Zimbabwe's Drought Conundrum: vulnerability and coping in Buhera and Chikomba districts

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Zimbabwe's Drought Conundrum: vulnerability and coping in Buhera and Chikomba districts

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By Mukundi Mutasa, April 2010

Department of International Environment and Development Studies (Noragric)

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DECLARATION

I, Mukundi Mutasa, declare that this thesis is the result of my research and sources of information other than my own have been acknowledged. This work has not been previously submitted to any other university than the Norwegian University of Life Sciences (UMB) for award of any type of academic degree.

Date: _____

Signature: _____

Mukundi Mutasa

For my family who have always been my inspiration ... Muri chishamiso changu, ndinokufungai nekukurumbidzai nerudo rwenyu;

In memory of Carl-Erik Schulz (November 2008), Joan Fabres Camprubi (March 2010), and all the disaster victims around the world;

&

For the people of Buhera and Chikomba who are 'survival experts' in their own right!

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...for all the encouragement and support, I am truly thankful...

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There are two very powerful statements that inspired me in this study. In his resignation speech in September 2008, South Africa's former president, Thabo Mbeki, said, "**trying times need courage and resilience**" and King Solomon wrote in the Biblical book of the Proverbs 24:10 that, "**If you faint in the day of adversity, your strength is small**." The desire to understand the people's lives in adversity, and the courage and resilience they exhibited, gave me the push whenever I was being sluggish.

Mwari Samatenga, rutendo rwangu kwamuri!

ABSTRACT

Faced with an increasing frequency of droughts, the local communities of Buhera and Chikomba are constantly at risk of food insecurity and water stress due to their dependence upon rain-fed agriculture. This study employed semi-structured questionnaires, interviews with key informants, observations and media monitoring in a mixed research methods approach. It was conducted in order to assess the people's degrees of vulnerability to drought impacts, and to review their survival mechanisms and adaptive strategies. The introductory chapter briefly reviews the country's agricultural sector and the internationally politicised land question so as to contextualise the study, and introduces the vulnerability concepts and theoretical approaches used in the research. Some state policies were found to have actually contributed to the vulnerability of the people in the communities. The country has not maintained a national strategic grain reserve since the late 1990s and its focus on cash crops created a near-monoculture of maize, a crop variety that is vulnerable to moisture fluctuations. The economic challenges and the violent political environment of 2008 contributed to food shortages and the closure of a majority of rural shops. Some humanitarian organisations inadvertently worsened households' vulnerability to drought impacts through ill-informed screening methods and flawed relief aid targeting. Increased morbidity and school dropouts, the lowering of the water table and an upsurge in livestock and grain thefts were among the effects of droughts experienced in Buhera and Chikomba. Wild fruits and relief aid became alternative food sources. The study revealed that the people in these communities were not passive victims in the face of a disaster; instead, they were enterprising and innovative, and employed their indigenous knowledge systems to predict weather patterns in the absence of conventional modern weather predictions. The local communities developed mitigation strategies to protect themselves against the climatic exigencies, despite their difficult conditions. The study concludes with some recommendations largely developed from suggestions by informants in the communities and representatives of the NGOs and government departments, as well as ideas based upon the broader literature on droughts.

Key terms: *Adaptation, Agriculture, Climate change, Coping mechanisms, Disaster management, Disaster risk reduction, Drought, Famine, Food insecurity, Hazard, Humanitarian aid, Land reform, Resilience, Vulnerability, Water stress*

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LIST OF ABBREVIATIONS AND ACRONYMS

AFC	-	Agricultural Finance Cooperation (now Agribank)
Agribank	-	Agricultural Bank of Zimbabwe (formerly AFC)
AGRITEX	-	Department of Agricultural Technical and Extension Services
AIDS	-	Acquired immunodeficiency syndrome
CADEC	-	Catholic Development Commission
CAP	-	Consolidated Appeal Process
CEDRISA	-	Centre for Development Research and Information in Southern Africa
CF	-	Conservation Farming
CFSAM	-	Crop and Food Security Assessment Mission
CPU	-	Civil Protection Unit/Department of Civil Protection
CRS	-	Catholic Relief Services
CSO	-	Central Statistics Office
CTDT	-	Community Technology Development Trust
CVA	-	Current Vulnerability Assessment
CwDaCC	-	Coping with Drought and Climate Change
Dachicare	-	Dananai Child Care Organisation
DDRC	-	District Drought Relief Committee
DFID	-	Department of International Development (British)
ESAP	-	Economic Structural Adjustment Programme (or derogatory: Economics for Starving African Peoples)
FAO	-	Food and Agriculture Organization
FEWS NET	-	Famine Early Warning Systems Network
FOSENET	-	Food Security Network
GAIN	-	Global Adaptation Information Network

GDP	-	Gross Domestic Product
GMB	-	Grain Marketing Board (formerly Maize Control Board)
GoZ	-	Government of Zimbabwe
HEA	-	Household Economy Approach
HIV	-	Human immunodeficiency virus
IFRC	-	International Federation of Red Cross and Red Crescent Societies
IKS	-	Indigenous Knowledge Systems
IPCC	-	Intergovernmental Panel on Climate Change
LBVA	-	Livelihood Based Vulnerability Analysis
MDC	-	Movement for Democratic Change
MERP	-	Millennium Economic Recovery Programme
MoLA	-	Ministry of Lands and Agriculture
NDMC	-	National Drought Mitigation Centre (American)
NERP	-	National Economic Recovery Programme
NEWU	-	National Early Warning Unit
NGO	-	nongovernmental organisation
Noragric	-	Department of International Environment and Development Studies (Norway)
OCHA	-	Office for the Coordination of Humanitarian Affairs
OVC	-	Orphans and Vulnerable Children
PAR	-	Pressure and Release
PCVA	-	Participatory Capacities and Vulnerabilities Assessment
PLWHA	-	People Living With HIV and AIDS
PRP	-	Protracted Relief Programme
SADC	-	Southern African Development Community
SAEO	-	Southern Africa Environment Outlook

SAFIRE	-	Southern Alliance for Indigenous Resources
SARCOF	-	Southern African Regional Climate Outlook Forum
SARDC	-	Southern African Research and Documentation Centre
SC UK	-	Save the Children – United Kingdom
SGR	-	Strategic Grain Reserve
SPWSNET	-	Single Parents, Widows and Orphans Support Network
STERP	-	Short Term Economic Recovery Programme
TTL	-	Tribal Trust Land
UDI	-	Universal Declaration of Independence
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
WFP	-	World Food Programme
ZANU PF	-	Zimbabwe African National Union – Patriotic Front
ZDERA	-	Zimbabwe Democracy and Economic Recovery Act
ZimAhead	-	Zimbabwe Applied Health Education and Development Organisation
ZIMPREST	-	Zimbabwe Programme for Economic and Social Transformation
ZimVAC	-	Zimbabwe National Vulnerability Assessment Committee
ZWRCN	-	Zimbabwe Women's Resource Centre and Network

CHAPTER 1 – INTRODUCTION

1.1 Background

Zimbabwe appears on an expansive list of drought and climate change affected nations worldwide and is "highly vulnerable to vicissitude of weather patterns" (National Civil Protection Coordination Committee, 1993:31). The country has a long history of droughts dating back to the pre-colonial times, which have often been blamed for their negative impacts on people's livelihoods as well as hampering the country's economic development drive. The severity of the drought impacts vary according to season and district, and in relation to individual households, it does not affect everyone equally. It is, therefore, important that the degrees of vulnerability to impacts of such hazards be explored so that appropriate measures can be applied for the populace to cope well with the drought impacts, and for future resilience to the hazards to be enhanced.

The importance of studies regarding drought vulnerability, coping strategies and the overall management of risk is further emphasised by the growing concerns regarding the projected impacts of climate change on African agriculture. With its agriculture being mainly rain-fed, Africa is considered to be vulnerable to the changes in climate and the "impacts of higher temperatures and water stress" (Toulmin, 2009:57) and reduced precipitation (Dinar, *et al*., 2008; Ziervogel, *et al*., 2008) could be incomprehensible.

Although the continent is argued to be geographically exposed, the effects of climate change are not likely to be evenly distributed (Davies, *et al*., 2009). Some countries and communities will feel the impacts more than the others, as varying degrees of vulnerability become more and more visible. Factors such as the communities' high dependence on agriculture for their livelihoods, unpredictable changes in the climate, poor infrastructure, the high levels of poverty (Ziervogel, *et al*., 2008), limited livelihoods options, degraded soils, and loss of productivity due to HIV and AIDS and other diseases (Basher and Briceño, 2005; and Eriksen, O'Brien and Rosentrater, 2008) are believed to play a huge role in worsening the communities' vulnerability. Climate change is, therefore, expected to add on to the already existing burdens that the poor and vulnerable people face (Thornton, *et al*., 2008) due to the way it amplifies droughts (SADC, 2008), a geophysical phenomena that has direct impacts on

livelihoods and quality of life of the poor who are most vulnerable to such shocks (Hirji, *et al*., 2002).

Even though efficient response during times of droughts is necessary, adaptation and future resilience to droughts and other climatic disasters become particularly important to developing countries such as Zimbabwe. It is of great value that adaptation interventions be pursued in tandem with development initiatives, especially for the poorest and most vulnerable (Jerneck and Olsson, 2008; and Collier., Conway and Venables (2008).

Understanding the wide-ranging reasons for the reduction of the communities' capacity to cope with disasters is an integral component in formulating policy interventions that will help in realising their resilience to those changes. This research was conducted to assess these ecological, social, political and economic factors that contribute to household vulnerability to drought impacts such as food shortages, loss of income and water stress in Buhera and Chikomba districts of Zimbabwe. This was based on an understanding that it is through similar analyses that such an undesirable condition, i.e. vulnerability, can be redressed (Ribot, 1995).

1.2 Agriculture and Zimbabwe's economy

Agriculture is Zimbabwe's economic mainstay, followed by other industries such as manufacturing and mining, just like the majority of southern African countries (SADC, 2008). Sachikonye (1992) refers to it as "the much-vaunted 'backbone' of the economy" (p.90). The sector is the single largest source of income for the majority of Zimbabweans in the communal areas. Zimbabwe's development has been largely based on the performance of its agricultural sector as shown in ***Table 1.1*** below, with the sector going through both progressive and tumultuous changes since the country's independence in 1980.

Using satirical language, Carol (1992) emphasised the role of agriculture in Zimbabwe arguing that "when agriculture sneezes, the Zimbabwean economy catches a cold" (p.5). The table below, adapted, and updated, from Rukuni (2006) shows how agriculture fared in comparison with other sectors in contributing to the national Gross Domestic Product (GDP) in selected years between 1948 and 1990. Other sources were used for statistics for 1996 to 2004.

Table 1.1: Sectoral contribution to national GDP

Percentage contribution by sector				
Year	**Agriculture**	**Mining**	**Manufacturing**	**Other**
1948	*21.8*	10	13.1	55.1
1950	*19.4*	10	13.6	57
1960	*18.3*	6.8	16.1	58.8
1965	*18.8*	6.5	18.8	55.8
1970	*15.1*	7	20.7	57.2
1975	*16.9*	6.9	23.5	52.7
1980	*14.2*	8.8	24.9	52.1
1985	*13*	7.2	29	50.8
1990	*12.9*	8.2	26.4	52.5
1996[a]	*17*	4	20	59
1999[b]	*23.7*	-	-	-
2000[b]	*21.6*	-	-	-
2001[b]	*29.9*	-	-	-
2002[b]	*24.8*	-	-	-
2003[c]	*18*	-	-	-
2004[c]	*18*	-	-	-

Adapted from Rukuni, 2006

a. Sourced from CSO, 1998

b. SADC, 2008

c. Holmberg, 2008

However, according to Biti[1] (2009), the agricultural sector heavily underperformed during the period 2000 to 2008, shrinking by an annual average of -7.1%. He goes on to state that the cumulative "agricultural output contracted by -79.4%" between 2002 and 2008 (*ibid*., p.14). Several factors could be pinpointed as the contributing factors to this disintegration of the sector, among them being the political and economic challenges that the country experienced during this period.

1.2.1 Zimbabwe's Land Conundrum

It is almost impossible to talk about Zimbabwe's agricultural development without touching on its thorny land issue that has punctuated the country's life since the turn of the millennium. Rukuni (2006) argues that the country's agricultural policy is heavily connected to its past. Although tracking that interconnection was not the main purpose for this research, the following will just give a brief background that puts the subsequent sections into context. It helps too in viewing the impacts that the legacy of the past might have in the future.

[1] Tendai Biti was the country's Minister of Finance at the time this research was conducted and concluded.

The country's controversial land question dates back to the arrival of the European settlers in the 1880s. The 'natives' were pushed to the periphery of the good soils, settling in what were then named Native Reserves and later renamed Tribal Trust Lands (TTLs) in 1967. These were again renamed Communal Lands after the promulgation of the 1982 Communal Lands Act (Hammar, 2007). The European settlers alienated the high-potential zones for their settlement (Rukuni, 2006). Hammar (2007) equates the mentality behind the land policy in colonial Zimbabwe to the annexation of Natal (in South Africa) by Britain in 1843 which saw the creation of the Natal Native Trust (1864).

A series of legislations were enacted in colonial Zimbabwe, and Rukuni (2006) argues that these policies were meant to ensure that the settlers had "monopoly over economic and political power through land allocation, research and technology, marketing and service institutions, and pricing policies" (p.29). Some of the agricultural, economic and land policies that were promoted during this period, and after the country's Independence in 1980, are presented in ***Annex 1***[2].

These visible land imbalances always posed a challenge to the new government after independence in 1980 (Murwira, *et al*., 2000). With the land allocation standing at 6,200 large-scale commercial farmers (mainly white farmers) controlling 47% of the arable land and approximately 700,000 households in the communal areas settling for the other half of the land (Friis-Hansen, 1995), redressing these imbalances was inevitable. Communal areas were overcrowded, and the purported population growth increased the pressure on the limited land available (Friis-Hansen, 1995).

The new administration in 1980, however, had to come up with concrete measures on:

> "*[how] to redress the inequalities of the past; how to effect transformation of the communal areas, and redistribute the land without affecting the productivity and efficiency of the overall agricultural sector*" (Auret, 1990:70).

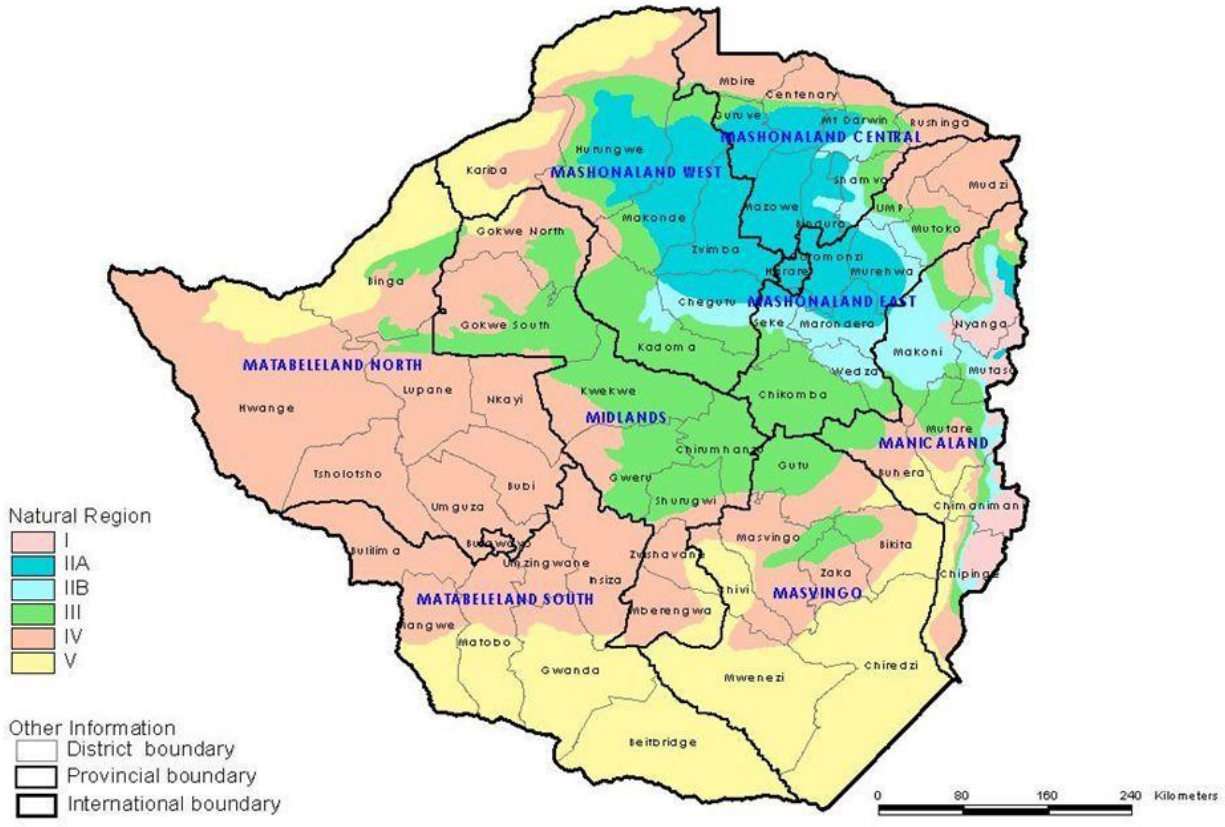
The government's support to communal farmers ranged from direct inputs, research and training through the Department of Agricultural, Technical and Extension Services (AGRITEX), and more communal area-friendly pricing and marketing policies (Biti, 2009).

[2] Also refer to the Zimbabwean Ministry of Lands, Land Reform and Resettlement's webpage at www.lands.gov.zw/history%20of%20land%20policy.htm for the history of land policy (accessed 11 February 2010)

Land is, therefore, one of the most valuable assets that the country has and, if properly used, can drive the country towards a path of development, ensure food security and help its population to fight off drought and famine challenges.

1.2.2 Agroecological regions

According to the Zimbabwean Government, agricultural land in the country totals about 33 million hectares (GoZ, 1991), 15% of which Thompson (1993) argues has arable potential. The land is divided into five agroecological regions on the basis of the various agricultural activities, soil types, vegetation and varying rainfall averages and climatic conditions, among other factors (Auret, 1990; FAO, 2006). The agroecological regions are shown in ***Map 1.1*** below, with their characteristics presented in ***Table 1.2***.



Map 1.1: Zimbabwe's agroecological regions. *Source: FAO and WFP, 2009*

Table 1.2: Agroecological regions' characteristics

Natural region	Characteristics
I	- 5 835km^2 mainly covering the eastern parts of the country (the eastern highlands) - Highly reliable rainfall of over 1 000mm per year - Susceptible to soil erosion when devegetated - Suitable for diversified or specialised farming - A lowly 18% of the 703 000 hectares is communal land
II (sub-regions A and B)	- 72 745km^2 - Between 750 and 1 000mm per year - Intensive cropping and livestock production - 1.2 million hectares of the 5.8 million is occupied by communal farmers
III	- 67 690km^2 - Between 650 and 800mm per year - Infrequent heavy storms, though characterised by mid-season dry spells - Semi intensive farming - Best suited for livestock production and fodder crops - 39% of the 7.3million hectares is communal land - The whole of Chikomba and northern parts of Buhera fall in this category
IV	- 128 370km^2 - Between 400 and 650mm per year - Semi-extensive farming region - Subject to seasonal droughts (and always vulnerable) - Mostly suitable for livestock production and drought resistant crops - High proportion of the region is communal land (62% of the 14.8million hectares) - Middle part of Buhera is in this category
V	- 112 810km^2 with 45% of the 10.4million hectares being designated communal area - Below 450mm per year (erratic rainfall) - Extensive farming - Irrigated sugarcane is one of major crop projects in south-eastern low-veld - Mostly suitable for cattle and game ranching - The southern part of Buhera falls under Region V

Adapted from Auret (1990); Gundry, et al., (1999); Hicks (1993) and Kaseke (1993)[3]

As earlier noted, successive land legislation during the colonial period, such as the Land Apportionment Act (1930), the Land Husbandry Act (1951) and the Land Tenure Act (1969) "entrenched the division of land along racial lines" (Auret, 1990: 68). That resulted in the

[3] These characteristics were not updated to include the possible land use changes especially in light of the land redistribution exercises that the Zimbabwean government has carried out since independence.

majority of the black population being moved into areas of low production potential. Auret (1990) argues that the enactment of the Land Tenure Act was the straw that reduced the 'native' farmer's agricultural production potential as 75% of the TTLs fell into regions IV-V.

The Reserves or TTLs, which are now widely referred to as communal areas, are where the majority of the small and communal farmers dwell, occupying the poorest lands (Borsotti, 1993). Regions IV and V are the least productive as the soils are 'poor, acidic and sandy' (Auret, 1990: 69). Because of this land alienation, and the subsequent creation of the Reserves, the natives' potential to use their land to self-sustain was eroded. The Reserves were crowded, and the soils were overworked further reducing their yielding capacity (*ibid*).

1.2.3 Communal agricultural production

With the 'native' population restricted to the Reserves (now called Communal Lands) since the arrival of the colonialists in the 1880s, their production levels were hampered by poor soils and lack of enough tilling space, and the practice of growing crops in areas that were largely not suitable for reliable crop production, especially in agroecological regions III-V (Auret, 1990). As a result of their recurrent poor yields, these areaas remained underdeveloped (*ibid*) and the households' small yields of the common crops such as maize and groundnuts were only enough for their subsistence.

The farmers' poor production capacity has been attributed to wide-ranging factors, in addition to the poor soils and insufficient farming space. The farmers' inability to access credit facilities for input purchases and the inaccessibility of technical and agricultural extension services were some of the factors that contributed to the low productivity experienced in the TTLs (Auret, 1990; and Mashingaidze and Mataruka, 1992). According to the country's Ministry of Lands and Agriculture (MoLA), other factors "include poor farming skills, limited use of technical inputs, unavailability of technical inputs owing to poor infrastructure, poor soils and inadequate provision of extension back-up and farmer training" (MoLA, 1999:7). In addition to the communities' agricultural production being vulnerable to the vagaries of unpredictable weather conditions, MoLA (1999) argues that the country's macro-economic instability in the 1990s had a role to play in poor agricultural production. The same could also be said for the post-2000 agricultural production which succumbed to economic pressures, among a host of other factors (Biti, 2009).

Cattle-power is the main source of tillage power in most communal areas in the country (Mashingaidze and Mataruka, 1992), yet not all households possess cattle. In addition to providing power for tilling the land and weed control, a household's access to and control over cattle brings benefits such as manure for crop production, beef, an elevated status in society (Bere-Chikara, 1970; Dore, 1970; and Mashingaidze and Mataruka, 1992) and for sacrifices during traditional ceremonies that are part and parcel of the communal life (Mandaza, 1970; and Murwira, *et al*., 2000).

Farming innovations and expertise in the country are supported through the work of AGRITEX, a government department that is "responsible for providing agricultural, professional and technical advice as well as extension services to the farming community" (GoZ, 1999:24). AGRITEX is present in the communal areas through its Extension Officers called *madhumeni* or *ana madhunduru* in the Shona vernacular, drawing these names from the *madhunduru* (contour ridges) that the officers were alleged to be forcing people to construct (Mudege, 2005).

Maize's dual role

Communal farmers in Zimbabwe grow mainly maize, the most important cereal crop according to Mashingaidze and Mataruka (1992). Maize has a dual role in the economy of the country and the general well-being of the populace. The crop serves as both a cash crop as well as being used as a staple diet for the majority of the people in the country (Auret, 1990; Mashingaidze and Mataruka, 1992; and Rukuni, 2006). In small-scale agriculture, the crop is viewed as "the most convenient and profitable enterprise" (Mashingaidze and Mataruka, 1992:50).

The production of maize and cotton in the communal areas has shown remarkable progress since independence (Friis-Hansen, 1995), with credit and input availability, increased extension support and the adoption of maize hybrids being credited for the increase in yields (Mashingaidze and Mataruka, 1992). Friis-Hansen (1995) estimates that the land utilised for maize production also increased from a third of the total cultivated land during the colonial times, to approximately half of the cultivated land in the 1980s, a development that also saw the area for finger and pearl/bulrush millet production declining significantly suggesting that the area was now being substituted for maize production. However, this differs with what

Rohrbach (1989) purports. He posits that the land for maize production did not increase because other crops were being substituted, but because there was a total increase of 25% of the cultivated area. His research concluded that the increase in the total area for maize crop production between 1977 and 1981 was equal to that of sorghum production (65%), and the trends "show no consistent pattern of crop substitution" (p.16).

Fig 1.1, taken from Rohrbach (1989:10) helps to show how much area was used for maize production in the communal areas compared to the commercial farming areas from 1970 to 1987.

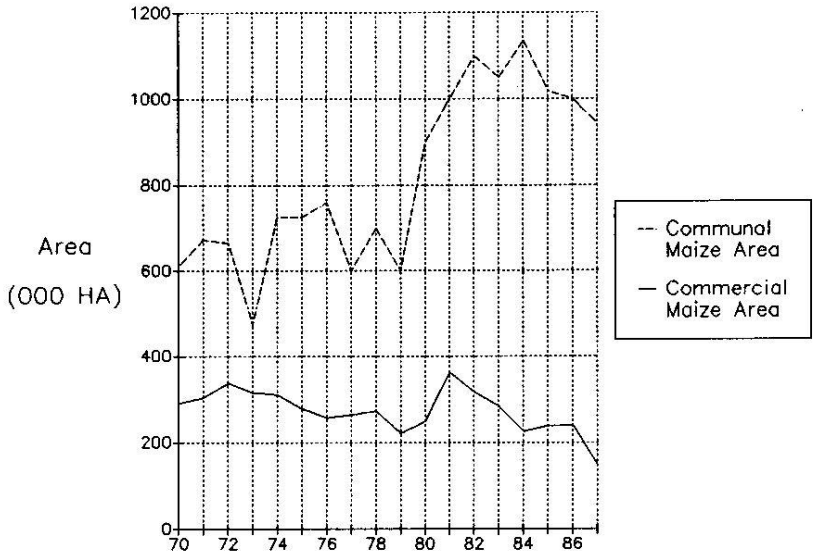


Fig 1.1: Maize production area (1970 - 1987). Source: Rohrbach, 1989

1.3 Theoretical framework

This study utilised vulnerability and adaptive capacity concepts in an effort to understand the levels of community exposure to negative disaster impacts and the responses that the communities put in place when faced with those disasters. Since natural and man-made disasters are part of humanity (Borsotti, 1993), it is important that their impacts on human livelihood be understood and measures taken to minimise the severity of their impacts, as it is not enough to just focus on the hazard threat without addressing the factors that make the people suffer immensely when disaster strikes (Wisner, *et al.*, 2004). The following sections define what these concepts denote.

1.3.1 Vulnerability

The definitions of vulnerability are far and wide, and in some cases inconsistencies are apparent (UNEP, 2003). It is viewed as the likeliness of experiencing harm or injury in the wake of perturbations (Turner, *et al*., 2003). The Intergovernmental Panel on Climate Change (IPCC) defines vulnerability as a combination of a system's exposure to threats, its sensitivity and capacity to adapt to such threats (Schneider and Sarukhan, 2001). In other words, vulnerability can be equated to susceptibility, that is, the chances that the society or system has of being harmed by a gradual or sudden change. In relation to natural hazards, Wisner *et al* (2004) define vulnerability as the level of proneness or susceptibility to hazards, further elaborating it as an individual or group's characteristics and the "situation that influences their capacity to anticipate, cope with, resist and recover from the impact of natural hazards" (p.11). This definition is based on the idea that vulnerability is differential, meaning that individuals and/or groups of people have different levels of exposure "to damage, loss and suffering in the context of differing hazards" (*ibid*), and in relation to food shortages, answers should be found for questions such as why some groups starve while others can feed themselves (Sen, 1981).

The United Nations Environment Programme (UNEP) argues that instead of focusing on the agent of a shock, vulnerability relates more to that shock's consequences (UNEP, 2003), meaning that assessments should focus on the communities' vulnerability to the impacts of a drought rather than the drought itself. Impacts of perturbations such as droughts can include loss of human lives, malnutrition, income losses, water stress, and environmental degradation (CEDRISA, 2009; UNEP, 2003; and Unganai, 1994), and these are the ones that UNEP argues studies should focus on.

Vulnerability is often portrayed in negative terms of exposure and susceptibility to and harm by social and environmental stress (Adger, 2000; and Adger, 2006), and can be associated with the capacity to cope with the impending or existing disasters (UNEP, 2003). Central to definitions of vulnerability is the issue of exposure to disaster and the inability to positively respond to that disaster, that is, capacity and potentiality (Watts and Bohle, 1993). It is, therefore, important to explore how institutional and economic dynamics drive a society towards a state of incapacitation to fend off future challenges (Adger, 2000). However, Gallopín (2006) argues against viewing vulnerability as always being negative, claiming that beneficial transformation can be a result of 'positive vulnerability'.

Vulnerability is broken into three highly interconnected types, according to Devereux (2006). These are transitory vulnerability which relates to livelihood shocks such as harvest failures; chronic vulnerability that includes demographic conditions like widowhood and orphanhood. The last type is structural vulnerability, and this relates to social, political and economic failures such as rising inflation and poor access to markets.

Vulnerability frameworks are used to show the disparities in experiences when confronted by a disaster, and show why some groups and individuals suffer more than others in the face of those shocks and stressors (Anderson and Woodrow, 1993; Leichenko and O'Brien, 2008; and Sen, 1981). Wisner, *et al*., (2004) present two inter-related tools, i.e. the *Pressure and Release (PAR)* and the *Access* models, for studying the factors that contribute to society's vulnerability to hazards. The PAR model looks at "how disasters occur when hazards affect vulnerable people" (*ibid*., p.50) by exploring the underlying factors worsening people's proneness to destruction or other dangers. Some of these factors might be invisible and seem distant from the disaster itself (*ibid*). Meanwhile, the Access model is a magnified impression of the disaster stage on the PAR model, showing "how vulnerability is initially generated by economic, social and political processes, and what then happens as a disaster unfolds" (*ibid*., p.50).

The inter-linkages between these processes result in the multiple stressors that Leichenko and O'Brien (2008) explored using their 'double exposure' framework arguing that discourses on global environmental change and globalisation should not be applied in isolation. Instead, they should link up so as to understand fully how these affect people's vulnerability to disasters, and how understanding this inter-linkage helps in implementing appropriate measures that will make people better prepared for such changes. They argue that "multiple stressor approaches recognize that individuals and communities are often subject to more than one process of global change" (*ibid*., p.31) with Adger (2006) emphasising the need to explore the "multiple stressors and multiple pathways of vulnerability" (p.267). Vhurumuku (2000) prefers 'the full range of factors' to denote these multiple stressors, while, with a special attention to droughts, Carr and Kettle (2009) refer to these as 'multiple interacting stressors'. Wilhite (2002) argues that vulnerability is worsened by a 'multitude of factors' that include government policies, land use and water management, among others. He also claims that there has been an increase in vulnerability especially to droughts around the world.

According to Adger (2006), the key point to note when analysing definitions of vulnerability is that it is closely related to adaptive capacity, with the points of convergence being more in terms of number and fundamentality than the points of divergence. Adger argues that the key vulnerability parameters cover "the stress to which a system is exposed, its sensitivity and its adaptive capacity" (*ibid*., p.269).

1.3.2 Adaptation

Adaptation can be viewed as the adjustment to shocks or surprises, whether anticipated or otherwise, without having to significantly compromise one's way of life. Gallopín (2006) defines it as "the capacity of any human system ... to increase (or at least maintain) the quality of life of its individual members in a given environment or range of environments" (p.300). The IPCC applies the concept to climate impacts defining it as the ability "to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences" (*ibid*).

In resilience theory, adaptive capacity is defined as the capacity of the system actors to manage the system's resilience; resilience being the amount of change that a system can withstand without completely collapsing (Walker and Salt, 2006). Leichenko and O'Brien (2008) look at adaptive capacity as the ability to respond to change, and argue that response capacity, coping capacity or entrepreneurial capacity are often used in place of adaptive capacity. The terms adaptive capacity and adaptability (adapt-*ability*) are used interchangeably in this paper.

In the above paragraph, Leichenko and O'Brien clearly spelt out the relation between adaptation and coping capacity. UNEP (2003) defines coping as the "ability to withstand risks at a particular point of time" and it includes "defence mechanisms and active ways to solve the problems" (p.21), a point that Wisner, *et al*., (2004) also allude to. It refers to the manner in which people act, bearing in mind their limited resources, when facing a threat to their livelihoods (Wisner *et al*., 2004).

von Braun., Teklu and Webb (1998) argue that coping capacity refers to "making a series of adaptations until all choices are exhausted" (p.13) while at the same time arguing that this is not just about access to assets, but also people's skill to manage crises conditions. It,

therefore, makes vulnerability and coping capacity assessments broader and call for a broad understanding of the factors contributing to either a weaker or stronger coping capacity.

Realising that the capacity to adapt "is intimately connected to social and economic development", the IPCC postulates that this capacity "is not evenly distributed across and within societies" (IPCC, 2007: 56). Thus, the imbalances in vulnerability and coping capacity of the communities in Buhera and Chikomba in relation to droughts were studied.

Adaptive cycle

The resilience discourse is applied to analyse the communities' or ecosystems' ability to bounce back after a disaster. Walker and Salt (2006) define resilience as a system's ability "to absorb disturbance and still retain its basic function and structure" (p.1). Holling and Gunderson (2002) describe *ecosystem resilience* as a measure of the system's vulnerability to predictable or unpredictable surprises and a measure of the severity of the shock that it can withstand before there is a complete overhaul of its variables and processes. It is under this discourse that the theme of adaptive cycles, which looks at how social or ecological systems change over time (Walker and Salt, 2006), fall. ***Fig 1.2*** below shows the boxed version of the adaptive cycle as drawn from Gunderson and Holling (2002:34). The adaptive cycle was first framed by Holling (Garmestani., Allen and Gunderson, 2009).

The figure shows the two opposing modes of the adaptive cycle, which, according to Walker and Salt (2006), are the development or fore loop and the back loop. The fore loop involves exploitation or rapid growth (**r**) and the progression to conservation (**K**). Exploitation (**r**) emphasises the "rapid colonization of recently distributed areas," while **K** is when there is "slow accumulation and storage of energy and materials" (Holling and Gunderson, 2002:33). The system crosses the threshold between the **K** and **Ω** boxes, a process that 'can happen in a heartbeat' (Walker and Salt, 2006:77). A system collapses when it fails to withstand the changes that take place when it crosses the threshold.

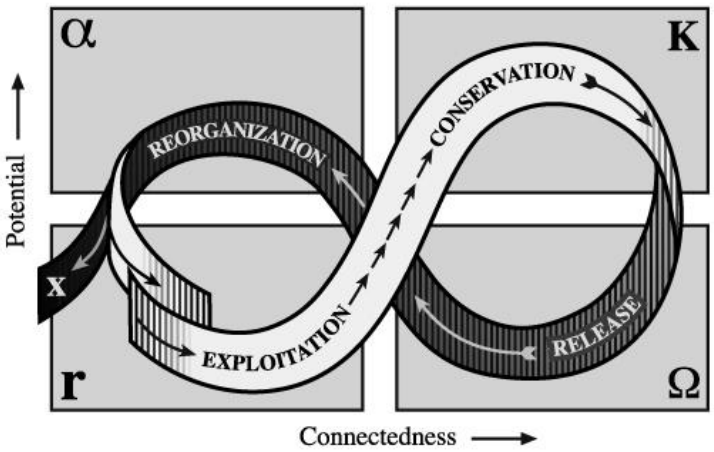


Fig 1.2: Adaptive Cycle. Source: Holling and Gunderson, 2002

The **Ω** phase is sometimes referred to as the 'creative destruction' phase and drought is understood to be one of the various agents that 'assist' in this system release (Holling and Gunderson, 2002). From the **Ω** phase, the system then progresses to the reorganisation and renewal (**α**) stage where innovation and novelty help the system to reorganise itself and either re-enter the cycle or lose its potential making the likelihood of the system flipping into a less productive and organised state, depicted by **X** in the diagram above, high (*ibid*). It is at the **α** phase that "economic processes and polices that come to practical attention at times of economic recession or social transformation" (*ibid*., p.35) are put in place helping the system to reorganise itself.

The motivation behind resilience thinking is that societies should understand why and how the systems are changing. This would make societies better able to adapt and work with change, instead of falling victim to those changes (Walker and Salt, 2006). Combining this with vulnerability assessments, which help to identify groups that are likely to come out worse off when faced with a hazard, would help realise the best possible options in disasters (UNEP, 2003), options that will make the socio-ecological systems cope with that change. These two concepts would benefit a lot from the prediction of the disasters, a path that is strongly questioned by the Black Swan theory proposed by Taleb (2007). Taleb argues that people should simply adjust to change or disasters—be they economic like the Black Monday on 19 October 1987 that saw financial market slumps around the world, or physical harm like the 9/11 attacks in the United States of America—when they strike rather than predict them because they are unpredictable in nature.

Taleb presents the 'turkey problem' to elaborate further how it is difficult to predict shocks, and be able to cope well with such shocks. He borrowed the chicken dilemma in Bertrand Russell's *The Problem with Philosophy* and americanised it to say:

> *"Consider a turkey that is fed every day. Every single feeding will firm up the bird's belief that it is the general rule of life to be fed every day by friendly members of the human race "looking out for its best interests," as a politician would say. On the afternoon of the Wednesday before Thanksgiving, something unexpected will happen to the turkey. It will incur a revision of belief"* (Taleb, 2007:40).

The turkey in Taleb's story above does not live to be fed another day, hence its gracing the Thanksgiving dinner table was the surprise it 'failed' to predict from its benevolent owner who fed it every day. This research, though, is based on disasters such as droughts, which are part and parcel of agricultural systems in Zimbabwe, and as such communities should be resilient enough to overcome such challenges.

Holling and Gunderson (2002) indicated that the idea of the adaptive cycle "emerged from experience with productive ecosystems that exist in temperate regions ... where rainfall is consistent, although seasonally variable" (p.33). This thesis, therefore, attempts to apply the adaptive capacity and resilience concepts, of which the adaptive cycle has an important role, to study largely agroecological societies that receive minimal and highly variable rainfall that has repercussions on the crop production capacity of those communities.

