Taming the beast: vulnerability to, coping and adaptation with drought impacts in rural Zimbabwe[1]

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Introduction

Zimbabwe is among several countries deemed to be vulnerable to climate change due to a wide range of factors. For starters, most of the country is dependent on rain-fed subsistence agriculture and constantly experiences unfriendly weather patterns making it "highly vulnerable to vicissitude of weather patterns" (NCPCC, 1993:31). These unfavorable weather patterns have resulted in disasters such as droughts and floods, that impact on people's livelihoods differently. The country is also entirely landlocked making it a 'hostage to its neighbors' (Collier, 2008). The fact that the impact of droughts and floods on the people's livelihoods is not uniform makes it intriguing to study the people's vulnerability and explore their adaptation strategies in order to identify what works and how the challenges can be addressed. This paper addresses vulnerability to and adaptation with drought impacts in Zimbabwe, a country where climate change is certainly not the sole challenge. Rather, the country faces an array of challenges, among them the HIV and AIDS pandemic, brain drain, and the widely documented economic and political crises that have stalked the country in the post-2000 period. The paper will give a very brief background to agriculture in Zimbabwe in order to understand the factors that contribute to the vulnerability of some groups in the country, as well as exploring their coping mechanisms and adaptation strategies. It will close with an overview of policy options that might help in securing the livelihoods of the country's agro-based citizens, who are resident mainly in the rural areas. This paper is largely informed by my Master thesis[3] research conducted in Zimbabwe's Buhera and Chikomba districts[4] from July to November 2009.

Agriculture in Zimbabwe

Agriculture is Zimbabwe's economic mainstay, and was once described as "the much-vaunted 'backbone' of the economy" (Sachikonye, 1992:90). In fact, "when agriculture

[3] The thesis, titled *Zimbabwe's Drought Conundrum: :vulnerability and coping in Buhera and Chikomba districts*, can be accessed at http://brage.bibsys.no/umb/bitstream/URN:NBN:no-bibsys_brage_14491/1/Mukundi%20Mutasa%20Final%20Thesis.pdf

[4] Buhera and Chikomba districts are in Manicaland and Mashonaland East provinces respectively. The two districts share the same border. Buhera is divided into 32 wards, and Ward 6, which was the area of focus in this study, has a population of 8,041 (CSO, 2004a). Chikomba, on the other hand, has 30 wards, with Ward 20 having a population of 5,419 people (CSO, 2004b). 96.07% of Buhera and Chikomba's 91.52% are rural dwellers (CSO, 2004**a** and **b**).

sneezes, the Zimbabwean economy catches a cold" (Litwin, 1992:5). ***Table 1*** further illustrates agriculture's contribution to Zimbabwe's national Gross Domestic Product (GDP):

Table 1: Sectoral contributions to national GDP

Year	Percentage contribution by sector			
	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

In the post-2000 period, however, the agricultural sector sneezed, and the country's economy did not only catch a cold as predicted by Litwin (1992); it literally came to a standstill. The height of this was the shrinking of the agricultural sector by an annual average of -7.1% as the cumulative "agricultural output contracted by -79.4%" between 2002 and 2008 (Biti, 2009:14).

Among the factors contributing to this were the political and economic challenges that the country experienced during this period largely stemming from the internationally politicized Fast Track Land Reform Program (FTLRP) that the country implemented from July 2000 to August 2002 (ZWRCN and SARDC WIDSAA 2005). However, although the FTLRP officially ended in August 2002, there have been isolated incidents of farmland grabbing from previous owners mainly of white origin. The program shook the country socially, economically and politically because of its violent and chaotic nature thereby earning the

term *jambanja* (Kinsey 2010), which is used locally to refer to violence and chaos. The implementation of this program led to the international isolation of the country.

The country's land question is deep-rooted in its colonial past. When the European colonizers settled in the country in the 1880s, they alienated high-potential zones pushing the natives to the periphery of the good soils (Rukuni, 2006). When the country gained its political independence in 1980, the new government was faced with a huge challenge of redressing the misgivings of the past by decongesting the overcrowded communal areas and giving the natives more share of the productive land (Auret, 1990, Friis-Hansen, 1995, Murwira *et al*, 2000). Discontent was growing in the communal areas as the imbalances took long to be redressed and this became the entry point as the grievance discourse was employed resulting in the violent land invasions that started in 2000. Land – the country's most valuable asset – has more often been used as a tool for politicking and vote buying, and without tenure security, the people are constantly fearing that they might be moved at any given time, especially when it suits the politicians the most.

