

“A Persistent Truth”—Reflections on Drought Risk Management in Southern Africa

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ABSTRACT

Severe droughts in southern Africa are associated with livelihood impacts, a strain on local economies, and other hardships. Extensive effort has been spent in the past trying to improve responses to periods of extensive drought. There have also been renewed calls for improvements to climate change adaptation by adopting more proactive governance and disaster risk reduction approaches. Few efforts, however, have been made to assess how to *learn* more from past drought efforts so as to enhance overall resilience to future drought risks. Few have examined the role and contributions of institutions and drought governance, either across spatial scales [from regional (i.e., Southern African Development Community) to national scales (e.g., South Africa) to the very local scale (e.g., Limpopo Province, South Africa)] or across temporal scales (over at least 100 yr). Despite calls for better risk management approaches at all levels, this paper illustrates two points. First, a failure to fully understand, integrate, and learn from past efforts may undermine current and future drought response. Second, state-led drought risk reduction, which remains focused on a financial “bail-out” mentality, with little follow-through on proactive rather than reactive drought responses, is also seriously contributing to the vulnerability of the region to future drought impacts.

1. Introduction

Africa’s vulnerability to climate variability and climate change (CC), including periods of severe drought, is generally acknowledged by natural resource managers, farmers, scientists, and policy makers (Boko et al. 2007). Drought severely curtails African economies [gross domestic product (GDP) losses], but it also erodes livelihoods and coping capacities (Benson and Clay 1994; de Waal and Whiteside 2003). Globally, areas affected by droughts are likely to increase (Pachauri and Reisinger 2007, Table SPM 3) and, despite the detailed information that is available, the large-scale picture for Africa is one of drying of much of the subtropics (Christensen and Hewitson 2007). Thus, although we have some knowledge of future drought scenarios, notwithstanding the lack of certainty, we have very little knowledge of future adaptive capacity. We do, however, have a wealth of past drought response experience that we could mine for possible future adaptation strategies.

Droughts, however, are of interest for both biophysical and social reasons. Working in India, Sainath (1996) shows that “everybody loves a good drought” for various reasons, indicating that many people (not only targeted beneficiaries) can benefit substantially from drought interventions, including assistance from aid schemes. Various processes also shape vulnerability to drought. In southern Africa, Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS), for example, has weakened the overall local adaptive capacity to cope during drought stress (de Waal and Whiteside 2003). In a similar vein, Lemos (2007) shows that repeated attempts in eastern Brazil to “manage” drought risks through improved water schemes, alongside a strong focus on the science of drought and postdrought response in Northeast Brazil, missed their mark. Rather, she argues, the focus should have been on better understanding the *processes causing vulnerability to drought* and heightening drought risks.

Building effective resilience to periods of drought is thus not an easy task, and it involves not only a response to the amount of change expected (the drought as hazard) but also requires knowledge about the system’s *ability to learn and innovate in the face of uncertainty and change* (adaptive capacity; see Lemos 2007). In this

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article we argue that cases providing examples of past learning and/or failure to learn during droughts can be very informative for future adaptation practice. Few detailed assessments of drought and drought responses have, however, been undertaken for southern Africa (Davies 2000; Koch et al. 2007), particularly in terms of assessing the role of institutional and other governance responses (Adger 2000; Koch et al. 2007). By interrogating past response measures to drought, at various governance scales (e.g., local, national and regional), some of the strengths, weaknesses, and lessons learned in responses to drought can be derived.

2. Governance dimensions: Implications for drought risk reduction

Why focus on drought governance and institutional dimensions? Institutions have been examined from various perspectives (e.g., Ostrom 1990; Weaver and Rockman 1993; Young 2002; Peters 2000, 2001, 2002; Berkhout et al. 2003; Pierre and Peters 2005). Governance processes, linked and coupled to various institutional expressions, also shape environmental resource use (Ostrom 1999; Dietz et al. 2003; Olsson et al. 2004). Centralized forms of institutions can result in overly “top-down” resource use and management, with the role of outside experts (e.g., with scientific knowledge) often being called on to manage local resource issues because of perceived gaps in resource knowledge (Dietz et al. 2003; Nelson et al. 2008). Narrow forms of governance, including inflexible state and regional responses that remain rooted in the histories that initially created reactive drought responses and interventions, can be detrimental to building local drought resilience.

Institutions of various types, for example, provide useful ways to assess whether we are learning to innovate given climate change. Institutions influence adaptation to climate change by structuring impacts and vulnerability, that is, by mediating between collective and individual responses to impacts and adaptation and by acting as the means for resource delivery and access to resources to assist in adaptation (Agrawal 2008). Institutions and adaptive governance, which are usually closely linked, here refer to the evolution of rules and norms (Ostrom 1990, 1999). Institutions can also be either enabling or disabling by providing opportunities or barriers to various implementation actions to reduce risks due to environmental change (in this case, risks due to drought).

