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Local Institutions, External Interventions, and Adaptations to Climate Variability

The case of the Borana pastoralists in southern Ethiopia

Dejene Negassa Debsu

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CONTENTS

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Author information and acknowledgments

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ABBREVIATIONS AND ACRONYMS

ABE	Alternative basic education
AFD	Action for Development
asl	Above sea level
CFW	Cash-for-work
CIFA	Centre for Interfaith Action on Global Poverty
CISP	International Committee for the Development of Peoples
DA	Development agent
DPPA	Disaster Prevention and Preparedness Agency
FEWS	Famine Early Warning System
FGD	Focus group discussion
GPDI	Gayo Pastoral Development Initiative
NGO	Nongovernmental organization
NAPA	Climate Change National Adaptation Program of Action
PA	Peasant association
PCDP	Pastoral Community Development Project
PDO	Pastoral development office
PLI	Pastoral livelihood initiative
PSNP	Productive Safety Net Program
WASH	Water Supply, Sanitation and Hygiene

EXECUTIVE SUMMARY

This research examined the role that local institutions play in mediating responses to drought among the Borana pastoralists of Ethiopia. The research was conducted in two *woredas* (districts) of the Borana zone, Yabello and Moyale, using a combination of quantitative and qualitative methods. The analysis also looked at the role of nonlocal actors, particularly nongovernmental organizations (NGOs) and government agencies in facilitating the adaptive capacity of the Borana.

The Borana culture is known for its *gada* system,[1] a complex structure that governs every facet of life, providing the "rules of the game" for normal times as well as times of stress. It structures mechanisms of reciprocity, as well as outlines rules for managing water and pastures. Weather, including rain and droughts, is forecast based on the lunar calendar and *gada* cycles. Support systems exist to deal with stressful events, either droughts or conflicts. The *buusa gonofaa*, for example, helps restock households that lose animals to droughts or raids, and the *dabaree* system loans lactating cows to those in need. These complex security networks aid in asset recovery and are used as cushions against destitution (Hendrickson et al., 1998). When droughts hit different parts of the Borana zone, pastoralists migrate wherever necessary to access water and pasture for their herds. Customarily, the Borana have employed herd management strategies, such as herd splitting, as a coping mechanism. Herd splitting allows these pastoralists to keep a base stock near home and a satellite stock in a distant grazing area during wet seasons.

The research showed that although the *gada* system continues to be important and *buusa gonofaa* continues to operate, these social institutions are undergoing rapid changes. Droughts are becoming too frequent, making it impossible for local people to restock animal assets after repeated shocks. Tache and Oba (2010) estimate that the poor classes (i.e., transitional poor, poor, very poor, and destitute) constitute 80 percent of Borana's total households, and many of the destitute pastoralists drop out of the system and engage in wage labor and other activities in urban settings. These people often supplement their subsistence with food aid.

Also, pasture management practices are changing. Traditional rangeland management requires that everyone abide by a set of rules—rules that are becoming increasingly ignored as peasant associations (PAs) gain authority and fences are constructed around areas that used to be common grazing lands. In addition, historically, pastoralists set bushfires when invasive species started to take over pastures. When that practice was temporarily banned, rangelands decreased significantly. And even though it is no longer illegal, starting bushfires is now much more difficult due to a lack of undergrowth.

[1] The *gada* broadly encompasses the social, political, and economic institutions of the Borana and other Oromo branches. Legesse (1973) correctly describes the term *gada* as a concept that stands for the whole way of life of the Oromo.

Furthermore, our research showed that despite a strong cultural value for cattle herding, the Borana have increasingly adopted camel herding and goat herding as an adaptation to persistent drought and pasture decline. The adoption of camel herding and goat herding as production strategies requires the acquisition of different patterns of pasture and water use, new knowledge about animal management, and linkages with new market channels, all of which represent some degree of institutional change. Moreover, Borana have historically had particularly strong taboos against the consumption of camel meat and milk, meaning that camel herding has met resistance on deep cultural grounds. Thus, camel herding adoption is not simply a change of technical practice by individual herders, but an affront to collective cultural identity that continues to meet resistance by some *gada* officials and spiritual leaders (*qallu*). However, culture is ultimately flexible, and social institutions such as *gada* and *qallu*, which mediate the interaction of cultural ideals, technical practicalities, and the environment, are gradually adapting to the new situation.

This research points to six key recommendations. Firstly, donors and governments need to work together to strengthen the lives and livelihoods of pastoralists by focusing on improving market-chain analysis and support, providing greater access to veterinary services, supporting customary institutions for land and water management, and increasing access to education tailored to the Borana pastoral cultural identity. Secondly, NGOs and government programs must base their restocking projects on the customary system of risk assessment, livestock contribution, and distribution to needy households. Thirdly, programs and projects must target women by introducing improved technologies, creating access to water, and setting aside some rangelands for women's exclusive use. Fourthly, traditional weather knowledge has to be integrated into modern weather forecast systems in order to best address communities' needs for weather information. Some NGOs, such as CARE and Oxfam, have already begun to work with traditional weather forecasters by involving them in local weather-monitoring committees, and this practice needs to be strengthened by informing pastoralists how to creatively use both local and formal meteorology information.

Finally, even though cultivation in arid and semiarid environments is less viable, it has become part of pastoralists' livelihoods—practiced as a means of coping with the frequency of droughts. Given that the ecology in this area is complex, science and indigenous knowledge must come together to discover best agricultural practices. In addition, as the Borana diversify and turn to other forms of livelihood, livelihood protection efforts must also include activities besides herding and farming.

INTRODUCTION

The purpose of this study was to understand the role of local institutions in assisting the Borana pastoralists of southern Ethiopia in dealing with droughts. Because of social and economic marginalization, as well as sheer geography, Borana pastoralists are very vulnerable to the effects of climate variability. Until recently, Ethiopian governments viewed pastoralists as degraders of the land. Development policy ranged from sheer neglect to replacing the local institutions of the Borana with new ones, forcing pastoralists to abandon their culture and their subsistence strategies, including adaptations such as mobility.

This study is intended to reveal the complexities of access and entitlements that people hold in relation to institutions, regulations, and social norms (Toner, 2003: 771). It examines the institutions that the Borana rely on when drought hits; these institutions play an important role in mediating between the state and society as well as between society and individuals. For example, buusaa gonofaa is based on a clan support system activated during difficult times, especially during droughts (Tache, 2008; Kassam and Lalise, 2006). Other support systems include dabaree (stock transfer for milk) and hirba, which supports individuals who lose livestock to raiding. These social support systems have been instrumental in minimizing the effects of droughts and other disasters for Borana households. The study places these practices in micro- and macroinstitutional frameworks, to explore how different interventions have enhanced or inhibited coping and adaptations; how local institutions interacted with external structures; and whether new institutions are emerging to foster adaptive capacity.

Specifically, this study asks the following questions:

- What risks do Borana pastoralists frequently face?
- How do they recover from disasters?
- What institutions and support systems are in place to mitigate the impact of droughts?
- How do pastoralists perceive the trends in risks?
- What processes affect their efforts to cope with droughts?

BACKGROUND AND METHODOLOGY

The field research took place among the Borana people in the Oromia Regional State, Ethiopia. Borana people are one of the branches of the larger Oromo ethnic group and are located in the southern part of Ethiopia and northern Kenya. According to the current administrative divisions, the Borana zone has 13 *woreda* (districts), and two of these districts, Yabello and Moyale, were purposely selected for this study because they incorporate ecological, economic, and institutional diversities and enable policy recommendations to reflect these diversities. Although the specific research sites were selected purposely, households in these sites were selected randomly.

The altitude of the Borana zone in Ethiopia ranges from 1,600 meters above sea level (asl) in the northeast to about 1,000 meters asl in the extreme south (McCarthy et al., 2000). Yabello and Moyale have altitudes of 1,650 meters and 1,200 meters asl, respectively. The total land area currently occupied by the Borana in Ethiopia is 45,620 square kilometers and consists of 14 percent dry grasslands, 70 percent sparsely wooded grasslands, and 12 percent regularly or recently cultivated agricultural, horticultural, and domestic habitats (Bassi and Tache, 2007). As most pastoralists do in Africa, the Borana inhabit drier parts of the country, which led them to develop complex mechanisms for survival, such as diversification, mobility, and communal decision making.

The people are semisedentary pastoralists, with cattle traditionally constituting the larger portion of the household herd. Today, however, it is common to see camels and goats in Borana household herds as an insurance measure to mitigate vulnerability to droughts. Close to 70 percent of the Borana pastoralists' herds were lost during the 1991–92 drought alone (Fassil et al., 2001). The shift to camels and goats is a key adaptation to increased droughts. Also, in the area, agriculture is rapidly expanding as a strategy to mitigate the effects of drought. Although traditionally nomadic, the Borana have recently increased their reliance on crops in areas where cultivation is possible (McCarthy et al., 2001: i). Poor households that lose livestock to droughts often resort either to farming as a strategy to restock, or they drop out of the pastoral system and use food aid to supplement their meager resources.

Originally, the proposed research sites were Dida Hara and Dillo. One of the driest lowland *woredas* in the zone, Dillo's livelihood is primarily based on herding. Yabello, by contrast, has a relatively high altitude and cool temperature. Selection was based on the assumption that these two sites would represent the diversity of livelihood in the zone. However, during fieldwork, the 2011 drought forced the research team to substitute Moyale for Dillo, because the drought was so severe that pastoralists in Dillo had to migrate with their livestock to other areas.

DIDA HARA

Dida Hara, located 30 kilometers from the zonal capital of Yabello, is one of the peasant associations (PAs) in the district and has a mean annual rainfall of 539 millimeters (Homan, 2005); water is available only seasonally. Just prior to the drought of 2011, communities in the area dug a complex of 22 shallow wells following the failure of *hagayya (*short rain) of 2010.

A school, a clinic, and a marketplace are approximately two kilometers from the research site. The school covers grades one through eight; secondary school students go to Yabello town. Female students coming from a distance stay in a hostel built by a nongovernmental organization (NGO) known as CISP. Every Wednesday people buy and sell commodities, such as grains and clothes, and small animals, such as goats and sheep, at a market. The market is relatively large for the village, but for big animals, people have to go to the Bakke livestock market near Yabello. Dida Hara has an estimated 200,000 heads of cattle, 77,000 goats, 21,000 sheep, and 11,200 camels (CARE, 2009).

MOYALE

Moyale is located in the extreme south of the Borana zone, bordering Kenya on the south and the Somali Regional State of Ethiopia on the east. Administratively, Moyale town is split between the Somali and Oromia regional states, and conflict is frequent between the Borana and the Garri groups, mostly over land ownership, administrative positions, regional borders, and use of common infrastructures like schools and water points.

Research took place in Maddo, one of the largest PAs in Moyale, where 100 percent of the 10,450 residents are Borana. Moyale town, the *woreda* capital, is 37 kilometers away. The PA office is in the village of Tuqa Diima where there is an elementary school for grades one through eight and a clinic. Tuqa, the marketplace that is open daily, is 8 kilometers away. Commodities, such as grains, and smaller animals, such as goats and sheep, are bought and sold here. Bigger animals are taken to Moyale town on the Kenyan side. The Ethiopian government collects tax on animals that cross the border for sale. Moyale has 35,000 heads of cattle, 7,000 goats, 3,000 sheep, and 4,800 camels (CARE, 2009).

METHODOLOGY

This study was conducted on two levels, focusing on the whole community as well as on households. A *household* was defined as a group of people living together as a family sharing a kitchen in a housing unit.

In order to identify and investigate past and current drought-coping strategies of the Borana, different qualitative methods were used: focus groups, semistructured interviews with key

informants (including local elders, customary leaders, and government officials), case studies of selected drought events and households, life histories of individuals, and household surveys. Eight key informant interviews were conducted in Dida Hara, and six in Maddo. Life histories were taken of six individuals in Dida Hara and three in Maddo. In addition, one case study and six focus group discussions (FGDs), took place at both sites. Males and females were represented in roughly equal numbers throughout the research. FGDs composed of youths were asked about their views on the future of pastoralism, climate change, and customary systems. From each site 45 households were selected, using random sampling, to take part in a survey used to provide general socioeconomic background of the community, asset dynamics, and livelihood changes owing to droughts. Table 1 shows research methods used and participants disaggregated by gender and study sites.

Table 1: Research methods used and the corresponding number of informants/respondents

No.	Methods used	Dida Hara		Maddo	
		M	F	M	F
1	Focus group discussions	2	4	3	3
2	Semi-structured key informant interviews (KII)*	6	2	2	4
3	Case studies	1		1	
4	Life histories	3	3	1	2
5	Household surveys	45		45	

*KII does not include interviews conducted with representatives of four NGOs and three government offices operating in the zones.

The data for this study was collected in two rounds. The first round took place during April 6–27, 2011, and was dedicated to collecting qualitative information using a checklist that was developed during a three-day launching workshop for this project in Bamako, Mali, based on key weather events, pastoralism, and the Borana people. The second round of the fieldwork primarily focused on conducting the household survey and lasted from May 18 to June 5, 2011. Gaps in qualitative information were also addressed during the second round.

Analyzing qualitative data was an ongoing process throughout the data collection and write-up period. The analysis compared emerging issues around climate risk (droughts), the role of local institutions, and external interventions. Field notes and and transcribed narratives related to droughts were grouped into categories and assigned a code to address the study's different research questions. In the end, codes identified common themes and salient issues. Individual cases and life histories were analyzed separately and used in boxes as illustrative materials. The quantitative data was analyzed using Excel and involved simple statistical measurements.

Descriptive analysis presented data through graphic displays, tables, and summary statistics to supplement the qualitative evidence.

LITERATURE REVIEW

This section focuses on a review of the Borana core institution—the *gada* system—and highlights some of the major policies and development interventions and their relevance to the current state of affairs in the region.

GADA SYSTEM AND THE BORANA SOCIAL STRUCTURE

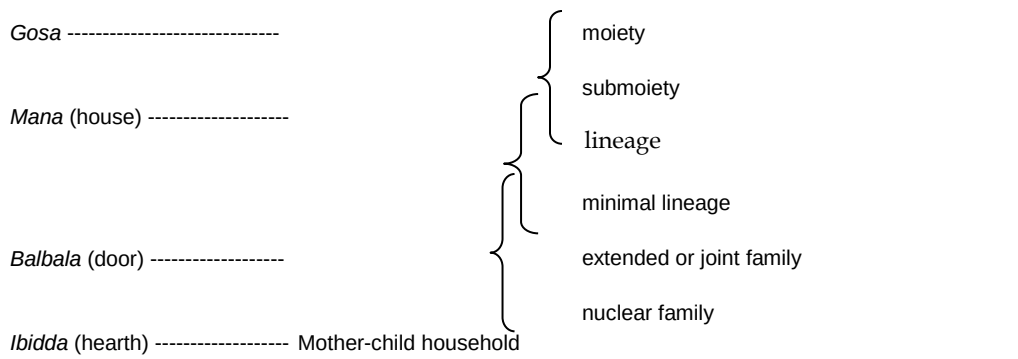
In most of the literature, the Borana are singled out known for their *gada* institution. Although nobody knows precisely when the *gada* system started, the Oromo have been practicing it for more than a millennium, according to some estimates. Oral stories recount 70 *abba gada* who ruled Borana society from long ago, each one for eight years.

