

# **Vulnerability and Coping Strategies in Africa: Literature Review for Research in Zambia**

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This paper aims to review some previous studies on vulnerability and coping strategies of communities in Sub-Saharan Africa, in order to acquire basic understanding of theories and issues for the study of vulnerability and resilience of socio-ecological system.

## **Double impacts of climate change and economic globalization**

Leichenko and O'Brien 2002 analyze double impacts of climate change and economic globalization, with identifying winners and losers of the double process. Southern Africa is not exceptional. Combination of environmental and economic changes is altering the context under which farmers in southern Africa cope with climate variability (Leichenko and O'Brien 2002, Eriksen et al. 2005). Southern Africa has been hit by drought more frequently than it used to be. Although it is difficult to determine to what extent this was caused by global climate change, environmental change did affect the context of farming and livelihood of people in southern Africa. Since many countries of Sub-Saharan Africa introduced economic liberalization policies such as liberalization of trade, in the 1990s, African economies are more closely integrated into global economy and the impacts of economic globalization have been felt more directly.

## **Vulnerability**

Vulnerability is a concept that has been used in different research traditions, but there is no consensus on its meaning (Gallopín 2006: 294).

Adger 2000 defines social vulnerability as the exposure of groups to stress as a result of the impacts of environmental change. Social vulnerability in general encompasses disruption to livelihoods and loss of security (Adger 2000). While Adger 2000 defines vulnerability in terms of exposure to stress, later Adger in his review of approaches to vulnerability to environmental change, he concludes that vulnerability is conceptualized as being constituted by components that include exposure to perturbation, sensitivity to perturbation, and the capacity to adapt (Adger 2006; Gallopín 2006). Watts & Bohle 1993 define vulnerability in terms of exposure, capacity and potentiality. Accordingly, the prescriptive response to vulnerability is to reduce exposure, enhance coping capacity, and strengthen recovery potential.

As Cutter 1996 contends the vast majority of vulnerable studies take a political-economic perspective and suggest a causal structure that concentrates on the differential social impacts and abilities to cope with the crisis at hand. Adger 2006 also

maintains that one of the commonalities in vulnerability research in the environmental arena is that vulnerability to environmental change does not exist in isolation from the wider political economy of resource use.

Adger 2006 categorizes two major research traditions in vulnerability: vulnerability as lack of entitlements and vulnerability to natural hazards. The latter delineated into three overlapping areas of human ecology/political ecology, natural hazards, and the 'Pressure and Release' model.

Cutter 1996 concludes differently on intellectual traditions and by identifying three distinct themes in vulnerability studies: vulnerability as risk/hazard exposure; vulnerability as social response; and vulnerability of places. The first theme examines the source (or potential exposure or risk) of biophysical or technological hazards. The second focuses on coping responses including societal resistance and resilience to hazards. In the third perspective, vulnerability is conceived as both a biophysical risk as well as a social response, but within a specific areal domain.

Watts & Bohle 1993 define vulnerability by three processes – entitlement (or economic capability), empowerment (political/social power) and political economy (historical/structural class-based patterns of social reproduction). They suggest that the intersection of these tripartite processes produces the social space of vulnerability (Watts & Bohle 1993; Cutter 1996).

### **Coping Strategies**

Eriksen et al. 2005 distinguish three aspects of coping strategies. Coping strategies can be characterized as relating to production (agricultural and economic), social adjustments (reciprocal economic exchange), and biological (changing the diet, reducing consumption). (Eriksen et al. 2005:6)

The coping strategies of small-scale farmers vary between households and also over time (Eriksen et al. 2005:6). Based on the comparative case studies of Kenyan and Tanzanian villages, Eriksen et al. 2005 show that coping strategies have been different each time and in each location (p.8).

### **Studies on Africa**

The majority of the studies on vulnerability and coping strategies of the people in Sub-Saharan Africa are related to drought and food security. Food insecurity and vulnerability to food crises in Africa are the outcome of an interaction between environmental and socioeconomic factors both in the long and short terms (Watts & Bohle 1993).