Institutions, finally, also help to frame and conceptualize knowledge and provide the vehicles (e.g., regulatory, policy, and legal) through which interventions, responses, and feedbacks of management and action occur. On reflection, as will be traced in this paper, it

would seem that business-as-usual responses prevail time and again, and few lessons learned from one drought are carried over into the next period of drought. Davies (2000), for example, notes that much depends on the local context as to how successful institutional arrangements will be to enhance resilience to drought risks. The business-as-usual approach is often adopted to manage droughts, often making the same recourse to official structures, for example, departments of agriculture and water affairs. More recent calls have, however, been made for additional institutional models and platforms (e.g., farmer groups and civic groups) that include wider participation in more informal institutional structures (Caldwell 1992; Olsson et al. 2004; Brunner et al. 2005; Kituyi 2006). As we show in this paper, evidence of such “lighter approaches,” have yet to be fully tried in the case of drought risk reduction in southern Africa.

3. Drought policy: Assessment of approaches to enhance resilience to drought

With this scholarship as background guiding this research, we now look specifically at drought, drought policy, and related institutional governance architectures in various selected international settings (Botterill 2003; Botterill and Fischer 2003; McLeman et al. 2008; Nelson et al. 2008). First, efforts for a more *proactive drought policy*, including more risk reduction approaches, are increasingly being tried and tested both locally and internationally (e.g., Hyogo Framework for Action, see online at www.unisdr.org). Advocacy for more self-reliant drought and disaster risk approaches, with farmers, for example, taking greater responsibility in managing drought risks, has occurred in some cases (e.g., Australia). Notwithstanding this focus on greater farmer responsibility in farm management, however, drought relief payments persist, driven by popular pressure;

Australia’s drought policy suggests that debates over meteorological, hydrological and other physical characteristics of drought are not as influential on policy directions as the politics of the event . . . (Crean, as cited in Botterill 2003, p. 74).

Likewise, in the United States, financial limitations were shown to have severely constrained the use of more adaptive drought technologies, with farmers drawing heavily on their social networks to help them “ride out” periods of drought (McLeman et al. 2008). For this reason, more detailed investigation into the crippling socioeconomic “drivers” of drought on farmers’ livelihoods (e.g., the influence of the wider, macroeconomic environment, the role of subsidies, etc.) is needed, including efforts focused on poverty alleviation, quantification of

farm poverty, and the “adaptation” of social safety nets to assist those in need (Botterill 2003; McLeman et al. 2008).

Second, related calls for greater adaptive governance approaches in drought policy have also been made by Nelson et al. (2008) for Australia and parts of the United States (McLeman et al. 2008). Drought policies, particularly those framed in narrow “linear” ways, do not always fully capture real world conditions and contexts that often unravel in complex, haphazard ways (Nelson et al. 2008, p. 2). Static institutional approaches thus may require consideration of more flexible drought governance approaches (see, e.g., Peters 2000).

Third, *polycentric drought governance approaches* [e.g., management systems that have multiple centers of power rather than one center of control, see, e.g., Huitema et al. (2009)] may be needed. Cooperative drought governance approaches, with better alignment of bottom-up and top-down institutions are being tried (e.g., Land Care Programmes in Australia and inputs from a range of other organizations and groups can assist in better drought risk reduction). As we illustrate below, such approaches will, however, require suitable support, both financially and in terms of human capital, as well as appropriate institutional architecture, if they are to be successful. Given some of this background, attention now turns to examine these themes with reference to institutional responses to drought in southern Africa.

4. Approach and methodology

A number of methods were used in this initial, institutional assessment of drought in southern Africa, including documentary, historical, and archival assessment, and stakeholder interviews, questionnaires, and focus group assessments undertaken in 2007/08. The regional analysis was done using both primary (interview) and secondary (documentary review) research methods. Structured, open-ended key informant interviews were conducted with relevant Southern African Development Community (SADC) employees in the Food, Agriculture and Natural Resources Directorate (FANR) and the SADC Secretariat. Interviewees included the head of the Regional Remote Sensing Unit in the FANR, the head of the Drought Monitoring Centre (DMC), the senior officer for Peace Building Projects (incorporating Disaster Risk Reduction–DRR) in the Organ on Politics, Defense and Security, and the senior program officer in the Agricultural Information Management Systems (AIMS).

In conjunction with the interviews, key documents analyzed included the Southern African Development Community’s (2001) “Multi-sectoral disaster management and emergency response strategy,” the Disaster

Risk Reduction Strategic Plan 2006–10 (Southern African Development Community 2009); the Regional Drought Management Strategy for SADC (Ncube and Chisvo 1999), and the Southern African Development Community (2004) Dar-es-Salaam Declaration on Agriculture and Food Security in the SADC region. Content analysis was used to evaluate the policies and documents, which involved constructing categories to represent different types of statements and themes found within the texts. Specific indicators or keywords and terms relating to traditional crisis management and contemporary risk reduction along with the United Nations (UN)/International Strategy for Disaster Reduction (ISDR) conceptual framework (UN/ISDR 2004, p. 15) were used to analyze the SADC documents.