Agroecological regions

The country is divided into five agroecologial regions on the basis of the various agricultural activities, soil types, vegetation and varying rainfall averages and climatic conditions (Auret, 1990; FAO, 2006). ***Map 1*** gives an illustration of these agroecological regions, and the subsequent table presents the characteristics of the different regions. Buhera and Chikomba are located in areas of low-productive potential. This is seen as a creation of the colonial past that grouped the natives in areas of low agricultural potential.

Map 1: Zimbabwe's agroecological regions (Source: FAO and WFP, 2009)

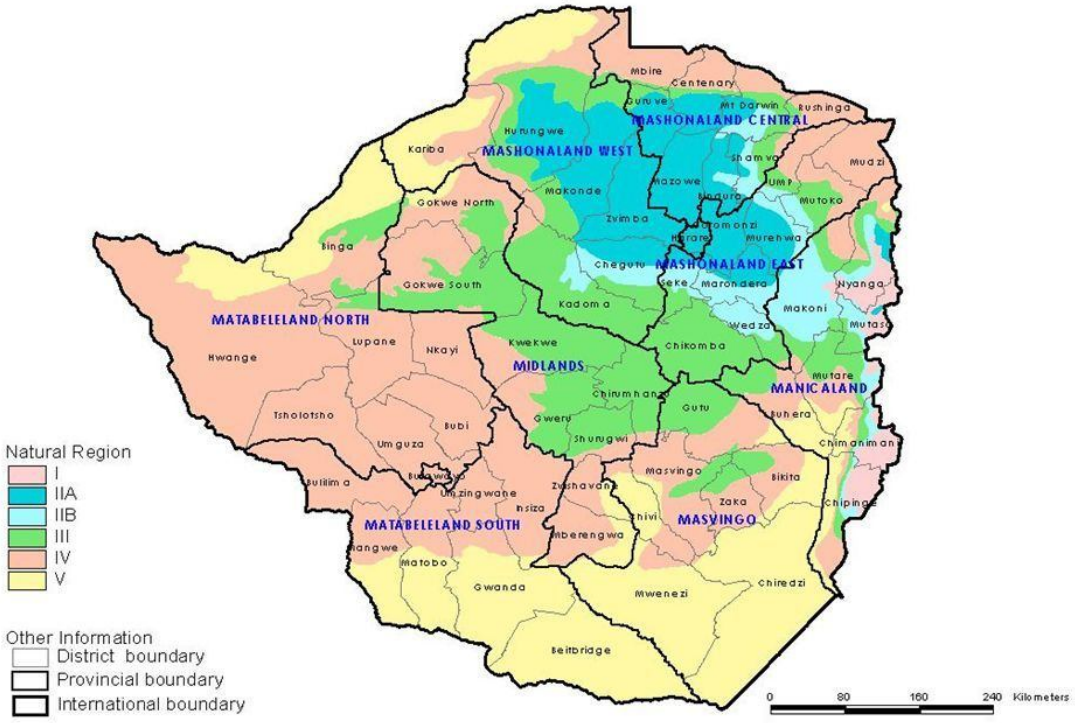


Table 2: Agroecological regions' characteristics[5]

Characteristics of the different agroecological regions
Natural region I: Rainfall of over 1,000mm per year. Land is susceptible to soil erosion when devegetated. Suitable for diversified or specialised farming. 18% of the 703,000 hectares is communal land.
Region II (sub-regions A and B): 750 to 1,000mm rainfall per year. Intensive cropping and livestock production. 1.2million of the 5.8million hectares is communal farmland.
Region III: Between 650 and 800mm rainfall per year. Infrequent heavy storms, though characterised by mid-season dry spells. Semi intensive farming, best for livestock production and fodder crops. 39% of the 7.3 million hectares is communal land. The whole of Chikomba and northern parts of Buhera are in Region III. Both research sites are in this region.
Region IV: 400 to 650mm rainfall per year. Subject to seasonal droughts (and always vulnerable). Semi-extensive farming, mostly suitable for livestock production and drought resistant crops. 62% of the 14.8million hectares is communal land. Middle part of Buhera is in this category.
Region V: Below 450mm per year (erratic rainfall). Extensive farming, mostly suitable for cattle and game ranching. 45% of the 10.4million hectares is designated communal area. The southern part of Buhera falls under Region V.