1.3.3 Sen's entitlement approach

Sen (1981) uses the argument of people's entitlements as determining their vulnerability to starvation or their ability to feed themselves while the rest starve. The most common entitlement relations fall in the following four groups, which Sen admits are not exhaustive as there are some not-so-visible yet important relations that also exist:

Box 1.1: Sen's entitlement relations

Trade-based entitlement: one is entitled to own what one obtains by trading something one owns with a willing party (or parties)

Production-based entitlement: one is entitled to own what one gets by arranging production using one's owned resources, or resources hired from willing parties meeting the agreed conditions of trade

Own-labour entitlement: one is entitled to one's own labour power, and thus to the trade-based and production-based entitlements related to one's labour power

Inheritance and transfer entitlement: one is entitled to own what is willingly given to one by another who legitimately owns it, possibly to take affect [*sic*] after the latter's death (if so specified by him)

Source: Sen, 1981:2

These entitlements determine what the groups of people can do to safeguard their livelihoods when they are threatened with starvation, what they can be able to procure and how they will do that. Using this understanding, sound drought and famine policies can be devised, policies that will help in the anticipation, relief and prevention of famines (*ibid*). The entitlement approach is, therefore, a useful tool to gauge people's capacities to mitigate the impacts of disasters such as droughts.

1.4 The D^2: the drought dilemma

Defining the term drought poses a huge challenge to researchers writing on the subject, and the subsequent policy interventions implemented to curb the impacts of the phenomenon. Wilhite and Glantz (1985) argue that the process of defining the phenomenon is highly important as it "determines the likely response of societies to drought events" (p.116).

The American National Drought Mitigation Centre (NDMC)[4] at the University of Nebraska-Lincoln claims that there are "scores of definitions" as evidenced by Donald Wilhite and Michael Glantz's study which unearthed an estimated 150 plus published definitions[5]. Scoones, *et al*., (1996) weigh in on this argument claiming that farmers employ no simple and

[4] http://drought.unl.edu/whatis/concept.htm (accessed 10 February 2010). Among the Centre's activities, it "helps people and institutions develop and implement measures to reduce societal vulnerability to drought, **stressing preparedness and risk management rather than crisis management** [emphasis added]"

[5] For an extensive review of *drought definitions and impacts*, see Wilhite and Glantz (1985).

unified way of looking at drought, with interpretations being influenced by religious and political affiliations, social status, as well as the people's educational background.

Tannehill (1947) laments the absence of a clear-cut definition of drought. This lack of a single, uniform and acceptable definition somehow has a bearing on what French philosopher, Pierre-Daniel Huet, wrote in 1690 arguing that "any event can have an infinity of possible causes" (Taleb, 2007:48), thus limiting drought to a single definition and single possible cause is highly problematic. However, that does not rule out the need to agree on a uniform definition and the particular causes and conditions that have to be prevalent for droughts to falter or flourish.

Challenges with the definitions also arise from a path one takes, whether looking at drought from a conceptual point of view, or focusing on its operational dimensions. NDMC (2006) argues that conceptual definitions help in understanding the concept of drought, while operational definitions concentrate on the beginning, end and the severity of the droughts. Operational definitions focus mainly on frequency, longevity and impacts of the droughts. Since droughts occur in different regions and at varying frequency, some suggest that the definition be region- and impact-specific (Paul, 1998).

Drought is associated with the reduction of the seasonal amount of precipitation received (Hirji, *et al*., 2002) and can be broken into four main categories as suggested by Wilhite and Glantz in a 1985 paper. Wilhite and Glantz (1985) narrowed the categories from a wide range of drought types that had earlier been suggested by Hoyt in 1942, Subrahaymanyam in 1967, Gibbs (1975), and Guerrero Salazar and Yevjevich (1975), among others.

According to the NDMC (2006), the first three approaches measure drought as a physical phenomenon, while the fourth covers supply and demand issues, "tracking the effects of water shortfall as it ripples through socioeconomic systems"[6]. The categories are reviewed below as adapted from CEDRISA, 2009; NDMC, 2006; NEPC, 1999; Shumba, 2000 and Wilhite and Glantz, 1985:

[6] See http://drought.unl.edu/whatis/define.htm (accessed 10 February 2010)

a. Meteorological drought

This occurs when there is a reduction in rainfall supply in direct comparison to the average expected over that particular period. This is the most prevalent definition and concentrates on the degree of dryness and the length of that dry period. Meteorological definitions can be site- or region-specific, and measure dryness and rainfall received comparing this against a 'normal' and/or acceptable baseline. This is often pegged on an internationally accepted 30-year precipitation period, although some argue that 30 years is too short a time to be truly "representative of the long-term climatic period" (Wilhite and Glantz, 1985:114).

b. Agricultural drought

This refers to the shortage of the sufficient water available for a crop at any given stage of its development resulting in impaired growth, wilting and ultimately reduced crop yields. This definition looks at the link between meteorological and/or hydrological droughts and agricultural impacts, and focuses more on the vulnerability of the crops at their different growth stages vis-à-vis plant-water needs. Lack of water or moisture during the grain-filling stage of crops, for example, can be caused by mid-season dry spells that are prevalent in most of Zimbabwe's agroecological region III. Wilhite and Glantz (1985) argue that definitions of agricultural drought "link various characteristics of meteorological drought to agricultural impacts" (p.114), developments that affect plant development. The severity of the drought is, therefore, measured by the incompatibility of the available soil moisture and the plant-water demands. However, Scoones, *et al*., (1996) view the definition that looks at agricultural droughts as solely based on rainfall levels as being inadequate, arguing that other factors such as the fluctuating economic conditions should be taken into consideration.

c. Hydrological drought

Hydrological drought refers to the reduction in precipitation on surface and sub-surface water resources which affects water-reliant activities like irrigation, hydro-electricity generation, fishing and recreational activities such as water rafting. This also affects the availability of groundwater inducing water stress on communities relying on groundwater for their household needs. According to Wilhite and Glantz (1985), river basins often face the brunt of

hydrological droughts, though such droughts rarely coincide with meteorological and agricultural droughts.

d. Socio-economic drought

This is more focused on the impacts of droughts on people's socio-economic activities, and results from the impacts of the other three types of drought on the supply and demand of goods and services. This type of drought occurs when the demand for an economic good such as water and food grains outstrips the supply of that good as a result of weather-related water supply shortfall.

The NDMC presented the differentiation between the three main categories that present droughts as physical phenomena as follows:

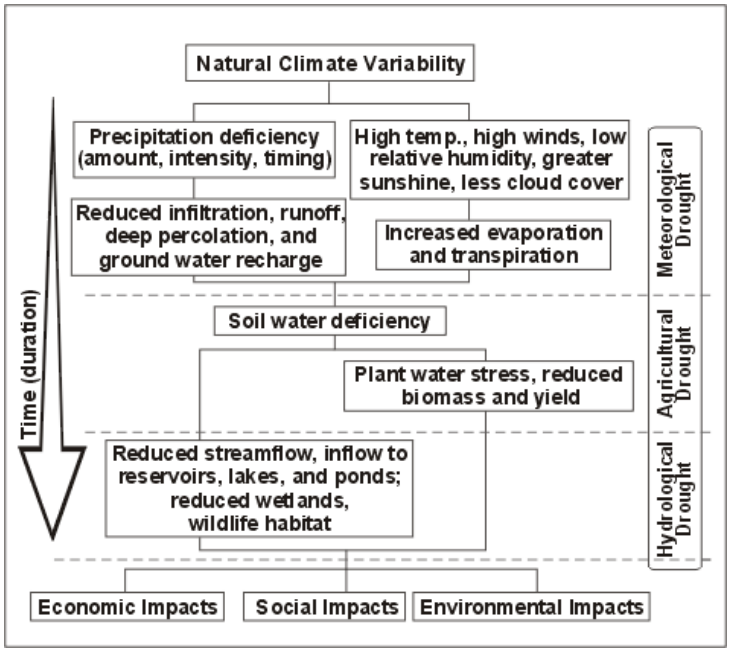


Fig 1.3: Different types of drought. Source: NDMC, 2006[7]

However, Wilhite and Glantz (1985) argue that the demarcation between these 'disciplinary views of drought' is often vague. There seems to be a thin line separating the views.

While agricultural drought is the main focus of this thesis, understanding the other types is also relevant as there appears to be extensive interconnectedness between them. This thesis also touches on water stress, which is one of the hydrological drought impacts. However, all

[7] See the NDMC different perspectives on drought webpage: http://drought.unl.edu/whatis/concept.htm#perspectives

the drought types have accompanying economic, social and environment impacts that are detrimental to the development of society.

1.4.1 Drought causes

Chenje and Johnson (eds, 1994) and Shumba (2000) argue that the shortage of water is central to the definitions of drought. However, Shumba (2000) is of the view that it should never be confused with aridity as drought is a temporary condition (see also Tannehill, 1947) while aridity is a more permanent condition characterised with dryness and lack of water. Shumba (2000) and the NDMC (2006) believe that a dry spell or deficiency of precipitation has to be long enough to cause damage for it to be considered a drought. One should bear in mind though that droughts are not only limited to areas of low-rainfall; they can occur in high-rainfall areas too (Secretariat for the Drought Disaster, 1993; and Wilhite and Glantz, 1985). Paul (1998) argues that although shortage of water is central to the definition, it does not mean that there is an absolute dryness in rainfall. Rain usually occurs but it "is either too late or the amount of rain is too little for the satisfactory growth of crops" (p.358).

Questions have been raised on the true causes of droughts, and what aggravates the intensity of their impacts. Ndlovu (1993) views drought as an act of God, but concedes that it, just like any natural disasters, is exacerbated by human practices that impact negatively on the environment. This is concurred by Anderson and Woodrow (1993) and Unganai (1994) who argue that droughts are unavoidable. However, what can be done is to prepare for them and effectively manage their impacts to prevent catastrophic outcomes.

The El Niño-Southern Oscillation factor

In southern Africa, droughts are often linked to the El Niño phenomenon. El Niño is associated with the reduction of southern Africa's rainfall, an impact that has led to the region experiencing frequent drought conditions (Chenje and Johnson, ,1994; and SADC, 2008). Wilhite (2002) argues that a stronger El Niño signal is a clear sign of difficult drought seasons ahead. The devastating droughts of 1875-1876 (northern China), 1877-1878 (Brazil, India and Morocco) and 1888-1889 (Russia, Korea and Ethiopia), for example, were linked to El Niño

effects (Wisner, *et al*., 2004), while the phenomenon was blamed for the 1992 drought in southern Africa (Chenje and Johnson, 1994).

Usually in the end, El Niño's counterpart, La Niña, comes to clear the mess that El Niño will have caused, bringing normality through rains (Wisner, *et al*., 2004) as have been experienced in southern Africa when La Niña has brought higher than normal rainfall across the region (SADC, 2008). The El Niño-Southern Oscillation (ENSO) is the umbrella for both the El Niño and La Niña phenomena.

1.4.2 The drought-famine nexus

There is often confusion as to the boundary between droughts and famines. However, droughts are often considered the precursor of famines (Anderson and Woodrow, 1993). The degeneration from droughts to famines can be very quick resulting in mass starvation and occurrence of epidemic diseases (UNDRO and UNEP, 1984). However, rarely does a single year of drought cause famine, and that transition from drought to famine is highly possible in countries that have limited resources and lack social-policy preparedness (von Braun., Teklu and Webb, 1998). Although there appears to be challenges arising from defining when droughts and the related food shortages graduate to become famines, Anderson and Woodrow (1993) argue that drought (the biophysical event) cannot be entirely prevented, while famine can be.

When droughts result in famines and the widespread food shortages, they bring a host of undesirable conditions on vulnerable households and individuals. Anderson and Woodrow (1993) discredit the view of just focusing on production limitations and climatic failures as causes of famines, arguing that they result more from poor planning. According to Sen (1981), famines can "thrive even without a general decline in food availability" (p.154).

This challenge of differentiating between drought-induced food shortages and famines is apparent in literature on droughts, especially in colonial-Zimbabwe, with Iliffe (1990) tracking back the 'famine history' in the book titled *Famine in Zimbabwe, 1890-1960*. The following section is devoted to a review of droughts in the country, and the responses put in place to curtail the impacts of those droughts thereby preventing 'famines that kill' (*ibid*).

1.4.3 Zimbabwe's drought history

Drought is one of the main natural disasters that Zimbabwe experiences from time to time (CEDRISA, 2009). The country has a long history of droughts that can be traced back to the pre-colonial times where there are harrowing accounts of their horrors, according to Iliffe (1990) who also argues that the vernacular Shona terms for recurrent droughts and disasters are *shangwa* or *nzara*. *Chingwangwa* is also another term that is used in the south-eastern district of Chiredzi (CwDaCC, 2009). However, the colonial administration and its successor in post-independence Zimbabwe have often been commended for effective management of the impacts (Hicks, 1993). In addition, even before the arrival of the colonialists, pre-colonial societies had their ways of tackling the crises and preventing catastrophes. Iliffe (1990) argues that famine had been controlled before the colonial rule, and this also contributed to the successes of the programmes to contain the famines during the colonial period. Droughts are argued to be one of the major causes of famines.

Although the country has suffered several severe droughts, it has never experienced a killing famine where multitudes of people die due to starvation and malnutrition (Iliffe, 1990). The 1992 drought, for example, was described as the worst of the century by Borsotti (1993) and Kinsey., Burger and Gunning (1998), but did not result in famine as a result of "rapid, coordinated intervention at both national and international levels" (von Braun., Teklu and Webb, 1998:34). Sachikonye (1992) and Munro (2006) also credit the government's 'food-for-work' programmes for halting the escalation of the 1990 food shortages that affected parts of the country into a widespread famine, while a respondent from Chivi in a study by Scoones, *et al*., (1996) was quoted as saying, "[the] government has done a good job in getting food to the people. We are thankful for this" (p.160).

However, most of the famines that Iliffe (1990) refers to were either caused or worsened by the colonial policies of segregation and the constant fighting between the 'natives' and the colonialists, as these conflicts disrupted the flow of cultivation and harvesting. The 1882 famine, which came right at the outset of the colonial occupation of the country, was one of the most severe ones with women reduced to eating their skin aprons and hundreds of people perishing (*ibid*). The 1933 food shortages are described by Iliffe (1990) as 'capitalist scarcity' which made the country more dependent on European produced grain. The 'natives' were forced to rely on the Maize Control Board's silos instead of their own grain banks, and this was evident during the 1947 drought too.

Table 1.3 provides a history of droughts in the country from 1820 to 2002. It also covers the droughts that affected the southern African region at large.

Table 1.3: Drought history in Zimbabwe and the southern African region

PERIOD	EVENT
1820-1830	Decade of severe drought in Africa
1844-1849	Southern Africa experiences five consecutive drought years
1861	Well documented drought in Zimbabwe's Matabeleland region
1875-1910	Decrease in rainfall in southern Africa. Severe drought in 1910
1911-1912	Zimbabwe receives less than average rainfall
1915-1916	Drought in Zimbabwe. Average rainfall was a mere 394mm
1921-1930	Severe droughts in southern Africa
1930-1950	Dry spells alternating with wet conditions. 1933 considered the worst drought between 1930 and 1940. The 1946-47 severe drought has stuck in living memory
1967-1973	Dry period across southern Africa
1981-1982	Drought in most of southern Africa
1983	Severe drought for entire African continent
1986-1987	Dry conditions resulting in drought, though not as severe as 1982-83
1991-1992	Severe drought in southern Africa
1992-1993	Although conditions improve, communities still suffer from impacts from the previous drought
1994-1995	Severe drought, in some cases surpassing the impacts of the 1991-1992 drought
1997-1998	Drought in Zimbabwe, though it turned out to be less severe than had been expected
2001-2002	Drought in most parts of southern Africa

Adapted from CEDRISA, 2009; Iliffe, 1993; NEPC, 1999; Raftopoulos., Hawkins and Matshalaga, 2000; Scoones, et al., 1996; Thompson, 1993 & Unganai, 1994

The 1992 drought in Zimbabwe

Post-independence Zimbabwe has suffered droughts in 1982/3, 1992 and 2002 (CPU, *n.d*) with Borsotti (1993), Kinsey, Burger and Gunning (1998) and Scoones *et al*., (1996) claiming that the 1992 drought was the worst that the country had experienced in living memory. 1992 also witnessed the worst water crisis since 1914/15 (National Civil Protection Co-ordination Committee, 1993). The 1992 drought, which followed a poor rainfall season, was declared a State of Disaster on 6 March 1992 (Secretariat for the Drought Disaster, 1993) paving way for resource mobilisation for drought response.

The drought in 1991-1992 is believed to have affected approximately 5.6 million people in the country, over half the population then, with 92% of the communal farmers' crops failing

(Thompson, 1993). According to a report produced by the Secretariat for the Drought Disaster in the then Vice President Simon Muzenda's Office, the 1992 drought disaster was a combination of agricultural, meteorological and hydrological types of drought, which all occurred simultaneously further compounding its intensity and worsening the impacts on the households in the communal areas (Secretariat for the Drought Disaster, 1993).

1.4 Statement of the problem and significance of study

For a community to sufficiently prepare itself for gradual or sudden changes in livelihoods, households within that community need to understand the projected changes, how vulnerable they are to those changes, and what adaptation strategies they need to adopt. The success of development and humanitarian support interventions can be achieved if they are compatible with the communities' understanding of the impacts that droughts are bringing to their lives and their surrounding ecological systems, as well as the strategies that the households employ in mitigating such impacts.

Droughts are a frequent phenomenon in Zimbabwe (CEDRISA, 2009; and Iliffe, 1990) and it is necessary that the interventions put in place are informed by studies covering community capacity to cope with droughts and other disasters. Interventions that by-pass the communities' coping mechanisms are bound to fail, a trend that seems to have persisted. In actual fact, they will undermine the capacity of the local households to withstand future pressures (CEDRISA, 2009), which underscores the need to engage in studies such as this.

This study was, therefore, designed to explore the factors that influence Buhera and Chikomba's vulnerability to droughts and understanding the communities' ability to cope with drought impacts such as water stress and poor crop production resulting in widespread food shortages. Such a study would help "to identify where actions may be taken to reduce that vulnerability" (Carr and Kettle, 2009:131) as well as identifying "the processes that need to be confronted if vulnerability is to be reduced" (Ribot, 1995:121).

1.6 Research objectives

The research was guided by three objectives outlined below. In order to meet these objectives, a set of related research questions were explored.

Objective 1: To assess the vulnerability of the communities in relation to drought impacts such as crop failure, subsequent food shortages and water stress

The first objective aimed to assess the communities' vulnerability levels and how these impact on their ability to cope with drought impacts. The research sought to explore the underlying factors that influence this vulnerability, and explore whether there are visible drought cycles that the communities can use to prepare themselves against future severe drought impacts. Groups that are considered vulnerable in society were also identified, together with the reasons why they are considered to be more vulnerable than others.

Objective 2: To explore how the communities have been adapting to drought impacts

The second objective sought to identify the coping strategies that the communities employ and whether there is traditional (or indigenous) knowledge on social and ecological changes that was passed on to them by their foreparents. In the end, the research intended to explore what the State and humanitarian agencies' roles are in either enhancing or undermining community adaptive capacity.

Objective 3: To suggest ways of improving the households' adaptive capacity and build their resilience to such challenges that threaten livelihoods sustainability

Lastly, the research was driven by an objective to propose suggestions on improving Buhera and Chikomba communities' ability to cope with droughts and the subsequent impacts. These were drawn from what the communities suggested themselves, in addition to the interventions that the nongovernmental organisations (NGOs) and the government had been implementing in these and other communities.

1.7 Thesis outline

This thesis is presented in five chapters which are all inter-related. The separation of the chapters is meant to ensure that there is a systematic and logical flow of the arguments. The introductory chapter looked at the importance of agriculture in Zimbabwe, as well as exploring the history of the land question in the country with the intention to contextualise the study, and understanding the root causes that might have contributed to the communities' vulnerability and the survival strategies that they use in times of droughts. Ribot (1995) referred to this as the 'historical analysis of causality'. The chapter also presented the theoretical frameworks adopted for this study as well as a history of droughts in the country.

A description of the study area follows in Chapter 2. The chapter also discusses the methods utilised in exploring the subject, the limitations encountered and the ethical issues considered. The research results are presented in the third chapter. Chapter 4 discusses these results juxtaposing them with existing literature on droughts and people's coping mechanisms. The concluding chapter sums up the whole study, as well as suggesting some recommendations that can help in reducing drought vulnerability, as well as getting a better understanding of the factors influencing vulnerability to such crises.

The list of cited literature follows and annexes are presented at the end. The annexes include the country's history of agricultural, economic and land policies; the questionnaire used to gather household data in the communities; the interview guide used for NGO and government department representatives and a copy of the letter that was written to NGOs in the country instructing them to suspend operations since some of them were violating their original terms of references.

CHAPTER 2 – METHODS

2.1 Description of the area

This study was carried out in Zimbabwe's Buhera and Chikomba districts. The districts fall in two border-sharing provinces in the eastern and central parts of the country. Buhera is on the western periphery of Manicaland province, while Chikomba, which shares the same border with Buhera, falls under Mashonaland East province.

According to the national census carried out in 2002, the population in the two districts was as follows:

Table 2.1: Buhera and Chikomba population

Region	Male	Female	Average household size	Total population
Buhera	101 351	118 709	4.58	220 060
Chikomba	57 087	63 161	4.12	120 248
NATIONAL	5 634 180	5 997 477	4.35	11 631 657

Adopted from CSO, 2004a; CSO, 2004b; and CSO, 2004c

Buhera is divided into 32 wards, and Ward 6, which was the area of focus in this study, had a population size of 8,041 in 2002 (CSO, 2004b). Chikomba, on the other hand, has 30 wards, with Ward 20 having a population of 5,419 people (CSO, 2004c). The census gathered that 96.07% of Buhera and Chikomba's 91.52% were rural dwellers (CSO, 2004b; and CSO, 2004c) where the majority of them drew their income from agricultural activities, thus having land as their most prized asset.

Chikomba and the northern parts of Buhera lie in Zimbabwe's semi-intensive agroecological region III and they share nearly the same climate characteristics. However, Buhera exhibits uniqueness in that the whole district fits into the bottom three agroecological regions, with some wards in the northern parts of the district falling in agroecological region III, and the middle part of Buhera falling under agroecological region IV. The most southern parts of the district are often regarded as the perennially food insecure, falling under agroecological region V (Gundry, *et al.*, 1999). They identify Buhera as one of the poorest districts in the country, and the further south one goes, the more food insecure the communities generally

become as they often encounter futile agricultural seasons due to the low rains characteristic of their areas (*ibid*).

As presented in Chapter 1, agroecological region III experiences irregular heavy rains and mid-season dry spells. This makes rain-fed cultivation highly unpredictable, sometimes subjecting the communities to seasonal droughts (FAO, 2006; and Hicks, 1993). The selected wards in both Buhera and Chikomba fell in agroecological region III, although the uniqueness of Buhera was still evident as the ward selected just borders with the 'worse-off' agroecological region IV.

Agriculture in Buhera and Chikomba is mainly rain-fed, and suffers from erratic rainfall which affects crop yields and the general subsistence of the community dwellers. The following pictures show the land use practised in the two wards visited during the field research.

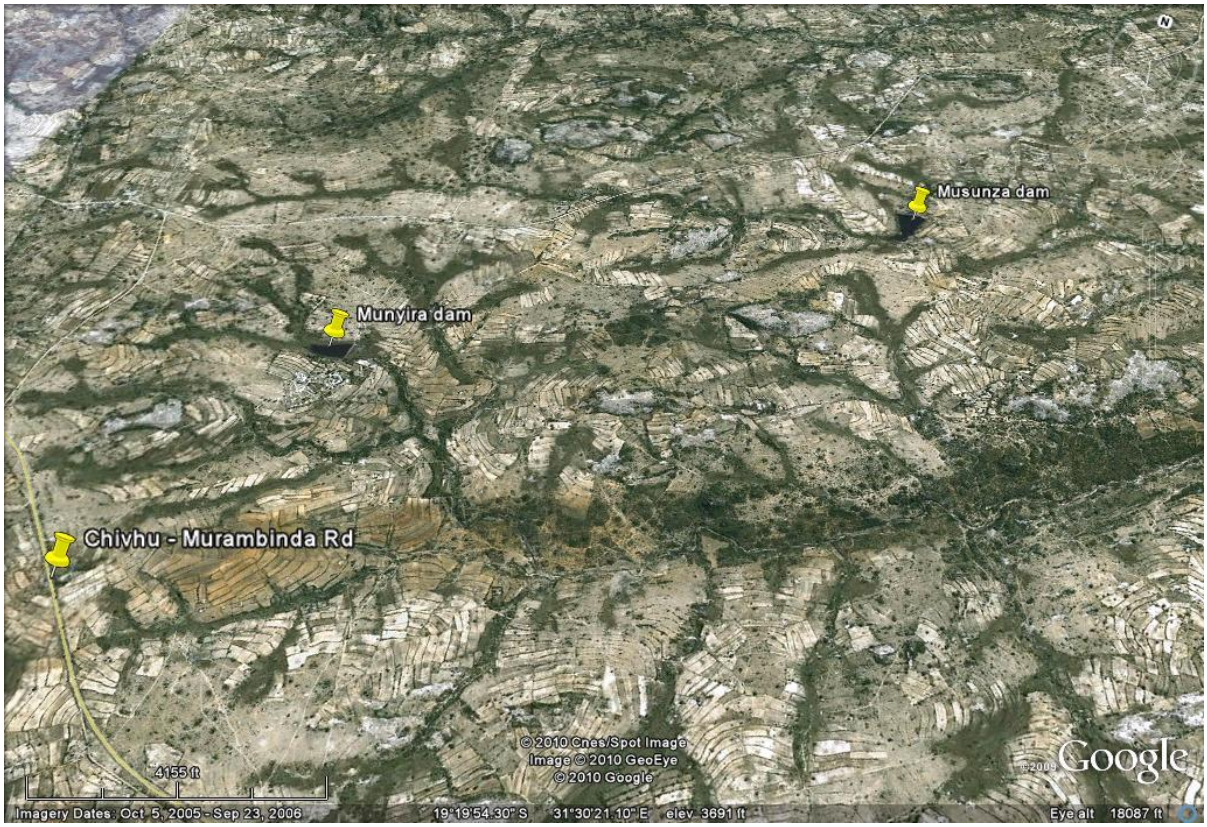


Fig 2.1: Buhera land use. Source: Google Earth, 2010

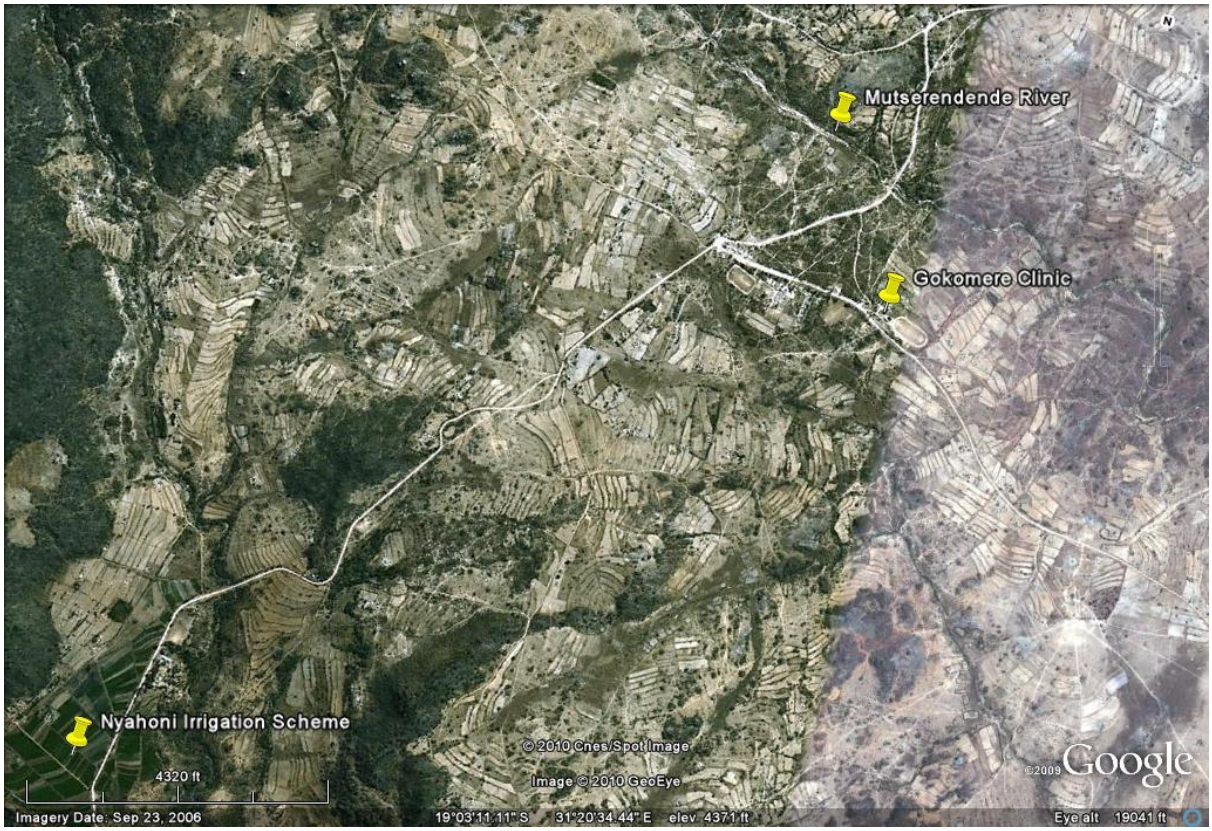


Fig 2.2: Chikomba land use. Source: Google Earth, 2010

The FAO/WFP-driven Crop and Food Security Assessment Mission (CFSAM) has consistently red-flagged Buhera as one of the districts that are highly food insecure, while Chikomba is often identified as a 'better off' district.

2.2 Mixed methods research

A research's credibility and comprehensiveness is pegged on the methods employed in data collection and analysis. In this research, I utilised both qualitative and quantitative research methods creating a triangulation of methods termed "mixed methods research" (Bryman, 2008) or "mixed methods approach" (Creswell, 2003) to ensure that the collected data is, in some way, sufficient enough to be representative of both the geographical area and the subject under study. My selection of this method was influenced by the desire to reduce the limitations of each data collection method by squeezing out the biases that might be apparent in using a single method (*ibid*), an offsetting process that compensates the weaknesses of one method by applying an alternatively better method (Bryman, 2008).

Since the research followed a case study structure, a mixed research methods approach became particularly important (Bryman, 2008). A case study provides an in-depth exploration of a community or process (Bryman, 2008; and Creswell, 2003), and in this particular research, the study focused on Buhera and Chikomba districts (i.e. communities), as well as on drought as an event within the broader climate change domain.

Mixed methods research is a new paradigm that combines both qualitative and quantitative research methods in one study (Bryman, 2008; Creswell, 2003; and Doyle., Brady and Byrne, 2009) making it a synthesis of ideas from the two most prominent research paradigms (Johnson., Onwuegbuzie, and Turner, 2007). Johnson and Onwuegbuzie (2004) describe it as a 'third wave' bringing together 'techniques, methods, concepts or language' employed in both qualitative and quantitative research. Since it is a new research movement, it is difficult to give a uniformly agreed definition (Doyle., Brady and Byrne, 2009; and Johnson., Onwuegbuzie, and Turner, 2007), and to draw the line between the (a) usage of the two research approaches in isolation of each other, and (b) a total integration of the two traditional approaches.

The benefit of employing a mixed methods approach is to ensure that there is a level of complementarity, i.e. getting the best of both worlds, a point emphasised by Reichardt and Cook who claim that "there is no reason for researchers to be constrained to either one of the traditional ... paradigms when they can have the best from both" (Johnson., Onwuegbuzie, and Turner, 2007:116). As such, researchers should not be trapped in either quantitative or qualitative prisons when they can benefit from integrating the two approaches. The product is expected to be superior to that from monomethod studies (Johnson and Onwuegbuzie, 2004) as the weaknesses found in applying qualitative and quantitative methods in isolation are offset when applying the mixed methods approach (Bryman, 2008).

2.2.1 Data collection methods

Several methods were employed to gather the data for this research. These are discussed below.

Semi-structured questionnaires

I used semi-structured questionnaires (see ***Annex 2***) in conducting the household surveys. In order to minimise the difficulties that the respondents were likely to encounter with the technical terms used in discussing droughts and related environmental fluctuations, I administered these questionnaires in person. The questionnaires were used to gather quantitative data about livelihood variables that influence community vulnerability and ability to withstand ecological and social shocks, as well as qualitative information through narrations of their foreparents' experiences with previous droughts.

Semi-structured interviews with 'key' informants

These 'key' informants were drawn from the community, government departments and humanitarian organisations involved with food security and related programmes in the country. Semi-structured interviews were chosen because they allow flexibility in data collection (Bryman, 2008), they facilitate adaptability of formulation of questions and terminology to suit the interviewee's background and educational level (Welman and Kruger, 2001), and they eliminate a level of rigidity that is common in structured interviews. I used a flexible "interview guide" (see ***Annex 3***) leaving room for following up on issues raised by the interviewees that would have been of particular interest to this research. A voice recorder was utilised, with the consent of respondents, to document these interviews.

Observations

Observations were employed to gather images of purported drought effects such as depleted water resources and land degradation, as well as alternative sources of food for the communities in drought seasons. I also paid attention to factors such as transport networks, infrastructure and land preparation methods while walking in the communities, as these are believed to have a significant impact on the people's livelihoods.

Secondary data sources

Realising that dependence on information gathered through questionnaires, interviews and observations only would have given a superficial account of the subject, I collected secondary documents of interest from well-stocked documentation centres as well as from a variety of agencies working on issues relating to environmental sustainability and food security in the country. These documents were collected to give an understanding of the perceived nature of challenges faced by the communities in the country that are related to climatic changes, and how the communities respond in the wake of such challenges.

Documented experiences from previous droughts were also collected, and this was integral as the information gathered showed the response measures employed in times of crises and strategies put in place to reduce the communities' future exposure to drought exigencies. The Zimbabwe National Vulnerability Assessment Committee (ZimVAC) reports were of great value to this research as they gave an indication of the frameworks used to analyse vulnerability in the country, as well as the identification of the groups considered vulnerable in society. The ZimVAC reports are usually used to inform humanitarian aid targeting in times of crises.

Relevant media reports that were published during the period this research was conducted were collected. Media reports were a useful tool to get the government voice as access to government officials is not always an easy task. I mainly targeted the newspapers in the country especially with regards the agricultural input facility and preparations for the planting season.

2.2.2 Sampling

Households in this research were randomly selected in a bid to afford everyone an equal opportunity for participation (Creswell, 2003). The household surveys in both Buhera and Chikomba targeted the household member who was present at that particular time. However, in the event that both the spouses were free and available, I would interview both of them although in most cases the husbands would suggest I interview their wives presumably because they are the ones most responsible for the management of food and water resources in the households. 36 questionnaires were administered in Buhera, while in Chikomba 39

households were surveyed. In addition, the 'key' informants interviewed in the communities totalled 11 for Buhera Ward 6 and 12 for Chikomba Ward 20. The criteria used in selecting these informants looked at age since it is associated with the accumulation of wisdom in the Shona custom; household condition such as whether the household head is widowed, chronically sick or some members of the household are orphaned etc; and following up on some family contacts working in town [Harare] to understand how and what they remitted to their families in the villages.

I used snowball sampling for interviews with the informants in NGOs and government departments, as each interview unearthed a lead which in the end led to the identification of the next possible interviewee. The interviewees had important contacts within their 'networks' whose contributions were assumed to be integral to exhaustively exploring this particular subject. However, there was a risk of glossing over the subject with similarly biased views as these 'networks' usually seemed to have similar views to those expressed by the previously interviewed informants. A topic of interest raised in an interview was, therefore, used as an important lead instead of focusing on individuals as the leads for the next interviews.

Theoretical saturation was employed to identify the stage at which no new lead or relevant data emerged from the interviews[8]. This was when the interviewed informants were said to be sufficient enough to consider the process exhaustive of the subject.

2.2.3 Data analysis

This activity aimed to "make sense out of text and image data" (Creswell, 2003:190) using mainly qualitative methods of data analysis. However, for quantifiable data sets focusing on factors such as household demographics, quantitative data analysis was conducted using Microsoft Excel as an analysis and presentation package. Transcribing the qualitative interviews, averaging 28.38mins in length for the representatives of organisations, consumed much of the time available for that activity. This was an anticipated challenge especially considering that analysis of huge amounts of qualitative data is a cumbersome process

[8] Bryman (2008) gives a comprehensive discussion on using theoretical saturation in sampling.

(Bryman, 2008). As such, a considerable amount of time was put aside to work on analysing the data after the fieldwork.

In order to understand how Buhera and Chikomba residents relate to the drought event and their responses to such hazards, I gathered the people's recollections of the previous droughts that their foreparents experienced. I then sought to understand the myths that they retold me employing a quasi-narrative analysis.

Quantitative data such as rainfall statistics was complemented by the respondents' accounts of previous droughts further showing the complementarity benefit of mixed methods approaches. The validation process cross-referenced the data collected from the household surveys and informant interviews with the rainfall statistics and the documented accounts of previous droughts.

2.2.4 Limitations encountered

Any research activity is bound to encounter a range of challenges, some of them springing up as a surprise to the researcher, while others would have been predicted well in advance. The following listed limitations were encountered during the data collection and analysis stages. For each limitation, a solution that was used is listed.

Financial constraints

Any research endeavour is expected to have a financial implication. This research did not come cheap, especially considering that I did not have any financial aid except the nominal support from the Department of International Environment and Development Studies (Noragric). The financial challenges encountered in this research mainly related to the high cost of data, photocopying information materials and transport for the frequent visits to the communities.

Reeling from a serious economic crisis, the country embarked on a number of cost recovery measures, among them selling seasonal rainfall statistics to researchers. The yearly average rainfall statistics were pegged at US$2.50 per year, the same figure being charged for the monthly averages. I could only afford annual rainfall averages covering 19 years for both

Buhera and Chikomba, making it US$47.50 per district. The charges got steep when labour (consultancy and labour) and overheads (administration and dissemination) were factored in, totalling US$224. This restricted me from collecting the more important month-on-month rainfall statistics as the cost would have escalated to US$570 per district without the labour and overheads, making it insanely expensive for a self-financed researcher. This made it difficult to gauge the frequency and lengths of mid-season dry spells, which are a major force in deciding the overall outcome of the agricultural seasons. However, I managed to access the 1969/70 – 2007/08 month-on-month rainfall statistics for Chikomba from a secondary source.

