NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

WELFARE SHOCKS AND POVERTY AMONG RURAL HOUSEHOLDS IN NGAKA MODIRI MOLEMA DISTRICT OF NORTH WEST PROVINCE, SOUTH AFRICA

BY

SHUKRI RASHID ADEM

Submitted in fulfilment of the requirements for the degree of Master of Science in Agriculture (Agricultural Economics)

Department of Agricultural Economics and Extension Faculty of Science, Agriculture and Technology North West University

Mafikeng campus

SUPERVISOR: PROFESSOR A S OYEKALE

FEBRUARY 2014

DECLARATION

I hereby declare that this research is my original work and has not been submitted in partial or entirety for degree purpose to any other university. All the work that was written by other authors and used in the research is fully acknowledged.

Submitted for Masters of Science in Agriculture degree in Agricultural Economics at the North West University, Mafikeng Campus.

NAME: SHUKRI RASHID ADEM

SIGNATURE……..

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to everyone who contributed towards the success of this research. It would not have been possible without your input, time and support; I really appreciate your help.

Professor A. S Oyekale, my supervisor, I would like to thank you for your mentorship, support, motivation and critiques during this study. You really helped me organize my thoughts; it would have been difficult without your help.

I am also grateful to the Department of Agricultural, Conservation and Rural Development (North-West Province)

To all the respondents who took their time completing an ample and detailed questionnaire, I am thankful. Your contribution made it possible for me to write this report. It would have been impossible without your willingness to cooperate.

My family, especially Mom and Dad, your faith in me pushed me into putting extra effort. Thank you for believing in me and for your support as well my brothers and sisters. I would like to thank you for standing by my side and for your words of encouragement.

ABSTRACT

This study analysed welfare shocks and their effects on poverty among rural households in Ngaka Modiri Molema District. In this study a total of 200 households participated were randomly selected in this survey Structured questionnaire was used to collect data and analysed using the descriptive statistics and Probit regression. The result of the study indicated that the majority (59%) of the respondents were female and 43% were married. The educational levels of the respondents were generally low with 29.50% lacking formal education and 29.50% had primary education. Also (65%) indicated farming as primary occupation while 36.50% had some title deeds to the land they were using. Lack of market access was reported by 14% while 75.50% had access to credit.

The households were exposed to drought (56%) and flood (63%). However drought was believed to have a greater effect because it leads to livestock loss (20.50%) crop failure(29%) and ultimately introduces households to food insecurity. Residing in a flood prone area (22.50%) and lack of alternative livelihood (34%) were identified as underlying causes of vulnerability. Also (88.50%) of the respondents reported some increase in food prices. About 47% felt the impact disease outbreak while 48% lost their livestock due to diseases.The majority (78%) of the respondents indicated that when there was no money to buy food, the main food they could afford was maize. Using the Foster Greer Thorbecke (FGT) relative poverty measure 61% of the respondents fell below the poverty line.

The result of the Probit model shows that marital status, number adults aged more than 65year number of males and number of females, land area, affected by drought, affected by flood and market distances were statistically significant in explaining the probability of being poor. Government should engage the rural communities and local authorities in making them aware of the drought, flood risk in view of the climate variability.

KEYWORDS: Welfare shocks; poverty; rural households; drought; flood.

TABLES OF CONTENTS

ITEM **PAGES**

4. CHAPTER FOUR- RESULTS AND DISCSSIONS

LIST OF TABLES PAGES

LIST OF FIGURES PAGES

ABBREVIATION

AIDS - Acquired Immunodeficiency Syndrome

CIA - Central Intelligence Agency

DHS -Demographic and Health Survey

FAO - Food and Agriculture Organization

HSRC - Human Sciences Research Council

MDG - Millennium Development Goal

NGOs - Non Governmental Organization

NWP - North West Province

OHS - October Household Survey

UN - United Nations

UNDP - Nations Development Programme

RDF - Rural Development Framework

SAIHS - South Africa Integrated Household Survey

SPSS -Statistical Package for Social Scientists

SSA - Statistics South Africa

TB - Tuberculosis

WHO - World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

Poverty is prevalent in several parts of the world and is one of the biggest challenges in the 21st century. Prior to 1994, many South Africans were living in poverty particularly those in rural areas. This was attributed to high unemployment rate, lack of access to production resources, illiteracy, among others. The South African government did not address the problem of poverty with seriousness despite many intervention programmes. Specifically many subsistence farmers were living below poverty line because majority of them lack the skill to run their livestock and crop farms competently (Baatjes, 2003).

It should be emphasized that many South African households are living in outright poverty, or at the very least are vulnerable to becoming poor. According to estimates of poverty generated by the Human Sciences Research Council (HSRC) (2004), the percentage of the population in poverty has not changed significantly since the inception of democratic governance in 1994. The gap between the rich and the poor rather than abating has continued to widen. Thus, many households have sunk deeper into poverty. It had been suggested that the major issue is not that households are poor but we need to understand is the probability that a household if currently poor, will remain poor in the nearest future or if currently non-poor will fall below the poverty line (Quisumbing, 2002).

Furthermore, high incidence of poverty in South Africa, despite myriads of government interventions and activities of Non-Governmental Organization (NGOs) to reduce it through poverty alleviation or reduction programs and projects has brought the issues of poverty to the attention of policy makers. The failure of government programs and strategies to reduce the incidence of poverty have raised two major concerns. Firstly, the government might be lacking in capacity to mitigate the social risks faced by households and communities. Secondly, the government might not be paying serious attention to the issues of risks and uncertainty that are crucial for understanding the dynamics leading to and perpetuating poverty (Alayande and Alayande, 2004).

Rural households in South Africa are frequently exposed to several idiosyncratic and covariate shocks. These often lead to income volatility. Most of the times, the social mechanisms to mitigate the effects of these shocks are usually very underdeveloped (Kevane, 1996). Whether or not a household is poor has been widely recognized as an important indicator of welfare. However, today's poor households may or may not be tomorrow's poor. Households that are currently non-poor, but face a higher probability of facing adverse shock, may on experiencing such shocks, become poor tomorrow. And the currently poor households may include those that are only transitorily poor as well as others who will continue to be poor in the future. In other words, a household's observed poverty status is an ex-post measure of a household's well being or lack thereof. But what really matters for many policy purposes is the ex- ante risk that a household will, if currently non-poor, fall below poverty line or if currently poor, will remain in poverty. And the current poverty status of a household may not necessarily be a good guide for evaluating its vulnerability (Chaudhuri, 2000).

Most of the developing countries' economies, particularly those in the Sub-Saharan Africa, are agrarian in nature. Therefore, agricultural shocks are important sources of vulnerability for the majority of the populations. In the case of Malawi, climate and environmental risks play important roles in household's poverty vulnerability. In particular, heavy dependency on rain-fed agriculture renders majority of Malawians vulnerable in the face of erratic and unpredictable rainfalls. Rural households depend on rainfall for their livelihoods, both directly in the form of crop production and indirectly through on-farm sale of labour. According to South Africa Government and World Bank (2006), rainfall volatility in South Africa can reach as much as 50 percent below or above the historical average. This erratic rainfall gives rise to droughts and flooding, both of which can have significant negative welfare impacts on farmers, due to losses in crop production and livestock. In other countries, vulnerability in agriculture is mainly attributed to rainfall shocks. For example Dercon and Krishnan (2000) reported that rainfall shocks, crop damage and livestock diseases are among the leading shocks that make households vulnerable to poverty in rural areas. The focus of this study is to understand welfare shocks and poverty among rural households in Ngaka Modiri Molema District.

1.2 Problem statement

The problem which this study seeks to analyse is growing incidence of welfare shocks and poverty among rural households in the Ngaka Modiri Molema District. Poverty in South Africa is widespread, deep and severe. According to the 2011 South Africa Integrated Household Survey (SAIHS), 50.3 % of the total population was poor, with 23.1% of the total population living in extreme poverty. North West Province (NWP) is one of the nine provinces in South Africa that is more rural than urban in terms of population distribution. According to Community Survey (2009), 86% of the population in the province is based in rural areas. (Statistics South Africa, 2009). In such rural areas, subsistence agriculture is still the pillar of every day survival. The high level of poverty in NWP impacts on a wide range of interrelated issues including the level of education, the level of employment, household income, disparities between urban and rural residents, population density, health concerns and access to basic services.

The effects of shocks on rural household's welfare have formed the concern of policy makers. Shocks take on many forms which can be climate (drought, flood), health (illness, death), institutional (appropriation of land) and economic (unemployment, staple of cash crop price shocks).The effects of shocks on the welfare of households across different segments of the population remains poorly. However, analyzing the effects of these shocks and coping strategies employed remain a challenging assignment. Natural disasters and poverty are widespread in rural areas. Some of these shocks are particular to a household (idiosyncratic shocks), but others affect entire towns, sectors of economic activity, or countries, such as natural disasters. According to Christiansen and Subbarao (2005), the need to address the issues of shocks becomes paramount because they result in variability of household's income. In the absence of sufficient assets insurance to smoothing consumption, such shocks may lead to irreversible losses; such as distress sale of productive assets, reduced nutrient intake or interruption of education that permanently reduces human capital, thereby locking their victims in perpetual poverty.

1.3 Research questions

This research seeks to answer the following questions:

1. What are the welfare shocks faced by the rural households and how do they cope?

2. What are the levels of poverty incidence and depth among rural households?

3. What is the level of poverty severity across different socio- economic groups?

4. How does shock exposure influence poverty among rural household?

1.4 Research objectives

The main objective of the study is to analyse welfare shocks and their effects on poverty among rural households in Ngaka Modiri Molema District. Specifically, the study has the following sub- objectives:

1. To analyse incidence of welfare shocks among the rural households in the study area.

2. To analyse coping options for welfare shocks on households.

4. To analyse the effect of welfare shocks on household's poverty.

1.5 Significance of the study

Theoretically, the study is believed to contribute to the debate on welfare shocks and poverty reduction efforts among rural households. From the practical point of view, the study uncovered a hidden reality of welfare shocks and poverty among rural households, which could help in improving interventions that target rural households. The results could also help the households in the Ngaka Modiri Molema District with how they can tackle the issues that are related to prevailing poor socio-economic conditions.

1.6 Outline of the study

This report consists of five chapters. The first chapter presented the introduction with some insights into the problem statement, research questions, objectives of study and significance of the study. Chapter two focused on literature review of relevant. Chapter three outlined the research methodology. Chapter four presented the results and discussions while chapter five outlined the conclusion and recommendations from the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed concept and definition of poverty, chronic and transient poverty, rural households and poverty, incidence of welfare shocks and poverty among rural households and empirical studies on poverty and shocks.

2.2 Concepts and definition of poverty

The concept of poverty is not so easy to describe in view of the fact that no universally acceptable definition is available. However, disagreements over definitions of poverty run deep and are closely associated with disagreements over both its determinants and solutions. In practice, issues of poverty definition, measurement, determinants and solutions are inter-linked. Therefore an understanding of poverty requires an appreciation of the interrelationship between them all. Nevertheless, some logical distinctions can be made, and they will have to be if researchers are to make any progress in analysing the range of theoretical and empirical materials these debates have produced (Woolard, 2002).

According to Townsend (2000), a critical issue on the understanding and definition of poverty is the interrelatedness and interconnectedness of concept, definitions, explanations and policies. Ravallion (1992) also observed that poverty measurement and policies are often inseparable. Bradshaw (2000) made a related but contestable point that in poverty research, the approach determines the result. Therefore, it is clear as Magasela (2005) argued that the definitions and measurements of poverty ought to inform programmes and policies that are aimed at its alleviation or eradication.

2.2.1 Poverty definitions

There has been a continued debate about the meaning of poverty. Poverty to different people means different things. Perhaps the first concept that comes to mind is that poverty is the lack of certain minimal income necessary to attain a decent standard of living (Sen, 1992). Poverty may also have wider meaning, encompassing malnutrition, illiteracy, unemployment, substandard housing and other dimensions of low standards of living (UN, 1995).

Poverty is deprivation of common necessities that determines the quality of life, including food, clothing, shelter and safe-drinking water, and may also include the deprivation of opportunities to learn, to obtain better employment to boost households economic condition, or to enjoy the respect of fellow citizens (Barnett, Barret & Skees, 2008). Poverty is regarded as a multidimensional concept. Indeed, many factors have been cited to explain why people are poverty. These include environmental, economic, social, institutional, political and cultural. These factors are believed to create conditions that determine the level of vulnerability and exposure to different risks, including those that are related to poverty. The negative effects of poverty differ from one place to another. Those living in poverty lack access to essential basic services and are exposed to a variety of hazards such as hunger and starvation, as well as mental and physical health problems. These effects make it harder for them to improve their financial and economic situations.

2.2.2 Chronic and transient poverty

The transiently poor (short-term) and chronically poor (long-term) are overlapping but distinct groups. According to Uccelli (1997), the latter is characterised by a deep rooted, impoverished condition, which is the consequence of multiple deprivations over time, such as poor health, substandard nutrition and inadequate access to productive assets, and is often associated with persistent, intergenerational poverty. As a result, chronic poverty is usually the more difficult one to address. For instance, Hulme and Shepherd (2003) noted that a particular problem in contemporary poverty analysis, seeking to rapidly reduce poverty headcounts in an era of globalisation, is to see the poor as those who are not effectively integrated into the global market economy. Thus, the chronically poor are likely to be neglected in such an era given multiple factors that constrain their prospects, and the likelihood that market based factors may contribute to their continued deprivation.