Adapted from Auret (1990); Kaseke (1993)

[5] These characteristics have not yet been updated to include the possible land use changes especially after the implementation of the FTLRP. Studies to establish how the land reform program has changed the pattern are essential as there are arguments that peasant farming and pseudo-communal areas are being created under the guise of land reform.

The largest share of communal land lies in areas of low production potential. As argued by Auret (1990), the enactment of the Land Tenure Act in 1969, and the subsequent repressive laws, reduced the 'native' farmer's agricultural potential as 75% of the Tribal Trust Lands (TTLs)[6] fell into agroecological regions IV and V. Several factors contributed to this low agricultural potential. These include poor soils, insufficient tilling space in the overcrowded TTLs, growing crops in areas not suitable for crop production, lack of access to credit facilities for input purchases, poor farming skills and lack of access to technical and agricultural extension services (Auret, 1990; Mashingaidze and Mataruka, 1992; MoLA, 1999). This disadvantaged mainly the communal farmers as compared to the commercial farmers who had been allocated prime land in regions of high productive potential and had access to credit facilities and agricultural extension services.

In addition to the geographical disadvantages, the macro-economic instability that the country experienced in the 1990s (MoLA, 1999) and the post-2000 period (Biti, 2009) also contributed to poor agricultural production. The political crisis that characterized the post-2000 period could also be seen as contributing to low agricultural production in both low and high agricultural production potential zones. The international politicization of the FTLRP, and the negativity that it drew, led to the country's international isolation further reducing agricultural production as the much needed foreign exchange necessary for funding agriculture became scarce.

A *maize complex* also existed, and continues to exist, in the communal areas where the farmers grow mainly maize (corn) at the expense of other crops. The crop has a dual role serving as both a cash crop and the staple crop for the majority of the country's populace (Auret, 1990; Mashingaidze and Mataruka, 1992; Rukuni, 2006). Conflicting arguments have been put forward regarding the substitution, or lack of it, of other crops in favor of maize production in the communal areas in the 1980s[7]. However, it is the over-reliance on maize, which is vulnerable to moisture stress that is a cause for concern.

[6] The Native Reserves, where the majority of the native black population was settled by the colonial regime, were renamed Tribal Trust Lands in 1967. However, these are now commonly referred to as Communal Lands after the enactment of the Communal Land Act (1982).

[7] For a comprehensive discussion on this subject, refer to Friis-Hansen (1995) and Rohrbach (1989).

Defining the concepts

Vulnerability: Wide differences and inconsistencies characterize vulnerability definitions (UNEP, 2003), especially because the term is familiar in everyday language (O'Brien, *et al*., 2004) making it difficult to formulate a scientifically sound and widely accepted definition. Therefore, it is imperative that when one scientist is discussing "'vulnerability to climate change' … other scientists know precisely what is being discussed" (*ibid*, p.3).

The most common definitions relate vulnerability to the proneness or susceptibility to hazards (Wisner, *et al.*, 2004) or likeness of experiencing harm or injury in the wake of perturbations (Adger, 2000; Adger, 2006; Suarez, Ribot and Patt, 2009; Turner, *et al*., 2003). Vulnerability is an individual's or group's characteristics and the "situation that influences their capacity to anticipate, cope with, resist and recover from the impact of natural hazards" (Wisner, *et al*, 2004, p.11).

Although UNEP (2003) advocates for vulnerability assessments to focus on the consequences of shocks, rather than the shocks themselves, Suarez, Ribot and Patt (2009) argue that vulnerability can be to a hazard (e.g. drought) or to the outcome (e.g. famine). This paper looks more at the communities' vulnerability to drought impacts that include loss of human lives, malnutrition, income losses, water stress, and environmental degradation (CEDRISA, 2009; UNEP, 2003; Unganai, 1994).

I also view vulnerability as relating to an individual's or group's level of exposure and susceptibility to the impacts of disasters. Vulnerability is differential, and as such, not everyone in a group, whether at micro, meso or macro levels, can be identified as entirely vulnerable. People can also be impacted on by multiple stressors, further worsening their vulnerability to each of the stressors (Adger, 2006; Carr and Kettle, 2009; Leichenko and O'Brien, 2008; Wilhite, 2002). I explore how a chain of events in Zimbabwe have colluded to create vulnerability to drought impacts. Such a chain of events is often absent in other instant shocks such as earthquakes, mudslides and hurricanes where it can be argued that the people would have been unfortunate enough to be "in the wrong place at the wrong time" (Wisner, *et al*, 2004, p.9).

