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RESILIENCE AND RISK IN PASTORALIST AREAS: RECENT TRENDS IN DIVERSIFIED AND ALTERNATIVE LIVELIHOODS

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Cover image: Women grinding stones for gold in Karamoja. Photo credit: John Burns

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ABSTRACT

This report examines recent trends and issues surrounding livelihoods diversification and alternative livelihoods in the drylands of eastern Africa. It focuses on existing literature and on three case studies: (1) Karamoja, northeastern Uganda; (2) Borana Zone, southern Ethiopia; and (3) Garissa County, northeastern Kenya. The report emphasizes households and communities that are combining pastoralism with other livelihood activities or have moved out of pastoralism and are involved in an alternative livelihood. As the findings show, ***there is no single "magic arrow" or technology for enhancing resilience in drylands***. Rather, there are multiple, incremental options, including livelihood diversification, that, when adapted to local contexts and circumstances, can increase probabilities for improved livelihoods and resilience. For each of the case studies, authors addressed four questions: (1) What are the main types of diversified and alternative livelihoods that have evolved over time in pastoralist areas?; (2) How have options for diversification and alternative livelihoods changed over time and why, particularly during the last 10–15 years?; (3) What are the factors that now provide households with a wide/good choice of diversification options vs. a choice of narrow/bad diversification options, and what are the risks of bad diversification?; and (4) What are the implications in terms of USAID strategies and programs for resilience building in the drylands? Urbanization, commercialization, new forms of violence, novel technologies (especially mobile phones), and population growth are recent phenomena that shape current diversification patterns. Each of the case studies discusses: (1) negative or maladapted diversification choices, including activities with high social and environmental costs (i.e., charcoal making and risky dryland farming); and (2) positive or adapted choices with minimal environmental or social costs (i.e., salaried employment). Different levels of risk, both short term and long term, and endowment requirements are associated with varied livelihood options and social groups (for example, female/male, young/old, and better-off/poor households). In particular, women diversify into petty trading, casual waged labor, food/drink sales, and, recently, labor migration to towns where they face risks of physical abuse and discrimination. Empirical materials also highlight several common factors that drive different patterns and options for diversification, including cumulative effects of drought-induced livestock loss, violence, loss of land and reduced land productivity, animal disease, and depletion of herds to buy food. Opportunity or "pull" factors that impact diversification include better employment and business prospects, education, security, and health. Increased urbanization and associated business developments in the larger towns attract wealthier herders who seek investments in business and occasionally in real estate. In the conclusion, the report addresses policy and program opportunities for building resilience in the drylands, including:

- Land tenure and land use policies
- Education and skills training
- Support for women-owned enterprises, employment programs for youth
- Value-added activities around livestock production and trade (e.g., fodder production, meat processing, and local fattening enterprises for trade)
- Support to local communities for natural product extraction, processing, and marketing (gums, resins, aloe, and other wild products)
- Nutritional extension and support for settled/ex-pastoralist communities
- Urban and peri-urban planning and infrastructure in drylands, especially sanitation and water.

CHAPTER 1
OVERVIEW: RECENT TRENDS IN DIVERSIFIED AND ALTERNATIVE LIVELIHOODS AMONG PASTORALISTS IN EASTERN AFRICA

Peter D. Little

INTRODUCTION

Livelihood diversification among pastoralists in eastern Africa has been common for the past 50 or more years, but has been especially prominent since the regional droughts of 1979–80 and 1984. The increased complexity and prevalence of commercial livestock markets, the growth of local and regional towns, and increased incidences of drought and conflict are factors that drive and shape current livelihood diversification and alternative livelihoods,[1] and differentiate it from earlier periods. Attempts have been made to conceptualize the process of diversification among pastoralists and the factors that explain it. Little, Smith et al. (2001), for example, argue that a herder's decision to diversify is influenced by three sets of variables: (1) conditional variables (e.g., rangeland availability, population density, per capita livestock holdings, climate, and other meta factors); (2) opportunity variables (human capital [education], distance to markets and towns, and related factors); and (3) local response variables (gender, wealth, and age). Importantly, not all pastoralist regions afford the same opportunities for livelihood diversification depending on differences in market and town access, climate, and other factors, nor do different groups of pastoralists (rich/poor, male/female, and young/old) share the same interests in diversification.

Another model for understanding pastoralist diversification is based on the work of McPeak et al. (2012). They differentiate households according to those with: (1) low cash, low cattle, called *"left out"* of pastoralism and trapped in lowly remunerative employment; (2) high cash, low livestock, called *"moving from"* a dependence on pastoralism to some alternative livelihood; (3) high livestock, low cash, called *"staying with"* pastoralism with minimal diversification outside of pastoralism; and (4) high livestock, high cash, called *"combining"* non-pastoral activities (cash) and pastoralism (ibid.: 87). A third approach to understanding livelihood diversification and alternative livelihoods among pastoralists is offered by Catley and Aklilu (2012). It classifies households as: (1) *"moving up"* and capable of earning considerable cash from livestock-based activities; (2) *"stepping out"* and engaging in non-pastoral activities but maintaining a degree of reliance on livestock; and (3) *"moving out"* and leaving pastoralism all together. The *"stepping out"* stage reflects pastoralist diversification where non-pastoralist activities are used to supplement the pastoral/livestock component, while the *"moving out"* strategy represents alternative livelihoods where individuals and families have left pastoralism.

