

Drought Coping among the Small-Scale Farmers of Luangwa District in Zambia

Lillian Chipatu and Matilda Nakazwe Kumbwa
The University of Zambia

ABSTRACT

Luangwa district in Zambia's Lusaka province lies within a marginal area that is prone to both drought and floods in the rainy season (Luangwa District Council, 2007). Despite documenting drought coping in other areas that are prone to drought, little to no study has been done to document drought coping among the small scale farmers of Luangwa district. The aim of the study was to establish drought coping among small scale farmers of Zambia's Luangwa district. To achieve this aim, small scale farmer's perception of drought hazard was ascertained. Effects of drought on the livelihoods of small scale farmers were also investigated. Having done the above, the study established drought coping strategies among small scale farmers of Zambia's Luangwa district. The study was a critical realist case study within a setting of qualitative methodologies. A semi structured interview guide was used on disaster management officers, agriculture supervisor, town planner and extension officer; while a focus group discussion was conducted among the small scale farmers. Observations of farming activities on small holdings were also done. The study established that small scale farmers of Luangwa district employed various ways of coping with drought such as wild food harvesting, income generating activities, employing traditional farming practices and relief food. Thus the study findings confirmed literature assertion that wild food harvesting and engaging in economic activities were prominent drought coping strategies. Furthermore, one unique negative effect of drought revealed by this study was that drought turned the small scale farmers into drunkards. The study recommend introduction of environmental learning for drought coping. Environmental learning would be a steering wheel for the integration of different knowledge systems sources such as traditional and modern science. Thus this will make learning relevant and therefore would empower small scale farmers with knowledge and skills needed to cope with drought in a relevant manner.

Keywords: Coping, Drought, Luangwa District, Small Scale Farmers, Zambia

1.0 INTRODUCTION

Drought is a creeping hazard that has given rise to starvation and famine in many parts of the world (Haile, 2005). In 1960, 18.5 million people were adversely hit by drought worldwide and this figure rose to 24.4 million by 1970 (Swedish Red Cross Statistics, 1984). In terms of frequency, severity and duration, there has been a remarkable increase in impacts associated with drought in both developing and developed countries (Donald, Mannava and Pulwarty, 2014). Thus, farmers came up with various ways of coping with drought.

In Africa and most importantly Sub Saharan Africa, small scale farmers depend on rain fed agriculture for their livelihoods and are often victims of climatic variability (Adger, Huq Brown, Conway and Hulme, 2003; Yamin, Rahman and Huq 2005; Vogel, 2005). One of the Sub Saharan African countries that has been affected by reoccurring drought is Zambia. Zambia has historically been affected by drought and flooding, although the frequency, intensity and geographic distribution of such incidents have increased over the past two decades (Kalinda, 2014; Lekprichakul, 2006; United Nations Development Programme (UNDP), 2010).

One of the districts in Zambia that is constantly hit by drought is Luangwa district (Kaminsa, 2008). Luangwa district in Lusaka province lies within a marginal area that is prone to both drought and floods in the rainy season (Luangwa District Council, 2007). Despite Luangwa District being a drought prone area, little to no studies has been done to document how small scale farmers cope with drought. In this study, the researchers have argued that establishing drought coping strategies used by small scale farmers could be helpful in coming up with appropriate policies to enhance small scale farmer's capacity to cope with drought. Further, it seemed important to ascertain small scale farmers' perception of drought as it would help in understanding their attitude towards drought coping. To add on, documenting effects of drought on livelihood of small scale farmers was significant on the basis that the information could be useful in coming up with reliable mitigation measures. The researchers also hope to add on to the existing literature on drought coping. Small scale farmers in this study are farmers who own 5 hectare of farming land. Drought coping are those actions undertaken after a drought episode while drought coping strategies are small scale farmer's activities whose main purpose is to meet their needs under conditions of extreme food insecurity

2.0 DESCRIPTION OF THE STUDY AREA

Luangwa district is located in the Ecological Zone Area 1; an area known to be the hottest, driest and poorest regions with frequent drought episodes (Siegel, 2008). The climate of Luangwa is characterised as dry and warm. It is a drought prone area with annual rainfall ranging between 600 and 800 mm (Luangwa District Council, 2008). Luangwa district generally experiences high temperatures reaching around 40-45 degrees celsius in the months of October, November and December (Luangwa District Council, 2008). The hot climate results in high evaporation rates, which together with a short rainfall season makes droughts very common in the district. It is not uncommon to find Baobab and Mopane trees, Masau bushes and the vast part of the district comprises shrubs and bushes. A lot of wildlife from big herds of elephant to a vast variety of birds is found in the district.

The topographical features of Luangwa district are mainly valley and escarpment. It has a rugged landscape with deeply dichotomized massive ridges of various heights, ranging on average from 750m to 1,400m above sea level (Lusaka

Province Planning Office, 2010). Figure I below shows the location of Luangwa district in Zambia.