For many families that rely on subsistence production for survival, the period immediately prior to harvest is a hungry period. During this period of scarcity, many families lack sufficient resources to meet their minimal nutritional needs. Moreover, natural disasters such as droughts and flooding have devastated communities throughout the world. Developing countries often suffer much more extensive and acute crises at the hands of natural disasters, because of limited resources inhibit the construction of adequate housing, infrastructure, and mechanisms for responding to crises (Kamanou, 2002).

In developing countries, there is high level of illiteracy. There is a very big problem in improving the livelihoods of people. The poor, who are also illiterate, have limited chance of using improved production technologies and preventive health services. That is why diseases such as AIDS and malaria have exacerbated the already precarious condition of the poor Diseases increase expenditure on health, at the same time reduces effective working time, there by plummeting labor productivity and availability in the households (Kanbur, 2002).

On the other hand, transient poverty normally results from a one-time decline in living standard, from which a household gradually emerges. Alternatively, it may show itself in fluctuations in well-being that result in frequent decline in living standards. For example seasonal variations in food security may result in some households periodically falling in and out poverty, sometimes quite regularly over time (Woolard & Leibbrandt, 2001).

2.3 Poverty in South Africa

Poverty in South Africa is a subject of great concern and it is central to the development programmes of the government and other non-governmental bodies. In per capita terms, South Africa is an upper-middle-income country with the year 2006 estimate of Gross Domestic Product per capita around $13 300 (CIA, 2008). In spite of this relative wealth, most South African households are living in outright poverty or at the very least are vulnerable to being poor. Many South African households today still have little or no access to education, health care, clean water and energy (May, 2008).

To many rural people, the environment and natural resources are key to their livelihood and livestock are often seen as the backbone of development. However, the rural households face a number of challenges, including macro-economic policies that result in higher food and transport prices, retrenchment, chronic illness which increases expenditure on medical bills and funerals, poor agricultural practices and environmental degradation and isolation from support services. According to Gray (1998), poverty is a major concern in South Africa for many centuries. The poverty rates are higher in rural areas (70%) than in urban areas (28.5%). Schenck (2002) also pointed out that people living in rural areas are the poorest of the poor, unseen and voiceless. It was further opined that the government programmes on poverty alleviation and community empowerment programmers are not sufficiently addressing poverty, especially in rural areas.

Poverty is unevenly distributed among South Africa's nine provinces. For example, the 2003 Human Development Report found that, with the exception of Gauteng and Western Cape, over half of the population in all provinces live in poverty. The highest poverty rates are in the Eastern Cape, Limpopo and North West Provinces with estimated poverty incidence of 68.3%, 60.7% and 51.2% respectively. In Gauteng and the Western Cape, where the proportion of the population below the poverty line is lower, poverty rate are estimated to be 20% and 28.8% respectively. Out of the 21.9 million poor people in South Africa, 59% live Eastern Cape, North West Province and Limpopo (Human Development Report 2007).

The scope and depth of poverty in South Africa receives prominence not only in government statements but also internationally, with the poverty challenges in South and sub -Saharan Africa featuring on the global agenda. The overlapping vulnerabilities of poverty expressed by government vulnerabilities of health, livelihoods, social exclusion, gender discrimination and service delivery are similarly articulated in the United Nations Millennium Development Goals (MDGs). According to recent MDG reports (United Nations 2008 and 2010), sub – Saharan Africa where over 70% of the world's poorest billion live, is at serious risk of failing to meet many of the 2015 targets. It is one of only three regions where gender inequality and poverty target will not be met by 2015.

2.4 Welfare shocks

There is no doubt that shocks affect the livelihood of numerous individuals and households across the world. Shocks can affect welfare and behaviour even if they were unanticipated, that is even if people never expected the shock to happen and take no precaution against it. People often respond to a shock, trying to minimize its adverse effects or maximize its beneficial effects. But this does not imply that their behaviour is affected by risk. This happens only if people understand that a shock may occur in the future and somehow adjust their behaviour to that possibility. For instance, people may anticipate becoming ill at some point in the future and this may incite them to secure health insurance. Or they may anticipate rainfall variations, and adapt their cropping pattern to be resilient to drought. Households in developing countries are often exposed to and struggle against a number of adverse events that disrupt income and consumption flows and are responsible for welfare losses. Unexpected and catastrophic shocks deplete household resources and lead to poverty traps, besides deepening poverty among the already poor. Shocks trigger coping measures resorted

by the households but nature of the shock as well as form of the adopted coping strategies determine its welfare consequences (Chaudhuri, 2002).

2.5 Rural households and poverty

A household is a domestic unit consisting of the members of family who live together along with non-relatives such as servants. However, it can also be regarded as the income sharing unit. It is the most closely, though not perfectly captured resource sharing. The rural households are exposed to many risks while often lacking instruments to manage them adequately and thus, are highly vulnerable to poverty. Rural households fall into poverty primarily as a result of shocks such as ill health, poor harvests, social expense and disasters (Smeeding&Weinberg, 2001).

According to the Rural Development Framework (2001), rural is defined as an area which is not a town or a city. It is often a farming or agricultural area. These areas are sometimes called countryside. People who live in the country often live in small villages, but they might also live in place where there are no other houses nearby. Rural areas are not crowded with concrete constructions. Houses are rather widely spaced with ample room for fields and gardens. People in rural areas live in close proximity with nature. Apart from people, there is room for pets and grazing animals that help maintain equilibrium in nature. However, these areas are characterized by majority of poor households with limited economic opportunities (Anderson, 2003).

One of the most salient facts about the poor in most developing countries is that they are disproportionately located in rural areas. According to Ravallion (2002), this trend is likely to prevail for protracted period of time. The World Bank (1999) for example, reported that on average, in Africa and Asia, about 80% of all target poverty groups are located in rural areas, and for Latin America the estimated percentage was about 50%. In light of these alarming averages, it is thus not surprising to find that data from individual country studies reveal a similar trend. For example, according to the World Bank (1990), during the 1980's, rural poverty was six times that of urban poverty in Kenya, while in Mexico, it was 30% higher during the same period. Around 1980, a staggering 98% of China's poor lived in rural areas (Ravallion and Chen, 2004). In South Africa, the 1995 OHS/IES also revealed that 68% of the poor reside in rural areas.

After the first South African democratic election in 1994, the majority of South African citizens are still based in rural areas where socio- economic conditions are poor when compared to those in urban areas. The legacy of the apartheid colonial government comprised the forced removals of Blacks (Africans, Coloureds and Indians) to places of less economic potential is still to blame, when looking at the settlement patterns in the rural areas. Lack of economic opportunities, employment and education were the major implications of the apartheid government for black marginalised citizens. Moreover, these social ills still deal a huge blow on the strategies that rural households adopt to spread the concentration of risk of being vulnerable to poverty (Msindi, 2000).

Poverty and its outcomes in rural areas remains the most influential aspect affecting rural households in their daily lives (Calvo, 2007). Rural poverty results from lack of assets, limited economic opportunities and poor education and capabilities, as well as disadvantages rooted in social and political inequalities. In South Africa and throughout the world, rural households are exposed to variety of risks and hazards that continuously persist in aggravating the level of their vulnerability to poverty.

2.6 Incidence of welfare shocks among rural households

Shocks is an event that can trigger decline in household's welfare. They can affect individuals, shock, whereby it is defined as a risk that causes significant negative welfare effect. There are two types of shocks: idiosyncratic and covariate. Idiosyncratic shocks are adverse event that affect only a single household and covariate shocks are events that affect the whole community (Christiansen and Subbarao, 2005).

Disaster is the consequences of social, economic and natural events or hazards (for instance drought, flooding fire, storm or earthquakes) that affect human activities. Human vulnerability, exacerbated by lack of planning or lack of appropriate emergency management, leads to financial, environmental and human losses to disaster. The resulting loss depends on both the capacity of the population to resist the disaster. The effects of disastrous event are more visible to poor people because of their social, economic and environmental characteristics which do not allow them mitigate or prevent the adverse impact of the event. Although the event can affect everyone and play an important role in increasing vulnerability, poor people are made more vulnerable from such web of circumstances that makes them prone to the effects of disaster. The social, economic and environmental characteristics of

people also determine the coping mechanism that they adopt when a disastrous event occurs (Blaikie, 2004).

2.6.1 Drought

Drought is a normal recurring event that affects the livelihoods of millions of people around the world and it is regarded as the most important natural disaster in economic, social and environmental terms (Buckland Eele & Mugwara, 2000). Drought is a normal part of climate and is characteristic of the drier area and is perceived to be extreme unfavourable when there are unusual rainfalls. Households are vulnerable to drought in the dry lands were water sources is not timely available and rains are limited and it trigger a disasters event such as famine. Households are vulnerable to drought through erosion, loss of livestock's, crop failure and thus, leading to huge food insecurity in the rural areas. Anderson and Dillon (1997) argue that, vulnerability to drought is complex and yet essential to understand and thus to formulate appropriate risk-spreading strategies requires a huge local economic base. The most disturbing aspect of drought is that, on many occasions after a long season of drought the affected area becomes vulnerable to floods that destroy all the available social networks in the area. The root causes of vulnerability to drought disaster in South Africa remain low average rainfall, poverty and inequitable development in rural areas. Rapid population growth and urbanisation, inequitable land distribution, lack of education and subsistence agriculture on marginal land lead to deforestation and environmental degradation, malnutrition and unemployment, all of which bring about increased vulnerability to drought (South African Government Gazette, 2005).

2.6.2 Flood

Floods have benefit but also cause multiple problems. Floods occur world -wide, often after heavy rain in an area. Once the flood water clear away, it leaves behind a variety of different effect on the land, animals and people. Floods which contribute to the destruction of infrastructure, closure of schools, damage to the traditional dwellings and sometime loss of lives amongst others, is perceived to be one of the most dangerous disaster events that expose rural households to absolute poverty (Hahn, Riederer & Foster, 2009; Khandlhela, 2006). Even though, floods affect everyone and play a critical role in vulnerability, poor households are made more prone to the effects of floods because of the socio-economic characteristics existing in the rural area (Khandlhela, 2006). Most of the households in the rural area reside in traditional dwellings with thatched roofs and walls constructed from sun-baked bricks and

wattle and mud daub and as such, contribute to the total household wash away and damage of all assets during floods when the house collapses. However, floods as a disaster event also have the potential long term effects, particularly if the household loses things like identity documents, because people in the household may fail to access grants and other aid which depends on presenting such a document to the officials. Khandlhela (2006) emphasises that floods can damage property and also expose households to health problems, for example, cholera, malaria and also malnutrition. The influence of households being vulnerable to illnesses such as cholera is reinforced by the fact that floods usually destroy the community sources of water and hence, people start using water from the rivers that are unprotected. The direct consequences of floods making households vulnerable is losing dwellings and assets, people getting injured and the spreading of health problems, a decrease in household income opportunities, loss of crops and livestock and also damage of land. However, after disastrous events such as floods, households are vulnerable to violent conflicts due to limited access to land for production, particularly, if this disaster event required people to relocate.

2.6.3 Economic shocks

Over 70% of the share of the global population earning less than US$ 1.08 a day lives in rural areas (Ravallion, 2007). These poor rural households are thought to be particularly vulnerable to economic shocks. This is not only because they tend to have fewer means to cope with economic hardship than the non-poor, but also because they rely on economic activities, such as agriculture and forestry, for which returns are highly variable. Moreover, because climate change is expected to increase the frequency of extreme weather events, especially in the rural tropics, the vulnerability of resource-dependent people is likely to increase (Stern, 2007). Apart from the broad measures necessary to alleviate rural poverty, therefore, climate change calls for specific actions to reduce the vulnerability of poor rural households to economic shocks.

Changes associated with economic liberation, such as commodity price fluctuations and the privatization of the state enterprise can further set the rural household at a high level of vulnerability to poverty (Anderson & Hetizmann, 2003).Changes in market price and inflation fluctuation caused by economic meltdown, impact severely on the conditions of the households in the rural areas in terms of the inability to buy enough food and other households basic necessities. Economy wide risks are often the hardest for the rural communities and households to cope with, particularly when the risks experienced are

perpetual and persistent (Anderson, 2003). To manage the risks of being vulnerable to economic poverty in terms of local trade shocks is fundamental, however more difficult for the households with the limited economic opportunities. Making investment and insurance arrangements in normal times can also be reduce personal costs when disaster occurs, but to the most primitive rural areas, such investment opportunities are rare and limited and also household income scarcity plays a major part in the failure to contribute to such investment programs (Canagarajah and Siegel, 2002). However, the limited information dissemination about the economic opportunities that people can invest in is perceived to be another factor, lack of technology in rural areas is also to blame in this regard.

2.6.4 Health shocks

One of the biggest shocks to economic opportunities faced by households is major illness to members of the households. While health shocks can have adverse consequence for households in both developed and developing countries, they are likely to have particularly severe effect on household in the latter because these households are typically unable to access to formal insurance market to help insure consumption against such shocks. In the developing countries poor are suffering worse health condition and die younger. They have higher levels of disease, limited resources to social protection and health care. The burden of disease is a daunting challenge among poor rural households. The incidence of tropical disease is very high among rural households. There are 2 million death from malaria reported every year. An equal number of people are dying every year from HIV AIDS other diseases, including TB, diarrhoeal disease and measles are similarly pandemic. When a poor rural household suffer in ill health or injured then the entire household trapped they cycles of poverty due to lack of income and higher health care cost (Dercon, 2000).

