.50	20.71
Average net farm income (US\$)	984.32	1102.97	802.02	131.35
Average other income (US\$)	0.00	0.00	0	0.00
Average overall income (US\$)	984.32	1102.97	802.02	131.35

Source: Self-generated from study data set

4.2.5 Type 5 farmers: have formal and salaried jobs (11%) – typology analysis

Type 5 is comprised of nine farmers which make 11 % of the sample. The type 5 farmers have smaller households averaging four individuals. 78% of the farmers in this category are male. The average age of farmers in the type 5 group is uniquely lower (34 years) than in all the types of farmers. The quality of home infrastructure was found to be 100% advanced in this category. Type 5 category is a group of farmers with formal and salaried employment, notable examples in this group are teachers and extension officers.

The combined average total hectareage put under crop by these farmers in the 2011/12 season was 2.11 hectares. Maize is the dominant crop with 1.94 hectares under the crop, two other crops namely sugar beans (average 0.06 ha) and groundnuts (0.11 ha) are not big and the production of the two crops was for auto-consumption only (Table 4.10). Maize production earns the farmers an average net income of US\$ 686.00, sugar beans and groundnuts have negative average net incomes because the farmers auto-consume the commodities but incur production costs for producing the two crops. Type 5 farmers produce their commodities under rain-fed conditions.

Table 4.10: Type 5 farmers' economic analysis per crop

11 % 9 farmers		Maize	Cotton	Sugar beans	Groundnuts	Sorghum	Total
	Area Planted (ha)	1.94	0.00	0.06	0.11	0.00	2.11
Produced (kg)	4850	0	90	220	0.00	5160	
Self-consumed(kg)	600	0	90	220	0.00	910	
Surplus sold (kg)	4250	0	0.00	0.00	0.00	4250	
Gross Income (US \$)	1105.00	0.00	0.00	0.00	0.00	1105.00	
Production Costs (US \$)	419.00	0.00	11.89	21.78	0.00	452.67	
Net Farm Income (US\$)	686.00	0.00	-11.89	-21.78	0.00	652.33	

Source: Self-generated from study data set

Type 5 farmers are the working class and only 24 % of their average overall income comes from agriculture and 76 % comes from salaries. The farm/plot sizes of type 5 farmers are relatively bigger and have an average size of 6.20 hectares. The average planted area (2.11 ha) for the 2011/12 season was slightly smaller than the average planted area for type 4 farmers (2.20 ha). Type 5 farmers keep far fewer cattle (average 3) than type 4 farmers though they keep more indigenous chickens (average 25) than type 4 farmers. Farmers in the type 5 category also keep goats averaging six in number (Table 4.11).

Table 4.11: Summary of characteristics of Type 5 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	4	6	2	1.41
Gender of head (% male)	78	Not applicable	Not applicable	Not applicable
Average age of head (years)	34	45	28	5.96
Average farm size (ha)	6.20	6.50	4.5	0.65
Average size of planted area (ha)	2.11	3.50	1.0	1.02
Average number of cattle	3	6	0	2.19
Average number of pigs	0	0	0	0
Average number of goats	6	10	0	3.16
Average number of Indigenous chickens	25	39	14	7.97
Livestock (cattle) sales (US\$)	0	0	0	0
Average net farm income (US\$)	652.33	847.80	412.05	7.76
Average other income (US\$)	2100.00	2400.00	1800.00	10.83
Average overall income (US\$)	2752.33	3427.80	2212.05	11.86

Source: Self-generated from study data set

4.2.6 Type 6- medium scale farmers (own other non-agricultural businesses (4%) – typology analysis

Three farmers make the category of type 6 farmers and represents 4 % of the sample. The type 6 farmers have smaller households averaging four individuals. The three type 6 farmers are all male and have an average age of 46 years. All the homestead infrastructure of the type 6 farmers is in the advanced category. A unique feature of these type 6 farmers is that they all run other businesses outside agriculture in addition to farming. Type 6 farmers however use income from the other businesses to support their farming enterprises.

Type 6 farmers only planted maize (average 2.67 ha) and earned an average net income of US\$1009.20 from the maize crop sales (Table 4.12). Type 6 farmers also produce under a rain-fed agricultural system.



Figure 9: A photograph showing harvested maize by one of the Type 6 farmers.

Table 4.12: Type 6 farmers’ economic analysis per crop

4%		Maize	Cotton	Sugar beans	Groundnuts	Sorghum	Total
3 farmers	Area Planted (ha)	2.67	0.00	0.00	0.00	0.00	2.67
	Produced (kg)	8010	0	0	0	0.00	8010
	Self-consumed(kg)	600	0	0	0	0.00	600
Type 6	Surplus sold (kg)	7410	0	0.00	0.00	0.00	7410
	Gross Income (US \$)	1926.60	0.00	0.00	0.00	0.00	1926.60
	Production Costs (US \$)	917.40	0.00	0.00	0.00	0.00	917.40
	Net Farm Income (US \$)	1009.20	0.00	0.00	0.00	0.00	1009.20

Source: Self-generated from study data set

Type 6 farmers have three sources of income namely: livestock and milk sales, crop sales and other non-farm businesses. Among the three sources of income, other non-farm income is the major contributor to the farmers’ income (US\$ 2500.00), livestock and milk sales combined

(US\$ 1651.00) are second best contributors and crop sales contribute the least (US\$ 1009.20). The farmers earned an average overall income of US\$ 5160.20 of which 51.6 % is net farm income (US \$2660.20) and 48.4 % (US\$ 2500.00) is non-farm income (Table 4.13). Agriculture therefore is the major contributor to type 6 farmers' income.