Abyssinian monk Abba Bahrey wrote the earliest document on *gada* in the 17th century. Albeit useful, the monk's account was replete with errors and biases, and, as a result, the system and its democratic principles were scarcely appreciated until recently. Today dozens of rigorous works demonstrate its complexity and uniqueness (Bassi, 2005; Baxter and Almagor, 1978; Hinnant, 1977; Legesse, 1973). Legesse's book, *Gada: Three Approaches to the Study of African Societies*, in particular, brought to light the fundamentals of the system and its democratic principles.

Gada has been described as a political system (Legesse, 1973) and as a ritual system (Bassi, 1996; Hinnant, 1978), but it could also be described as a combination of both. In the *gada* system, leaders are democratically elected for eight-year terms, and the transfer of power is peaceful. As Legesse writes, "The *gada* system is a system of classes (*luba*) that succeed each other every eight years in assuming military, economic, political, and ritual responsibilities" (1973: 8). Members of a *gada* class progress together through a series of age grades (*daballe, gamme Jr., gamme Sr., Kusa, raba Jr*., *gada*, first *yuba*, second *yuba*, third *yuba*, fourth *yuba*, and *gada mojji*), and the system of classification is generational. According to this principle, a son enters a *gada* class five grades behind his father.

The *gada* has a council of clan and age-grade representatives who enact rules into law and oversee their implementation. The two moieties—Sabbo and Gonna—are represented in all political, legal, and economic deliberations. According to Legesse (1973: 43), kin groups play a role in the performance of ritual, in the regulation of water sources, and in the election of political leaders. For example, *tulla* wells (deep water wells) are owned and managed by clans. Politically, the *kallu* (a spiritual leader) represents each moiety and plays a role in electing *gada* officials. The Borana kinship structure is illustrated in Figure 1 below.

Figure 1: Categories of Borana kinship



Source: Legesse (1973).

Clan organization also supports clan members, such as through the *buusa gonnofa* institution, and defines who one should marry. Marriage takes place only between the opposite moieties, *Sabbo* and *Gona*. The role of *gada* in *buusa gonnofa* is in safeguarding the customary laws (Tache and Sjaastad, 2008: 11). Nonetheless, neither clan nor lineage is the basis for the Borana political system. Although people are divided into moieties, submoieties, clans (*gosa*), and lineages (*balbala*), the more important ties are those based on the generation grade organization (Legesse, 1973).

In the Borana *gada* system, the structures of governance are open to all men, and decisions are made through open discussions. All clans and age classes are represented in the *gada* councils. Its organizational structures and principles are, therefore, comparable to Western democracies but have a uniquely African brand of local administration (Legesse, 2000).

Gada has been instrumental in introducing conscious changes, whether they are administrative, social, or economic. In fact, members of the Borana society implement conscious changes and have a reflective view of their culture (Megerssa, 1993). Change itself is written into the constitution, which is amended every eight years at the Borana general assembly held at Gumi Gayo, Borana Zone, where council members deliberate on economic, political, social, environmental, and other important issues. The *gada* and Gumi Gayo Assembly make decisions at a higher level on local resource use and determine the management of grazing and water resources (Ayana, 2007). Changes are introduced based on a customary knowledge system and are disseminated to the public through clan representatives.

Although change is intrinsic to the *gada* system, it has come more abruptly from the outside. Following the late 19th-century imperial drive, the state co-opted Borana customary leaders and used them for its indirect rule. For example, the Guji *abba gada*, Usho Jilo, and the Borana religious leader or *qallu*, Gedo Jilo, were appointed *balabats*, local representatives of the feudal regime. These appointments had a destabilizing effect on the Borana pastoralists' customary governance and practices, including those related to conflict resolution, production systems,

and resource management. Today, even though the *gada* system continues to operate, its administrative and economic roles have gradually been reduced and are now limited to the ritual function. Declining institutional capacity of the *gada* system and forced sedentarization have made the Borana people less resilient in their dry environments.

The military government that replaced the imperial system, known as the *Derg,*[2] also saw local institutions as impediments to its modernist approaches. It marginalized local institutions from all its development activities and established alternative institutions, such as peasant associations (PAs). Based on her study of the Konso (west of the Borana in southern Ethiopia), Watson correctly explains the *Derg*'s effort to undermine customary institutions:

> Many indigenous forms of institution were … seen as problematic, as they were considered to be mired in tradition and superstition, and thus the opposite of the society that the modernizing revolutionaries wished to engender… . No doubt many of these institutions were also seen as alternatives and therefore threats to the establishment of the regime's new grassroots institutions, the Peasant Associations. (Watson, 2006: 79)

During the military regime, the *gada* system circumvented direct confrontation with the government and was discreetly operating while PAs were authorized for most of the local decision making. According to the land proclamation of 1975, the duties and responsibilities of PAs were to administer and conserve public property; establish "villagization" programs and marketing, credit, labor, and related cooperative associations; and build schools and clinics. *Gada* remained invisible in the face of officially supported and imposed state structures and was effectively excluded from all economic and political activities that affected people's lives. Yet, its invisibility contributed to the very survival and continuation of the institution (Baxter, 1996).

DROUGHTS

Droughts and famines are not new to the Horn of Africa in general nor to pastoralists of the region in particular. Environmental conditions combined with political and social factors exposed pastoralists to the severe droughts and famines that struck Africa in the 1970s and again in the mid-1980s (Azarya, 1996: 85). After the 1980s, pastoralists in East Africa also experienced different episodes of famines. In the past two decades alone, major droughts have struck the Borana region six times.

The effects of droughts are not always directly related to the lack of rainfall (Cossins, 1983). Most often crises among the region's herders have roots that precede the droughts (Little, 1992). Ati (1996: 50) argued that it is "external pressure, rather than the much stressed severity of the drought or weakening of the inherent resilience of the system, that shattered the agro-pastoral system." For example, among the Hadendawa of the northern Sudan, traditional support systems such as animal transfers through loans or gifts have largely declined owing to

[2] *Derg* is the military regime that ruled Ethiopia from 1974 to 1991.

loss of livestock and the steep rise in the price of food (Egeimi, 1996: 35). The Borana face a similar problem of trade imbalance between grain and livestock prices, especially in drought years.

Pastoralists became the focus of governments and NGOs following the droughts of the 1970s (Little, 1994). Until then, government presence in the Borana area was felt more in the form of administration. During the imperial period, local communities in the south were "administered through local *balabats* who were given feudo-military titles by the Emperor" (Tache, 2008: 8), and whose responsibilities were primarily the collection of taxes and mobilizing labor for the settler soldiers. More interventionist policies were put in place by the socialist government, known as the *Derg*, particularly through the formation of PAs. These interventions had various aims, including market integration, emergency relief, environmental protection, and provision of health and veterinary services. After this time, there was a change from a policy of benign neglect to increased government controls in Ethiopia through the formation of PAs, promotion of crop cultivation, and a ban on bush fires (Swallow and Kamara, 2000).

Since it came to power in 1974, the *Derg* administrative interventions often worked to introduce new institutions rather than strengthening existing ones. In the past, *gada* leaders and elders councils played a role in rangeland management and local administration, but the new system gave absolute control to mostly young PA and village-level officials and undermined the flexible administration of experienced elders (Homann et al., 2004). These new policies and regulations affected traditional systems of rangeland management, livestock production, and customary self-administration. In short, alienation and inappropriate development policies caused pastoralists' livelihoods to decline because these policies reduced mobility and encouraged settlement and agriculture (Tache and Irwin, 2003).

Customarily, the Borana have residential and territorial organization around water and rangeland use, which includes *olla*, *ardaa, reera, dheeda*, and *madda*. "Water sources are known as *mada*, and those who use the same *mada* form one organizational unit which is administered by the *aba mada* ('father of the *mada*')" (Watson, 2001: 8). See Figure 2a and 2b for representation of these structures.

Figure 2a: The PA administrative structure in Borana

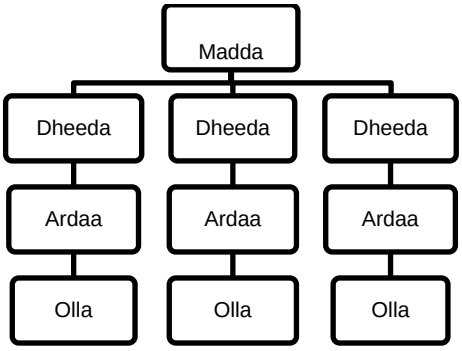
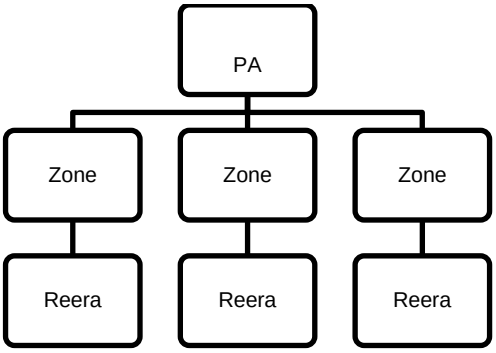


Figure 2b: Customary territorial organization of the Borana



Madda and *reera* territorial customary organizations are equivalent to PA and zone[3] formal organizations. Hogg (1990: 8) notes, "*Madda* is essentially an area of grazing which is defined in terms of right of access and responsibility for the upkeep of particular wells." Therefore, *madda* makes decisions regarding resource management in general. Similarly, the *dheeda* is responsible for monitoring and allocating grazing areas to different users and seasons at a lower level, while *olla* has the same function at the village level. Disregarding these local institutions, the Ethiopian government established its own administrative structures. Although PAs initially emerged with full support and participation of communities in the south to facilitate land reform, eventually they became instruments of the state to control the local people (Pausewang, 1983).

Past experience shows that interventions that failed to integrate customary practices into their development programs have weakened or eliminated long-established customary support systems and viable strategies of pastoral production. Under the customary system, the equitable and fair distribution of resources ensured livelihood security for all or most community members. Howard and Millard (1997) showed that the chiefs of the Chagga in northern Tanzania supervised resource redistribution before the system was eliminated by the forces of colonialism, capitalism, and socialism. In some communities these institutions endured external pressures and continued to provide important functions. Fratkin (1991) shows the resilience of customary institutions and practices, and how the Ariaal of northern Kenya survived international development projects that had negative consequences for their livelihoods.

Nevertheless, emphasis on customary methods of production systems and coping strategies is not a complete rejection of modern development approaches. Development can benefit from both traditional wisdom and modern innovations. Fratkin (2001: 3) proposes "integrating

[3] The term *zone* here refers to divisions within a PA (see Figure 2) and should not be confused with the provincial-level zone, such as the Borana zone.

pastoralist practices with contemporary realities of population growth, increased market integration, and the need to produce agricultural crops as well as livestock." Today, crop production in the Borana area has expanded and become an activity that cannot be ignored.

Apart from development efforts, relief food assistance programs in the past three decades have had a huge impact—often negative—on pastoralism. Food aid can affect and even erode the effectiveness of traditional methods of coping with droughts and famines. For instance, Corbett comments that the absence or presence of a relief program can critically affect the ways in which people respond to the threat of famine and the success of their strategies (Corbett, 1988: 1099). Some studies from the Borana area also indicate that "food relief in the Borana pastoral economy allowed non-viable households to maintain themselves in the pastoral sector and subverted the need to destock, which is nature's way of restoring balance to the eco-system" (Helland, cited in Ahmed et al., 2002: 37).

Although food aid distribution at the right time and place can strengthen household food security and save asset loss (Oba, 2001: 111), it can also encourage pastoralists to settle around relief centers and create disincentives to diversify (Fratkin, 1991; Little, 2001: 395). Food relief and the consequent sedentarization can have a significant impact on gender relations as well. Women in mobile pastoralist groups are economically better off and have better access to pasture and fuel wood, whereas "Semi-settled women … have low input into major household decisions" (Nelson et al., 2002: 54).

Although the Borana and others have continued to receive food aid since the 1970s, relief operations in pastoral areas are not well coordinated. Oba (2001) attributes this ineffective coordination to a lack of understanding by those in charge of development projects and their failure to integrate the local coping strategies into drought management plans. Until recently, local knowledge and customary institutions have been largely ignored. For instance, the early warning system in Ethiopia is modeled on densely populated agricultural areas of the northern highlands (Maxwell and Hammond, 2002), which is not necessarily efficient when responding to emergency situations in pastoral areas.

Similarly, many NGOs failed to adequately integrate customary practices into their projects and showed mostly negative returns on investments (Helland, 1996: 57). In reviewing the activities of dozens of organizations engaged in top-down development projects, Watson (2003) concludes that problems result when projects have no place for customary institutions. She also notes that some NGOs work actively with local institutions, which contrasts with development interventions that have encouraged pastoralists to take up farming.

More recently, development practitioners, particularly NGOs, have begun utilizing the existing local structures in their efforts. Especially since 2000, development agencies have shifted their approaches from a top-down model to a more participatory one. Even though this approach of participatory development has been more successful than the earlier top-down approaches, participation is often limited to customary leaders. In Ethiopia, the government and NGOs assume that chiefs or councils of elders represent the needs and interests of the community

(Black and Watson, 2006: 265). However, participation should include dialogues with community members to set a common agenda for development work.

GENDER AND CLIMATE CHANGE

The Borana institutions stress egalitarianism in benefit sharing, and building on this customary development philosophy is important. However, women are likely to face more challenges than their male counterparts. Some of the problems with local institutions may be their representation of hierarchies and lack of gender neutrality (Pratten, 1997). In addition, Pratten suggests that the informality and "invisibility" of local institutions makes identifying them and negotiating with them difficult.

People who are more susceptible to disasters are women, poor people, the elderly, children under 5, and the disabled (Burg, 2008). In food security literature, these groups are often identified as being more vulnerable than others because of socioeconomic constraints or customs. For instance, in many communities, women have to eat last and least. The vulnerability context can be shaped by trends (such as population increase), shocks, and seasonality (van Hoeve and Koppen, 2006: 8). When droughts occur, men migrate in search of jobs; women stay to care for weak animals, the family, and the farm.

The underlying source of women's vulnerability to shocks lies in the ways they are marginalized. Often they are excluded from important social, economic, and political institutions. During the *Derg* period, service cooperatives and PAs were important government institutions in the Borana area, but women were underrepresented in these institutions (Hogg, 1990), and this underrepresentation continues to be true for rural women in Ethiopia.

A recent study in the Borana area shows that the majority of female-headed households were found in the bottom rank of the economic strata and that none of them were in the two wealthiest ranks (Tache and Sjaastad, 2010). In the face of increasing climate change and variability, resources that are most important to the livelihoods of these social groups need to be identified, and strategies must be devised to build their long-term adaptive capacity.

PASTORALISTS' PERCEPTIONS AND PRACTICES ON LIVELIHOOD STRESSES IN BORENA

In order to gather information on the pressing problems of the Borana and their traditional responses, interviews were conducted with customary leaders including village leaders (*abba olla)*, legal experts (*hayyu),* traditional forecasters (*ayyantu)*, representatives of saving and credit groups, and other knowledgeable individuals.