Assumed NGO affiliation

Some respondents assumed that I was affiliated to an NGO and would sometimes deflate their asset base as some of my questions were consistent with those commonly asked by NGOs when screening the people for assistance in times of crises. Others also extended their pleas for boreholes etc, which, although helpful to understanding the needs of the communities, might have given a false impression about my role in the communities. However, I constantly reminded the respondents that mine was purely an academic exercise and not a vulnerability assessment and screening exercise commissioned by any humanitarian aid organisation.

Lengthy transcription of interviews

Transcribing voice recorded interviews is a lengthy and cumbersome exercise. 15 representatives of NGOs were recorded, in addition to interviews with 11 respondents in Buhera and 12 respondents in Chikomba. The interviews with the informants from the organisations averaged approximately 30 minutes each, with a couple of them exceeding an hour in length. However, the fact that these were recorded in English made it easier to transcribe. The respondents in the communities were interviewed in the local vernacular language though, and it made it even more difficult for me to transcribe in Shona, then translating to English when analysing the data.

Identification of 'key' informants

Identification of an interviewee as a 'key' informant acted as a limitation as it nearly created a bias in the selection of the informants. A question to ponder especially in the communities was why one was considered more 'key' than the other. However, I tried to balance this by using a condition such as orphaned, widowed, elderly or chronically ill to identify the informants in the communities, while organisations and government departments that were contacted usually suggested the best person within their set-up to talk to.

2.2.5 Ethical considerations

This research was guided by the principles guiding ethical research in the social sciences. I undertook to treat the research participants respectfully and not as subjects; not to use the research to disempower them (Creswell, 2003); to respect the communities' cultures and leadership; and not to use the research findings for purposes other than the ones I communicated to the participants. Abiding by the ethic of respecting the traditional leadership in the communities, I first consulted the village heads and/or councillor about my intentions before interviewing the people. Fortunately enough, there was no objection to my requests and this consultation of the traditional leadership became merely symbolic.

Participation in the research was voluntary and no participant was unethically coerced to participate in the research against their will; rather they were informed of the purpose of the research and made their decisions on participation based on that information. The research participants had "the right to withdraw at any time" (*ibid*., p.64), and some requested for the voice recorder to be switched off at certain intervals during the interview, to which I obliged. Intentional misinterpretation of data gathered from researches is a violation of ethical research principles, and I have tried to ensure that this was never the case.

CHAPTER 3 - RESULTS

"Zvanga zvakaoma (it was unbearable)..." ~ Buhera and Chikomba residents in reference to their experiences in 2008

3.1 Introduction

This section presents the results from the field study that was carried out from July to November 2009. It is divided into two parts. The first part presents the data gathered from the household surveys and the key informants in Buhera and Chikomba, while the second part covers the interviews with the informants from the non-governmental organisations (NGOs) and government departments. The researcher's observations in the communities vis-à-vis the subject being explored and observations from the media are also incorporated under the section on NGOs and government departments informants. The chapter concludes with a brief summary of the issues raised in this chapter.

3.2 Household surveys

The household surveys utilised structured questionnaires as well as open-ended interviews when discussing the drought impacts issues with the key informants familiar with the subject discussed and the geographical location. The households were treated as the units of analysis.

3.2.1 Demographics

Demographic information sought from this exercise included information on the age and gender of the respondents, their marital status, education and the livestock owned by their household.

The majority of those who were interviewed in both research sites were between 30 and 70 years of age. The figure below further illustrates this.

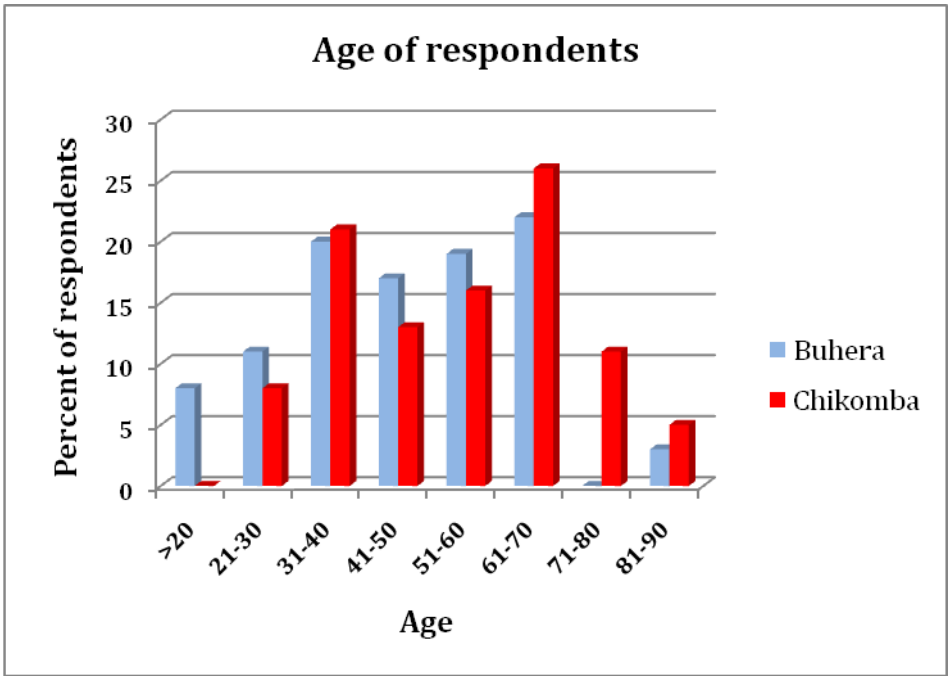


Fig 3.1: Age of respondents in the districts

The distribution of the respondents in Buhera and Chikomba in relation to their gender and marital status can be presented as follows:

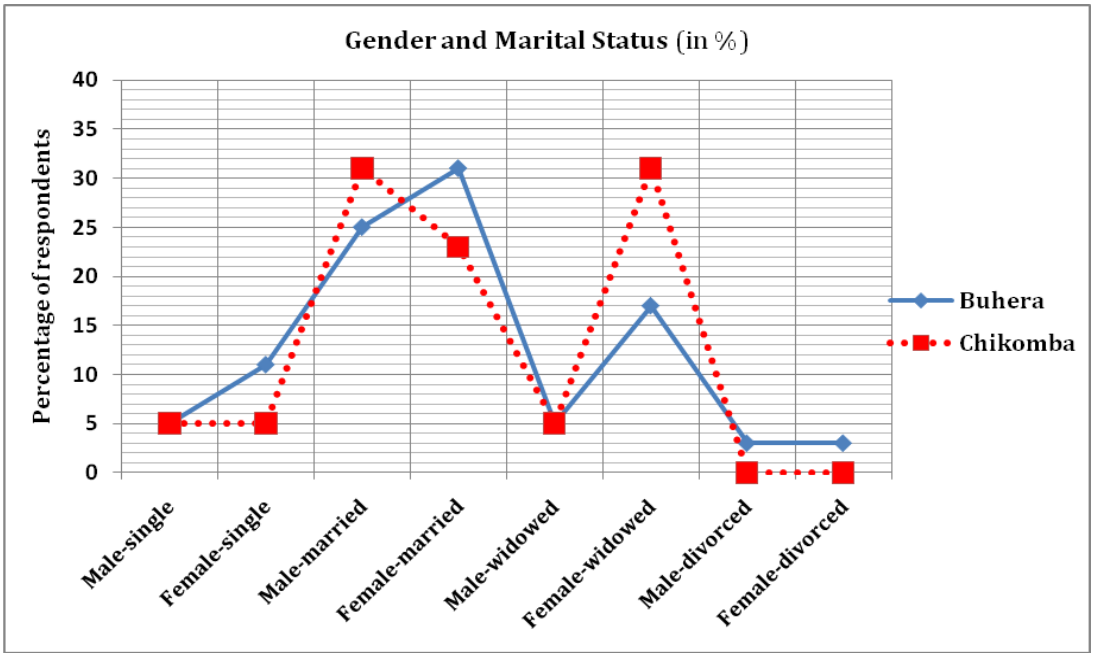


Fig 3.2: Gender and marital status of respondents

The graph shows an unusually high number of female-widowed respondents in Chikomba at just above 30%, nearly double that of Buhera.

The research sought information on the household compositions basing on the understanding that the bigger the household is, the more food is required to feed everyone in that household,

and that this is dependent on the household's capacity to produce enough food, while at the same time being able to generate income from their other livelihood options, if they have any. The maximum number of children per household in Buhera was 13, while in Chikomba it was 12. Coincidentally, the family with 13 children in Buhera also had eight other dependents, the highest among the respondents in the ward. Other dependents meant grandchildren or the elderly (among other groups) being looked after by that household, such as the families' grandmothers or grandfathers who no longer have the capacity to look after themselves.

3.2.2 Livestock ownership

Ownership and access to livestock are often used as measurable indicators of households' vulnerability to adversity or ability to cope with it. The following figures give a brief overview of livestock ownership in Buhera and Chikomba.

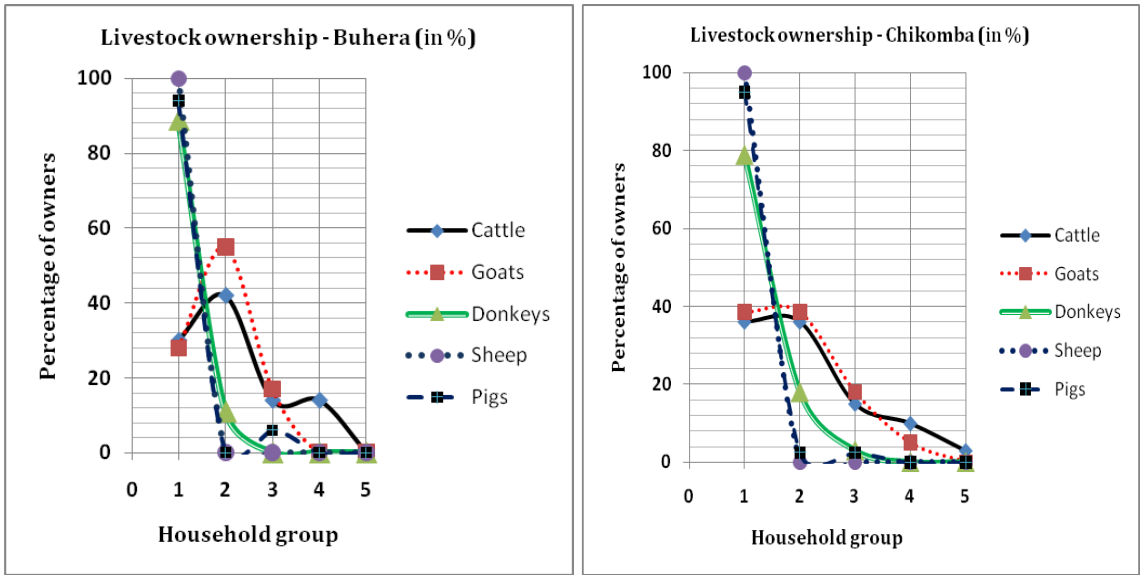


Fig 3.3 & 3.4: Livestock ownership in Buhera and Chikomba

Household *Group 1* had zero (0) of the livestock in question, *Group 2* had between one and five, *Group 3* had between six and 10, while *Group 4* had between 11 and 15. The last group had more than 15 (>15) of the stated livestock species. The graphs above show some similarity between the two communities as the number of households continued on the descent as the number of the stated livestock species increased.

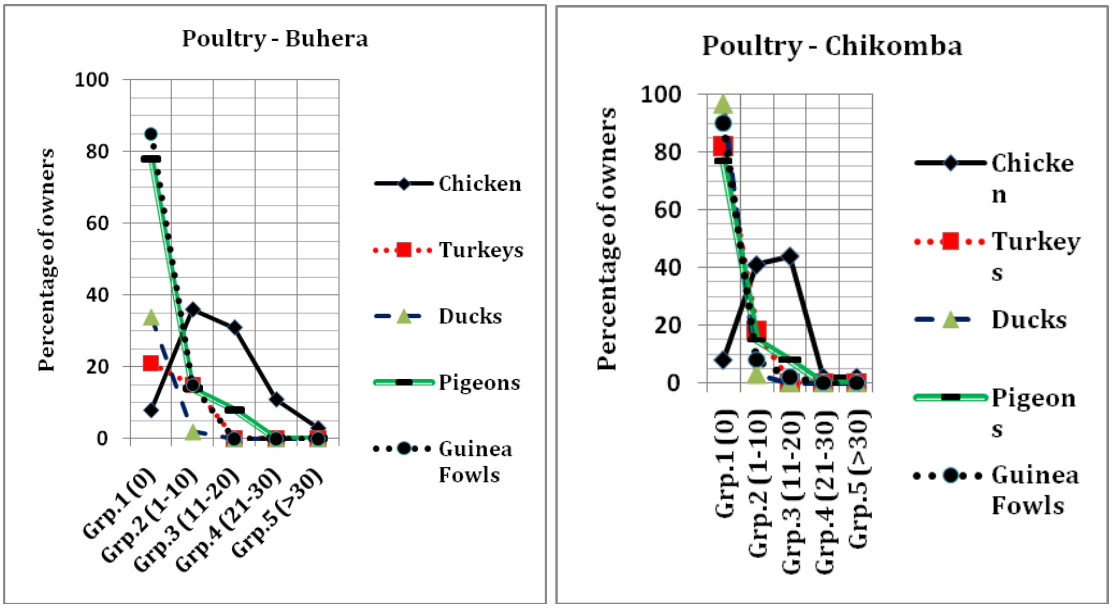


Fig 10 & 11: Poultry ownership in Buhera and Chikomba

Chicken was the most common type of poultry in the two communities with the highest number of households in Buhera falling in the 1 - 10 chicken-per-household group, while in Chikomba they had between 11 and 20 chicken per household. Although some households in both research sites had guinea fowls, pigeons, and turkeys, these households were very few suggesting a lack of poultry diversification.

3.2.3 Crop varieties

Maize (*chibage*) is the staple crop in Zimbabwe. It is, therefore, not surprising that all the households in both research sites grew it. The following figure presents the crops being grown in Buhera and Chikomba and the percentage of the households growing such crop varieties.

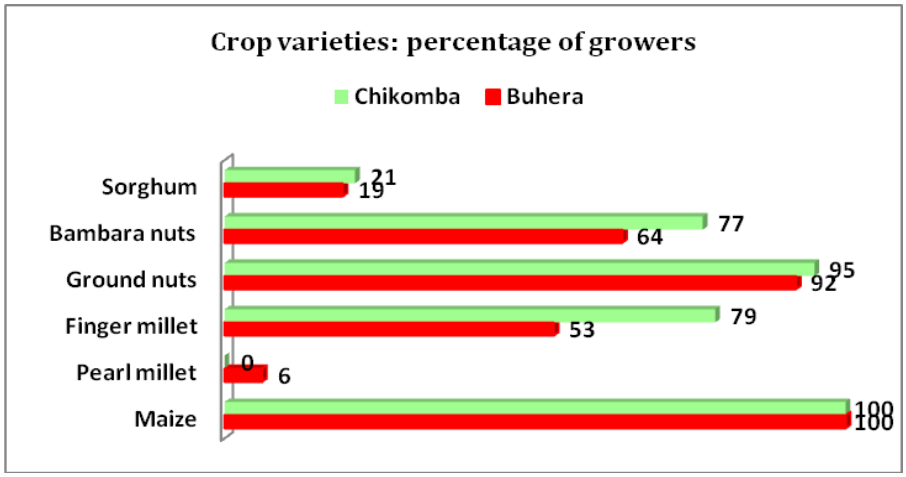


Fig 3.7: Crop varieties grown

In addition, the other crops grown in the two areas included sugar and soya beans, cow peas, sweet potatoes, pumpkins, sugar cane, and garden vegetables. 14% of the households in Buhera Ward 6 grew wheat in their gardens, a crop variety that no one in Chikomba's Ward 20 claimed to be growing.

Several factors, including those presented in the table below, influenced the people's decisions to grow a particular crop variety.

Table 3.1: Factors influencing what crop variety to grow

	Field size	**Cost of inputs**	**Rainfall information**	**Traditional value**	**Societal influence**	**Farmer competition**	**Input availability**	**Economical value**
Buhera % (n=36)	22	19	8	28	8	0	69	36
Chikomba % (n=39)	41	69	26	15	13	0	82	38

The majority of the respondents in the two areas claimed that input availability had a huge influence on their decision-making regarding what crop variety to grow. However, a huge difference between the two areas showed only 19% in Buhera saying that the cost of agricultural inputs was an issue of concern, while a steep 69% in Chikomba claimed it made a huge difference.

In addition, the overall responsibility to feed the household members contributes to whatever decision is made about the crop varieties to grow. Other significant factors included the difficulties that the households face in accessing agricultural inputs, which results in them growing whatever seed will be at their disposal; the crop variety's drought tolerance capability; availability of human labour for such activities as chasing away the birds; and the portion of the land available vis-à-vis the family's needs.

Finger millet is usually the crop of choice whenever there is a traditional ceremony to organise, and this influences some households' decisions to grow it. In addition to making the staple diet, *sadza* (thick porridge), the crop can be used to make the traditional brew, which can be sold to generate income. However, those who grew it claimed that they dedicated only

small portions of their land for finger millet production in comparison to the land used for maize crop production.

Other factors influencing decisions include the availability of the information about that particular crop and its performance on the market; the need to come up with a balanced diet; the amount of time and effort invested in processing the grain; and the stage of the season at which the households crop their fields. The communities claimed too that they have continued growing the crops that were always grown in their localities by previous generations.

3.2.4 Crop yields

47% in Buhera and 56% in Chikomba weighed their 2008/09 yields at below average of their potential production levels, scoring 2 (out of a possible score of 5). In contrast, only 6% in Buhera and 5% in Chikomba scored 4 out of 5, the highest in both research sites.

The reasons given for the poor crop yields were wide ranging, and included those presented below:

Table 3.2: Reasons for poor crop yields

	Low rainfall	**High rainfall**	**High cost of inputs**	**Late cropping**	**Early cropping**	**Difficulties accessing inputs**
Buhera % (n=36)	69	17	17	42	3	72
Chikomba % (n=39)	90	3	67	44	5	85

Apart from the factors in the table above, households claimed that poor preparedness; poor rainfall distribution; lack of draught power; inappropriate seeds; lack of the necessary agricultural inputs; lack of human labour; lack of the appropriate agricultural knowledge and late rains are among a host of factors that affected their yields. The lack of the financial muscle to buy inputs and pay for casual labour; failure to recover from previous droughts; and a fragile political and economic environment that saw some shops in the rural areas either having empty shelves or even closing also contributed to the households' dismal harvests.

Those who indicated that their yield scale was above *Scale 3* (6% in Buhera and 5% in Chikomba) argued that they had either used manure to improve their crop yields, cropped early, staggered their crops, grew drought tolerant crops, or grew crops with a short maturity life.

3.2.5 Recalled drought years

69% in Buhera and 74% in Chikomba picked 1991/92 as one of the years in which they experienced severe drought impacts; while 69% (Buhera) and 64% (Chikomba) said 2001/02 was another difficult year. 2007/08 proved to be the most difficult for both regions with all the respondents in Buhera indicating that they felt the impacts brought by drought during and after the 2007/08 agricultural season, a point that 92% from Chikomba concurred with.

An interesting point that was raised in Buhera was that whenever there is an election being planned, they find it extremely difficult to respond well to drought impacts and any other adversity. Post-1990 Zimbabwe has held presidential elections in 1990, 1996, 2002 and 2008; parliamentary elections in 1990, 1995, 2000, 2005 and 2008; and senatorial elections (2005 and 2008). In addition there was a constitutional referendum in 2000. Of these years, 1995, 2002 and 2008 seem to coincide with this co-relation between elections and difficult agricultural seasons.

Other respondents also claimed that since the turn of the millennium, all agricultural seasons' yields have been very low without further elaborating on the reasons behind the poor harvests.

Judging from the local memory, drought cycles are not visibly clear in the two communities. 22% from Buhera and 41% from Chikomba indicated that droughts used to have a 10-year cycle, which seems to be shifting now and making the droughts more unpredictable and difficult to prepare for. However, there was agreement that every year that ends with the number two (2) is usually a drought year and that the year after each drought season is normally very difficult for the people in the two districts as it takes time to fully recover from such difficult seasons. 61% and 64% for Buhera and Chikomba respectively indicated that the experience with these 'unclear' drought cycles influences their on- and off-farm activities, in one way or the other.

Related to the communities' present-day drought experiences were their accounts of stories from their elders regarding the droughts they had experienced. When comparing the challenges that the people faced in 2008 with the 1947 drought that their elders had recounted to them, and which some of the surviving generation had experienced, the respondents claimed that 2008 was worse. The other drought years that their elders talked about included 1921, 1942, 1967/8, and 1971/72. The latter was also experienced by some of the older respondents in the research sites.

3.2.6 Causes of the droughts

The respondents took challenges with food availability and accessibility as an indicator for drought seasons and some of their responses seemed to address factors worsening such impacts. The study revealed that poor rainfall, poor soils and the lack of agricultural inputs are important factors that contribute to severe drought impacts that the communities have experienced over the years. 97% of the respondents in Buhera and all the respondents from Chikomba indicated that poor rainfall had a huge impact on the outcome of their agricultural toil. For Chikomba, respondents who identified lack of agricultural inputs as a factor were also significant at 77% compared with 53% from Buhera.

Other factors raised included poor agricultural practices, economic and political instability which contributed to the unavailability of commodities in shops, poor rainfall distribution, and expensive agricultural inputs that were unavailable most of the times. The lack of livestock for draught power also meant that some households had to wait for those with livestock to finish tilling their land first before they can be offered assistance. This resulted in late cropping, which has an implication on crop growth as the crops also face poor mid-season rainfall distribution.

Traditional and religious beliefs made some to point to punishment from God and their ancestors as one of the drought causes. They argued that this punishment was because the people have shed a lot of blood, which seemed to imply the violence that broke out during the previous elections, while one respondent argued that this was because "*we are no longer following our traditions*". It was common to hear the elders in the communities claiming that their ancestors have turned their backs on the living.

Laziness was also pointed as one of the factors contributing to the communities' burden of droughts, with the households encouraged to work hard even when faced with adversity so as to secure their livelihoods. The household heads' practice of *kuteedza ndari*, or spending most of their time drinking the local brew, was one of the practices that were hinted as contributing to some people's laziness in the fields and the resulting food insecurity.

3.2.7 Effects of droughts

An increase in morbidity was identified as one of the major effects of droughts and water stress, with 64% in Buhera and 87% in Chikomba arguing that the desperation for food resulted in people eating poisonous fruits and drinking impure water from unreliable sources. This resulted in their immune systems being weakened by changes of diets making it easier for them to succumb to diseases that they would have otherwise fought off easily had they accessed enough nutritious food. When Zimbabwe suffered a cholera epidemic from mid-2008 to early 2009, some people in these communities are believed to have had weaker immune systems to defend themselves against the effects of such diarrhoeal diseases.

Droughts do not only impact on the people's access to food, but further compound the communities' problems with regards water availability and accessibility. 62% in Chikomba claimed to have been affected by depleted water resources resulting in people walking long distances in search of water for household use. Accounts given by informants in both research sites suggested that the water table is lowering and this requires the extension of the boreholes and community wells' depth in order to make the water accessible to the people. One respondent in Buhera said:

> *Water accessibility is a huge problem for us. The water table is lowering beyond the reach of our water sources, and we do not have the means to reach out for the water. If it does not rain, then we will not have any other way to access the water. The only solution is to have a borehole. That will be helpful to us.*

Communities suffer from the aftershocks of droughts, as they often encounter water shortages every year that follows drought seasons. The communities moaned the challenges they were facing with access to water, and suggested that each village should have its own borehole.

Water harvesting techniques were suggested as options to make water available and accessible.

The following graph shows the responses from the communities with regards their experiences with droughts.

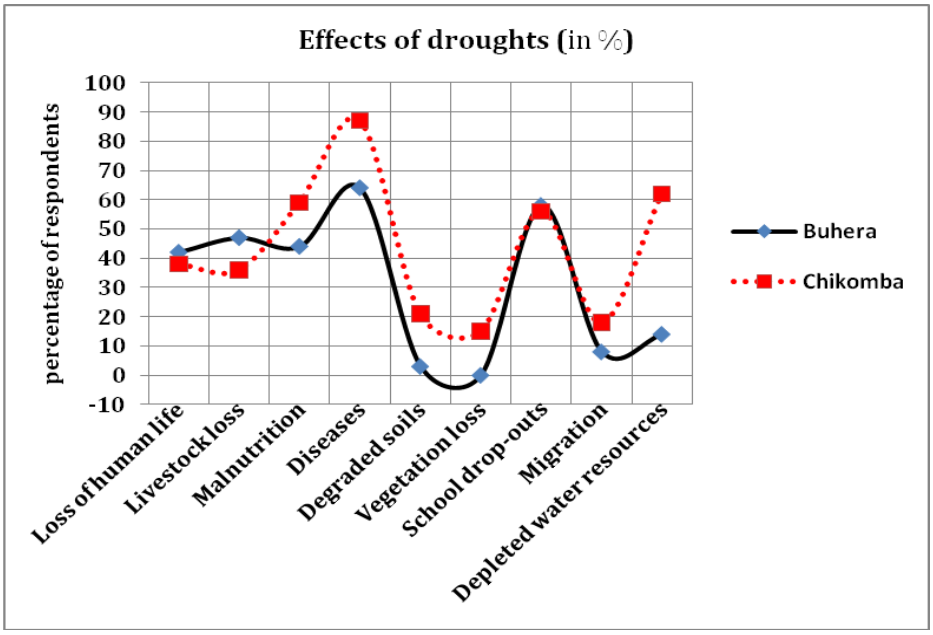


Fig 3.8: Effects of droughts in Buhera and Chikomba

The graph shows school drop-outs as being significant at above 50% for both research sites.

The communities also identified irregular school attendance and poor school performance; teachers either migrating or depending on communities for grain; increased begging known in the venacular language as *kupemha*; an increase in *kusunza* i.e. travelling long distances in search of grain to buy; depletion of livestock as some is either sold or traded in exchange for grain; an increase in crime with livestock and grain being the main targets for theft; and poor crop yields as possible effects of droughts. *Kupemha* is a traditionally acceptable way of asking for food in times of adversity, further strengthening the role of social networks in the communities.

Those with the access to grain started profiteering from the situation as they would sell it at exhobitant prices, or demand more livestock for lesser quantities of grain. There was also a cultivation of hatred in society as some people 'fought' over humanitarian aid. The people mandated with compiling the lists of those who should receive assistance were often accused of favouritism and deliberately leaving out households that should be the true beneficiaries.

In both communities, 3% of the respondents highlighted cases of husbands being left by their wives as the impacts worsened. However, with the stability of the institution of marriage being tested in such situations, it was surprising to hear that there were increased cases of young girls eloping during times of droughts.

3.2.8 Community perceptions on their vulnerability levels

The communities were certain that they are vulnerable to drought impacts. Only 19% in Buhera and 21% in Chikomba disagreed with the view that their localities were vulnerable. The following were identified as the factors that contribute to this.

a. Wide-ranging factors contributing to vulnerability

The soil's poor moisture holding capacity; lack of the necessary farming knowledge; lack of draught power; difficulties accessing proper seeds; inadequate farming space; poor rains and rainfall distribution; and the communities' failure to fully recover from previous droughts such as those in 1992 and 1995, were some of the factors contributing to the people's vulnerability.

The lack of money also meant that the communities would sell their livestock, grain and other assets in order to access the money for other household needs further exposing them to future drought exigencies. At the beginning of 2009, Zimbabwe suspended the use of its currency replacing it with a basket of foreign currencies. However, the American dollars (US$) and South African Rand (ZAR) were not easily accessible to the ordinary people and the rural populace. One respondent said:

> *The money is not there, we do not have money in this country. So if I want to go and buy soap, if I find someone willing to pay me US$2 for one bucket[9] of maize, I will just have to take it to them. Isn't that how the grain gets finished? Do we, therefore, know how much rains we will receive in the following season?*

[9] A 20 litre-sized bucket is used as a standard measure

This poor access to money contributes to a vicious circle whereby when the agricultural season is upon them, the people cannot even prepare their land on time as those who will not be having the livestock and agricultural inputs to facilitate smooth cropping will not be able to pay for tilling and casual labour and buy the needed agricultural inputs.

Poor planning also contributes to the people's limited capacity to deal with drought impacts such as food shortage and water stress. Seasonal rainfall information or weather reports that are essential for planning are not received on time, if at all the communities receive the information. This impacts negatively on their plans as they will not know which types of crops to grow until it is too late to plant, and by that time the inputs will be finished on the market. Some households were so food insecure that when they were given agricultural seed, they simply washed and cooked it for consumption.

Inaccessibility to appropriate seeds on time also meant the communities would sow untreated seeds from their reserves or from the humanitarian grain they will have received, and at the end of the season they will still be faced with poor harvests. The communities claimed that the rains were no longer good enough like they used to be, hence communities are not reaping much from their agricultural efforts. Faced with these challenges, they argued that there is not much they can do to prevent themselves from the wrath of droughts such as food shortages and water stress.

b. Governance and corruption

The communities alleged the role of politics in worsening the people's livelihoods and weakening their capacity to cope with droughts. They pointed out to the suspension of humanitarian organisations' operations through a directive from the government in June 2008 (see ***Annex 4*** for a copy of the letter). This was because of a suspicion by the government that some NGOs were usurping their terms of reference, and using their operations to campaign for the then opposition party, the Movement for Democratic Change (MDC).

On the other hand, the then ruling party, the Zimbabwe African National Union – Patriotic Front (ZANU PF) was accused of politicising its support in both pre- and post-drought times, and only serving its supporters while deliberately leaving out opposition party supporters. Some programmes that are said to have excluded people from opposing political affiliations

included *Operation Maguta*, a concept the communities argued was noble in principle, but flawed in implementation. *Operation Maguta* was a government initiative meant to boost agricultural production on underutilised plots with the intention to contribute to the national grain reserve.

Timely access to agricultural inputs is very important for the success of any agricultural effort and late access can worsen communities' vulnerability to droughts and poor harvests. The communities faced difficulties in accessing inputs on time, usually accessing the inputs well into the agricultural season, and by then the inputs would no longer be as useful for that particular season as they would have been had they been received earlier.

The communities used to get inputs through the Grain Marketing Board (GMB), a state institution mandated with the regulation of grain movement within the country. However, they accused the GMB of corruption and politicisation of the past inputs schemes, and they suggested that it was better for the inputs to be made available in shops so that they can be accessible to everyone, and at affordable prices.

Corruption and politicisation also stalked the Government's Champion Farmers inputs programme during the 2008/09 agricultural season, according to the informants in the communities. The irony of the matter was that some of the 'champion farmers' who were receiving inputs as rewards for being productive, ended up trading those inputs with grains as they were highly food insecure.

c. Indigenous crops versus cash crops

Indigenous crops such as finger millet had long disappeared from the list of crops grown in the communities, with the households focusing mainly on maize and other cash crops. Maize is used to make the staple diet, *sadza*, and, according to the respondents, it fetches more money on the market as compared to the indigenous crops. The GMB too does not buy finger millet grain from the smallholder farmers who resort to selling their grain among themselves, and trading the grain with livestock, among other tradable goods. However, according to the community elders, maize grain does not have a long life span as compared to finger millet; it has to be consumed or sold before it loses its quality. This is in sharp contrast to finger millet which can be stored for multiple seasons before its quality starts deteriorating.

The informants accused the former colonial administration of changing the people's focus from indigenous crops to cash crops, which then contributed to the weakening of the communities' capacity to better cope with droughts. The alienation of these indigenous crops has eroded the people's choices and tastes, as the young generations are said to favour *sadza* made from maize meal at the expense of that made from finger millet flour. It is only now that the people in the rural areas are starting to grow finger millet due to the harsh lessons they learnt from crop failures in the past decade.

d. Vulnerable groups

The following figure gives an indication of the groups that the communities considered vulnerable to drought impacts, especially water and food shortages.

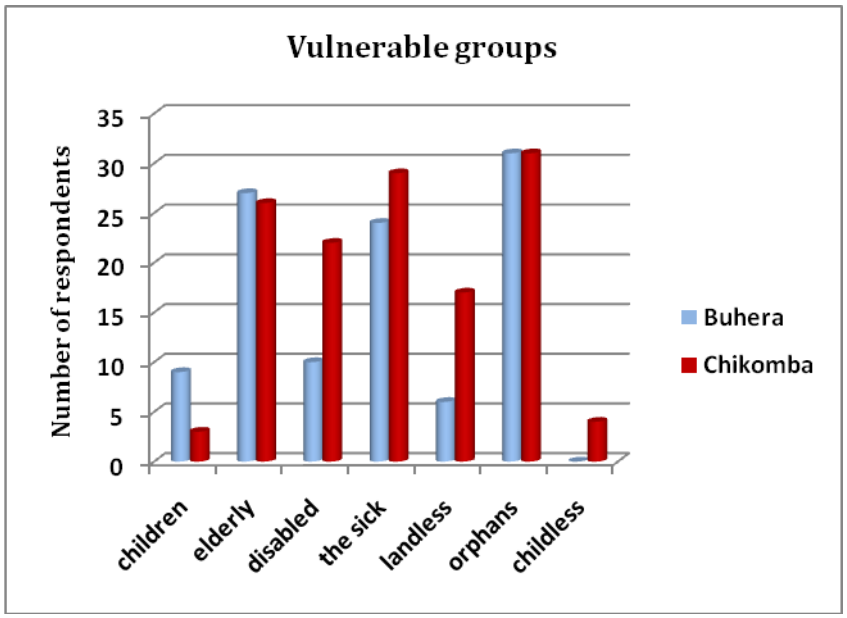


Fig 3.9: Vulnerable groups in Buhera and Chikomba

In addition, the widowed and households with little or no livestock are some of the groups considered most vulnerable in society. However, bearing in mind that vulnerability is not homogenous, conversations with the key informants showed that not all widowed and not all who do not have livestock are vulnerable.

Other conditions laid down for households to be considered vulnerable included poverty, mental illness, living alone, looking after a sick relative, and/or living with HIV (*cf.* People Living with HIV and AIDS). Single parents and young recently married couples with no

cattle, land and assets were also viewed as being highly susceptible to droughts and their subsequent impacts.

Lack of access to livestock is one of the indicators often used to determine a household's vulnerability status. According to the respondents, cattle are a sign of wealth, and one with more cattle gains respect from fellow community members. They can also be used to pay traditional healers and prophets for their health consultations, and can be used for traditional rituals as well. When there is a drought, one can use those cattle to trade with grain, or sell and get money to buy grain and other necessities. Cattle are also used as draught power, and the lack of draught power is often taken as a contributor to the household's late cropping and poor yields, and overall vulnerability. Referring to the way the people without draught power work in the fields of those with cattle first before they can be assisted in their fields, one informant quipped, '*zvinoramba zvakangokupa nzara*', meaning, you will always remain vulnerable to food insecurity whether in drought seasons or in seasons of plenty. The following picture shows draught-powered tillage at the outset of the farming season in November 2009.

Fig 3.10: Draught-powered tillage in Chikomba

Some respondents also identified breastfeeding babies as being among the most vulnerable groups during droughts. This is because even though they would want to breastfeed, their malnutritioned mothers would most of the times be having less milk to offer them.

The sick are believed to be vulnerable too. A sick person might own livestock and assets, but for as long as s/he is not fit enough to work in the fields, they remain vulnerable to poor harvests, and will be heavily affected in drought seasons.

Households with no access to money comprise another group of vulnerable people. The lack of money to buy other household necessities leads households to selling their grain and livestock. This further weakens the households' coping capacity in case the crops fail again, as they are left with no grain in reserve because they would have sold it in order to get income for other household use. Further highlighting this plight, one informant claimed that they were trapped in the biblical Egypt, and were lost for ideas as to how to overcome the unbearable life of slavery from that Egypt and join the exodus into a better life.

The worst case scenario of a truly vulnerable household would be that of a widow or widower, with no livestock and having a limited asset base, looking after several other dependents, who are usually his/her orphaned grandchildren, and at the same time lacking the necessary means to acquire agricultural inputs and pay for tillage labour with.

However, those who felt that they were not particularly vulnerable to droughts and water stress argued that it all boils down to hard work, innovation, availability of appropriate inputs and the application of the necessary farming knowledge. Alternative survival means were also indicated as a buffer against droughts and water stress.

3.2.9 Community preparations for droughts

Drought resistant crops were popular in the two communities, with 53% of respondents in Buhera and 41% in Chikomba claiming they had used crops that tolerate dry conditions when preparing for drought seasons. However, they claimed that access to drought resistant seeds was as difficult as it was for any other agricultural input.

Early cropping was another way of preparing for drought seasons, while the belief in *mikwerera* (rain ceremonies) was three times higher in Chikomba than in Buhera. Staggered cropping, dry planting and the growth of crops with a short maturity life were also practised in both communities, albeit not that prevalent, while a grain reserve was taken as a good protection measure against severe drought impacts. Faced with the prospects of not harvesting

enough to feed their families, some households bought grain before it was exhausted on the market.

Experiences with droughts taught some households to spread their grain reserves until they would have harvested their produce from the next agricultural season, arguing that the storage facilities should never be completely exhausted. One elder said, "*ukatsvaira dura unopinza nzara mumba*" meaning you should never completely finish what is in your granary before your next harvest. If you do so, your household will become food insecure.

Another interesting point raised concerned communities just planting expecting a difficult season. This raises questions of whether it is the best defence against adversity, but it seemed to psychologically prepare them for the consequences of a difficult season. When seasons turned out for the worst, it would not be a surprise to them as they would have anticipated the crisis from the beginning.

However, there were other concerns that since droughts are highly unpredictable, there was no way that they would be able to prepare themselves better. The challenges with accessing inputs made it more difficult to prepare and protect themselves from the impacts.

Indigenous rainfall predictions

With rainfall forecasts not being provided on time, communities resorted to their traditional ways of predicting the rainfall patterns although some admitted that there is no 100% certainty that the season would turn out the way they would have predicted. The farmers looked at the coldness of the winter, and the direction of the wind before the fall of the rainy season, while the other indicator they used was the density and spread of spider webs in their area. The more the spider webs, the more likelihood for lots of rain and, as such, the people would have to plan accordingly. The bigger the ring around the moon (referred to as *dziva*) was also used to show how wet that particular period was going to be.

The communities also looked at the abundance of wild fruits in order to predict the rainfall pattern that season. They argued that the fewer the wild fruits were, the likelihood that there would be a bumper harvest, and believed that God balances the availability of wild fruits and yields in the fields, and when droughts are expected, the fruits would be abundantly available.

These predictions enabled them to decide what crop varieties to grow, and what other activities to engage in to provide the buffer against the impacts of droughts.