Table 4.13: Summary of characteristics of Type 6 farmers

Characteristics	Average	Maximum	Minimum	Standard deviation
Average size of household (individuals)	4	5	2	1.53
Gender of head (% male)	100	Not applicable	Not applicable	Not applicable
Average age of head (years)	46	51	39	6.43
Average farm size (ha)	6.50	9.5	4.0	2.78
Average size of planted area (ha)	2.67	3.5	2	0.76
Average number of cattle	21	47	0	23.90
Average number of pigs	17	52	0	30.02
Average number of goats	0	0	0	0
Average number of Indigenous chickens	13	30	0	15.39
Livestock (cattle + pigs) sales (US\$)	1556.00	2001.00	1050.00	17.56
Milk sales (US\$)	95.00	101.50	91.50	11.60
Average net farm income (US\$)	2660.20	3012.25	2225.25	8.95
Average other income (US\$)	2500.00	3000.00	1500.00	20.02
Average overall income (US\$)	5160.20	8114.75	4866.75	9.02

Source: Self-generated from study data set

4.2.7 Type 7 farmers: fairly large scale producing wholly under irrigation (1%) – typology analysis

There is only one farmer in the type 7 category and he makes only 1 % of the sample. The farmer is male, 39 years old and has a small family of three individuals. Type 7 farmer's homestead is in the advanced home infrastructure category.

The type 7 farmer produces throughout the whole year under irrigation using pumped water from Mupfure River. This farmer engages in maize, wheat and soya bean production under irrigation and is highly productive. However, for lack of records, the income data that was collected was only for the summer crops namely maize and soya beans. The farm income is therefore an under estimate of what the farmer earned for the 2011/12 season. The farmer put

seven hectares under crop in the 2011/12 summer season, maize (2 ha) and soya beans (5 ha) (Table 4.14).

Table 4.14: Type 7 farmers' economic analysis per crop

1%	1 farmer	Maize	Soya beans	Sugar beans	Groundnuts	Sorghum	Total
		Area Planted (ha)	2.00	5.00	0.00	0.00	0.00
Type 7	Produced (kg)	11770	12500	0	0	0.00	24270
	Self-consumed(kg)	450	0	0	0	0.00	450
	Surplus sold (kg)	11320	12500	0.00	0.00	0.00	23820
	Gross Income (US \$)	2943.20	6500.00	0.00	0.00	0.00	9443.20
	Production Costs (US \$)	1372.00	2250.00	0.00	0.00	0.00	3622.00
	Net Farm Income (US \$)	1571.20	4250.00	0.00	0.00	0.00	5821.20

Source: Self-generated from study data set

Type 7 farmer owns a fairly large farm/plot (10.0 ha) in comparison to type 1 to type 6 farms/plots. There is also effective land utilisation by type 7 who uses 70 % of the land in a commercially oriented irrigated agricultural production system. All the income earned by type 7 is farm income since there was no other reported source of income. Type 7 farmer also did not report any livestock sales therefore all the farm income (US\$5821.20) (Table 4.15) was earned from the sale of maize soya bean crops.

Table 4.15: Summary of characteristics of Type 7 farmer

Characteristics	Quantities
Size of farm	10.0 ha
Size of planted area	7.00 ha
Size of household	3 individuals
Gender of owner	Male
Age of owner	39 years
Number of cattle	3
Number of pigs	0
Number of sheep	0
Number of goats	2
Number of indigenous chickens	12
Livestock sales	0
Farm income (US\$)	5821.20
Other income (US\$)	0.00
Overall income	5821.20

Source: Self-generated from study data set

4.2.8 Type 8: large scale commercial farmer (1%) – typology analysis

There is only one farmer in type 8 category and makes 1 % of the sample. Type 8 farmer is male and is aged 55 years. The type 8 farmer employs six farm section managers, 150 permanent employees and 45 casual employees. Type 8 farmer is a civil servant who works in the President’s office. Details of his family could not be ascertained because the family resides in Harare. There is a large farm-house at the homestead of the farm which is in the advanced home infrastructure category. There are also big farm sheds and warehouses used for farm machinery and equipment storage and grain storage respectively.

Type 8 farmer practices a highly diversified agricultural production system comprising of both crop and livestock farming. The farmer’s production system is commercially oriented and is a mixture of both dry-land and irrigated agriculture. The water for irrigation is drawn from Mupfure River. Crop production can be subdivided into two categories, field and horticultural crops. Type 8 farmer had 150 hectares under field crops as follows: maize (91 ha), soya-beans (50 ha) and sugar beans (9 ha). The total hectareage under horticultural crops was 10.2 hectares with five hectares under potatoes, four hectares under cabbages, one hectare under tomatoes and 0.2 hectares under king onions. The net farm income (US\$139162.00) earned by type 8 farmer from crop production was only for the summer crops since records for winter crops could not be obtained. Maize and soya beans are the two top net farm income earners for type 8 farmer with maize earning the farmer US\$61656.00 and soya beans US\$43550.00 (Table 4.16)

Table 4.16: Type 8 farmers’ economic analysis per crop

Type 8 1 farmer 1%		Maize	Soya beans	Sugar beans	Cabbages	Potatoes	King onions	Tomatoes	Total
	Area Planted (ha)	91.00	50.00	9.00	4.00	5.00	0.20	1.00	160.20
Produced (kg)	409500	145000	22500	158000	47500	990	18000	801490	
Self-consumed(kg)	30000	0	1500	12500	6500	100	750	51350	
Surplus sold (kg)	379500	145000	21000	145500	41000	890	17250	750140	
Gross Income (US \$)	98670.00	75000.00	18000.00	14000.00	21730.00	801.00	8625.00	236826.00	
Production Costs (US \$)	37014.00	31450.00	7070.00	4170.00	14500.00	148.00	3310.00	97662.00	
Net Farm Income(US\$)	61656.00	43550.00	10930.00	9830.00	7230.00	653.00	5315.00	139164.00	

Source: Self-generated from study data set

Type 8 farmer was allocated a whole farm of about 450 hectares. The farmer had about 35 % (160.2 ha) of the farm under crop in 2011/12 summer cropping season. Type 8 farmer also keeps livestock on the farm as follows: cattle (222), goats (176) and sheep (31). The farm section manager responsible for livestock said they were not selling any livestock since they were concentrating on building the stock. The overall net farm income is therefore entirely from crop sales. The other income is from the salary of the owner which was estimated at US\$ 13200.00 (Table 4.17).