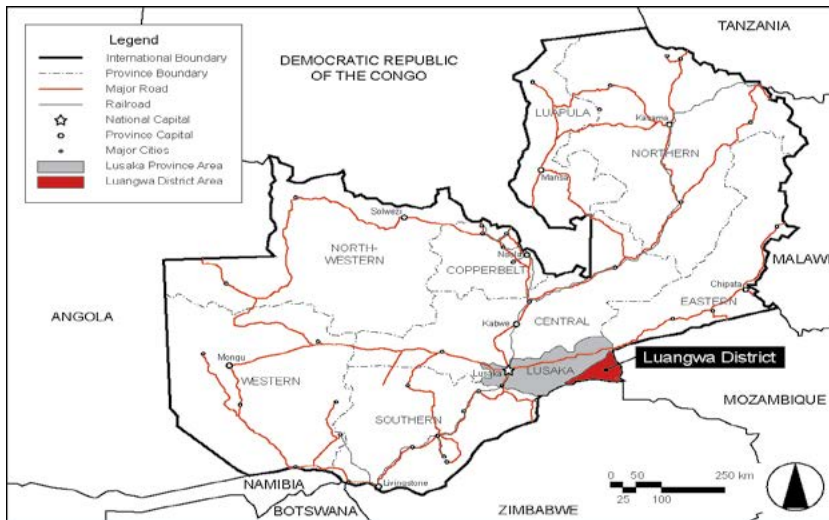


Figure I: Location of Luangwa District
(Source: Lusaka Province Planning Office, 2010)

3.0 Theoretical Framework and Paradigmatic Orientation

For this study, critical realism and structural functional theory were used to understand drought coping among the small scale farmers of Luangwa district. Critical realism takes a position which claims for an objectively knowable reality, while admitting subjective epistemology (Scott, 2007). This researcher drew mainly from Basic Critical Realism. The core foundations of Bhaskar's (1975) basic critical realism is the existence of two dimensions of reality. These are intransitive (empirical) and the transitive (social). He however argued that the conceptualisation of those dimensions of reality is stratified between three domains namely actual, real and empirical. He called this conceptualisation of reality *ontological stratification*. Bhaskar argued that the real domain comprises of essential structures, mechanisms, and relations, events and behaviour, and experiences. He added that the generative mechanisms residing in the real domain have the ability of producing events and causing changes in the actual realm that may or may not be experienced directly. The actual domain is the domain in which observed events or observed patterns of events occur. In Luangwa district for example, small scale farmers may observe natural or human induced drought.

On the other hand, the domain of the empirical is closely linked to the real and actual. It consists of what we see; hence it is the domain of experienced events. Happenings in the empirical domain are apparent to us and from these; our senses may inform us about what is happening in the social world (Gerring, 2007; Byrne and Ragin, 2009). For example, drought may trigger poor harvests which

eventually would affect the social and economic well-being of the small scale farmers of Luangwa district.

It was not realistic to only adopt a constructivist/ interpretive ontology as the basis for researching drought coping because drought is a real phenomenon and do subsist outside of our knowledge and experiences. Thus a more realist (imperfect) ontology was adopted. This stance helped to establish misconceptions about drought perception. Critical realism takes an interpretive epistemology. Accordingly, drought coping in this research was also interpreted and examined in the context of the competences, practices, values and knowledge of the small scale farmers of Luangwa district. Furthermore, small scale farmers' ability to cope with drought was examined using various concepts of structural functional theory such as abstract structures.

4.0. METHODOLOGY

The study was qualitative in nature and a case study design focused on drought coping strategies in selected villages of Luangwa district. Whilst in the field, it was discovered that the Department of Agriculture in Luangwa district had assigned all villages to learning camps. With the help of the Department of Agriculture in Luangwa district, one learning camp was chosen because it comprised villages that were more susceptible to drought episodes than other villages. Seven (7) small scale farmers from Camp three (3) formed the focus group discussion for this study. The study also made use of key informant interviews, observations and focus group discussion. Other data sources included Meteorological records, Agricultural Technical and Extension Services records, and Disaster Management Unit Records and District profiles reports. Some key informants were selected using expert purposive sampling while other key informants were picked through linear snowball sampling. Furthermore, homogenous purposive sampling was used to select small scale farmers. The use of variety of data collection tools (primary and secondary data collection) provided the basis for triangulation. Data collected was analysed thematically.

5.0. RESULTS AND DISCUSSION

This section reports on findings and discussion pertaining to drought coping among the small scale farmers of Luangwa District in Lusaka Province. Qualitative data obtained from interviews, focus group discussion and observations were analysed thematically and that helped in bringing out emerging themes and subtitles accordingly.

5.1 Drought hazard Perceptions

This investigation focussed on exteroception perception. Exteroception investigates how people make sense out of their physical environment under the influence of their socio-ecological and mental backgrounds (Muchanga, 2013).

Even though it was established that all the small scale farmers interviewed perceived drought from the biophysical viewpoint, there were some variations in their assertions. A small fragment of small scale farmers perceived drought to be lack of rainfall during rainy season coupled with high temperature and withering of crops. This finding corresponds with Michelo (2000), argument that drought perception in Africa brings to mind withering of crops and excessive high temperatures among the affected people. The finding was also consistent with Iglesias, Garrote, Cancelliere, Cubillo and Wilhite (2009) argument that drought is a sneaky natural hazard that results from a deficiency of precipitation from expected or 'normal. On the other hand, most of the small scale farmers alleged that drought was in fact 'climate change'. This finding was in divergence to previous studies.