Bohle, Downing & Watts 1994 explain the social context of hunger and famine and vulnerability to climate change in Zimbabwe by using the model developed in Watts and Bohle 1993. The causal structure of vulnerability is embedded in the human ecology, political

economy and entitlement relations of post-independence Zimbabwe. The patterns of vulnerability are due to: weak macroeconomic performance, inequitable land distribution, and misdirected social policy.

### **Recurrent drought and structural adjustment, increasing monetization**

Bohle et al. 1994 argue that in Zimbabwe, external shocks of recurrent drought in the decade from the mid-1980s and structural adjustment have further stressed vulnerable groups (Bohle, Downing & Watts 1994).

In the analysis of the drought coping strategies of Kenyan and Tanzanian farmers, Eriksen et al. 2005 explain that cash income was an important attribute of most of the favored principal coping activities of the farmers hit by drought. This was partly because the cost of medical treatment, education and other social services was increasing, as a result of policy changes at the national level related to cost recovery of social services, required to qualify for IMF or World Bank assistance (Eriksen et al. 2005: 12).

Changes in macro-economic policy, particularly the structural adjustment programs implemented over the last decade in many parts of Africa, have in some cases impacted negatively on the rural poor. In Kenya the food-security situation has been made more precarious by the effects of reduced subsidies to agricultural, educational and health services, implemented as part of structural adjustment program (Sutherland et al. 1999). Sutherland et al. 1999 also reveal that food security has been adversely affected by rising education and health costs which were caused by reduction of subsidies. Money that could be spent on food or agricultural inputs was used to pay costs associated with medical care and education.

Sutherland et al. 1999 indicate that in semi-arid eastern Kenya the pressure to sell food crops in order to meet other cash needs is great and leaves many households vulnerable (p. 366).

In many countries of Africa macroeconomic performance has been weak, which is a factor causing the pattern of vulnerability.

### **Low food security level**

Sutherland et al. 1999 in their study on Eastern Kenya identified three specific aspects of household food security. One of the aspects is that, even in good years when most households produce sufficient quantities of basic food crops, they still experience a hungry period because they sell some cash for other needs.

Bohle, Downing & Watts 1994 indicate that only 10 to 20% of communal farmers consistently produce a surplus in Zimbabwe. Kinsey et al. 1998 also report that farmers in resettled areas in Zimbabwe can on average expect to experience a shortfall in home-produced food every three or four years.

Eriksen et al. 2005 explain changes their case study villages undergone in their

economy. In one case study site, since the late 1970s households have increasingly purchased staples in addition to growing food themselves. The per capita holding of livestock has fallen dramatically. In both case study sites off-farm income is increasingly important.

### **Decreased number of livestock**

Sutherland et al. 1999 revealed that in Kenya the removal of subsidized government-operated veterinary services, as part of structural adjustment policies, increased the risk of livestock mortality for smallholder farmers. Because livestock operate like a savings account that buffers many households against the effects of drought and crop failure, higher mortality rates further endangered their livelihoods.

### **Vulnerable groups**

In the analysis of drought in Namibia, Devereux and Naeraa 1996 identified three vulnerable socio-economic groups in Namibia: smallholder crop farmers, livestock rearers and commercial farm workers (Devereux and Naeraa 1996).

In the study of drought and poverty in South Wolo, Ethiopia, Little et al. 2006 indicate categories of poor and vulnerable households provided by local respondents:

- Households headed by elderly
- Landless and land-poor households
- Female-headed households
- Household without livestock and without labor
- Households who must share-crop out their farms

### **Coping strategies in African case studies**

Eriksen et al. 2005, in their study on Kenyan and Tanzanian farmers, distinguish three aspects of coping strategies. Coping strategies can be characterized as relating to production (agricultural and economic), social adjustments (reciprocal economic exchange), and biological (changing the diet, reducing consumption).(Eriksen et al. 2005:6)

### **Biological strategy or indirect entitlement-protecting strategies**

Eriksen et al. 2005 identify biological strategy as one of the three coping strategies of farmers in Kenya and Tanzania to drought. This includes changing the diet and reducing consumption.