Informants were asked to list the problems of the Borana from the most severe to least. At the top of the list were "droughts" and "lack of pasture and water," followed by "conflict," "bush encroachment," "loss of Boranaland to neighboring groups," and "erosion and the creation of gullies." As the interviews were conducted during a severe drought, not surprisingly this aspect of weather changes was emphasized. Other problems mentioned were diseases and lack of medicine, private enclosures, and high commodity prices. Conflict is primarily a concern because of frequent clashes with the Gerre group.[4]

DROUGHT RISKS, PERCEPTIONS, AND COPING STRATEGIES

The Borana report that a major change in rain patterns occurred in the 1960s and '70s, which prompted NGOs to construct ponds.[5] Previously, the Borana pastoralists' only sources of water were the nine *tullas* (the Borana deep well complexes), and that supply was decreasing. During the last years of the imperial regime (1971–73), new ponds increased existing water sources.

Ganna is the wet season for the Borana (February–April).[6] Informants report that until 30 or 40 years ago, the area received moderate to big *ganna* rains except during droughts, which regularly occurred every 10 to 15 years. After the *gada* of Boru Guyyo (1985–92), *ganna* rainfall decreased and became much more variable. Offering evidence, respondents point out that during the drought year of 1992, it rained on April 3. But in 2011, it still had not rained by mid-April. Even during the worst droughts in the past, rains came back sooner. Local people are well aware of the impact that the increasing unpredictability of rain has on their livelihoods.

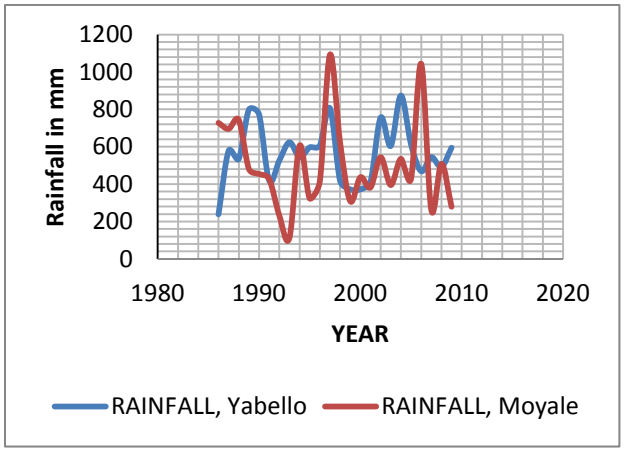
[4] The *Gerre* are Somali-affiliated groups who live in the Somali region of Ethiopia.

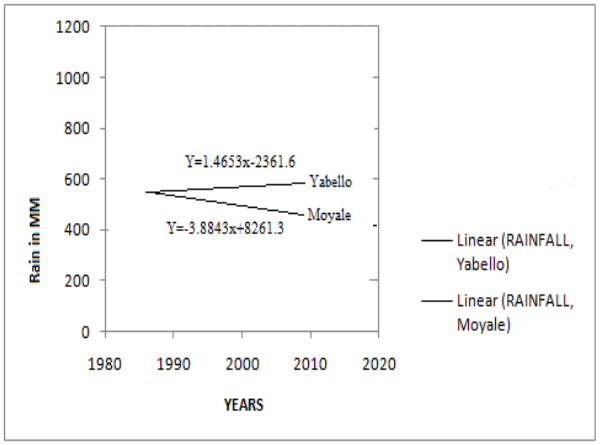
[5] Although one reason for external intervention was the increasing drought cycles, other factors also triggered water development programs, including human and animal population growth.

[6] There are four seasons in the Borana area: *ganna* (February, March, April), *adoolessa* (May, June, July), *hagayya* (August, September, October), and *bona* (November, December, January).

In addition to observing the increased variability of rainfall, people in these areas also believe less rain is falling overall. Annual rainfall data collected shows a slight decrease for Moyale (Figures 4a and 4b).

Figures 3a and 3b: Annual rainfall distribution at Yabello and Moyale stations





Source: Ethiopian Meteorology Agency.

Another apparent change in *ganna* rain patterns has to do with which months have rainfall. In the past four *gada* (that is 32 years go), February was dry, and the rains began in mid-March. February may be included in the *ganna* (wet) season, but rain then is rare. However, April rainfall stayed steady until recently.

Droughts do not affect all members of the Borana in the same way. Owners of camels and goats are affected less than those who depend on cattle alone. Traditionally, camels were not part of Borana herds; people started raising them during the *Derg* period. Camels' resistance to droughts and their ability to produce milk during droughts make them increasingly preferable as animal assets. During the *gada* of Boru Guyyo (1985–92) two devastating droughts prompted many people to sell their cattle and buy camels. However, camels are only slowly becoming part of the Borana herd because the majority of pastoralists still prefer cattle. All of their rituals are associated with cattle, not camels. Some clans also avoid camels for cultural reasons. For example, the Warra Qallu subclan of the Karayu clan does not eat camel meat or drink camel milk. *Gada* officials and spiritual leaders (*qallu*) have yet to overcome the cultural taboos connected to consuming camel products. One focus group member stated the following regarding the changing herd diversity:

> Currently the grazing lands and the grasses are getting diminished. A couple decades ago, we were not used to keeping camels. We highly value our cattle over any other animal assets. Now we have realized that camels are [more] capable of resisting droughts than cattle. One can enjoy milk even during severe droughts as far as he managed to keep

> camels. Our community is well aware of how those who have camels are least affected by droughts. However, living only on camels is not culturally acceptable to us, but things are changing. We change our culture when we are forced to do so. (FGD, Dida Hara, April 12, 2011)

Thus, camels are becoming more popular as they give more milk and meat, resist droughts, carry goods, and bring more cash if sold. Now pastoralists say, “Qabeenya qabaachun yoo gosa sadii qaban—loon, re’ee, gala,” or, “Wealth is when you have three animal species—cattle, goats, and camels.” Goats have always been part of the Borana livestock, but their number is increasing. Goats and sheep require less management and labor than camels and cattle, so pastoralists who are poor depend on these smaller animals for cash, milk, and restocking needs.

Traditionally, not all parts of Borana were affected by droughts at once. It would rain in some parts and not others. As one woman in an FGD in Maddo put it, “Miila waliin ijjatu, miila tokko dhiisee miila tokko roob” (“Two legs standing together, one leg gets rain and the other does not”; FGD, April 21, 2011). Because droughts had a severe impact on their livelihoods, the Borana developed traditional rain forecast systems, drought management strategies, and social security systems. For example, it used to be that when a drought hit one area, people moved to other areas within the region where there was rain. Current droughts differ from earlier ones in coverage and frequency.

The 2011 drought

This study was conducted during a long dry season that eventually developed into a severe drought, affecting 4.56 million people in Ethiopia. Triggered by La Niña, the 2011 drought affected southern and eastern Ethiopia, a significant part of Somalia, and northern Kenya—areas where most people are pastoralists.

After La Niña prevented *hagayya* short rains from falling in October and November, Borana herders were worried; when the expected long rain season failed, it was a major disaster. Because Dida Hara received some *hagayya* rain—albeit erratic—its pastures were overrun and depleted by animals from neighboring dry areas.

In January 2011, after an extended dry season of seven months, early signs of the drought in Moyale (Maddo) included malnutrition, malaria, less water availability, reduced grain supplies at the market, higher commodity prices, and an increase in livestock sales.

Most *woredas* in the zone experienced water shortages as early as January. NGOs such as GOAL, Action for Development (AFD), Center for Interfaith Action on Global Poverty (CIFA), CARE, and the Gayo Pastoral Development Initiative (GPDI) began implementing a water-trucking operation as a short-term strategy, assuming the *ganna* rain would return in mid-March. However, many of these NGOs continued these operations through February, March, and April. Some NGOs had to pull out of emergency interventions because of budget constraints.

In early April, the zonal emergency task force warned that unless the scale and level of interventions were revised, the area would experience migration, conflicts, and high rates of livestock mortality. Interventions identified as necessary included food aid, animal feed supplementation, provision of water (transporting it and maintenance of infrastructure), veterinary care, destocking and market support, and human health services.

As in many previous droughts (see the case study below), households lost a large proportion of their animal assets. However, the severity of the drought was higher for Maddo than it was for Dida Hara, which made a difference in impact on the two communities as well as on individual households at the two sites, though households at both locations employed familiar methods of migration, livestock sales, and mutual support to cope with the drought.

The year of blackflies: Remembering a drought

Gurraacha Wario, 48, is from the Hawwattu clan in Maddo. He recalled the most severe drought he experienced in the past two decades was during the *gada* of Boru Madha (1991), known as *bara tiittee gurracha* (the year of blackflies). The drought was caused by the failure of *ganna* and *hagaya* rains. Also there was a conflict between the Gerre and Gabra on one hand and the Borana on the other. Both the drought and conflict resulted in animal and human death.

At the time Gurraacha lived in Tuqa and had only two family members (compared with today's nine). Before the drought he owned 54 heads of cattle. When the drought advanced, he migrated to a place called Golboo in Kenya. There too there was no good pasture and Gurraacha's cattle started to die. Seventeen of them died while he was still in Golboo, and he sold three of them to buy food. Then he returned to his former place (Maddo) where 31 cattle died. He received food aid after all his livestock died. A human disease called *biirtee* (probably typhoid) also affected many people, including Gurraacha, but he recovered after he had a traditional medicine.

After two *ganna* rainy seasons, he purchased a young bull. His brother gave him a heifer. When the bull became mature, he sold it and bought four small bulls. He also received four goats and a heifer from the government restocking program. He converted the heifer to a bull. The heifer he received from his brother gave birth to a calf. After two to three *ganna* rainy seasons (during the *gada* of Boru Madha), there was another long dry season, locally known as *bona bubbee* (1998). Five bulls died, but the remaining livestock survived the dry season. However, during this long dry season there was no food shortage. Gurraacha had grains from the previous year's harvest. He also did some goat trading. After a while he began trading with bulls. With the profit from goat trading he purchased two bulls from Dubuluk and sold them in Moyale town with a good profit margin. The second time he purchased three bulls from Mega and sold them in Moyale, this time at a loss. With the remaining money he bought milk for his children and his capital started to deplete. Before the money was gone, he bought nine goats and started to depend on them for milk, cash, and meat consumption. After three years, a disease outbreak killed 17 goats and three sheep.

Before the drought of 2011, he had 11 heads of cattle. Seven of them died as a consequence of the drought. Now he owns four heads of cattle, two goats, and six sheep. If the drought condition continues, he will be migrating to Kenya to do some wage labor but wants to leave his family behind.

Local meteorology

Local people have a long view of culture, time, and history. *Gada* serves as a cultural marker of history as well as a set of rules by which to live one's life. With its well-developed lunar calendar and *gada* cycles, it provides the most valuable historical source in the absence of recorded material. In Borana, days, months, seasons, and years are cyclical and are associated with certain weather patterns, the absence or availability of pasture, and, in general, human and animal well-being.

The Borana perceive risk as ordained by God, but predictable. They predict hazards in two ways. The first method is by referring to the *mara gada*, the *gada* cycle, which has to do with time and governance. *Gada* officials, senior legal experts, and retired leaders, generally known as *jaarsa arga dhageettii*, have a good understanding of *gada* cycles.

Experts in customary practices contend that events, including droughts, repeat themselves every 40 years (or five *gada*). As the Borana say, "Oolli ka abba ilmaati," that is, "Droughts follow generation cycles." Whatever happened during the father's *gada* will happen during the son's *gada*. Sons of *gada* leaders go through a series of rituals and *gada* grades before they take power 40 years after their fathers. It is believed that the destinies of the sons are similar to their fathers'. For example, people recall that a severe drought comparable to the current one occurred 40 years ago during the *gada* of Goba Bule, the father of Boru Goba, the current *gada* leader in power. This does not mean that droughts have not happened in the intervening years. Rather it means that the two droughts are similar in terms of scope and severity.

The second method of foretelling the future is cosmological and is practiced by diviners who have knowledge of the mysterious world. Just as with *gada* experts, these specialists believe that rains and droughts follow yearly cycles. The major rainy season, *ganna*, has seven cycles, each with particular characteristics in its rain pattern, amount, and distribution (Table 2).

Table 2: *Ganna* cycles and rain patterns

No.	*Ganna* cycle	Rain pattern
1	*Talaasa*	Driest *ganna*; full of misery
2	*Arbaa*	Dry
3	*Kamisa*	A lot of rains; prosperous *ganna* season
4	*Gumaata*	A lot of rains; animals become fat and reproduce
5	*Sabdii/Safxii*	A lot of rains; animals become fat and reproduce
6	*Aada*	Dry or rainy; animals may be fat or thin
7	*Halsiniina*	Just enough rain

Source: Field interviews, 2011.

The first two *ganna* (1 and 2) are always drought years and difficult times. The next three *ganna* (3, 4, and 5) are good and prosperous years, and the remaining two (6 and 7) are in between. According to the traditional forecasters' observations, previous droughts generally occurred

during the *ganna* cycles *talaasa* and *arbaa*. However, there are irregular *ganna* cycles full of uncertainty and unpredictability. Sometimes there are floods during cycles that should be dry and droughts during cycles that should be wet.

The ability to understand these irregularities requires specialized diviners who possess specific supernatural skills. An *ayantu* communicates with the mysterious world, an *uchu* reads intestines, and an *usa* studies the stars. For instance, if the star that is supposed to appear every three months to signify rain does not appear, then the *usa* can foresee drought. An *uchu* can predict whether rain is coming by looking at the intestines of a male goat, a bull, or an ox. According to the Borana calendar, it will rain at least 16 days during the *ganna* season.

Eighty-nine percent of the sample households in Dida Hara and 62 percent in Maddo said they get information about weather from traditional forecasters and that they make decisions based on this information.[7] Asked why they prefer traditional forecast methods, pastoralists cited lack of access to modern systems, local specificity, timeliness with regard to the onset of long rains, and a familiarity that they don't have with the scientific and modern meteorological terms (see Luseno et al., 2003). Also, they "… offer sufficient complementarity as to elicit confidence from the overwhelming majority of the region's pastoralists" (Luseno et al., 2003: 1484).

In addition to the rain forecasting that enables the Borana to mitigate the impact of droughts, they also have institutional mechanisms to support them during difficult times. One of these is the clan-based *buusa gonofaa* system. Those who lose animals to droughts or raids make claims for replacement. After every drought, the clan assembles and decides how to restock animals during the recovery period. People may also give grain, money, butter, and milk to needy members of their clan while the drought is happening. These actions are voluntary, but the clan assembly can force people to contribute.

Dabaree is another support system, in which a lactating cow is loaned to *gosa* members. The lender transfers stocks to those who do not have enough milking cows. *Dabaree* animals have to be returned at the owner's request. However, the lender does not usually take an animal back unless the terms of the agreement are violated, such as selling an animal without the owner's approval. Unlike *buusa gonofa,* which supports members of a given clan, *dabaree* can be given to friends as well.