Access to health care has long being considered as crucial in helping people attain core capabilities that help them escape poverty. Ill health is seen as an indicator of poverty. Poverty perpetuates ill health, because the poor as compared with non- poor are less likely to report health problems and seek medical treatment in the event of illness (Kimalu, 2002). Poor health shackles human capital, reduce return to learning impedes entrepreneurial activities and holds back growth and economic development (Asfaw, 2004).

2.6.5 Low agricultural production and poverty

Food insecurity is one of the main concerns of the majority of households in the rural areas. Agriculture the main source of food in the rural households, plays a major part in this regard thus, risks associated with food insecurity range from crop failure, livestock losses and limited fertile land for agricultural practices (Fraser, Mabee and Figge, 2005). Agricultural practices seem to be the main source of food in rural areas however they are subject to many uncertainties such as drought, floods, pests attack untimely rains and price fluctuations (Ellis, Kutengule and Nyasulu, 2003). The principal food crop grown and the staple diet for the rural population is maize thus households food security depends, as the primary objective on securing sufficient maize. Agriculture risks vary among agro-climatic conditions, types of crops grown, type of irrigation facilities and also pest and disease control in the rural areas. The implication to sustain these control measure is difficult in the rural areas and rural households that only practice subsistence agriculture for food security. Limited harvesting or total crop failure are the common outcomes which expose rural households to food insecurity. The adverse crop failure is not only reinforced by the combination of the factors illustrated above, but is also linked to the limited land that households hold in the rural areas, hence land plays a major part in the adoption of risk- spreading strategies in the rural areas.

Secure access to land is a crucial factor in the eradication of hunger and poverty in the rural area however secure access to land is frequently not easy and is a complex process that can even constitute violent conflicts in the rural areas (Food and Agriculture Organization, 2005). Limited access to productive land has a huge effect on food insecurity in the rural areas. Moreover, in the rural setup most of the land is communal, and access to such land is determined by the contribution and close connection of the household to the traditional authority. Also, in the rural context access to land is often related to social identity, and the right to land may be used as a political exploitation of tension, and the ownership of land is concentrated in the hands of the minority, whether based on class or ethnicity (FAO, 2005). These scenarios disadvantage the poorest households in the rural areas, because of their low class, limited connections and contribution to the local traditional authority. Most of the households in the rural areas own less that 0.5 ha or 1 ha of the land and thus, securing enough food to survive throughout the dry seasons is a nightmare. Moreover, Ellis, Kulangule and Nyasulu (2003) argue that subsistence agriculture can be the sum of the optional choice for food security in the rural areas, but cannot solve adequate food security problems for families holding less than 0.5 ha of land. So, a food security gap at the household level would

persist and can be addressed by means of diversifying the agricultural practice to also include growing livestock.

The distribution of livestock is more equitable than land among rural households. Eriksen and Silver (2008) argue that livestock in rural areas not only augment income, employment and food security but also serves as store house of capital and insurance against shocks. Livestock, unlike maize production does not need much of the fertile land to survive however it suffers risk such as infectious diseases and animals dying during the dry seasons (Bebbington, 1999). During dry seasons livestock losses are prevalent among rural households.

2.7 Lack of access to basic services

The poor rural households are physically or figuratively on the periphery when it comes to access to the most basic opportunities and services needed in order to facilitate survival. As a result they usually find themselves having to travel large distances to access services such as schools and clinics, and when seeking a job, they subsist away from home because job seeking imposes a price, which the extremely poor frequently cannot pay. Furthermore, lack of income and market in remote area poor communities curtail business opportunities and give rise to a vicious cycle of poverty, which also encompasses incapacity to pay for services.

2.7.1 Access to water

South Africa is a developing country which lacks adequate supplies of potable water and sanitation for its population. The lack of infrastructure coupled with rapid population growth in rural areas is a major contributing factor to this problem. The World Health Organization (WHO) and United Nations Children's Foundation (UNICEF) address issues pertaining to health, poverty, lack of sanitation and potable water in the Millennium Development Goal (MDGs). The poor rural household is lacking access to water, where water is most essential basic needs. The seventh goal to ensure environmental sustainability, has as one of its objectives to reduce by half the proportion of people, worldwide who are without sustainable access to an improved safe water source in rural areas.

2.7.2 Access to electricity

The development of many African countries is challenged by many factors, among which is the population`s poor access to sustainable and modern sources of energy. Policy makers now have recognized that energy is a central to reduce poverty, hunger, illiteracy, improving health lives of women and children. 1.6 billion people in the world have no access to electricity 2.4 billion People depend on biomass such as wood, dung or charcoal to meet their basic need of energy for cooking and heating. This source of energy is bad for health. Two and half million women and children are dying each year due to indoor pollution from cooking fires. On the other hand, the consumption of fossil fuel of industrialized countries is excessive than developing countries and climate is changing. Poor have the lack of resources and facing energy problems. Poverty limits their adaptation capabilities (Davidson and Mwakasonda, 2004). The statistical analyses of energy use in developing countries show that 80 percent rely on biomass for their energy needs of cooking and heating while 1.6 billion people no use electricity at all. The large parts of this energy deprived people are living in South Asia and Sub- Saharan Africa.

Prior to 1994 in South Africa, energy policies, including those for the provision of electricity, were conceived in priority to support industries, like mining, chemical and agriculture, which formed the nerve centre of the economy. There was little or no investment for improving household`s access to electricity, especially for the majority of black South Africans living in rural areas (Malzbender, 2005). Electricity is being used to facilitate cooking and access to information through the media of television and radio, its overall intended upliftment impact on the state of impoverished families is still not felt.

2.7.3 Access to credit

According to Baumann (2004), many countries in Sub-Saharan Africa, the majority of poor households in South Africa are left out of the financial (credit) market systems. It has been argued the most rural households in South Africa are too poor and cash-strapped to benefit from any kind of access to credit, they are essentially shut out of credit and savings services because they did not meet the traditional criteria for borrowing. Financial institutions perceived them as bad credit risks. They incur high information costs to assess the creditworthiness of small borrowers, and have low returns due to the small loan amounts involved. This motivates them to adopt strict collateral requirements as a screening mechanism to minimize default risk, hence rationing out the poor from the formal credit

market. At the household level, the low levels of income and asset accumulation and highly skewed income and asset distribution render the poor households to have a high-risk profile, which makes them less attractive to formal lenders. The poor with no access to formal sector credit have to revert to the informal financial sector to meet their credit demand for both productive investment and consumption smoothing. Therefore, poor households' limited access to formal financial risk management instruments (savings, credit and insurance) constrains their ability to cope with shocks and further increases vulnerability to poverty.

2.7.4 Access to market

According to Heinemann (2002), rural people in South Africa especially the poor often say that one reason they cannot improve their living standard is that they face difficulties of accessing market where they can obtain agricultural input and consumer goods and sell the produce that they grow. A major reason why even those poor rural households who can produce a surplus remain trapped in the poverty cycle is lack of access to profitable markets. Other problems relate to physical market access like physical infrastructure roads, market facilities, power and electricity. In rural areas for example, poor households are often geographically dispersed, roads communication are poor and the volumes of business are insufficient to encourage private sector service provision. Rural people are also the most difficult group for potential buyers to reach.

2.7.5 Access to infrastructure

Access to basic infrastructure such as road makes accessibility of markets easier for the rural areas. More often than many rural areas are located very far from the potential market and the centre of business activities. Rural households who do not have access to infrastructure experience high transaction costs. In addition to this the ability of rural households to access necessary service depend on, the transport systems and their location away from relevant service providers (Jahan, 2005).

2.8 Gender and Poverty

Shocks faced by rural households are influenced by a variety of different factors based on the location of the areas where they are situated. The influence of gender (men versus women related risks) and also the unsustainable provision of social services. These two, amongst other factors, are crucial when determining the level of vulnerability to poverty related risks among rural households. The households headed by women or which are characterized by a

large number of women face extreme risks compared to the male dominated households. Ellis, Kulangule and Nyasulu (2003) assert that women and young girls face risks associated with financial expenses and health risks related to pregnancy, child birth and also infertility treatment. The risk of widowhood and abandonment of wife and children too are common in the rural areas, causing disruptions of income streams, though such scenarios are harder to predict (Ellis, Kulangule & Nyasulu, 2003; Jalan & Revallion, 1999). The exposure to risk of domestic violence inducing injuries is another risk that affects regularities and capacity to work among women. Jalan and Revallion (1999) state that even though some of these women related risks are managed through social support networks, for example, extended families sharing wages and food, it becomes impossible in the extreme rural setup where income and food are a community-wide problem. The gender issue, especially marginalisation of women, which influences food and income related risks are thought to be the driven and reinforced by the risks that are faced by men in the rural area.

2.9 Shocks and income volatility

Income earning activities have currently come into dominance in rural areas; such activities are reinforced by the visibility of many risks associated with land and subsistence agriculture for food security (Fleisher, 1990). However income earning activities also have their own risks and insecurities, and such are multidimensional and they complement each other. Issues like the premature death of the income loss in the households. Risks associated with income insecurity can be caused by either sudden illness, accidents or many other scenarios which limit the household income earning capacity (Reardon & Vosti, 1995).

2.10 Unemployment and poverty

Poverty can also be a function of the environment such as sustained periods of high unemployment. The level of unemployment in South Africa was 26.7 percent in September 2005(SSA) and continues to increase, and is considerably greater and more severe among the poor and especially women in formal settlement and rural areas. The creation of jobs has become one of the important concerns facing the country. In addition to the shortage of jobs, one is concerned that the quality of jobs may fall short of what would be needed to allow the poorer sections of the population to better their lives. Most poor groups lack the necessary skills to perform certain jobs and are engaged in poor quality jobs with low productivity and incomes, and poor working conditions.

2.11 Education and poverty

Many households come from the very poor areas of the economy and have very little educational background and as a result, they cannot understand or comprehend the legislation or documents placed before them. The majority are illiterate and often intimidated by reading and writing skills. Lack of education also condemns them to very low- skill jobs, where remuneration is insufficient to survive, forcing the families to send their children to the labour market at an early age. This is much prevalent essentially in the informal settlements and rural areas.

2.12 Empirical studies of poverty and shocks

Macro-economic literature on growth dynamics unconditional convergence hypothesis, conditional convergence hypothesis and multiple dynamic equilibria associated with critical capital threshold inspire the analysis of micro-level dynamic poverty traps (see Carter and Barrett, 2006 for review). The conditional convergence hypothesis, at micro level, that groups of individuals that share similar intrinsic characteristics tend to converge to a living standard. On the contrary, there are possible structural causes of multiple equilibria poverty traps at the micro-level, with at least one equilibrium associated with a poor standard of living and another with a high level of well-being (Carter and Barrett, 2006). Uninsured risks and incomplete credit markets are important causes of poverty traps. Households in developing countries are confronted with various sources of shocks. In setting with limited rural capital and insurance markets, such shocks have a disproportionately long-lasting impact on welfare of the poor (Dercon, 2002).

A practical example of such a deprived position is given by Carter et al. (2007) along with their conceptual presentation of the long-term adverse effects of shocks on economic well being. A strand of theoretical thought in the poverty trap literature is that there is a critical minimum asset endowment level below which a system may reach an unstable dynamic equilibrium threshold where the prospect for wealth accumulation and welfare improvement disappears (Barrett, 2003; Carter & Barrett, 2006; Barnett et al., 2008). Chronic poverty is therefore dynamically associated with asset endowment, as can be seen if we look at the asset status of households that persistently fail to achieve a minimum level of welfare (Carter & May, 2001). An attractive feature of this analytical framework is that it makes it clear that the effects of shocks in such a system can be catastrophic because asset loss can throw victims into a state of permanent destitution. Carter et al. (2007) invoke the idea of bifurcated wealth

dynamics in order to demonstrate that shocks may have lasting adverse effects in the presence of poverty traps. They postulate that, in the presence of an unstable minimum equilibrium threshold level, the prospect for recovery and long-term prosperity will remain grim for those who experience asset shocks that drive them permanently below the critical minimum.

A number of recent studies describe how shocks can have persistent effects on livelihood growth and rural welfare (Dercon, 2004; Davies, 2010) and can perpetuate poverty in various ways (Carter and Barrett, 2006; Barnett et al., 2008). A notable proposition is that poverty begets poverty, since shock-induced deprivation means that livelihood growth and the propensity to save are severely curtailed because the poor tend to remain in low return pursuits. In the case of crop growers, risk-averse defensive behavior may take the form of choosing a portfolio of low-yield crops. Recurrent exposure to shocks may gradually shape households' risk preference, causing them to resort to safety first disaster avoidance strategies (Ellis, 1993). Poor households that would like to switch to high return activities find themselves thwarted by their inability to obtain credit, or obliged to make extraordinary sacrifices of consumption in order to make the minimum productive investment required to break out of the poverty trap (Carter & Barrett, 2006). Quisumbing and Baulch (2009) explore the impact of covariate and idiosyncratic shocks and positive events on household asset accumulation in Bangladesh. Both types of events are found to have significant effects on the accumulation of assets over time. Still, the sign of the effects flood affected Bangladeshi households experiencing higher asset growth is at times surprising and difficult to interpret.