The Catley and Aklilu schema also highlights risk factors, which include insecurity and climate, and access variables, which include wealth and gender, to explain a household's decision to diversify. Each of the above models overlap in important ways, with the Little, Smith et al. and Catley and Aklilu frameworks emphasizing the different variables that explain diversification processes. The case studies of pastoralist diversification included in this report—Karamoja, northeastern Uganda; Borana Zone, southern Ethiopia; and Garissa County, northeastern Kenya—emphasize pastoralist households who are *"stepping out"* or *"moving out"* rather than those who remain strongly invested in pastoralism *("moving up")*. By focusing on diversification that occurs outside pastoralism, the report deals little with diversification strategies within pastoralism, including species diversification and breeding strategies to improve drought resistance in cattle. The exception is the Borana case study that provides good examples of "within pastoralism" diversification, especially breeding and herd species diversification strategies (for example, diversifying into camels and goats as a drought-coping mechanism).

Each of the case studies discusses: (1) negative or maladapted diversification choices, including activities with high social and environmental costs; and (2) positive or adapted choices with minimal environmental or social costs. The authors were asked to address four questions: (1) What are the main types of diversified and alternative livelihoods which have evolved over time in pastoralist areas?; (2) How have options for diversification and alternative livelihoods changed over time and why, particularly during the last 10–15 years?; (3) What are the factors that now provide households with a wide/good choice of diversification options vs. a choice of narrow/bad diversification options, and what are the risks of bad

[1] An alternative livelihood represents an extreme form of diversification and departure from pastoralism. For brevity purposes, the term diversification is used to capture partial diversification (combining pastoralism with other livelihood activities) and complete departure from pastoralism (i.e., an alternative livelihood).

diversification?; and (4) What are the implications in terms of USAID strategies and programs for resilience building in the drylands? In this overview chapter questions 1 and 2 and parts of question 3 are mainly addressed, leaving question 4 to be dealt with in the concluding chapter. The authors of the case studies draw mainly on qualitative data from surveys and existing literature, the latter being more robust for Borana and Karamoja than Garissa. While each of the case studies addresses the same general themes, they vary considerably in depth, organization, and thematic coverage, with both the Karamoja and Borana cases having the advantages of considerable longitudinal work and data. In the case of Garissa, it should be noted that security conditions were not good at the time of fieldwork, which overlapped with the *al Shabaab* attack on the university in Garissa town. Therefore, the author (Mahmoud) of the Garissa case study was unable to gather as much field or archival data as the other case study researchers.

HISTORICAL PATTERNS

In the nineteenth and early twentieth centuries, pastoralists who lost animals due to drought or other shocks often joined agricultural communities or pursued hunting and gathering activities until they could rebuild their herds. In some cases, impoverished pastoralists would join these communities permanently, but in most cases they would transition back into mobile pastoralism once their herds recovered (Little 1992). Somali areas, including Garissa, and parts of the Sudan were exceptions to this pattern because of long-standing relations with towns. Somali pastoralists have interacted with towns for centuries, and there is a long history of urban centers along the coast and river valleys (Cassanelli 1982; Dalleo 1975; Little 2003). Availability of non-pastoral livelihood options have always been influenced by the presence or absence of urban centers, a pattern that continues to now. Towns afford trading and business opportunities and the chance to engage in the cash economy and supplement pastoral livelihoods. In the case of Somalis, some individuals diversified into trading as an occupation, even moving into other pastoralist areas (for example, Borana) as successful livestock and/or hides and skins traders in the nineteenth and twentieth centuries. In contrast to the Somali situation, urban centers in southern Ethiopia and northeastern Uganda, as well as in most of the Eastern African rangelands, were very few until the 1950s or later.

Colonialism created a network of administrative centers in the twentieth century that also served as markets and provided opportunities for petty trade and casual wage employment. More importantly, colonial policies and actions, including those of the Abyssinian Imperial government in Ethiopia, did much to discourage mobile pastoralism, often imposing boundaries to restrict movements, resettling pastoralists to make room for European settlement and farming, alienating prime dry season grazing for irrigation schemes, taxing livestock, and resettling pastoralists for security purposes (see the Karamoja case). Collectively, these interventions forced herders to diversify to survive. Fortunately, population densities and demands for land in the dry rangelands were generally low, which allowed mobile pastoralism—albeit with important constraints—to continue without widespread diversification.

The 1970s witnessed two major droughts—1973–74 and 1979–80—that devastated livestock herds in the region. They resulted in the first major food aid campaigns and pushed many herders temporarily or permanently out of pastoralism. A growth in irrigation and settlement schemes as alternative livelihoods, as well as the introduction of modern weapons in the area, especially the ubiquitous "AK-47," further impacted pastoralism. They decreased the amount of secure, usable rangelands and increased the need to diversify into non-pastoral activities. A number of impoverished pastoralists sought alternative livelihoods in petty trade, waged employment, and/or agriculture, with many returning to pastoralism following herd recovery. It should be remembered that diversification via crop production has been an age-old livelihood strategy in Karamoja, but in the other cases (Borana and Garissa/Somali), specialized mobile pastoralism was the norm until the 1970s, and until much later in some locations.

The frequency of climate and conflict-induced events accelerated in the 1980s and 1990s, further diminishing herds, reducing usable lands, and making pastoralist diversification even more essential. The collapse of the Somali state and of the Derg military regime in 1991 increased the flow of destructive weapons and violence, thereby encouraging additional population movements to towns as safe havens. Rainfed agriculture as a diversification strategy also picked up momentum, both in areas where conditions were generally favorable and where they were unfavorable. Migration to towns grew as well, with a small minority of educated pastoralists seeking salaried employment with non-governmental organizations (NGOs), government, and private companies.