3.2.10 Zvanga zvakaoma: coping with drought

Identifying 2007/08 as the worst drought in living memory, every conversation was started with '*zvanga zvakaoma*', meaning it was very tough or unbearable. Crops failed in the fields, mainly as a result of lack of appropriate agricultural inputs and poor rain distribution. Alternative survival means had to be sought. The following is a presentation of some of the coping measures that were put in place during the difficult patches that the people went through.

a. Wild fruits

The most common way to cope with the drought was the gathering of wild fruits, namely the muchakata (*Parinari curatellifolia*), muzhanje (*Uapaca kirkiana* or *wild loquat*), and mutukutu/munjekenje/musekesa (*Piliostigma thonningii*) fruits. *Parinari curatellifolia* fruits were used to bake cakes, their residue was mixed with boiled water to make a tea substitute, and the pulp was crushed to make porridge and *mahewu* – a common sweet brew. The seeds in the hard pod, known as *shomhwe* in Shona, were roasted, salted, and eaten as a snack. People also resorted to cooking mangos and papaya (often referred to as paw paw) as a show of desperation.

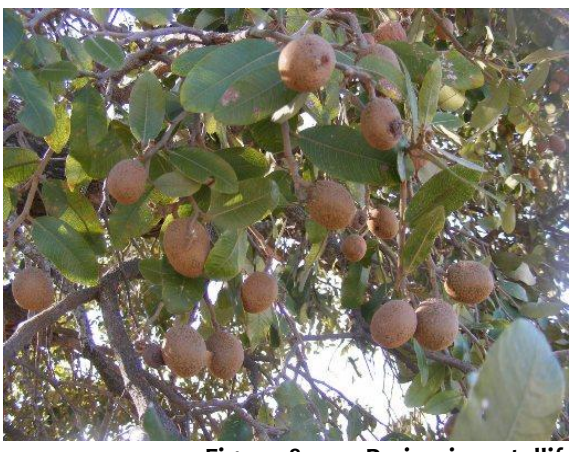



Fig 3.11 & 3.12: Parinari curatellifolia and Wild loquat (respectively)

As per the communities' predictions vis-à-vis wild fruits and possible seasonal turnout, the fruits, especially the *muchakata* fruits, were abundantly available in 2008. A *muchakata* is one of the sacred trees in Zimbabwe and is also used for traditional rituals like *mukwerera*.

Traditional rules discourage cutting or climbing the fruit trees and throwing stones or logs to get the fruits. The people are commanded to pick only those fruits that would have fallen down. It was impressive to hear that even though the communities were facing serious food shortages, they still stuck with those rules even though some resorted to unorthodox ways of waking up very early in the morning to pick up the fruits using household lamps to provide them with light. There were other cases of people who slept underneath the *muchakata* tree and waking up to pick fruits when light appeared in the wee hours of the morning.

Chakata fruits are also favourites for some livestock, especially donkeys. However, as one informant retorted, '*dhongi harina kumbodya hacha*', meaning, donkeys never ate the fruits, as the people literally colonised the fruit trees thereby creating a silent human-livestock conflict. Others revealed that the fruits were used to prepare limitless recipes, most of which had never been known before the challenges of 2008.

There is a myth of the *muchakata* tree whereby the communities' foreparents were believed to have requested for food from their ancestors under a *muchakata* whenever they were travelling long distances on foot. They claimed that they would receive the traditional finger millet *sadza* in wooden plates, the source of which no one would ask. When finished with the meals, they would just leave the plates there and continue with their journeys.

As desperation crept in during the 2008 food shortages, some individuals consumed poisonous fruits. In Chikomba, one respondent gave an example of some school children who ate *jatropha* seeds, and got sick because of the seeds' high toxic content. The respondent hinted on the clinic's close proximity as a factor that saved the lives of the poisoned school children.

b. Changes in diets

There were also reported cases of changes in diets and reduced or rationed food consumption. This was achieved by cooking a mixture of garden vegetables and small quantities of maize

flour. After eating this, the people would then drink water and sleep on a stomach full of food, albeit of insufficient nutritional content.

c. Targeted relief aid

56% of the respondents in Buhera and 72% in Chikomba claimed to have received humanitarian aid that came especially from donor agencies through NGOs. Only one respondent in each community said they received assistance from the government, with some revealing that the government was too broke to support them. However, even though there was a general consensus that the humanitarian aid was useful, 64% (Buhera) and 78% (Chikomba) of the respondents who received humanitarian aid from NGOs argued that the aid was delivered very late and the people had already suffered so much before they finally got the assistance.

GOAL Zimbabwe, Christian Care, and Catholic Relief Services (CRS) were among the agencies that assisted the communities in Buhera and Chikomba with humanitarian aid that was provided through the World Food Programme (WFP). Christian Care's, later GOAL Zimbabwe's, Dananai project targeted people living with HIV and AIDS (PLWHA) and their families in Buhera.

However, the selection process for most of the targeted relief programmes was argued to be flawed and at times basing on assets acquired long before the recent droughts. In Buhera, for example, assets such as corrugated-iron and asbestos roofed houses were being used as a condition that automatically disqualified such households from humanitarian support, while the number of livestock one owns was used to gauge that household's capacity to positively respond to food insecurity.

Desperation for food led to some community members lying about their conditions so as to be assisted. In some cases, married couples would claim to be widowed and get double portions. This was the only way they could get enough food as there was either nothing in the shops that they could buy, or they did not have the capacity to purchase externally produced food.

The respondents alleged that the aid agencies discouraged the people from sharing what they would have received with any other member of their community, further putting strain on the social networks that existed within the communities. However, despite such discouragement,

the humanitarian aid beneficiaries still went ahead and shared with the others. This, they said, was because they knew that in the future they would also require the assistance of the very same people they were told to not help. Some respondents also claimed to have used relief food to support their relatives who were facing food challenges in towns.

d. Social networks, trade and income generation

Apart from wild fruits and humanitarian aid, communities depended on trade and their social networks for survival. The most common items that were traded for grain included chicken, goats and cattle. The households only traded cattle when they were faced with extremely desperate situations. In addition, garments or clothes were bartered for grain, as were garden vegetables too. However, since grain was on high demand, the value of the livestock started deteriorating, and at some point cattle would be traded for as little as three bags of grain (approximately 15kg), whereas they could have otherwise gone for nearly a tonne of maize, all things equal.

Food is not the only basic necessity people need when faced with drought impacts. There are other household needs that include medical expenses, paying for school tuition, and even buying clothing. Some of the community members admitted to selling some of their grain and livestock in order to raise the funds to cover other expenses, while others confirmed that they received such assistance from their close networks of friends and relatives. Brewing and selling the local brew known as *Seven Days*, which takes an estimated one week to prepare, was also another way of raising the funds.

The following figure gives a brief overview of measures put in place by the communities to cope with the drought impacts they have experienced in the recent past.

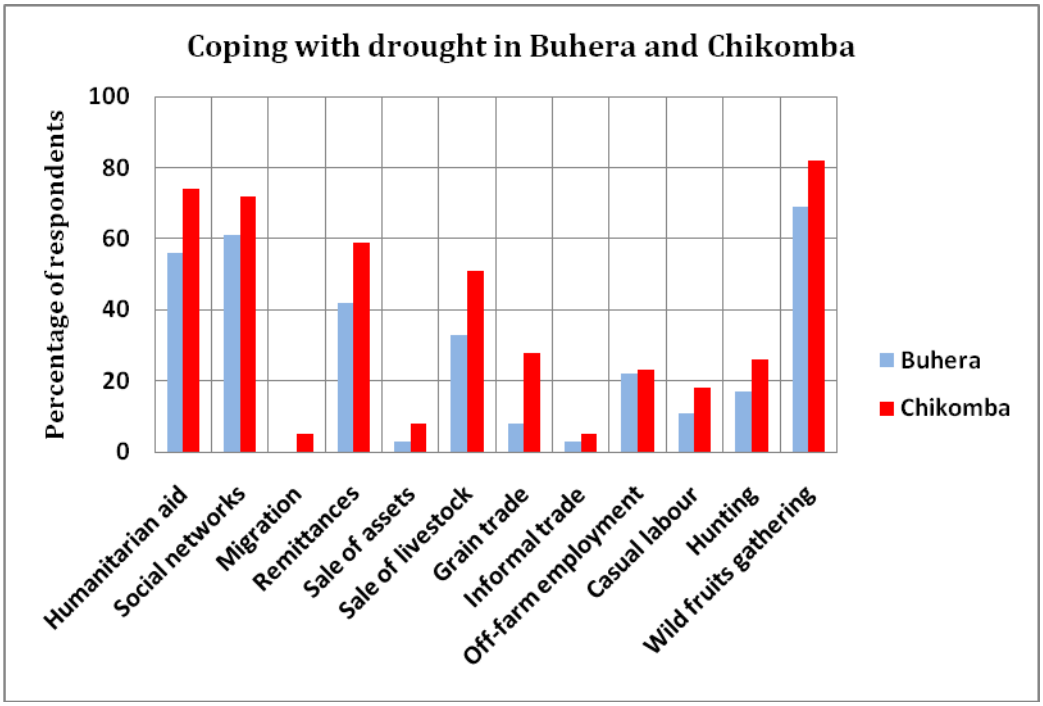


Fig 3.13: Coping with drought in Buhera and Chikomba

Other coping mechanisms included buying maize flour (mealie meal) from the country's neighbours as it was not easily accessible in Zimbabwe; gardening and selling the produce; brick moulding and selling firewood. The communities recalled that during the 1992 drought, a 'food-for-work' policy was implemented by NGOs and the Government leading to the rehabilitation or construction of roads and/or dams.

The situation in 2008 also brought with it some lessons for the communities in Buhera who started growing wheat mainly from the humanitarian aid they had received, a development that was, however, missing in Chikomba.

e. Access to water

The respondents pointed to the lowering water table and the need for rehabilitation of the existing boreholes due to the aging pumps. They also identified poor water availability as one of the challenges they face both in dry seasons and when there are recurrent or prolonged droughts. The following pictures show one of the few sources of water for household usage during these times. The local term for this source is *mufuku* and one has to dig in the silted river-bed, usually (but not always) using bare hands. The water, when filtered through the

sand is usually considered almost safe to drink or use in the household. Some *mifuku* (plural for *mufuku*) are also used for gardening.

Fig 3.14 & 3.15: *Mifuku* sources for household and gardening water

During the 1992 drought, there was a dam/reservoir construction drive in Buhera and other areas as part of the 'food for work' schemes. One of the dams at Munyira Primary School has been able to support the households nearby with water for gardening, brick moulding and drinking water for their livestock. The pictures below show Munyira Dam which is a source for livestock drinking water, especially in the dry seasons.

Fig 3.16 & 3.17: Munyira Dam in Buhera Ward 6

There was no dam that was observed in Chikomba's Ward 20 though, apart from repeated plans to construct one along Nyahoni River. Some respondents lamented water access challenges especially immediately after recurrent drought seasons.

While there was no irrigation scheme observed in Buhera's Ward 6, the Nyahoni Irrigation Scheme in Chikomba Ward 20 was the source of green vegetables and maize (green mealies) for the nearby communities and travellers all-year round.

f. Measures from recounted stories

The communities also recalled some of the coping measures that their elders employed when they were confronted with drought impacts. Their responses then were very similar to the drought responses from the current generations. However, although *kupemha* (adversity-induced begging) and *kusunza* (grain purchases and/or trade) were prominent, they also banked on the support of social networks for non-food items in order to survive the wrath of previous droughts, especially in 1947.

In Buhera, there were stories of how the then colonial administration would throw [or broadcast] grains of maize at the hungry people, a system used locally to feed free-roaming chickens. Although this was a denigrating and dehumanising way of providing aid, the people had no choice but to pick the grains and take them home to feed their families. Meanwhile, some people in Chikomba survived on roasted animal skins in one of the years commonly referred to as *gore ragochanhembe* (the year of roasted hides), as well as feeding on roots and locusts.

Giving daughters away in marriage, through *kuzvarira* or betrothing, so as to receive assistance from the family of the groom was also common in both communities during the 1947 drought, and before. One respondent indicated that this act of betrothing one's daughters was what saved some families from starvation, especially those with a number of daughters. The respondent said,

> "*[As] it was the custom then, that daughter would not dispute her father's command. The parents would sit down and discuss first before deciding where to take their daughter*."

However, although some claimed that *kuzvarira* is still being secretly practised, the practice has since been looked down upon as a violation of the daughters' rights to choose who they would want to marry.

There were also people who were known as *hurudza* or master farmers who would assist fellow community members with food in times of shortages. People were growing grains that last long in the storage facilities such as finger millet, and as such they could spread their produce over a long period, something that people cannot do nowadays with maize without

having to use pesticides to preserve the grain from storage pests such as weevils (*Sitophilus spp).*

In addition, during the previous droughts, commodities were available in the shops, and households migrated their livestock without having to pass through the red tape generated nowadays by the policies to curb foot and mouth diseases through the restriction of the movement of livestock from one area to the other.

Although this information was transmitted from generation to generation through the word of mouth, there was widespread consensus among respondents that it should be recorded for the benefit of future generations.

3.2.11 Community efforts to enhance coping capacity

Adversity often builds responsible planning in the communities. Having gone through the drought seasons such as the 1991/92 and 1994/95 seasons, the communities have been working towards improving their capacity to cope with droughts although several challenges still stalk them. Livestock and crop diversification and off-farm employment proved popular in Buhera, while agricultural education, crop diversification and off-farm work shaped the future of Chikomba's coping capacity. In practice, poultry diversification was, however, lagging in both Buhera and Chikomba.

The communities also used gardening as their main source for income generation, with brick moulding and building also contributing to the household's pool of income. Other off-farm activities like selling roasted termites (*majuru* – a delicacy in the rural areas) and practising traditional healing also contributed to the well-being of the households, with people who consulted the traditional healers using livestock or grain to pay for the healers' services.

Community and household wells were dug, although some need to be extended deeper as the water table has been lowering. Water harvesting techniques were used to collect water for the community gardens.

In the fields, some households were manuring and planning to grow drought resistant crop varieties, especially indigenous crops such as sorghum and finger millet. However, households with no livestock still faced challenges as they did not have direct access to

manure so as to improve their soil's fertility. Another challenge relates to the reduction in agricultural extension services in the areas, with communities claiming the extension officers are no longer as visible as they used to be, especially in Chikomba.

The communities have also learnt that the only way to get round unpredictable rainfall patterns and enhance their coping capacity is to make use of every raindrop, regardless of when it falls. Rain in the communities used to be identified by the time it fell, and what it meant. The common rain names include *gukurahundi* that washes away the chaff, *mvumiramutondo* that facilitates the blooming of the trees, and *munhuruka* which signals the starting of the rainy and cropping season. Usually the communities started preparing their land after *munhuruka*. However, some respondents said that they are now encouraged to utilise the rains whenever they fall.

There are also plans in some households to enhance grain storage facilities with the hope that they can harvest enough to spread over several seasons, while also investing in livestock to use as draught power and/or trade in times of need.

Educating children is seen as a way of preparing for the future, as these will find work in towns and remit to their families in the rural areas. However, this takes a very long process before the proceeds can be enjoyed, and it is dependent on the performance of the country's economy when the children graduate from school and start looking for jobs.

The communities have been using rain ceremonies to plan their agricultural focus. *Mukwerera*, or rain ceremony, is conducted to appeal for rains from the ancestors of the area. *Mukwerera* is always conducted under the sacred *muchakata* tree that has a *rushanga* or *rumhanya* (twig fence) built around it, and is led by the community elders. The traditional beer is brewed by elderly women past menopause, using small grains especially finger millet or sorghum.

It is usually during these ceremonies that the spirit medium (*svikiro*) delivers the message from the ancestors vis-à-vis the type of crops to grow that particular agricultural season. The communities are continuing with the tradition of holding *mukwerera* ceremonies, although they are no longer as frequently organised as in the past. One elder argued that this is because of colonisation and the coming of modernisation, which has plucked the young generation from the rural areas looking for jobs in towns. Modernisation has made some to even question the spirit mediums' relevance and reliability in predicting rainfall patterns, and the elders

claimed that this lack of belief in the spirit mediums has contributed to the ancestors turning their backs on the communities and the spirit mediums not delivering any message from the ancestors. As such, they claimed that this has contributed to God and the ancestors holding back the rain contributing to the frequency of droughts.

3.2.12 Support required to enhance communities' capacity

Only 3% in both research sites indicated that they should not rely on the government and/or NGOs for support to enhance their capacity against drought impacts. 44% and 56% (Buhera and Chikomba respectively) of those who argued that support should be provided picked livestock investments as priority, with 56% in Chikomba also highlighting both infrastructural development, and education and agricultural training as essential.

Infrastructure development needs in the communities included rehabilitation of existing boreholes and drilling of new ones, construction of dams, starting up irrigation schemes, and improving the road networks and transport services. Fluent transport service is essential for the communities to have access to markets where they buy or sell their produce, and for humanitarian organisations to have easy access to the affected areas.

Early input availability and their affordability is also integral in helping the households dependent on agricultural production for their livelihoods to produce enough to feed their families and sell to generate income. Other suggestions included the incorporation of drought management into the school curricula, improving the pension and welfare system to cater for the elderly, employment creation, provision of timely rainfall forecasts and informing the farmers well in advance what crop varieties to grow that particular season.

However, the 3% who claimed that seeking support from the government and the NGOs is not the solution argued that people should stop investing their hopes in 'foreigners' as most of the times the NGOs have not helped them much. As such, they argued that the people should just work hard and shun laziness.

3.2.13 Traditional safety nets: the Zunde raMambo concept

The *Zunde raMambo* or chief's granary is a traditional concept meant to boost the chief's grain reserves which will be used to help those in need, and also feed the guests whenever the chief hosts a function at his/her compound. The concept was allegedly eroded by the colonial policies of land apportionment and the undermining of the traditional leaders' authority in the communities. However, there are some communities that are still practising it. Communities in Chikomba identified Masasa ward as a success story. However, Masasa fell outside the jurisdiction of Chikomba Ward 20 which was studied in this case.

Although the respondents in the respective communities indicated that the *Zunde raMambo* concept was yet to be practised in their respective areas, 67% in Buhera and 64% in Chikomba agreed that if properly implemented and managed, *Zunde raMambo* could be a very important safety net in times of difficulties.

For it to be effective, the communities suggested that both the concept and the role of chiefs should be depoliticised, with the belief that the traditional leaders are viewed as having a political affiliation and working for a particular political party. Corruption should be eliminated too especially when it comes to grain distribution. Awareness raising vis-à-vis the objectives of *Zunde raMambo*, benefiting the needy, and encouraging the communities' cooperation are integral factors for the success of the concept. Some respondents suggested that the concept should be decentralised into village and even household *zundes* that will encourage families to sustainably manage their harvests so that they will not have to depend on food handouts for survival in drought seasons.

The communities also encouraged the *Zunde raMambo* concept to run always, even when the people are not threatened by food insecurity. Households that are chronically food insecure and vulnerable could then benefit from the proceeds of the *Zunde raMambo*.

3.2.14 Community suggestions for livelihood improvements

The respondents had a host of suggestions about what they should do to protect themselves from droughts and water stress. Some of the suggestions included growing drought tolerant crops and those with a short maturity life; manuring the fields to improve the soil quality; cooperating in initiatives such as *Zunde raMambo*; and establishing cooperatives known in

the vernacular as *mishandirapamwe*. These cooperatives can involve community gardening and digging community water wells, and other income generating projects such as poultry and livestock keeping that households can fall back on in times of droughts.

Social support was also encouraged, with others indicating that they should strive to assist the poor, the widowed, the orphaned and those with no cattle to plough and get good harvests.

The households should always aim to have something in their grain storage at all times, and not to completely exhaust what they will have reserved before the next harvest. Although it is highly difficult to achieve this especially considering that the households might not be harvesting much themselves anyway, it could be made possible by growing and keeping grain that has a long life span such as finger millet, although some respondents claimed that the younger generation dislikes *sadza* (the country's staple diet) made from finger millet as compared to maize flour-made *sadza*.

3.3 Organisations' responses and researcher's observations

The research also solicited for responses from NGOs and government departments with regards the work being done in supporting the communities around the country with coping with drought and enhancing their future adaptive capacity. This section provides the responses combined with some of the researcher's observations from the field visits and selected media reports during the period this research was carried out.

The first section provides an analysis of the rainfall statistics and is followed by responses from the organisations involved in food security issues in the country.

3.3.1 Rainfall statistics

Table 3.3 below shows the month-on-month rainfall statistics collected from Chivhu, which is the nearest meteorology observing station covering Chikomba district. The subsequent graph makes a comparison of the annual rainfall statistics for both Buhera and Chikomba districts.

Table 3.3: Month-on-month rainfall statistics for Chivhu (Chikomba), 1969 – 2008

Season	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Annual
1969/70	0.5	2.3	2.8	123.7	65.5	243.6	23.4	6.9	35.8	51.8	0.0	18.8	**575.1**
1970/71	0.0	0.5	18.8	11.7	125.0	201.4	230.9	10.7	20.3	32.0	34.8	0.0	**686.1**
1971/72	1.5	0.0	1.5	11.6	124.9	117.0	393.2	128.0	97.4	51.8	41.3	0.0	**968.2**
1972/73	0.0	0.0	34.4	17.0	60.6	62.1	73.9	40.7	23.6	3.2	0.0	1.2	**316.7**
1973/74	1.4	4.1	0.6	62.5	221.1	357.9	104.4	288.1	53.6	17.0	5.4	0.0	**1116.1**
1974/75	17.5	2.8	11.2	14.7	252.3	305.2	131.5	191.0	27.4	12.4	14.4	5.1	**985.5**
1975/76	0.0	0.9	0.0	13.7	35.1	215.8	99.3	112.3	339.0	15.1	13.3	1.7	**846.2**
1976/77	0.0	0.3	40.8	68.1	125.1	164.6	150.2	257.3	169.1	0.0	0.0	0.0	**975.5**
1977/78	7.3	1.5	32.9	25.9	88.5	308.6	231.4	205.3	135.1	147.1	13.9	1.0	**1198.5**
1978/79	0.9	0.0	0.0	78.7	60.3	258.0	131.3	54.6	127.4	2.6	0.1	5.8	**719.7**
1979/80	3.2	1.8	0.6	58.5	107.6	223.7	78.1	114.4	35.3	40.3	3.7	0.0	**667.2**
1980/81	0.8	1.0	64.5	50.2	126.7	200.9	231.1	361.9	102.3	54.0	8.2	0.0	**1201.6**
1981/82	0.3	0.1	5.6	35.8	205.1	82.2	75.2	127.0	1.8	9.2	7.9	0.0	**550.2**
1982/83	0.6	0.1	4.8	87.8	51.6	73.9	17.2	60.8	30.7	6.4	16.5	0.1	**350.5**
1983/84	10.9	5.9	0.0	29.9	104.1	193.7	80.0	69.9	149.2	1.5	1.7	0.4	**647.2**
1984/85	1.5	0.1	21.3	35.4	62.7	152.4	457.2	174.0	67.4	0.1	4.4	0.0	**976.5**
1985/86	18.4	0.9	3.8	10.1	26.3	296.3	204.5	74.0	87.2	121.0	0.0	0.0	**842.5**
1986/87	0.0	0.0	0.0	102.0	31.3	93.6	94.9	36.2	107.0	1.1	0.0	0.0	**466.1**
1987/88	0.0	0.0	4.5	51.8	60.8	198.9	35.3	176.3	136.4	25.3	4.6	37.0	**730.9**
1988/89	1.1	0.4	0.0	63.1	50.4	81.0	47.2	245.9	21.4	20.8	0.0	3.2	**534.5**
1989/90	1.0	28.9	0.0	41.9	89.9	72.4	209.8	189.0	62.8	24.3	1.1	2.5	**723.6**
1990/91	0.0	3.3	0.5	2.2	82.1	136.8	104.0	189.2	88.5	0.0	8.9	0.0	**615.5**
1991/92	0.0	0.0	0.0	23.7	83.4	88.0	76.8	12.2	42.4	12.9	0.0	1.5	**340.9**
1992/93	0.0	0.0	0.0	6.0	131.5	347.2	147.5	227.2	63.0	23.7	0.0	1.2	**947.3**
1993/94	8.8	0.0	1.0	58.7	183.9	194.8	196.0	21.3	11.1	0.0	2.7	0.0	**678.3**
1994/95	0.0	0.0	3.9	45.0	27.0	148.8	61.9	21.1	29.5	1.6	4.6	0.0	**343.4**
1995/96	0.0	0.0	0.0	70.0	56.5	254.5	220.3	-	-	0.1	39.4	0.0	**640.8**
1996/97	1.6	0.3	0.3	0.4	91.3	129.6	399.7	142.7	8.5	85.5	10.3	8.7	**878.9**
1997/98	3.6	0.0	44.7	15.1	134.5	15.9	228.2	41.1	105.7	0.3	0.0	0.2	**589.3**
1998/99	0.3	0.0	0.0	5.0	166.6	258.8	205.2	150.1	76.5	0.0	0.0	0.0	**862.5**
1999/2000	4.9	0.0	5.3	71.2	110.3	191.9	149.8	290.2	73.2	24.3	51.9	13.6	**986.6**
2000/2001	1.9	0.0	0.0	41.5	150.4	94.8	123.2	255.3	200.0	11.1	0.0	0.7	**878.9**
2001/2002	0.0	0.0	0.1	28.3	200.2	347.9	30.5	0.5	28.8	-	-	-	**687.7**
2002/2003	5.8	0.0	4.9	72.9	-	-	78.4	55.9	277.0	1.6	9.7	25.3	**797.6**
2003/2004	1.2	0.0	9.6	134.8	41.4	-	-	137.8	122.3	15.0	0.2	0.5	**803.2**
2004/2005	2.8	0.0	0.6	109.3	45.1	241.7	163.6	-	71.2	3.2	0.0	0.0	**772.5**
2005/2006	4.3		0.2	0.0	65.8	390.7	169.7	99.8	107.4	4.1	0.0	1.0	**843.0**
2006/2007	0.0	0.0	0.0	35. 8	88.7	216.5	46.7	100.5	44.4	32.0	0.0	0.0	**564.6**
2007/2008	0.0	5.7	8.5	3.6	94.1	612.1	-	-	-	-	-	-	**-**

Source: Zimbabwe Meteorological Services Department

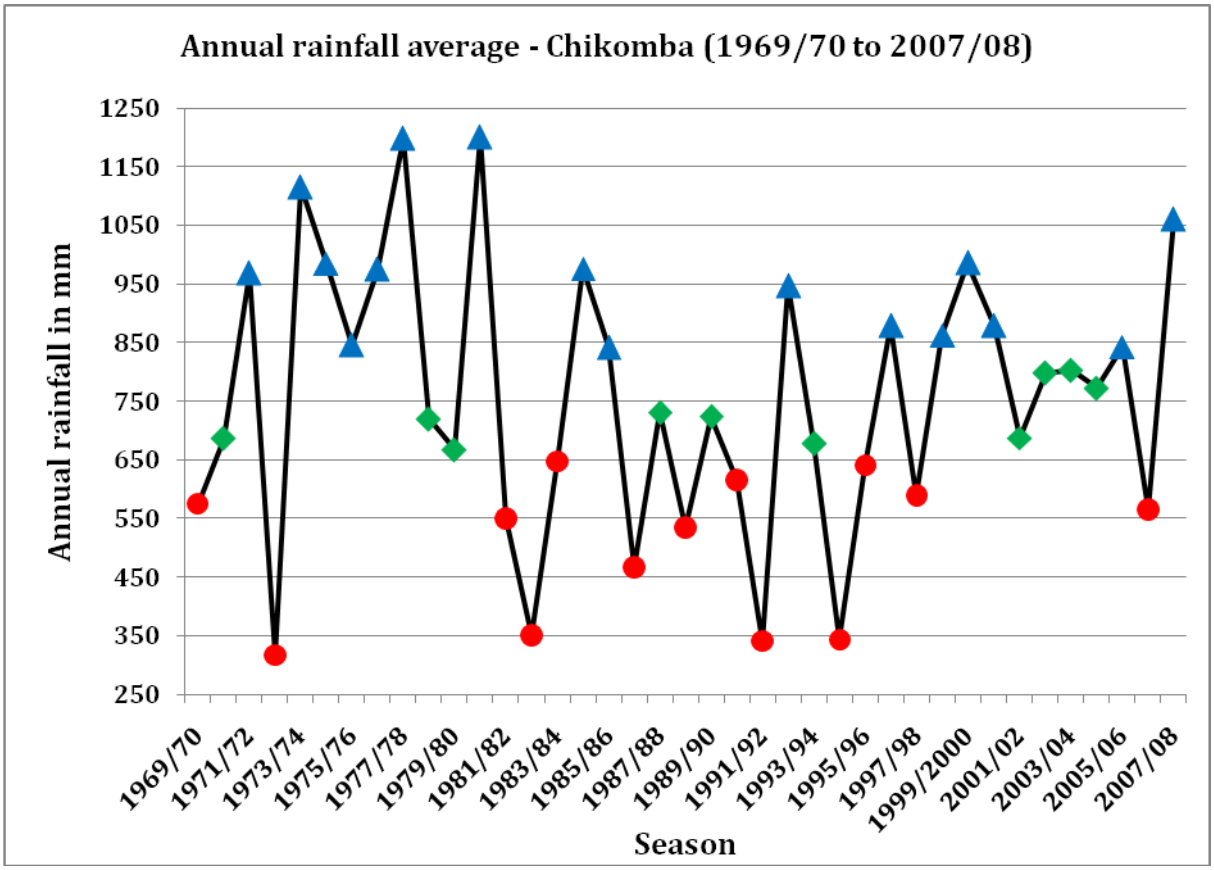


Fig 3.18: Annual rainfall average in Chikomba, 1969/70 – 2007/08

The above graph shows the annual rainfall averages for Chikomba collected by the Meteorological Services Department (see ***Table 3.3*** above). The circular-shaped markers show the seasons when Chikomba received less than what is an acceptable rainfall average in the agroecological region that it falls under, while the diamond-shaped markers show the years the district received between 650mm and 800mm. The triangle markers show the years that the district received more than the average that is characteristic of its agroecological zone.

Below is a graph that shows the comparison between Buhera and Chikomba for rainfall averages from 1988/89 to 2007/08. The 'rainfall' years start in July and end in June of the following year. Buhera's lowest point was in the 1994/95 year when it registered an average of 433.7mm. Chikomba registered 340.9mm during the 1991/92 season, the lowest it fell between 1988/89 and 2007/08. 1994/95 was equally bad for Chikomba as the season's average rainfall was pegged at 343.4mm.

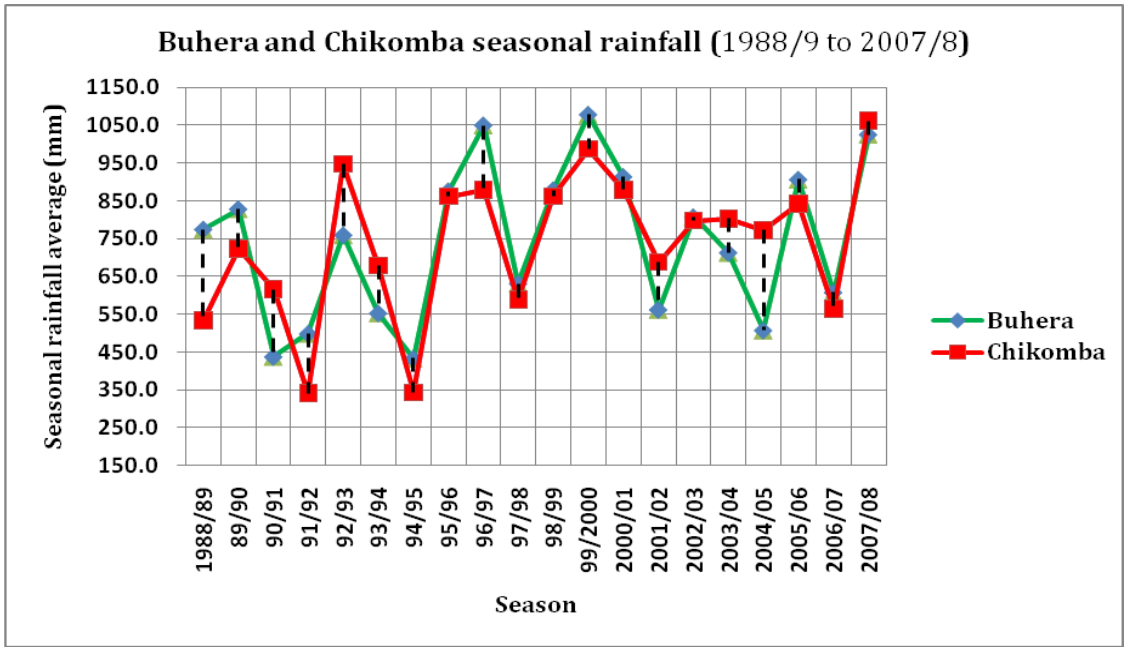


Fig 3.19: Buhera and Chikomba seasonal rainfall, 1988/9 – 2007/8

Buhera registered the highest average of 1077.8mm in 1999/2000, while Chikomba peaked at 1061mm in 2007/08 making it the only time when Chikomba surpassed the 1000mm mark since the 1980/81 season when it peaked at 1201.6mm. Buhera, on the other hand, has gone past the 1000mm mark on three occasions since 1988/89, that is, in 1996/97, 1999/2000 and 2007/08.

The respondents in the communities had identified 2007/08 as the worst drought in recent history. However, judging from the rainfall statistics provided by the Zimbabwe Meteorological Services Department in ***Fig 3.19*** above, 2007/08 was the year when both districts scored high averages. There could be two reasons to explain this. One could be the limitations encountered with the use of the vernacular Shona term *nzara*, which can be used for drought, famine, food insecurity or hunger. *Kwakaita zuva* (there was too much sun) is also another term used to identify long dry spells contributing to crop failure. The lack of a specific vernacular term for drought can have implications on what exactly the people will be implying as there is a difference between drought and famine, for example. However, the other reason could be that even though the communities received more rains than the norm, the prevailing socio-politico-economic conditions were not conducive enough for sufficient agricultural production resulting in widespread food shortages.

A more meteorological and agricultural reason could be that the annual rainfall averages say little about mid season rainfall distribution which is a critical component for plant

development. It would be pointless to receive few rains when moisture is very critical for plant development, only to receive lots of rains when the crops are already as good as written off. For example, the Crop and Livestock Assessment report that was released by the Ministry of Agriculture, Mechanisation and Irrigation Development in February 2010 identified crops in Chikomba's Ward 20 as written-off or poor, while they were still in a fair state in Buhera's Ward 6 (Ministry of Agriculture, Mechanisation and Irrigation Development, 2010).

3.3.2 Humanitarian assistance

Several organisations were supporting with humanitarian aid during the previous droughts in Zimbabwe. Their support included food handouts, specifically cooking oil and cereals such as maize, beans, wheat, barley and bulgur.

Of the interviewed organisations, Community Technology Development Trust (CTDT), Mercy Corps, the Southern Alliance for Indigenous Resources (SAFIRE) and Save the Children UK (SC-UK) said they were supporting with the activities of the British Department of International Development (DFID) funded Protracted Relief Programme (PRP) that covers poverty and food insecurity issues in the country. The programme is now in its second phase (PRP II).

However, some of the organisations providing humanitarian assistance claimed some level of political interference in their work. An example was when a suspension was imposed on them at the beginning of June 2008[10] putting a stop to their activities after allegations of them using food aid as a political tool to campaign for one political party. The suspension was only lifted on 30 August 2008. Although the majority of the organisations claimed that this was unjustified, one respondent argued that this temporary suspension could have been a necessary step for the government to enforce accountability and compliance with the organisations' original terms of reference. Media reports about new threats on the NGO sector reappeared in the media towards the end of 2009, with the Zimbabwean president, Robert Mugabe, allegedly advising his party's Women's League to be 'wary' of the NGOs in the country (Chimhete, 2009).

[10] See ***Annex 4*** for a copy of the letter instructing the NGOs to suspend operations.

3.3.3 Vulnerability assessments, screening and targeted feeding

For humanitarian aid to be administered to the deserving people, the organisations needed to conduct some vulnerability assessments first. The organisations confirmed that they depended mainly on the ZimVAC[11] and CFSAM[12] reports to influence how they target their food support. In addition, some of the organisations carried out their own assessments supported by community leaders in ascertaining households that are vulnerable and needing urgent assistance. Very few organisations emphasised the benefits of participatory capacity and vulnerability assessments (PCVAs) that involve the communities.

GOAL Zimbabwe claimed that it worked with District Drought Relief Committees (DDRCs) that included AGRITEX, district administrators, councillors and other community stakeholders to identify the vulnerable groups. SC-UK, on the other hand, employed a serial numbering system in which the households were grouped according to the categories represented by those numbers.

However, instead of the communities suggesting the vulnerability indicators, some organisations used pre-defined indicators that were dictated to the communities during the screening process. One respondent said, "*We sit down with the community. We give them the criteria that we need; our selection procedure.*" The communities, therefore, had to abide by that set criteria, although in the end the organisations would argue that their vulnerability assessments and screening procedures were community-driven.

The most commonly used screening process focussed on the households' asset-base. The focus on livestock was based on the argument that '*when the push comes to shove*,' these households would be able to sell their livestock and other assets and use the proceeds to buy food. According to one respondent, "*those that have very little means of production*" comprise the majority of the most affected groups. The bulk of these are argued to be women, children, orphans and the poor.

People involved in care-work are another group that was deemed to be vulnerable to hazards like droughts. The respondent from the Zimbabwe Women's Resource Centre and Network (ZWRCN) argued that care givers devote most of their time to care-work in comparison to the

[11] The ZimVAC is driven by the Government of Zimbabwe through the Food and Nutrition Council, and involves other local and international organisations such as the Famine Early Warning Systems Network (FEWS NET), Food and Agriculture Organization (FAO) and World Food Programme (WFP).
[12] CFSAM is a parallel assessment conducted by FAO and WFP.

time they spend in their fields; yet discriminative remuneration systems worsen their vulnerability. In most cases the care givers are not even remunerated.

Another interesting point that was raised showed that contrary to public opinion, single-male-headed families are more vulnerable than single-female-headed households. Unlike women, men are believed to possess a sense of self-pride that makes them less willing to confide in their neighbours whenever they are having problems with access to food as that is considered an internal matter. As such, discussing your internal matters with someone from outside the family is termed '*kufukura hapwa*' or lifting your armpits, and is a cultural taboo. According to SAFIRE with regards their experiences in the communities that they worked in, women talk to their peers, are more willing to join social groups, and are not shy to ask for assistance whenever they are lacking something in the household.