Adaptation is the adjustment by an individual or group to shocks without having to significantly compromise their ways of life. According to Gallopín (2006, p.300), adaptation is "the capacity of any human system … to increase (or at least maintain) the quality of life of its individual members" in a given environment(s). Adaptive capacity is, therefore, used to measure the ability of this human system to hold its own when facing disasters. However, in the same way that vulnerability encounters conflicting interpretations, so does the concept of adaptive capacity (O'Brien, *et al.*, 2004). The term is often used interchangeably with response capacity, coping capacity and entrepreneurial capacity (Leichenko and O'Brien, 2008). The following are some of the determinants of adaptive capacity as presented by Yohe and Tol (2002, cited in O'Brien, *et al.*, 2004, p.3-4):

- the range of available technological options for adaptation;
- the availability of resources and their distribution across the population;
- the structure of critical institutions and decision-making;
- human capital, including education and personal security;
- social capital, including property rights;
- the system's access to risk spreading processes;
- the ability of decision-makers to manage information; and
- the public's perceived attribution of the source of stress.

The capacity to adapt "is intimately connected to social and economic development … [and it] is not evenly distributed across and within societies" (IPCC, 2007, p.56). I follow the thinking that adaptation is related to putting measures to withstand pressure in the long term, while coping is mainly concerned with managing the crisis at hand.

The term ***failing state*** is unlikeable and is 'popular and emotive' (Collier, 2008). Failing states that 'include the bulk of the world's low-income countries' are considered as such because "they are failing their citizens" (Collier, 2008:68) or their institutional apparatus is shrinking into virtual irrelevance and are incapable of assuring "the general welfare or protect the security of the citizenry" (Young, 1999:24-25). However, not all low-income countries are failing states (Collier, 2008). In this paper, I use the term 'failing state' loosely to refer to the Zimbabwe of the period 2000-2009. During this period, delivery of social services nearly collapsed and the State focused more on crisis management than on proactive policy

development and implementation. It was only after the formation of the Government of National Unity (GNU) in 2009, and the partial relaxation of the embargo that had been put on Zimbabwe, that there was a sign of stability. However, there continues to be uncertainty regarding when Zimbabwe will hold its next elections, and the increased threat of violent campaigns often associated with the polls.

Droughts in Zimbabwe

Although this research was carried out in the broader discourse of climate adaptation, it focused mainly on droughts in Zimbabwe, and sought to explore the communities' vulnerability to the impacts of droughts and the adaptation strategies that they employ to withstand the pressures brought by the shocks.

Wilhite and Glantz (1985) give an extensive review of drought definitions and impacts. In the case of Zimbabwe though, there is no unified way of looking at it as interpretations are influenced by religious and political affiliation, social status, and educational background (Scoones, *et al*., 1996). In this study, I focused on what is termed agricultural drought[8] caused largely by insufficient moisture available for a crop at a particular stage of its development resulting in impaired growth and reduced yields further worsening food insecurity. However, it should be noted that a single community can feel the effects of multiple types of drought at any given time.

Drought is one of the most common disasters in Zimbabwe (CEDRISA, 2009), and the documented horrors associated with it date back to the pre-colonial times (Iliffe, 1990). These encounters with droughts and famines also equipped the people with the necessary experiential knowledge to deal with the disasters, and the accumulated indigenous knowledge continues to be in use in the country. ***Table 3*** presents a history of droughts in the southern African region.

[8] For a definition of agricultural drought, as well as other drought types (meteorological, hydrological and socio-economic), see http://drought.unl.edu/whatis/define.htm and http://drought.unl.edu/whatis/concept.htm

Table 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	Africa experiences severe drought
1986-1987	Dry conditions resulting in drought
1991-1992	Severe drought in southern Africa
1992-1993	Although conditions improve, communities still suffer from impacts of 1991-92 drought
1994-1995	Severe drought, in some cases surpassing the impacts of the 1991-1992 drought
1997-1998	Drought in Zimbabwe, though it was less severe than had been expected
2001-2002	Drought in most parts of southern Africa

Adapted from CEDRISA, 2009; Iliffe, 1990; NEPC, 1999; Raftopoulos., Hawkins and Matshalaga, 2000; Scoones, et al., 1996; Thompson, 1993 and Unganai, 1994