CONTEMPORARY PATTERNS

What has changed in the past 15–20 years is the scale, range, and persistence of diversification strategies, as well as the pressures that pastoralist communities currently confront. Globalization is now very apparent in many communities, especially in the areas of trade, labor markets, and exposure to new technologies, such as mobile phones and internet. Movements to towns by pastoralists and transitions to agro-pastoralism have become more permanent than in the past, although many ex-pastoralists continue to maintain ties to the pastoral sector and invest in livestock. Along with immigration by farmers and others from outside the drylands, this trend increased the size of towns and the number of ex-pastoralists. Each of the case studies highlight significant urban growth in

recent years, including Garissa, which grew from 65,881 in 1999 to an estimated 155,765 in 2009. This rate of growth makes it one of the fastest-growing cities in Kenya (Kenya 2010; Arid Lands Resource Management Project /Price Waterhouse Coopers 2005).[2] Not surprisingly, the size of Garissa town as well as the presence of the Dadaab refugee camp (population > 400,000 in 2012) in the county create opportunities for diversification and alternative livelihoods, opportunities which are unavailable in Borana or Karamoja.

On a regional basis, many of those who move out of pastoralism remain linked to livestock activities through employment as town-based livestock and milk traders, transporters, and/or petty traders who operate at livestock markets. For example, at Haro Bakke, southern Ethiopia, 300+ vendors are selling products or providing services, such as mobile phone charging, on market days. Moreover, as Mahmoud's case study on Garissa shows, even those with important town-based investments and occupations often earn their initial capital through livestock production and trade.

The growth in domestic, regional/cross-border, and international livestock trade (i.e., mainly to the Middle East) represents another significant recent change that affects pastoralist diversification strategies. These different trades have been dependent on pastoralist suppliers for decades, but as urban centers grew and international demand from the Middle East for livestock and animal products increased, their scale and complexity changed. PARIMA data show that only 54% of Borana households in southern Ethiopia sold livestock in 2003–2004 (PARIMA [Pastoral Risk Management] Project 2004). Currently the figure is around 78% in a given year (Little et al. 2014). Another change related to markets, especially in the export trade, is the extent to which it has increased wealth inequities (Aklilu and Catley 2010; Little et al. 2014). One sees this discrepancy in the wealthy Borana traders who own new vehicles or have business partnerships with large-scale feedlot operators outside the region, and in the poor pastoralists at the bottom of the market chain dependent on purchased foods and compelled to sell animals at low prices to meet subsistence needs.

Nonetheless, increases in trade result in greater employment of market brokers,[3] transporters/trekkers (individuals who move animals to market), input suppliers (especially fodder, feed supplements, and veterinary drugs), and market vendors. These occupations are especially sought out by young pastoralists who serve as middlemen in the long-distance trade and livestock trekkers. Because livestock markets are large generators of revenues and employment for local administrations, there often is competition between different government bodies over their control (Little et al. 2015).

Another recent change is the new types of conflict in pastoralist areas. Recent attacks by *Al Shabaab* terrorists in Garissa town are an example of this. Although not directed at pastoralists per se, their presence increases security concerns in rangelands and disrupts trade and markets. Elsewhere we have seen a transition from customary cattle raiding parties to smaller gangs of well-armed youths who not only take livestock and other properties and cash but also rape women, burn homesteads, and generally terrorize local communities. The Karamoja case study discusses this new trend and its impacts on diversification, as do studies from neighboring Kenya where elders and community leaders seem unable to control armed youth (Greiner 2013; Little forthcoming).

FACTORS THAT EXPLAIN CURRENT PATTERNS OF LIVELIHOOD DIVERSIFICATION

The case studies highlight several common factors that drive patterns and options for diversification. Similar to other research on pastoralist diversification in eastern Africa, they emphasize the dominance of push (necessity) over pull (attraction) factors in explaining pastoralist diversification, with herd loss and general poverty and food insecurity being the main reasons pastoralists diversify in the first place. The cumulative effects of drought-induced livestock loss, violence, loss of land and reduced land productivity, animal disease, and depletion of herds to buy food are poverty-related "push factors" that motivate pastoralists to pursue supplemental livelihood activities. There are immediate shocks, such as drought, that impoverish herders, as well as gradual forces, such as the repeated need to market livestock to buy food or continual losses of grazing lands to alternative land uses, that over time are important explanatory factors. Note that "better-off" herders market a greater volume of livestock at higher prices, but poorer herders sell a higher percentage of their herds at lower prices, which can eventually reach unsustainable levels (Little et al. 2006; Little et al. 2014). Other factors, especially for women, include divorce and widowhood that force women to seek options for diversification and alternative livelihoods, which because of

[2] The 2009 population census results are not yet disaggregated by individual towns, so the figure for Garissa town is derived from the Garissa District figure for 2009, which is 623,060 (Kenya 2010: 3). The estimate for Garissa town is based on the percentage (25%) of the district's total population in 1999.

[3] These individuals match buyers and sellers at markets and facilitate the trade. They are called *dilaal* in Kenya and *dillala* in Ethiopia and usually charge the equivalent of 2–3% of the price of the animal.

their poverty and powerlessness often are poorly remunerated or illegal and even dangerous (*miraa* [*khat*][4] trade, sex trade, and sale of alcohol).