Drought impacts on women

Women are more affected by drought than men because they have to make up for all the scarcities created by droughts: water, animal feed, and food for their families. During drought years, women and girls have more work to do. In addition to cooking for the family and fetching water from farther away, they have to locate, cut, and bring back grasses from distant areas for

[7] A few *ayyantu* can also correctly forecast rains and droughts. It is said that in the early days there was a general assembly of the Borana at which all healers (*cirreessa*) and forecasters (*ayyantu*) were summoned. Those who misled their people in falsehood were put to death. Only two real healers (Warra Oborso and Warra Ali) and three forecasters (Teerrajjii Jaldeessa, Dhikkee Qulqullee, and Bukkee Kulii) were spared. Since then, people have received accurate forecasts.

calves and other weak livestock, often going to places cattle cannot reach. Women also collect firewood, which lasts only a few days. Sometimes girls miss school in order to get everything done.

In short, women bear the brunt of the drought's challenges. As one male informant puts it,

> Whenever serious drought like this one strikes, it is the women who are directly affected due to, first, increasing workload: women fetch water from distant place, they care for shoats [sheep and goats], calves, and weaker livestock; prepare food, look after children. Second, in terms of food availability, it is the women who bear the burden. They feed their children and their husband before they eat themselves. (Goomicha Jarsoo, key informant, April 12, 2011.

The girls' focus group in Dida Hara feels that girls and women are exploited. The group said,

> Girls are given away for marriage at a very young age, often 15, and this could cause complications during birth. At this age, they cannot even complain about their exploitation. They herd livestock after marriage, are beaten or scolded. Parents often pull their daughters out of school and marry them off. The only positive change for women in many years is the fact that women can go to school today. The solution for this problem is informing fathers about the importance of educating girls, and helping each other on chores (FGD, April 14, 2011).

Regarding the problem facing pastoralism, the girls focus group believe that pastoralists have to diversify. They have to sell some of their animals before the onset of droughts and put the money in the bank. This perspective was shared in a women's focus group discussion in Maddo:

> Men do not like people who sell their livestock, and they say, "Guutuu of kute" ["He became a destitute without a braided tuft"]. If women were in a position to make a decision to sell their animal assets, this death wouldn't have happened. They would sell them and use the money for trading. Often men do not consult with wives to sell animals. Some men even take animals to the market from the grazing area without consulting their wives, pretending that the animals were eaten by wild beasts.

The adult women's group believes that droughts are God's will and that nothing can be done. But the young girls, who have some level of formal education, believe that droughts are also caused by clearing farmland and making charcoal, both of which deplete forests. The girls' focus group also pointed out another factor that contributes to deforestation: the cultural practice of migrating after burying a family member, which requires cutting down trees to build new houses. Such views mean young women are more likely than adult women to attribute droughts to human actions.

Both historical and current experience show that women are the most vulnerable group to drought effects (see Adii's life history below). They fetch water, cut grasses, and prepare food, but they get the least food in the family. In Borana culture, food is served first to children and next to the household head. The rest of the family eats whatever is available, but women get almost nothing. (Informants in general believe that during droughts traders and salaried individuals do well.)

A woman's experience of drought: Adii's story

Adii Huqqaa, 60, tended cattle before she got married. She also collected firewood, fetched water, cleaned the house, made traditional milk containers, and built a house. Then the livestock were fat. There was pasture, and milk was plenty. Until she got married she experienced only one drought. Then Adii and her family were located at their present settlement site. They went to Surupha or Arbulee to get water. Adii was going to these places to fetch water for the family. They traveled in groups and had to travel day and night.

Adii got married when she was 15. She received six heads of cattle as a marriage gift. Her husband had about 20 heads of cattle at the time. Since her marriage she has seen four droughts: the droughts during the *gadas* of Gobba Bule, Jilo Aga, Boruu Madha, and Guyyo Gobba.

During the drought of the *gada* of Gobba Bule, she and her husband migrated as a family to Dharritu where there was water. Both the *hagayya* and *ganna* rains failed. About 40 heads of cattle died. Adii and her family received no support from the government or NGOs. After two months they returned to their place (Jirmo) with only 10 heads of cattle. Four of those 10 died after returning to Jirmo. Some of the deaths were because of the outbreak of animal disease known as *tummaa*. Adii and her family received two heads of cattle through the *buusa gonofaa* support system. They sold three heads of cattle and a few goats during the drought.

During the drought of the *gada* of Jilo, *ganna* rain failed, but the animals were very weak and could not migrate. They were watering the livestock at a place called Sororoo. The pasture was relatively good during this drought, but there was no water. The small ponds that were available in the area dried up. So they were going between Jirmo and Sororoo for pasture and water. The six heads of cattle Adii received had already reproduced and reached three years or older before the drought occurred, when many of them died as a result of the drought and *Tummaa* disease. Only four survived. They sold two of them and several goats to buy food. This time around they did not ask for *buusa gonofaa* because everybody was almost the same. They started farming after this drought.

During the drought that occurred in the *gada* of Boruu Madha, the family as a whole migrated with livestock to Surupha. About 30 heads of cattle died. After two months they returned with 10 heads of cattle. They sold one bull and several goats to buy food. CARE also distributed relief aid (wheat, oil, and biscuits). They did not ask for *buusa gonofaa*. After the rains came back, they got plenty of milk.

The most recent drought, during the *gada* of Guyyo Gobba, killed six heads of cattle. They have had camels for the past 10 years. They decided to buy a camel because only camels can resist the drought and continue to give milk for the children. First they bought just one camel, and then it became three. Then they sold one of them. If they can, they will add some more camels. Now she has eight children, six of them living with her.

Short-term drought-coping strategies

Based on survey results from both sites and the discussion in a women's focus group in Maddo PA, three drought-coping strategies were identified: livestock sales, petty trade, and restricting consumption.

Livestock sales

Women in the Maddo focus group reported having to sell more livestock than previously in order to buy food. The first animals sold are usually sheep and goats, followed by bulls and old cows. Although more productive animals are rarely sold normally, droughts force asset-poor households to sell a larger percentage of their herds, even fertile cows. During the 2011 drought in Dida Hara, 9 percent of all camels and cattle were sold, and 19 percent of the goats and sheep were sold. Female livestock that was sold included 3 percent of the cows, 5 percent of the ewes, and 11 percent of female goats. The total percentage of sales in Dida Hara was 10 percent tropical livestock units (TLU)[8]. In Maddo during the same season, 3 percent of the female camels, 6 percent of the cows, 3 percent of the ewes, and 11 percent of the female goats were sold. The overall sales figure for Maddo was also 10 percent TLU.

Petty trade

During droughts many women practice petty trading with consumable items such as sugar, soft drinks, cooking oil, macaroni, beer, grains, tea, salt, cigarettes, and *khat*, which they buy in nearby urban centers and sell in the villages with very small profit margins. Some trade items, such as haricot beans, poultry, and eggs, are produced locally, and traders buy them in their villages and sell them at the nearby markets. Whatever they earn goes to purchase food for the family. Women in the focus groups affirmed that the sale of firewood, charcoal, and grass is common practice by both men and women during droughts.

Restricting consumption and skipping meals

Women in the FGD explained that when food is scarce, they distribute it first to children and productive members who undertake heavy tasks, such as animal watering. Most women in their village skip meals entirely so that their children can eat. As a result, women feel they are the group most affected by drought.

In addition to these coping strategies mentioned by the focus group, communities can also request relief assistance from local governments. Individuals also borrow money to buy food or receive remittances from migrant laborers, relatives, or friends.

[8] Tropical Livestock Units (TLU) provides a convenient method for quantifying a wide range of different livestock types and sizes in a standardized manner. The TLU conversion factors used are as follows: cattle = 0.70, sheep and goats = 0.10, pigs = 0.20 and chicken = 0.01.

SHORTAGE OF PASTURE AND WATER

In the past, household herds had less livestock, no more than 100 animals. “Even if you have 10 heads of cattle, you can be considered rich” (Gollicha Gayyo, key informant, April 13, 2011). There was enough pasture and milk for everyone. Because of increasing numbers of livestock, pastures are in short supply even in nondrought years. In drought years the shortage of water not only affects livestock directly but decreases the amount of pasture.

Bush encroachment also contributed to pasture shortage in Borana. A ban was imposed on bushfires during the *Derg* regime, and since then invasive species have taken over rangelands. Despite efforts by the government, NGOs, and communities to clear bushes, bush encroachment is rendering rangelands useless.
The increasing drought cycle means that water in the zone is decreasing, both underground and on the surface. In Yabello, the problem was exacerbated by the 2010 flooding that destroyed several ponds. Then, during the most recent drought, all but one of them, Bakke, dried up. In the Dida Hara area, the Borana now rely on the traditional *adaadi* (shallow wells) that were dug around Siiquu and owned by the villagers.

The Borana have customary institutions of rangeland and water management represented by *abba dheeda* and *abba herrega*. The *abba herrega* keeps track of water for residents and is also responsible for maintaining and cleaning wells. *Dheeda* is a larger territorial unit for which the *abba dheeda* is elected or sometimes administered by a council of elders, the *jaarsa dheeda*.

Herds are split into *warra* (base) and *foora* (satellite) stocks, and the pasture is split accordingly. The *foora* consists of males and non-lactating females, and the *warra* are lactating animals, which are kept closer to family dwellings. The *foora* are taken to distant grazing fields in the wet season and return back to join *warra* animals in dry season, when the distant fields no longer provide water and pasture. Wells and *kaloo* (common grazing areas) are fenced and closed when it rains and opened during dry seasons. Traditional rangeland management has, however, been in decline, so disregarding these rules has become common.

Recently, *gada* leaders and PA officials have taken steps to improve the conditions of rangelands. Before there was a pasture shortage, people were allowed to settle anywhere. In Dida Hara, *gada* leaders have been discussing how to move people who settled in the traditional communal grazing areas. Informants said that because of a decision by the council of elders, people settled in the village more than 40 years ago during the *gada* of Goba Bule. The areas between adjacent villages were left for grazing, and most settlements were along the road from Yabello to Arero. Violators were penalized and forced to move to the settlement site.

After the recent decisions, the settlement was rearranged so that 12 kilometers of grazing area will lie between two parallel clusters of villages. This arrangement aligns with government plans to construct drinking water pipes as part of the Pastoral Development Corridor project. Before the villagization even started, clan elders and *gada* councils agreed that “illegal settlements in

pasturelands is the main problem in managing the rangeland." Although the discussion was initiated by the community and took place in Yabello, some people are refusing to move to the new settlement sites and are appealing to officials to allow them to remain where they are. One member of the men's focus group in Dida Hara said the case has not been settled, interrupted by the 2011 drought (April 14, 2011).

Rules for rangeland resource use started to weaken during and after the *gada* of Boru Madha (1993–2000). People stopped listening to each other, ignored customary laws, and started settling wherever they liked, using the government structure (PA) to ignore traditional rules. Decisions by elders' councils, *jaarsa biyya,* are often bypassed or overturned by PA officials. A male informant from Dida Hara said,

> The severe problem we are facing today is partly exacerbated by our failure to manage the natural resource properly. If we protected the *kaloo* properly, as we used to do in the past, we could have saved some pastures for at least smaller and weaker animals. But we prematurely let the livestock graze in the *kaloo* we had earlier started to protect. That was a mistake. (Goomicha Jarsoo, key informant, April 12, 2011)

Local people have a clear understanding of how their environment has changed. Focus group discussions identified at least five factors in failing to control invasive species. First, the bushes are drought resistant. Second, most of the species reproduce through seed dispersion propagated by birds, wind, flood, and animals. Third, communities are not well mobilized to control their expansion. Fourth, no advanced technique exists to control these invasive species on a large scale. Finally, even though a ban on bush burning has been lifted by the government, the absence of bush undergrowth makes burning the invasive species more difficult. Thus, bush encroachments are substantially decreasing the amount of rangelands with important forage or grass varieties.

Many discussions with focus groups and key informants revealed a dramatic change in local flora. The most important and nutritious grass species are disappearing while unwanted trees and thorny bushes are spreading everywhere in Borana. Some of the bushes are too thick and thorny for even goats and camels to access. Because these areas have limited accessibility by humans and livestock, they've been infiltrated by deadly snakes and other wild animals. As a result, firewood and forage collection in these areas is dangerous for women. One informant expressed his fear saying,

> Today, most parts of the Borana grazing lands are being taken away by three enemies: hostile neighboring groups, thorny bushes, and private enclosures. These situations may lead to the complete disappearance of the Borana rangelands. I have a concern that the Borana people may cease to exist as cattle herders as the grazing lands become a bone of contention among these three enemies (Gelma Gufu, key informant, April 20, 2011).

CONFLICT

Drought is not the only risk facing people in pastoral areas. Many droughts in the Borana area are historically followed by interethnic conflicts because they trigger migration to find limited resources such as water and rangelands. Such migration leads to tensions between the resource users. Animal thefts and raiding also increase during droughts.

Despite the destructive nature of conflicts, discussions with community members put drought, and consequently hunger, as the top risk. As one member of a Maddo PA focus group put it, "Waraanni fiigi fi dhiisii qaba, garaan fiigii fi dhiisii hin qabu" **(**"War can be relinquished or avoided but hunger cannot leave someone with the same scheme").[9] Conflict with neighboring groups is, however, more of a concern to the Maddo community than it is in Dida Hara; it was brought up repeatedly by focus groups and key informants there. Another focus group discussion participant, noting that territorial demarcation between the Garri and Borana restricted mobility and reduced grazing lands, expressed a desire for the government to actively address this widespread problem (FGD, April 20, 2011).

[9] Here hunger is equated to drought as the interviewees believe that hunger is mostly caused by droughts.

LONGER-TERM ADAPTATIONS TO DROUGHTS AND CLIMATE VARIABILITY

The Borana have developed adaptation strategies and a number of coping mechanisms in response to life in an arid environment. Some of these adaptations are the result of longtime adjustments to droughts and others are short-term measures. Mobility, splitting herds, dry-season grazing reserves, and livelihood diversification are some of the classical examples of risk management in dry environments. Extensive social networks of mutual support and in-depth knowledge of local meteorology can also be considered adaptations to arid environment.

MUTUAL SUPPORT SYSTEMS

Local institutions and support systems are untapped resources that could aid development efforts. Pastoral societies have social security networks rooted in a system of gifts and loans, and these institutions are more resilient in the face of ramified challenges (Fratkin, 1991; Helland, 1996; Oba, 2001). The increasingly worsening condition of food security in pastoral areas is due partly to the government's lack of a clear understanding of local coping strategies (Getachew, 2001; Oba, 2001). Moreover, the government has no coherent policies on droughts, which frustrates development efforts. Oba (2001) suggests that understanding local coping mechanisms is useful for several reasons:

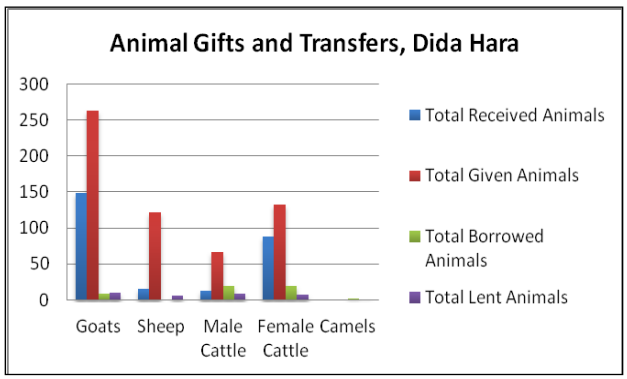
1. To preserve traditional coping strategies that are being lost
2. To understand why a system that worked in the past is suffering ecological and economic pressures
3. To integrate traditional coping strategies into drought-management planning
4. To strengthen local food security based on local coping strategies, which are more sustainable
5. To forecast the impending crises in the face of weakening local coping strategies

One of the best-known Borana social security systems is the institution of the *buusa gonofaa*, which operates among the Borana on the principle that members have collective claims to clan property. This right, however, seems to be contingent on individuals' viable pastoral economy. Individuals below a certain level of poverty lose their entitlement to claim support from their clans. Under conditions of perpetually declining household assets and increasing poverty, the capacity of *buusa gonofaa* to accommodate the needs of poor pastoralists has been questioned. The fact that an increasing number of poor households drop out of the institution and the pastoral system in general "casts doubt on the capacity of the institution effectively to combat chronic, rather than merely transient, poverty" (Tache and Sjaastad, 2008: 30).