Vulnerability to drought impacts

Assessing vulnerability in Buhera and Chikomba at the time this research was carried out was a risky task due to the associated political connotations. This was because some of the questions reflected on the government's service delivery capacity and questioning the government's ability was generally unheard of, especially in the politically volatile rural areas. In addition, it is usually the nongovernmental organizations (NGOs) that are associated with such assessments, and this has created an expectation of humanitarian assistance whenever vulnerability assessments are carried out. As a result, some respondents would claim to be highly vulnerable and deflate their asset base in anticipation for humanitarian assistance. The argued 'hostility' against NGOs, which culminated in the suspension of NGO operations in June 2008 (see ***annex 1***) also made research a volatile field to tread in. At the time, the NGOs were accused of using food as a political tool to garner support for the opposition Movement for Democratic Change (MDC) party. Although this suspension was

lifted on 30 August 2008, the suspicion with which NGOs were being treated was still prevalent when this research was conducted.

Of the interviewed respondents, 81% for Buhera and 79% for Chikomba viewed their localities as vulnerable to drought impacts. The reasons they gave are presented in ***Box 1***.

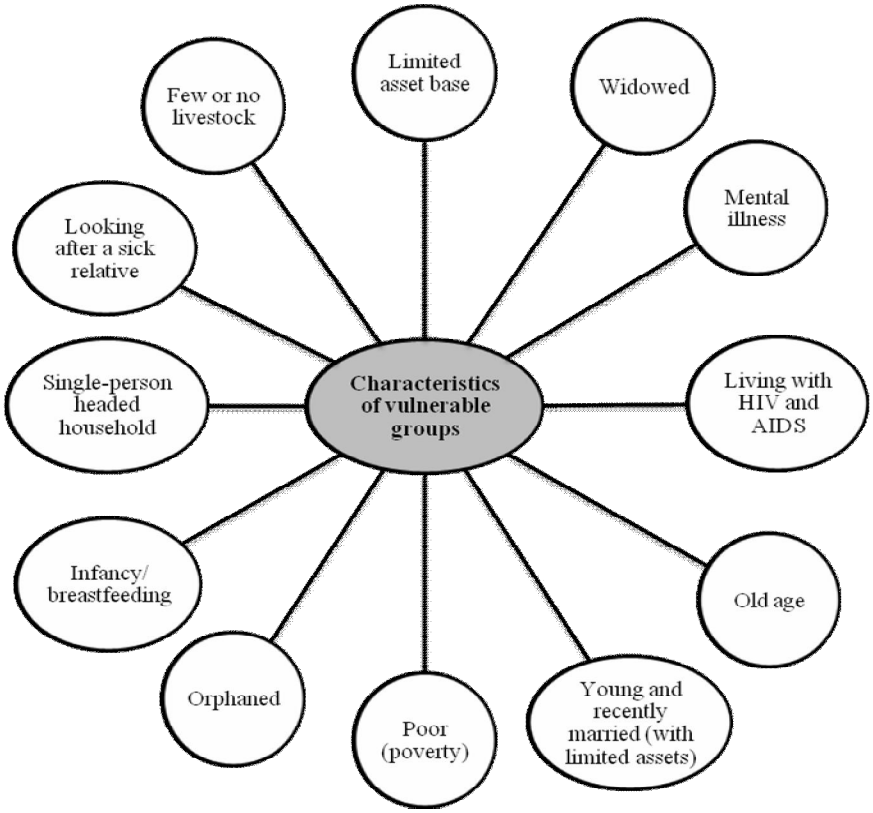
Box 1: Community perceptions on factors contributing to their vulnerability to drought impacts

a. Poor soil moisture holding capacity
b. Lack of the necessary farming knowledge
c. Lack of draught power (usually cattle and/or donkeys)
d. Difficulties accessing the appropriate inputs on time
e. Inadequate farming space
f. Poor rains and/or poor rainfall distribution
g. Communities' failure to fully recover from previous drought disasters
h. Poor fiscal policies resulting in hyperinflation and inaccessibility to cash especially after the dollarization of the economy[9]
i. Poor governance evidenced by the suspension of humanitarian organisations' operations when they were mostly needed
j. Politicization of food assistance and input schemes (benefitting only supporters of a particular party) and corruption associated with input facilities
k. Communities' focus on maize production at the expense of other traditional crops[10]
l. Depletion of human resources and sources of income due to brain drain, HIV and AIDS, and other epidemics