Table 4.17: Summary of characteristics of Type 8 farmer

Characteristics	Quantities
Size of farm	450.0 ha
Size of planted area	160.20 ha
Size of household	Not applicable (Commercial farm set-up)
Gender of owner	Male
Age of owner	55 years
Number of cattle	222
Number of pigs	0
Number of sheep	31
Number of goats	176
Number of Indigenous chickens	0
Marketing of animals	0
Farm income (US\$)	139164.00
Other income (US\$)	13200.00
Overall income (US\$)	152364.00

Source: Self-generated from study data set

4.2.9 Type 9 –non-active plot owners (9%)

Type 9 represents the six plots/farms that were part of the sample but essentially no agricultural activity was found to be taking place. The six plots/farms represent 7 % of the sample. There are some dwelling structures in the poor home infrastructure category that are falling apart because of neglect on two of the plots/farms. The other four plots/farms have no home infrastructure at all. These plots will be the target for repossession in the proposed land audit on the basis that the owners have failed to demonstrate visible plot/farm occupancy. For this type there is no analysis to be done since there is no agricultural production on the plots.

4.3 DESCRIPTIVE STATISTICS

Nine types of farmers were identified in the study area, with Tables 4.2, 4.4, 4.6, 4.8, 4.10, 4.12, 4.14 and 4.16 above showing the average area planted per crop, average gross income

per crop, average production costs per crop and the average net income per crop for each of the type of farmers. Table 4.18 below shows nine distinctive types in terms of the percentage of farmers per type. The total area planted per crop and per type is also given. Maize dominates the area planted with above 63 % of the total area planted by all types of farmers being under maize. Also, for all the types, except for Type 7 and 9, maize is the most popular crop in terms of land put under the crop. It is important to note here that the total area planted by all the other types (Types 1 to 7) combined (128 ha) is less than total area planted by Type 8 farmer (160.2 ha) alone. A summary of the area planted per crop per type, as well as the total area planted by each type is given (Table 4.18). Annexure I depicts the different types in terms of net income per crop as well as the overall farm income derived per type of farmers from the crop production. Annexure II shows gross farm income, production costs and net income (in US\$), total area planted (ha) and livestock production (numbers) per type of farmers.

Table 4.18: Total area planted (in ha) per crop per Type of farmers

	Maize	Cotton	Tobacco	Sunflower	Sorghum	Sugar beans	Soya beans	Ground nuts	cabbages	Potatoes	King onions	Tomatoes	Total
Type1	14.6	2.8	0.0	0.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.8	19.6
Type2	30.0	8.1	4.6	0.0	1.0	0.2	5.0	2.0	0.0	0.0	0.0	0.0	50.9
Type3	8.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
Type4	11.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4
Type5	17.5	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.0	19.0
Type6	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0
Type7	2.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	7.0
Type8	91.0	0.0	0.0	0.0	0.0	9.0	50.0	0.0	4.0	5.0	0.2	1.0	160.2
Type9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	182.1	15.4	4.6	0.2	1.0	9.7	60.0	4.2	4.0	5.0	0.2	1.8	288.2

Source: Self-generated from study data set

4.4 CONCLUSION

This chapter focused on the analysis, major findings and results of the study. The data analysis led to a synthesis or construction of typology of farmers farming in the study area. The socio-economic factors used to understand the diversity of the resettled farmers led to nine distinct types of farmers. These beneficiaries of the land reform programme in the study area find themselves in their respective categories not by choice but by the strategies they employ to produce on their land as informed by the quantity and quality of resources (financial, natural, physical, social and economic capital) at their disposal.

The first part of the results section is general analysis and uses demographic characteristics (gender, age and employment status of beneficiaries of FTLRP), year of plot/farm allocation and the quality/status of home infrastructure at the homesteads of the plots/farms. Women plot/farm owners are far less than their male counterparts (20 % of the sample). 53.4 % of plot/farm owners are over 50 years. Contrary to what is often said about the FTLRP that the

beneficiaries do not stay on the plots/farms, 78.7 % of the plot/farm owners were found to be staying and heading farming operations on their plots/farms. Most of the plots/farms were allocated between 2000 and 2002 (54.9 %), land allocation gradually slowed down, 29.3 % were allocated between 2003 and 2006 and only 7.3 % between 2007 and 2010. 30.7 % had poor home infrastructure, 44 % had medium home infrastructure and 25.3 % had built their homesteads to the advanced home infrastructure category.

Based on the variables used to categorise farmers, nine distinctive types were identified. Type 2 is the largest group and has 27 farmers; they form 33 % of the sample. Type 3 category has nine farmers, Type 4 has seven farmers, Type 5 has nine farmers, Type 6 has three farmers, Type 7 and 8 both have one farmer each. Type 1 is the second largest group with 19 farmers and they form 23 % of the sample. The two types (1 and 2) are in the majority (56 %) and have the lowest average net farm (US\$232.93 and US\$516.95 respectively) and overall incomes (US\$457.95 and US\$525.44 respectively, a conclusion can therefore be drawn that most of the beneficiaries of the FTLRP in the study area are poor. Sales of livestock and milk contribute significantly to average net farm income of types 3, 4 and 6 farmers (US\$280.55, US\$840.00 and US\$1651.00 respectively). Livestock, especially cattle, therefore plays a critical role in the farmers' capacity to generate income from farming operations. Crop farming income's contribution to average net farm income is huge in types 7 and 8. Other income has a major contribution to type 5 and 6 farmers' overall income.