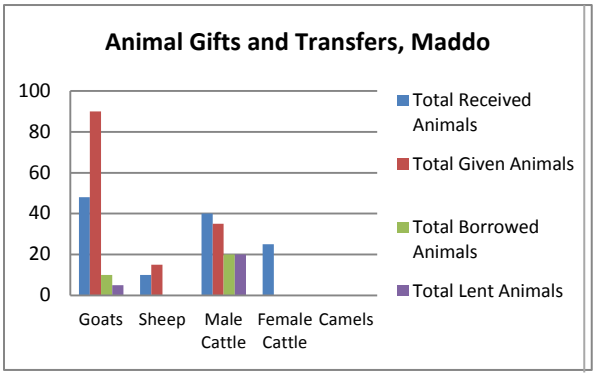
However, in programs and policies aimed at preventing household asset loss and the poverty trap, the institution can continue to play a crucial role in building household assets. Figure 5 shows the size and composition of animals transferred for various reasons.

Figure 4: Animal gifts and transfers in Dida Hara and Maddo

Dida Hara



Maddo



Source: Household Survey, 2011.

Apart from *buusa gonofaa*, there are several forms of gifts and animal transfers. Many households are involved in gift exchanges of one form or another—as recipients, lenders, borrowers, or donors. While receipts of gift animals are reported by all wealth strata of households, borrowing is almost exclusively done by asset-poor households. Traditionally, a poor household might borrow an animal for milk, such as through *dabaree*; but more recently, bulls are also borrowed for plowing, indicating the increasing role of agriculture in addition to herding. In general, poor households are cushioned against a severe deficit of food and other productive assets through gifts and loans.

The goat seems to be the most preferred gift animal, followed by female cattle and then sheep. Goats and female cattle represent 89 percent of the total received gift animals both in Dida Hara and Maddo. In general, goats and sheep are easily converted to cash and preferred for sale to meet minor household cash needs. Female cattle are important for household milk consumption and reproduction purposes. However, with the increasing diversification of their herds, the Borana no longer depend on cow milk alone. Camels, goats, and sheep also meet household milk needs, especially during droughts.

A cross-site comparison shows that camels constitute a more significant part of animal gifts and transfers in Maddo than in Dida Hara. Households in Maddo seem to have adapted to the otherwise arid environment by raising more camels than their counterparts in Dida Hara. Cattle herding is more viable in the latter site, but camels have increasingly become part of the herd.

Apart from gifts and transfers, camels account for 33 percent TLU in Maddo and 10 percent TLU in Dida Hara.[10]

The Borana see these support systems as important but do not normally favor receiving support. Many believe these systems are declining. As one female informant from Maddo stated,

> Earlier we gave each other livestock, grains, and milk. Today everyone is [too] poor to support anyone else. However, there are highly food-insecure people who even cannot carry their weak animals to sell them. These people often depend on others for help. Able-bodied people migrate to Kenya and do wage labor while their wives remain in their villages. Some of them trade in milk and *khat*[11], but during droughts, milk is not available. Even rich pastoralists are in a bad situation because their animals are too weak to sell. (Sheedoo Dooyyoo, key informant, April 22, 2011)

MOBILITY AND RANGELAND MANAGEMENT

Customary resource management rules in the Borana area are based on the Borana people's local knowledge of their environments, including the scarcity of rain and unfeasibility of agriculture. Therefore, every eight years, the *gada* assembly reiterates its commitment to pastoralism and, hence, the maintenance of traditional rangeland management rules. *Gada* officials try to stop the expansion of agriculture in their region, but PA measures prevent the effectiveness of the traditional rules.

The Borana have had one of the best rangelands in east Africa until a few decades ago (Watson, 2001; Ayana et al., 2006). Rangeland resources were enhanced by the Borana customary system of resource management, which includes seasonal mobility, herd splitting, and rules for common grazing areas and water sources. Both mobility and herd splitting reduce the number of animal deaths caused by droughts and other site-specific risks. Dobie (2003: 141) states that "for millennia, pastoralists have recognized the importance of transhumance (moving great distances with their herds) in maximizing the use of scarce pasture. This allows the best employment of the available pasture, reduces the tendency to over-use pasture and helps to avoid seasonal disease-carrying insects." The Borana practice all these strategies in order to make efficient use of scarce resources.

Social and territorial organizations of the Borana, such as *olla*, *dheeda*, and *madda,* facilitate orderly utilization of rangeland and water resources. These institutions emerged around hand-dug wells, ponds, rangelands, and the Borana *tulla* (deep well) complexes. Access to these

[10] The proportion of camels to the total animal herd reflects the increasing importance of camels in the study sites, particularly in Maddo. At *woreda* level, however, Yabello has a bigger camel population (11,200) compared with Moyale (4,800) (CARE, 2009).

[11] Mild stimulant plant.

resources is highly regulated. The emergence of private enclosures and, in some cases, the sale of rights to water sources have, however, led to poor institutional development and little regulation (Desalegn et al., 2007). Private enclosures particularly threaten the traditional rangeland use systems.

The weakening of elders' authority in the face of officially supported PA administration has also compromised the effectiveness of customary rules. The *Derg* regime, which ruled the country from 1974 to 1991, expanded the PAs structure at local levels and weakened the functioning of *gada*, especially the rangeland management systems. For example, as noted, bushfires were banned, causing unwanted bushes to take over rangeland. Today, even though the current government allows bush burning, it is impossible to do so because there is no undergrowth to get a bushfire started. As a result rangelands can no longer be used by cattle, but continue to be used by goats and camels.

Moreover, because of this same misdirected policy, rangelands are turning into farmlands. The PA officials are allocating land to anyone who wants to farm, and *gada* ritual places are increasingly becoming farmlands. The locals believe that this encroachment on rangeland should be prevented through government policy. According to some estimates, 12 percent of the total land area of the Borana is cultivated agricultural, horticultural, or domestic habitats (Bassi and Tache, 2007). Paradoxically, farming is one of the coping mechanisms for impoverished pastoralists but is also a major problem in herding.

Climate variability is another factor that plays a significant role for the deteriorating rangeland conditions. Locals report that herds used to be small and that there was relatively enough rain and plenty of pastures, but now they believe rainfall is decreasing. One of the solutions proposed by the government to address climate change and variability is to promote irrigation farming in dry areas. Another is "to group its scattered semi-nomadic peoples into permanent settlements, largely ending their mobile lifestyle that has sustained people for centuries" (Meldrum, 2011).

Already, in some parts of the Borana, pastoralists have relocated from grazing areas to specific settlements. It is not yet clear whether this villagization was part of the larger resettlement program or just a localized voluntary relocation of people.[12] However, it is clear that wealthy pastoralists with relatively large herds resisted a forced relocation. The PA, through a villagization committee, is mandated with enforcing the decision. Some NGOs working on rangeland management also formed land management committees to rearrange the settlement. However, some informants complained of favoritism local officials showed wealthy pastoralists who still refused to move. It remains to be seen how much this measure improves the growing rangeland management problems.

[12] An official from the Oromia Pastoralist Development Commission claims that the current villagization of the Borana according to the traditional settlement pattern and the government plan to resettle pastoralists are two unrelated programs.

The government and NGOs are clearing bushes to improve rangeland conditions. In fact, almost all NGOs include bush clearing as a component of their programs. The government deals with bush clearing through its public works programs. However, until now, the manner in which bush clearing has been promoted has not been effective in restoring grasses and destroying invasive species. Some projects were even counterproductive because of ignorance regarding the positive and negative impacts of various plant species, resulting in the destruction of useful species along with harmful ones. Worse, some projects cleared bushes from mountaintops, exposing them to erosion.

HERD ACCUMULATION

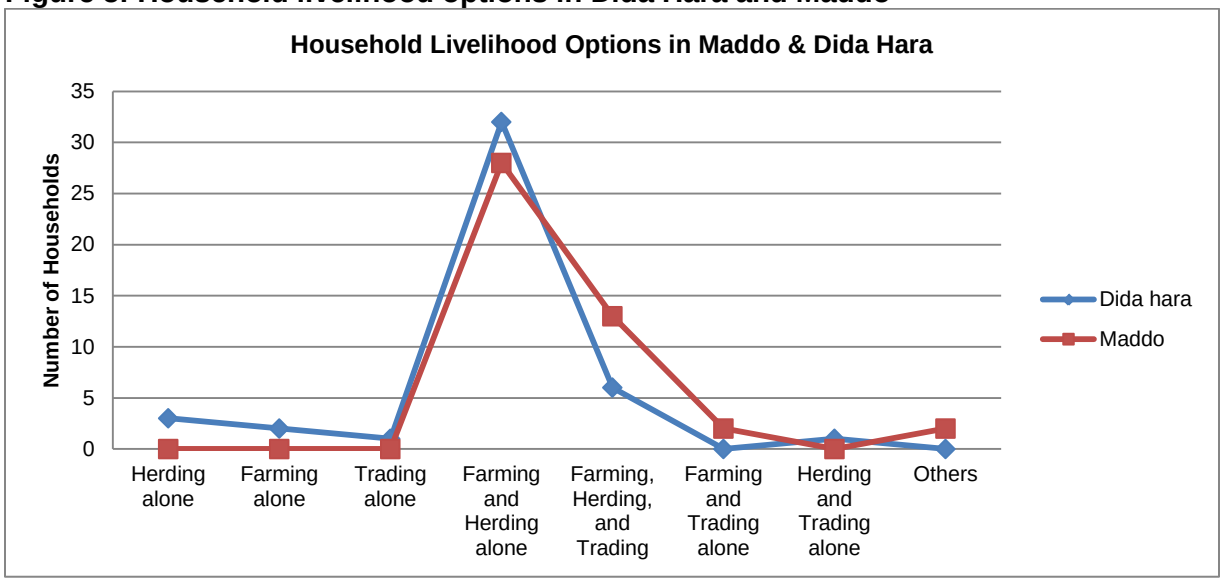
There is increasing evidence that poor households will bear a disproportionate burden of adverse ecological impacts, owing to weak resilience and limited options. For example, households with large herds can cope better with droughts than households with small herds (Solomon et al., 2008). “While a 50% mortality of cattle would represent a serious blow to a family living off 200 cattle, to a family living off 20 cattle, 50% mortality could lead the household into a poverty trap, from which it can be difficult to escape” (p. 42). Even when the wealthy households lose a larger proportion of their herds, they can still maintain a sufficient herd size for their households’ needs.

Pastoralists who are poor are also at a disadvantage during the recovery period. Building up animal assets after droughts takes at least four to five years. Ellis and Swift (1988) show that the Turkana pastoralists recovered in four years after the 1979–80 droughts, which caused losses of 50–70 percent. For households with small herds, the recovery period could be much longer. Only 22 percent households in Dida Hara and 7 percent in Maddo own more than 12 TLU. To avoid the poverty trap, McPeak and Barrett (2001) suggest herd accumulation through restocking, and they encourage mobility by increasing security in pastoral rangelands.

HERD AND LIVELIHOOD DIVERSIFICATION

As risk-mitigation strategies, households in both Dida Hara and Maddo practice herd diversification and pursue other livelihoods. For 51 percent of the households in Dida Hara, herding contributes less than 50 percent of the estimated household income (cash plus subsistence). Only three households said they make a living from herding alone, illustrating a shift from when households depended mainly on herding.

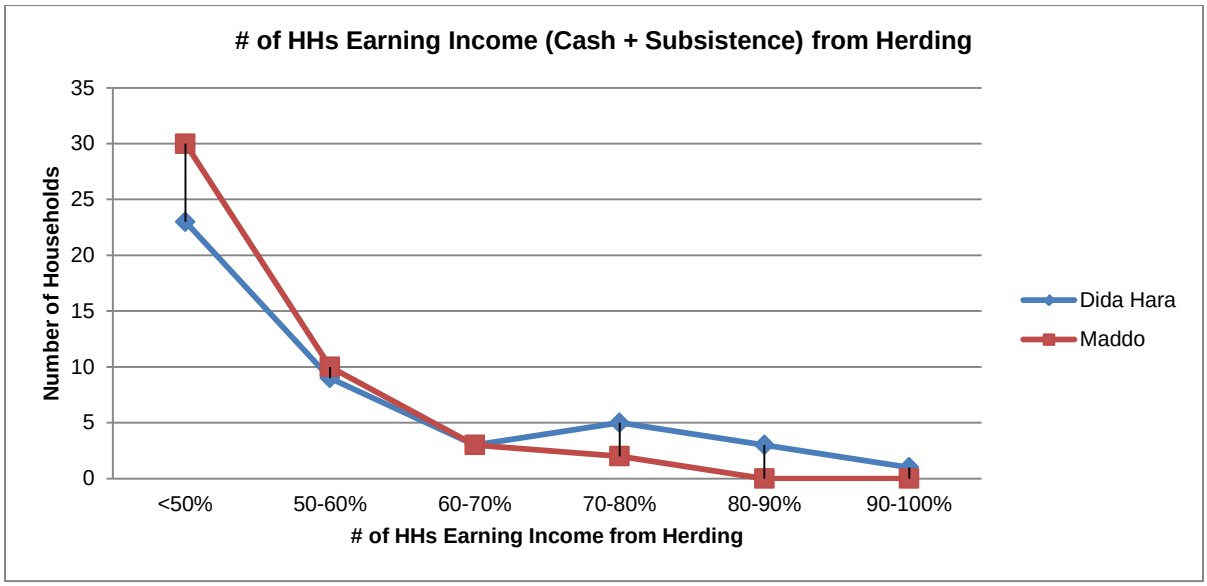
Figure 5: Household livelihood options in Dida Hara and Maddo



Source: Household Field Survey.

In Maddo, no households live from herding, farming, or trading alone. Instead, livelihoods are more diversified, a risk strategy to cope with climate uncertainty. The percentage of people in Maddo whose livelihoods combines herding, farming, and trading is 29 percent compared to just 13 percent in Dida Hara (Figure 6). Moreover, 67 percent households in Maddo get less than 50 percent of their household needs from herding. Again, because this study was conducted during a drought period, herd-based incomes were affected (Figure 7).

Figure 6: Household income earning from herding



Source: Household Survey, 2011.

Diversification of livestock includes rearing cattle, sheep, goats, and camels. Households seeking to diversify their herds buy camels if they can, but only relatively rich households can afford them. Out of the total sample households (N=45), only 11 in Dida Hara and 13 in Maddo own camels, but almost all households in both sites own goats and cattle.