A common challenge that the organisations faced in their screening of the households to provide support to was that there seemed to be a lot of rehearsal as the communities were now aware of what questions the humanitarian organisations ask. This led to some of the non-deserving households receiving humanitarian aid at the expense of the deserving ones.

However, there was agreement that vulnerability is not just about food security; it is much broader than that. With that in mind, some households can be food insecure, but not fitting into the vulnerability frames constructed in the assessments, or they can be food secure at that particular moment but vulnerable in its broader sense.

Vulnerability is also not only about limited access to assets. The joint Government of Zimbabwe and United Nations Development Programme (UNDP) project titled *Coping with Drought and Climate Change (CwDaCC)* looked at issues like the state of infrastructure such as roads and bridges; the distribution of schools, clinics and hospitals; and the communities' access to markets. The project was implemented in Chiredzi District in southern Zimbabwe.

Observations from the field visits in Buhera and Chikomba revealed that the road network in Chikomba's Ward 20 is in a poorer state than the one in Buhera's Ward 6. The gravel road that branches off the Chivhu-Murambinda tarred highway at Nharira Shopping Centre makes it highly challenging to access the area especially during the rainy season, and several transport operators have even stopped servicing the route. This also makes it difficult for the smallholder farmers in Chikomba Ward 20 to access the markets and GMB depots at Sadza

Growth Point and in Chivhu. Meanwhile, Buhera Ward 6 falls along the Chivhu-Murambinda tarred highway, although bad state gravel roads service the inner parts of the ward.

Other available infrastructure can be presented as follows:

Table 3.4: Infrastructure in Buhera and Chikomba

	Buhera Ward 6[13]	Chikomba Ward 20[14]
Primary schools	5	3
Secondary schools	2	2
Tertiary schools	0	1
Dams	2[15]	0
Clinics	0	1
Hospitals	0	1

3.3.4 Input support

In addition to humanitarian assistance as a coping mechanism, some organisations were involved in agricultural input support to communities that are not able to prepare enough for the agricultural season due to lack of inputs and the means to purchase them. CTDT, International Federation of Red Cross and Red Crescent Societies (IFRC), Mercy Corps, Oxfam GB, SAFIRE and SC-UK were among the organisations that supported the communities in the country with agricultural inputs.

A network of local NGOs, the National NGO Food Security Network (FOSENET), argued that they supported those who have access to a piece of land and the people who have the capacity to utilise that land. Although the majority of women in the country did not have ownership and control rights to pieces of land, they had access to that land and FOSENET argued that its policy was not discriminating against women.

The Sunday Mail (18-24 October 2009b) also reported that approximately 14 000 households in 11 wards in Chikomba were set to benefit from support that was administered through an NGO called Single Parents, Widows and Orphans Support Network (SPWSNET) whose

[13] Statistics obtained from the Parliament of Zimbabwe: http://www.parlzim.gov.zw/cms/Constituencyinfo/Buhera_North.pdf accessed 03 February 2010

[14] Statistics obtained through observations and information from key informants, as the Chikomba's constituency page on the parliament website was still under construction. Although the 4th primary school is in a neighbouring ward, it still serves a sizeable population of children from Ward 20

[15] The information from the Parliament of Zimbabwe indicated that there was one dam in Ward 6 (Buhera) naming it as Mutsindikwa, built in 1985. However, there is another dam at Munyira School that was built as part of the food-for-work programme in 1992.

name was clear on who they supported. The seed packs were provided through Oxfam GB under a facility bankrolled by the FAO. The commissioning of some of the inputs was done by the Oxfam GB country director at Sadza Growth Point in Chikomba District on 18 November 2009 (Sifile, 2009).

Some organisations were implementing an input support system that would encourage the beneficiaries to assist others with inputs in the subsequent agricultural seasons. Although this intervention was still at the infant stages of the trial run, most of the organisations pointed to the fear of recurrent droughts and crop failures that could affect the ability of the beneficiaries to cascade the assistance to their neighbours. This, therefore, required the organisations to have a fall-back plan for assisting the communities with inputs when faced with such a situation.

Apart from NGOs and international organisations, the Government was another actor providing input support. In August 2009, the Government came up with a US$210 million agricultural input facility to support preparations towards the 2009/10 agricultural year (The Herald, 02 September 2009). Some NGOs also mobilised over US$70 million to support the scheme (The Sunday Mail, 18-24 October 2009a). The GMB was mandated with distributing the inputs from the Government to the beneficiaries through its 84 depots countrywide, although subsequent reports alleged delayed distribution of the inputs both to the various GMB depots and the farmers. In addition, there were other bilateral agreements that were expected to finance agricultural development, with a comment in *The Herald* of 20 July 2009 suggesting that part of the US$950 million package from China should "be used to curb reliance on rain-fed agriculture" (The Herald, 20 July 2009b).

However, a government official was quoted as advising the farmers not to always wait for Government assistance only, but to consider other alternatives when preparing for the agricultural season (The Herald, 26 August 2009). This included buying the inputs on the open market, yet the cost was prohibitive for most communal farmers. A *Sunday Mail* report showed that a 10kg of maize seed was going for between US$20 and US$30, while between US$30 and US$40 was the prevailing rate for a 50kg of fertiliser (Bwititi, 2009).

With the planting season approaching, and access to agricultural inputs still limited, the media was awash with reports of fake seed flooding the market (The Herald, 4 November 2009; The Herald, 21 November 2009). The unsuspecting farmers were often duped into buying

uncertified seed as shown in the following graphic. It is highly likely that this uncertified seed would probably fail in the fields, further worsening the farmers' vulnerability to future failed yields.

Fig 3.20: Genuine vs. fake seed. Source: The Herald, 5 November 2009.

The major seed companies in the country, Seed Co and Pannar, were heavily advertising their products though. Seed Co had its *Mukadzi Usaende*[16] SC411 and SC403 early harvest varieties, while Pannar was promoting its Pan 53 all-in-one variety that supposedly is medium maturity, high yielding, and leaf disease tolerant[17]. Pannar also had its drought tolerant and early maturing Pan 413 variety, code-named '*Mukuwasha*' (son-in-law)[18].

3.3.5 Conservation Farming

The organisations were also involved in raising the communities' agricultural production capacity, with conservation farming (CF) being one of the latest technologies promoted. They argued that CF is one of the most effective ways of retaining soil moisture, boosting soil fertility, and ultimately improving crop yields. CTDT, Mercy Corps and SC-UK were some of

[16] *Mukadzi usaende* appears to be a plea from the husband – supposedly the farmer – for his wife not to leave him. This gives an impression of a possibility that when field crops fail, wives can leave their husbands, and as such it is necessary that the husbands always maintain good yields so as to secure their futures with their wives.

[17] These advertisements appeared in *The Sunday Mail* of 15-21 November 2009, on page B8 for Seed Co and page L8 for the Pannar seed variety

[18] Advertisement appeared in *The Saturday Herald*, 21 November 2009, p.6. A son-in-law in the Shona custom is expected to 'take care' of his in-laws and there is a proverb that says "*mukuwasha mukuyu hauperi kudyiwa*" meaning the son-in-law will always provide for his in-laws whenever there is that need. There is never a time when he is expected to say 'enough is enough'. As such, naming a crop variety after a *mukuwasha* could be implying that the variety will always produce and is as reliable as a son-in-law.

the organisations involved with CF capacity development in their respective regions of operation.

According to the advocates of CF, it is a conservative way of utilising the agricultural inputs, with the nutrients only being applied in the hole where the crops are planted, instead of the conventional way of broadcasting inputs such as fertilisers and manure. CTDT reported wide acceptance of the approach in the communities the organisation has been implementing its projects in, with the approach being cascaded by zealous community members, while those who are not targeted borrowed the technology for implementation in their areas.

The Herald (27 August 2009) reported of an organisation called Foundations for Farming that was promoting CF during the Harare Agricultural Show in August 2009. The organisation argued that the method limits soil disturbance and the exposure to erosion and improves crop yields through improved rainwater retention in the soil. The method was code-named "Farming God's Way". However, CF practice was neither reported nor observed in both research sites, i.e. Buhera Ward 6 and Chikomba Ward 20.

3.3.6 Agricultural extension services

There was a general agreement that the agricultural extension services department (AGRITEX) has been extensively incapacitated as a result of the country's economic and political challenges over the past decade. As such, this has also affected the farmers' production capacity and information about the appropriate seeds and production technology has not been reaching the farmer for a long time.

The communities used to rely heavily on the AGRITEX officers for access to such information as rainfall predictions. This information is now difficult to reach the last man in the rural communities since media access is a huge challenge for rural households, with communities having limited access to newspapers, and radio and television signals. The organisations emphasised the need for cooperation between the Government, NGOs and the donor community to improve AGRITEX's capacity as it is important for the future of agricultural production.

The same was also said of the Department of Meteorological Services and media houses so that there is a smooth flow of information to the last farmer in the fields. The Department of

Meteorological Services had stopped the presentation of weather reports on the national television station citing technical challenges. However, a respondent from the Meteorological Office claimed that the news presenters had taken over the reading of the weather reports during the news bulletins, and the reports were also presented on radio as well as upon telephone enquiries[19].

3.3.7 Early warning and forecasting

Early warning and forecasting inform disaster prevention strategies. The rainfall forecasting responsibility in Zimbabwe lies with the Zimbabwe Meteorological Services Department. In addition, the AGRITEX-housed National Early Warning Unit (NEWU), the Famine Early Warning Systems Network (FEWS NET) and other regional groupings provide rainfall and food security forecasts for the forthcoming seasons. The Southern African Regional Climate Outlook Forum (SARCOF) gathers climate experts and the user community to make seasonal and half-seasonal forecasts and help in interpreting them for the benefit of the public. The 13th meeting of SARCOF (SARCOF-13) was held in Harare in August 2009. Weeks before SARCOF-13, the national daily newspaper, *The Herald*, carried an article on the front page headlined "*Experts predict drought*" in which the head of Zimbabwe's Meteorological Services Department encouraged farmers to go for irrigation and drought resistant crop varieties in the wake of the droughts predicted (The Herald, 20 July 2009a).

However, several interviewees noted that the main challenge with the forecasts related to the information's interpretation and usage as several interpretations were driven from the seasonal probabilities that the Meteorological Services Department and the groupings like SARCOF produced. There also appeared to be a gap between the predictions from the climate experts and the policies implemented by the government and other stakeholders regarding agricultural preparedness. The need for closing that gap was emphasised by one respondent after SARCOF-13's predictions of a difficult season. The respondent argued that more should be done instead of a few sporadic reports in the media. The informant said:

> *If that is true, that should have been followed up with a lot of awareness; the authentication of that information saying this is true. Like if you look at the seeds we*

[19] Personal communication with a Meteorological Services staff member

are distributing for this season, if there is a drought coming, they should have been warning people about the type of seed they should start planting.

After the SARCOF-13 predictions in August 2009, it seemed as if not much was happening from the government in as far as warning the farmers and informing them on what type of seeds to crop.

3.3.8 Community seed banks and indigenous crops

CTDT and SAFIRE were advocating for the production of indigenous crops that the majority of the farmers were no longer growing. Seed fairs and community seed banks were employed to promote the preservation, sharing and usage of indigenous seeds. However, there is a challenge when the communities experience persistent droughts that even the indigenous crop varieties might find difficult to survive. In the same breath, CTDT promoted agrobiodiversity to ensure that no crop varieties went extinct.

3.3.9 Commercialisation of natural resources

SAFIRE was been working with communities where it promoted the commercialisation of wild fruit products such as baobab tea and *wild loquat* jam. This was meant to enhance the capacity of the communities where wild fruits were abundant, with the communities taught how to process the fruits and sell them to raise income, or preserve them for future use as a supplement when drought bites.

3.3.10 Zimbabwe's disaster history

The Department of Civil Protection (CPU) which falls under Zimbabwe's Ministry of Local Government, Rural and Urban Development, has a mandate to compile the national disaster history. According to a list provided by the department, from 1977/78 to August 2009, the country suffered three major droughts that were declared disasters. These were in 1982/3, 1992 and in 2002. This abstract information confirms the 10 year drought cycles that the communities alluded to during the household surveys. However, as argued by one respondent,

the process of declaring disasters in the country is cumbersome, time consuming and very political. This suggests that there could be some droughts that are never declared disasters and are, therefore, not recorded.

Outbreaks of cholera and other diarrhoeal diseases in 1982/3 and 1992 were attributed to the droughts, and the next major cholera emergency was from 18 August 2008 to the first quarter of 2009. Other sporadic cholera incidences were in 1999, 2003 and 2006, although they were limited to certain districts.

The CPU continues to update the database of the disasters occurring in the country. However, the department was one of the government departments heavily affected by the economic squeeze in the country. According to a report in *The Sunday Mail* of 20 December 2009, the lack of financial resources rendered the department "incapacitated in terms of disaster preparedness" (The Sunday Mail, 20 December 2009).

3.4 Summary of results

The field study revealed that the people in Buhera and Chikomba have often faced difficulties coping with harsh agricultural seasons, which are especially worsened by other factors in drought seasons. The main challenges related to access to food and water for household use. The other needs included financial resources for medical attention, and to purchase other domestic necessities. Several vulnerable groups were identified and the factors contributing to their vulnerability listed. The study also collected accounts of previous droughts and the households' coping strategies, as well as external support that the affected communities received.

There are several organisations that have been working in the country supporting communities with food handouts and agricultural inputs in preparation for the cropping seasons. Others have also been promoting farming technologies such as conservation farming, although this was absent in both research sites in Buhera and Chikomba as concluded from information gathered from the household surveys and the interviews with the organisations. The following chapter discusses some of these research results juxtaposing them with previously published knowledge.

CHAPTER 4 – DISCUSSION

What has always impressed me over the years is the resilience and humour with which ordinary Africans confront their many adversities ~ Martin Meredith (2006)

4.1 Introduction

Understanding the households' vulnerability to drought impacts such as food shortages and water stress is of particular importance to Zimbabwe's communal areas. As earlier noted, households in these areas are dependent on rain-fed agriculture for their food production as well as income generation. Coping with such challenges is integral as hazards such as droughts become more frequent. This chapter provides a discussion of the results from the field visits, relating the results to already existing literature covering drought vulnerability and response mechanisms employed both in Zimbabwe and beyond its borders.

4.2 Droughts in Zimbabwe

The study revealed that Zimbabwe has experienced frequent droughts impacting on the lives of the smallholder farming communities in the country. As such, the country's vulnerability to the vagaries of biophysical hazards and the communities' ability to stand on their own and fight off the challenges should be explored. The following sections will detail the communities' experiences, their vulnerability to drought impacts and the response measures put in place when they were faced with such disasters.

4.2.1 Community definitions of drought

The first step to fully understanding the communities' vulnerability levels and response measures is to investigate how the communities identify a season as a drought season; their definition of the phenomena. The terms used for drought in the country are *nzara*, or *kwakaita zuva* (there was a long dry spell). The definition of *nzara* is broad in scope. The term can be used for famine, food insecurity, hunger, or starvation. The communities often view this phenomenon as an 'act of God' (Ndlovu, 1993), and use the occurrence of droughts as a yardstick to measure society's morality and obedience to traditional practices.

4.2.2 Community perceptions of drought causes

Poor rainfall, poor soil fertility and lack of access to appropriate agricultural inputs were some of the factors that were identified as either causes of droughts or factors that worsen their impacts. Continuous probing into the exact causes of poor rains in the communities revealed their religious and traditional beliefs. They identified ancestral retribution and God's vented anger as the main causes depending on the respondents' religious beliefs. In an apparent reference to the violent electoral campaign in the run up to the March 2008 harmonised council, parliamentary, senatorial and presidential elections, the respondents claimed that God and their ancestors were angered by the shameless shedding of blood that was going on and decided to withhold the rains. This resulted in the poor rains at a very crucial time of the crops' grain filling stage, and poor crop yields were unavoidable.

The ancestors were also said to be upset because of the communities' abandonment of important traditional practices. One respondent claimed that the poor rains were because "*we are no longer following our traditions*". This claim confirms the findings from Scoones, *et al*., (1996) who discovered that moral decadency and the abandonment of some traditional practices were often attributed for failing rains such as in the 1992 drought. In most cases this is rectified by holding ceremonies to appease the ancestors as well as requesting for rains. One way to request for rains is through rain ceremonies known as *mikwerera* (plural for *mukwerera*). The ancestors are expected to 'release the rains' after the rain ceremonies. However, Mandaza (1979) claims that "if there is no rain after these ceremonies, then it is obvious that something is wrong in the area; some people have committed incest or some other kind of immorality and the spirits are upset" (p.60).

No single respondent in the communities gave reference to the El Niño-Southern Oscillation (ENSO) phenomena for the poor rains that the communities received. The reliance on indigenous knowledge only could be as a result of the lack of access to conventional rainfall predictions and weather patterns. This is not to discredit the indigenous knowledge systems employed, as the communities have been relying on those up to this day, which shows how rewarding they might have been to warrant communities' continued reliance on them. However, whether immorality is the cause for poor rains or not, it surely manages to keep the

behaviour of the people in those communities under scrutiny further strengthening the linkage between ecological and social processes.

The rainfall statistics collected from the Meteorological Services Department showed that Chikomba received below its minimum expected annual average of 650mm in 1988/89, 1990/91, 1991/92, 1994/95, 1997/98, and 2006/07 while Buhera, through which the last three agroecological regions (III, IV and V) cut across, had the lowest average of below 450mm in 1990/91 and 1994/95. The statistics also showed that both districts reached over 1000mm of rain in the 2007/08 season leading to conclusions that this was one of the best seasons in years. However, the annual rainfall averages do not show the rainfall distribution during the plant development stages. Looking at the high amounts of rain received in 2007/08 and the subsequent grain shortages, I argue that there was either prolonged dry spells during the crucial grain filling stage when crops are most vulnerable to moisture stress, or the difficulties with accessing proper agricultural inputs impacted heavily on the crop yields. The food shortages in 2008 could, therefore, be interpreted to have been caused by both biophysical events as well as socio-economic and political conditions conducive for a disaster outbreak.

Table 4.1 below shows the years in which Chikomba received an annual rainfall average of below 650mm from 1969/70. I selected the months of December, January and February as they are considered the most crucial to plant development, with Mashingaidze and Mataruka (1992) claiming that maize crops often suffer from "moisture stress during anthesis and grain filling" (p.53).

Table 4.1: Mid-season rainfall averages in poor rainfall seasons

Season	Dec	Jan	Feb	Annual
1969/70	243.6	23.4	6.9	**575.1**
1972/73	62.1	73.9	40.7	**316.7**
1981/82	82.2	75.2	127	**550.2**
1982/83	73.9	17.2	60.8	**350.5**
1983/84	193.7	80	69.9	**647.2**
1986/87	93.6	94.9	36.2	**466.1**
1988/89	81	47.2	245.9	**534.5**
1990/91	136.8	104	189.2	**615.5**
1991/92	88	76.8	12.2	**340.9**
1994/95	148.8	61.9	21.1	**343.4**
1995/96	254.5	220.3	-	**640.8**
1997/98	15.9	228.2	41.1	**589.3**
2006/07	216.5	46.7	100.5	**564.6**
2007/08	612.1	-	-	**1061.2**

Surprisingly, though, the 2007/08 season saw December recording 612.1mm, the highest during that period of the season dating back to 1969/70 further cementing claims that there was more than enough rainfall. This, combined with poor access to agricultural inputs, impacted heavily on the crop yields. The second highest monthly rainfall average (357.9mm) in December was received in the 1973/74 season, one of the very few years that Chikomba has surpassed the 1000mm annual rainfall average mark peaking at 1116.1mm. Some of the years identified in the table above also corresponded with the years identified by the people in the communities as drought seasons, i.e. 1972/3, 1982/3, 1992/3 and 1994/5.

Poor agricultural practices that included inadequate knowledge on soil moisture conservation and cropping varieties not suitable for that particular area also worsened the crop yields, as did the lack of livestock for tillage and the prolonged economic and political instability that has rocked the country for the past decade. Some farmers' purported sluggish tendencies in their fields were also attributed to their worsening crop failures even in seasons of plenty, with those who harvested enough crediting their hard work for their success. Instead of causing the biophysical event, these factors appeared to contribute to the worsening of the impacts of drought on the communities.

4.2.3 Drought cycles

While Sachikonye (1992) suggests distinct periodic drought cycles averaging two or three per decade, Iliffe (1990) argues that in the pre-colonial period, the rainfall statistics suggested that the Shona tribe suffered droughts 'in roughly one year in five'. Jayne, *et al*., (2006) claim that by 2006, Zimbabwe had experienced nine droughts already since the country's independence in 1980. This seems to confirm the two or three droughts per decade assumption by Sachikonye.

Meanwhile, the respondents in Buhera and Chikomba indicated that they used to experience a 10-year drought cycle, with the year ending with a two (2) always being a difficult season. This tallies with the 1972, 1982, 1992 and 2002[20] droughts as identified in the body of literature. However, the communities claimed that the trend is now shifting to increased cases

[20] A comprehensive review and listing of droughts in the country can be found in Borsotti (1993), CPU, (n.d), Kinsey., Burger and Gunning (1998), Iliffe (1990), Raftopoulos., Hawkins and Matshalaga (2000), Scoones, *et al*., (1996), and Thompson (1993)

of drier seasons within the same decade, further compounding the communities' suffering, especially when they are heavily dependent on rain-fed agriculture for their subsistence.

4.3 Impacts of droughts

Droughts impact different households differently, as evidenced from the research in Buhera and Chikomba. The impacts are far and wide, and should be looked at as being highly dynamic (Wilhite and Glantz, 1985) ranging from personal, emotional to material (Scoones, *et al*., 1996). As argued by Wilhite and Glantz (1985), the nature of droughts as 'creeping phenomena' also makes it highly difficult to predict their onset, end, severity and impacts.

Drought impacts also differ from one region to the other, cementing the stance that the phenomena should be looked at as region- and impact-specific (Paul, 1998). According to Tannehill (1947), the impacts of drought in the United States of America are different to how other regions view the phenomena. Tannehill argues that "in its extremes in other countries [drought] means hunger, famine, starvation, human emaciation and death, skeletons of animals, and mass migration of peoples" (p.15). The following sections give an account of what the respondents in Buhera and Chikomba identified as the most evident impacts of droughts in their communities.

Droughts: a threat to agriculture

The agricultural sector is the most directly affected by droughts (Chenje and Johnson, 1994) because of the crops' reliance on soil moisture, and the lack of capacity by the farmers to use the technologies that help in moisture retention. Crop failure leading to hunger and malnutrition especially among children and impacting on school attendance and performance was identified as the main impact of droughts in Buhera and Chikomba. School drop-outs were high in both communities suggesting that the children's education was easily sacrificed as the households diverted available resources to purchase food and other household essentials.

CEDRISA (2009), Sachikonye (1992) and Unganai (1994) identify land degradation, livestock deaths that deplete the draught power base, income loss, worsening poverty levels

and possible famine if the drought is not effectively contained as some of the impacts droughts have on the agricultural sector and on communities relying on agriculture for their sustenance. In addition, the land's "ability to bounce back to full production after a drought episode" (Chenje and Johnson, 1994:95) is further weakened.

Recurrent droughts hamper socio-economic progress, further impacting negatively on national development processes (Thompson, 1999). For example, during the 1992 drought that both the respondents and literature pointed to as one of the worst that they experienced in pre-2000 Zimbabwe, huge sums of money were spent on drought relief yet the money could have been used for developmental projects had there been no drought, or had the national strategic grain reserve (SGR) been kept intact instead of being depleted by the grain exports of 1991.

Water accessibility challenges

Groundwater users are also affected heavily especially by prolonged droughts (NDMC, 2006). The water table often lowers during prolonged and recurrent droughts (CEDRISA, 2009; Chenje and Johnson, 1994; and Toulmin, 2009) and although these groundwater users are often the last to be affected by drought right at its onset, they may also be the last to recover and return to normalcy when droughts end (NDMC, 2006). The 1992 drought in Zimbabwe, for example, had wide-ranging water availability and accessibility effects on the populace and Borsott (1993) talks of "the falling of under-ground water levels which aggravated rural water shortages" (p.9). The amounts of available water were limited and rural communities faced with this challenge had to walk longer distances and introduce their own water rationing (Mbetu, 1993).

Buhera and Chikomba communities confirmed facing water stress challenges and walking longer distances in search for water for household usage. Identifying new sites to dig water wells was one of the coping mechanisms employed, although other respondents pointed to the need to extend depths of their existing wells or community boreholes.

Water stress is closely linked to recurrent droughts and low-rainfall. It "occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use" (UNEP, 2004:91). In a background paper for the *Swedish Government White Paper on Africa*, Holmberg (2008) claims that 14 countries in Africa are already water

stressed although he gives no list of these countries. He only identifies North Africa as the most affected region, and differentiates between water stress and water scarcity defining water stress as 1,700m³ or less per person annually, while scarcity conditions arise when the water volume drops to 1,000m³ or less per person annually (*ibid*). Projections from the IPCC show that between 75 and 250 million people will be exposed to increased climate change-induced water stress by 2020 (*ibid*). This, therefore, is a cause for concern on communities such as in Buhera and Chikomba, which already experience drought-induced water challenges, and on top of that, climate change projections showing a likelihood of more frequent droughts in the region are bound to create panic.

Increased morbidity

The health sector also came face to face with the wrath of droughts, as the people's weakened immune systems due to malnutrition made them defenceless to disease attacks. For example, the people's overall health situation is argued to have deteriorated due to the 1992 drought with people suffering from diarrhoeal diseases as the cholera outbreak in the country peaked at 6,865 cases and 353 deaths as of May 1993 (Borsott, 1993). Another cholera epidemic at the height of the food challenges in mid 2008 had affected 98,531 and killed 4,282 people by June 2009 (OCHA, 2009). These are some of the diseases that the people's immune systems would otherwise have been better able to fight off had they remained stronger. New diets that the people were not used to, and poisonous fruits that they turned to, also contributed to some of their health deterioration.

The research revealed increased morbidity as one of the impacts of droughts and the 2008 cholera outbreak and the subsequent high mortality could be tied to drought-induced malnutrition and the weakening of people's immune systems in the most affected areas. A respondent in Chikomba referred to a case of school children who ate jatropha seeds as the community became increasingly dependent on wild fruits for survival. Jatropha seeds are poisonous and contain toxins such as *Phorbol esters* that are hazardous to human health (Brittaine and Lutaladio, 2010). Consuming such 'poisonous fruits' also weakens people's immune systems. However, mortality is very difficult to link specifically to the drought impacts, as there are a host of other diseases that are claiming lives of multitudes in

Zimbabwe, although healthy and well-nourished people are better placed to fight off morbidity.

Primary and secondary impacts

Table 4.2, as adapted by FAO (2004) from Vogel, Laing and Monnik (1999), details some of the primary and secondary drought impacts divided into three categories: social, environmental and economic impacts. The primary impacts that were also applicable to the Buhera and Chikomba settings are marked with a double asterisk (**).

However, although droughts alone can worsen the population's suffering, they usually collude with other factors such as the economic failures, poor access to health facilities, and poor health that further depletes the productive age groups who, as in the case of Zimbabwe, could have succumbed to the HIV and AIDS pandemic and other communicable diseases.

Food challenges: a matter of accessibility rather than availability?

Crop failures leading to food shortages were the most common drought impacts identified in the communities and in literature. However, Rukuni and Jayne (1995) view Zimbabwe's challenges with food shortages as being one of accessibility rather than availability, an argument that seems to follow Sen's entitlement approach where he argues that starvation "is a function of entitlements and not of food availability" (Sen, 1981:7). Rukuni and Jayne (1995) argue that even in drought years, "commercial maize meal is almost always available in rural shops" (p.43).

Rukuni and Jayne's argument that food insecurity is a matter of accessibility of grain not its availability was applicable to the Zimbabwe of the 1980s when the country was experiencing bumper harvests and overflowing grain silos. However, the argument loses its credibility when analysing the conditions in the country since 2000 when the economic challenges came on the backdrop of an internationally politicised land reform programme, and the country faced deficits requiring grain imports nearly every year after 2000. Poor access to agricultural inputs and lack of access to markets for their agricultural products resulted in poor yields and

demotivation to grow small grains. According to the communities, environmental exigencies also contributed immensely to the low crop yields.

Table 4.2: Impacts of drought in southern Africa

Primary impacts	Secondary impacts
SOCIAL	
Disrupted distribution of water resources	Migration, resettlement, conflicts between water users
Increased quest for water	Increased conflicts between water users
**Marginal lands become unsustainable	Poverty, unemployment
**Reduced grazing quality and crop yields	Overstocking; reduced quality of living
**Employment lay-offs	Reduced or no income
**Increased food insecurity	Malnutrition and famine; civil strife and conflict
Increased pollutant concentrations	Public health risks
**Inequitable drought relief	Social unrest, distrust
Increased forest and range fires	Increased threat to human and animal life
Increased urbanization	Social pressure, reduced safety
ENVIRONMENTAL	
**Increased damage to natural habitats	Loss of biodiversity
**Reduced forest, crop, and range land productivity	Reduced income and food shortages
**Reduced water levels	Lower accessibility to water
Reduced cloud cover	Plant scorching
Increased daytime temperature	Increased fire hazard
**Increased evapotranspiration	Crop withering and dying
More dust and sandstorms	Increased soil erosion; increased air pollution
**Decreased soil productivity	Desertification and soil degradation (topsoil erosion)
**Decreased water resources	Lack of water for feeding and drinking
**Reduced water quality	More waterborne diseases
ECONOMIC	
Reduced business with retailers	Increased prices for farming commodities
**Food and energy shortages	Drastic price increases; expensive imports/substitutes
**Loss of crops for food and income	Increased expense of buying food, loss of income
**Reduction of livestock quality	Sale of livestock at reduced market price
**Water scarcity	Increased transport costs
**Loss of jobs, income and property	Deepening poverty; increased unemployment
Less income from tourism and recreation	Increased capital shortfall
Forced financial loans	Increased debt; increased credit risk for financial institutions

Source: FAO, 2004:6

4.4 Vulnerability mapping

Mapping vulnerability to drought impacts should be contextualised in the understanding that drought is only one of a multitude of stressors that rural communities face. For example, the Economic Structural Adjustment Programme (ESAP) had severe ramifications on the communities when drought came in 1992 (Scoones, *et al*., 1996). Likewise, the situation in Zimbabwe in 2008 was extraordinary as economic, political and social factors colluded to create a devastating juggernaut. This left the households extremely vulnerable to hazards such as climatic changes that resulted in food insecurity in the country, and this was despite the fact that the communities' capacity was already overstretched with existing challenges. It should, therefore, be understood that any vulnerability mapping conducted in Zimbabwe, should pay much attention to the additional stresses that are normally overlooked in vulnerability assessments.

As evidenced from the review of the impacts of droughts on societies above, agriculture is not the sole victim of this phenomenon. Wilhite and Glantz (1985), using a model that the American Department of Agriculture developed to analyse food problems and prospects in sub Saharan Africa in the 1980s, remark that:

> *"[it] is evident that weather, or drought, affects far more than just crop yields and that social factors can be equally significant in determining society's vulnerability to drought and, thus, the type and magnitude of drought impacts"* (p.116)

It is, therefore, important to understand what drought is really all about, its projected impacts and the social factors that the above quote argues worsen society's vulnerability. This enables the development and implementation of appropriate strategies for mitigating the drought impacts (Wilhite and Glantz, 1985). Understanding the factors influencing societal vulnerability is one of the issues that this research attempted to address.

4.4.1 Screening for humanitarian support

The results revealed that the vulnerability assessments and screening methods that were employed in providing targeted relief aid focussed on assets such as livestock and quality of homesteads using buildings such as asbestos-roofed houses as key indicators for the

abundance of capacity to cope in adversity[21]. This screening method was flawed in that it did not look at the possibility of the households' historical adaptive capacity being eroded by present stressors, further leaving the communities worse off when they came face to face with new challenges such as droughts. There could have been a possibility too that the houses that the families were living in could have been built in previous years when the households were still positioned high on the wealth radar. However, household wealth is dynamic; it fluctuates with time, and using those assets built ages in the past as indicators to determine the households' present day adapt-*ability* levels denies the chance for balanced vulnerability assessments and unbiased targeting for support. Buildings cannot be easily disposed of like livestock and other movable assets. It is, therefore, very irresponsible and naive to use them as indicators of coping capacity in times of crises.

Livestock as an indicator of adaptive capacity

The respondents from the communities studied and the organisations involved in humanitarian assistance confirmed that livestock ownership was used to determine qualification or disqualification from humanitarian assistance, with the households owning some livestock being understood to be having the option to trade off some of their livestock to purchase grain when the 'push comes to shove'. This screening method pays a blind eye to the role livestock is given in the local Shona customs.

Bere-Chikara (1970) makes clear the argument on the role of cattle in the Shona culture claiming that "a family without cattle in Shona society is like a house built on sand or a house built of cards which soon crumbles" (p.20). Dore (1970) supports this saying that "to be without cattle would be burdensome and awkward for a Shona" (p.26). A respondent also claimed that 'if you do not own livestock, *zvinoramba zvakangokupa nzara*', meaning that you will always remain vulnerable. As such, households would want to hold on to their cattle no matter the severity of the circumstances. Therefore, telling a Shona to sell or trade their livestock for grain puts them in a catch-22 situation whereby they want to provide food for the family yet at the same time they would also want to maintain their social standing in society. Although livestock is a symbol of wealth and status, trading that when faced with challenges

[21] The usefulness of this method was acknowledged in the report on climate risk in Chiredzi district as part of the Coping with Drought and Climate Change project in Zimbabwe. The report argues that livestock and the quality of homesteads are wealth indicators, and subsequently indicators of adaptive capacity as it is assumed that adaptive capacity is a function of wealth.

is also an indication of the household head's failure to fend for ***his*** (normally his) family, and encouraging them to sell in times of adversity makes them further lose their self-respect.

Scoones (1992) further emphasises the role of cattle in the Shona culture arguing that they have a variety of "ceremonial and symbolic uses where they may be slaughtered or exchanged" although "cattle slaughters are rare ... and restricted to big occasions or to instances where the animal is about to die" (p.344). This shows that cattle are of great value to society, and all things equal, a Shona farmer would not want to dispose of his/her cattle even in drought times. They would rather wait until all hope has been lost on that beast.

Livestock exchanges during times of droughts make the communities worse susceptible to future droughts as that depletes their draught power base. As argued by Scoones, *et al*., (1996), recovery after drought seasons "is a slow and painful process" (p.193). The communities' ability to withstand droughts is further compromised in the process, as in most cases these people with livestock also support their neighbours with tilling their lands, and exchanging or selling their livestock puts the whole clan or immediate beneficiaries in an extremely vulnerable situation that will be difficult to overcome in future[22].

A family that exchanges or sells their livestock during times of droughts faces difficult times ahead. Cattle are sources of manure for households that lack the capacity to purchase fertilisers. They are also used to pay the bride-price known as *roora* in the Shona language (Dore, 1970). Depleting that resource in drought times makes it difficult to access the much needed manure for future crop production, which in turn traps the family in a chronic food insecurity and vulnerability condition.

Assistance during times of difficulties is important to ensure that the lives of the people affected are not further compromised. The misfiring comes when the humanitarian organisations sideline the communities in screening the people and identifying the ones to assist. There is also a challenge whereby the agencies decide to impose a screening framework on the communities whereas the communities would have better used their own local knowledge to identify who really needs assistance. One of the respondents from the organisations visited said, "*[we] give them [*the communities*] the criteria that we need; our*

[22] This is like *reverse triage* – instead of trying to save the healthiest, it makes everyone more sick. If forced to trade or sell their livestock, their long term vulnerability will shoot up (personal communication with Edward R. Carr). Edward Carr, an Associate Professor in the Department of Geography at the University of South Carolina, has conducted most of his research in Ghana and Malawi.

selection procedure" implying that they dictated to the communities the screening framework to employ, which usually meant looking at the ownership of livestock and other assets such as the quality of homesteads that could have been built long back by deceased parents.

Although the need for standardisation could be justifiable, externally developed frameworks tend to overlook some of the factors that might be contributing to the people's vulnerability to such shocks, for example, one might have cattle in their kraals, but prohibited to sell, exchange and/or kill them by the binding traditional ownership rights. In the Shona culture, one can be given the mandate to keep cattle on which ancestral spirits will have been installed (*mombe dzemudzimu*) as part of the families' traditional social obligations (Mandaza, 1970; and Murwira, *et al*., 2000) and usually not allowed to use them as draught power, or to sell them, as they will, in essence, not be owning the cattle. Hence such households might be left out when using the externally developed screening framework. A locally-crafted culture-friendly definition of ownership is, therefore, needed to determine whether the households are entitled to trade, sale or use the livestock left in their custody.

4.4.2 Agroecological regions

The literature collected from previous studies seems to point to the differentiation of regional vulnerability basing on the agroecological region that the communities fall under (Jayne, *et al*., 2006). Zimbabwe is divided into five agroecological regions as presented in Chapter 1. Communities in agroecological regions IV and V are usually treated as the most exposed to drought risk as extremely low rainfall is one of the challenges those communities face (Auret, 1990; and Borsotti, 1993). That focus gives the impression that the communities falling under regions I, II and III are better off. However, the household surveys revealed that Chikomba, a district falling under agroecological region III was one of the heavily affected by the 2007/2008 drought season, even worse-off than Buhera, a district in which the last three agroecological regions cut across. The reason for this differentiation could be because when food insecurity is predicted in the country, the support is naturally focused on the regions of low crop production, of which Buhera falls. Therefore, of the two regions studied, NGOs were more present in Buhera that Chikomba, as Chikomba was obviously not 'lucrative' enough for them as shown by the joint WHO, WFP, FAO and UNICEF-developed *Multi-Sector Atlas for 2007-2008* released in September 2008 (see ***Table 4.4***, p.102). The bad road

network in Chikomba could be one of the deterrents too, as the affected communities were 'hidden' from the NGO eyes.

The rainfall statistics also showed that in some cases, Chikomba, which is in a 'better off' agroecological region, received less rainfall in the same year as compared to Buhera, which is often seen as a worse-off region. An example was in 1994/95 when Chikomba received 343.4mm as compared to Buhera's 433.7mm. As such, the districts' agroecological regions should not be viewed as conclusive and as a sole indicator of vulnerability or production potential leading to high adaptive capacity.