The study results show that the farmers become wealthier as the types progresses (in terms of average overall income). The same trend does not however follow for average net income from crop farming, type 2 farmers have an average net income from crop farming that is more than that types 3 and 4 farmers. Chapter 5 will provide the overall conclusions and recommendations.

CHAPTER 5

RECOMMENDATIONS AND CONCLUSIONS

The overall objective of the study was to use the farming systems approach to come up with a typology of farmers in the study area and then do an evaluation of the farmers' profitability by carrying out an economic analysis per type. An attempt was also made to gauge in general terms how the farmers feel about the state of affairs with regard to government support, their own ambition, and land tenure and size issues. Having done the above, this chapter will come up with i) a transversal analysis where the typology results will be used to respond to some of the myths regarding Zimbabwe's land reform programme; ii) present informed recommendations for appropriate policies, intervention strategies, programs and projects related to agricultural development, poverty alleviation and rural development.

5.1 TRANSVERSAL ANALYSIS

This sub-section discusses the results of the study according to Scoones et al.'s (2010) framework of the five myths regarding Zimbabwe's FTLRP.

5.1.1 Myth 1: Zimbabwean land reform has been a total failure

The results of the study show that the FTLRP has not been a total failure because there is significant production on most of the plots/farms. In a sample of 82, 93 per cent of the sample was comprised of plots/farms in production. As shown by the economic analysis, all the types of farmers except Type 9, were found to be producing for both auto-consumption and for the markets. The 2011/12 season was a normal rainfall season and the farmers produced enough food for their own consumption to ensure food security among the beneficiaries of FTLRP and sold the surplus, especially of the maize crop to earn an income some of which they used to buy inputs for the following farming season. The percentage of land under crop in the 2011/12 season, total tonnage (all crops) produced, consumed and sold by all the types of farmers is given to illustrate that the beneficiaries of the FTLRP are indeed producing on their plot/farms for their own consumption and for the markets. A positive net farm income for all the types except for type 9 also indicates that farmers are farming profitably (Table 5.1).

Table 5.1: Produced quantities and net income per Type of farmers

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 9	Average
% of land used	22.7	42.0	16.1	45.8	34.0	41.1	70.0	35.6	0.0	34.1
Produced (Total Kgs. all crops)	2423.40	2660.90	2232.00	4366.00	5160.00	8010.00	24270.00	801490.00	0.00	94512.48
Self-consumed (Total Kgs. all crops)	885.00	800.14	850.00	850.00	910.00	600.00	450.00	51350.00	0.00	6299.46
Surplus sold (Total Kgs. all crops)	1538.40	1860.76	1382.00	3516.00	4250.00	7410.00	23820.00	750140.00	0.00	88213.02
Net farm income (US\$)	232.93	516.95	233.25	144.32	652.33	1009.20	5821.20	139164.00	0.00	16419.35

Source: Self-generated from study data set

The results tabulated above therefore confirm that the Zimbabwean land reform was not a total failure. The method of land redistribution might not have been the best way of addressing the land question in Zimbabwe but the results of the land reform certainly have positive impact on the livelihoods of the beneficiaries and on the food economy in general.

5.1.2 Myth 2: the beneficiaries of Zimbabwean land reform have been largely political 'cronies'

From the interviews carried out, it was confirmed that the majority of the beneficiaries of the FTLRP were largely political cronies with links to ZANU PF. Most of the beneficiaries reported that the FTLRP was a ZANU PF programme and therefore only members of the Party were supposed to benefit. It is however necessary to note that some of the interviewed farmers may not have been necessarily cronies but they answered in the affirmative for fear of being labelled sell-outs as it was the norm in the study area. Type 5 is comprised mainly of the working class (teachers and extension officers) and hence declared openly that they were not political cronies but all reported that it was not easy for them to be allocated plots in the study area. The results of political allegiance analysis are tabled below (Table 5.2). Type 1 to Type 7 are all model A1 plots whereas Type 8 represents model A2 farm. The two A2 model beneficiaries in the study area (Type 8 farmer who was part of the sample and another who could not be part of the sample for political reasons) were top government officials (one being a top official in the President's office and another being a cabinet minister) thereby confirming myth 2. It is therefore not coincidental that 67 % of the interviewed A1 farmers (Type 1 to

Type 7) were political cronies and the two top government officials got the two A2 model farms in the study area.

Table 5.2: Analysis of beneficiaries' political allegiance

Types	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 9
Total Interviewed	19	27	9	7	9	3	1	1	0
Cronies	15	24	5	4	2	2	1	1	0
% Cronies	78.9	88.9	55.6	57.1	22.2	66.6	100	100	0

Source: Self-generated from study data set

5.1.3 Myth 3: there is no investment in the new resettlements

Beneficiaries of FTLRP in the study area are investing in buying farm equipment and machinery, livestock and are building better houses. Some farmers are also investing in constructing productive infrastructure such as chicken houses, pig sties and tobacco curing barns (Table 5.3). The beneficiaries are therefore investing money in developing their own plots/farms. There is however no complimentary investment from the government side with regard to construction and maintenance of rural roads, building of schools and clinics, rehabilitation of vandalised infrastructure like irrigation facilities and tobacco curing barns.