The policy implication of this finding is that livelihood protection has to focus not only on livestock development, but also on other activities that supplement herding. For example, recovery could include not only restocking animal assets, but also providing cash capital for petty traders. Even though cultivation in arid and semiarid environments is less viable, it has become part of pastoralists' livelihoods, and agriculture needs an innovative approach to enhance the capacity of pastoralists who practice agropastoralism.

EDUCATION

In pastoral areas of the country in general and the Borana area in particular the illiteracy rate is high. The illiteracy level in the Borana zone is calculated at 89.7 percent (Solomon et al., 2008). However, households are increasingly investing in their children's education as an adaptation mechanism, as the data from both sites clearly indicates. One study shows that 65 percent of the households in Yabello consider a child's education as a long-term livelihood response strategy and an investment in the future (Tache and Oba, 2010).

Table 3: Grade level completed for sample household members in Dida Hara and Maddo

Site	Gender	Grade Level				
		0	1-4	5-8	9-12	13 (>12)
Dida Hara	M	80	8	9	4	2
	F	83	19	9	2	1
	Total	163	27	18	6	3
Maddo	M	58	15	23	13	3
	F	59	32	13	2	1
	Total	117	47	36	15	4

Source: Household survey.

Respondents were asked to report on the highest grade level they or their household members have completed. For example "0" was recorded for those who have never been to school and "13" for those who went to higher institutions of learning. Table 3 shows the level of education for respondents over 6 years old. In the sample from Dida Hara, only 54 out of 217 (or 25 percent) have had any education.

School attendance in Maddo is slightly better: 102 out of 219 households sampled (47 percent) report some kind of education for a household member (double the figure in Dida Hara). Educating children could be considered a form of diversification.

SAVING AND CREDIT GROUPS

Frequent droughts mean that the traditional system of *buusa gonofaa* is insufficient. People are not supporting each other as much as they used to. NGOs have supported savings and credit groups to fill in the gaps. An informant from Dida Hara explains:

> My wife belongs to a saving group called Hormata. We borrowed 550 birr last month and we bought a bundle of grasses, which fed 30 head of cattle for the last 15 days. At the end of two months I have to pay back 600 birr along with its interest. (Goomicha Jarsoo, key informant, April 12, 2011)

While such groups serve as a buffer against the impacts of droughts and other hazards, they are vulnerable to the same risks. During recent droughts, saving and credit groups nearly collapsed.

NGOs have also introduced programs that resemble some of the practices of the traditional institutions. The NGO AFD, for example, has introduced programs based on *buusaa gonofaa* to support households that lost their livestock to droughts.

STORING, INVESTING, AND SAVING

Other new and emerging adaptations include storing hay and stubbles for animals, investing in businesses in towns (such as building a house), and putting money in the bank. These particular approaches are vigorously promoted by the government development agents, and a few wealthy pastoralists seem to have adopted the strategies.

SUMMARY

To sum up, the Borana frequently encounter major risks, including shortages of pasture and water, conflict, bush encroachment, and loss of territory to neighboring groups. But the single most important environmental factor that causes fluctuations in cattle population in their zone is drought (Oba, 2001: 375).

The Borana have institutional mechanisms and short-term coping strategies to respond to the problems they are facing, including customary knowledge and modern innovations. To mitigate the impact of droughts, they rely on mobility, local meteorology, and collective claims to clan property. Other long-term risk management strategies include crop cultivation, diversification of herds and livelihood, and dry-season grazing reserves. People may also resort to trading, selling firewood and charcoal, skipping meals, and selling livestock as short-term coping strategies during droughts. Whether livestock dies or is sold, household assets shrink. When herds fall below the minimum viable level, a household has to rely on support from relatives and neighbors.

The problems of drought, poverty, and institutional crisis are increasing. A number of studies identify various causes of institutional decline and poverty in pastoral areas. Anderson and Broch-Due (1999) attribute these problems to the political marginalization of pastoralists, environmental events, and unfavorable development interventions. Ensminger (1990) argues that the expansion of state structure into previously autonomous societies has led to the decline of these societies' customary institutions.

Local people have the perception that drought severity has increased and that rainfall has decreased. Although data does not show less rainfall overall, its variability is greater. Drought cycles are shorter and more frequent, making it difficult for households to support each other and rebuild their assets. Extensive poverty, widespread livestock loss, and fewer support systems have forced households to leave the pastoral sector and move to urban centers, leaving animal assets in the hands of a few.

Local institutions, such as *buusa gonofaa*, work well for herders who need help restocking but may not be relevant or important to those who depend on farming or trading more than herding. Thus livelihood diversification may be a viable coping strategy but also represents a threat to local institutions, particularly *buusa gonofaa*.

Increasing stratification among pastoralists also creates a similar disinterest in the customary insurance mechanisms. "To the extent that redistribution of resources among such groups, especially following times of drought, represents something of an insurance system, secure households have less need of continuing the practice" (Ensminger, 1990: 670). Insurance mechanisms may work well when all community members face equal risks, but when some members depend on livestock and others invest in shops in towns, the risks are not comparable. The fact that *buusa gonofaa* accommodates only the needs of members who have viable pastoral economy also weakens its capacity.

Moreover, the clan support system is intricately interconnected with the enforcement of rules in rangeland management. Clan leaders who enforce rangeland management rules partly draw their power from threats to withhold communal support from violators. As Berger (2003) puts it, "Enforcement of rules on natural resource management is through social pressure and is effective because the clan provides the main safety net in times of crisis" (p. 247). However,

members are relying less and less on clan support, and this change has weakened the position of clan leaders in using their power to enforce customary rules.

Wealthy pastoralists have shown little interest in restoring the local rangeland management system, because it is in their interest to enclose large tracts of land for private use through their political and economic influence. Similarly, Oba (1990) describes how the wealthy Borana herders in northern Kenya used fencing as a basis for establishing legal rights over grazing grounds, thereby pushing the poor herders into marginal areas where farming is less viable. Similar processes have taken place in Borana and continue to have social and economic consequences. The transformation of some common pool resources into private property encouraged greater concentration of wealth in the hands of a few pastoralists, strengthening clientage relations and differentiation. In general, wealthy pastoralists are moving away from customary institutions toward exclusivist rights of ownership of formerly communal resources.

The increasing stratification has led to wealthy and poor pastoralists experiencing conflicting interests. Households with unviable animal assets are resorting to farming as a coping strategy, thereby shrinking pastures and often blocking herding routes, which frequently leads to disputes over farmland claims and crop damages. Farmland disputes in pastoral areas of southern Ethiopia are often adjudicated by PA courts (Debsu, 2011), giving local institutions less influence and control.

NGO ACTIVITIES IN THE BORANA AREA

To understand community coping mechanisms and adaptations, it is important to look at the roles that governmental and nongovernmental actors play and the impact they have.[13] To learn how external actors affecting the lives of the Borana pastoralists view these issues, this study included interviews with staff of Action for Development (AFD), CARE, the Gayo Pastoralists Development Initiative (GPDI), and SOS. The organizations have different levels of involvement, experience, and capacity. CARE is an international organization; the other three are local NGOs. Table 4 below summarizes major activities of these NGOs in the Borana zone.

Table 4: Projects and activities of selected NGOs

No.	Major areas of NGO interventions	NGO projects (strategies)			
		CARE	AFD	SOS	GPDI
1	Natural resource conservation, management, and utilization	Water development	Water development	Forest resource management	Water management
		Water Supply, Sanitation and Hygiene (WASH) program	WASH program		WASH program
		Rangeland management	Rangeland management	Rangeland management	Rangeland management
2	Diversification of livelihood and income-generating schemes	Income generations		Food security project	Saving and credit associations
		Organizing cooperatives		Community natural resource mapping and utilization	Forming cooperatives (producers and marketing)
3	Drought response and preparedness	Early warning system	Weather and animal price early warning program		Drought early warning
		Water trucking; restocking; construction of ponds and wells through a cash-for-work program; and slaughter destocking		Water trucking, restocking, construction of ponds, wells through a cash-for-work program, slaughter destocking	Livestock feeding, construction of ponds and wells through CFW program, slaughter destocking, water tracking, rationing
4	Human resource development		Alternative basic education		Alternative basic education
					Community-based rehabilitation

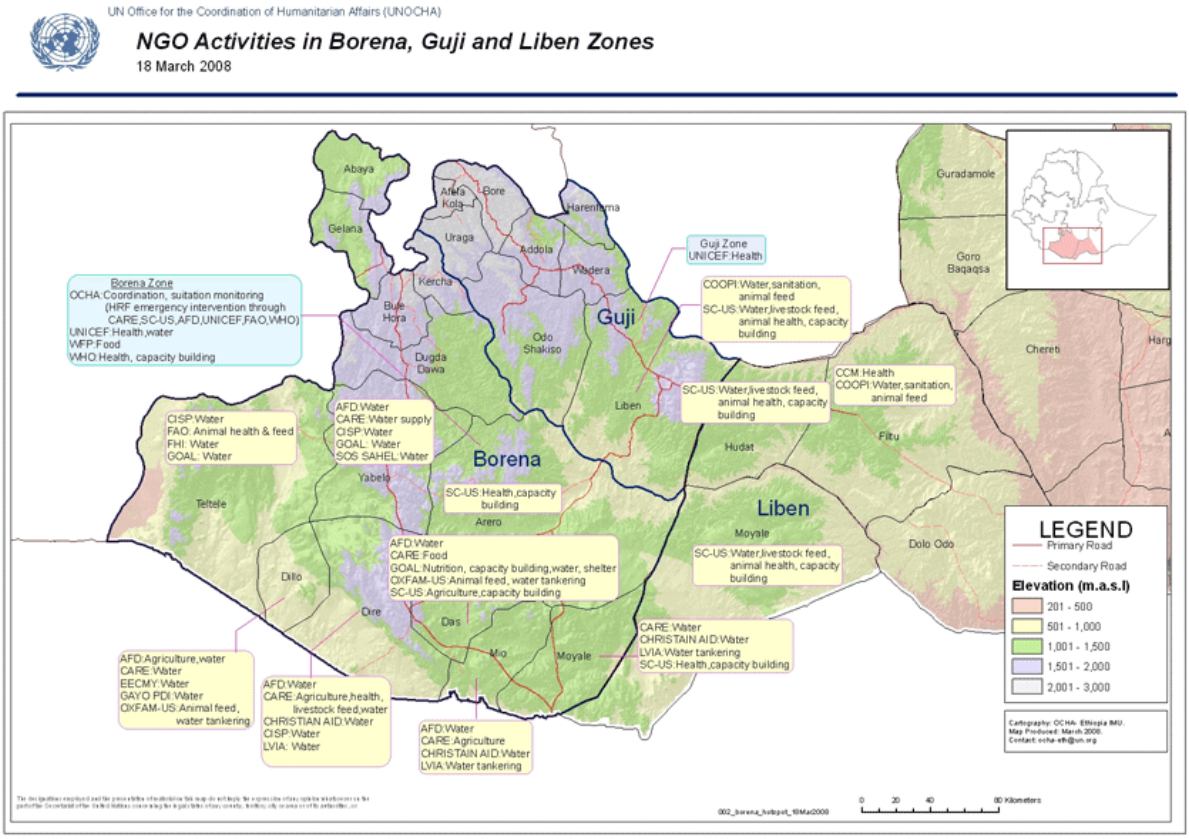
Source: Fieldwork interviews, April 2011.

[13] This section takes a cursory review of NGO activities. An in-depth study of NGO activities in the area has been written by Adele Arendse (2012).

Over the years, these NGOs have changed or are changing their approaches from relief aid to development and from projects to programs.[14] Although their mission statements focus on food security in dry areas, they all declare respect for local knowledge and capacity, transparency, accountability to beneficiaries, people-centeredness, gender sensitivity, partnership with stakeholders, equity and pluralism, and environmental concern to achieve their goals.

In general, the NGOs working in Borana make interventions in four major areas: (1) natural resource conservation, management, and utilization, (2) diversification of livelihoods and income-generating schemes, (3) drought response and preparedness, and (4) human-resource development. Depending on their organizational mandates and capacity, these NGOs use various strategies to implement their projects.

Map 1: NGO activities in the Borana area



Source: UNOCHA, 2008.

[14] Development programs are designed to simultaneously address interconnected problems in a sustained way over a relatively long period of time; projects aim to address specific problems over a short period.

WATER DEVELOPMENT AND REHABILITATION

The four major water sources in the Borana area are *tulla* (traditional deep wells), *adadi* (shallow wells), crater lakes, and springs. These water sources are mostly developed in the best rangelands. The NGOs in this study have undertaken several water projects in the Borana area:

- One of CARE's projects aims to increase water discharge by conserving the upper catchments. CARE has established a water committee that includes *abba herrega*, an official responsible for the day-to-day supervision of watering orders.
- AFD has constructed cisterns in collaboration with the PA administration and then handed the cisterns over to the community. Rehabilitation of traditional sources is done with the *konfi* (owner of the well) or *abba herrega*.
- One area in which AFD directly addressed the growing problem of climate change is the Burqitu Micro-Irrigation project (funded by Oxfam America), which focuses on planting seedlings around the spring water centers.
- CARE, AFD, and GPDI also collaborate on WASH, a project to promote water, sanitation, and hygiene. The project components include sanitation of water (biosand filter production), provision of water-purifying chemicals, and construction of common latrines and houses for poor households.
- GPDI's water management project engages in managing water sources (*eela* and ponds); the rehabilitation and construction of new ponds and cattle troughs; and training the community on water use. Depending on the nature of the project, GPDI involves government line departments and participates in weekly task force meetings. GPDI works with *gada* leaders, especially in the area of natural resource management (NRM), and discusses with these leaders how to coordinate and involve them from the beginning. Entry points are the *abba gada*, *hayyu* (legal experts), elders, and PA officials.

RANGELAND AND FOREST MANAGEMENT

CARE helps pastoralists improve rangeland management through bush clearing and thinning and works with government leadership structures such as regions, zones, and *woredas*. At the community level, project implementation is often by government line departments. Similar to its water development strategy, CARE involves traditional leaders in decisions regarding NRM. For example, in Yabello, the *abba gada* attends important meetings, and the current villagization aimed at improving rangelands was coordinated with *gada* leaders. As a result, private pastures have been dismantled, and areas that had been converted to farmland have been restored to rangelands. All stakeholders were involved, and PA officials were charged with enforcing the decisions. Plans to implement this program in other *woredas* are under way.

AFD and GPDI also are engaged in bush clearing and thinning, using techniques such as cutting and chopping, debarking, burning cut trees, and uprooting. Because termites also

contribute to the deteriorating condition of the rangeland, AFD has a project in at least one *woreda* that focuses on destroying termite mounds. In two *woredas*, AFD has formed a land management committee consisting of *hayyu* and *abba dheeda,* who move people out of grazing areas, although some people, especially wealthy pastoralists, refuse to move.

GPDI reported that the major problems facing the Borana today are bush encroachment on pasturelands, privatization of common lands, and the expansion of cultivation. To address these problems, GPDI rangeland management project mainly focuses on clearing bushes. Traditionally, the people had three grazing areas (Liban, Dirre, and Golbo pasturelands), and during droughts they moved between these three places. But in the past 15 to 20 years, many people gradually started farming in these areas, limiting the mobility of pastoralists. Expanding cultivation, bush cover, and boundary demarcations between regions and zones have led to the loss of traditional Borana territory. Although an alternative is purchasing hay, only the wealthy can afford to do so.