4.4.3 The extinction of small grains

Studies on household vulnerability to severe drought impacts should go beyond the weather exigencies, as policies implemented by the State can also undermine the capacity of the communities to adequately defend themselves in times of emergencies. Policies implemented by the State, like the focus on maize and cotton production at the expense of other crops (NEPC, 1999), have contributed to the 'disappearance' of the indigenous crops that are more tolerant to dry conditions. This was clearly articulated as follows:

> *Zimbabwe is eroding some of the indigenous knowledge that led to sustainable practices. Often field days are held for the best farmer in monoculture stands and yet there could also be field days for farmers who produce a mixed crop of legumes and cereals. The 'maize culture' even in areas not suitable for maize production, is likely to continue to erode the traditional knowledge of local crops* (*ibid*., p.19).

The respondents also lamented the low cash value that indigenous crops such as sorghum, and pearl and finger millet fetch on the market, and the GMB's lack of interest in purchasing small grains from the communal farmers. As such, the farmers started concentrating on one crop, that crop being maize, and in the process, they lost the indigenous knowledge with regards other small grains that could have given them better and dependable yields. Every respondent in Buhera and Chikomba communities confessed to growing maize, with small grains becoming more of a secondary crop yet maize monocultures are very prone to droughts and other environmental shocks (McCann, 2005)..

As a result of the dualisation of the agricultural sector in the country where commercial farmers concentrated on exportable cash crops (Sachikonye, 1992) and communal farmers growing mainly maize, the communal farmers found themselves having an additional burden of producing enough maize to feed the whole nation. This was, as argued by Borsott (1993), because the domestic pricing policies for agricultural products resulted in commercial farmers focusing more on cash crops such as tobacco and cotton, at the expense of cereal grains such as maize. This increased the country's vulnerability to food shortages as food production was restricted to communal areas, which have a legacy of poor soils (Auret, 1990) and are drought prone, in addition to the communal farmers' challenges with access to inputs, credit facilities (Borsott 1993) and extension services (Auret, 1990).

Small grains such as sorghum, pearl millet and finger millet are grown to provide a buffer especially when rainfall is erratic and low (MoLA, 1999). These small grains are grown in small quantities mainly for home consumption as evidenced from the field studies where a mere 6% of households in Buhera grew pear millet while the crop was absent in Chikomba. Finger millet was the third most common crop in Chikomba while it came fourth in Buhera after maize, ground nuts and bambara nuts. However, there are several constraints that hinder the production of these small grains and in the process sway the advantage to the production of maize. These constraints are listed in the ***Box 4.1*** below.

Box 4.1: Disadvantages of growing small grains in comparison to maize

- The retention of seed for planting perpetuates use of low yielding varieties
- Seed of the required varieties is not always available
- Labour intensive in comparison to maize production
- Low commercial demand for small grains, hence no incentive for production
- Laborious and time consuming traditional methods of processing—often done by girls and women—and lack of support from large and small-scale millers to process small grains
- More susceptible to bird damage in comparison to maize
- Less palatable *sadza* (thick porridge) as compared to that prepared from maize
- Maize has a proven record of better yields than sorghum and millet
- Virtually every part of the maize plant can be put to human use, something that cannot be said of other field plants

Adapted from Friis-Hansen, 1993; Mashingaidze and Mataruka, 1992; Mbozi, 2008; McCann, 2005; and MoLA, 1999

However, maize also has its dark side. According to McCann (2005), maize plants are very sensitive to moisture, sunlight and nitrogen fluctuations, and crop yields can be reduced drastically if the crop experiences a few days of water stress, making maize monocultures extremely vulnerable to droughts. The grain also rots and its quality is reduced easily in tropical storage in comparison with small food grains such as sorghum and millet. This was a factor that the respondents indicated greatly eroded their capacity to cope with droughts. Maize grains' quality quickly deteriorates because of storage pests, and the grain loses the value on the market as well as its palatability. However, this did not deter the communities from extensively growing maize anyway.

4.4.4 Economically-induced vulnerability

There are several economic factors that contribute to the vulnerability of communities to adapt to stresses on their livelihoods. Some informants attributed their suffering in 2008 to the failure of their crops and the unavailability of the grains on the market, a development that questions the credibility of a claim by Rukuni and Jayne (1995) that maize meal is almost always available on the market in Zimbabwe, and it is only a question of the communities' capacity to access that commodity. The respondents claimed that the rural shops were as good as closed, and the only place where the maize meal was readily available was beyond the confines of the Zimbabwean borders.

The then free-falling economy in the country was often attributed to the suffering that the people experienced, showing clear signs of the government's failure to fulfil its obligation of the social contract with its citizens. However, the government blamed the targeted sanctions that were imposed on those close to the country's president, Robert Mugabe, arguing that in as much as these were implemented under the guise of targeted travel restrictions, they were actually impacting negatively on the general populace[23].

Borsott (1993) and Thompson (1993) argue that the drought in 1992 was not only the result of negative meteorological conditions. There were other stressors that aggravated the impacts,

[23] During the UN General Assembly in September 2009, the country's president, Robert Mugabe, attacked the United States of America and the European Union for refusing to lift the sanctions imposed on the Zimbabwean leadership. He asked the western countries "[where] stand their humanitarian principles when their illegal sanctions are ruining the lives of our children" arguing that whether targeted or not, these sanctions were hurting the general populace. The speech is available on the UN website: http://www.un.org/ga/64/generaldebate/pdf/ZW_en.pdf (accessed 23 March 2010).

for example the economic policies implemented under the 1990 ESAP, which compounded the hardships especially in the communal areas. There was so much suffering at the hands of ESAP to an extent that the people in the country started twisting the acronym to "Economics for Starving African Peoples' or 'Satan *Ari Pano*' that can be translated to 'the devil is here' (Scoones, *et al*., 1996). When the drought came in the 1991/92 cropping season, the people's coping capacity had already been heavily weakened.

There is also the role of socio-economic and political threats in undermining the household coping capacities as has been the case in Zimbabwe since 2000 (OCHA, 2008). Fleuret (1986) argues that most of household coping mechanisms are being eroded as a result of socio-economic changes further making the households more susceptible to drought impacts. These changes include the loss of knowledge of wild and famine foods, people abandoning food preservation techniques, land reforms impacting on agriculture, and the development of cash markets for food and labour sharing (*ibid*).

Limited access to credits

Land ownership and access to collateral often hamper the communal farmers' access to credit facilities. This is because the land in the communal areas "traditionally belongs to the village not to the individual farmer" (Borsotti, 1993:3). The research also revealed that the majority of the farmers inherited their land from their deceased fathers and forefathers, and those who claimed that they were tilling on private land indicated that it was registered in the name of the father of that family or the eldest male in the homestead, a patriarchal system that discriminated against women. With financial institutions less willing to commit funds on communal farmers without documentation that validates their claims to land, the communal farmers remain in a vulnerable position where they cannot invest much in their fields as they cannot afford it. At the same time, they cannot afford to purchase agricultural inputs on their own and on time, and this restrains their crop production capacity as the soil has been exhausted and produces little if no chemical fertilisers are used.

Vulnerability and poverty

Researches in the past have attempted to link communities' weather-related vulnerability to worsening poverty levels (Anderson and Woodrow, 1993; and Eriksen., O'Brien and Rosentrater, 2008) and in the case of Zimbabwe, to the country's dependence on rain-fed agriculture (Kahinda, *et al*., 2007). The households in Buhera and Chikomba identified lack of livestock, inability to exercise their exchange entitlements to purchase inputs and lack of money to pay for tillage and farm labour as impacting on their overall agricultural activities. These are indicators of poverty and, therefore, can help in understanding why poverty worsens vulnerability and vice versa. However, there were also households who were relatively poor yet they used other farming strategies such as staggered cropping and harvested enough to cushion them against the crises.

Factors that influence societies' vulnerability are complex, according to Adger, *et al*., (2003), and they cannot be based on a single variable like poverty. One of the most common challenges regards equating vulnerability and poverty with Wisner, *et al* (2004) warning against viewing poverty as being synonymous with vulnerability since "poverty and vulnerability are not identical" (Eriksen., O'Brien and Rosentrater, 2008:11). Watts and Bohle (1993), in a critique of this view, refer to Swift who claimed that "not all poor people are equally vulnerable to hunger; ... it is not necessarily the poorest who face the greatest risk" (p.44).

However, Anderson and Woodrow (1993) argue that "poverty is the most obvious physical vulnerability" (p.134) while Ribot (2009) claims that "the poor are less able to buffer themselves against and rebound from stress" (p.50). Others supported this link between poverty and vulnerability arguing that the poor and low-income families lack the capacity to cope with stress and are affected more than the well-off (CEDRISA, 2009; Eriksen., O'Brien and Rosentrater, 2008; and von Braun., Teklu and Webb, 1998). However, there were other households in the studied communities who, despite having livestock, were still vulnerable as they were reluctant to dispose of their productive assets in exchange for grain, especially considering that as the drought raged on, livestock prices started declining. This shows that in some cases, the 'wealthy' are sometimes vulnerable to drought exigencies as they risk losing more to profiteers as the disaster rages on.

Meanwhile, Sen (1981) argues that "classifying the population into the rich and the poor may serve some purpose in some context, but it is far too undiscriminating to be helpful in analysing starvation, famines or even poverty" (p.156). Sen believes that even within the poor group, people have different vulnerability levels, and the same applies to the rich group. It is also possible to find people who are normally classified as poor being more adaptive as compared to the rich groups.

4.4.5 Vulnerability assessments in Zimbabwe

Vulnerability to drought impacts in the country should not be exclusively confused with exposure to chronic food insecurity and the seasonal hunger calendar, although there are some similarities. For example, the families that face chronic food insecurity are almost always vulnerable to recurrent and/or one-off drought seasons. FEWS NET diagrammatically presented the hunger season calendar for January 2009 to January 2010 as follows:

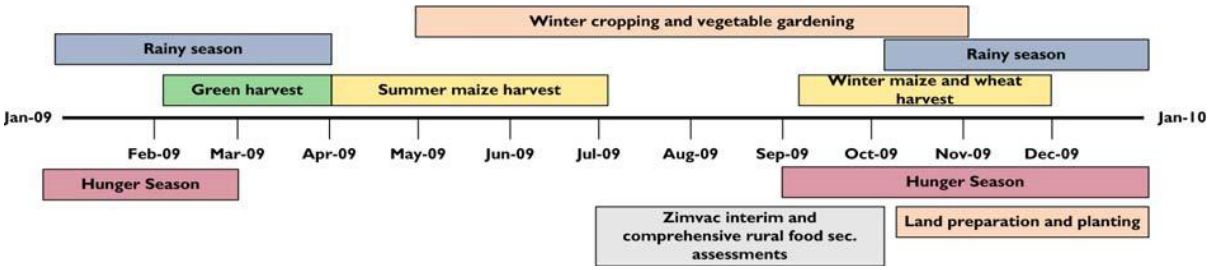


Fig 4.1: Hunger season calendar (Jan 2009 - Jan 2010). Source: FEWS NET, 2009

Several reasons regarding Zimbabwe's vulnerability to drought impacts have been floating around in the body of literature on droughts and famines in the country. The following sections will give a review of the vulnerability and food security assessment frameworks used in the country.

ZimVAC's LBVA

The Zimbabwe National Vulnerability Assessment Committee (ZimVAC) is mandated with conducting national vulnerability assessments to inform preparedness and response programming. The Committee is a consortium comprising government departments, various NGOs, and UN agencies (ZimVAC, 2002).

ZimVAC adopted the Livelihood Based Vulnerability Analysis (LBVA) framework in analysing the data collected through the country-wide vulnerability assessments (ZimVAC, 2006). The LBVA "framework acknowledges the two interrelated dimensions of the food security vulnerability equation viz: availability and accessibility" (*ibid*., p.3). This departs from Rukuni and Jayne's (1995) notion that restricts the issue of food insecurity in the country to the question of accessibility only ignoring production-based food availability as an important factor of the equation.

However, the LBVA combines these two factors and goes beyond food production, acknowledging that the households' ability to purchase food and use other food entitlements at their disposal is equally important to ensure that the households are food secure, even in drought seasons (ZimVAC, 2006). The framework emphasises the capacity to access externally produced food through what Sen (1981) terms exchange entitlements, as well as the household's production-based entitlements.

Buhera and Chikomba respondents indicated that in as much as they could sustainably use their crop produce through rationing and not selling their surplus, 2008 was a terrible year for them as the shops either closed or had empty shelves for several months, thus impacting on the people's trade-based entitlements. The exchangeable commodities were simply not available for purchase regardless of whether the people had the money or not.

Related to the LBVA is the SC-UK-developed Household Economy Approach (HEA) that is used by a number of organisations in the country to assess short-term changes to food access in communities and the fragility and vulnerability of these communities to shocks such as drought (FEG Consulting and Save the Children, 2008). The approach is "a livelihoods-based framework for analysing the way people obtain access to the things they need to survive and prosper" (ZimVAC, 2002:2) and draws its thinking from Sen's entitlements approach.

A report by the ZimVAC in 2006 identified the following groups of people as some of those that either easily succumb to or are better able to cope with chronic food insecurity:

- Large families in a rural setting of limited land
- Many orphans in the family care
- Low educational level
- Poor social networks of people who can assist
- Most family members occupied in communal areas
- Some family members are disabled or chronically ill

- The head is elderly and/or widowed

The list of food insecure households above corresponds with some of the groups that this research in Buhera and Chikomba identified as being vulnerable to drought impacts. The widowed, elderly, disabled, orphaned and the sick featured prominently as the most vulnerable groups in the two study sites. In addition, households with little or no livestock were also seen as exposed to socio-economic and environmental exigencies, such as droughts.

The Committee identified single parent female-headed households and households that had a recent death of one of their members as facing food insecurity (ZimVAC, 2005). The households with a recently deceased member were food insecure as their resources including grain, money and, in some cases, livestock, would have been used up in covering the medical and funeral expenses. This was also confirmed by the respondents who claimed that livestock and grain were the commonly used sources of payment for medical consultations with traditional healers and religious prophets.

However, this research also discovered single-parent male-headed households to be particularly vulnerable. Male household heads usually try to brush their challenges under the carpet and avoid begging for outside help, which would present themselves as failures to their families and in societies. Self-esteem is believed to be a driver for this reluctance by the household heads to seek for assistance whereas single-female household heads easily interact with their peers at social club meetings and neighbours in the community. As a result of the men's pride, the single-male headed households become highly insecure and vulnerable to malnutrition and increased morbidity and mortality. Admittedly, single-parent male-headed households were not many in the communities studied.

The population of the food insecure in Zimbabwe is incremental as the season drifts further away from the harvest months, as shown in the table below covering the period from April 2005 to March 2006. Buhera and Chikomba districts fall in Manicaland and Mashonaland East respectively, hence the provinces are highlighted.

Table 4.3: Incremental food insecure population

PROVINCE	AUGUST 2005 RURAL POPULATION	Apr – Jun 2005	Jul – Sep	Oct - Nov	Jan – Mar 2006
Manicaland	1,342,821	139,939	285,833	416,840	529,983
Mash Central	991,538	110,918	191,585	278,975	352,920
Mash East	1,039,557	121,704	205,376	256,086	301,725
Mash West	947,803	85,692	181,770	290,833	276,524
Masvingo	1,257,270	183,292	320,761	441,047	549,877
Mat North	643,927	74,658	141,851	190,378	246,372
Mat South	635,258	31,274	105,550	172,008	222,829
Midlands	1,172,917	57,289	132,669	214,080	304,536
Grand Rural Total	**8,031,091**	**804,767**	**1,565,397**	**2,260,248**	**2,884,766**

Source: ZimVAC, 2006:4

Crop and Food Security Assessment Mission (CFSAM)

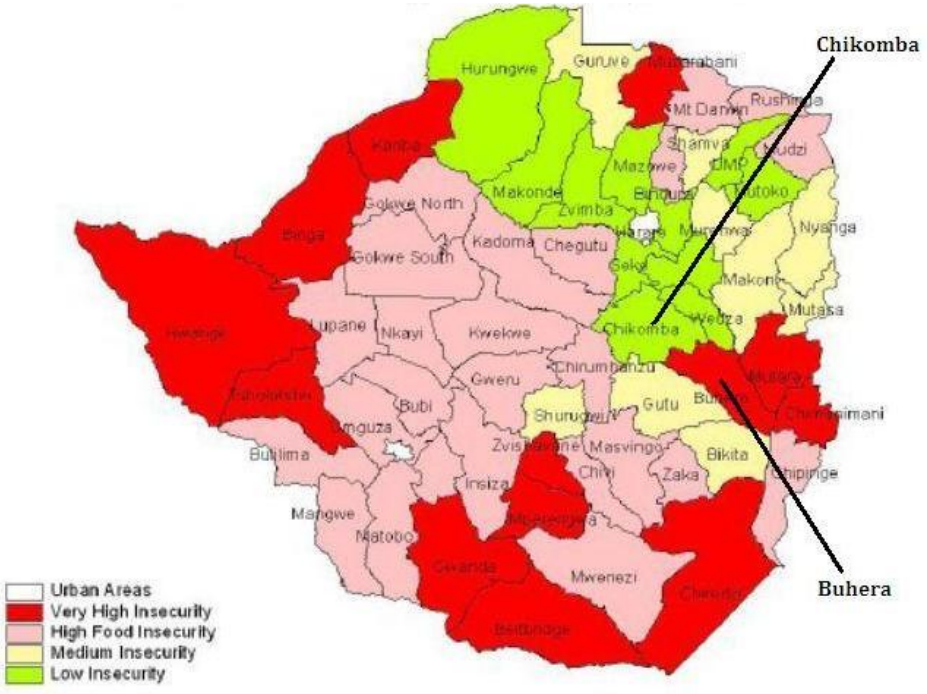
Parallel to the ZimVAC, FAO and WFP also conduct crop and food security assessments that focus on the food security situation vis-à-vis food production capacity of the households in that particular season. This is in addition to the government-conducted food security assessments.

The organisations supporting communities in the country with humanitarian support claimed that their programming is also informed by these CFSAMs. However, CFSAMs are not entirely independent of and parallel to the ZimVAC assessments, as ZimVAC is among the stakeholders that CFSAMs consult in their assessments (FAO and WFP, 2009a).

CFSAMs, which are only conducted upon request from the hosting governments, focus on changes in household livelihoods in comparison to what would be "normal", what the implications of those changes will be to the household's normal life, and what needs to be done in the short term in order to restore a level of household food security (FAO and WFP, 2009b). CFSAMs differentiate between the chronically food insecure households and those that face transitory food insecurity. The chronically food insecure households find themselves in that condition even in years of plenty and even when grain is available at regulated prices, while the households that find themselves under transitory food insecurity are normally food

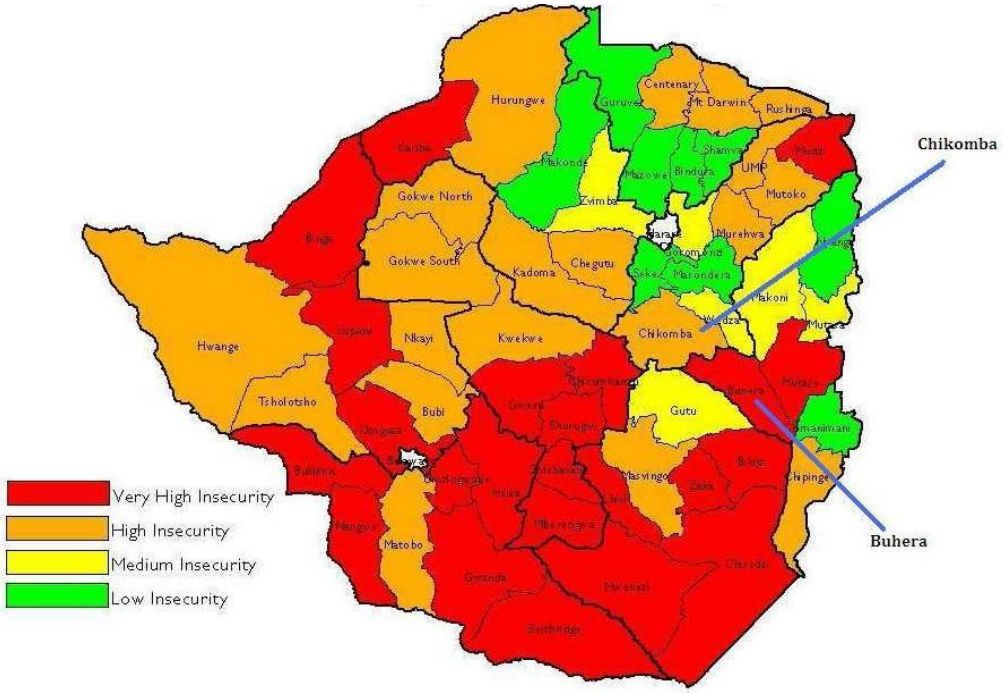
secure, but for one reason or the other fail to meet their food needs before the onset of the next harvest season (*ibid*).

The CFSAM of 2007 red-flagged Buhera as highly food insecure, while showing Chikomba as one of the very few districts that had low food insecurity as shown in ***Map 4.1*** below. In practise, Chikomba could actually be interpreted as being food secure as it was one of only 11 districts countrywide that were not heavily affected by the food shortages.



Map 4.1: Zimbabwe severity of food insecurity by district, CFSAM 2007. Source: FAO and WFP, 2007

However, the 2008 CFSAM showed Chikomba becoming increasingly food insecure while Buhera remained red-flagged. ***Map 4.2*** further illustrates this.



Map 4.2: Zimbabwe severity of food insecure by district, CFSAM 2008. Source: OCHA, 2008

The maps above show how Chikomba progresses from being largely food secure to a high food insecurity zone further cementing the claims from the field study that 2008 was a very difficult season for the people of Chikomba. Stark differences for Buhera and Chikomba on the maps, however, make an interesting point of how droughts impact different communities differently, yet these two districts share the same border. However, from the study, Chikomba Ward 20 appeared to be in a worse situation as compared to Buhera Ward 6, probably due to a variant of factors such as poor road network, lack of dams, and a lack of NGO presence and support in the district as compared to Buhera.

The imbalances of NGO presence in the two wards studied can be shown as follows:

Table 4.4: NGO support in Buhera and Chikomba (2006 - 2008)

Period	Buhera Ward 6	Chikomba Ward 20
2006 – 2007	***3 NGOs*** [DACHICARE, GOAL, MC/ZimAHEAD/SAFIRE implementing food and nutrition programmes]	***0 NGOs*** [the only NGO that was present in the whole district was Oxfam America – present in Wards 26 and 27 only]
2007 - 2008	***4 NGOs*** [Africare, CADEC Mutare, Dachicare, Mercy Corps – agriculture and nutrition programming]	***0 NGOs*** for the whole district

Adapted from WHO, et al., 2007; and WHO, et al., 2008

The absence of the NGOs in Chikomba in comparison to Buhera could be linked to the demarcation of the country into the agroecological regions as indicated in Chapter 1. These regions are divided using characteristics such as precipitation and soil quality, which then impact on their crop production potential. As soon as a drought is predicted, the most logical response for the humanitarian organisations is to rush and help regions of low productivity (i.e. agroecological regions IV and V), yet some communities in agroecological region III, and even regions I and II, could be in a worse situation and in dire need of humanitarian support, as evidenced by the situation in Chikomba which is in region III. The responses from the household surveys also showed that the absence of NGOs in the district had a bearing on the crop production capacity of the people in Chikomba as inputs were expensive beyond their capacity, as well as not being readily available whereas NGOs supported Buhera residents with agricultural inputs. As much as agroecological regions show the potential of the communities to produce food for their sustenance, it would be folly to use geographical location as the sole factor contributing to communities' vulnerability to food shortages caused by droughts.

Other frameworks

Organisations involved with drought mitigation work also employ their own frameworks to screen the communities they are present in, and to communicate their assessments to interested parties. For example, in a paper presented at a drought mitigation regional meeting in Harare in 1998, Vhurumuku (2000:79) argued that FEWS NET employed a Baseline Vulnerability Assessment pursuing the following objectives:

- To identify areas which are chronically food insecure
- To quantify the nature, frequency and degree of vulnerability
- To describe the nature of the livelihood systems of the communal sector and the constraints to achieving food security
- To describe the nature of shocks and risks which the communal sector faces
- To describe the coping mechanisms available in the communal areas

The *Current Vulnerability Assessments* (CVAs) produced by FEWS NET were used by bilateral and multilateral donors, NGOs and the government departments in the countries that the assessments were carried out (*ibid*).

A UNDP/Global Environment Facility (GEF) commissioned study on climate risk and vulnerability of wards in Chiredzi district in south-eastern Zimbabwe claimed to have used 'a mix of vulnerability-assessment methodologies' that were mainly informed by the 1998 document prepared by Cody Knutson, Mike Hayes and Tom Phillips titled *How to reduce drought risk*, as well as the 2001 IPCC's vulnerability analysis and risk management framework (CwDaCC, 2009). The study assumed vulnerability to be the "net effect of sensitivity and exposure on adaptive capacity" (*ibid*., p.46).

Based on the findings from the assessments, the study looked at the communities' adaptive capacity, which was "assumed to be a function of wealth, technology, available infrastructure, institutions and natural resources" (*ibid*., p.38) arguing that livestock and quality of homesteads are the commonly used indicators to measure the capacity of the households to cope well with risks in Zimbabwe. This shows a total disregard of the importance of livestock in Shona customs as discussed earlier, and paying a blind eye on the possibility that the current generation would be living in buildings that were built by older and departed generations who were wealthier than the present, as argued above. Occupying high quality homesteads should not be an absolute factor to determine a household's adaptive capacity in times of crises.

Fig 4.2 on the next page is a PAR model presentation of the factors contributing to drought vulnerability in the two research sites, Buhera and Chikomba.

According to a survey conducted by the ZimVAC in 2005, differential vulnerability and adaptive capacity was clearly visible in the communities, with households that had diverse income sources being more food secure than households with few livelihood options (ZimVAC, 2005). It should, therefore, be noted that although communal areas are often at risk of food shortages during drought seasons, "not everyone goes hungry" (Anderson and Woodrow, 1993:135) and as such, interventions should be pegged on that differential vulnerability and adaptive capacity, as well as piggybacked on whatever coping strategies the communities employ to deal with the disaster.

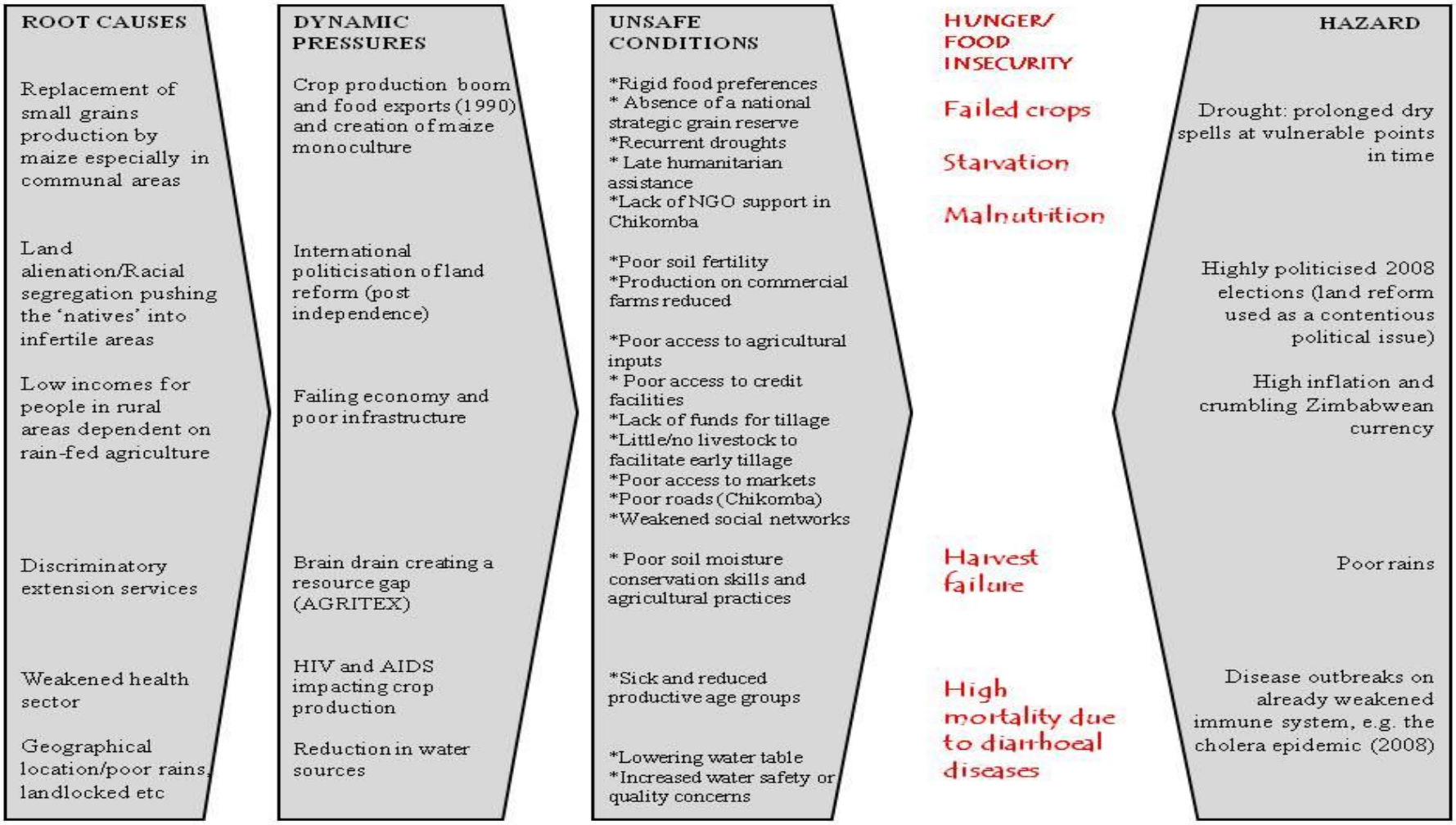


Fig 4.2: Pressure and Release Model: droughts in Zimbabwe. The PAR model, developed by Wisner, *et al*., (2004) gives a historical and logical flow of the factors contributing to communities' vulnerability to disasters. The above PAR model was used to analyse the Zimbabwean case, with information of events dating back to the colonial times contributing to the drafting of this model.

4.5 Indigenous coping and adaptive measures

As droughts are biophysical events that neither the communities nor the authorities can prevent, it is important that the communities' coping capacity be improved so that they can better respond to droughts in the future. This calls for an understanding of the household coping strategies so that they can be incorporated into the national and international drought response activities (CEDRISA, 2009). The subject of the following sections is to review the responses that the households, the government, the NGOs and the donor community put in place when confronted with a drought disaster basing on the results from the field visits and the literature reviewed.

Coping with droughts and their impacts is particularly important for Buhera and Chikomba. The research showed that the majority of households in the communities were vulnerable to environmental, economic and social changes although they employ some survival mechanisms during the drought seasons. It is, therefore, important that the mechanisms employed to by-pass the challenges be explored, and the reasons behind the communities' choices of survival strategies be understood.

Wood and Knight (1975) classify all the actions practiced by communities affected by or anticipating droughts into five groups as shown below:

Box 4.2: Drought response strategies

1. **Hazard modification** – eliminating the risk by altering the drought occurrence through generation of more rainfall or irrigation (e.g. cloud seeding)
2. **Systems modification** – change the vulnerability of the exploitation system (agriculture) to drought by soil management, cultivation of drought resistant crops, livestock management, and reversion from farming to livestock dependence
3. **Risk spreading** – distribute the risk of drought hazard by sharing it temporally, spatially or socially
4. **Migration** – from the drought-affected zones
5. **Chance** – rely on providence to redress the man-environment imbalance by improving the climate or eliminating human pressure

Source: Wood and Knight (1975:91-92)

These actions include those practised before and during the drought. It also cements the notion that the communities are not passive victims that wait for the worst to befall them without exercising protective practices that will help mitigate the disaster impacts.

4.5.1 Household coping

Household coping strategies focus mainly on what the households do in the wake of disasters, and comprise of indigenous survival mechanisms and support from intra- and inter-household networks. These coping mechanisms are credited with saving lots of lives during drought-induced food shortages and famines caused by other factors.

A study of the 1974 and 1984 famines in northern Ethiopia found out that although humanitarian aid was influential in saving people's lives, indigenous coping mechanisms were equally influential. Rahmato (1991) argues that "it is equally true that indigenous survival techniques and the collective efforts of the peasants themselves were instrumental in saving a greater number of people from death" (p.117). This defies the view of the communities as heavily dependent on outside help and not working towards safeguarding their lives. In contrast, they employ strategies "to anticipate, prepare for, withstand and finally withdraw from the ambit of the crisis" (*ibid*., p.118).

Rahmato's conclusions are in line with those by Barker (1989) who claims:

> *"Peasant farmers often have the capacity to withstand difficult years. Their mixture of crops and multiple sources of income, their kinship ties and community links of mutual support, and their food reserves and borrowing capacity can often see them through a bad spell"* (Barker, 1989, p.195).

A review of the results from the research in Buhera and Chikomba shows that coping with droughts in communal areas in Zimbabwe requires perseverance and innovation. It was clear that the communities put in place 'crisis anticipation' measures that are important to safeguarding food availability and accessibility, at least within the households' own means. For example, from the recounted experiences of previous droughts, coping was drawn from the cultivator's skill, with the staple crops then being finger millet and pearl millet (Iliffe, 1990) and also the families' ability to maintain grain stocks in reserves for longer.

Studying coping strategies assumes that the communities are not passive victims when they are faced with adversity. Rahmato (1991) disputes the view that looks at peasants as helpless victims arguing that "a peasant community does not just give up and wait for death when confronted with food crisis" (p.117). This was also confirmed by a study from the then war-torn Sri Lanka in 2003 revealing that the communities were involved in activities that were meant to safeguard their livelihoods, even when there was constant threat to their ways of living (Korf, 2003). However, as Mbetu (1993) argues, in disaster response, the affected communities tend "to take a back seat" (p.30) while the State and NGOs take over the fire-fighting interventions. CEDRISA (2009) lament this exclusion of the communities in planning response. This "results in their [affected communities'] treatment as helpless victims needing assistance ... [and] the unintended effect of undermining local coping strategies and mechanisms and weakening local institutional capacity" (CEDRISA, 2009:39).

It is, therefore, important to ensure that the coping strategies that the communities employ prior to the cascading of the drought event, and the mechanisms they use for day-to-day survival, are not overlooked when planning response initiatives.

Rainfall predictions

Some of the techniques employed by the smallholder farmers in Buhera and Chikomba to predict drought seasons—an important step to inform measures to mitigate the impacts of those droughts—included the usage of animal and plant behaviour. The research revealed how the farmers use spiders, wild fruit availability, as well as wind direction to predict how the season will pan out, something similar to those revealed by FAO (2004) and Mapeta (2000). Mapeta, a communal farmer in the Nyanga district in eastern Zimbabwe, claimed that "if they [wild trees] bear plenty of fruits we know it will be a dry year" (p.94). The communities in Buhera and Chikomba talked about how God balances between wild fruits availability and crop production thereby ensuring that there is always a constant supply of food in years of plenty and in drought seasons.

According to FAO (2004), although a lowly 3% of Zimbabwe's smallholder farmers use climate information from the Meteorological Services Department, the similarity between the indigenous systems and the contemporary seasonal predictions seems striking. FAO (2004) list the following as the most often used indigenous knowledge indicators in the country:

Box 4.3: Indigenous rainfall prediction systems

Indicators predicting a good season	Indicators predicting a poor season
• heavy production of tree leaves • flower production on the top branches of a *mukonde (candelabra)* tree • a stork flying at very high altitude • presence of a lot of birds • wind blowing from West to East, and from North to South**	• high fruit production** • heavy infestation of most tree species by caterpillars during springtime • late bearing and lack of *mukute/muhute (Syzygium cordatum)* figs in July–September** • late maturing of acacia trees along valleys • heavy populations of crickets on the ground • a strong wind blowing from East to West during the day and at night between July and early November**
Indicators of when it will rain	
• an early onset of rains is measured with how early spiders close their nests • a bird singing while facing downwards from the top of a tree indicates that it is about to rain	

Adapted from FAO, 2004:18

The indigenous knowledge indicators that were also mentioned by the respondents in Buhera and Chikomba are marked with a double asterisk in ***Box 4.3*** above. In addition, the density of spider webs in the nearby forest was used in Chikomba to indicate how much rain should be expected that season with a lot of spider webs being an indication of a very wet season in that locality. The communities also used the circular halo around the moon to predict the wetness of that particular period of the season. The halo is known in the vernacular Shona language as a *dziva* which can be literally translated to 'pool of water', or a deep part of a river. The bigger the *dziva* around the moon, the wetter the short-term period would turn out to be.

Detecting whether there is going to be a season of shortages or a season of plenty at an early stage then helps in carrying out activities that will help the households to mitigate the hazards and survive even the severest of drought impacts. The measures identified in Buhera and Chikomba are presented in the box below:

Box 4.4: How Buhera and Chikomba communities prepared for droughts

- Growing drought resistant crops
- Early cropping and dry planting
- Staggered cropping
- Growing crops with a short maturity life
- Sustainable storage and usage of grain (spreading their grain reserve until the next harvest season by either not selling their surplus or rationing the little grain in stock)
- Buying grain on the market before it was exhausted
- Crisis anticipation – planting always expecting a difficult season
- Rain ceremonies (*mikwerera*) and prayers

Staggered cropping

Staggered cropping is one of the important measures to hedge against the anticipated drought impacts. Some respondents claimed that this helped them a lot when the seasons turned out to be difficult ones. This appeared to be in line with some of the previous studies in the country. Mashingaidze and Mataruka (1992) purport that "most small-scale farmers stagger the planting of maize in a bid to avoid the risk of a complete crop failure from a single planting" (p.53). This is in addition to cultivation techniques that promote soil moisture retention and livestock diversity, intercropping and growing different maturity cultivars and other strategies identified by Mapeta (2000).

However, stagger-planting has its cons in that the crops that are planted later in the season usually suffer from moisture stress when they reach their grain-filling stage, thus resulting in poor crop yields (Mashingaidze and Mataruka, 1992). If they are to realise the desired results, farmers should, therefore, ensure that the grain-filling stage coincides with the time when moisture stress is not commonly experienced[24]. Staggered cropping should also be practised on a number of crop varieties instead of in an entirely monoculture system, as this system is bound to encounter a number of disadvantages that will bring negative crop production results.