Opportunity or "pull" factors related to towns that impact diversification include better employment and business prospects, education, security, and health. Investment in formal education by pastoralists has greatly increased during the past 15 years, although it still remains low relative to agricultural and urban populations. In terms of access to education, there are important differences between countries and communities. For example, the PARIMA project found that only 9% of household members in Borana, Ethiopia had attended or were attending school in 2000–2002, while in northern Kenya 35% of household members had attended or were attending school (McPeak 2003). Recent data (2014) from Borana show that the education rate has increased to about 23% (CHAINS [Climate-induced Vulnerability and Pastoralist Livestock Marketing Chains in Southern Ethiopia and Northeastern Kenya] Project 2013–2014). Both the Karamoja and Garissa cases, where school attendance for the latter more than doubled during 1999–2009, confirm growing interests in formal education, especially as a mechanism for securing a job.

Increased urbanization and associated business developments in the larger towns are also opportunity factors that attract wealthier herders who seek investments in business and occasionally in real estate. For the wealthiest herders, diversification into urban-based businesses is a risk-mitigating strategy in the event of a drought or an animal disease outbreak. It is important to remember that successful town-based businessmen in Garissa and other towns often earned their initial investment capital from pastoralism and still maintain a heavy "foot" in the sector.

The case studies demonstrate that households often pursue multiple diversification options. These different strategies are generally distinguished between what might be labelled positive or adaptive and negative or maladaptive[5] forms of diversification (Little, Smith et al. 2001; Little 2009). The boundary between the two categories, however, can be blurred and also invoke moral undertones about what is good and what is bad (as in the Karamoja case study). For instance, petty trade in *khat* (*miraa*), a mild natural stimulant that is legal in Kenya and Ethiopia, provides an important source of cash for women traders, but it also has negative social effects, including misallocations of expenditures away from food purchases, encouragement of criminal behavior (including theft), and violence against women (in the Garissa case study). The same case can be made for alcohol sales, another important source of income for pastoral and ex-pastoral women. Whether trade in *khat* or alcohol sales is a good or bad form of diversification depends on the perspective taken.

Positive (adaptive) forms of diversification include activities that improve incomes, welfare, and resilience to shocks without damaging the environment and/or conflicting with the predominant livelihood (pastoralism). In many cases, diversification activities support and/or complement livestock production, such as: sustainable collection and sale of aloe, natural resins, and gum arabic; bee keeping; dairy sales and processing; and livestock-related businesses (butcheries, hides and skin processing, and retail of veterinary inputs). National and export markets for natural products, such as gum arabic and aloe, have grown, and rangelands have a significant comparative advantage in these products (for example, Sudan is a global leader in the gum arabic trade) and, as Dawit shows in the Borana case, their extraction complements mobile pastoralism and sustainable land use. Salaried employment by pastoralists also can have positive effects on pastoralist livelihoods and economies through remittances for family expenditures (especially food, education, and health) and savings (Little et al. 2009).

Unskilled labor (casual) employment, including cash-for-work schemes, is the main form of waged employment for pastoralists, although a greater range of skilled jobs are noted in the Garissa case study, again due to the size and diversity of Garissa town. In the Borana case study, we have time series data that reveal an upward trend in wage-based diversification. The PARIMA study showed only about 2% of Borana households with waged employment in 2000 (PARIMA, Summary Statistics June–October 2000), but in Chapter 4 of this report Abebe reports that 18% of households had a member(s) employed in 2013, including in cash-for-work schemes. Comparable studies from Baringo, Kenya and elsewhere in eastern Africa show similar increases in waged employment (Little 2014; McCabe 2003; McCabe et al. 2010). The lack of marketable skills, education, and a positive policy environment restrict many pastoralists and ex-pastoralists to low-paying casual work.

Negative (maladaptive) forms of pastoralist diversification are widely documented and usually are pursued out of necessity (Little 2009; Fratkin and Roth 2004). They include activities that damage the environment (charcoal making and firewood gathering) and/or undermine pastoralist livelihoods themselves, such as farming in key

[4] *Khat* is a mild stimulant that is grown and consumed in parts of Kenya and Ethiopia.

[5] I borrow this distinction of adaptive versus maladaptive from Bushby and Stites who use it in their Karamoja case study (see Chapter 2).

grazing areas and water points. Firewood gathering, for example, involves special risks to women who can be subject to violence and sexual attacks when engaged in this activity (see Garissa and Karamoja case studies). Moreover, major environmental costs are associated with firewood collection and charcoal making that are especially evident around settlements and towns (Little, Smith et al. 2001; Karamoja and Garissa case studies).

Farming as a diversification strategy raises thorny and contradictory possibilities for equity and sustainability. Poor pastoralists and ex-pastoralists usually cultivate out of necessity, but better-off herders farm to invest the cash from crop sales or accumulate animals by not having to sell them to buy food. For example, better-off pastoralists of the Afar Region, Ethiopia have the more favorable irrigation plots that allow them to earn incomes, which they can reinvest in livestock and can reduce dependence on food purchases (Kassa 2001). A similar rationale for cultivation is documented in the Borana and Karamoja case studies, where both poor and better-off pastoralists farm areas that also are used for grazing. Land use conflicts in these cases are difficult to adjudicate because of the conflicting reasons for farming and the different parties involved.