To better understand drought management and institutional responses, we drilled down from the regional to the national level and examined drought policy responses over a period of 100 yr for South Africa. Information was drawn mostly from official archival sources as well as other accessible documents, including various reports from commissions and committees relating to the occurrence of drought and drought management. The support of the chief librarian of the National Department of Agriculture, Pretoria, South Africa, having worked at the institution for many years, proved to be essential and enabled our access to key policy reports and documents. Interviews and targeted questionnaires (27 responses) with senior key stakeholders representing large-scale commercial farmers and who occupy central roles in various commodity groups across the country (e.g., Agri SA, an organized agriculture group in South Africa) were also undertaken in 2008. These focused on specific themes, including the effectiveness of past and present state responses to drought. Finally, smaller focus groups with “emerging” organized agriculture [the National African Farmers Union (NAFU)] were organized in Limpopo Province (late 2008). Limpopo Province was targeted because it is semiarid, there is preexisting knowledge on drought and vulnerability in this area, and the province may be particularly sensitive to possible future drought [see, e.g., Food and Agricultural Organisation (2004) and the U.S. Agency for International Development (USAID) work on climate change adaptation (information online at <http://www.usaid.gov>), in Polokwane, Limpopo].

5. Drought risk reduction: Institutional responses across scale and time

Droughts can be defined according to various criteria [e.g., meteorological, hydrological, agricultural, sociological,

etc. (see Wilhite 2000)]. In the southern African region a meteorological drought is broadly defined as a period with less than 70% of normal precipitation (Bruwer 1990). A severe drought would be defined when such a situation persists for a few years (e.g., 3 yr). Regular severe droughts, comprising three consecutive summers, have been noted for almost every decade for much of the region (Ingle Smith 1993). Severe droughts occurred in the early 1900s, 1920s, 1930s; the late 1940s; the 1960s; and the early 1980s (Tyson 1987). More recently, severe periods of droughts, spanning more than 2 yr at least, occurred in southern Africa in the early 1990s and the early to mid-2000s.

What have we learned from past droughts and past drought interventions? In the paper we use the three themes derived from the international literature identified above, namely, proactive versus reactive disaster drought responses; the role of science and other factors in shaping drought response; and, finally, the possible role and extent of cooperative governance structures to enhance drought management. A number of key findings emerged for the region and for South Africa to interrogate the extent to which southern African drought policy has tracked such developments in the literature and drought science more generally.

a. Proactive DRR versus reactive DRR

Recent efforts in the disaster management and disaster risk reduction community have called for a radical shift in paradigm, moving from a reactive approach to disasters, such as droughts (e.g., food aid), to a more proactive approach (e.g., ensuring that water governance systems are effective and that water infrastructure is regularly maintained). Thus, disaster risk reduction approaches (UN/ISDR 2004; McGray et al. 2007; Venton and La Trobe 2008) have been advocated that include a set of efforts that try to focus on a proactive and more resilient approach to drought risk (Sperling and Szekely 2005). Singular drought governance efforts, usually focused in a single department (e.g., agriculture), are therefore encouraged to be more transversal in design, cutting across and including key implementing agencies, such as those involved with social and economic development, primary health care, land use planning, environmental management, and infrastructure (including housing; e.g., Government of South Africa 2002). An emergency response mode of operation, while still required in severe cases, is therefore being built on a more proactive and sustainable longer-term developmental approach (UN/ISDR 2004; Pelling and Holloway 2006). Responses to droughts, as we show below, have largely been hinged to a reactive approach in the southern African region.

At the regional scale, SADC's main objectives are economic development, poverty reduction, regional integration, maintaining security and stability in the region, and the promotion of common political values and institutions (Isaksen 2002). Within SADC, the FANR directorate in SADC was established in 2000 to promote agriculture and natural resource production and productivity, agricultural trade, food security, and sustainable economic development in the region (Isaksen 2004; Koch 2007). An emphasis of SADC member states on national food self-sufficiency has strongly influenced the drought response (Koch 2007). Government and international donor responses have, for example, focused primarily on food aid to reduce cereal deficits at the macro level and to prevent famine and starvation at the local level (Davies 2000; Buckland et al. 2000).

The 1991/92 drought in the region revealed alarming underpreparedness on the part of certain southern African governments to cope with drought situations and exposed the vulnerability of the region's food security resource base to climatic extremes (Hulme 1996). Years of normal to above-normal food production had reduced the priority given to disaster preparedness by most of the SADC counties. Existing political and economic influences at all levels also prevented the implementation of efforts to counter food shortages (Southern African Development Community 1993). Despite the fact that the region was politically and economically less prepared for drought, however, drought-related famine was averted because of local "effective coping mechanisms of the affected people themselves" (Eldridge, as cited by de Waal and Whiteside 2003, p. 2) that had accumulated over the years.

Since the 1990s, however, SADC has undergone considerable changes in its approach to humanitarian crises (Table 1). Regional action to complement national-level activities has become increasingly important and is evident through the increasing role SADC has played in collecting, monitoring, analyzing, and disseminating information on food availability, drought, and other hazards (Food and Agricultural Organisation 2004). A singular focus on "traditional" food security responses (e.g., agricultural food production) has also been widened to accommodate the recognition of the role of multiple stress factors (e.g., HIV and AIDS) in heightening drought vulnerability and reducing coping capacities to regular droughts (de Waal and Whiteside 2003; Drimie 2004; Vogel et al. 2007). As we show below, however, translation of such an expanded understanding of what shapes drought impacts (e.g., food insecurity) into wider risk reduction-appropriate responses that are taken up and implemented in the region has been slow:

TABLE 1. Examples of SADC drought policy responses and emerging lessons.