[24] The only unavoidable challenge comes when there is a prolonged dry spell as experienced from November 2009 to January 2010 in some parts of Manicaland, Matabeleland South, and Midlands. See article titled '*Zim relaunches food-for-work programmes*': http://www.zimonline.co.za/Article.aspx?ArticleId=5856 (accessed 23 March 2010)

Mukwerera: mitigating drought impacts

When employing the response classification developed by Wood and Knight in their 1975 comparative study of the Great Plains of North America and the Saharan region of Africa, the pre-drought season planning in Buhera and Chikomba can be seen to fall mainly under system modification where the communities put measures in place to reduce the proneness of their farming system from drought through growing drought-resistant crop varieties as well as dry-planting. However, some communities believed in the strength of *mikwerera* or rain dances, drawing similarities with the Amerindians from the Americas who, according to Wood and Knight (1975), "believed that rain could be enhanced through prayer and dance" (p.93) and practising this to modify the impending hazard.

Murwira, *et al*., (2000) and Mandaza (1970) claim that rainmaking ceremonies were an annual event in Zimbabwe's history, a point that was raised by some in the communities visited. However, some informants confessed that the tide was changing, with less and less of the rainmaking ceremonies taking place, and less and less people participating. Colonialism, modernisation and the influence of the western culture are some of the reasons for the gradual disappearance of these traditional ceremonies (Mandaza, 1970) which then resulted in widespread ancestoral retribution as was also identified in Chivi by Scoones, *et al*., (1996).

Survival mechanisms

The above strategies are mainly for when households are anticipating the droughts and hence they put measures to circumvent the impacts. However, in the event that the disaster strikes, the households will have to look for survival mechanisms that will extricate them from the drought impacts. Hicks (1993) opines that household coping during the 1992 drought saw a mixture of the 'traditional seasonal coping mechanisms', remittances from working family members based in the cities, and targeted relief from humanitarian organisations. The traditional seasonal coping mechanisms are applicable in a 'normal' seasonal model that follows the calendar as presented by FEWS NET above (see ***Fig 4.1***, p.97), where the households appear to be largely food secure just after the harvests, but as the season drifts

further away from the harvesting season, the households become largely food insecure as they cannot spread their produce to cover the period until the next harvest.

Corbett (1988) presents a list of household coping responses specific to famine situations, although some of them are also applicable to drought situations where food and water shortages are not uncommon as was the case in Buhera and Chikomba. The coping mechanisms listed in the ***Box 4.5*** below were drawn from Corbett's systematic review study.

Box 4.5: Commonly observed famine-coping responses

- Changes in cropping and planting practices
- Labour migration
- Distress migration
- Wild fruits (famine foods) collection
- Inter-household transfers and loans
- Rationing of food consumption
- Breakup of the household
- Sale of productive household assets such as land and livestock

Source: Corbett, 1988

From Corbett's list, wild fruits were the most common alternative source of supplementary food and were also an integral component of survival mechanisms employed in Buhera and Chikomba. Sale or exchange of livestock was only taken as a last resort, while rationing of food consumption was practised under the pretext of 'sustainable storage and usage' of the available grain resources. Some marriages broke up, while others were being established as the respondents claimed that some young girls eloped, especially in the rural areas.

Wild fruits

Wild fruits—often referred to as famine fruits—gave the communities a lifeline during the times of adversity. There were limitless recipes for the preparation of household food supplements using the *chakata* (*Parinari curatellifolia*) fruits. A history of the role of the *muchakata* tree and other fruit trees in the social and cultural fabric of the Shona in Zimbabwe made it possible to still depend on the fruits when faced with serious drought impacts such as food scarcity. The myth of how people from the old days would request for food from their

ancestors and be fed underneath the *muchakata* tree along their long journeys on foot was still vivid in the people's minds as they recounted the stories they heard from their foreparents.

This myth further contributed to the trees being treated with so much importance and it could also have been a way of informing the young generations that there is 'food' under a *muchakata* tree whenever the need arises, especially in adversity. The informants argued that just like the *muchakata* tree saved their ancestors from hunger; it too continues to save the current generations from the severe drought impacts.

The traditional rules and values prohibited the cutting of trees such as *muchakata* and using them for firewood (Murwira, *et al*., 2005), and breaking such rules was a punishable offence. The communities in Buhera and Chikomba exhibited the respect for such traditional rules and values, and in the end the trees were a welcome alternative source of food during the difficult season of 2008. However, such fruits are better used as supplements in comparison to being used as the main meals, in which case that will be a show of desperation and a sign of the exhaustion of all the possible coping mechanisms.

The respondent from SAFIRE indicated that the organisation was working with communities in training them on how to process and commercialise the abundant indigenous fruits in their localities. While this has good intentions in trying to boost the people's livelihoods, it has also been blamed for the retribution from God and the ancestors (Scoones, *et al*., 1996) who get upset by the selling of the wild fruits. Scoones, *et al*., (*ibid*) quote a village in Chivi saying, "[some] people are selling fruits such as *musuma* [*Diospyros mespilliformis*], *matobwe* [*Azanza garkeana*] and others. These should not be sold and should only be for consumption" (p.158). One wonders if processing of these wild fruits and selling the end products instead of the raw material (i.e. the fruit) would be an acceptable way of by-passing these cultural laws. While these traditional rules and values prohibiting the selling of wild fruits were meant to ensure an ecological balance, it is important that the improvement of community livelihoods be achieved in a way that is not in direct confrontation with the ecological and cultural importance of that locality.

Prostitution and increased crime

In a study conducted in Chivi district, one of the persistently food insecure regions in Zimbabwe, Scoones, *et al*., (1996) found out that other mechanisms such as prostitution, which are abhorred as morally rotten in the Zimbabwean society, were practised. However, in the case of Buhera and Chikomba, the immorality connotation could have prevented the respondents from openly admitting practising it although crime was noted as being on the increase. Small livestock and grain thefts were common in both wards.

Coping with water stress

As pointed out by Mbetu (1993), droughts in Zimbabwe have often affected the communities' water resources. During the 1992 drought, for example, the amounts of available water were limited and rural communities walked longer distances in search of water, as well as introducing their own water rationing (Mbetu, 1993). This coping tradition seemed to continue with the current challenges, as Buhera and Chikomba communities confirmed employing such mechanisms when facing water stress challenges. They confirmed that they had to walk longer distances in search for water for household usage. The collected water was also used conservatively or rationed. Identifying new sites to dig water wells on the homestead was another coping mechanism employed, although other respondents pointed to the need to extend depths of their existing wells or community boreholes since the water table was continuing to lower beyond reach of the existing water sources. Some household water was drawn from *mufuku* sources dug on silted dry river beds. *Mufuku*-sourced water was cautiously considered safe especially because the river sand would have been used as a local filter mechanism making the water fit for household usage. This confirms Mbetu's opinion that water safety becomes secondary when communities are faced with such challenges (Mbetu, 1993).

Other coping mechanisms

In addition to the above reviewed coping mechanisms, the communities also employed the following survival mechanisms:

Box 4.6: Survival mechanisms in Buhera and Chikomba
• Humanitarian aid • Remittances • Social networks (who were also reeling from the drought and economic challenges) • Selling grain and livestock to fund medical expenses • Selling the local brew (*Seven Days*) • *Kusunza* (grain purchases and/or trade) • *Kupemha* (adversity-induced begging) • Cross-border grain purchases • Gardening and selling the produce • Brick moulding to raise money or grain • Selling firewood • Livestock exchanges with grain (as a last resort) • Using *mifuku* sources for household water • Digging new wells on the homestead and/or extending the depths of existing ones

In as much as *kupemha* might sound an appalling and unacceptable practice, it was actually accepted in society further strengthening the social networks which are an integral component of the African society where one's problem becomes everyone's concern. In addition, it also depended on the values of the people in society where one's problem became everyone's burden. Mhondoro (1970) claims that Shonas are taught to share the little they have from a very early age, values that the people abide by even in times of adversity.

There was a noticeable reversal of processes too where instead of the family members working in towns remitting food and money to their families in rural areas, it was those in the rural areas that remitted to the urban dwellers. This could have been mainly a result of the economic crisis prevailing at that time, and although it is usual for agricultural produce to be sent to towns to feed the urban dwellers, this kind of remitting sometimes even extended to relief aid food.

4.5.2 State response

A review of the accounts during the field study showed that the 1992, 1994, 2002 and 2008 droughts had severe impacts on smallholder farmers. The phenomena depleted the farmers' income savings as they were trying to address the effects of the droughts. Although they

received efficient support from the government and NGOs, the respondents still encountered several challenges.

Food aid

The State's response in 1992 was very swift, drawing stark contrasts to the responses in 2002 and 2008. After the declaration of the State of Disaster in March 1992, the Office of the Vice President was tasked with tackling the drought exigency and limiting its damage on the country's populace. A taskforce team was instituted to implement the government's programme as well as mapping the appropriate direction for reducing the effects of drought in the future, among other responsibilities (Secretariat for the Drought Disaster, 1993).

The government and NGOs worked hard to contain the suffering by supporting the affected communities with food aid. Hicks (1993) commended the government operation in 1992 – 1993 "as an admirable example of a rational, organized, and controlled response to a food shortage situation" (p.iv) regardless of the challenges that the programme was facing. The respondents in the study by Scoones, *et al*., (1996) were grateful of this support from the government crediting it for saving the people's lives.

The drought relief programme implemented by the Government and other stakeholders during the 1992 drought consisted of three programmes, i.e. emergency drought relief programme, child supplementary feeding support, and the school child supplementary programme (Secretariat for the Drought Disaster, 1993). Under the emergency drought relief programme, food relief was provided on a food-for-work basis to able-bodied recipients, a point that was also confirmed by the respondents in Buhera and Chikomba. The food-for-work programme was designed to discourage dependence on Government assistance while at the same time promoting community participation in developing the public infrastructure in the communities (*ibid*). In as much as the 'food-for-work' programme had its good intentions, questions regarding the quality of the work that was done are constantly raised, for example the quality of the roads which saw some being washed away as soon as the rains came. However, the dam at Munyira Primary School in Buhera Ward 6 still exists and continues to be of great value to people and livestock in surrounding villages nearly 20 years after its construction.

In 2008 though, support from the government was almost non-existent[25]. The respondents claimed that the government was failing to fulfil its social contract obligations by not providing assistance as evidenced by the large numbers of people who claimed to not having received aid from the government in 2008. Only one respondent in each community claimed to have received government support. However, some respondents sympathised with the government claiming that supporting the populace was beyond the government's means in light of the economic collapse in the country.

After the 1992 drought, the government's tenacity was also tested as it had to commit lots of funds in response and recovery and helping the smallholder farming areas to become food self-reliant again (MoLA, 1999). This financial commitment aimed at providing the farmers with agricultural inputs and restocking their livestock herds. In addition, the government set a target of 500,000 to 960,000 tonnes of maize as a buffer stock in cases of future droughts and food shortages (Borsott, 1993; and MoLA, 1999). This national strategic grain reserve (SGR) would serve as a guarantee for the availability of the staple crop, maize, on the market and help stabilise the food prices. Even though 500,000 tonnes was only enough to act as a three month food reserve (Borsott, 1993), it was believed that it would help reduce speculative artificial food shortages through hoarding and price hikes during that period.

The SGR idea, though very noble, proved to be expensive for the government and measures to reserve this in the form of cash bonds were mooted at some point[26]. The GMB then failed to keep a national SGR from 1998 onwards (Jayne, *et al*., 2006). However, the communities in Buhera and Chikomba also suggested sustainable storage of grain using advice from their foreparents that households should never completely finish the grain in their reserves before their next harvest. They also suggested that the *Zunde raMambo*[27] concept, which was a traditional practice to ensure that the communities always had food reserves that would be used in times of food shortages (Mararike, 2001), should be decentralised and implemented at village and homestead levels. Demba, Gumbo and Nyamusara (2002) argue that the *Zunde*

[25] Some respondents sympathised with the government because 'it was broke'. However, on 23 March 2010, it was reported that the Government of Zimbabwe was going to re-launch the food-for-work programme in response to projected crop failures from the 2009/2010 season. See '*Zim relaunches food-for-work programmes*': http://www.zimonline.co.za/Article.aspx?ArticleId=5856 (accessed 23 March 2010).

[26] Personal communication with Prosper Matondi (PhD). Prosper has written extensively on land reform and land tenure in the country.

[27] The *Zunde* raMambo or the Chief's granary concept was a practice that was implemented by villagers under the direction of the Chief to cultivate food crops in a field designated by the chief. The produce would be used to feed the Chief's guests, soldiers, or offenders waiting for trial, as well as the food insecure households in the village. For a comprehensive study on the Zunde raMambo concept, please read Mararike (2001) and Dhemba, Gumbo and Nyamusara (2002)

raMambo practice can help communities to become food self-sufficient and reduce their reliance on government and donor support.

Water access

In the same vein as the food aid response, the state gave the National Action Committee for Rural Water Supply and Sanitation the responsibility to address the national water shortage challenges (Mbetu, 1993). According to Mbetu, this response targeted fitting hand pumps and deepening dried water sources using minimum external inputs. The food-for-work activities such as the construction of dams in Buhera could also be seen as a way to strengthen communities' future adaptive capacity to such challenges resulting from poor rains and dwindling water resources.

Policy development

Devereux (2006) identifies the development of policies targeting the perceived vulnerable groups as one of the response measures put in place by countries in southern Africa especially in the wake of the 2001/02 food crisis. Zimbabwe developed its National Plan of Action for Orphans and Vulnerable Children that was published in June 2004. The Plan of Action identifies HIV and AIDS as a major factor into making these children vulnerable. However, considering the challenges that the country has been going through since 2000, it is difficult to measure the impact of the Plan's implementation as this was done in a crisis situation.

4.5.3 Donor and NGO response

In addition to household-level coping strategies and national response, international organisations also mobilise resources to assist countries affected by disasters. The organisations come together to formulate a joint appeal, the Consolidated Appeal Process (CAP), that is then forwarded to prospective funders, and is meant to reduce duplication of effort and competing for limited resources from donors as used to be the case (OCHA, 2008).This follows a similar path as the 1995 Consolidated Drought Appeal made by the

Southern African Development Community (SADC) in the wake of the 1994/95 drought (SADC, 1995).

Table 4.5 was drawn from the CAP produced for Zimbabwe in 2008:

Table 4.5: Zimbabwe's CAP, 2008

Sector Value in US$	Original Requirements A	Revised Requirements B	Funding C	% Covered C/B	Unmet Requirements B-C	Uncommitted Pledges D
AGRICULTURE	45,895,669	49,463,560	1,542,750	3%	47,920,810	-
COORDINATION	2,481,427	3,248,569	2,076,346	64%	1,172,223	395,858
EDUCATION	5,001,000	5,001,000	2,330,000	47%	2,671,000	-
FOOD	173,386,083	230,388,162	111,734,739	48%	118,653,423	-
HEALTH	20,844,430	28,581,397	17,462,954	61%	11,118,443	-
MULTI-SECTOR	43,078,620	51,938,413	20,176,523	39%	31,761,890	-
NUTRITION	4,188,400	4,360,400	313,010	7%	4,047,390	-
PROTECTION	6,489,420	6,489,420	1,295,120	20%	5,194,300	-
SECTOR NOT YET SPECIFIED	-	778,210	4,109,660	528%	(3,331,450)	-
SUSTAINABLE LIVELIHOODS AT COMMUNITY LEVEL	5,482,000	5,482,000	95,000	2%	5,387,000	-
WATER AND SANITATION	9,714,129	8,712,116	3,649,243	42%	5,062,873	-
Grand Total	**316,561,178**	**394,443,247**	**164,785,345**	**42%**	**229,657,902**	**395,858**

Source: OCHA, 2008

As can be seen in the above table, the largest chunk of financial resources budgeted for and actually funded was for food support. Buhera and Chikomba have benefitted from drought relief as evidenced by 56% of Buhera and 72% of Chikomba confirming that they received humanitarian support. However, appallingly low funds were provided for 'sustainable livelihoods at community level' initiatives in the CAP, thereby risking making the communities largely dependent on external support to fight off future challenges that they should actually be capacitated to fight on their own. This confirms the prevailing notion that donors are not interested in supporting 'durable solutions' that will help the communities to fight the challenges they face on their own without reliance on external interventions. In a way, this creates the dependence syndrome that the Government of Zimbabwe was trying to circumvent with its 'food-for-work' programming as a response to the 1992 drought.

The donor community appears uninterested in developmental work despite calls to fund more development activities compared to their humanitarian focus (Padera, 2009)[28]. Basher and Briceño (2005) lambast the donors for the continued "under-investment in development-oriented risk reduction" (p.277). The donors' commitment for a paltry 2% (US$95,000) of the budgeted and requested sum of US$5,482,000 for sustainable livelihoods initiatives at the community level in the 2008 CAP is a clear indication of this skewed focus. It is, therefore, essential that donors start focusing more on durable solutions targeting futuristic disaster risk reduction.

Adaptive cycle

The following adaptive cycle presentation used the 1992 drought in Zimbabwe as a case. At the exploitation stage (**r**), the cycle shows that after independence, the government increased input subsidies and targeted the communal areas with credit facilities and extension services. Although there was an incentive for the production of small grains since the promulgation of the Grain Marketing Board Act in 1984 (Murwira, *et al*., 2000), the communal areas concentrated more on maize and cotton production due to a host of advantages that maize production had over small grains presented in ***Box 4.1*** on p.93. The increased production capacity of the communal farmers resulted in bumper harvests of 1990 (**K**) and the Government deciding to export the grain as its storage was becoming expensive (Jayne, *et al*., 2006) and the foreign currency was required to service international debts as well as funding the policies adopted under ESAP (von Braun., Teklu and Webb, 1998). At this stage (**K**), the production of small grains was also reduced as smallholder farmers focused more on maize and cotton that acted as sources of income and the people's rigid food preferences were heavily tilted towards maize crop production (Jayne, *et al*., 2006).

The grain exports in 1991 were based on the expectation that the trend for crop production was going to remain positive and the weather patterns remain favourable. However, the

[28] In a news report of Sweden's handover of US$5,5 million to Zimbabwe's CAP for 2010, the country's deputy Prime Minister, Thokozani Khupe, "urged development partners to go beyond humanitarian assistance and consider extending support to sustainable development programmes aimed at doing away with donor dependence syndrome". See, Go beyond humanitarian assistance, Khupe urges development partners IN *The Herald*, 19 April 2010: http://www.herald.co.zw/inside.aspx?sectid=17765&cat=1 (accessed 19 April 2010)

threshold was unexpectedly crossed with the 1992 drought and extensive crop failure, also at a time when the grain stocks were nearly empty, only 60,000 tonnes as of April 1992 (von Braun., Teklu and Webb, 1998). 1992 was when the turkey incurred a revision of its belief, according to Taleb's americanised version of the chicken dilemma presented in Chapter 1 (Taleb, 2007). The threshold in ***Fig 4.3*** below is distinguished by the explosion graphic and occurs between the **K** and **Ω** boxes.

In the case of the challenges since the turn of the millennium, the factors that contributed to crossing the threshold could include the economic and political meltdown with rampant inflation and political violence hampering crop production capacity[29]. Commodities were not readily available in shops, and some shops even closed as the business ceased to be viable enough. The social networks faced challenges as it was clear that the majority of the people were struggling to make a living, and could not assist their fellow community dwellers much. With the suspension of the Zimbabwean dollar in 2009, the communities faced an immediate challenge of access to the foreign currency. Even before the official announcement, some retailers had stopped accepting Zimbabwean dollars, a development that affected mostly those in the rural areas. This also had an effect on their cropping season planning as they could not afford the agricultural inputs available, some of which were not genuine seeds as criminals sought to profiteer under the circumstances.

The food imports and coordinated national and international drought relief activities during the 1992 drought (see the **Ω** Phase of the adaptive cycle) are argued to have prevented the drought from turning into a severe famine (Borsotti, 1993; Kinsey., Burger and Gunning, 1998; Munro, 2006; Sachikonye, 1992; and von Braun., Teklu and Webb, 1998). However, that also resulted in the releasing of the communities' potential and, coupled with the food-for-work activities and increased access to agricultural inputs, set the communities on a path of reorganisation (**α**). From the vulnerability assessments carried out by ZimVAC, households that are chronically food insecure could have attained that condition through **X** where they would have fallen into a new and undesirable state as a result of failing to recover from the drought impacts that would have possibly led to the distress selling of livestock and other productive assets.

[29] See also Jayne, *et al*, (2006) for a comprehensive analysis of the factors that have been contributing to the food insecurity challenges in the country.

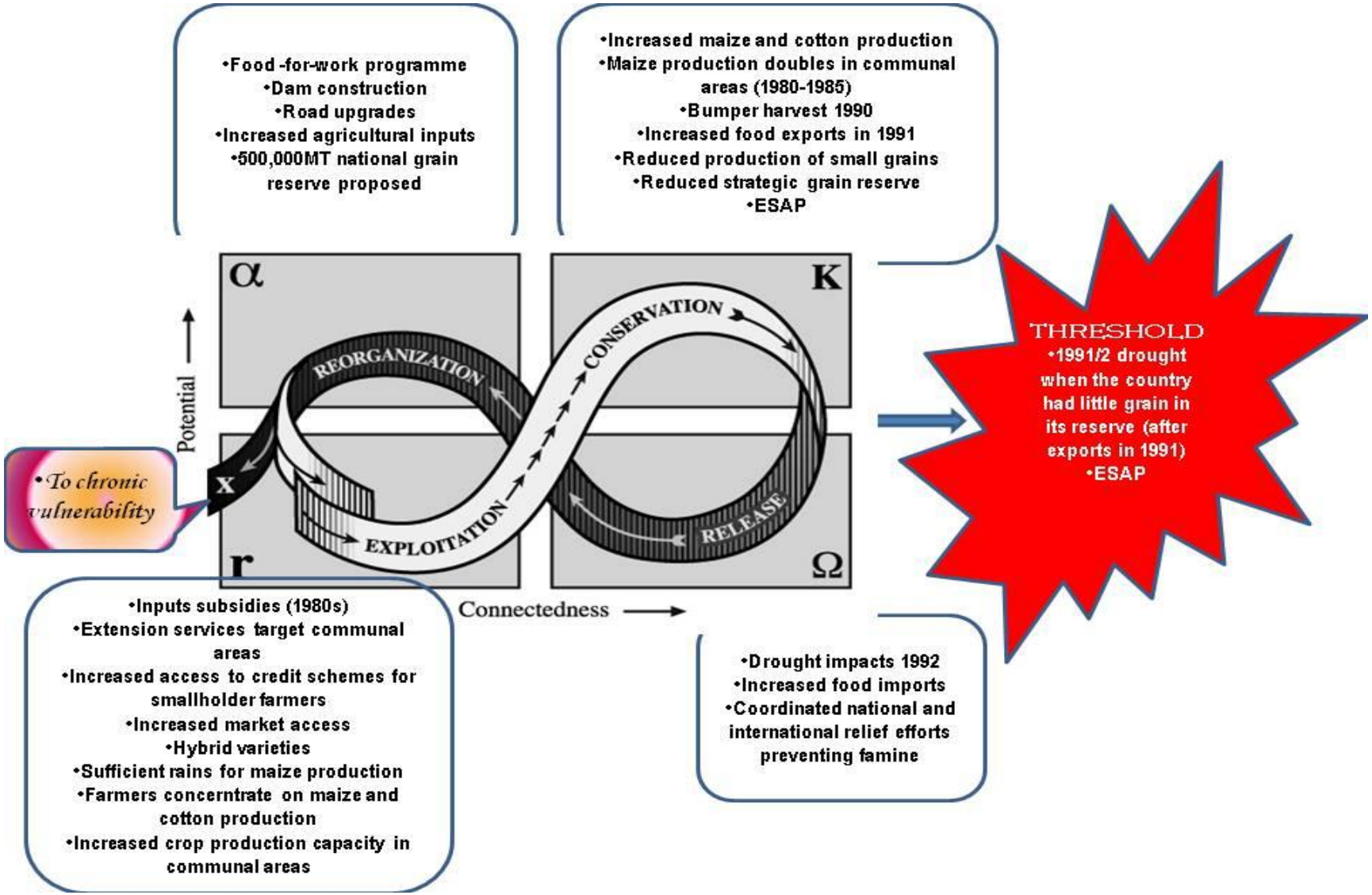


Fig 4.3: Adaptive cycle for Zimbabwe (1992). This is drawn from Holling's adaptive cycle, and applied to the case of Zimbabwe

Reactive response to droughts

Recurrent droughts are believed to be having a negative impact on the people's attempts to be resilient to the challenges. Bruwer, quoted in Unganai (1994), argues that farmers and governments, especially in developing nations, appear less able to cope with the disaster, and there is a disturbing revelation of the governments and other stakeholders adopting firefighting policies all the time instead of preparing the counter-measures in advance, actions that have a striking resemblance with those presented in the Hydro-illogical Cycle presented below.

The Hydro-illogical Cycle helps to understand how the human mind functions vis-à-vis people's responses to weather fluctuations like droughts, and how governments and other institutions react when faced with those challenges. The cycle can be presented as follows:

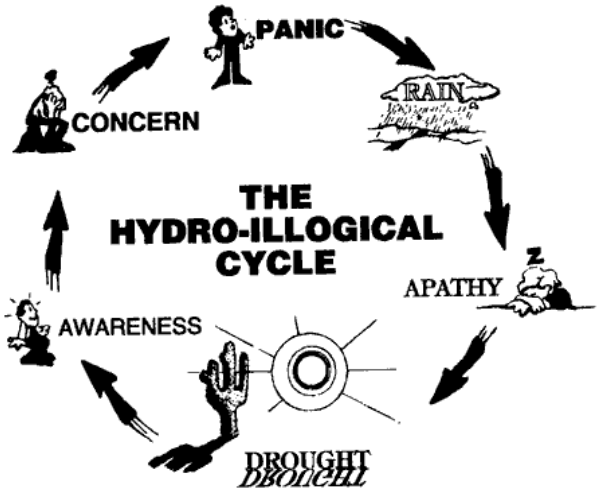


Fig 4.4: Hydro-illogical Cycle. The Hydro-illogical Cycle gives an impression of the responses from the affected communities, the State and the humanitarian organisations when faced with the challenge of drought. Source: Wilhite, 2004

As shown in ***Fig 4.4*** above, and in reference to Buhera and Chikomba, there is a tendency to panic when the people become aware of the impending disaster brought by drought shortly before it occurs. Some start buying and hoarding grain and other commodities before they are finished on the market, a measure that some respondents claimed was a useful mechanism to cope with a predicted disaster. However, when rains fall as the following planting season starts, the people become complacent, and probably lose memory of the challenges they went

through in the preceding drought season, and they will be caught napping when the next drought comes.

Using the cycle to analyse the same case of the 1992 drought analysed using the adaptive cycle (***Fig 4.4***) above, the ***RAIN*** stage would depict the bumper harvests of 1990/91 and the overflowing grain silos. However, this contributed to ***APATHY*** as seen by the increased food exports in 1991 and the reduction of the national SGR to a mere 60,000 tonnes as of April 1992 (von Braun., Teklu and Webb, 1998). When disaster struck with the 1992 ***DROUGHT***, it resulted in reactive food imports to prevent famine and starvation as the government, humanitarian organisations and communities increasingly became ***aware*** of and ***concern***ed with the situation generating ***panic*** and pandemonium.

The respondents talked of using every drop of rain, yet they tended to forget the importance of continuing with that practice until it became too late. The same can also be said about the government's preparations for each agricultural season that lacked rigour and faster implementation and the fire-fighting measures put in place to fight drought impacts. Prior to the 2009 planting season, the government and seed companies were accused of dragging their feet in making the agricultural inputs readily available, amid projections of possible seasonal failure.

4.6 Beyond drought vulnerability and short-term survival

A review of the vulnerability levels in the communities studied revealed that different households have different levels of vulnerability. It is important to understand that even in the severest of drought situations, not everyone goes hungry. Household coping mechanisms should, therefore, be of great relevance to saving the communities from hunger and starvation, and this is better achieved with support from the community social networks, state programmes and NGO support. However, survival should be a short term measure, with long-term resilience and ability to fend off the dangers on their own being a desirable condition. The following sections discuss some of the initiatives that were being implemented and those that need to be put in place to safeguard the lives of the people in the communities.

Promotion of safety nets and social protection programmes

The *Zunde raMambo* concept has been seen as a very important initiative that provides a safety net and the protection of the communities in times of food shortages. Surprisingly, although the respondents confessed to knowing the concept and its objectives, the concept was not in practice in the two communities studied. In Chikomba, however, *Zunde raMambo* was being practised in Headman Chandiwana's area in Masasa (see also Stathers., Sibanda and Chigariro, 2000).

Social protection is a broad concept, but describes initiatives put in place to "protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised" (Davies, *et al*., 2009:12). *The Zunde raMambo* concept is one of the measures that can be put in place to make the communities better able to produce enough for their own. The respondents also claimed that the *Zunde raMambo* should better be decentralised into village and homestead *zundes*, a concept that is reminiscent to the national SGR. The National Social Security Authority (NSSA) is better placed to promote social protection initiatives in the country as it is already constituted to pursue that mandate, which can be achieved with the support of the relevant ministries.

Appropriate agricultural inputs at the right time

The communities' access to agricultural inputs on time is important to ensure that they produce enough to be able to cope with drought impacts and reduced yields. The Government of Zimbabwe, in alliance with the NGOs and international organisations with a presence in the country, came up with an agricultural input facility in mid 2009 that was meant to boost the crop production capacity in the 2009/2010 agricultural season. The main challenge concerned how to make the inputs available on credit to rural farmers who did not have sufficient collateral to satisfy the creditors, as well as the menace of corruption stalking the GMB, a subject of concern to the farmers. A possible path could ensure that those who receive the inputs understand that they have a social obligation to help their fellow community dwellers, as well as producing enough to contribute to the national SGR.

Recapacitation of AGRITEX

Extension services in Zimbabwe have been affected by the socio-economic collapse, as well as the political tensions that have seen people turning against each other in the communities. The economic collapse resulted in a resource gap as brain drain did not spare the extension services department (Jayne, *et al*., 2006). This impacted on the delivery of extension services in the communities. Extension services also have a weakness of being largely associated with a colonial legacy that follows an elitist approach targeting master farmers who are then expected to cascade their knowledge to their fellow communal farmers (Murwira, *et al*., 2000). This is despite the concern that such an approach has not realised the desired results in the past and extension services should serve every interested party without discriminating.

Faced with such challenges, AGRITEX will not be very influential in supporting the communal farmers. It is important, therefore, that AGRITEX be re-capacitated, both financially and with human resources. The transmission of high quality education to the would-be agricultural extension officers could be a necessary step towards achieving this. This education could also look, in depth, at the crops that are suitable for dry conditions, and making the agricultural extension officers more comfortable discussing these crop varieties with the farmers.

Conservation farming

The NGOs interviewed talked of encouraging the communities to practise conservation farming (CF) as a way of achieving what Wood and Knight (1975) termed 'systems modification'. CF attempts to address soil moisture retention while at the same time renewing the soil fertility that will ultimately lead to improved crop yields (Zinanga, *et al*., 2009). The approach uses a method of 'potholing' to improve water harvesting and moisture retention (Mashingaidze and Mataruka, 1992). This leaves the resource-poor farmers with a 'no lack of draught power' scapegoat for poor crop yields or food insecurity as it does not depend on the availability of draught power such as cattle and donkeys, following what Murwira, *et al*., (2000) argue was the practice before the invasion of the country by the colonialists in the 1880s.

Murwira, *et al*., (2000) argue that pre-colonial Zimbabweans did not use ploughs and cattle for draught power, but used hoes and axes, an approach that minimised soil erosion through tillage. Hand hoeing is just but one of a number of CF types and has been practised mainly by "smallholder farmers who do not have access to draught power" (Vogel, 1994:23).

However, with the plough taken as a sign of sophistication and symbol of civilisation, CF promotion faces a huge hurdle requiring serious lobbying of the farmers to adopt it. The approach is viewed as labour intensive and time consuming as compared to the conventional ox-drawn plough that is faster and leads to the cultivation of more land in a short space of time (Murwira, *et al*., 2000). According to Vogel (1994), 'weed pressure' plagues the plots under CF. However, several methods, such as *in situ* mulching and other plants, for example, *mucuna pruriens* and *pueraria phaseoloides* can be used to curb widespread weed development (Fowler and Rockstrom, 2001). At the same time, if CF is the best way to improve the livelihoods and food generation capacity of the rural people, it should be promoted in a way that does not make the farmers to view it as a way of confining then in 'pre-civilisation' times where zero tillage was the order of the day, and not as a downgrading practice meant only for the resource poor.

4.7 Disaster policy revision

The disaster policing in Zimbabwe needs urgent revision and implementation. Jayne, *et al.*, (2006) opine that the country "needs a disaster, contingency and response plan that outlines institutional responsibilities and the sources of funds" (p.539). The country is still using the 1998 *National Drought Management Policy*, and although a process is believed to be in place to update it, it does not appear to be inclusive enough and some key stakeholders felt left out. Some of the respondents interviewed confessed ignorance of such a process taking place, or whether their organisations were involved in one way or the other.

The Department of Civil Protection (CPU) that is expected to be spearheading this process is in financial doldrums, just like any public funded institution in the country[30]. It is also surprising that the department has to fight for resources with the rest of the departments and

[30] The Department of Civil Protection was said to be facing financial difficulties that were hampering their activities in a newspaper report titled "Cash-strung CPU on the verge of collapse" that appeared in *The Sunday Mail* of 20 December 2009: http://www.sundaymail.co.zw/inside.aspx?sectid=4324&cat=1 (accessed 21 December 2009).

programmes under the Ministry of Local Government, Urban and Rural Development. To illustrate this, the following table was drawn from the Ministry's budgetary vote for the 2010 budget presented in December 2009:

Table 4.6: Proportion of civil protection funding in Zimbabwe budget

Value in US$		REVISED BUDGET ESTIMATE	UNAUDITED EXPENDITURE TO OCTOBER	BUDGET ESTIMATES	INDICATIVE ESTIMATES	
		Amount 2009	Amount 2009	Amount 2010	Amount 2011	Amount 2012
CURRENT TRANSFERS	Civil Protection Fund	30,000	102,848	**150,000**	248,000	256,000
PROGRAMMES	Chiefs and Headmen	2,998,310	1,218,816	**6,000,000**	10,212,000	10,551,000
CAPITAL TRANSFERS	Chiadzwa relocation	85,000	60,000	**500,000**	-	-

Adapted from Budgetary Estimates 2010, Ministry of Finance, Zimbabwe[31]

The CPU also falls under the jurisdiction of a smaller ministry, defying the trend within most countries in the region[32]. For its own visibility and effective implementation of activities prior to and after disasters, the CPU would better be placed under either the President's or the Prime Minister's Office. Its current parent ministry, and the various level drought management committees, make the process of assessing the impact of the drought disaster cumbersome as there appears to exist poor coordination structures and too many bureaucratic

[31] The inclusion of the Chiefs and Headmen, and Chiadzwa relocation budgetlines was meant for comparison between the activities that Civil Protection competes for funds against. These were randomly picked and not meant for any priority listing. The Civil Protection Fund budget estimates is nevertheless lesser than what I believe should be provided for the Department had it been given much priority from the State. The budget estimates for 2010 are available on the Ministry of Finance website: http://www.zimtreasury.org/downloads/501.pdf (accessed 27 February 2010).

[32] A perusal of disaster offices in the region showed that the majority of them either fall under the President's Office or the Office of the Prime Minister. Mozambique's Coordinating Council for Disaster Management (NDMC); Directorate of Emergency Management (DEM) of Namibia and Tanzania's Disaster Management Department (DMD) are all under the Prime Minister's Offices while Botswana's National Disaster Management Office (NDMO) is under the Office of the President. Zambia's Disaster Management and Mitigation Unit (DMMU) is under the jurisdiction of the Office of the Vice President. Although South Africa's National Disaster Management Centre (NDMC) is neither under the Prime Minister's nor President's Office, it appears to be a powerful body in comparison with the Zimbabwean Civil Protection Unit (CPU). The South African President appoints the Intergovernmental Committee on Disaster Management which consists of cabinet ministers, provincial members of the executive (MECs) and members of the municipal councils. In addition, the NDMC (South Africa) reports directly to the Director-General of the Department of Provincial and Local Government (dplg) in an effort "to streamline the process once a disaster occurs or threatens to occur" (NDMC Annual Report 2006/2007, p.55 – available: http://www.ndmc.gov.za/Documents/AnnualReports/tabid/256/ctl/ViewDocument/mid/625/ItemID/1/Default.aspx, accessed 18 April 2010).

back-and-forth processes. This delays the process of declaring a State of Disaster in the event of that disaster and, in some cases, conflicting reports of the extent of the disaster[33].

In the same breath, ZimVAC, which produces assessments that are supposed to inform the work of the CPU, and other interested groups, does not receive funds from the national budgets. In the Budgetary Estimates for 2010, only vulnerability assessments from the Ministry of Labour and Social Welfare were given a distinct budget line. The Ministry focuses on orphans and vulnerable children (OVCs) among other groups needing social protection. However, providing the funds for ZimVAC and institutionalising it in the everyday activities will help in effective assessments and implementation of informed decisions based on informed assessments, as well as the creation of an independent Secretariat to coordinate the functions of the Committee effectively.

ZimVAC, as an institution, has faced several challenges in the implementation of its activities, with lack of funding being the key constraint. According to the Committee's report in 2005, calls for ZimVAC to receive government budgetary support were increasing, with the argument that the Committee should be treated like any other government programmes (ZimVAC, 2005). The current programme is, however, dependent on donor support which brings with it several logistical constraints.

That the Committee is operating without an independent Secretariat, and is dependent on staff members of its member organisations, paralyses the Committee from full implementation of its mandate. This is detrimental to the smooth running of the Committee as the representatives of the member organisations will also have their administrative time divided between their employers and the ZimVAC. To ensure unhindered and effective running of ZimVAC, resources have to be mobilised in order to have a stand-alone Secretariat. ZimVAC, though, can still remain dependent on support of the member organisations in the surveys, or be able to commission the studies to the organisations that already have a presence in the communities in the country.

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[33] There was a UN dispute tribunal hearing in Nariobi (23 February 2010) of the former head of OCHA in Harare, Georges Tadonki, who was dismissed after falling out with Agostinho Zacarias, the UN Resident Coordinator in Harare at the height of the cholera crisis in January 2009. Tadonki claimed that Zacarias insisted on them deflating the cholera case statistics and, in the end, the office failed to comprehensively and efficiently tackle the cholera crisis. See: http://www.foreignpolicy.com/articles/2010/02/22/did_the_un_cover_up_a_cholera_outbreak_for_robert_mugabe?print=yes&hidecomments=yes&page=full (accessed 26 February 2010). Had the CPU been well equipped and falling under a powerful Office, such inflating or deflating of statistics by international agencies, for whatever purposes, would have been minimised as well as prompt and appropriate actions being taken by the State.