In addition to wealth, gender is another principle of social differentiation that shapes pastoralist diversification strategies. Milk trade, petty trade in consumer items and foods, and other non-pastoral activities are dominated by women. In large towns, women can work as domestic workers, although these come with high risks of possible abuse and non-payment (Garissa case, Chapter 3). Often with support from NGOs and government, women have been successful in organizing groups of pastoralists and ex-pastoralists into local savings and finance groups or group-based business ventures, which have played important roles in livelihood diversification. Coppock et al. (2011) document how Borana women's groups and their business activities have played significant roles in providing livelihoods for pastoralist and ex-pastoralist women. The importance of women's groups is highlighted in each of the case studies in this report, in which women pursue gum arabic collection and sales, milk trading, craft making, and other activities.

Labor migration to national urban centers and even international destinations is another diversification option that has largely been available to males, but increasingly women are moving to towns as domestic servants. In his case study on Garissa, Mahmoud describes the heavy social stigma around Somali women working as house servants. While it is still very rare for them to do this kind of work, some women have resorted to it out of desperation, even migrating as far as Yemen. On the positive side, labor migrants often remit cash back to their families, which can be an important income supplement.

In the Garissa case study, migration occurs to outside cities (e.g., Nairobi) and international locations, but this is rare in the Borana and Karamoja case studies. In Uganda, labor migration to large national cities is limited by policies that restrict movement and effectively punish Karamoja migrants. Long-distance migration, especially to international destinations, requires flexible movement and boundary policies, capital, and networks that Karamoja and Borana pastoralists presently seem to lack.

Different levels of risk are associated with various diversification options, and many of these already have been discussed. The availability of irrigation as in the case of Garissa, or adequate rainfall for arable farming as in parts of Karamoja, diminishes the risks of rainfed agriculture, although as the Garissa case study shows irrigation pumps can break and, in the long term, fields can be made unproductive due to salinization. It should be noted that only in small parts of the study areas is rainfall sufficient or irrigation available to significantly reduce farming risks. In conditions in which rights to land are uncertain or subject to expropriation by outside interests, pastoralists may cultivate and fence off areas as a strategy to bolster their land rights and fend off competing claims.

CHAPTER 2
RESILIENCE AND RISK IN PASTORALIST AREAS: RECENT TRENDS IN DIVERSIFIED AND ALTERNATIVE LIVELIHOODS, KARAMOJA, UGANDA

Kristin Bushby and Elizabeth Stites

This case study is one of a series of three undertaken by the Feinstein International Center at Tufts University (FIC) commissioned by the United States Agency for International Development (USAID) to examine resilience and risk in pastoralist areas in eastern Africa. This specific study examines historical and recent livelihood diversification practices and alternative livelihood trends in the Karamoja region of Uganda, comprised of the seven districts of Nakapiripirit, Amudat, Moroto, Napak, Abim, Kotido, and Kaabong (Stark 2015). With the livelihoods examined, the chapter discusses both access profiles and risk profiles that accompany the livelihood shifts. On a broader level, this paper then analyzes the push and pull factors underpinning these livelihood shifts; discusses the positive and negative factors for diversification, including the risk of maladaptive livelihood strategies; reviews future trends that will likely impact pastoral livelihoods in Karamoja; and concludes by offering a series of recommendations to inform USAID policy and programs focusing on livelihoods in Karamoja.

BACKGROUND CONTEXT IN KARAMOJA

In Karamoja, Uganda, pastoral and agro-pastoral livelihoods have historically been the most viable given the semi-arid conditions and high levels of rainfall variability and unpredictability in the region (Levine 2010). Given the higher levels of overall rainfall in Karamoja compared to the rest of the Horn of Africa (HOA), in addition to policy controls on free movement, animal production systems in Karamoja include a high degree of agro-pastoralism and less of the traditional highly nomadic form. Migration with animals to *kraals* (or *ngawiyoi*) normally takes place during the dry season only, and a substantial number of people remain settled in *manyattas* (or *ngirerya*) (homesteads) throughout the year and engage in opportunistic cultivation.

Livestock-based livelihoods that involve mobility are less susceptible to rainfall variations and frequent droughts than traditional farming livelihoods (ibid.). However, in spite of this, historical and recent stresses on pastoralist livelihoods have resulted in myriad livelihood diversifications and adaptations, most notably through increased shifts from pastoralist to agro-pastoralist livelihoods, to strictly agrarian livelihoods, and migration trends that have resulted in casual wage labor and urban livelihoods. While this case study will focus primarily on factors impacting livelihoods over the last 10–15 years in Uganda, it is notable that many of the push and pull factors that underpin livelihood diversification and adaptation trends are a result of history that far pre-dates this period.

The inhabitants of Karamoja represent various peoples and identities, with three main ethnic groups—the Jie, Dodoth, and Karimojong, the latter comprised of the Matheniko, Bokora, and Pian—in addition to various smaller minority groups (Stites 2013). Karamoja has a long-rooted history of ethnic and land-based conflict. Repeated cattle raiding has been a cultural and social institution in Karamoja, as much as a form of violence. The insecurity brought by raids in the region and surrounding areas has resulted in a series of government-led disarmament campaigns aimed at curbing the proliferation of small arms and light weapons, including campaigns in 1945, 1953, 1954, 1960, 1964, 1984, 1987, 2001, and 2006 (Bevan 2008; Stites 2013). The most recent disarmament campaign, which began in May 2006 under the auspices of the Karamoja Integrated Disarmament and Development Programme (KIDDP), has had the most salient impacts on livelihoods over the last 15 years in the region (Stites and Akwabwai 2010).