In the analysis of 1992 drought in Namibia, Devereux & Naeraa 1996 considers indirect entitlement-protecting strategies that include dietary change, consumption rationing and demographic adjustments at the household level. As one of the coping strategies of households toward food shortages rationing of consumption and changes in diet are immediate and universal responses. People ration voluntarily instead of selling their

productive assets, in order to protect their future entitlement to food (Corbett 1988; Devereux & Naeraa 1996).

Also in 1999-2000 drought in South Wollo, Ethiopia, Little et al. 2008 reveal that in many cases, households reduced consumption to two meals per day, ate smaller portions and wild food.

### **Specialization and diversification**

Eriksen et al. 2005 studied household coping strategies with drought at two sites in Kenya and Tanzania. One of their findings is that households where an individual was able to specialize in one favored activity in the context of overall diversification by the household, were often less vulnerable than households where each individual is engaged in many activities at low intensity.

An issue is how abilities to cope with the crisis such as drought are shaped and materialized. Eriksen et al. 2005 reveal how lack of skill, labor and capital and social relations can cause limited access to the favored coping options, thus making some households more vulnerable. Specialization by an individual household member into one activity or a limited number of intensive cash-yielding activities could potentially yield a better income than each household member engaging in several marginal activities. However, high-value activities required a particular skill or capital investment. This was compounded by social relations that led to exclusion of certain groups, especially women, from carrying out favored activities with sufficient intensity.

### **Sales of assets such as livestock**

Devereux & Naeraa 1996 reveal in their analysis of 1992 drought in Namibia that people had to sell some assets to buy food. Apart from livestock, many farming households also sold some of their domestic possessions, including bicycles, radios, and cooking pots (p. 432).

Kinsey et al. 1998 show that, during the 1992 drought in Zimbabwe, over 60% of the farmers in their panel data sold livestock to raise cash to buy food, and just under 40% of the total amount raised came from livestock sales (p. 96). These household efforts were done in addition to the state assistance under which more than 98% of the households received food in 1992-93.

For the 1999-2000 drought in Ethiopia, Little et al. 2006 report that their group interviews showed livestock sales as the main drought coping mechanism for 90% of male and 71% of female herd owners (p.210). The poorest households studied by Little et al., however, did their best to hold on to their very meager assets of livestock. These households took other coping activities such as reducing food consumption in order to avoid selling their few animals. In contrast, the wealthiest households experienced the steepest decline in

livestock during the drought. However, the wealthiest households were able to benefit from an opportunity of post-drought boom in livestock prices by continuing to sell their livestock after the drought.

Sutherland et al. 1999 argue that without appropriate interventions, crises in food availability tend to inhibit household investment in agriculture. Productive assets may be sold off in order to finance food purchases.

### **Relying on social relations**

Social capital is integral to coping capacity (Devereux & Naeraa 1996; Eriksen et al. 2005: 3).

Little et al. 2006 show that in South Wollo, Ethiopia social relations based on kinship are extremely important for many households, especially the poor. In their study sample loans between kinsmen account for almost 50% of informal money borrowing. They find that levels of material assistance between households actually decline during droughts. Better off households are also hit during the droughts and often cannot help relatives as much as during recovery years.

Devereux & Naeraa 1996 show for the 1992 drought in Namibia that among food crop farmers there was a rise in informal transfers between relatives and neighbors. But among livestock rearers informal transfers were limited. This was because the 'rich' people, who could help their 'poor' relatives or neighbors with informal transfers, are very few among livestock rearers. Remittances from relatives living in urban areas were also very limited, because many people have lost their jobs due to a decline in the formal urban economy.