4.8 Disaster risk reduction

Disaster risk reduction is not only focused on droughts or floods, but endeavours to improve the people's capacity to cope with whatever disaster that they face, and at whatever magnitude. Key to disaster management are the issues of mitigation, preparedness, response and recovery (UN/ISDR and UNEP, 2004). Actions put in place to respond to a drought season, such as grain and livestock exchanges, can unintentionally contribute to future vulnerability, and, as such, the policies that are put in place should be having the future in mind.

The recurrence of droughts and other disasters is an issue of concern as it has major implications on the livelihoods of the people. There is, therefore, a concern for the people and government to "effectively and timely respond to drought and other disasters" (Ndlovu, 1993:1). Studies on drought vulnerability and adaptation, such as this, are integral to the planning processes and helping communities to cope effectively with disasters, while at the same time looking into the future and preparing for such probable and/or improbable events.

Although drought response is integral in saving people's lives, it should be noted that their ability to respond on their own, their ability to fend off the challenges, should be the ultimate goal. Basher and Briceño (2005) define disaster risk management as "the systematic, ***proactive*** [emphasis added] process of identifying, analysing and responding to risk, mainly to minimize the probability and consequences of adverse events" (p.271). They suggest that disaster risk reduction and disaster risk management are synonymous, and that these processes are critical to risk amelioration. Both processes include risk assessments, risk reduction tools and practices, and boosting institutional mechanisms that support both risk assessments and risk reduction (*ibid*).

Meanwhile, in relation to drought disasters, Wilhite (2002) advocates for drought preparedness arguing that this is one way of mitigating future impacts. Preparedness eliminates fire-fighting or implementation of reactive policies that is common in crisis management, although it does not entirely exterminate the need for response as not all impacts can be predicted and entirely avoided (*ibid*). ***Fig 4.5*** (first published by Wilhite in 2000) shows the different facets of both risk management and crisis management in the cycle of disaster management:

Fig 4.5: Disaster management cycle: This was first crafted by Wilhite, and has been extensively used to analyse the risk amelioration processes showing crisis management as a reactive process, while risk management is more proactive. Source: FAO, 2004

Focus on crisis management and the absence of clear-cutting measures for the protection of the communities against futuristic drought impacts traps the communities in the donor or government dependence syndrome (Wilhite, 2002). It is, therefore, important that the government put in place policies that address people's vulnerability to droughts, provide clear early warnings and manage the drought disasters effectively such that the communities are able to recover and depend on their innovation and strengthened capacity to cope well with future disasters. Measures to counter the early warnings should also be observed both at the household and the policy making levels without putting political interests ahead of the people's survival and addressing future vulnerabilities (Jayne, *et al*., 2006).

Zimbabwe's current *National Policy on Drought Management* argues for improved and sustainable livelihoods as a way of creating a buffer for the people against stress. Sustainable livelihoods are taken as "the people's capacity to access options and resources and use them to make a living and cope with short-term stresses and long-term shocks caused by drought" (NEPC, 1999:10). The policy also argues for an integrated approach to drought management arguing that the country should desist from addressing droughts through crisis management; rather droughts should be treated "as part of long-term development programming" (p.34). This is the only way of understanding the pressures and setbacks that droughts bring to the development processes, and addressing these effects accordingly.

However, the major challenge that whoever will be interested in boosting the livelihoods and capacity of the people to cope with future adversity is hampered by limited funding that is channelled towards such interventions as evidenced by the CAP 2008 presented above.

4.9 Discussion summary

Drought vulnerability and adaptation should be looked at from a holistic platform that covers policing on land reform and land tenure, production techniques, market access and rural development. Drought is more than a biophysical event; in Zimbabwe it is a constant threat to the under-resourced communal farmers, who are also dealing with other stressors to their livelihoods. However, it is dangerous to treat the farmers as passive victims; in fact they are resourceful within their own means. Addressing the biophysical event in isolation can lead to failure and, in some cases, to further undermining the people's adaptive capacity – a process termed maladaptation.

Assessing households' vulnerability to disasters is an important but difficult process. This is mainly because conditions are not always similar from one place to the other, and there are usually underlying factors that some theoretical frameworks often overlook. The number of livestock a household has access to might appear to show their strong adaptive capacity, but it should not be a definitive indicator of adaptive capacity as there might be other factors needing consideration. Understanding the ways of living of the people in the communities also requires the researcher to spend more time exploring the cultures and traditions and how these have an effect on people's choices.

Just like any other models, the Pressure and Release (PAR) Model has its cons too. However, it helps in identifying some of the issues prevailing in societies that contribute to people's vulnerability to disaster impacts. The Adaptive Cycle also helps in understanding that systems are not static, they go through tremendous amounts of change and some withstand that change better than others. Applying this to agroecological systems helps to identify what human societies do that will help them either to generate change through creative destruction or cope with life after the threshold. Sen's Entitlement Approach is essential as a supporting tool to understand how the people live with disasters, and how they use the entitlements available to them to cope with crises. Those with no access to these entitlements often succumb to the vagaries of socio-economic-politico-ecological changes.

CHAPTER 5 – CONCLUSION

5.1 Conclusion

In summing this study up, some visible and obscure ecological, social, economic and political factors that either make the people vulnerable, or worsen their already existing vulnerability to climatic fluctuations were identified. Climatic fluctuations were just one of the stressors that the communities had to cope with, making the people's lives vulnerable to a range of stressors and their coping capacity stretched by those stressors.

Screening for humanitarian assistance was seen to be inadvertently contributing to the vulnerability of the households, as the indicators used for adaptive capacity, such as livestock and quality of homesteads, were used in isolation without giving adequate attention to the lifestyles and customs of the people in the communities. Cattle have a bigger role in the Shona custom than simply being storage of income. They play a huge part in the cultural fabric of the Shonas (the people in the districts studied), and using them as an the main indicator of coping capacity disregards this role in the custom of the people in the communities. Cattle's importance is shown by the people's reluctance to sell, trade or kill except in very desperate circumstances.

The groups that were identified as generally vulnerable included the elderly, widowed, orphaned, sick, physically disabled, households with no livestock, breastfeeding babies and their nursing mothers, the poor and households with limited access to reliable sources of income. Single-male headed households, though not many, were found to be more vulnerable than single-female headed households mainly because of the male-pride to discuss issues they consider internal, such as challenges their households might be facing with access to food. Discussing these 'sensitive issues' is termed '*kufukura hapwa*' in the Shona vernacular, meaning the lifting of one's armpits, a taboo in the society. Those looking after the sick were also vulnerable as they dedicated most of their time and financial resources to the sick at the expense of production-based activities like agriculture. However, as found out from the study, vulnerability is not homogenous, and not every poor, widowed and sick person is necessarily vulnerable. Vulnerability assessments should, therefore, go beyond mere

possession of assets, and should consider the communities' customs and values, and any intervention that disregards these customs gives a delusional impression of the issues at stake.

Government policies during the colonial and post-independence period, such as the promotion of a maize culture, also aggravated the precarious position that the communities find themselves in today, a situation that has led to all households cropping maize even in areas where it is not suitable. Small grains such as pearl millet, finger millet, and sorghum are no longer treated as important crops for the household's food security, and a general dislike of the *sadza* (staple diet) prepared from these small grains has led to their near-extinction. This makes the communities highly vulnerable to food shortages in times of droughts, as a maize monoculture is extremely susceptible to moisture and soil-nutrient content fluctuations. As such, vulnerability was deeply rooted in years of bad policing. Poor soil moisture conservation skills also contributed to the farmers' 'exposure to hurt' in times of droughts.

The economic crisis in the country crippled a number of highly important agencies such as the AGRITEX, the CPU and the Meteorological Services Department. The departments' lack of capacity to train farmers, furnish them with timely weather predictions and dealing effectively with crises further exposed the communities to future environmental fluctuations, requiring a huge financial injection to boost the agencies to work efficiently and effectively.

Although the communities face challenges with access to appropriate and timely inputs on time, and financial resources to pay for tillage and farm labour, especially for those households that do not have access to draught power, disaster does not strike and find them helplessly waiting for it. The smallholder farmers in the communities are not passive victims, and they attempt to put measures in place to mitigate the drought impacts, strategies that are informed by the communities' indigenous knowledge systems. Crisis anticipation included predicting the probable outcome of the season, and either dry planting, early planting or staggered-cropping to guard against harvest failure. However, soil conservation techniques such as those practised in conservation tillage were absent in the communities. Rain ceremonies, termed *mikwerera*, were an annual event, and poor rains were interpreted to mean that the communities were either committing some evils or had abandoned their traditions, thereby upsetting their ancestors and God.

Some households in the communities rationed their food and spread their harvests so that they could cover the time until the following harvest season, even two, although this was

often hampered by the maize monoculture as maize loses its quality in storage faster than small grains. Indigenous crops were slowly bouncing back, short maturing crop varieties were planted, as well as crop and livestock diversity being seen as buffers. The communities also learnt to utilise every drop of rain that fell, deviating from what had been the norm that saw rain being given names such as *gukurahundi* (which washes away the chaff), *mvumiramutondo* (that leads to the blooming of the trees) and *munhuruka* (that signals the beginning of the rainy and planting season). During those days, the communities would only plant after *munhuruka* rains.

The state and the donor community came up with input facilities for households that did not have the capacity to purchase the inputs on time, although these facilities were often haunted by corruption, politicisation of the input support and rampant criminal activities that led to fake seeds flooding the market. NGOs promoted community seed banking, small livestock restocking and conservation farming techniques to boost the food production capacity of the communities.

Preparing for adversity is a medium- or long-term strategy, while the short term focus concerns 'survival in crises', which requires innovation and courage. The impacts of droughts were wide ranging, and included crop failure leading to food shortages, increased morbidity, school drop-outs, and challenges with water access for household use. The research found out that in food shortage situations, the communities survived mainly on wild fruits—*Parinari curatellifolia*, *Uapaca kirkiana* and *Piliostigma thonningii* fruits—and relief aid during the 2008 food shortages. Although some relied on support from social networks, such networks had their own challenges too, while the government was too paralysed by the political and economic crisis to provide sufficient help. Some households resorted to *kupemha* or begging, which is culturally accepted in times of need and banks on the strength of the social networks in the communities. *Kusunza* or grain purchasing was another coping mechanism, although some sellers profiteered from the crises selling grain at exorbitant prices, while cattle were traded for ridiculously low amounts of grain. *Mifuku*, dug on silted river beds, were used for household and gardening water, while some wells were dug in areas where the water table was presumed to be higher. However, the lowering of the water table was widespread, especially after recurrent droughts, and this required the extension of the depths of the existing water sources.

The communities confirmed, though, that their foreparents' experiences with previous droughts left them a wealth of knowledge, some of which they still put into practice when confronted with adversity, although some of these experiences are yet to be documented. The *Zunde raMambo* (chief's granary) concept, which they claimed would make their lives easier if decentralised to village and household level, was surprisingly missing in both communities, presumably as a result of the 'partisanisation' of the roles of chiefs in society.

5.2 Recommendations

Having assessed the vulnerability levels and the coping capacity in the communities, resilience becomes one of the main characteristics of a livelihood utopia. It is essential that the communities become resilient enough to adapt to future adversity with minimum external assistance, if any. This can be achieved through a shift in government and humanitarian organisations' policy paths, as well as practices that the communities can work on without reliance on external assistance. The following recommendations were drawn from the informants' suggestions, as well as my interpretation of the challenges that the communities face.

Revision of food preferences

The people's food preferences have constantly been blamed for making the communities more vulnerable to hunger in years of crop failure. The people's revision of their food preferences could be integral in fighting hunger. This can be through incorporating indigenous crops such as sorghum, pearl millet and finger millet into their diets and agricultural production.

Recognising the communities' innovativeness

The interventions in times of disaster should desist from looking at communities as passive victims just waiting for disaster to strike and probably kill them. Instead, the communities put measures in place that help them in preparing for disaster if it is predicted in advance, yet when they are cornered, they have to be innovative and enterprising to survive. Their

response strategies should be recognised, and be used to help build their capacity to respond to future droughts in an efficient and effective manner.

Promotion of indigenous crops

The communities should be encouraged to grow the indigenous crop varieties which are suitable for their climates. However, the farmers have been encountering challenges with marketing such crops as the GMB was not buying from them. It is, therefore, important that markets are established and the farmers' access to such markets is made easier.

Integration of Indigenous Knowledge Systems into weather monitoring

The indigenous knowledge systems used in crisis anticipation and response to droughts are very important in safeguarding the lives of the people in the communities. As such, they should be incorporated into conventional weather monitoring. Although some might view the indigenous knowledge systems used in the communities as backward, they have actually sustained these people's lives, and their continued usage shows how much trust has been invested in them. Indigenous knowledge "cannot be ignored or diminished in any study of the emergence of drought-related crises" (Carr and Kettle, 2009:132).

Communicating weather predictions

Access to weather reports was identified as a challenge in the communities, yet there seemed to be a penetration by the country's major mobile phone network providers, Econet Wireless and Net*One, in the rural areas. These could be used to communicate the weather reports to interested network subscribers, a process that would require cooperation from the weather monitoring department and the network providers.

Objective land reform and tenure

The communities complained of poor soils that have been over-utilised, and of over-crowdedness. The country's land redistribution programme could have targeted some of the communal areas in order to decongest them and free up some space, while at the same time programmes put in place to improve the farmers' capacity to recover the soil's fertility and its moisture holding capacity.

Recapacitation of important agencies

Information availability and easy accessibility become very essential for the farmers' agricultural preparedness, and the information should be correctly packaged for easy understanding. AGRITEX officers are of importance especially in rural areas where farmers encounter difficulties accessing mainstream media. The liaison between research and extension services helps in developing new agricultural production methods and new seed varieties that will survive the harsh conditions. These new methods should be communicated to the farmers on time, something that had lapsed due to the resource gaps created and widened by the economic and political challenges in the country since the turn of the millennium. Joint Government and NGO recapacitation of agencies such as AGRITEX, CPU and the Meteorological Services Department is of great importance, as well as establishing an independent secretariat for ZimVAC, which will give it the flexibility and enhanced capacity to regularly assess vulnerability in the country.

Depoliticisation and deregulation of the GMB

The GMB was constantly accused of favouritism and corruption. There have been calls for it to be deregulated and separated from being a government arm as it could easily be manipulated as a political tool. The Board is in need of recapacitation too. Local farmers should be offered competitive prices that will act as an incentive for them to sell their grain surplus to the GMB.

National strategic grain reserve

The national SGR was based on a long tradition that also resulted in the establishment of the *Zunde raMambo* concept. However, the country has not had a national SGR since 1998. It is, therefore, important that the idea is revived to protect the nation in years of food shortages, and a depoliticised and deregulated GMB has an important role to play in this. The *Zunde raMambo* concept could also be decentralised into village and household *zundes*.

Improving water accessibility

The availability and accessibility of safe water for household usage is important in limiting morbidity in drought seasons where water quality becomes secondary (Mbetu, 1993). Sustainable systems are needed in order to facilitate this. However, with the water table constantly lowering, questions arise on whether borehole drilling is a sustainable adaptive option when the poorly resourced communities will need to rehabilitate the boreholes now and again. Studies into the impacts of damming on communities downstream could also help in formulating appropriate strategies to assist with water accessibility in these communities in times of droughts.

Linking the farmers to markets

This could be tied with improved road networks and transport services, and closing the loop between agricultural production and the farmers' accessibility to the consumers, for example, through farmers' markets.

Shared experiences

The communities' experiences with droughts and other weather exigencies could be shared with others in a wider network. Although vulnerability and drought impacts are not homogenous, there could be some important experiences that would help other communities going through the challenges, or are yet to experience such adversity.

Cash transfers

Since access to money appeared to be of great concern in times of crises, especially with the suspension of the easily accessible Zimbabwean dollar (ZW$) with a basket of difficult-to-access foreign currencies, cash transfer interventions could be more useful. The Regional Hunger and Vulnerability Programme (RHVP) has conducted extensive research on the successes and challenges of such programming especially in Malawi and Zambia.

Livestock restocking

The communities at times succumb to pressure and sell or trade their livestock with grain. Some severe droughts deplete their livestock herds. Livestock restocking, therefore, becomes essential when targeted on livestock that the communities value and that survive the conditions in those regions. This can be done in a way that encourages the communities to be of assistance to each other especially with tillage support and upholding their social network values.

Incorporating research and policy

It is recommended for policy development to embrace research so that the people's condition can be improved. People's cultures and ways of life differ from one community to the other and, therefore, it is important that this differentiation is not left out of policy development and implementation. Contextual implementation of policies may be informed by research, as implementation of policies in a crisis differs with implementation of policies in times of normalcy.

Investment of political will

Vulnerability and disaster risk reduction are as political as any other matter that questions the state's commitment to the social contract, and as such should be addressed through political means. Solutions could come through enacting livelihoods-improvement-friendly policies for emergency preparedness and contingency planning, and actually implementing such policies.

Supporting 'durable solutions'

The donor community should be encouraged to support 'durable solutions' instead of focusing only on short-term humanitarian aid. There should be a balance, instead of all the resources tilting towards humanitarian assistance which in the end cultivates a dependence syndrome in the communities. Humanitarian assistance should just act as a 'pain killer', while durable solutions can help secure the people' future.

Disaster Risk Reduction – Sustainable Livelihoods nexus

The whole disaster risk reduction discourse opines that for people to be resilient to disasters, their livelihoods should be improved and future risk reduced or managed. Participatory rural development could be one of the paths to enhance the people's livelihoods and resilience to future hazards. As such, interventions to manage disasters and future risks should be applied with a 'durable solution' mentality, a path that most of the donor community is reluctant to bankroll (see ***'Supporting durable solutions'*** above).

In addition, other interventions could also include:

- Expanding the lists of indicators to use in quantifying vulnerability beyond the limits set by those indicators already existent in the body of knowledge,
- Incorporating drought management into the school curricula,
- Improving the pension and welfare systems especially for the elderly and disabled,
- Providing timely forecasts and informing farmers what crop varieties to grow that particular season, and
- Making the inputs readily available and at affordable prices.

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Annex 1: Agricultural, Economic and Land Policies in Zimbabwe (1890-2009)

Period	Agricultural, Land and Economic Policy
1890-1923	- Consolidation of white agriculture through financing, training and extension - Appropriation of land by settlers triggered the *First Chimurenga* (war of liberation) of 1896 - **Agricultural research stations** established in Harare and Gwebi in 1909; Nyanga and Matopos (1917). However, maize was the only crop that received major research focus because of its importance as a commercial and food crop. The colonial administration—the British South Africa Company—offered no research support for smallholder agriculture, a situation that existed until independence in 1980 - The **Land Bank** established in 1912. However, it only extended loans to white immigrants to encourage them to settle as farmers, and excluded black smallholder farmers from formal credit programmes until after independence. The legacy still continues though, stalking the present-day communal farmers
1924-1952	- **1931 Maize Control Act** establishes the Maize Control Board, predecessor of the Grain Marketing Board (GMB) which was established in 1950 - Segregated (through racial lines) marketing structures and pricing through the **1934 *amended* Maize Control Act** - Government invested heavily in agricultural research (1924-1965) - Zimbabwe became a major agricultural exporter in the 1950s - Smallholder agriculture largely ignored - **1930 Land Apportionment Act** sets aside over half the land for freehold tenure by European settlers while prohibiting the Africans from occupying land in these areas - **1951 Land Husbandry Act** enforcing destocking of livestock basing it on the carrying capacity principles. Law scrapped in 1961
1953-1965	- Labour for white farms in Southern Rhodesia (Zimbabwe) is recruited from Northern Rhodesia (Zambia) and Nyasaland (Malawi), the three nations forming what was called the Federation of Rhodesia and Nyasaland
1966-1979	- The Universal Declaration of Independence (UDI) in 1965 - Import substitution policies, growth in manufacturing and agriculture - **1967 Tribal Trust Lands Act** renaming Native Reserves to Tribal Trust Lands (TTLs) and resulted in the land authority falling under the discretion of the Minister of Internal Affairs and the District Commissioners thereby undermining the role of local chiefs. In practice, many local chiefs assumed substantial authority though - **1969 Land Tenure Act** creating Boards of Trustees for European and African areas. This placed the authority for land occupation and use in African areas under the office of the President - 1971 Act of Parliament led to the establishment of Agricultural Finance Cooperation (AFC), the Land and Agricultural Bank, the Agricultural Assistance Board etc. Communal farmers still left out of the credit facility - The Act was amended in 1979, and 4,500 communal farmers obtained short-term loans for cropping expenses for the first time - **1979 *revised* Tribal Trust Lands Act** establishing a state-appointed advisory Tribal Trust Lands Board. It instated the chief as the sole 'tribal authority' who could guarantee his tribesmen consent to occupy or use land for agricultural or residential purposes. However, chiefs could be removed on the advice of the Board - Disruption of the economy due to the protracted liberation struggle (*Second Chimurenga*), and international economic sanctions against UDI

	- **1979 Lancaster House Conference** where land was one of the central issues tabled for negotiation
1980-1990	- First decade of independence sees reconstruction and economic transformation centred on previously advantaged blacks - Ministry of Lands, Resettlement and Rural Development created in 1981 with a mandate to resettle 162,000 families by 1985 - **1982 Communal Land Act** renames TTLs to Communal Lands - **1984 Grain Marketing Board Act** – the Government promotes the growth and consumption of small grains through competitive pricing and including pearl and finger millet on the list of controlled products. However, the cultivation and consumption of small grains remain limited to traditional rituals - **1985 Land Acquisition Act** gives the government purchasing priority. However, by 1990, only 52,000 families had been resettled - Economic liberalisation, redistribution through growth, decontrol and privatisation. Economic policy embraced both commercial and smallholder agriculture - Increased maize and cotton production by communal farmers - Main challenge stalking the government was related to finding new markets that would help in providing new sources of growth for smallholder agriculture - Land policy failure; insignificant progress towards equitable access to land reform by the end of the first decade since independence
1991-2000	- In 1991, the government, under pressure to speed up the resettlement exercise, announces a proposal to resettle 100,000 families on five million hectares of land to be acquired from the large-scale farming areas. The subsequently revised **Land Acquisition Act (1991)** allowed for compulsory land acquisition through land designation - Economic Structural Adjustment Programme (ESAP) that regulated market processes through removal of controls, and the devaluation of the Zimbabwean dollar. - 1991, increased expenses with managing overflowing grain silos led to the **exportation of a large amount of grain**, just before the 1992 drought. The foreign currency raised was meant to support the liberalisation policies under ESAP - 1991, hectares formerly devoted to maize production reduced from 285,000ha in 1984 to 125,000ha in 1991due to diversification by large-scale commercial farmers to horticulture etc - 1998-2000 **Zimbabwe Programme for Economic and Social Transformation (ZIMPREST)**, tasked with inflation control - Steep deterioration of the economy - Stalled negotiations with the British Labour Government (1996) over land reform funding in Zimbabwe - 1999, the AFC renamed the Agricultural Bank of Zimbabwe (Agribank) - **2000** amendment of the **Land Acquisition Act**
2000-2004	**Millennium Economic Recovery Programme (MERP)** 2000-2002 - Inflation control - Aimed at the restoration of macro-economic stability and international cooperation - Rising unemployment in the country **Land reform and resettlement** (A1 and A2 models) - A1 model designed to ease congestion in communal areas although in practice many urban dwellers and farm workers benefited. - A2 aimed at providing applicants with agricultural experience and production capacity with small-scale commercial farms. - Concerns raised though with respect to beneficiary selection and land allocation

	for both A1 and A2 models - Significant drop in seed production since 2000 because some of the seed producers' farms were acquired Contract farming – 2000, 2001, 2003 -- - Providing producers guaranteed access to markets - Inputs provided to farmers almost one year in advance 2001 – **Zimbabwe Democratic and Economic Recovery Act (ZDERA)** - Passed by the US Government imposing sanctions on the Zimbabwe government 2002 – The **European Union** targeted sanctions on the Zimbabwe political elite **National Economic Reform Programme (NERP)** 2003-2004 - Increased agricultural focus and agricultural subsidies - Indigenisation of the economic sector - Increased poverty levels and high employment - Lack of foreign exchange resulted in unserviced international debts
2004-2008	Monetary Policy Statements (Reserve Bank) and Fiscal Policies (Ministry of Finance) - Clean up of financial sector resulting in closure of some financial institutions - Introduction of bearer cheques replacing the official Zimbabwean currency - Farm Mechanisation Programme (2007) purchasing farm machinery on behalf of farmers. Controversy surrounds the selection of the beneficiaries, the motive behind the programme, and the repayment plan - Rising inflation reaching 231 million in July 2008[34]
2009-present	**Short Term Emergency Recovery Programme (STERP)** - Pledges US$980 million (out of a total of US$7.26 billion) for agricultural support, and puts weight on the maximisation of output as compared to extensive agriculture - Identified national food security and self-reliance as priority - Emphasis on preparedness vis-à-vis availability of inputs and support - Targets the internal production of 80% of the country's maize needs (during the 2009/2010 production season) - Land audit identified as necessary step for agricultural prosperity - Farmer capacity development, livestock restocking and contract farming encouraged - Policy shift with the Government distancing itself from participating in agriculture, in both financing farmers, and marketing and pricing of agricultural commodities - Introduction of liberalisation and deregulation measures allowing for the marketing and pricing of agricultural commodities through the open market

Adopted from Auret, 1990; Biti, 2009; Friis-Hansen, 1995; GoZ, 2009; Hammar, 2007; Ministry of Lands, Land Reform and Resettlement (Zimbabwe); Matondi and Munyuki-Hungwe, 2006; Murwira, et al., 2000; Phimister, 1993; Rukuni, 2006; Sachikonye, 1992; and von Braun., Teklu and Webb, 1998

[34] In June 2008, the Country's Central Statistics Office said it was facing challenges compiling the inflation data as a result of data gaps: see http://allafrica.com/stories/200809120252.html (accessed 11 February 2010)

Annex 2: Questionnaire

Introduction

My name is Mukundi Mutasa, a graduate student with the Department of International Environment and Development Studies (Noragric) at the Norwegian University of Life Sciences (UMB) in Norway. As part of the study programme, students are expected to engage in a field research and produce a thesis covering their areas of interest. I am, therefore, conducting an assessment of "vulnerability and adaptive capacity to drought impacts" in communities in Buhera and Chikomba.

I guarantee that the information gathered in this exercise will be strictly used for academic purposes, and the respondents' confidentiality will be respected. Having said this, I would like to request for your participation in this exercise. You can, of course, decide not to answer any uncomfortable questions or to pull out of the interview if you deem it necessary.

Thank you in advance.

Section 1

Questionnaire number	
District name	
Village name	
Household	

1.1 Would you kindly provide the information with regards the following?

Age of interviewee	Sex of interviewee	Marital Status	Number of wives	Number of children	Number of other dependents	Highest level of education attained

1.2 How many of the following livestock species does your household own?

Cattle	**Goats**	**Donkeys**	**Sheep**	**Pigs**	**Poultry**				
					chicken	turkeys	Ducks	Pigeons	Guinea Fowls

1.3 Which of the following crop varieties do you grow?

Crop variety	**Yes**	**No**
Maize (*chibage*)		
Pearl Millet (*mhunga*)		
Rapoko/Finger millet (*zviyo/rukweza*)		
Groundnuts (*nzungu*)		
Roundnuts/Bambara nuts (*nyimo*)		
Sorghum (*mapfunde*)		

Other (please specify):
.....
.....
.....

1.4 What influences your decision to sow a particular crop variety? (please tick (√) where appropriate.)

Field size ☐ Cost of inputs ☐ Rainfall information ☐ Traditional value ☐
Societal influence ☐ Farmer competition (field days) ☐ Input availability ☐
Economical value (cash crop) ☐

Other (please specify):
.....
.....
.....

1.5 Who owns the land you are tilling? (please tick (√) where appropriate.)

Private owned ☐ State land ☐ Leased from private owner ☐ Inherited ☐
Leased from State ☐ Communal land ☐

Other (please specify):
.....
.....
.....

1.6 If private owned/inherited/leased, in whose name is the land registered? (please tick (√) where appropriate.)

Husband/Father/Grandfather ☐ Wife/Mother/Grandmother ☐
Son ☐ Daughter ☐

Section 2: Drought vulnerability

2.1 On a scale of 1 to 5 (with 1 representing the lowest yield, while 5 represents the best possible yield), how do you rate last season's yield comparing with what you are capable of producing? (please tick (√) where appropriate.)

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

2.2 What were the reasons for the yield to be at the level it was last season? (please tick (√) where appropriate.)

Low rainfall ☐ High rainfall ☐ High cost of inputs ☐ Late cropping ☐
Low cost of inputs ☐ Easy accessibility to inputs ☐ Early cropping ☐
Difficulties with accessing inputs ☐

Other (please specify):

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

2.3 Which of the following agricultural seasons were affected by droughts in recent history[35]? (please tick (√) where appropriate.)

1990/91 ☐	1991/92 ☐	1992/93 ☐	1993/94 ☐
1994/95 ☐	1995/96 ☐	1996/97 ☐	1997/98 ☐
1998/99 ☐	1999/2000 ☐	2000/01 ☐	2001/02 ☐
2002/03 ☐	2003/04 ☐	2004/05 ☐	2005/06 ☐
2006/07 ☐	2007/08 ☐		

2.4 How often do you encounter droughts (drought cycles)? (please tick (√) where appropriate.

1-2 years ☐ 3-4 years ☐ 5-6 years ☐ 7-8 years ☐ 9-10 years ☐

Other (please specify):

.....

2.5 Has experience with drought cycles influenced your on-farm and off-farm activities? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

2.6 What do you think is the cause for the droughts you have been experiencing in recent history? (please tick (√) where appropriate.)

Poor rainfall ☐ Poor soils ☐ Lack of appropriate agricultural inputs ☐

Pests ☐ Plagues ☐ Crop diseases ☐

Other (please specify):

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

2.7 What were the effects of the droughts you have experienced? (please tick (√) where appropriate.)

Loss of human life ☐ Livestock loss ☐ Malnutrition ☐ Diseases ☐

Degraded soils ☐ Vegetation loss ☐ School drop-outs ☐ Migration ☐

Depleted water resources ☐

Other (please specify):

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

[35] Post-1990 period

2.8 Do you think you are particularly vulnerable to droughts? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

2.9 Please give reasons for your response to 2.8.

.....

.....

.....

2.10 Which ones of the following groups in the community are particularly vulnerable to droughts? (please tick (√) where appropriate.)

Children ☐ Elderly ☐ Disabled ☐ Sick ☐ Landless ☐

Orphans ☐ Childless ☐

Other (please specify):

.....

.....

2.11 Which group of household members is responsible for the following chores? (please tick (√) where appropriate.)

Fetching household water	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Fruit gathering	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Hunting	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Ploughing	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Sowing	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Herding livestock	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Casual labour	Daughters ☐	Sons ☐	Mother ☐	Father ☐
Migration and remittances	Daughters ☐	Sons ☐	Mother ☐	Father ☐

Section 3: Response to droughts

3.1 How did you prepare for previous droughts? (please tick (√) where appropriate.)

Early cropping ☐ Drought resistant crops ☐ Rain ceremonies ☐

Livestock migration (loaning to relatives in areas unaffected by droughts) ☐

Other (please specify):

.....

.....

.....

3.2 How easy or difficult is it to access drought resistant seeds? (please tick (√) where appropriate.)

Very easy ☐ Easy ☐ Difficult ☐ Very difficult ☐

3.3 How did you cope with previous droughts? (please tick (√) where appropriate.)

Humanitarian aid ☐ Social networks ☐ Migration ☐ Remittances ☐
Sale of assets ☐ Sale of livestock ☐ Grain trade ☐ Informal trade ☐
Off-farm employment ☐ Casual labour ☐ Hunting ☐
Wild fruits gathering ☐

Other (please specify):
.....
.....
.....

3.4 Have you received drought response support from (please tick (√) where appropriate.)**:**

NGOs?	Yes ☐	No ☐
Government?	Yes ☐	No ☐
Social networks?	Yes ☐	No ☐

3.4.1 If yes, what type of support?
NGOs:
.....
.....

Government:
.....
.....

Social networks:
.....
.....

3.4.2 If no, what support do you think they should give you in drought times?
NGOs:
.....
.....

Government:
.....
.....

Social networks:
.....
.....

Section 4: Indigenous Adaptation Strategies

4.1 Do you have any stories about previous droughts that were recounted and passed on to you by your elders? (please tick (√) where appropriate.)

Yes ☐ No ☐
If No, please skip to Section 5.

4.2 How did they cope with such droughts? (please tick (√) where appropriate.)
Humanitarian aid ☐ Social networks ☐ Migration ☐ Remittances ☐ Hunting ☐
Sale of assets ☐ Sale of livestock ☐ Grain trade ☐ Informal trade ☐
Off-farm employment ☐ Casual labour ☐ Wild fruits gathering ☐

Other (please specify):
.....
.....
.....

4.3 Did you find this information useful in deciding ways of coping with droughts that you have faced?
Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

4.4 How was this information transmitted to you? (please tick (√) where appropriate.)
Oral tradition ☐ Written/ documented evidence ☐

4.5 If oral tradition, do you think these experiences should be documented for future generations? (please tick (√) where appropriate.)
Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

Section 5: Adaptive capacity and external support

5.1 What are you doing to ensure that your capacity to cope with droughts is strong? (please tick (√) where appropriate.)
Agricultural education ☐ Social networks ☐ Livestock diversification ☐
Crop diversification ☐ Off-farm work ☐ Income generating projects ☐

Other (please specify):
.....
.....
.....

5.2 Did the State provide any support to cope with drought? (please tick (√) where appropriate.)
Yes ☐ No ☐
If yes, please answer 5.3 and 5.4. If no, please skip to 5.5.

5.3 Was the State support provided on time? (please tick (√) where appropriate.)
Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.4 Was the State support helpful in times of drought? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.5 Did you receive any support from NGOs/humanitarian organisations to cope with drought? (please tick (√) where appropriate.)

Yes ☐ No ☐

If yes, please answer 5.6 and 5.7. If no, please skip to 5.8.

5.6 Was the NGO/humanitarian organisations' support provided on time? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.7 Was the NGO/humanitarian organisations' support helpful in times of drought? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.8 Do you think the State and NGO/humanitarian organisations' should provide you with any form of support to enhance your capacity? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.9 If answer is in the affirmative, what support should they provide you with? (please tick (√) where appropriate.)

Humanitarian aid ☐ Seed finance for income-generating projects ☐

Livestock investments ☐ Education and agricultural training ☐

Information provision ☐ Infrastructure development ☐ Promoting safety nets ☐

Other (please specify):

.....

.....

.....

.....

5.10 Do you know of the Zunde raMambo programme? (please tick (√) where appropriate.)

Yes ☐ No ☐

If No, please skip to 5.14.

5.11 Have you benefitted from it in drought times? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.12 Have you participated in it? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.13 Is it an efficient way of providing social support in times of droughts? (please tick (√) where appropriate.)

Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐

5.14 How can the Zunde raMambo and other social support initiatives be improved?

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

5.15 What do you think you should do as a community to protect yourselves from drought impacts?

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

<End of questionnaire>
Thank you for your time.

Annex 3: Interview guide for interviews with key informants

Introduction

Dear Sir/Madam
My name is Mukundi Mutasa, a graduate student with the Department of International Environment and Development Studies (Noragric) at the Norwegian University of Life Sciences (UMB) in Norway. As part of the study programme, students are expected to engage in a field research and produce a thesis covering their areas of interest. I am, therefore, conducting an assessment of "vulnerability and adaptive capacity to drought impacts" in communities in Buhera and Chikomba.

I guarantee that the information gathered in this exercise will be strictly used for academic purposes, and the respondents' confidentiality will be strictly respected. Having said this, I would like to request for your participation in this exercise. You are, of course, permitted not to answer any uncomfortable questions or to pull out from the interview if you deem it necessary.

Please also allow me to use my voice recorder as it will enable me to follow through the interview. Note-taking will both distract me while at the same time I am bound to miss out on very important points you might bring up in the course of the interview.

Interview questions

1. Would you kindly give me a brief introduction into your work?
2. How often has Buhera and/or Chikomba experienced drought in the post-1990 period?
3. What groups are particularly vulnerable to drought impacts?
4. How is the support tailor-made to suit the needs of these vulnerable groups?
5. Do the local farmers receive rainfall forecasts on time? How is this transmitted to them?
6. What are the challenges faced in transmitting the information?
7. Do the farmers use the information to decide on what crop varieties to grow?
8. What are the traditional and/or indigenous adaptation strategies that the local/smallholder farmers use to adapt to droughts?
9. Is access to drought-resistant seeds easy? What are the logistical challenges with providing the seeds on time?
10. In the 1990s, the Zimbabwean government reviewed and revived the *Zunde raMambo* (Chief's granary) programme. Are there other similar projects/programmes in place or in the pipeline to cushion the underprivileged from catastrophes such as droughts?
11. What are the challenges that programmes such as the *Zunde raMambo* face and how can they be improved?
12. What is your organisation doing to help enhance the people's resilience to droughts?
13. What other policy frameworks should the government and NGOs put in place to help communities to adapt to droughts and water stress?

Thank you very much for participating in this interview. It was a great pleasure interviewing you.

Annex 4: Government letter suspending NGO operations

Telephone: 790871/7
Telegrams: "SECLAB"
Private
Bag 7707/7750,
Causeway

MINISTER OF PUBLIC SERVICE, LABOUR
AND SOCIAL WELFARE
Compensation House
Cnr Fourth Street and Central Avenue
HARARE

Reference: SW/21/3

4 June 2008

TO: ALL PRIVATE VOLUNTARY ORGANISATIONS (PVOs)/NON GOVERNMENTAL ORGANISATIONS (NGOs)

It has come to my attention that a number of NGOs involved in humanitarian operations are breaching the terms and conditions of their registration as enshrined in the Private Voluntary Organisation Act [Chapter 17:05], as well the provisions of the Code of Procedures for the Registration and operations of Non Governmental Organisations in Zimbabwe (General Notice 99 of 2007).

As the Regulatory Authority, before proceeding with the provision of Section (10), Subsection (c), of the Private Voluntary Act [Chapter 17:05], I hereby instruct all PVOs/NGOs to suspend all field operation until further notice.

Hon. N T Goche (MP)
MINISTER OF PUBLIC SERVICE,
LABOUR AND SOCIAL WELFARE