Furthermore, ***Figure 1*** presents the characteristics of vulnerable groups as identified by the respondents. Although single mothers are often seen as more vulnerable to climate change impacts than their male counterparts, this research unearthed an interesting finding whereby the opposite was true. Even though single-male headed households were not many in the research sites, they were found to be more vulnerable than single-female headed households mainly because of their (men's) pride to discuss issues they consider internal, such as challenges their households might be facing with accessing food. Discussing these 'sensitive issues' is termed '*kufukura hapwa*' in the Shona vernacular, meaning lifting one's armpits, a taboo in the society. That pride prevented them from accessing social networks and other safety nets. In contrast, women were more open to admit challenges and found it easier to solicit for and accept assistance from their peers.

[9] Zimbabwe suspended its currency (Zimbabwean dollar) in early 2009 in favour of a basket of foreign currencies. The American dollar (US$) and South African Rand (ZAR) are the commonly quoted currencies.
[10] Some farmers continue to grow maize in environs clearly not conducive for its production. This is also because of the disadvantages associated with traditional crops such as millet and sorghum which are laborious to process and do not attract huge market profits as compared to maize.

Figure 1: Characteristics of vulnerable groups



The incapacitation of service departments

There was a general agreement that the agricultural extension services department (AGRITEX) and the Department of Meteorological Services have been extensively incapacitated as a result of the country's economic and political challenges over the past decade that resulted in brain drain of skilled staff[11] and overreliance on obsolete technology for climate forecasting. As such, this also affected the farmers' production capacity and delivery of information about the appropriate seeds and production technology. In addition, the channels for communicating climate information virtually collapsed.

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 person 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. Therefore, there is a need for cooperation between the Government, NGOs and other

[11] See also Bracking and Sachikonye (2006) and Jayne, *et al.*, 2006

development partners to recapacitate AGRITEX and Met Department as these are important institutions in agricultural production.

Coping and adaptation

Faced with these challenges, the communities had to put in place mechanisms to cope with the short-term disaster impacts, as well as adjust their lives in preparation for long-term adaptation to the disasters. Among the coping mechanisms were:

- ***Wild fruits gathering:*** mainly *muchakata (Parinari curatellifolia), muzhanje (Uapaca kickiana or wild loquat)* and *mutukutu/munjekenje/musekesa (Piliostigma thonningii)* fruits;

- ***Changes in diets and food rationing***;

- ***Humanitarian aid:*** 56% of the respondents in Buhera and 72% in Chikomba admitted to having received relief aid from NGOs while only one respondent in each research site indicated that they had received food aid from the government. However, other respondents claimed that the government was too broke to be of assistance, further cementing the notion that the state was failing its citizenry;

- ***Trade***[12]***:*** several items including livestock, garments and garden vegetables were traded for grain, with cattle only being traded as a last resort. However, the people with the grain took advantage of the situation with the value of cattle depreciating to as low as three bags of grain (approximately 150kg). One beast is usually traded for nearly a tonne of grain;

- ***Social networks:*** most of the non-food requirements were obtained from close networks of family and friends. Others who had resources to travel outside the country would import maize flour, mealie meal (*upfu*) for their relatives as it was not easily accessible in Zimbabwe due to the ongoing economic and political crisis. Respondents also recalled how *kupemha* (adversity induced begging) and *kusunza*

[12] Some government 'orders' also discouraged grain trade or even moving it from one area to the other. In some cases, grain that exceeded the prescribed limit was confiscated from travellers.

(grain purchases and/or trade) were prominent and encouraged during the previous droughts;

- ***Income generating projects:*** the most common activity was brewing and selling traditional beer commonly referred to as 'Seven Days' because of the number of days it takes to mature. Other activities included brick moulding, gardening and selling firewood;

- ***Mifuku/imthombo*** or water holes dug on dry river-beds for household use and gardening (***Figures 2a and b***)[13]. Usually the water is regarded safe for use because it is sand-filtered.

Figures 2a and b: *Mifuku/imthombo* water sources

- ***Off-farm work:*** the most commonly requested payment was grain; and

- ***Marrying off daughters:*** the respondents recalled how in the past daughters were married off to wealthy men who would provide grain to their food insecure in-laws. However, this practice, known as *kuzvarira*, was not reported in the two districts during the recent droughts[14]. This practice saved some families from starvation during severe droughts, e.g. in 1947, and some of the daughters felt proud for doing something to help their families. One respondent said, "*[As] it was the custom then,*

[13] An improvised sand-abstraction technology is used by a local NGO, Dabane Trust (See: http://www.dabane.co.zw/sandabstraction.html).