Table 5.3: The FTLRP beneficiaries' investment on their plots/farms per type

Types	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 9
New purchased livestock	5 goats	7 goats, 4 cattle	4 goats, 5 cattle	4 cattle	2 cattle	7 pigs	2 cattle	0	0
New equipment	2 wheel barrows	2 wheel barrows, 2 ox-drawn ploughs	2 scotch-carts, 3 ox-drawn cultivator, 1 water pump	2 ox-drawn cultivators, 1 planter	0	1 scotch-cart	water pumps, irrigation pipes	2 tractor trailers	0
New buildings	0	1 house	1 house, 1 tobacco barn	4 houses, 1 chicken house	2 houses, 1 chicken house, 1 tobacco barn	1 pig sty, 1 chicken house	1 house	1 storage shed	0

Source: Self-generated from study data set

Notwithstanding the farmers' effort to invest on their farms/plots there is need for land policy adjustments in Zimbabwe. Since the advent of the FTLRP, there has been little movement in the policy space to try and make the financial services sector responsive to the new look farming sector. The beneficiaries of the land reform programme find themselves with the land they do not actually own because all is state land according to the tenure system as defined by land offer letters (documents). The offer letters they have do not give them full title to the land and deemed not bankable by the conventional financial services sector. In a sense, there is a triangle of role players namely the farmers (who needs the capital to finance their farming operations), the financial services sector (who presumably have the capital to loan to farmers to boost primary agricultural production) and the government (whose role is to develop agricultural policy responsive to the current scenario obtaining in the agricultural sector presently). The traditional bank-to-farmer relationship cannot work with the beneficiaries of the land reform programme because of the reason given above. The farmers have demonstrated willingness to produce on their land and hence the need for the government to create a situation

where some kind of relationship can be formed between the banks, the farmers and the government to unlock funds to boost agricultural production.

5.1.4 Myth 4: agriculture is in complete ruins creating chronic food insecurity

As already discussed in section 5.3.1 (Myth 1: Zimbabwean land reform has been a total failure), the farmers in the study area were found to be producing enough food for auto-consumption and for sale. Results in Table 5.1 therefore contradict myth 4. Cash crops like tobacco, soya beans, sugar beans and other horticultural crops were also found to be produced in the study area as already discussed in Chapter 4. Chronic food insecurity is more a consequence of drought than result of a failed land reform programme. However, the whole agricultural sector scenario remains very fragile due to poor support from government. In the 2011/12 season which was a normal rainfall all the types of farmers, except for Type 9 farmers, produced enough food for themselves and for sale thereby contradicting myth 4.

5.1.5 Myth 5: the rural economy has collapsed

The rural economy in the study area is largely agricultural and is to a large extent self-sustaining. Due to a somewhat self-sustaining agricultural economy in the study area, the poor farmers (Type 1) provide labour on plots/farms of their wealthier peers for a fee and they use the money for agricultural production on their plots and for other family needs. The informal mining happening in the study area is mainly for a few youths who engage in gold panning, the rural economy in the study area is therefore generally sustained by agriculture and has not collapsed.

There is however need to build new hospitals/clinics, schools, maintain roads and rehabilitate irrigation infrastructure in order to improve agricultural production, improve farmers' access to the markets and improve rural livelihoods in general.

5.2 OVERVIEW, CONCLUSION AND RECOMMENDATIONS

The study focussed on understanding the diversity of the farming systems among the beneficiaries of the FTLRP in the study area. Basic economic analysis was also done per type or group of farmers to assess the profitability of their production systems. Using the work of

(Scoones et al., 2010), challenging the myths about the FTLRP, results of the study were also used to agree or disagree with what the myths say concerning the FTLRP.

The literature review started with the definitions of land reform and land tenure. The definitions were followed by literature on the perspectives of the land reform process in Zimbabwe, the three paradigms of the transfer of land from a minority group of farmers to the majority, starting with early land reform eras and how it evolved until the FTLRP regime.

An attempt was also made to analyse and put farmers in the study area in categories according to gender, age, heading of farming activities at the plot/farm, salaried employment status, year of plot/farm allocation and status/quality of home infrastructure. The study also evaluated government support through extension services and inputs supply, the farmers' confidence with regard to the offer letters as guarantee of land ownership, land size issues and general challenges facing the farmers.

5.2.1 Major findings

Analysis of the data collected during the study revealed that there are different types of farmers farming within the study area. The socio-economic parameters used to determine the production strategies used by the farmers indeed confirmed that there is diversity amongst the farmers. This information is valuable and can inform all stakeholders involved in agricultural development to tailor-make farmer support packages according to specific farmer segments. These findings will also assist to dispel the generalised perception of viewing all beneficiaries of land reform programme as one set of highly unproductive farmers.

5.2.2 Typology of diversity

The study identified nine (9) types of farmers in the study area namely: Type 1 – Poor small scale subsistence crop farmers (23 %); Type 2 – Small scale crop and livestock farmers (33 %); Type 3 – Medium scale farmers with fairly diversified agricultural production (11 %); Type 4 – Medium scale farmers with highly diversified agricultural production (9 %); Type 5 – Farmers with formal and salaried jobs (11 %); Type 6 – Medium scale commercial farmers (4 %); Type 7 – Fairly large scale commercial farmer producing wholly under irrigation (1 %); Type 8 – Large scale commercial farmers (1 %) and Type 9 – Non-active plot owners (7 %).

Save for Type 9, each type has its own strategies to earn an income that is then used to boost agricultural production. The different types also differ in production and land use patterns.

5.2.3 Production

The beneficiaries of the FTLRP were found to be producing according to resources available to them. The average land sizes under crop in the 2011/12 season were as follows: Type 1 (1.03 ha), Type 2 (1.89 ha), Type 3 (0.90 ha), Type 4 (2.20 ha), Type 5 (2.11 ha), Type 6 (2.67 ha), Type 7 (7.00 ha), Type 8 (160.20 ha) and Type 9 (0.00 ha). The crop that is most popular across all the types of farmers is maize, with a total of 182.1 hectares put under the crop by all the types of farmers. This could be attributable to the fact that maize is the staple food crop in the country and also that government support in terms of inputs normally comes as maize seed and fertiliser and this results in more land being planted with the maize crop. For instance, a farmer with six hectares under crop, will have more than three hectares under maize. Government support maize production to boost the Strategic Grain Reserve (SGR) which is supposed to be maintained by the Grain Marketing Board (GMB) to ensure national food security in drought years.