Drought period	Response	Lessons emerging
1982/83	Emergency relief through food supply programs, cattle rescue packages, and agricultural support [crop packs, plowing subsidies; see Mupawose (1985)]	<ul style="list-style-type: none"> • Drought relief efforts curtailed other development efforts • Organizational deficiencies hampered transport, storage, and distributional efforts • Drought exposed a lack of preparedness and a lack of risk reduction approaches (Norman 1984; Mupawose 1985). • Drought revealed structural weaknesses (effective administrative structures)
1991/92	Significant international and regional cooperation in the region to face the drought (Glantz et al. 1997) A regional drought task force was established to bring together representatives from agriculture, transport ministries, and related food distribution, water, and health organizations from across the region (Thompson 1993)	<ul style="list-style-type: none"> • Effective early warning triggered by the regional early warning system (Masundire 1993) • Despite improved coordination, the principal focus of both the internal and external response remained on food shortages and the need to prevent starvation through the massive mobilization of food aid (Buckland et al. 2000) • Existing political and economic influences prevented effective food supply initiatives (Southern African Development Community 1993)
1994/95	The drought task force assessed food and nonfood needs to launch a consolidated appeal for international assistance (Southern African Development Community 1995) A crop assessment mission comprising representatives from SADC Regional Early Warning Unit (REWU), the FAO, and the World Food Programme (WFP) was conducted to evaluate regional needs (Mogae 1995) The region put in place arrangements to share information on transport logistics relating to aid imports	<ul style="list-style-type: none"> • The aid appeal for the region was \$270 million (U.S. dollars); member states themselves met the bulk of food costs because of the use of strategic grain reserves and commercial imports • The international assistance was mainly targeted at the young and very elderly (Southern African Development Community 1995)
2001/03	Large-scale responses from governments, nongovernmental organizations, and donors (Wiggins 2005); establishment of Vulnerability Assessment Committees (VACS) and Regional Vulnerability Assessment Committees (RVAC) Early warnings were seen as successful during the drought because governments and the international community could mobilize necessary resources (Tschirley et al. 2004)	<ul style="list-style-type: none"> • Although EWS were sufficient to warn on impending food shortages, they were insufficient to guide 2003 response planning • Certain governments were slow to act on the early warnings and launch official appeals for assistance (Mano et al. 2003)

Many national policy frameworks either still focus on response as the main means of addressing disaster or provide weak linkages between risk reduction and preparedness and response . . . For example, Tanzania's legislation deals with relief only and those of Namibia and Zimbabwe are civil protection laws (Bhavnani et al. 2008, 22–23).

Reasons for such variations in drought response over time at the regional level include a range of factors, many of which cannot be fully discussed here. For more detailed accounts of the role of regional economic policies (e.g., structural adjustment) and drought policy in the region, see, for example, Benson and Clay's (1994) analysis, and Drimie (2004) and Tschirley et al. (2004). Other transformations, including those generated by changing land tenure, political changes, liberalization of trade, and conflict can all aggravate vulnerabilities, particularly for those operating "outside" of commercial agriculture but still drawing a livelihood from the land,

such as smallholder farmers. Such interacting factors can essentially constrain and frustrate more proactive drought strategies (Bowen et al. 2003; Eriksen and Watson 2009). Farmers, for example, wishing to farm more proactively and better manage their land so that they may be more resilient during times of drought, may have to enter into complex negotiations, particularly if the land is not owned and is leased.

At a national level, the responses to drought have also been largely reactive for some time. As early as 1923, drought was seen to be *one of the constraints* faced by farmers in their agricultural enterprise. Early reports [e.g., the benchmark Union of South Africa (1923) report on drought] resulted in an overall assessment that drew attention to the role of the interlinked issues of poor planning, poor institutional design, and deteriorating soil and vegetation status that heightens drought impacts and vulnerability to drought (Union of South Africa 1923). Despite such very early recognition of the varying

“multiple stresses” and factors influencing vulnerability to drought, past drought management and the policy response in South Africa, as with the wider region, has remained strongly orientated toward a “reactive relief response” strategy as opposed to a longer-term, more proactive drought policy. Government has thus made repeated liberal provisions for *drought relief*, specifically with the assistance of the railway administration (in both South Africa and Zimbabwe), especially during the droughts of the 1930s and early 1940s, assisting with the raiiling of livestock and maize that was usually provided in the form of fodder, often at the lowest possible price. These facilities were so liberal that it was difficult to see how they could be extended without tempting farmers to become less prudent in their farming operations (for a detailed account of drought policy response for South Africa over the past 200 yr).

Reasons for such persistent drought relief approaches in South Africa, much like the case for the region articulated earlier, may be found in a deeper analysis of how knowledge and power are configured around drought, for example, the role of the state and drought governance (Scott 1998) and how knowledge, power, and various actors influence political and other outcomes (e.g., Hall and Taylor 1998) in decentralized and more centralized drought risk reduction models. The role of inequitable drought intervention in bolstering one group of farmers (e.g., commercial farmers) in southern Africa and South Africa also requires more investigation. Some have already undertaken such historical sociopolitical assessments, thereby enhancing mere descriptions of institutional organization (see, e.g., Bundy 1979; Beinart 2003; Beinart and McGregor 2003; Beinart and Hughes 2007). Bundy (1979, p. 241), for example, notes that drought, together with a number of other stresses, helped to weaken peasant production in the eastern cape, thereby precluding this group from competitive agricultural production.