The variance in perception of what drought is among the small scale farmers of Luangwa district is a demonstration of how individuals have different ways of conceptualising ideas. Thus understanding what individuals mean when they use certain concepts is imperative and it represents a view of what is found in their thoughts (Puck and Stibbards, 2012). This then entail that researchers ought to use 'alternative conceptions' models that allow the flow of experience based explanations through which small scale farmers in this context make an array of ideas from natural phenomena as a path that leads to understanding and knowledge (Puck and Stibbards, 2012). It is also correct to think that how one makes sense of a concept or subjects is dependent on the concepts used to construe it (Sayer, 2000).

However, it does not mean that all responses should be assented to as 'correct' (drought was climate change) (Chipatu, 2017). Thus the understanding by the small scale farmers of Luangwa district that drought is climate change correlates well with critical realism understanding that reality exists despite our fallacy understanding of it. This then calls for some form of non-formal education so that small scale farmers could be empowered with the necessary knowledge they need on what climate change is and its relationship to drought. This is cardinal especially that climate change affect negatively the very natural resources that small scale farmers depend on for their livelihood. .

5.2 Drought Coping Strategies

The overarching themes which emerged from drought coping strategies among small scale farmers of Luangwa district were; income generating activities, wild food harvesting, indigenous conservation farming and relief food. The above findings show that small scale farmers of Luangwa district have various ways of coping with drought although they clearly stated that their capacity is sometimes limited due to high poverty levels among them. Reference to poverty levels was in line with structural functional theory which argues that poverty reduce the capacity of the affected community to deal with natural hazards and disasters. Further, almost all views expressed on coping strategies except (Smith and Petley,

2008) resonated well with the reviewed literature (Chabatama 1999; Kalinda, 2014; Ndlovu, 2010; Shiferaw, Tesfaye, Kassie, Abate, Prasannac and Menkird, 2014; Siamwiza, 1998).

Smith and Petley (2008) asserted that Zambian people including small scale farmers ate sand mixed honey as a drought coping strategy was at variance with all literature reviewed and findings of this current study. Themes on drought coping strategies are shown in table 1 below.

Table I: Drought Coping Strategies Employed by Small Scale Farmer

<i>Theme</i>	<i>Major themes</i>	<i>Sub themes</i>
Drought Coping Strategies	Income generating activities	- Craft work - Animal rearing - Beer brewing - Fishing
	Wild food harvesting	- Fruit gathering - Vegetable gathering - Tuber food gathering
	Traditional Farming Practices	- Pot holing - River bank cultivation
	Relief food	- Food for work - Food donations

Source: Field data, 2017

5.3 Effects of drought on the livelihood of Small Scale Farmers of Luangwa District

Major findings on effects of drought on the livelihood of small scale farmers of Luangwa District included; hunger, increase in morbidity, water scarcity and aphid infestation. These findings were in line with studies such (Assessment Report, 2003; Hudo, 2012; Pleijel *et al.*, 2005; Stanke *et al.*, 2013; UNISDR, 2011).

However, the least finding was that drought made some small scale farmers to be drunkards. As a temporal way of distracting them from the feeling of hunger, some drunk beer made out of *masau* fruit. They argued that *masau* brewed beer was easy to brew thus the drunk did not spend money on it.

This finding presented a unique response. Beer-drinking as a response in these circumstances seems to be too trivial from face value. However, this study demonstrates that it is important to understand peoples' experiences and follow the logic behind that response and this stance resonates well with this researcher's philosophical lenses. Thus researchers must concern themselves with probing responses with the view of producing detailed explanations regarding how, and in what circumstances the biophysical world impacts on the social world and vice visa (Bergin, Wells and Owen, 2008; Bhaskar and Danermark, 2006). Before dismissing

responses as erroneous, investigators should prudently probe participants in order to reconnoitre their meaning and logic and establish the validity of the responses in relation to wider knowledge (Muchanga, 2013).

6.0 CONCLUSION

The aim of the study was to establish drought coping among the small scale farmers of Luangwa district of Lusaka province of Zambia. The study highlighted significant points concerning drought coping in Luangwa district of Lusaka Province of Zambia. Findings on drought perception indicated that people have different ways of conceptualising ideas because drought means different things to the small scale farmers of Luangwa district. The findings indicated that small scale farmers had numerous ways of coping with drought. However, some of the coping strategies employed by small scale farmers of Luangwa district were ineffectual. Consequently, small scale farmers resorted to food begging and relief food from the government and other well - wishers. A unique finding on effect of drought on the small scale farmers of Luangwa district was that drought made the farmers to be drunkards. The study recommend introduction of environmental learning for drought coping. Environmental learning would be a steering wheel for the integration of different knowledge systems sources such as traditional and modern science. Thus this will make learning relevant and therefore would empower small scale farmers with knowledge and skills needed to cope with drought in a relevant manner.

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