[14] The practice is still prevalent in other societies though, such as Chiredzi, as evidenced by a media report in 2011 titled "*Girls married off to avert hunger*" (http://www.dailynews.co.zw/component/content/article/49-featured/2053-girls-married-off-to-avert-hunger.html). Chiredzi lies in the highly vulnerable agroecological region V.

that daughter would not dispute her father's command. The parents would sit down and discuss first before deciding where to take their daughter."

Drought adaptation strategies

The adaptation strategies employed included planting drought resistant crops, which are, however, difficult to access; early cropping; staggered cropping; dry planting; and planting crops with a short maturity life. Grain reserves were also identified as an integral component of their preparations for droughts and the resultant food shortages, while at the same time it was viewed as highly important to spread over their grain to cover the period until the following harvest. This would also imply food rationing. They recounted the advice they got from their elders that "*ukatsvaira dura unopinza nzara mumusha*" (if you completely finish the grain in your granary, you will invite hunger into your household).

Indigenous rainfall predictions were noted as important too, although they are at times treated as primitive and unreliable. These predictions were found particularly useful in the absence of 'scientific' rainfall forecasts, since the Meteorological Services Department was incapacitated due to lack of resources to replace obsolete equipment. The department even suspended the broadcasting of weather forecasts on national television during the period under discussion. In any case, FAO (2004) argues that 3% of smallholder farmers in the country actually use climate information provided by the department. This suggests that 97% of the farmers rely on indigenous rainfall predictions and experiental knowledge, or they just crop without paying much attention to rainfall patterns. On the other hand, the availability of climate information does not automatically translate to its usage. There are other factors that restrict prompt usage of that information in decision making. For example, with the rural societies being largely patriarchal, women usually wait for the 'man of the household' to make decisions on what variety to crop. Decisions are delayed mainly because their husbands are usually away working in the cities. As such, women lack 'decision capacity' which makes the mere availability of climate information useless (Suarez, Ribot and Patt, 2009).

In addition to the indicators marked with an asterisk in ***Figure 3***, the communities in Buhera and Chikomba also used the following predictions:

- Density and spread of spider webs. The more the spider webs, the more the likelihood for good rains; and
- The bigger the circular halo around the moon (known as *dziva* or pool) the wetter that particular period is likely to be.

Figure 3: Indigenous rainfall predictions

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

Experience with crop failure has taught the communities that the only way to get round unpredictable rainfall patterns and enhance their adaptive capacity is to make use of every raindrop, regardless of when it falls, a practice which is consistent with rainwater harvesting. 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* signaling the starting of the rainy season. Usually the communities started preparing their land after *munhuruka*.

The communities have also been using *mikwerera* (rain ceremonies) to plan their agricultural activities. *Mukwerera* (singular for *mikwerera*) is conducted to appeal for rains from the

ancestors of that area. It is always conducted under the sacred *muchakata* tree, which, ironically, also provides wild fruits during food insecure seasons. The traditional beer is brewed by elderly women past menopause. Small grains, especially finger millet and sorghum, are used. Negating on these rules is often seen as a cause for droughts. It is usually during these rain ceremonies that the spirit medium (*svikiro*) delivers the message from the ancestors vis-à-vis the type of crops to grow that particular season. The communities are continuing with the tradition of holding rain ceremonies, although they are no longer as frequent as in the past. This infrequency is blamed on colonization and modernization. Because of modernization, some people now 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 resulting in the increased frequency of droughts.

The *Zunde raMambo* or chief's granary was cited as an important safety net during drought seasons. *Zunde raMambo* is a traditional concept meant to boost the chief's grain reserves that will be used to help those in need, and to feed the chief's guests. 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 practicing it such as Masasa ward in Chikomba district. Masasa fell outside the jurisdiction of Chikomba Ward 20 studied in this case.

Some respondents admitted that farming in the wake of unpredictable seasons was synonymous with gambling. They indicated that they would just plant expecting a difficult season. Although this might imply giving up and losing hope even before planting has begun, there is a likelihood that it also prepares them psychologically for the consequences of adversity, and when such seasons eventually turned out to be disastrous, they would not be caught by surprise. A bumper harvest is, therefore, a bonus.