A new era of a more proactive, disaster risk management approach in South Africa began to emerge in the late 1990s. This was triggered by fundamental changes in the political dispensation, with the move from apartheid to more democratic forms of governance also occurring at a time of severe flooding and droughts. In 1992, for example, during which time a severe drought gripped the country, a National Consultative Forum on Drought was established that began to investigate drought impacts in several parts of the country. This forum was a type of consortium of various institutions and interest groups. It was thus a new structure that enabled various groups, several of which had been previously marginalized in the framing of drought policy, to participate in designing a drought response. The links between socioeconomic

causes of drought impacts and development soon became evident, as follows:

A recurring comment by the relief engineers has been that the problems are not of an emergency nature caused by the drought but rather through years of neglect, lack of investment and lack of maintenance (Abrams et al. 1992, p. 5).

These links between development and drought risk reduction have remained a focus in government, at least on paper. The recent Disaster Management Act (Government of South Africa 2002), for example endorses “proactive” approaches in which efforts are made to couple drought risk reduction with effective early warning, effective water governance, etc. (Van Zyl 2008).

Despite the acknowledgment for a need for change in drought response and new legislation (e.g., in South Africa), there remains little evidence “on the ground” of the uptake of more proactive drought management approaches. Recent responses from key representatives in the provincial and local government (Limpopo Province), for example, noted frustrations resulting from poor levels of integration between departments “concerned with drought.” Calls for dedicated drought relief are still being made by farmers and they complain about delays in funding of such relief. This call for relief is not unusual, as indicated by the cases of Australia and the United States referred to earlier.

b. The role of science and other factors shaping drought risk reduction

As indicated at the outset of this paper, drought can be defined in various ways. Responses to a drought event are also tightly coupled to the ways in which the drought is being perceived and defined. Most early warning systems (EWS), for example, are usually very strongly coupled to and shaped by hydrological and/or meteorological criteria and indicators that describe droughts with few attempts to include socioeconomic indicators such as those coupled to wider vulnerability assessments (Botterill 2003; Lemos 2007; Nelson et al. 2008; McLeman et al. 2008). Drought policy and management has also traditionally been very strongly influenced by the soil sciences, meteorology, and the agricultural sciences (e.g., crop production), particularly in determining what areas and which farmers qualify for drought relief. Relatively less attention is given to devising social and economic indicators of drought, often with costly implications as we show below.

The role of “*science*” has thus also played an important part in framing drought responses. The shape and type of financial relief schemes, predicated largely on

biophysical measures of drought impact (e.g., soil status) have continued to be used as the guide shaping drought relief and the awarding of subsidies. Such approaches have arguably sustained and entrenched a relief-based mentality (Botterill 2003; Dow et al. 2006; Lemos 2007; Nelson et al. 2008; McLeman et al. 2008).

In the SADC region the role of science, though valuable, has arguably also slowed down the uptake of proactive, risk reduction approaches. A strong response, rooted in a reactive drought responses (e.g., food production and a food relief approach) resulted in large costs for the region. The early 1990s drought, for example, has been estimated to have cost the region an estimated \$4 billion (U.S. dollars) with much of this reserved for food aid and commercial imports of grains.

Despite policy, which calls for disaster risk reduction (Bhavnani et al. 2008), much of the focus in the region has still remained on improving early warning systems that are informed by biophysical science inputs, including a focus on improved climate forecasts (e.g., seasonal climate forecasts) and estimating crop production. Few “expanded EWS,” providing indications of the social dimensions driving vulnerability to drought (e.g., the breakdown of social networks, health indicators, that is, data that can be obtained through clinics, etc.) are operational.

Drought response and intervention in South Africa, particularly for white, large-scale commercial farmers, has also been strongly influenced by a dominant biophysical science and sociopolitical focus [e.g., land care, soil conservation, and rainfall are often used as indicators of drought impacts; see Union of South Africa (1914, 1926)]. The seminal drought report in South Africa (Union of South Africa 1923) was very influential in shaping such a drought response for many years. Driven by the Chairman Du Toit [see, e.g., Beinart’s (2003) in-depth assessment of the role of Du Toit in shaping drought policy], much of the early drought policy was influenced by Du Toit’s experiences that he had gained from studies outside South Africa, including a strong drought science of “dryland farming” and conservationist farming approaches. His focus on agricultural conservation, effective use of water, dry farming, soils, and soil conservation influenced the thinking of the time and for many years to follow. Dryness was not so much a product of failing rains but was the result of a combination of natural factors and failed conservation practices (e.g., overstocking), resulting in the inability of the ground to absorb water (Beinart 2003).

In the mid-1940s, the Soil Conservation Act of 1946 (Conservation of Agricultural Resources Act 1983), influenced by Du Toit (Beinart 2003), ushered in a number

of formal drought-related institutional arrangements, including the introduction of key soil conservation schemes by the state and financial assistance for farmers to erect soil conservation works on private farmland. This policy was aimed at combating soil erosion and enabling good farming practice and included attempts for more effective drought risk reduction practices. A reciprocal approach to drought management thus was envisaged with farmers considered for drought relief *if* they could show they had tried to farm in sustainable ways (conservation farming);

The Department of Agriculture has long claimed that by correct land usage and the application of soil-conservation practices, the destructive effects of drought can be reduced to a minimum (Adler 1953, p. 1).