Besides the limited empirical evidence on the role of shocks in household welfare dynamics there is even less evidence on the impact of household shock coping behavior on asset accumulation. One exception is the study conducted by Carter et al. (2007) that accounts for different household strategies to cope with drought. Thus, findings are connected to an earlier field of research that explores whether households smooth consumption or assets when exposed to a shock. A general conclusion from this literature is that better-off households typically sell assets in order to maintain their consumption stable when facing shocks. In contrast, poorer households sacrifice their consumption in order to secure their future livelihood. Carter et al. (2007) find that asset-poor households in Ethiopia sacrificed consumption during the long drought in order to protect their few, precious productive assets for future income generation.

Previous studies on the extent of poverty in South Africa show that almost half its population lives in poverty. According to Booysen (2001) used an asset index approach to measure poverty and applied it to data from international Demographic and Health Surveys (DHS) and found that poverty in South Africa has increased. Meth and Dias (2004) in their analysis of the 1999 October Household Survey and the 2002 Labour Force Survey also showed that the number of poor people increased between 1999 and 2002. The 2003 report by the United Nations Development Programme (UNDP) revealed that about 48.5 percent or 21.9 million of South Africans currently live below the national poverty line placed at R354 per adult equivalent per month (UNDP, 2003). Furthermore, an analysis of income and expenditure data between 1995 and 2002 by Du Toit (2005) suggests that the proportion of people living below the 1995 poverty rate declined marginally from 51 percent to 48 percent, but that actual numbers increased by more than one million. Another study by Bhorat and Kanbur (2005) found evidence to suggest that income poverty is on the increase since the headcount index rose nationally from 32 percent to 34 percent between 1995 and 2002.

2.13 Summary

Poverty is one of the important developmental challenges facing South Africa. Since the advent of democratic government in 1994, considerable efforts have been undertaken to address poverty and overcome inequality, but rather than abating, the incidence of poverty has continued to be on the increase, thus many households have sunk deeper into poverty.

Households in the rural areas face a variety of risks and hazards during the times of severe economic and social hardships and such a situation make them vulnerable to poverty. This contributes to stress, health and nutritional problems little or no education for the children and also shelter problems. Shocks which vary from location to location can be of high or low frequency, depending on the socio-economic conditions in which the households find themselves. However, adoption of different risk-spreading strategies is very common in the rural context to de-concentrate the risk. Unfortunately, the strategies they adopt are not only perceived as inadequate but they further contribute to the weakening of the potential of the household to alleviate the level of vulnerability in the future. Crop failure, livestock losses, premature death, accidents and ill-health are some of the common shocks that household face.

CHAPTER THREE

Research Methodology

3.1 Introduction

This chapter presents the methods used in collecting and analysing the data. The chapter is intended to show how the study was conducted. It starts by explaining the study area, sample size and sampling procedure from which data was collected. The chapter goes on to describe the data collection methods. The sections on data collection method explain the tools that were used for collecting data. The way the survey data were analysed is also presented.

3.2 Study area

Ngaka Modiri Molema District is located in the North West Province which is the second largest of the nine provinces in South Africa. The area is inhabited by different races although there are many Setswana as compared to the other races. Both smallholder and commercial agriculture are practised in the area. Ngaka Modiri Molema District consists of five local municipalities, namely Distobotla, Mafikeng, Ratlou, Tswaing and Ramotshere.The district covers an area of 31039 square km^2 and has five local municipalities within its area of jurisdiction. Educational and skills levels are generally low. The unemployment rate stands at 42.3%. According to Statistics South Africa, the population of the District increased from 685032 in 1996 to 806914 in 2003. Much of the district consists of flat land areas of scattered trees and grassland. Temperatures range from 17° to 31 °C (62° to 88°F) in the summer and from 3° to 21 °C (37° to 70°F) in the winter. Annual rainfall totals about 360 mm (about 14 in), with almost all of it falling during the summer months, between October and April. The riverine systems within the North West Province are susceptible to a range of climatic conditions, particularly rainfall and evaporation. Rainfall is highly variable, both in space and time, often resulting in severe droughts and extreme flooding (Tswelopele Enivornmental, 2008).

Figure3.2. Map of Mafikeng Local Municipalities of the North West Province

3.3 Sample size and sampling procedure

The sample size is important as it allows the research to obtain as much information from different individuals. In this study a total of 200 households participated were randomly selected in this survey. This sample size was considered adequate to permit satisfactory statistical analysis. It is very important that sample is representative as possible. Since the data obtained from a sample will be generalized to the whole population, the manner in which the sample units are selected is important. A sample should be representative therefore the sample size should be large enough to conduct reliable statistical analysis. In this study, stratified random sampling method was applied in order to choose the respondents.

3.4 Data collection

This study used primary data. The data were collected through administration of questionnaires to respondents in the study area. The survey was conducted between April and June 2013. The primary data consist of both qualitative and quantitative data which are collected at the level of the households in the five local municipalities. The questionnaires were then administered to respondents (rural households) through face to face interviews. According to Bless and Smith (2000), an interviewer -administered interview is an important

tool of data collection because it reduces omission of difficult questions by respondents. In addition, it reduces the problem of word or question misinterpretation (misunderstandings) by respondents and can be administered to households who can neither read nor write. In addition the presence of the interviewer increases the quality of the responses since the interviewer can probe for more specific answer (Leedy and Ormrod, 2004). In other words the use of interviewer administered questionnaires ensures minimal loss of data when compared to the other methods. In general the heads of the households were interviewed, but when not present or available the spouse or an adult household's member was interviewed. Each interview lasted on average 45 to 60 minutes.

.3.4.1 Variables considered

The questionnaire was designed to capture data on welfare shocks and poverty among rural households. The data that were collected included:

- Socio-economic characteristic of the household (gender, marital status, age, educational status, household size, primary occupation and sources of income per annum)
- Incidence of welfare shocks among rural households (drought, flooding, economic shocks, and agricultural production)
- Access to basic services (membership of association, access to electricity, access to potable water, access to credit, access to market and access to infrastructure)

3.5 Data analysis

The Statistical Package for Social Scientists (SPSS) version 20 was used to run the data collected from welfare shocks and poverty among rural households in Ngaka Modiri Molema District. To analyse data descriptive statistical analyses was used.The main descriptive statistics that were employed were frequencies and mean. These are useful in analysing household characteristics as well as analysing the relationship between variables.

3.5.1 Probit regression

Probit regression model was used to analyze the determinants of the probability of household being poor. The Probit specification is designed to analyse qualitative data reflecting a choice between two alternatives. The alternatives in this work are the poor and the non –poor. The dependent variable takes the value of 0 or 1 where 1 represents being poor and 0 otherwise.

Poverty was defined as the being middle to secure enough income to meet households basic requirements of food, education, clothing and other rented services. The choice of the Probit model is based on the fact that ordinary least squares assume a continuous dependent variable. If a binary dependent variable y, takes on value of zero and one, a simple linear regression is not restricted to lie between zero and one (Okunmadewa,2001).The Probit model is specified as thus

$$P_r\left(y_i = 1/x_i, \beta\right) = 1 - \phi(-x_i\beta) = \phi(x_i\beta)$$

Where

P_r= likelihood of being poor

y_i = Poverty status of household, $Y_I = 1$, when the household is poor and 0 if otherwise

X_i= ith explanatory variables

β = parameter associated with x_i

ϕ = Cumulative distribution functions of the standard distribution.

Other statistics of interest are:

- The LR-statistics which test the joint null hypothesis that all slope coefficients except the constant are zero. It is given as follows -2(L (B)-L (B)). It is used to test the overall significant of the model. The number in parenthesis is the degree of freedom, which is the number of restriction under test.
- Probability (LR-statistics): This is the P value of the LR test statistics under, the null hypothesis, the LR test statistics is asymptotically distributed as X^2 variable with degree of freedom equal to the number of restriction under test.
- Mc Fadden R-squared: This is computed as

$1 - L\left(\hat{B}/L\left(\hat{B}\right)\right)$, where L (B) is the restricted log likelihood. It is an analogue to the R^2. It always lies between zero and one (Okunmadewa, 2001).

3.5.2 Dependent variable

Y_i is the poverty status of a rural households coded as, 1 if the household is poor and 0 if non-poor. The independent variables are:

Table 3.5.3 Independent variables of poverty status of rural households

X_1	Mafikeng (Yes= 1, 0 otherwise)
X_2	Marital status (married=1, 0 otherwise)
X_3	Number household less than 14
X_4	Adults more than 65 years
X_5	No formal Education (Yes= 1, 0 otherwise)
X_6	Gender (male = 1, 0 female otherwise)
X_7	Farmers primary occupation (Yes= 1, 0 otherwise)
X_8	Land area (Yes =1, 0 otherwise)
X_9	Livestock land (ha)
X_{10}	Inheritance mode of land ownership (Yes =1, 0 otherwise)
X_{11}	Farming experience (year)
X_{12}	Drought in the past three year (Yes =1, 0 otherwise)
X_{13}	Migration due to drought (Yes = 1, 0 otherwise)
X_{14}	Flooding in the past three year (Yes= 1, 0 otherwise)
X_{15}	Food price increase in the period year (Yes= 1, 0 otherwise)
X_{16}	Inadequate access to market in the period year (Yes= 1, 0 otherwise)
X_{17}	Inadequate access to credit (Yes= 1, 0 otherwise)
X_{18}	Inadequate access to land (Yes=1, 0 otherwise)

X_{19}	Disease outbreak (Yes=1, 0 otherwise)
X_{20}	Crop affected by crop pest (Yes=1, 0 otherwise)
X_{21}	Livestock loss (Yes= 1, 0 otherwise)
X_{22}	Access to health facilities (Yes = 1, 0 otherwise)
X_{23}	Membership of association (Yes=1, 0 otherwise)
X_{24}	Access to electricity (Yes= 1, 0 otherwise)
X_{25}	Access to potable water (Yes= 1, 0 otherwise)
X_{26}	Amount of credit (R) (Yes = 1, 0 otherwise)
X_{27}	Access to market (Yes=1, 0 otherwise)
X_{28}	Market distance (25 Km)
X_{29}	Access to infrastructure Road (Yes = 1, 0 otherwise)
X_{30}	Used coping method (Yes= 1, 0 otherwise)

3.6 Chapter Summary

In this chapter, the methods that were used to analyse data were presented. Data were collected from 200 rural households in the Ngaka Modiri Molema District. Stratified random sampling was applied in order to select a sample. To collect the data, questionnaire was designed and administered to respondents through face to face interview. The Statistical Package for Social Scientists (SPSS) was used to analyse the data.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results of socio –economic characteristics of the respondents, poverty incidence analysis and the impact of welfare shocks.

4.2 Socio-economic characteristics of the respondents

4.2.1 Gender of the household head

Socio-economic characteristics of the sampled households are analysed and presented in this section. The study area was characterized by high proportion of female headed households with 59% (Figure 4.1) while 41% were male headed. According to Ellis (2003), women typically have less access to productive resources and assets such as land and credit. Women make up a majority of the world's poor and South Africa is no exception in this regard. Nowadays, issues such as the mortality of male heads, resulting from HIVS/AIDS and high level of unemployment, perpetuate this phenomenon even further. Against this background it is only natural that female headed households are often suspected to be poorer than male headed households.

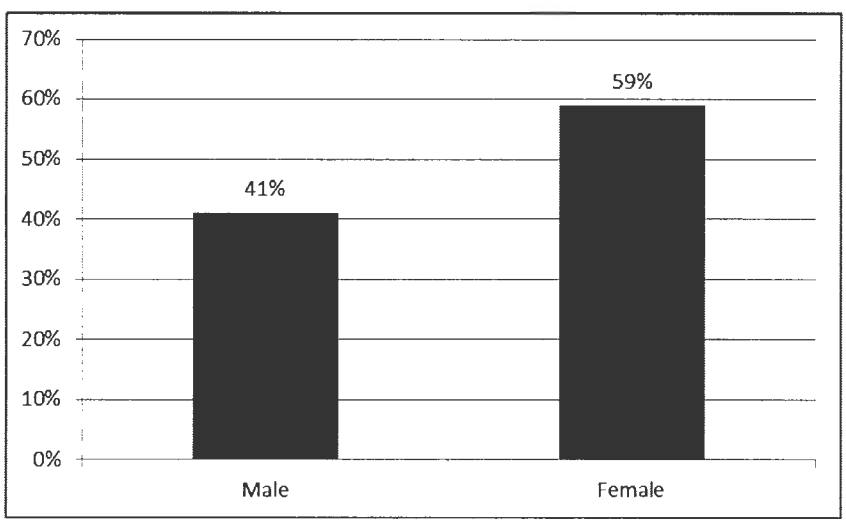

Figure 4.1: Gender of household heads (n=200)

4.2.2 Marital status of the household heads

Marital status of the household heads was considered in this study. A study by Gray (1998) revealed that married people are able to share household activities such as agricultural production and herding of livestock. While households with single, divorced and widowed heads have to do all the household activities as they do not have all the support unless from children who are old enough to do some household activities. The result in Table 4.1 indicates that the majority (43%) of the respondents were married while divorces were 10% single parents who never got married were 23% and widowed were 24%.