According to CARE, the land tenure policy inhibits NGOs' activity. The Borana have a communal land-tenure system, but the government policy supports private landholding. The current ongoing water project in Borana, known as the Pastoral Development Corridor, is intended to benefit the Borana but may end up benefiting investors. For example, one Borana investor (a pastoralist and trader) has already fenced a huge tract of land around Yabello town to grow forage in anticipation of the completion of the irrigation project.

In contrast to CARE, SOS focuses its natural resource management on state forest priority areas. Previously, the Yabello and Arero forests were managed by their *woredas* in the Borana zone, and the Manqubsa forest was managed by the Liban *woreda* in the Guji zone. Dominated by juniper tree, the total area of all three was 78,000 hectares. Even with government protection, the forests could not be saved from deforestation. Because locals were excluded from forest management and administration, forest fires broke out frequently, most set deliberately.

SOS recognized the gravity of the problem. Eight and a half years ago, it started participatory management systems in these three forests, creating a sense of ownership of and responsibility to these forests among the local people. An assessment conducted after five years shows that during the intervention period, forest fires stopped, and these three forests were protected. All other forests in the Borana area—Buna Lafa Hiddi Lola (Hiddi Lola Coffee), Gubbala, Gamadu, and Hafer—were destroyed, as was the Alga Forest in Liban.

COOPERATIVES AND INCOME-GENERATING ACTIVITIES

Through their pastoral livelihood initiative (PLI), CARE, GPDI, and AFD organize pastoralists into cooperatives and provide them with revolving funds. For example, in the Yabello *woreda*, GPDI formed cooperatives in salt trading in Dida Hara, Harweyu, and Dikale, giving pastoralists seed money as a revolving fund. The Pastoral Livelihood Initiative also focuses on forming

livestock marketing cooperatives (LMC) and saving and credit groups (see the case study below). It supports these cooperatives by linking them with local traders and providing supplementary feed for their animals.

What happens to a saving and credit association when drought hits?

The Qubsa Gamachu saving and credit association was established by GPDI and has 80 female members. Darme Genya, a member of this association, says the focus of the association from the very beginning was on women because of their subordinate position. The association started with 40 members. Members took credit to buy bulls and goats, a few of which died. Each member contributes five birr per month. Each beneficiary repays the principal and 10 percent interest. The number of members has now grown to 80.

Darme is also a member in Ibsa Gamachu, a long-established saving and credit group, which was founded five years ago by the Woreda Cooperatives Office. The establishment of the association was in response to a drought. Members contributed five birr each and, when their capital reached 4,000 birr, CARE-Ethiopia gave them a matching fund of 15,000 birr in the form of credit. Currently the association has 40,000 birr. Members get credits from the association and use the money for different purposes. For example, Darme took 2,000 birr and gave it to her son who was attending a university. Some members bought bulls for fattening; others used the money for *khat* trade. Still others invested in livestock (and lost their animals to the 2011 drought). Many of the investments are tied to rainfall, so when it's dry, members often lose their money. Darme plans to buy grains when they are cheap and sell them when the price is good, an investment not dependent on rain.

The current drought has negatively affected the Qubsa Gamachu association just as it has other institutions. The management of the association is planning to seek support from GPDI and the Woreda Cooperatives Office to prevent its dissolution.

NGOs also focus on diversification of livelihood and income-generating schemes. A study commissioned by SOS conducted resource mapping in six *woredas* and 14 PAs to identify resources available in the community. This information was then relayed to government offices in order to determine how best to use these resources.

The resources identified were gum, incense, aloe soap, and honey. Community members received training and were organized into cooperatives to sell their products. A total of 41 cooperatives were organized around these products, three of them in Liban *woreda* in the Guji zone. SOS also intends to make these cooperatives more competitive by pooling their resources and establishing an enterprise.

EMERGENCY INTERVENTIONS

CARE, GPDI, and AFD all report that they have early warning systems. They established early warning committees at the community level in order to collect information on weather and

prices. That information is documented and updated every month so that it can be used as an alert for emergency intervention. However, the federal government often declares emergencies based on crop assessments. An employee of CARE suggested that the responsibility of emergency response should be ceded to regions or zones. Often the geographic range of the disaster and response do not match either in scale or timing; and the assessments at local levels are not consistent with those at federal levels, a disconnect that results in late responses both by donors and by the government.

For its drought early warning, GPDI collects data gathered by five women from a PA on seven indicators—human and animal health, sanitation, water, livelihood, migration, nutrition, and food security—and assesses it for emergency response. In an effort to reduce women's work burden, the project reserves specific pastureland and ponds for women's exclusive use. AFD also has a community-based early warning program aimed at reducing disaster risk. Based on weather and animal prices, AFD works with the Disaster Prevention and Preparedness Agency (DPPA), district administrations, pastoralist development offices, and food security units.

Through its emergency programs, CARE has been supporting people who need assistance for the past 20 years during food shortages and drought seasons. In some *woredas* of the zone where malnutrition is a problem, it provides supplementary feeding programs. Its other projects include water purification, sanitation, and hygiene. During the 2011 drought, a consortium of five NGOs (four of which are discussed here) were involved in water rationing and other emergency operations, including livestock feeding, cash-for-work (CFW) activities related to bush clearing, pond rehabilitation, and *eela* (deep well) construction.

HUMAN RESOURCE DEVELOPMENT

AFD provides alternative basic education (ABE) through ABE centers, teacher training, school supplies, and roof catchments for schools. It also creates awareness of HIV-AIDS and harmful traditional practices such as early marriage and female circumcision. GPDI's pastoralist education program is also based on alternative basic education and provides education for pastoralists. The project hires teachers on a temporary basis for night and day classes. In addition, GPDI has a community-based rehabilitation project that provides services for disabled persons, including home-to-home visits, rehabilitation, a referral service, and vocational training.

CHALLENGES TO NGO ACTIVITIES

NGOs listed a variety of challenges facing their work. AFD cited a limited availability of good practices to draw on for replication, fragmented projects, lack of flexibility from donors, limited infrastructure, the weakening of traditional systems, and the encroachment of invasive species on rangeland. GPDI named as major challenges recurrent droughts and disease outbreaks, which require diverting funds from development to emergency. GPDI also notes that

infrastructure problems make some areas inaccessible. Reporting its biggest obstacles to success, SOS listed a constant turnover of partner-government staff, lack of an alternative energy source (which contributes to continuing deforestation), the seasonal nature of forest products (available only two to three months per year), and the unavailability of milk during droughts (because many of the SOS cooperatives are based on milk).

GOVERNMENT ACTIVITIES

In addition to discussions with NGOs, representatives of the pastoral development office (PDO), Basic Development Office (formerly known as SORDU), and development agents (DAs) were also interviewed to gain their insights on the challenges facing pastoralists. Although several government line departments are directly or indirectly involved in pastoralist development, only the most relevant offices were included in this study. The Basic Development Office is one of the government line departments operating in the zone focusing on rangeland, market development, and road construction. In 1999, it widened its scope to include running a college, creating laboratories (including in Bale and Guji), and developing infrastructure, such as ponds, water wells, and roads.

Administratively, the Cooperatives Office, DPPC, Pastoral Community Development Project (PCDP), Safety net and Food Security Office, and the Agricultural Desk are all under the PDO, and the zonal head of the PDO is also a deputy zonal administrator. The office implements its plans and activities through its *woreda* offices and PA-level DAs. Currently, it has more than 400 DAs in the zone, three to five per PA, who specialize in cooperatives, natural resources, animal health, animal science, and crop production.

The pastoral development office focuses on rangeland development, agricultural activities appropriate for arid land, water well construction, extension programs, and capacity building. During droughts, the office makes emergency interventions by conducting food assessments and submitting requests to the regional government for humanitarian needs. Then regional and federal governments do their assessments and approve the requests. However, no standard emergency strategy exists.

The major problems identified by the office and DAs include droughts, disease, and drought-related problems, such as shortages of water, pasture, and food. Being in the lowlands, humans and animals of the Borana depend mostly on ponds and water wells. The number of animals is often beyond the capacity of these water sources, which were often provided via safety-net programs, through NGOs, or by people's own initiative.[15]

The drought cycle is getting shorter, as confirmed by the head of the pastoral development office: "Drought comes from climate change. Before 20 years the region was covered by forests, but today they are deforested, and, during the same time, drought frequency has increased from every 10 years to every two years." This idea was reiterated by an official at the Oromia Pastoralist Development Commission.

Another problem is the loss of rangelands and their declining quality. Invasive species of thorny bushes and shrubs are encroaching upon rangelands, and traditional rules are weakening. One

[15] Water sources may be developed by groups of people such as clans (deep wells) and neighbors (shallow wells and ponds), or by individuals (*konfi*).

official believes, “It is impossible to revitalize the old tradition.” According to this official, the context has changed so significantly that the traditional model cannot adapt to current realities. Not surprisingly, efforts are made to educate pastoralists about reducing the size of their herds, investing in other businesses (such as constructing a house in town), and putting money in banks. The DAs organized a training program in Dida Hara (February 17–March 3, 2011) on new “options” for pastoralists to explore.

Additionally, the DAs stressed that the food situation keeps deteriorating, despite food aid. In early April 2011, for example, 208 households received food aid from USAID, but that was not sufficient for their daily food needs. For the next month, the plan was to support 300 households in Dida Hara. In Maddo, the food shortage is even more acute: no crops grew in the past three years because of a shortage of rain, and the people are depending on the safety net and food aid. The problem has been exacerbated by the lack of milk, the inability of households to sell weakened animals, and low market prices for livestock. (Livestock prices declined because of the drought and the Middle East crisis, which affected livestock exports. For example, in 2010 a big bull sold for 5,000 birr but at the time of the drought in 2011 fetched only 3,000 birr.)

DAs in Dida Hara believe that external intervention from NGOs and the government have some impact in the area. CARE worked on a bush-clearing project in Dida Hara, and the people of the PA received an award for their excellent participation and accomplishment. SOS worked on rangeland, planting grasses in degraded areas, and on construction of ponds. In addition, SOS also formed milk traders’ cooperatives, building on the earlier work of CARE. GOAL is working on health and education, such as prevention of diseases (construction of latrines, distribution of bed nets, etc.). The safety-net program includes bush clearing, road and pond construction, and food aid for the poorest residents. However, some interventions, especially bush clearing, were not done in consultation with local development agents or rangeland professionals. This situation resulted in clearing mountaintops in Maddo, exposing them to erosion.

The major challenges for the office (PDO) and DAs are professional biases toward agricultural areas and a shortage of rangeland and pastoral area professionals. No pastoral policy exists, and there is no standard agricultural approach for pastoral areas. For example, the Ethiopian government’s land policy does not take into account communal lands.

DROUGHT RISKS AND EXTERNAL RESPONSES

Although drought is not the only risk that faces pastoralists, it is considered the biggest one. Droughts are frequent in the Borana area, especially in the lowlands, meaning pastoralists are chronically vulnerable to food insecurity and famine. In the past 30 years, the Borana area has had several droughts: 1984–85 (regionwide); 1999–92 (regionwide); 1993 (Moyale); 1996–97 (Teltele, Dire, Moyale, Yabello, Arero, Shakiso, and Liben); 1999–2000 (lowland *woredas*); and 2005–06, 2008–09, and 2011 (regionwide).

FORMAL AND LOCAL DEFINITIONS OF DROUGHT

Two decades ago, Coppock (1994) defined drought as a period of two or more consecutive dry years occurring every five to 10 years in which deficient rainfall adversely affects livestock. Farmer and Wigley (1985) distinguish between meteorological, hydrological, and agricultural droughts: “Meteorological drought occurs when rain falls below the amount expected; hydrological drought is a deficit of water resources for consumption and industry; and agricultural drought occurs when supplies used directly by agriculture are short” (cited in Blench and Marriage, 1999: 62).

Compared with formal definitions, local knowledge of droughts has more nuances than simply consecutive years of no or little rainfall. In the Borana context, reference to “consecutive years” is no longer relevant, as a severe drought can be caused by a rain failure in a single year. In addition, because the drought cycle has changed from happening every five to 10 years to as frequent as every two to three years, an understanding of the regional rain and subsistence patterns and recognition of recent changes in weather patterns are required to truly comprehend droughts in the Borana area.

Rainfall is bimodal with the long rainy season being from March to May (*ganna* rain), and the short rains during October and November (*hagaya* rain). Spatial and temporal variability of rainfall characterizes the area with an average annual rainfall varying from 353 millimeters to 873 millimeters per annum (McCarthy et al., 2000). Locally, it is considered a drought when the two rainy seasons fail or when the *hagaya* rain fails and the *ganna* rain comes too late, or when the *ganna* rain fails completely and humans and animals suffer.

Moreover, the local definition of a drought has a close resemblance to that of a famine. In some literature, *drought* is defined as “a natural climatic phenomenon involving the absence of rainfall over an extended period of time” whereas *famine* is “a matter of human beings suffering from the lack of food and, often in growing numbers, imperiled by starvation” (Lofchie, 1975: 553). Unlike conventional definitions of *drought* and *famine*, where the two are separated, local

terminology combines the two. The term used for both drought and famine is *oola*. A distinction is made, however, in cases of significant human and animal death and suffering caused by rain failure, disease epidemic, or both—that term is *ciinna*. Tikki and Oba (2009: 481) define *ciinna* as the complete discontinuity of pastoral life that creates social disorientation and disharmony.

Some rain failures may simply be regarded as dry seasons. At least one dry season in the Borana area was defined differently by NGOs and the local community. The residents of Moyale considered the 1998 dry season as *bona bubbee* (windy dry season), but NGOs considered it a drought. The *hagayya* rain had failed and the *ganna* rain had not come soon enough, so people started to migrate with their livestock to the Dubuluk area. But soon after their migration it began to rain, and they returned. People still had grain reserves from the previous year, food aid, and hay distribution for animal feed.

For NGOs, the fact that some animals died and that people migrated with their livestock in search of pasture signifies an emergency situation and a drought. For the local people, the availability of stored grain from the previous year alleviated the impact enough to call it just a dry season. Another component to the definition of a drought is time. Because pastoralists have adapted over time, the long dry seasons that pastoralists once regarded as droughts are no longer considered droughts.

EXTERNAL DROUGHT RESPONSES AND INTERVENTIONS

Pastoralists in Ethiopia, who primarily depend on livestock herding for their livelihood, number more than 7 million and inhabit a large part of the country but hold the lowest social, political, and economic position. The pastoral sector has been neglected owing to the prevailing perception that pastoralism is a backward practice. The government and NGOs turned their attention to pastoralists after the droughts of the 1970s that struck the Sahel region. These interventions included relief food distributions, establishment of early warning systems, and development projects. The Borana of southern Ethiopia received the first food aid in 1974 (Fassil et al., 2001).

Early warning system

It is important that relief efforts and humanitarian responses are timely and well-coordinated during emergency interventions. Ethiopia improved its early warning system over time, especially in the most affected farming areas, but it still has complex problems. During the 1984–85 famine, the government lacked an early warning system and the infrastructural and logistical capacity to effectively distribute food. Since 1985, the government has strengthened its capacity for early warning and assessment and has established a food security reserve in addition to other institutional measures intended to expedite response (Maxwell and Hammond, 2002: 262; Cliffe, 2000).