To this end, institutional arrangements dealt with the administration of an array of financial schemes (e.g., that rewarded good soil conservation practices) and focused on the professional requirements of farmers. Of relevance here is that although extensive investigations took place in establishing insurance schemes and proactive measures (e.g., encouraging conservation farming and good grazing practices), various practical and financial reasons usually frustrated the implementation of these goals.

Assistance to farmers, for example, coupled to indicators of drought and also informed by land use practices dependant on scientific assessments (e.g., soil and land degradation assessments and status) continued to influence drought relief for many years. The Reconstruction Committee of the Department of Agriculture and Forestry of 1943, (Union of South Africa 1943), for example, shaped the drought response in South Africa, more particularly drawing attention to the role of science and drought management, including problems of poor land use practice and farming that heightened and aggravated drought impacts.

A strong conservation approach to managing droughts persisted in several cycles of commissions constituted by the state and began to become entrenched in various institutional structures and drought policies. The Verbeek Committee (Department of Agricultural Technical Services 1966), for example, the first to call for an “institutional” body in the form of a National Drought Committee (NDC), to coordinate and maintain any form of drought relief and to try and avoid ad hoc schemes, maintained the strong “conservation” approach. Various institutional arrangements were thus made that began a process of greater and more intensive drought assessment and monitoring on a long-term basis. White commercial farmers were encouraged to farm sustainably and the state tried to use reciprocity measures to award relief and assistance.

Despite some attempts to improve drought institutional design and policy, including some changes in drought aid, the droughts of the 1980s and 1990s signified notable periods of continued reactive drought management responses. Continued heavy state assistance, however, further compounded an already ailing and struggling agricultural sector. The Drought Aid Scheme of 1982, for example, made provision for the consolidation of the 1979 and 1980 drought schemes in addition to production credit for 1981/82. To this end, the government signed a guarantee, of 800 million rand (R) to consolidate the outstanding carry-over debt of farmers with respect to the 1978/79 and 1979/80 production years, as well as a guarantee for production credit for 1981/82 (Land and Agriculture Policy Centre 1993).

The nineties, in particular, the 1991/92 drought, thus marked a period of severe regional drought and continued and unprecedented national buildup of carry-over debt. The carry-over debt rose from an initial R800 million in 1984 to R1.4 billion before the 1991/92 crop, and R2.4 billion thereafter (Land and Agriculture Policy Centre 1993, p. 7), necessitating the introduction of the “Aid to Agriculture” package by the Department of Agriculture (Department of Agricultural Development 1992). The Minister of Agriculture, South Africa, was recorded as stating that the drought response was one of the most significant efforts in the history of South African agriculture (Land and Agriculture Policy Centre 1993). Various financial schemes were issued in order to prevent the collapse of the rural economy and the country’s crop production infrastructure. The government essentially provided a financial guarantee to offset the drought, which although triggered by meteorological and hydrological responses, failed to address farmers’ ongoing, economic, political, and structurally driven vulnerability. The accumulated legacy of issuing *temporary relief measures* that had their roots in earlier interventions heightened their plight; that is,

The carry-over scheme was introduced as a strictly temporary measure as a result of the poor 1982/83 harvest, but has since become a permanent feature of financial assistance (Land and Agriculture Policy Centre 1993, p. ii).

The experience of drought response, intervention, and carry-over debt for the later decades of the twentieth century have been summarized by some as being interventionist, with the result of distorting land and capital markets, both of which are actions that resulted in severe knock-on impacts for farmers. A radical rethink on drought policy in South Africa was called for: “For the future, drought policy will need to address the *social and economic costs of drought-induced vulnera-*

bility in a far more focused way than hitherto” (Land and Agriculture Policy Centre 1993, p. 25, emphasis added). After this period, and coupled to changes in policy with the collapse of Apartheid, the government endorsed the view that in the future no financial aid would be made available to agricultural producers (Le Clus 2001).

The droughts of the early 2000s, much like the droughts occurring at the same time in the wider region, however, brought with them more radical changes in drought relief and “thinking” on drought, at least on paper! The droughts of the early 2000s highlighted the growing need for capacity and expertise to respond in a timely and effective manner to drought across various farming communities, especially those with poor resources. The escalating financial debt burden of farmers, driven in part by past drought policies, also became increasingly untenable. In the region, new variant forms of famine were also being noted, with vulnerabilities driven not only by drought, but also by HIV/AIDS and reduced response capacities (de Waal and Whiteside 2003).

Having illustrated the persistence of a drought relief mentality over the years, at both the regional and national levels, attention turns to examine some alternative approaches that may be used to foster a more proactive drought response.

c. Coadaptive governance approaches in drought risk reduction

Much progress can be made in enhancing drought risk reduction approaches by consulting more widely on climate change issues and by drawing in expertise that is not only strongly science based or driven by traditional governance structures (e.g., state-led drought interventions). Coadaptive management approaches that draw on multiple forms of governance (polycentric governance structures) can often be very effective in mainstreaming a drought risk reduction approach. The National Consultative Forum on Drought, mentioned earlier in the paper, for example, was fundamental in drawing attention to issues of poverty, food insecurity, and other stresses shaping vulnerability to drought. The forum, comprising an array of stakeholders (e.g., government, trade unions, academics and scientists, church leadership, and humanitarian groups, among others), was also instrumental in providing the foundations for the Disaster Management Act (Government of South Africa 2002). At the regional level the establishment of vulnerability assessment committees (VACs), also including a range of partners and various stakeholders in the region, has begun to point to processes that underpin and heighten vulnerability to drought in the wider region (Vogel et al. 2007).