Table 4.1 : Marital status of household heads (n=200)

Marital status	Frequency	Percentage
Married	86	43
Divorced	20	10
Single	45	23
Widowed	49	24
Total	200	100

4.2.3 Educational status of the household heads

Education is one of the most fundamental factors that can enable rural households to easily understand basic farm management,financial management , agricultural marketing principles and the ability to create business networks. In other words, education is able to improve the competitiveness of rural households in order to generate farm income (Msindisi, 2002). A higher level of education is associated with more knowledge and more access to information. The educational status of the households obtained by the respondents are presented in Figure 4.2. The result indicates that 29.50% of the rural households had no formal education and about 29.50% had primary education while 36.50% had secondary education. Close to 4.50% of the rural households had tertiary level of education. The low level of education may affect the income earning capacity of the households as they may lack the requisite skill and training to secure a highly remunerative job. However more efforts are still needed in providing primary and tertiary education for rural households.

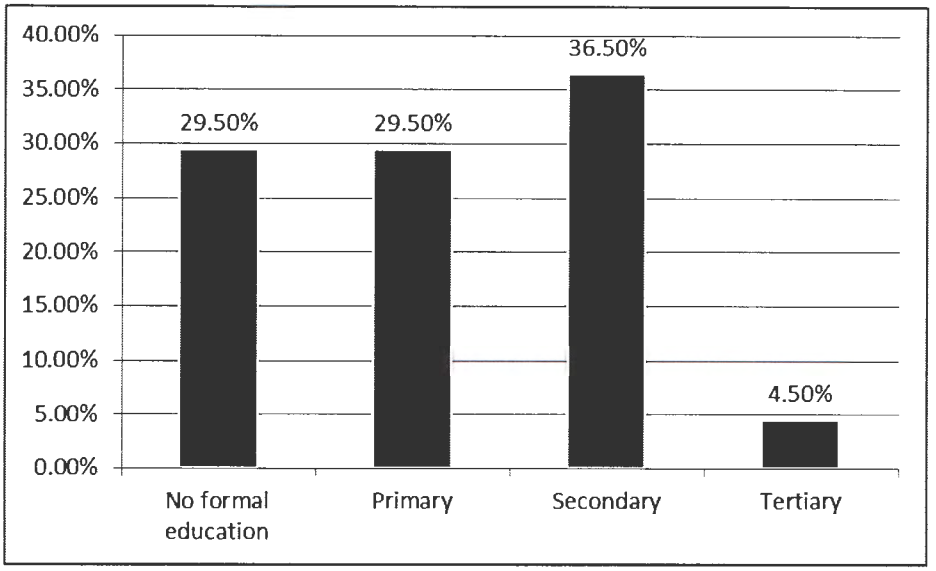

Figure 4.2: Educational status of household heads (n=200)

4.2.4 Primary Occupation of household heads

According to Mather (1998) employment in farming and non-farming activities is important for diversification of sources of rural households livelihoods. It enable households to modernize their production by giving them an opportunity to apply proper inputs and reduce the risk of food shortage during periods of drought. Table 4.2 shows that the distribution of farming and non-farming members across the rural households. The majority (65%) of the farming households were engaged in full time farming while 35% of the respondents were not.

Table 4.2 : Primary occupation of household heads (n=200)

Primary occupation	Frequency	Percentage
Farming	132	65
Non-Farming	68	35
Total	200	100

4.2.5 Mode of land ownership

According to Kulangule (2003), access to land and land tenure security are at the heart of all successful rural societies. Having land, controlling it and using it are critical dimensions of rural livelihoods. In rural societies, landless or near-landless people and people with insecure

tenure rights often constitute the poorest and most vulnerable groups. With reference to Figure 4.3. shows that only 36.50% of the rural households interviewed have title deeds to the land they use. Thus 64.5% of the rural households have the right to use the land they are farming on, purchased, borrowed, lease and share crop. In other words, the majority (64.5%) of the rural households do not own land. Ownership of land can influence agriculture productivity because farmers who do not own land can be reluctant to develop and maintain the land.

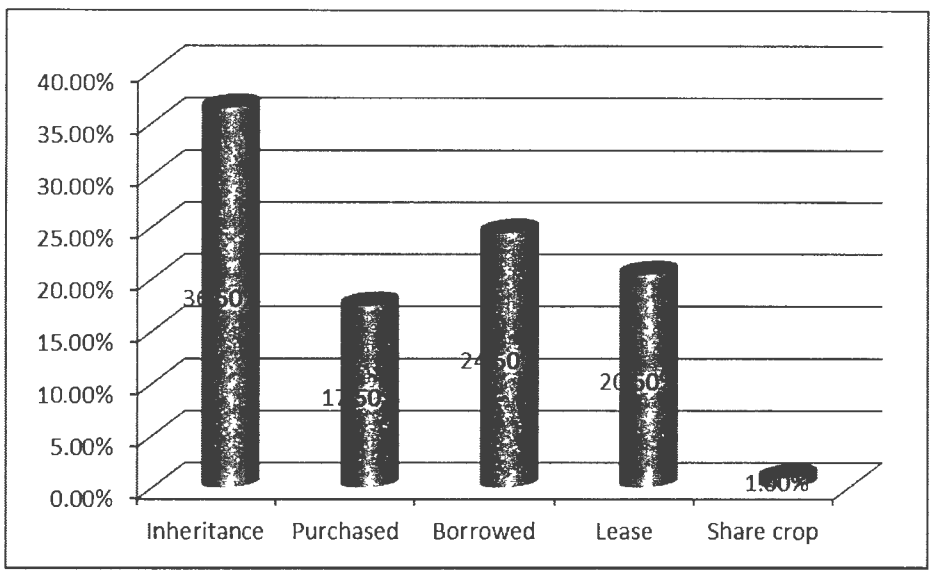

Figure 4.3 : Mode of land ownership (n=200)

4.2.6 Access to market

The results in Table 4.3 indicate that the majority of the respondents (86%) had access to markets, while 14% did not. Market places in rural areas are often characterized by long distance and considerably long time interval between market days. These characteristics of the rural marketing system obviously adversely affect the transaction of good and services by rural households.

Table 4.3: Access to market by the respondents (n=200)

Inadequate access to market	Frequency	Percentage
Yes	172	86
No	28	14
Total	200	100

4.2.7 Access to credit

According to Baumann (2004), the majority of poor households in South Africa are left out of the financial (credit) market systems. It has been argued the most rural households in South Africa are too poor and cash-strapped to benefit from any kind of access to credit, they are essentially shut out of credit and savings services because they did not meet the traditional criteria for borrowing. Figure 4.4 show that 75.50% of the households had access to credit, while 24.50% did not.

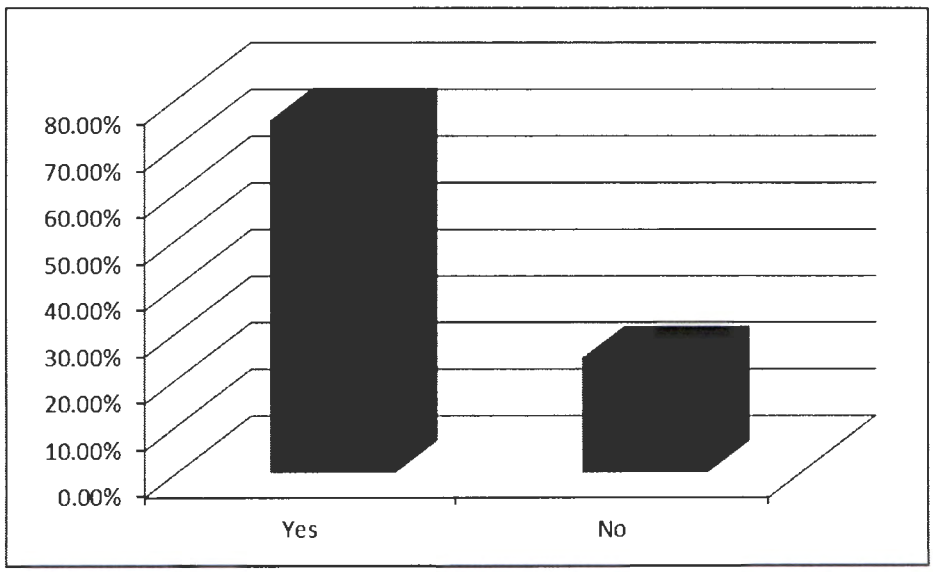

Figure 4.4 : Access to credit by the respondents (n=200)

4.2.8 Access to land

Secure access to land is a crucial factor in the eradication of hunger and poverty in rural areas however secure access to land is frequently not easy and is a complex process that can even constitute violent conflicts in the rural areas (Food & Agriculture Organization, 2005). Table 4.12 indicated that 55.50% of the rural households had access to land, while 44.50% did not. Limited access to productive land has a huge effect on food insecurity in the rural areas. Moreover, in the rural setup most of the land is communal, and access to such land is determined by the contribution and close connection of the household to the traditional authority.

Table 4.4: Access to land by the respondents (n=200)

Inadequate access to land	Frequency	Percentage
Yes	111	55.50
No	89	44. 50
Total	200	100

4.2.9 Access to basic service

Table 4.5 shows that only 35% of the rural households had support services from the government. The respondents (64%) who had no support services felt that government had abandoned them and is only focusing on other regions. They claimed that government officials only remember the region when it is election time and they are looking for votes.

The provision of basic social services such as electricity and water represents both the end and the means to economic development. The development of many African countries is challenged by many factors, among which is the population's poor access to sustainable and modern sources of energy (Davidson, 2004). Table 4.5 shows that out of the household's respondents, 52% had access to electricity, while 48% did not. The majority (62%) of the household had access to potable water, while 38% did not.

According to Jahan (2005), access to basic infrastructure such as road makes market easily accessible. More often than not, many rural areas are located very far from the potential markets and the centre of business activities. Rural households that do not have access to infrastructure experience high transaction costs. In addition, the ability of rural households to access necessary services depends on the transport systems and their location away from relevant service providers. The majority (35%) of the respondents had access to infrastructure, while 65% did not as shown in Table 4.5.

Table 4.5: Access to basic services (n=200)

Membership of association	Frequency	Percentage
Yes	71	36
No	129	64
Access to electricity		
Yes	104	52

No	96	48
Access to potable water		
Yes	124	62
No	76	38
Access to infrastructure Road		
Yes	70	35
No	130	65

4.3 Exposure to income shocks and coping options

There is no doubt that shocks affect the livelihood of number individual and household members. Shocks are classified into a number of broad categories. In this study, drought flood, economic and agricultural production shocks were considered.

4.3.1 Drought affected

According to Mugwara (2000), drought is a normal part of climate. It is characteristics of the drier areas and is perceived to be extremely unfavourable when there are unusual rainfalls. Households are vulnerable to drought in dry lands where water sources are not available on a timely basis and rainfalls are limited. Households are vulnerable to drought through losses of livestock and crop failure which often lead to severe food insecurity.Table 4.6 shows that majority of the respondents (56%) experienced drought at one time, while 44% did not. In the study areas, 20.50% of the respondents indicated that their livestock were affected by drought (Table 4.6). This is expected because there will not be access to grass and water that could sustain the livestock. However, 29% of the respondents experienced crop failure during drought. This was due to insufficient rainfall. Also 1% of the respondents irrigation systems are not easy to install and utilize. The respondent (5.50%) believe that drought does not only impact on the people's access to food but further compounds the rural communities problems with regards water availability and its accessibility.

Table 4.6: Drought incidence (n=200)

Affected by drought	Frequency	Percentage
Yes	112	56
No	88	44
How affected		
Livestock	41	20.50
Crop failure	58	29
Insufficient irrigation water	2	1
Insufficient water for domestic use	11	5.50

4.3.1.1 Migration due to drought

During periods of natural disaster like drought, migration is one of the measures usually taken by affected rural communities (Dillon,1997). The result in Table 4.7 indicates only 22% of the respondents left their household village because of drought while 78% did not relocate. The few households that left claimed they could not cope with the hardship of drought effects and had to leave because they lost all their animal.

Table 4.7: Migration due to drought (n= 200)

Migration due to drought	Frequency	Percentage
Yes	44	22
No	156	78
Total	200	100

4.3.1.2 Coping methods due to drought

Some of the households who were affected by drought (Table 4.7) but did not migrate (78%) received help or support from different sources including the community members. Figure 4.5 shows that 16% of the rural households have friend's support when drought affected them, while 29% had to migrated . Only 10% of the respondents had to borrow from friends or relatives, while 23% had help from the government.