Zimbabwe's disaster policy

The disaster policy 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 as some key stakeholders felt left out. Some of the interviewed key informants confessed ignorance of such a process taking place.

The Department of Civil Protection (CPU) that is expected to be spearheading this process is heavily underfunded, just like any public funded institution in the country. The CPU lacks visibility as it falls under the jurisdiction of a smaller ministry, defying the trend in most southern African countries[15].

In the same breath, the Zimbabwe Vulnerability Assessment Committee (ZimVAC), which produces vulnerability assessments in the country, is not State-funded (ZimVAC, 2005)[16]. In the Budgetary Estimates for 2010, only vulnerability assessments from the Ministry of Labour and Social Welfare were given a distinct budget line. However, providing the funds for ZimVAC and institutionalizing it will help in effective assessments and implementation of decisions informed by the assessments. That the Committee is operating without an independent Secretariat, and is dependent on staff members of its member organizations, cripples the Committee from full implementation of its mandate. This is detrimental to its smooth running as the representatives of the member organizations will also have their administrative time divided between their employers and the ZimVAC.

[15] The majority of national disaster offices in southern Africa 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 housed in 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 offices, it appears to be a powerful body and well-funded in comparison with the Zimbabwean CPU.

[16] Currently, ZimVAC is dependent on donor support which brings with it several logistical constraints.

Recommendations

Several recommendations were drawn from the respondents' suggestions. These include:

a. ***Incorporating research and policy*** so that differences in people's cultures are not left out of policy development and implementation;

b. ***Revision of food preferences*** to include traditional crops such as sorghum, pearl millet and finger millet. Production of such crops should be promoted and market linkages established;

c. ***Recognizing the communities' innovativeness:*** the interventions in times of disaster should desist from looking at communities as passive disaster victims. Instead, they are innovative and enterprising and their response strategies should be recognized and used to help build their capacity to withstand future droughts;

d. ***Integration of Indigenous Knowledge Systems into weather monitoring*** as the indigenous knowledge "cannot be ignored or diminished in any study of the emergence of drought-related crises" (Carr and Kettle, 2009:132);

e. ***Communicating weather predictions*** on time and in an understandable format;

f. ***Developing farmers' capacity*** to recover soil fertility and moisture holding capacity;

g. ***Recapacitation and increased visibility of important agencies*** such as AGRITEX, CPU, Meteorological Services Department and ZimVAC;

h. ***Depoliticisation and deregulation of the Grain Marketing Board (GMB)***, which has been constantly accused of favoritism and corruption, especially when administering the inputs facility;

i. ***National strategic grain reserve (SGR):*** Zimbabwe country has not kept a national SGR since 1998 and the idea should be revived. This should also integrate the *Zunde raMambo* concept;

j. ***Improving water accessibility in the wake of a receding water table:*** studies on whether or not borehole drilling and damming are sustainable adaptive options should be carried out to inform policies;

k. ***Shared experiences:*** experiences with droughts and other weather exigencies should be shared in a wider network. Although vulnerability is not homogenous, there could be some important lessons for other communities going through the challenges, or that are yet to experience such adversity;

l. ***Livestock restocking*** becomes essential when targeted on livestock that the communities value and that survive the harsh climatic conditions in those regions;

m. ***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;

n. ***Supporting 'durable solutions':*** the donor community should be encouraged to support 'durable solutions' instead of focusing only on short-term humanitarian aid as this cultivates a dependence syndrome in the communities;

o. ***Incorporating drought management into the school curricula***;

p. ***Improving the pension and welfare systems*** especially for the elderly and disabled; and

q. ***Making the inputs readily available and at affordable prices***.

Conclusion

Zimbabwe has a long history with droughts and the horrors associated with the disasters are well documented. This experience has equipped the people with necessary knowledge to adapt to disasters. This knowledge should be complemented with the state's social service delivery capacity, something that lacked in Zimbabwe during the period between 2000 and 2009 when it was grappling with economic and political crises. Vulnerability to drought impacts is influenced by a chain of factors and the respondents identified the factors that are conducive for the creation of vulnerability. It is important that communities are not viewed as passive victims as they put in place mechanisms to cope with the imminent disasters, as well as long-term adaptive strategies, which should also be incorporated in policy formulation.

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Annex 1: Government directive for NGOs to suspend operations

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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