Proactive attempts to learn from past drought periods, including what forms of governance and institutional design may be required for effective drought risk reduction, have also been made. Numerous studies and regional reflective drought management workshops, following the 1991/92 drought, for example, were conducted (Food and Agricultural Organisation 2004; Southern African Development Community 1994; Thompson 1993), which showed evidence of some attempts at “social learning.” Information and reports from the Regional Early Warning Systems (REWS) and the Drought Monitoring Centre, although a critical part of effectively responding to an emergency, were noted as being too technical and top down to have an effect at the political level. More importantly, the absence of a suitable distributed institutional framework was also noted. More integrative, institutional designs that allow for the integration of all relevant social sectors, in addition to those institutions that focused on food needs and EWS, were identified as key in the region.

In a more recent assessment, the report on the status of disaster risk in Sub-Saharan Africa (Bhavnani et al. 2008, p. vii) also makes reference to the need for better institutional organization for effective drought risk reduction:

This report’s findings confirm some of the conclusions of the African Regional Strategy for Disaster Risk Reduction that identified the following major challenges to the region: 1) the lack of effective institutionalization of DRR.

The architecture and focus of institutions designed to reduce risk to drought as opposed to managing drought are thus essential for shaping what is translated into drought reduction practice.

From a regional perspective, for example, the location of drought management within the FANR directorate has largely resulted in drought responses focusing predominantly on food needs and technical solutions as opposed to incorporating nonfood needs, other sectors and stakeholders, and more development-oriented approaches associated with DRR. According to Southern African Development Community (2003), the FANR has also not been adequately linked to other related sectors, such as rural infrastructure, transport, and tourism. In addition, the sector has been slow to highlight and realign policies and strategies to address the potential impact of HIV/AIDS on rural households and the food and agricultural sector. Greater interactions both vertically and horizontally across sectors and between various stakeholders are thus required for effective drought risk reduction. SADC’s disaster strategy, for example, called for the establishment of a disaster management mechanism to coordinate and implement

regional disaster management initiative (Southern African Development Community 2003). The implementation of such a mechanism has, however, been hampered by financial constraints and the lack of human capital (Koch 2007).

Similar frustrations and retarded evidence of the uptake of the drought-risk paradigm are evident at the national level. In South Africa, for example, the Disaster Management Act (Government of South Africa 2002) calls for strategies to be developed by the relevant government departments for each risk area in association with wider stakeholder input and engagement (e.g., flooding, drought, etc.). Interviews with several farmers, both large-scale commercial farmers and smaller-scale commercial organized agricultural farmers in South Africa, however, revealed a host of difficulties that still point to a lack of proactive risk reduction approach. While most emerging commercial farmers interviewed at the local level (Limpopo Province) acknowledged that droughts must be managed as a “part of every day life” (ideas promoted several decades ago in national drought policies), they still also acknowledged the need for relief approaches and responses (e.g., feeding schemes and other interventions during periods of drought, particularly for emerging farmers). Emerging farmers thus appear to still require assistance schemes, much like the cases in Australia and the United States (Botterill 2003; McLeman et al. 2008), where despite changes in policy ad hoc relief policies also persisted. In the most recent droughts (late 2008 and early 2009) in South Africa, drought relief and ad hoc field fire assistance schemes were still being sought (National Disaster Management Advisory Forum, more information available online at www.ndmc.gov.za). These calls for assistance will continue to entrench reactive drought relief responses that will prevail until more proactive drought approaches are translated into action on the ground.

Several farmers, however, also want more than relief. Black farmer groups and many aspiring black commercial farmers suggested that they would like to assist government via various self-help schemes, to improve their longer-term resilience to drought risks. More permanent assistance programs that are linked to development (e.g., auction areas and abattoirs possibly being established that are closer to home rather than farther, which then means having to transport and pay middle men for such facilities and assistance and improved infrastructure, such as irrigation facilities) were suggested.

6. Discussion

While the case for southern Africa is arguably very different socioeconomically and politically from the

international cases given at the outset of this paper, an examination of drought response, nonetheless, shows remarkable similarities to concerns and issues identified in the international assessment in the introduction to this paper. First, it is evident that certain aspects of DRR are being adopted, including more effective early warning and preparedness. The overall focus, however, remains largely reactive and relief focused, much like the international cases cited in this paper. Despite calls for and progress in regional vulnerability assessments, for example, there is much slower progress in the institutionalization of drought risk reduction approaches that enable intersectoral drought risk reduction action. While approaches to drought have begun to include more of a developmental focus; regional policies, such as the SADC drought strategy, and national policies, such as the Agricultural Drought Management Plan (ADMP) for South Africa, still lack mainstreaming and are hampered by several implementation challenges.