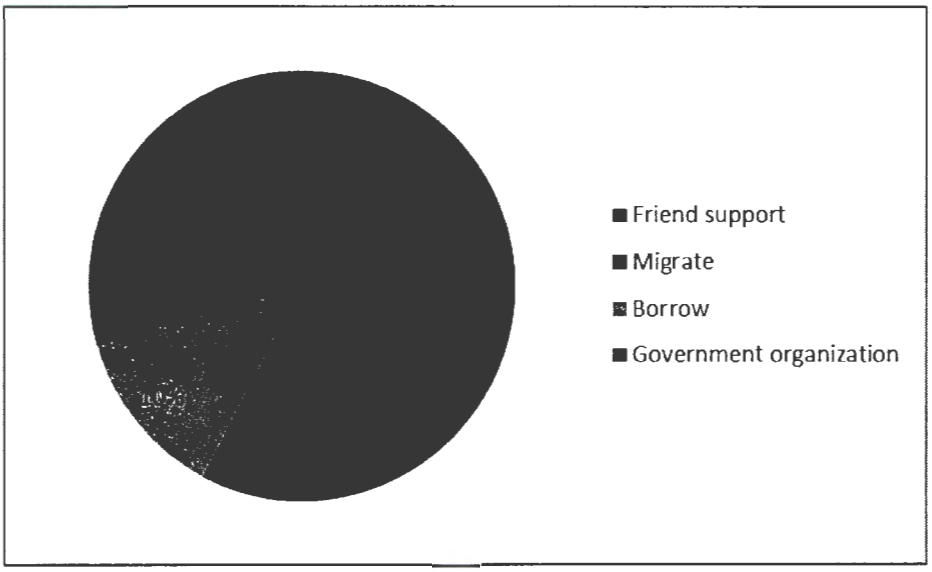

Figure 4.5: Coping methods due to drought

4.3.1.3 Alert of drought incidence

Table 4.8 indicate that 46% of rural households were alerted of drought before it started. Those respondents claimed that they believed when they were alerted. However, 54% of the respondents were not alerted of drought incidence.

Table 4.8: Alert of drought incidence (n=200)

Drought incidence before its onset	Frequency	Percentage
Yes	93	46
No	107	54
Total	200	100

4.3.1.4 Media of Drought Alertness

Figure 4.6 shows that 13% of the 46% respondents who indicated that they were alerted of drought incidence claimed to be alerted through television media; 14% was through the radio; 1% was through newspaper; 1 % was through friends and neighbours. About 12% was through extension workers, while 5% was through farmer unions. The agricultural extension workers are the agency responsible for the weather interpretation (Natural Department of Agriculture, 2003) and as a result it would be expected that this agency should create awareness to farmers about form of disaster associated with agriculture.

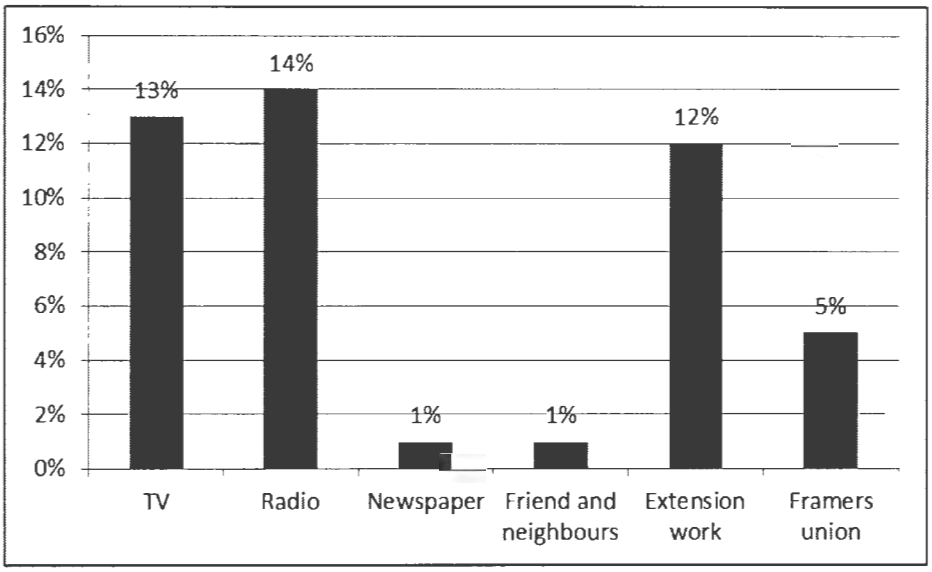

Figure 4.6: Drought alertness through different media

4.3.1.5 Access to good food during drought

Table 4.9 shows that 29 % of the rural households indicated that they had access to good food during drought period, while 71% did not. Most of the rural households claimed that they have access to the same types of food they had during normal times which could not be said to be a balanced diet. The only thing that changed during drought period was the quantity of such foods because they had to forgo buying foods for the family in other to be able to purchase feed supplements for their livestock.

Table 4.9: Access to good food during drought (n=200)

Access to good food during drought	Frequency	Percentage
Yes	57	29
No	143	71
Total	200	100

4.3.2 Flood affected

According to Foster (2009), floods occur worldwide, often after heavy rain in an area. Once the flood water clear away, it leaves behind a variety of different effect on the land, animals and people. Floods that contribute to destruction of infrastructure, closure of schools and sometimes losses of lives amongst others, are perceived to be one of the most dangerous

disaster events that expose rural households to absolute poverty. Table 4.10 indicate that 63% of the rural households had experienced flood, while 37 % did not. Most of the respondents (14%) indicated that their houses collapsed due to excessive impact of floods. About 14% of the respondents whose houses were damaged by floods were forced to relocate to alternative areas while 86% did not relocate.

Table 4.10: Affected of flood among rural households (n=200)

Affected by flood	Frequency	Percentage
Yes	132	63
No	68	37
House collapse due to floods		
Yes	29	14
No	171	86
Relocation due to house collapse		
Yes	28	14
No	172	86

4.3.2.1 Most vulnerable to households flood

Table 4.11 shows at majority of the respondents (76 %) of the female were most vulnerable to floods, whereas for male it is 24 %. There are several reasons why female households are most vulnerable to the risk of flooding. Female in the study area were not able to compete favourably with male for available resources. They were typically disadvantaged regarding access to land, labor, credit and insurance market and they were discriminated against by cultural norms.

Table 4.11: Most vulnerable to Households flood (n=200)

Vulnerable households to flood	Frequency	Percentage
Male	47	24
Female	153	76
Total	200	100

4.3.2.2 The underlying causes of vulnerability of households

There were many underlying causes of vulnerability to floods for most rural households. Figure 4.7 shows that some of the rural households indicated proximity to flood prone areas (22.50%). Poverty (43.50%) and lack of alternative livelihood sources (34%) were the main underlying causes of vulnerability.

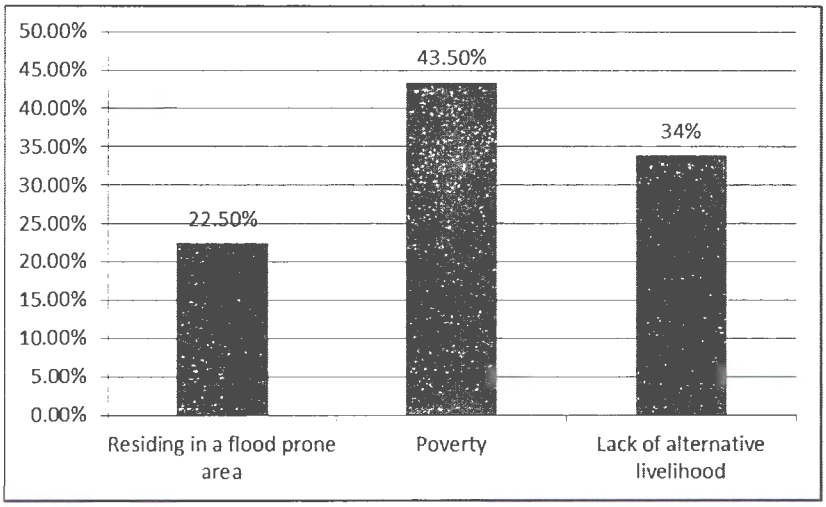

Figure 4.7: The underlying causes of vulnerability of households (n=200)

4.3.2.3 Other disaster encountered

Disaster is the consequences of social, economic and natural events or hazards (for instance drought, flooding fire, storm or wind) that affect human activities. The effects of disastrous event are more visible to poor people because of the social, economic and environmental characteristics which do not allow them mitigate or prevent the adverse impact of the event (Blaike, 2004). The result in Table 4.12 indicates that majority of the respondents (36%) had experienced fire outbreak, while 49% and 15% have experienced storm and wind, respectively.

Table 4.12: Other disaster encountered (n=200)

Other disasters encountered during drought and flood	Frequency	Percentage
Fire outbreak	72	36
Storm	97	49
Wind	30	15

4.4 Food price increase

The changes in the market price and inflation fluctuation caused by economic meltdown, impacts severely on the conditions of the households in the rural areas in terms of the inability to buy enough food (Hetizmann, 2003). Figure 4.8 shows that 88.50% of the households experienced food price increase, while 11.50% did not

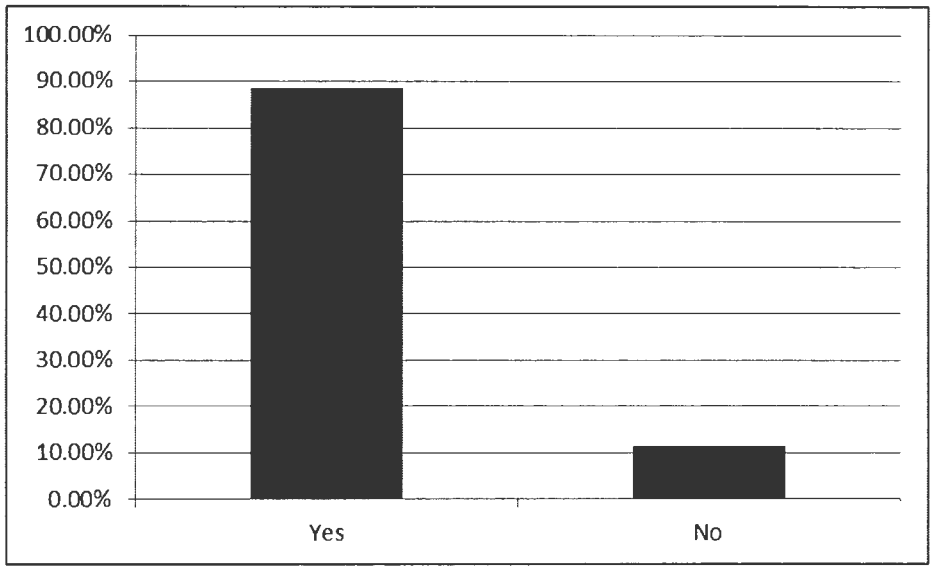

Figure 4.8: Food price increase (n=200)

4.4.1 Disease outbreak

Table 4.13 shows that majority of rural households (48%) felt the impact of disease outbreaks such as malaria and tuberculosis, while 52% of the household was not affected. When disease afflicts households, their productivity reduces and they remain in poverty with an unacceptable standard of living.

Table 4.13: Disease outbreak (n=200)

Disease outbreak	Frequency	Percentage
Yes	95	48
No	105	52
Total	200	100

4.4.2 Crop pest and diseases

The majority (53%) of the rural households' crop were affected by crop pest disease while 45.50% of the respondents were not affected as shown in Figure 4.9

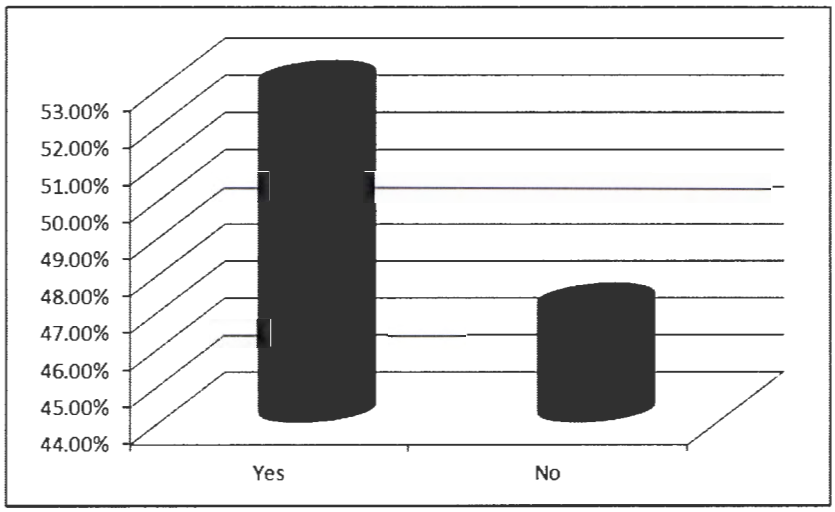

Figure 4.9: Crop pest and diseases (n=200)

4.4.3 Loss of livestock

According to Silver (2008) argues that livestock in rural areas not only augment income, employment and food security but also serves as store house of capital and insurance against shocks. Livestock, unlike maize production does not need much of the fertile land to survive however it suffers risk such as infectious diseases and animals dying during the dry seasons. Table 4.14 shows that majority of the respondents (48%) had lost livestock due to diseases, while 52. % was never affected by disease.

Table 4.14: Loss of livestock (n=200)

Loss of livestock	Frequency	Percentage
Yes	95	48
No	105	52
Total	200	100

4.4.4 Access to health facilities

One of the biggest shocks to economic opportunities faced by households is major illness to members of the households. While health shocks can have adverse consequence for households in both developed and developing countries, they are likely to have particularly severe effect on household in the latter because these households are typically unable to access to formal insurance market to help insure consumption against such shocks (Dercon, 2000). Table 4.15 shows that majority of the respondents (28%) indicated that health facilities were available in their communities. Only 72% of the respondents did not have access to health facilities in their areas.