Along with the 2006 disarmament came the introduction of government-protected *kraals*, which removed the onus of livestock care and maintenance from pastoralists and gave this responsibility to soldiers guarding the protected *kraals* (ibid.). These *kraals* were designed to protect livestock from attack during disarmament, as raids by those who had not yet been disarmed—with disastrous losses, particularly for the Bokora—had been one the primary criticisms of the earlier 2001 disarmament campaign. This type of government-provided security, where the government actually takes control of livestock management, is extremely unique in eastern Africa. Throughout the most recent disarmament phase, there were myriad documented human rights violations, including theft and destruction of property, arbitrary detention, killings, torture, and mistreatment of people by the UPDF (Uganda People's Defence Force) (Human Rights Watch 2007). These abuses were particularly pronounced in the early phases of the disarmament and have improved in recent years. While community members—especially male youth—were vehemently

opposed to the disarmament campaign in its early phases (in part because of the abuses that they suffered), at present most inhabitants of Karamoja interviewed credit the disarmament with overall improvements in security, with positive impacts on livelihoods as well as on personal safety. To date, the army maintains a large presence in Karamoja, in spite of calls for a handover of law enforcement to local police (Human Rights Watch 2014).

Pastoralists and agro-pastoralists in Karamoja have long been subject to marginalization and neglect from the Government of Uganda (GoU). In 1921, the colonial administration in Karamoja sought to limit pastoralists' mobility by prohibiting movement to dry season grazing zones without permission of the District Commissioner (Walker 2002). The colonial administration officially declared Karamoja a closed district, not allowing people to enter without specific permits (Stites 2013). Thereafter, under both the colonial and post-colonial orders, Karamoja has faced limited development, suffered from poor infrastructure, and received limited social support and provision of goods and services from Kampala.

The GoU's history of neglecting pastoralists transformed into stringent policies promoting sedentarization following the 2001 disarmament process. These efforts intensified with the 2006 campaign and the implementation of the Karamoja Integrated Disarmament and Development Programme (KIDDP) in 2006, which was Uganda's plan to increase human security and promote conditions for development and recovery (Stites et al. 2010). The call for sedentarization has been made at the highest levels, including by Ugandan First Lady and Minister of State for Karamoja Affairs Janet Museveni (2010), who has repeatedly claimed that the "dangers" of pastoralism in Karamoja more than outweigh the benefits. First Lady Museveni has also publicly commented that urban migration trends are a result of people "running away from precisely this harsh trap which they find their culture imposing on them, when they know that there are more viable options in other parts of this country" (ibid: 3). In the 2009–2014 Karamoja Action Plan for Food Security, less than 5% of the budget is allocated toward supporting livestock in semi-nomadic pastoralist areas, and just over 1% of the budget overall is dedicated to supporting local livestock-tending systems (Levine 2010). While the GoU's development policies toward pastoralists have been largely criticized by external actors, official responses largely ignore this criticism (Burns et al. 2013). In fact, the GoU has dedicated significant efforts to persuading international donors and actors to support those development programs that strengthen agrarian livelihoods instead of those aimed at supporting pastoral or agro-pastoral populations (Museveni 2010). This has happened amid a context of increased demand for livestock and livestock products in commercial markets both inside and outside Karamoja, including in Kenya and South Sudan (Food and Agriculture Organization 2014). The policies favoring agrarian over animal-based livelihoods continue, even though the government acknowledges the importance of the Karamoja livestock market on a national and regional scale.

These government-driven perspectives have led to a series of misconceptions about pastoralists in Karamoja. While conventional GoU and Ugandan media narratives state that pastoralists are impoverished, extremely vulnerable to droughts, and that pastoral livelihoods are unsustainable, recent studies provide evidence to counter these narratives (Levine 2010). While poverty rates in Karamoja may be widespread and deep, they are not distinctly unique in comparison to other rural regions in Uganda, which counters the government's pervasive narrative about the exceptional poverty in Karamoja vis-à-vis the rest of the country (ibid.). Additionally, while Karamoja has experienced various crop failures in recent years, these are typically a result of poor rain distribution, as opposed to a complete lack of rain (ibid.). As research on rainfall patterns has demonstrated, while crop failure is anticipated once every three years, droughts that lead to the death of over 20% of livestock have only occurred once every 10 years between 1927–1995, demonstrating the resilience of pastoral livelihoods vis-à-vis other pastoral areas in the HOA where drought-induced livestock losses of 40–50% take place (Walker 2002; Niamir-Fuller 1999; McPeak et al. 2012). Data collected from pastoral and agro-pastoral households, even during times of poor rains, have also highlighted an ability of pastoralists to meet basic living standards, which discredits the notion that pastoral livelihoods are not viable in the long term (Levine 2010). Moreover, research has shown that pastoralists have not maintained their lifestyles simply because of a deep cultural attachment to cattle as value, but also because pastoralism has been the only strategy that consistently works amid local ecological realities (Gray 2000).