The other popular crop in terms of hectareage is soya beans with 60 hectares, but of the 60 hectares, 50 were from the large scale commercial farmer (Type 8) whose level of mechanisation makes it easy for the farmer to handle soya beans production.

Cotton is also one of the crops produced in the study area with a total of 15.4 hectares being planted by all the types of farmers. Notwithstanding the low local and international cotton prices, farmers take advantage of contract farming agreements with companies like Cargill and Cotton Company of Zimbabwe (COTCO). Most farmers interviewed during the study however expressed disappointment with the cotton prices and vowed not to continue producing cotton until the cotton price increased from the then paltry 33 United States cents per kilogram. They were also problems arising from side-selling where farmers sold their cotton to other competing companies offering better prices disregarding their contractual agreements.

Farmers are increasingly taking up tobacco farming with a total of 4.6 hectares being put under crop by all types of farmers. This is due to high producer price of tobacco ranging from US\$2.50 to US\$4.80 per kilogram and also contract farming agreements with companies

offering reasonable deals to farmers. There are however so many challenges associated with tobacco farming. Some of the problems include shortage of labour (especially for small holder farmers), unfavourable weather conditions like hail storm and drought sometimes affects the crop, lack of proper infrastructure for curing of the tobacco to make it acceptable to the market, poor roads in the study area makes transportation of the tobacco to the market problematic. Farmers were also spending more time at the auction floors selling their tobacco resulting in additional costs to them. Tobacco farming has also put natural forests in the study area under a lot of pressure because farmers cut down trees for firewood to cure their tobacco.

The other crops produced in the area include sugar beans with 9.7 hectares (9.0 hectares) being planted by the large scale commercial farmer – Type 8), groundnuts (4.2 hectares), sunflower (0.2 hectares) and sorghum (1.0 hectare).

Horticultural crops are produced mainly by large scale commercial farmer – Type 8 under irrigation, cabbage (4.0 hectares), potatoes (5.0 hectares), king onions (0.2 hectares) and tomatoes (1.0 hectares of the 1.8 hectares). Most of the small scale farmers have home gardens where they produce vegetables mainly for home consumption.

Despite all the figures shown on crop production, lack of capital to purchase agricultural inputs remains the major problem resulting in below optimal production level especially for Type 1 to Type 7 farmers. As can be seen in the economic analysis (Tables 4.2, 4.4, 4.6, 4.8, 4.10, 4.12, 4.14 and 4.16.), production costs are not informed by the size of land under cultivation for all the type of farmers but by availability of capital to purchase the inputs. The agricultural production output is therefore not the maximum possible for each type of farmers, an increase in use of more inputs has potential to increase the output and hence the profit margin of all the type of farmers. Government support has been criticised by the farmers themselves to be too little and in most cases the inputs from government are delivered late into the season and therefore cannot make any difference to the farmers' production capacity. Prices of all agricultural inputs are also very high thereby reducing the farmers' profit margin. Livestock production remains way of life for most farmers in the study area, with a few rearing pigs and poultry on a commercial basis. The large scale commercial farmer has the largest stock of cattle (222), goats (176) and sheep (31).

5.3 RECOMMENDATIONS

5.3.1 Support farmers with mechanisation

It has been found during the study that tillage means remain a serious problem affecting farmers during the planting season especially Types 1 and Type 2. There is a shortage of tractors in the study area, even if a farmer has money to hire a tractor, it takes time to get one. This shortage of tractors therefore adversely affect the timing of ploughing and planting can easily affect the farmers' land utilisation capacity. It is recommended that government can avail a pool of tractors per each area managed by an extension officer who will be in charge of the scheduling of tractor use amongst the farmers.

5.3.2 Cattle loan scheme

Farmers who own cattle have been seen by the study to be more productive than those without, the more cattle a farmer has the more productive they become. Type 1, 2 and 3 farmers can immensely benefit from such a scheme and can assist in improving their production capacity. There is need for a loan scheme either by government or another financial service provider through the government to offer a loan scheme specifically to build stock because it is a sure way of improving the farmers' capacity to till their land. Selling of cattle can also in the long run be a source of income to purchase other farm requirements, especially agricultural inputs.

5.3.3 Market oriented production

Farmers still focus on producing mainly maize and cotton which presently is not profitable at all. The dominant crop in all Types of farmers is maize though it is not that profitable due to state control on the marketing of the commodity. It is recommended that farmers start to use market information to inform their cropping decision-making processes. Farmers who have moved to tobacco production, for instance, (though still very few) have demonstrated that it is more profitable than the other crops.

5.3.4 Provide funding to agricultural inputs producing companies

The high costs agricultural inputs (seed and fertilisers) were found to be a major problem affecting all types of farmers in the study area. The high costs of the inputs coupled with lack of tillage means especially for Type 1 and 2 farmers had a huge bearing on reduced land sizes under crop. Economists have argued that it is cheaper to import a tonne of maize from South Africa than to produce it in Zimbabwe. Government can assist in bringing down agricultural inputs costs by injecting capital into all agricultural inputs manufacturing companies through subsidies so that farming can be more profitable.

5.3.5 Credit

The route of catalytic finance can prove to be useful in the Zimbabwean situation. Catalytic finance basically is targeted investment finance that leverages other investment finance, either because the initial investment removes an impediment or provides a missing infrastructure, or leads to desirable policy and/or regulatory reform. Catalytic finance is possible across public, private, and donor investments and this type of finance is now required in Zimbabwe in order to unlock greater volumes of “patient” money from the commercial banks into various parts of the agriculture, food and manufacturing value chain. Such patient money is needed for investment of a medium to long-term nature which is currently missing. Public funds and donor funds into the agricultural sector should take the more catalytic route, where these public investments are targeted at stimulating more private investment by commercial banks, farmers and agri-businesses (Rukuni, 2013). Lack of credit facilities was found to be a problem for all types of farmers who need financial injection to improve their production capacity.