Table 4.15: Access to health facilities (n=200)

Access to health facilities	Frequency	Percentage
Yes	56	28
No	144	72
Total	200	100

4.5 Coping strategies used during food shortages

Most households in the rural areas have been forced to adopt different food coping strategies. These are mechanisms employed by households when the means of meeting their needs are disrupted by one or a combination of factors including drought, low income and unemployment, loss of livelihood or high food prices. Figure 4.11 shows that the majority of the households (78%) indicated that when there was no money to buy food, the main food they could afford was maize. Also, 22% of the respondents could afford bread when they had money.

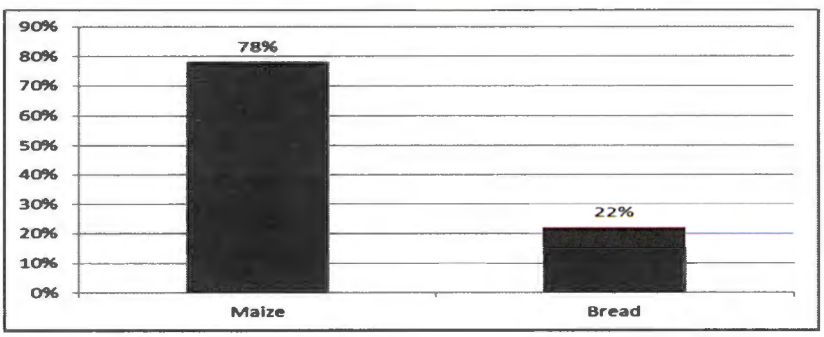

Figure 4.10: Coping strategies used during food shortages (n=200)

4.5.1 Poverty status of the households

According to Quisumbing (2002),whether or not a household is poor has been widely recognized as an important welfare indicator. However ,today's poor household may or may not be tomorrow's poor. Households that are currently non- poor, but face a high probability of adverse shock, may on experiencing such shocks, become poor tomorrow. Table 4.16 represent the poverty status of the rural households. About 61% of the respondent were poor, while 39% were non- poor.

Table 4.16 : Incidence of poverty among rural households (n=200)

Poverty status	Frequency	Percentage
Poor	123	61
Non Poor	77	39
Total	200	100

4.6. Result of Probit regression analysis of effect of welfare shocks on poverty status of households

Table 4.17 shows the results of the Probit regression analysis. The results show that the model produced a good fit of the data as reflected by the statistical significance ($p<0.01$) of the computed Likelihood Ratio Chi Square (128.97). Marital status of the respondents was found to have a significant positive relationship with poverty status. This implies that married couples are vulnerable to becoming poor. This may be due to larger household's sizes of the poorly resourced respondents.

Number of adults more than 65 years were found to have statistically significant negative relationship with poverty status. This means that, as the person grows above 65 years his or her poverty level declines. This may be due to the facts that in South Africa, everyone above the age of 60 years qualify for pension grant. This if properly managed can sustain the individual sometimes including grandchildren.

Number of males and number of females in the households were found to have significant positive relationship with poverty status at the 1% level of significance. This implies that as the household size increases the poverty status of the household increases, other factors held

constant. This is expected because as common in rural areas, large family size is poverty enhancing, as it tends to reduce per capita expenditure of the households.

Land access was found to have a negative relationship with poverty status at the 10% level of significance. The more land that the households own the less they become poor. This may be due to the fact that land has economic benefits.

Affected by drought variable was found to have negative relation with poverty status at the 10% level of significance. This means that the poverty level households exposed to drought has declined. This may be due to that the households already experienced this event and plan ahead of it.

Affected by flood variable was found to have negative relation with poverty status at the 10% level of significance. This means that the poverty level households exposed to flood has declined. This may be due to the fact that the households already experienced this event will always guide against it.

Market distance was found to have a significant positive relationship with poverty status at the 5% level of significance. The further the market the more poor households become. This may be due to the high transportation cost incurred by rural households.

Table 4.17: Effect of welfare shocks on poverty

Variables	Coefficient	Std.error	z	P>/z/	[95% C.I]	
Mafikeng	-1.008766	.5051755	-2.00	0.046	-1.998892	-.0186404
Gender	.5441116	.3525476	1.54	0.123	-.1468689	1.235092
Marital status	1.546797	.4773878	3.24***	0.001	.6111339	2.48246
Households less than 14	.0572958	.2437096	0.24	0.814	-.4203662	.5349577
Adults more than 65	-.8057945	.3299773	-2.44**	0.01	-1.452538	-.1590508
No education	.2438558	.383847	0.64	0.525	-.5084704	.9961821
Number of male	.8679027	.2618484	3.31***	0.001	.3546892	1.381116
Number of female	1.139849	.278097	4.10***	0.000	.594789	1.684909
Farming primary occupation	3.177918	2.091065	-1.52	0.129	-7.27633	.9204934
Land area	-2652749	.1395881	-1.90*	0.057	-.5388625	.0083128
Livestock land	.2051001	.1581987	1.30	0.195	-.1049636	.5151638
Inheritance mode of land ownership	-.7511427	.5188837	-1.45	0.148	-1.768136	.2658507
Farming experience	-.2772212	.1735988	-1.60	0.110	-.6174687	.0630262
Affected by drought	-.6305922	.366825	-1.72**	0.086	-1.349556	.0883715
Affected by flood	-.5975899	.3437548	-1.74**	0.082	-1.271337	.0761571
Food price increase	.6637098	.8393961	0.79	0.429	-.9814763	2.308896

Access to market	-.9040027	.8976932	-1.01	0.314	-2.663449	.8554435
Access to credit	.0624567	.5437999	0.11	0.909	-1.003372	1.128285
Access to land	.2148492	.4347574	0.49	0.621	-.6372596	1.066958
Disease outbreak	-.1778297	.4431415	-0.40	0.688	-1.046371	.6907117
Crop affected by pest	-.1785462	.2922588	-0.61	0.541	-.7513629	.3942706
Loss of livestock	.3976945	.3048884	1.30	0.192	-.1998759	.9952649
Access to health facilities	-.1335955	.4490029	-0.30	0.766	-1.013625	.7464339
Membershipof association	.4867567	.4818257	1.01	0.312	-.4576044	1.431118
Access to electricity	-.6446621	.4259462	-1.51	0.130	-1.479501	.1901772
Access to potable water	2.50611	2.100447	1.19	0.233	-1.61069	6.622911
Amount of credit	-5.90e-07	.0000103	-0.06	0.954	-.0000208	.0000196
Market distance	.1275447	.0546814	2.33**	0.020	.0203711	.2347183
Coping method	-.0595987	.4469197	-0.13	0.894	-.9355452	.8163478
Constant	-5.597601	1.927547	-2.90	0.004	-9.375524	-1.819679
LR chi2 (32) =128.97; Prob> chi2 = 0.0000; Pseudo R2 = 0.5315; Log likelihood = -56.83024						

Note***- statistically significant at 1%, **-statistically significant at 5%,*-statistically significant at 10%

4.7 Chapter summary

The result of the study indicated that the majority (59%) of the rural households were female. This implies female households typically have less access to productive resources and assets such as land and credit. Female headed households are often suspected to be poorer than male headed households. The majority (43%) of the rural households were married. The educational level of all the rural households is generally low, where 29.50% had no formal education and (29.50%) have achieved primary education only. The majority (65%) of the rural household primary occupation is farming. About 36.50% of the rural household had title deeds to the land they use. The majority of the respondents (14%) had no access to market. About (75.50%) of the rural households had access to credit.The majority (36%) of the rural had support services from the government, while (64%) who had had no support services they felt that the government had abandoned them and is only focusing on other regions. About 52% of the rural household had access to electricity while 38% of the respondents had no access to potable water. Only 65% of the rural households had no access to infrastructure.

The households were exposed to drought (56%) and flood (63%). However drought is believed to have a greater effect because it leads to livestock loss (20.50%) crop failure(29%) and ultimately introduces households to food insecurity. Residing in a flood prone area(22.50%) and lack of alternative livelihood (34%) were identified as underlying causes

of vulnerability.Also (88.50%) of the respondents reported some increase in food prices. About 47% felt the impact disease outbreak while 48% lost their livestock due to diseases. The majority (78%) of the respondents indicated that when there was no money to buy food, the main food they could afford was maize. Using the FGT relative poverty measure 61% of the respondents fall below the poverty line.

The result of the Probit model shows that the marital status, number of adults more than 65 years, number of males and number of females, land area, affected by drought, affected by flood, and market distances were statistically significant in explaining the probability of being poor.

CHAPTER FIVE

Conclusions and Recommendation

5.1 Introduction

This chapter present the conclusion and recommendation from the study.

5.2 Conclusion

The purpose of this research was to analyse the effect of welfare shocks on poverty among rural households in the Ngaka Modiri Molema District. By identifying incidence of welfare shocks, the study provided mitigation strategies that would result in increased off take rate thereby improving the sustainability and contribution of rural households in eradicating poverty in rural areas.

To guide the systematic process of the study, the study used primary data that consist of qualitative and quantitative information. A qualitative research approach was used to collect information in terms of how people feel about the situation prevailing in the rural areas and the shocks they face. A quantitative method was adopted to analyse data in terms of frequencies and number on the shocks strategies that people are adopting in the rural areas. The study collected data through a literature review, where element of welfare shocks and poverty among rural households were described in the theoretical context. Books, journal articles and government documents were used in this regard. The information in the rural areas was collected through questionnaire survey. Sampling procedure was used and stratified random sampling method was applied in order to choose the sample. The Statistical Software was also used to analyse information so us to create frequencies, percentages and graphs.

The result of the Probit model shows that the marital status, number of adults more than 65 years, number of males and number of females, land area, affected by drought, affected by flood, and market distances were statistically significant in explaining the probability of being poor. Therefore any strategies to address rural poverty in the study area should consider the above variables.

5.3 Recommendation

This section gives a series of options that can be considered in South Africa, in an effort to help poverty among rural households.

- The shocks that households are facing in the rural areas should be critically and continuously examined in order to develop relevant measures that can reduce their intensity, particularly, for the poor marginalised households.
- Government should engage the rural communities and local authorities in making them aware of the drought, flood risk in view of the climate variability.
- In order to reduce the shocks experienced by the rural households, the government should subsidize the food price increase of agricultural inputs so that the prices of these inputs will be relatively stable.
- The government should ensure that land is available at least for farming.
- Education should be given to every individuals because it plays a vital role in the exit from poverty.
- Basic service provision (water, electricity and infrastructure) also needs to be accessible to all rural areas.

REFERENCES

Alayande, B and O. Alayande, (2004). A quantitative and qualitative assessment of vulnerability to poverty in Nigeria. A paper submitted for presentation of CSAE conference on poverty reduction growth and human development in Africa, March 2004.

Anderson, J.R., &Dillon, J.L. (1997). *Risk Analysis in Dry Land Farming Systems: Farm System Management Series 2 FA0,* Rome.

Anderson, J.R. (2003). *Risk in Rural Development: Challenges for Managers and Policy Makers.* World Bank, Washington DC.

Asfaw, A. & von Braun, J. (2004). Is Consumption Insured against Illness Evidence on Vulnerability of Households to Health Shocks in Rural Ethiopia, *Economic Development and Cultural Change,* 53(1), 115-29.

Baatjes, I. and Mathe K. (2003). Adult Basic Education and Social change in South Africa 1994 to 2003, HSRC Press. Cape Town.

Barnett, B., Barret, C., & Skees, J.R. (2008). Poverty traps and index- based risk transfer product. *World Development*, Vol.36, No. 10, pp. 1766-1785.

Barret, C. B., Reardon, T., & Webb, P. (2001). Non-farm income diversification and household livelihood strategies in rural Africa: concept, dynamics and policy implications. *Food Policy.* Vol.26, pp.315-331.

Barrett, C, (2003). Rural poverty dynamic: Development policy implication. A paper prepared for the 25th International Conference of Agricultural Economists, 16-22 August, Durban, South Africa.

Barrett C, Marenya PP, Mcpeak, J Minten , B, Murithi, F Oluoch-Kosura, W, Place F, Randrianarisoa, JC, Rasambainarivo, J &Wangila, J,(2006), Welfare dynamics in rural Kenya and Madagascar. Journal of Development Studies 42(2), 248-77.

Baumann, T. (2004). Pro-poor Microfinance in South Africa: Cost-efficiency and Productivity of South African Pro-poor Microfinance Institutions. *Development Southern Africa,* 21 (5): 786-798.

Bebbington, A.J. (1999). Capital and capabilities: framework for analysing peasant viability rural livelihoods and poverty. *World Development.*Vol. 27, No. 12, pp.2021-2044.

Blaikie, P., Cannon T., Davis, I., & Wisner, B. (2004). At Risk*: Natural Hazards, People's Vulnerability and Disaster.* Routlege, London.

Bhorat, H. & Kanbur, R. (2005). *Poverty and Well-being in Post –Apartheid South Africa: An Overview of Data, Outcomes and Policy.* Development Policy Research Unit, University of Cape Town, DPRU Working Paper 05/101.

Booysen, F (2001). The Measurement of Poverty. *In Bradshaw, D. & Steyn, K. (eds.) Poverty and Chronic Disease in South Africa. Technical Report 2001. p. 15 – 37)* [Online]. Available: http://www.mrc.ac.za/bod/povertyfinal.pdf [Accessed 11September 2013].