While national budgets have offered limited support for pastoralists in recent years, the GoU has received support from major international donors focusing on sedentarization and non-pastoral livelihoods. For example, the Karamoja Private Sector Development Program Center (KPSDPC) was created by United Nations Development Programme (UNDP) in collaboration with the GoU to promote "alternative livelihoods as a means to discourage cattle raiding and to diversify economic activity in the region" (Ferreri et al. 2011: 42). The World Food Programme (WFP) has also supported various GoU sedentarization initiatives and has been working in Karamoja for over 40 years (Human Rights Watch 2014). By supporting GoU development projects that push for sedentarization, international donors have at times reinforced uneven development policies that favor settled farming livelihoods over livestock-based livelihoods (Levine 2010). Western aid approaches have been criticized

in the past for viewing pastoralist livelihoods as an inefficient system that could be strengthened by formal organization and better regulation (Catley et al. 2013). This perspective ignores the dynamism of the pastoralist system and the innovations that pastoralists have developed in response to shocks and stresses, as their livelihood adaptation and diversification patterns reveal. These trends are not unique to Karamoja and reveal broader regional trends about government and aid responses to pastoralists, in addition to broader governance challenges between political elites and populations on the "margins."

However, there have been productive externally-led development efforts as well in support of pastoralist livelihoods, including: better support for community-based animal health workers (CAHWs); support for local small-scale dairy groups and dairy value supply chains; and work with pastoralists to support feed supplementation for livestock during drought (ibid.). The evidence base for good practice has also expanded significantly, with the development of the Livestock Emergency Guidelines and Standards (LEGS), which aims to provide a participatory approach to timely and appropriate livestock-focused livelihoods responses, particularly during complex humanitarian emergencies.[6]

Violence and insecurity curtailed access by academics and international organizations to Karamoja for the latter decades of the twentieth century. This changed with the advent of the 2006 disarmament campaign and improved security (especially on roads), and numerous organizations and actors have conducted research and assessments in the region over the last ten years. For this case study, research has focused on the natural environment in Karamoja, conflict studies, disarmament policies, health indicators, and livelihoods. The evolution of the literature on livelihoods was also included, from its early development to modern livelihood frameworks. Research was also drawn from East African pastoral contexts for comparative purposes.

Cattle raiding has long been a practice to redistribute wealth throughout society, and it also serves as a form of insurance given Karamoja's ecological uncertainty (Hendrickson et al. 1998). In addition, cattle raiding was deeply embedded in the context of Karamoja and the broader region, and became a part of people's political identity (Gray 2000). While the violence had long-standing impacts on all populations, young men were the most affected by raids given their roles as both protectors of animals and also as those doing the raiding (Gray et al. 2003). Women and children were impacted primarily by spillover insecurity given their roles in traveling outside of villages to collect firewood, obtain water, and collect wild food (Stites, Fries, and Akabwai 2010). Since 2006, livestock have been displaced and lost due to the military's protected *kraal* system, insecurity, drought, widespread disease, and distress sales (Stites et al. 2010). Cattle ownership has also become more inequitable over time, with wealthier people owning large herds and those who were poor having a small number, no animals at all, or shifting away from cattle into sheep and goats. Policies of disarmament exacerbated these shifts in livestock ownership, resulting in a series of both intended effects and externalities that have shifted livelihoods away from pastoral production (ibid.). Disarmament policies also limited mobility, with a profound impact on animal well-being and health, and the ability of animal owners to manage risks and cope with shocks.

Karamoja is home to only a few families who practice a truly nomadic form of pastoralism; many inhabitants are better described as agro-pastoralists who smooth their risk by engaging in a dual subsistence strategy including both livestock and agrarian activities when possible (Burns et al. 2013). Engaging in this diversification, while still investing heavily in livestock-based livelihoods, has proven to be the most stable and effective livelihood strategy in the region (Ellis 1998). Based on this, GoU policies that push sedentarization and promote development strictly in agrarian sectors are a threat to overall food security and risk exacerbating tensions between agro-pastoralists and farmers over the already scarce resources (Gelsdorf et al. 2012).

Livelihoods have shifted in response to a variety of covariate and idiosyncratic shocks and to quotidian stresses of life in a poor and underdeveloped region (Levine 2010). Shifts from strictly pastoralist to agro-pastoralist livelihoods, the increase in agrarian strategies, and the transition to urban livelihoods are the most widespread changes. This case study will examine these three trends in detail. In particular, the migration of people to urban and peri-urban settings highlights both the diversification that takes place in urban environments and the social ties that individuals have maintained through a bifurcated subsistence strategy using both urban and rural means of livelihoods (Stites and Akabwai 2012). While these strategies were designed to mitigate household risk, there are various consequences of diversification, including issues of personal safety, health concerns, and human rights issues (Human Rights Watch 2014). Economic growth and greater commercialization and commodification of markets in Karamoja have also impacted livelihoods and have in some cases exacerbated inequity in society (Burns et al. 2013; Stites and Mitchard 2011).

While large-scale raids have declined in Karamoja, modern forms of violence have emerged in their place, including

[6] See "Livestock Emergency Guidelines and Standards," **http://www.livestock-emergency.net/** (accessed October 12, 2015).

the practice of opportunistic theft (by *lonetia*, or "thugs") and possible increases in sexual and gender-based violence (SGBV) (Howe et al. 2015; Stites and Marshak 2014). Overall, violence appears to have shifted from the public to private sphere, but general increases in security have started to bring improvements to household livelihood strategies (Howe et al. 2015).

METHODS

This case study was conducted through a desk review of the literature on livelihood diversification and adaptation in Karamoja in the last 10–15 years, including literature discussing climate change and environmental impacts on livelihoods, gendered dynamics of livelihood shifts, trends in rural to urban migration, and impacts of disarmament policies on livelihoods. The literature used for this study is based on field research on livelihoods in Karamoja and draws heavily on approximately ten years of research conducted by FIC. While the data are primarily qualitative in nature, several studies have included quantitative measures, including statistics about inequality, how specific livelihoods contribute to overall household income, and other household-level data. Many of the studies included in this case study are representative of the study population, but not necessarily of the broader population in Karamoja, although there is reason to expect that the trends identified would apply to the larger population.