However, despite some improvements, the government's own reports reflect inefficiency and ineffectiveness. For example, in the 1999–2000 famine, "the DPPC issued a total of six appeal revisions during 1999; with each update, the numbers of people affected and the amount of food requested increased" (Maxwell and Hammond, 2002: 266). A similar situation occurred with people in need of humanitarian assistance during the 2011 drought. The document issued in February 2011estimated that number at 2.8 million, but in April the estimate rose to 3.2 million and was 4.5 million in July. Clearly, the early warning system used an unreliable assessment.

The inefficiency of early warning systems in pastoral areas partly reflects the prevailing biases toward farming. The government document (EPaRDA, 2008: 15) itself acknowledges that the existing early warning system is better suited to agricultural areas: "Since the national early warning system is highly biased towards the agricultural and agro-pastoral areas, even if it is in full capacity, it would not fully satisfy the needs of the pastoral communities." Biases toward the agricultural population in early warning systems have partly contributed to the complexity of catering to the pastoral population.

Strategies for managing droughts in pastoral areas are only slowly changing. In response to critics who found earlier documents biased toward farmers, a manual for drought interventions in pastoral areas was developed in 2008. In light of the recent response to the drought of 2011, the new methods exhibited several shortcomings. The existing famine early warning system (FEWS) conducted a monthly monitoring of food security at the *woreda* level, seasonal assessments, and emergency ad hoc disaster area assessment, but delayed responses and a duplication of resources indicate that adjustments should be made.

Drought response management

Buchanan-Smith and Maxwell (1994: 9–10) identified four different types of emergencies: rapid-onset emergencies, such as earthquakes and floods; slow-onset emergencies, such as drought and pest attacks; permanent emergencies, such as structural poverty requiring permanent welfare; and complex political emergencies triggered by internal war. In Ethiopia, the deep-rooted poverty situation has been exacerbated by recurrent droughts, requiring provision of food relief on a nearly regular basis.

Yet, the Borana do not perceive themselves as dependent. The practice of traditional emergency response, especially at the recovery phase, is not new. However, people don't want aid unless forced by circumstances. Even the practice of *buusa gonofaa*, which is rooted in tradition, is not favored by many, and is even refused by some people, who say, "Dhaacii natti taati … nama bartee nama hin dhiistu," meaning "Once receiving support becomes a habit, it is hard to come off it" (Diida Kanuute, key informant, April 21, 2011).

In contrast, local DAs in Dida Hara argue that external interventions are creating an attitude of dependency in the community. The research however does not support this argument (also see Catley et al., 2012). The government is aware that permanent food aid makes recipients more

vulnerable, and that emergency relief has to be integrated with development programs. Therefore, a new approach is needed in a situation such as a drought, which has a slow onset. “Livelihoods analysis highlights the need to protect assets and support the services and systems which, in the long term, are required for recovery and development” (MoARD, 2008). Since 2005, the government has adopted the Productive Safety Net Program (PSNP) in an effort to change a focus from emergency relief to long-term development.

However, the PSNP design was based on the highland agricultural areas and did not take into account the realities on the ground in pastoral areas. For example, key components of the program focus on farmland and hillside conservation, which are not relevant to pastoral areas. In the implementation process in the Borana area, however, the program has been adapted to local circumstances, and projects such as bush clearing have been included. Although a review of the impact of this new program in agricultural areas seems encouraging, it has yet to be evaluated in pastoral areas. While the change in approach is a positive step, it needs to be followed by practical measures in protecting people’s livelihoods. The shift in approach has to be strengthened by taking proactive measures and “enhancing and exercising capabilities in adapting to, exploiting and creating change, and in assuring continuity” (Chambers and Conway, 1991: 10). The challenge is balancing relief efforts with development programs. Too much focus on development risks weakening the capacity to respond to emergency situations.

Recent emergency response to the drought of 2011 in the Borana area illustrates how needs are underestimated and highlights the reluctance from the government to make a timely request of the international community for food aid (Van Kemenade, 2011). In addition, NGOs have cut funding for emergency response to align their programs with the government development plan and were not in a position to make a timely response. The unwieldy negotiations with their donors also impeded the shift of resources from development to emergency funds.

Table 5: Livestock emergency interventions and gaps, April–May 2011

No.	Needs identified	Planned	Accomplished	Gaps	Percentage accomplished
1	Livestock supplementary feed (hay in bales)	543,588	82,883	460,705	15 percent
2	Livestock supplementary feed (concentrate in quintal)	13,589	2,749	10,840	20 percent
3	Commercial and slaughter destocking (in number)	149,904	0	100 percent	0 percent
4	Animal health intervention (required veterinary drugs in birr)	11,138,371	2,300,000	8,838,370	21 percent
5	Rehabilitation of water points (in number)	72	16	56	22 percent

Source: Borana Zone Emergency Task Force Report, April–May 2011.

Table 5 shows several intervention proposals based on the emergency task force assessment reports. However, less than a quarter of the identified emergency needs were addressed, for

multiple reasons, including inefficiency, lack of coordination, and lack of funding. Among the major areas identified for livestock interventions were livestock supplementary feeding, commercial and slaughter destocking, animal health, and rehabilitation of water points. By May 2011, when the region finally received rainfall, 15 percent of the animal feed requirements, 21 percent of animal health intervention needs, 22 percent of water rehabilitation needs, and none of the destocking proposals were met.

Responses to the drought from both the government and NGOs seemed very slow. Until an emergency is declared by the federal government, regional and local governments, as well as NGOs, cannot make drought-response interventions. However, each makes its own field assessment, which often duplicates resources and wastes time. As an employee from the zonal NGOs Coordination Office put it, “People complain that the government did not declare emergency in time. The Oromia Food Security Office asks for more data when we report on the existing situation. They usually do the assessment all over again by themselves. That takes a long time for emergency response.” Also there are no grains stores in the area, so relief food has to be trucked in.

SUMMARY

The government and nongovernmental organizations have a crucial role to play in enhancing the capacities of communities to cope with risks and develop adaptation mechanisms. Currently, numerous NGOs in the Borana area are actively engaged in natural resource conservation, management, and utilization; diversification of livelihoods and income generating schemes; drought response and preparedness; human resource development; and many other activities to address risk adaptation. The government also has several policies and programs in place to address these problems, including the PSNP and drought emergency response.

Problem areas targeted by the government and NGOs are mostly consistent with those identified by the Borana themselves. However, some of the policies and approaches are flawed and misdirected, such as projects modeled after farming regions being implemented in pastoral areas. Other examples include the shape and design of relief food distribution, establishment of early warning systems, and the PSNP. Disaster assessment in pastoral areas is conducted at different administrative levels and is often unreliable. Its many problems include delayed responses and duplication of resources. The early warning system in Ethiopia works well for the densely populated and chronically vulnerable agricultural area of the northern highlands (Maxwell and Hammond, 2002) but not for lowland areas.

These biases reflect the political marginalization of the Borana and their institutions. A failure to understand the pastoral system and its contributions to the national economy has resulted in inefficient implementation of programs and policies. The prevailing perception among policymakers is that pastoralism is a backward practice. Therefore, pastoral policies aim to change the sector and practices that uphold the system.

The data presented by this study confirms a continuing PA impact on local administration, property rights, resource management, and conflict resolutions. PA structures have expanded, and their power has increased at the expense of customary institutions, such as *gada.* Decisions by the council of elders have been compromised by the officially authorized PA structures, resulting in the decline of the *gada* institution, communal rangeland management, and mutual support systems.

Flexibility in the customary tenure system helps pastoralists avoid conflict and manage it when it occurs. Mobile pastoralists often have fuzzy resource boundaries to accommodate variations in group needs and resource flows (Agrawal, 2001). Recent rigid demarcation of boundaries between regional states and zones has created tensions between different resource users and made access to resources difficult. One of the contentious issues and potential sources of conflict in the area is the loss by the Borana of their traditional grazing territories and water sources to the Somali Regional State owing to administrative reshaping. Policy interventions, therefore, have serious negative implications for pastoral institutions, especially for cooperation over natural resources.

The presence of NGOs in the area also provides alternatives to local practices and institutions. Fundamentally, the role of NGOs is to fill gaps in government activities. Today, virtually all NGOs are involved in activities that impact every aspect of life in local communities. Local institutions that once emerged around mutual support systems, resource management, and conflict management are now supported or even replaced by NGOs or government structures. One visible impact of NGOs on local strategies is an expansion of services, which eventually leads to a permanent settlement by pastoralists in certain areas. In this way, NGOs indirectly contribute to the decline of mobility and other local institutions. In general, external interventions affect local institutions in complex ways, by strengthening some coping mechanisms and weakening others.

CONCLUSION

Institutions play a significant role in adapting communities to ecological and climate challenges as well as in facilitating local development. *Gada,* as a democratic, political, and socioeconomic institution, has been instrumental in meeting culturally defined goals of the Borana society. Discussions with the Borana community have shown that even though droughts were common in the region in the past, they were not as frequent and not as severe. To mitigate the impact of droughts, pastoralists practiced mobility to take advantage of resources that were more available in some areas than in others. To aid in drought recovery, pastoralists relied on a system of mutual support, which indicates the differential in asset ownership as well as exposure of households to risks. Storage was less common in the past but has increasingly become an adaptation strategy as households are beginning to store fodder for their animals. This study shows pastoralist adaptive strategies with both temporal and spatial dimensions; for example, mobility and storage help address risks across space and time, respectively. However, in the face of increasing climate change and climate extremes, local strategies alone cannot address new challenges.

The worrisome trend of drought occurrence is not only its frequency, but also its coverage, effectively weakening pastoralist adaptive strategies. Community resilience has declined as drought frequency has increased. People have lost the capacity to recover. The fact that droughts increasingly affect many households simultaneously means that “many of the informal mechanisms for mitigating and coping with risk become ineffective” (Skoufias, 2003: 1089). Development agencies have a greater role to play in enhancing the capacity of pastoralists in confronting the challenges of climate variability and extremes. NGOs have already shown some success in introducing some innovative strategies and institutions in pastoral areas, such as saving and credit groups, while other changes are occurring as a result of local innovations.

Today, numerous development organizations, both governmental and nongovernmental agencies, use a participatory approach to operate in pastoral and farming areas in rural Ethiopia. They often focus on specific problems, such as rangeland and forest management, water resource development, and emergency response. However, participation is variously defined by different actors.

External intervention in affecting pastoralist adaptation in the Borana area has shown mixed results. On one hand, old adaptive strategies, such as mobility, have been weakened through the expansion of water centers, schools, and other services, as well as the implementation of restrictive policies. On the other hand, some customary adaptive strategies have been enhanced (such as NGO restocking projects that are based on the traditional *buusa gonofaa* practice), and new ones have been introduced. The decision to adopt one adaptive strategy over another must take many factors into consideration: additional labor, increased risk from the impact of drought or disease, and land degradation, to name a few.

For the government, community participation means working through PAs, which is the government's lowest administrative structure. NGOs involve the community by working with *gada* leaders or councils of elders, who can represent the needs and interests of the community as a whole. However, more engagement with the community at large is needed to empower members politically and economically. More innovative and participatory approaches are needed to face the challenges of poverty, inequity, and environment. The problems of climate change and variability can be mitigated and successful adaptations achieved only if communities are consulted and fully involved in matters that affect the lives of their members.

RECOMMENDATIONS

Given the above analysis, our research team devised the following set of recommendations:

1. **Address the underlying drivers generating vulnerability, marginalization, and poverty of the Borana.** The Ethiopian government needs to work together to strengthen the lives and livelihoods of pastoralists by focusing on improving market-chain analysis and support, providing greater access to veterinary services, supporting customary institutions for land and water management, and increasing access to education tailored to pastoral cultural identity.

2. **Support customary insurance systems such as *buusa gonofaa*.** NGOs and government programs should base their restocking projects on the customary system of risk assessment, livestock contribution, and distribution to needy households.

3. **Target women.** This study shows that women are the most vulnerable group to drought hazards and face increased work burdens during droughts. Programs and projects must target women by introducing improved technologies, creating access to water, and setting aside some rangelands for women's exclusive use.

4. **Integrate traditional and modern weather forecasting.** Traditional weather forecasting knowledge exists as a basis to understand weather data. Pastoralists rely on their own local forecasting system for their decision making, but within formal structures—which look to modern forms of forecasting—this wisdom is largely marginalized and given less attention. Efforts need to be made to integrate these two understandings in a way that helps communities understand the information and aids them in reliably accessing it to inform their decisions.

5. **Include activities besides herding in livelihood protection efforts.** The Borana economy is diversifying. Pastoralists are not solely relying on livestock but are gradually practicing agriculture. Often too much focus is put on restocking programs and not enough attention is paid to assisting other forms of livelihood during recovery periods. Livelihood protection needs to include activities such as providing capital and capacity-building activities that are not as dependent on climate.

6. **Research sustainable economic options.** Increasingly, pastoralists are practicing agriculture to cope with the frequency of droughts. The ecology of this area is complex and requires drawing upon scientific studies and indigenous knowledge to understand what could be sustainable economic options.

APPENDIX

Major droughts and their impacts, as recalled by Borana residents

Name of *abba gada* in power	Period	Reason for the drought	Extent of drought severity	Drought impacts	Aggravating factors
Goba Bulee	1969–1976	Light shower of *hagayya** rain and total failure of *ganna* rains	Very severe	Insufficient water and pasture; low milk production; significant death of children, elders, and livestock; *buusa gonofaa* common as it affected the entire Borana land	Absence of intervention from aid organizations and the government; no backup areas owing to extensive coverage throughout Borana land
Jilo Aga	1977–1984	Erratic and poor *ganna* followed by total absence of *hagayya*	Very severe	Insufficient water and pasture; low milk production; high loss of livestock both by drought and conflict; high death of adults due to war and famine, death of children; many migrated to Kenya as refugees; restricted movement because of war with Somalia	War with Somali restricted movement and disrupted markets; cattle raids were rampant; labor shortage because of men at war; absence of timely response to crises by donor agencies
Boru Guyyo	1985–1992	Poor *ganna* and failure of *hagayya*	Very severe	High cattle death; human death (children and the elderly); high grain price; migration to Kenya	Instability follows fall of *Derg* regime; conflict among Gabra, Gerre, and Borana restricted movement and disrupted markets; poor supply of grain to area; livestock disease epidemic (blackflies)
Boru Medha	1993–2000	Erratic g*anna* and *hagayya*	Moderate	Minor deaths of livestock	Minor conflict between Borana and Garri people
Liban Jeldessa	2001–2008	Erratic *gana* and *hagayya*	Moderate	Minor deaths of livestock; intervention (both human food and animal feed supplied)	None
Guyyo Gobba	2008–present	Failure of both *hagayya* and *ganna*	Very severe	High number of livestock deaths; high malnutrition (mainly among elderly people)	Poor response to emergency situation by NGOs and government; poor early warning system and resistance by pastoralists against timely destocking

**Hagayya* is a short rain and occurs in October and November while *ganna* is a long rain that occurs in March and April.

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