### **Changes in Zambia**

In Zambia economic globalization has since the 1990s affected its national economy more directly than before. This is caused by the shift in economic policies from state controlled economy to more open, market-oriented economy through the introduction of economic liberalization policies.

Liberalization of agricultural marketing is one of the areas which have affected the rural economy. Liberalization has affected different areas differently. The state-controlled marketing concentrated on the marketing of maize. Such areas as Eastern and Northern Provinces expanded maize cultivation during the state-controlled marketing of maize during the 1970s and 1980s, while areas like Gwembe Valley maize was not a major crop for the majority of farmers.

### **Changes in vulnerability in Gwembe**

This section summarizes some findings of Cliggett's recent ethnography on Gwembe people (Cliggett 2005). Cliggett's study gives us an excellent account of historical changes

of farming, social institutions, and access to land and livestock among Gwembe people in the past 40 years.

#### Increasing incidents of drought

The frequency of drought and hunger is increasing in Gwembe. In the past, two out of every five years were good, and two were adequate; during the other year, crops failed (Scudder 1985). In at least half of the past 25 years, Gwembe people have failed to produce an adequate harvest for the year. In 1992, 1994, 1995 and 2002 the Gwembe Valley suffered the worst four droughts on record (Cliggett 2005: 61).

#### Population growth

Before construction of Kariba Dam, the Gwembe population was estimated at 86,000 (Scudder 1962). Of these, 52,000 lived on the Zambian side of the river. By 1987 the Zambian population of the Gwembe Valley was approximately 125,000 (Scudder and Habarad 1991 cited in Cliggett 2005).

#### Changes in farming practices

Before the forced relocation of the Gwembe Tonga people, the majority of the population farmed on the alluvial soils of the Zambezi River. On portions of this land, both dry- and rainy-season harvests were possible. Alluvial gardens on the riverbanks maintained their fertility over time because of annual flooding. When the river communities were moved from the alluvial plains, they were forced to rely on rain-fed agriculture, thus removing one of the primary options for coping with drought (Cliggett 2005: 62).

Ox-drawn plows increased and allowed for cultivation of larger tracts of land. This change in agricultural production hastened the decline of soil fertility and increased erosion (Cliggett 2005: 62). In the 1950s, a few men began clearing bush areas so that they would have larger fields, which they planned to plow with oxen. After relocation in 1959, the preference for ox-drawn plows increased also because people were forced to rely more heavily on cleared fields. Over the past four decades, men have continued to clear new fields because of the decreasing fertility of the land originally cleared at resettlement. Gwembe people do not use fertilizer on their fields.

#### Ritual institutions and community management of land

Many ritual activities and beliefs, such as neighborhood rain shrines and prophets, were decreasing in popularity since the resettlement. These institutions had influenced the communal management of land and agricultural practices. Resettlement to new areas drastically changed people's link to their land, resulting in decreased importance, and effectiveness, of the ritual institutions and their leaders (Cliggett 2005: 62-63).

### Changes in access to land

Whereas only men had rights to the large cleared fields (because they had done the work of clearing), women as well as men had rights to the alluvial gardens (Colson 1966). The growth in bush fields meant that men gained access to land that women had little chance to inherit or clear on their own (Cliggett 2005).

### Changes in inheritance and ties between father and son

In addition to increased reliance on large, rain-fed fields and an increasing tendency to inherit from fathers, the growing reliance on cattle and plows for farming accentuated the ties children have to their father. A father depends on children's labor in his fields. In exchange he gives them land and lets them use his plow and oxen for their own farming (Cliggett 2005).

### Changing importance of land and livestock

By the end of the 1970s and early 1980s, cattle ownership was the number one source of wealth and desire for land was not so frequently an area of conflict. Village fields have become less productive over time because of overuse and erosion. In this way, then, rights over land in the Gwembe these days do not guarantee a secure, reliable, and sufficient food base.

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