Second, by adopting more cooperative learning-by-doing and coadaptive approaches, various case study assessments of drought responses have shown that drought policymakers and those trying to design better risk reduction approaches can be assisted by learning from others, which is often not formally recognized in the policymaking process [e.g., the National Consultative Forum on Drought and the VACs in the region; see Dow et al. (2006)]. Different and possibly more flexible institutional arrangements may result from such interactions (Nelson et al. 2008).

While approaches calling for greater cooperative governance may appear attractive, the regional and indeed national contexts may indeed act against such efforts. Regional bodies such as the DMC, which are responsible for generating and disseminating meteorological, environmental, and hydrological information for better disaster preparedness and the disaster management sector in SADC, have serious people, skills, and financial capacity shortages. Weak coordination and intergovernmental cooperation are further limiting factors (Bhavnani et al. 2008, 22–23). The VACs also suffer from institutional constraints. In many cases, at the national and local level in South Africa, a similar set of constraints is noted.

Political commitment at different scales is also imperative for increasing visibility and support for DRR activities. The collective political commitment at the regional level in Africa is high (Bhavnani et al. 2008, 22–23). Despite this intent, this research has shown that in SADC and in South Africa (much like Australia and the United States) the political focus often still remains on short-term priorities. DRR thus appears to receive peripheral attention despite its intricate links with de-

velopment. In many cases, information about DRR also does not sufficiently cascade downward or upward to the relevant people who need to use and implement risk reduction activities. Decision makers, donors, and the media also often continue to focus on food aid, rather than other aspects requiring attention, such as strengthening climate monitoring and other aspects of DRR.

Third, at both the regional and local level (e.g., in South Africa), the strong focus on the influences of the biophysical sciences providing criteria, indicators, and instruments for monitoring droughts has influenced how and where drought relief finances are allocated. As shown in the history of drought relief and response in South Africa, such approaches, many of which are well meaning, can, when coupled with various policies, prove to be very costly both for the state and for individual farmers. Despite the radical Disaster Management Act (Government of South Africa 2002), which calls for a greater focus on DRR, the reactive practice of drought relief continues.

We may thus have to find alternative approaches to learn to live with drought. Consulting with farmers and farmer commodity groups and including various stakeholder inputs can be very useful in influencing interventions and in helping to create a range of institutional responses (e.g., the National Consultative Forum on Drought and VACs). Such efforts however, require trust building and cannot be taken only when a crisis, such as a drought event, occurs (see, e.g., Davies 2000; Steyaert and Jiggins 2007; Lynch et al. 2008). Alternative institutional processes and approaches may thus be required, which include multistakeholder learning, with networking activities that seek to “transfer practice-based information both horizontally (among like communities) and vertically (across levels of state, federal and international systems)” (Lynch et al. 2008, p. 177). Active consultation with organized, commodity farmer groups could be one avenue that could be explored further in the region.

7. Conclusions

The historical analysis of drought responses in southern Africa presented here clearly demonstrates that despite some evidence of a paradigm shift from emergency response to more holistic, disaster risk and climate risk reduction approaches, the focus across various governance levels remains rooted in technical and financial relief solutions (e.g., EWS and food aid). Limited cases exist of institutional efforts to link such efforts to various developmental and longer-term initiatives.

The continued focus on emergency relief, according to Holloway (2003), is an unintended outcome of prolonged and substantial humanitarian assistance, which has discouraged local initiatives and local ownership of disaster risk. A further outcome of protracted international assistance is the shaping of national perceptions of disaster risk in southern Africa that become food aid in focus, which, although needed, should be situated within a more holistic response that also addresses complex and multiple drivers of drought vulnerability.

Linking disasters and development has thus still not been effectively translated into reality in southern Africa where externally funded relief operations continue to run in parallel to governmental programs. This “externalization of disaster response” and its division from mainstream development priorities have effectively curtailed true ownership of DRR by southern African countries (Holloway 2003). Relief of drought only, without efforts to also enable ways to better live with drought, continue to shape the drought response in South Africa, often in costly ways. This finding is not unique to the region however, and similar cases have also been identified in Australia, parts of the United States, and Brazil.

Finally, in this paper we have attempted to show that an honest, humble reflection and scrutiny of drought practices can yield informative outcomes that can be investigated further by contributing to efforts that can enhance resilience and adaptive capacity to climate change and variability in southern Africa, but that

Understanding the system must extend to an analysis of how relationships and mechanisms *change over time and with place*, and how policy problems impact upon one another. This is particularly important as climate change is mainstreamed into the broader policy process (Lynch et al. 2008, p. 177, emphasis added).

Given the apparent urgency of climate risks in southern Africa, coupled to a suite of growing stresses, it may indeed be useful to carefully reexamine past and current institutional dimensions underpinning climate risk reduction, but then also, and this is more critical, to begin to urgently find ways to effectively live with drought:

Meanwhile conditions have been steadily getting worse and to-day the Commission sees the results of inaction on every hand. Frequently, on asking for expert evidence the reply was received that evidence had on previous occasions been given at the request of the State. Then would be put to your Commission a counter question enquiring *what had been done to carry out the recommendations . . . thus many a man, who formerly was anxious to assist, has become callous on account of failure of previous govern-*

ments to come to grips with the problem” (Union of South Africa 1923, p. 8, part D, emphasis added).

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