5.3.6 Training

The study revealed that farmers need training in a number of aspects to include farm record keeping, financial literacy (basic bookkeeping) and how to plan for each farming season (flexibility in thinking and budgeting). Types 1, 2 and 3 were found to be the most in need of training. The farmers also need to be equipped with basic crop and livestock management skills and the importance of planting manageable sizes of land. Farmers who sign contracts

with financing companies to produce cash crops such as tobacco and cotton need to be trained in order for them to understand contractual obligations before signing contract farming agreements.

5.3.7 General

There is also need to think ahead and formulate policies to curb environmental degradation because presently the main focus is on increasing agricultural production at the expense of natural resources like the land itself (especially wetlands) and natural forests.

The government must also ensure a holistic development approach where agricultural development must be only a part of a comprehensive rural development programme. Infrastructure like roads, schools, clinics, hospitals and rural towns (with banks) must be built simultaneously with all efforts to increase agricultural production. This in turn can create opportunities for a non-farm economy that can absorb excess labour from the farming sector and can assist in curbing unwarranted rural to urban migration. This seems to be overly ambitious for the Zimbabwean economy currently faced with a myriad of challenges but certainly not something not to be ignored completely.

5.4 LIMITATIONS OF THE RESEARCH, AND SUGGESTIONS FOR FUTURE RESEARCH

The research was to a certain extent constrained by the highly political environment in the study area. A lot of political authorities were to be asked for permission to conduct the research even after having obtained a letter of authority from the District Administrator in Chegutu. This caused a lot of unnecessary delays and also led to some adjustments to the questions on the questionnaire, questions to do with whether government support to farmers was adequate and whether the offer letters from government (as proof of land ownership) gave the farmers enough confidence that the land belonged to them were modified to avoid political interrogation. While farmers gave adequate information during the interviews, additional data on production was acquired from the Agricultural Regional Office in Chegutu. However, some

of the data provided by the farmers might have been based on estimations, due to general lack of recordkeeping by farmers.

Future studies may try to evaluate the social and economic impact of the FTLRP on the lives of the beneficiaries of the programme, assessing whether the programme impacted positively or negatively on the lives of the farmers since they started to farm on their allocated plots or farms. It might also be interesting to do typology and economic analysis with respect to gender. Another interesting study will be to do an environmental impact assessment to understand changes brought about by changing farming systems as a result of the FTLRP in the study area.

5.5 CONCLUSION

It is also very clear that there is diversity amongst farmers in the study area in terms of the socio-economic factors that were considered by the study. The Types of farmers as established by this study are however not permanent since the socio-economic dynamics will regularly change, if for instance a Type 1 farmer secures a loan to buy cattle, they move to another type depending on the number of cattle bought. The typology analysis gives the general situation of the groups of farmers that are found in the study area but could also be the same scenario in other regions where the FTLRP was implemented.

The conclusion that can be drawn from this study is that under the current circumstances, most farming activities are economically viable especially for farmers who can boost their agricultural production with other sources of income. Generally, a trend was observed that Type 1 farmers were less productive as compared to Type 2 farmers who were in turn less productive compared to Type 3 and that order was true for all the types through to Type 8 farmers. The reasons for that trend was because of availability of resources like cattle, farming equipment and having other sources of income. Diversification was also found to be more profitable than focussing on one farming enterprise.

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Annexure I

Net income (US \$) per crop per type and overall income earned from crop production

	%	Maize	Cotton	Tobacco	Sun flower	Sorgh um	Sugar beans	Soya beans	Ground nuts	Cabbages	Potatoes	King onions	Tomatoes	Total
Type1	23	5484.80	298.40	0.00	84.00	0.00	0.00	0.00	497.00	0.00	0.00	0.00	990.00	7354.20
Type2	33	10088.80	616.40	11060.30	0.00	95.00	202.00	1964.00	336.00	0.00	0.00	0.00	0.00	24362.50
Type3	11	1428.00	-29.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1398.50
Type4	9	7440.00	304.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7744.00
Type5	11	11004.00	0.00	0.00	0.00	0.00	133.00	0.00	200.00	0.00	0.00	0.00	0.00	11337.00
Type6	4	5047.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5047.80
Type7	1	2928.00	0.00	0.00	0.00	0.00	0.00	1636.00	0.00	0.00	0.00	0.00	0.00	4564.00
Type8	1	72186.00	0.00	0.00	0.00	0.00	10930.00	43550.00	0.00	2830.00	7690.00	506.00	5690.00	143382.00
Type9	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100	115607.40	1189.30	11060.30	84.00	95.00	11265.00	47150.00	1033.00	2830.00	7690.00	506.00	6680.00	205190.00

Source: Self-generated from study data set

Table 25 shows each type's net income per crop. It also gives the total net income per type (across) and total net income per crop (down). Maize fetches the highest net income but this is largely due to the total land size (182.1 ha) put under this crop by all the types of farmers. Type 8 has the highest overall net income (US\$143382.00) and is followed by Type 2 (US\$24362.50). Almost 70 per cent of total net income is contributed by Type 8 who is a commercial farmer.

Annexure II

Total farm income, expenditure and net income (US \$), total area planted (ha) and livestock production (numbers) per Type of farmers

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 9
Total farm income	628.68	1623.93	261.94	1907.00	1712.33	2600.00	78800	228754.00	0.00
Production costs	241.62	721.61	126.56	800.71	452.67	917.33	3236.00	85372.00	0.00
Net income	387.06	902.32	135.38	1106.29	1259.66	1682.67	4564.00	143382.00	0.00
Area planted	1.03	1.89	0.90	2.20	2.11	2.67	7.00	160.20	0.00
Cattle	0	4	11	31	5	21	3	222	0
Goats	2	2	7	9	6	0	4	176	0
Sheep	0	0	0	0	0	0	0	31	0
Chickens	19	11	15	19	25	13	12	0	0
Pigs	0	0	0	4	0	17	0	0	0

Source: Self-generated from study data set

Note: All figures given are averages.