Bradshaw, J. (2000). The Measurement of Absolute Poverty. A Paper for the FiSS Conference. Sigtuna, Sweden, 17-20 June 2000.

Buckland, R., Eele, G. & Mugwara, R. (2000). *Humanitarian crisis and natural disasters: ASADC perspective.* E. Clay & O. Stokke, (Eds). Food aid and human security. EuropeanAssociation of Development Research. London: Fank Cass Publishers.

Calvo, C. (2007). Vulnerability to multidimensional poverty: Peru, 1998-2002. *Word Development*. Vol.36, No.6, pp.1011-1020.

Carter, M & Barrett, C, (2006). The economics of poverty traps and persistent poverty: An asset-based approach. Journal of Development Studies 43(2), 178-99.

Carter, M, Little P, Mogues, T & Negatu, W, (2007). Poverty traps and natural disasters in Ethiopia and Honduras. World Development 35(5), 835-56.

Chaudhuri, S. (2000). Empirical methods for assessing household vulnerability to poverty. *Department of Economics and School of International and Public Affairs*. New York: Columbia University Mimeo.

Chamber, R. (1998). Poverty in India: Concepts, Research and Reality. Discussion Paper 241, Institute of Development Studies, University of Sussex.

Christianensen, L. J and K. Subbarao. (2005). Towards an understanding of vulnerability in Rural Kenya. *Journal of African Economies,* 14 (4): 520- 58.

CIA. (2008). The CIA World Fact Book. The Central Intelligence Agency. New York, NY: Skyhorse Publishing.

Davies, S, (2010). Do shocks have persistent impact on consumption? The case of rural Malawi. *Progress in Development Studies* 10(1), 75-9.

Dercon, S., and Krishnan, P. (2000). Vulnerability, Seasonality, and Poverty in Ethiopia, *Journal of Development Studies*, 36 (5): 25-53.

Dercon, S, (2004). Growth and shocks: Evidence from rural Ethiopia. Journal of Development Economics 74,309-29.

Davidson, O. & Mwakasonda, S. A. (2004). Electricity access for the poor: a study of South Africa and Zimbabwe' in Energy for Sustainable Development, Vol. VIII No 4, pp. 26-40.

Du Toit, A. (2005). *Chronic and structural poverty in South Africa: challenges for action and research.* Programme for Land and Agrarian Studies, University of the Western Cape, PLAAS Chronic Poverty and Development Policy Series No.6.

Ellis, F., Kulengule, M., & Nyasulu, A. (2003). Livelihoods and rural poverty reduction in Malawi. *World Development.* Vol. 12, pp.33-52.

Eriksen, S., & Silver, J.A. (2008). The vulnerability context of a savanna area in Mozambique: household drought coping strategies and responses to economic change. *Environmental Science & Policy.* Vol. 12, pp.33-52

Fleisher, B. (1990). *Agriculture Risk Management.* Lynne Rienner, Bouder.

Food and Agriculture Organization (FAO) ***(2005).*** *Access To Rural Land and Land Administration after Violent Conflicts.* FAO Information Division, Rome.

Fraser, E.D.G., Mabee, W., & Figge, F. (2005). A framework for assessing the vulnerability of food systems to future shocks. *Futures.* Vol. 37, pp.465-479.

Gray, M. (1998). Development Social Work in South Africa: Theory and Practice. Cape Town: David Philip.

Hahn, M.B., Riederer, A.M., & Foster, S.O. (2009). The livelihood vulnerability index: a Pragmatic approach to assessing risks from climate variability and change –a case study in Mozambique. *Global Environmental Change.* Vol. 19, pp.74-88.

Heitzmann, K., Canagarajah, R.S., & Siegel, P. B. (2002). *Guidelines for assessing risk and vulnerability. SP Discussion Paper 0218. Social Protection Unit, Human Development Network.* The World Bank, Washington, D. C.

Hulme, D. and Shepherd, A. (2003). Conceptualizing Chronic Poverty. *World Development* 31 (3): 403-423.

Jalan, J., & Ravallion, M. (1999). Are the poor less insured? Evidence on vulnerability to income risks in rural china. *Journal of Development Economics*. Vol.58, pp.61-81.

Jahan, S. and R. McCleery (2005). *Making infrastructure work for the poor.* UNDP. Available at: www.undp.org/poverty/docs/fpage/Synthesisreport.pdf.

Kamanou, G. & J. Morduch (2002). "Measuring Vulnerability to Poverty". Discussion Paper No. 2002/58, World Institute for Development Economics Research WIDER; United Nations University.

Kanbur, R. (2002). Conceptual Challenges in Poverty and Inequality: One Development Economist's Perspective. Department of Applied Economics and Management; Cornell University.

Khandlhela, M., & May, J. (2006). Poverty, vulnerability and the impact of flooding in the Limpopo Province, South Africa. *Net Hazards*. Vol 39, pp.275-287.

Kimalu M. & Wagstaff, A. (2002). Health shocks in China: Are the poor and uninsured less protected *World Bank Policy Research Working Paper*, 3740, 1–25.

Leedy, P. & Ormrod. J. (2004). Practical Research: Planning and Design (8th Edition) Prentice Hall, New York.

Magasela, W. (2005). Constructing a National Poverty Line for South Africa: Issues for Consideration. An Unpublished Discussion Paper. National Labour and Economic Development Institute.

Malzbender, D. 2005. Domestic electricity provision in the democratic South Africa *Paper produced for the Nordic Africa Institute's Conflicting Forms of Citizenship Programme*, University of Pretoria.

May, J. (ed) (2008). Poverty and Inequality in South Africa: Report Prepared for the Office of the Executive Deputy President and the Inter-Ministerial Committee for Poverty and Inequality. 13 May.

Msindisi M. 2000. An investigation into the relationship between poverty and family size in South Africa through the analysis of 195 October Household survey. Pretoria, R.S.A.

Okunmadewa, F. (2001). *Poverty Reduction in Nigeria: A Four- Point Demand.*

Quisumbing, A. R. (2002). Consumption smoothing, vulnerability and poverty in rural Bangladesh. Draftpaper. Washington, D. C: International Food Policy Research Institute (IFPRI).

Quisumbing, A. and Baulch, B. (2009). Assets and poverty traps in rural Bangladesh, *Chronic Poverty Research Centres Working Paper 143.*

Ravallion, M. (1992). Poverty Comparisons: A Guide to Concepts and Methods. *Living Standard Measurement Study Working Paper* 88. Washington, D.C.: World Bank.

Ravallion, M., Chen, S., and Sangraula, P. 2007. New Evidence on the Urbanization of Global Poverty. *Population and Development Review 33,667*-701.

Reordon, T. J., & Vosti, S.A. (1995) Link between rural poverty and the environment in developing countries: asset categories and investment poverty. *World Development*. Vol. 23, pp. 1495-1506.

Schenck, R. 2002. Repositioning social work: Lets go rural.

Sen, A. (1981). Poverty and Famines: An Essay on Entitlements and Deprivation. Clarendon Oxford.

Siegel, P. B. (2005). *Using an asset –based approach to identify drivers of sustainable rural growth and poverty reduction in Central America: conceptual framework. WPS 3475.*The World Bank, Washington, D. C.

Smeeding, T.M., & Weinberg, D. (2001). Towards a uniform definition of household income. *Review of income and wealth.* Vol. 47, No 1, pp.1-24.

Statistics South Africa. (2009). *Community Survey 2009.* Stats SA, Pretoria.

Stats SA (Statistics South Africa) (2005). Measuring Poverty in South Africa. Pretoria: Stats SA.

Townsend, P. (2000). Post-1945 Poverty Research and Things to Come. In: Bradshaw, J and Sainsbury, R (eds). *Researching Poverty.* Aldershot: Ashgate.

Tswelopele Environmental (Pty) Ltd. (2007). North West Province Environmental Outlook 2007. *Prepared for the North West Department of Agricultural and Environmental Affairs.* Mafikeng: North West Provincial Government.

Uccelli, F.A. 1997. *Poverty* Alleviation *in Peru: The Search for Sustainable Social Development.*

United Nations (UN). (1995). The Copenhagen Declaration and Programme of Action: World Summit for Social Development 6-12 March 1995, New York, United Nations Department of Publications.

Woolard, I. and Leibbrandt, M. (2001). Measuring Poverty in South Africa, In *Fightin Poverty: Labor Markets and Inequality in South Africa,* edited by H. Bhorat, M. Leibbrandt, M. Maziya, S. Van der Berg and S. Woolard, Cape Town: University of Cape Town Press, 41-73.

Woolard, I. (2002). An Overview of Poverty and Inequality in South Africa. Working Paper Prepared for DFID (SA), RSA.

World Bank. (1990). World Development Report, Poverty. Oxford University *Press*, New York.

World Bank. (1999). Taking Action for Poverty Alleviation in Sub-Saharan Africa. *Report of an African Task Force,* Washington D.C: World Ban.

APPENDIX

QUESTIONNAIRE ON WELFARE SHOCKS AND POVERTY AMONG RURAL HOUSEHOLDS IN NGAKA MODIRI MOLEMA DISTRICT

GENERAL INFORMATION		
Date of interview		1
District		2

SECTION A

HOUSE DEMOGRAPHIC INFORMATION

1. Gender of the household head

1. Male ☐ 2. Female ☐

2. Marital status of the household head

1. Married ☐ 2. Divorced ☐ 3.Single ☐ 4. Widowed ☐

3. Age of the household head

How many children are less than 14 years?_____

How many adults are more than 65 years?_____

4. Education status of the household head

1. No formal education ☐
2. Primary ☐
3. Secondary ☐
4. Tertiary ☐

5. Household size

Number of male _____

Number of female _____

6. Primary Occupation

1. Farming ☐

2. Non Farming ☐

7. Land

Total land area owned _____

Land areas cultivated _____

Land area for livestock _____

8. Mode of land ownership

1 Inheritance ☐ 2 Purchased ☐ 3 Borrowed ☐ 4 Lease ☐

5 Share crop ☐

9. Years of farming experience _____

10. Sources of income per annum

Livestock profit **R**_____

Crop profit **R**_____

Labour **R**_____

Credit **R**_____

Salary **R**_____

Pension **R**_____

1.1 Poverty status 1.Poor ☐ 2.Non Poor ☐

SECTIONB

EXPOSURE TO IDIOSYNCRATIC RISKS

Drought

1.2 When last did you experience drought in this village? _____

1.3 How long was it? _____

1.4 Were you affected by drought incidence in your area? 1. Yes ☐ 2. No ☐

1.5 If yes, how were you affected?

1. Livestock ☐ 2 Death ☐ 3 Crop failure ☐ 4 Insufficient irrigation water ☐ 5. Insufficient water for domestic use ☐ 6 others specify ☐

1.6 Did you have to move from your household village because of drought?

1. Yes ☐ 2. No ☐

1.7 How were you able to cope?

1. Friend support ☐ 2. Migrate ☐ 3. Borrow ☐ 4. Government orgazation ☐

1.8 Were you aware of drought incidence before its onset?

1. Yes ☐ 2. No ☐

1.9 If yes, through what medium ?

1= TV

2= Radio

3= Newspaper

4= Friends and neighbours

5= Extension workers

6= Farmers' union

7= Others

2.0 Did you have access to good food during drought ?

1. Yes ☐ 2. No ☐

Flooding

2.1 When last did you experience flood in this village ?_____

2.2 How long was it _____

2.3 Were you affected by flood incidence in your area?

1. Yes ☐ 2. No ☐

2.4 Did your house collapse due to floods?

1.Yes ☐ 2. No ☐

2.5 Did the collapsing of the house force you to relocate to a new area?

1. Yes ☐ 2. No ☐

2.6 Who are the most vulnerable household to floods ?

1. Male headed ☐ 2. Female ☐

2.7 What other associated disaster did you encounter during drought or flood in your area (E.g. fire outbreak, storm etc)? _____

ECONOMIC SHOCK

2.8 Did you face any of this economic shock

Economic shock	Yes	No
Food price increase		
Inadequacte access to market		
Inadequate access to credit		
Inadequate access to land		
Disease out break		

AGRICULTURAL PRODUCTION

2.9 Did any of your crops have been effect by crop pest?

1. Yes ☐ 2. No ☐

3.0 Did you loss some of your livestock ?

1. Yes ☐ 2. No ☐

HEALTH

3.1 Are there any health facilities in your area ?

1. Yes ☐ 2. ☐

SECTION C

3.2 Do you have any membership of association ? 1. Yes ☐ 2. No ☐

3.3 Do you have access to electricity ? 1. Yes ☐ 2. No ☐

3.4 Do you have access to potable water? 1. Yes ☐ 2. No ☐

3.5 Do you have access to credit ? 1. Yes ☐ 2. No ☐

3.6 Do you have access to market ? 1. Yes ☐ 2. No ☐

3.7 Do you have access to infrastructure ? 1. Yes ☐ 2. ☐

SECTION D

INCOME AND EXPENDITURE

3.8 What is your approximate income per week/month ? _____

3.9 On monthly basis, how much do you soend on :

1. Food **R**_____

2. Rent **R**_____

3. Traveling **R** _____

4. Fees **R**_____

5. Others _____

4.0 Which food coping strategy do you adopt when you have no food and no money to buy food ? _____

Thank you for your participation