Annexure III

QUESTIONNAIRE

Date: Village/Farm:

Respondent's name:

Age:

Gender: Male/ Female

Name of head of household:

Household Composition and history of the family

A short preview of the evolution of the farming system, with the main changes

When did the family settle in this area?

Who heads the farming activities?

The quality of home infrastructure, by observation? Poor, Medium or Advanced

Is the farm/plot owner employed somewhere for wage/salary? If yes, please elaborate.

Other household members

Name	Relation to HH*	Age	Gender (f/m)	Activities (Give details: type of work, professional status) ***	Where, who is your employer?	Time per week? If not regular, frequency, work peak period?	Revenue per day/week/month for each activity?
				-activity 1: -activity 2: -activity 3:			

Number of household members: Specify the number of people **living permanently** in the household (including temporary or seasonally migrating members):

*relation to the head of household (HH) code 1=head of the household; 2=spouse; 3=children; 4=brother and sister; 5=parents; 6=other (specify)

Self-employment, working for other farmers, brick moulding, etc.

***1. Retired, 2. Unemployed, 3. Full time farmer, 4. Regular/salaried employee, 5. Self-employed, 6. School, 7. Pre-school

MIGRATION AND REMITTANCES

Is there anyone from your family who does not live permanently in the household?

Name	Relation to HH*	Age	Gender (f/m)	When did she/he leave? For how long?	Where? Activities?	Did she/he send money

*code 1=head of the household; 2=spouse; 3=children; 4=brother and sister; 5=parents; 6=other (specify)

Other sources of income

Pension:

Do you or someone of the household get agricultural subsidies? For what activity, how it works?

Land use

Type of plot 1. Dry land 2. Irrigated land 3. Backyard garden	Size	Unit 1. Ha 3. Acres

Farm size (total area under crop)

Cropping System:

Crop name	Area Planted 1. Ha 3. Acres	Qty Harvested (Specify unit : tons, kg, bags, boxes, cobs, bowls, bundles...)	Qty sold (Specify unit)	Price/unit	Qty consumed (specify unit)	Market outlet 1. Local 2. Marketing board 3. Neighbours 4. Hawker 5. Contractor 6. Other (specify)

What is your favourite and main outlet? Why?.....

Which crops are grown mainly for family consumption?.....

What problems do you have with crop production?.....

Crop Calendar

Crop name	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												

When is food scarce in your household (month)?

Farm Expenditures/production costs

Input Costs: Understand the production cost for each product of each rotation made on the different fields _SPECIFY THE UNITS

CROPS:														
	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Tillage service														

Seeds bought (if produced on the farm specify the quantity used/ha)														
Fertilizer														
AN or Urea														
Manure														
Insecticide														
...														
Chemical weeding														
Other phytosanitary														
Harvest service														
Seasonal worker employed														

How do you pay the different input? (Cash, production loan, bank credit...) -----

What problems do you have with input supply?

Farm organisation and labour

Permanent worker

How many permanent workers do you have on the farm? -----

Where they come from? -----

What is their salary? -----

Seasonal workers

Do you hire people for farming? Yes No If yes, how many people do you hire and for how long ?.....

How much do you pay them per year/per ha?.....

What duties/tasks	Number of people hired per duty	Period of the year? Number of days?	Salary

Are you using credit facility? Yes No

If yes from supplier relative or friend money lender output buyer financial institution other

What is it for? farming household purchases children school food

Do you have any debts outstanding? Yes No

Equipment

Do you own any large equipment (tractor, trucks, implements...)? YES/NO If yes, which? When and how much did you buy them?

.....

Do you hire them out? YES/NO at which price?.....How much do you earn from that?.....

What kind of equipment do you rent/borrow?

Equipment	For what kind of task	How long?	Price (\$/day)

What are the general costs for your agricultural machinery?

Diesel	
Fence maintenance	
Water	
Insurance	
Electricity	

Livestock Description

Which of the following livestock do your household own?

Type	Number of reproductive female	Number of reproductive male	Number of young per year (average)	Number of cull per year	Age of the mother at the first birth	Number of young dead per year	Number of adult animal dead per year
Poultry							
Goats							
Sheep							
Pigs							
Cattle							
Other(specify)							

Do you slaughter any animals? Which ones? Explain how it works

Do you keep animals from other people on your farm? Do they pay a rent (money or something else) for this?

--

Do you have animals staying on another farm? Do you pay a rent (money or something else) for this?

--

Do you have draught oxen, donkeys or horses? -----

How do you feed your animals? Describe the annual evolution of feedstuff for each kind of animals (quantity, pasture or not, kind of feeds stuffs...)

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What kind of inputs do you purchase for your livestock?

Estimation of the annual cost for each livestock farming system

	Cattle	Goat	Poultry	Pig	Other
Shepherding					
other cost of external workforce					
Food and forage					
Medicine, vaccine, vet etc.					
Insemination					
Maintenance of animal housing					
Other costs					

Destination of the livestock products:

What do you do with the production of your livestock during a normal year?

Be careful to have all the different products for example cattle: 2.5year old bull but also culled cows, milk, heifer, oxen....

Kind of animal	Kind of products sold (age, weight)	Quantity sold (number, kg, L, specify the unity)	Period of sell	Where do you sell? To who?	Please describe the kind of agreement or contract	Commercialization costs (storage, transport, packaging...)	Price	Quantity kept for self-consumption

Where are animals grazing?.....

Any problem with livestock?

Scheme Management

Do you experience any conflicts about water sharing?

Do you experience water shortages? How often?

Perspectives

Are your children going to farm after you? And Why?

How do you see the future?

Was it better before? When was it? What changed and why?

Are you happy with the offer letters as proof of land ownership? Please elaborate.....

.....

Final general comments the farmer would like to make:

.....
.....
.....
.....
.....