For the purpose of this case study, livelihoods are understood as the means by which people get by over time. Definitions of livelihoods have evolved throughout the years, as the term became widely viewed as a better means to demonstrate the complexities of survival for the rural poor than other terms such as "employment," "subsistence," or "income" (Ellis 2000a). In the early influential definition by Chambers and Conway, livelihoods comprised "people, their capabilities, and their means of living, including food, income, and assets" (Chambers and Conway 1992). Later references built upon this definition, further emphasizing capabilities and assets, as well as the actual activities required to live (Scoones 1998). The notion of sustainable livelihoods, often referred to as the Sustainable Livelihoods Framework (SLF), emerged to refer to an ability to "cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base" (ibid.). This has evolved into current thinking and the prevalence of literature analyzing the connections between livelihoods diversification and adaptation strategies and resilience (Howe et al. 2015). However, this literature has also been widely contested, especially regarding questions over what constitutes resilience, how to measure it, and whether resilience should be a direct property of livelihood systems or broader ecosystems (Pain and Levine 2012). Some theorists challenge the appropriateness of the SLF in environments characterized by conflict, insecurity, endemic poverty, and vulnerability. Lautze and Raven-Roberts, drawing on the work of Helen Young and others, propose a livelihood framework adapted for conflict and insecure settings. This model shows vulnerability as endogenous and illustrates how assets can also be liabilities and that actual livelihood outcomes are not synonymous with positive goals (Lautze and Raven-Roberts 2006). These adaptations demonstrate that not all livelihoods are sustainable and that livelihood strategies have the potential to become maladaptive in response to shocks (Young 2009).

Most of the literature on livelihoods depicts the household as the unit of analysis, and it is assumed that household members work together for a common beneficial outcome. We have sought to take an intra-household approach where possible throughout this study, identifying decision-making factors within households and effects on individuals and recognizing that there are unique access points and risks for individuals as a result of livelihood diversification strategies. Similarly, while the overall situation at the household level may improve, we found that in some cases individuals within those households still experienced negative outcomes, particularly with respect to their individual human capital. The lessons learned from studying the tension between household and individual needs, with a particular focus on women and female-headed households, yield important policy considerations.

It is also critical to view livelihood diversification and adaptation strategies as representative of the diversity of pastoralism, and importantly, through the lenses of different wealth groups. Differences by wealth are especially important given recent patterns that have exacerbated inequity as a result of commercialization of the sector and commodification of regional markets. This nuanced understanding should be incorporated into both policy and programmatic interventions, as pastoralists raise and tend different animals, with different methods of production, engage differently with markets, and—importantly for this study—have distinct entry points and risks associated with livelihood diversification (Catley et al. 2013). Moreover, livelihood diversification and adaptation strategies are not mutually exclusive, and households or even individuals have pursued multiple forms of livelihoods simultaneously or in a deliberate sequence, as the examples discussing seasonal migration and rural-urban linkages will demonstrate. We also note the diversity of ethnic and identity groups in Karamoja, and for this reason, have avoided the term "Karamojong" that is frequently used to refer to all the groups living with Karamoja.[7]

[7] Note the difference between "Karimojong," the ethnic group comprised of the Matheniko, Bokora, and Pian territorial groups, and "Karamojong," which is a collective term that ignores the ethnic, linguistic, and historical diversity in the region.

EVOLUTION OF LIVELIHOODS IN KARAMOJA

This section aims to identify the main types of diversified and alternative livelihoods that have evolved in Karamoja. Of these, three major categories emerged: shifts to agro-pastoralism, shifts to agrarian livelihoods, and migration and shifts to urban livelihoods. Please see maps in Annexes 1 and 2 for more detail about livelihood zones throughout Karamoja in recent years.

Shifts to Agro-pastoralism

In Karamoja, the shift from traditional pastoral to agro-pastoral livelihoods has been gradual and significant and has taken place over decades and generations. This category could be considered part of the broader household strategy of stepping out, which reflects people who have retained some footing in the livestock sector, while pursuing additional livelihood opportunities to complement this. However, this is not a new practice in the semi-arid environment of Karamoja, which provides options for regular cultivation ranging from small kitchen gardens to terraced hillsides supporting vegetables for markets. Hence the category of agro-pastoralism in the Karamoja context comprises a continuum ranging from households that have primarily shifted to agrarian livelihoods but still retain a limited livestock herd, to those who have primarily maintained pastoral livelihoods but complement these in times of idiosyncratic or covariate shocks with crop production. In general, agro-pastoralists complement their livestock-rearing activities with opportunistic cultivation. Agro-pastoralism often entails a division of labor within households, with certain individuals engaging in animal husbandry, while others pursue agrarian activities, and as a united household effort to engage in activities in both sectors. One common example of this is women and children cultivating sorghum or maize near the *manyattas*, while men in the household, and in some cases women, herd livestock on seasonal routes and at dry season cattle camps or *kraals* (Stites and Michard 2011). Those at the *kraals* will often return home in time to assist with planting if conditions look favorable and will assist with harvesting in years when there is sufficient crop production.

Access Profile

This livelihood strategy is uniquely suited to Karamoja's variable climate and has been practiced by a large portion of the population for many years. Agro-pastoralism is most successful in areas with access to fertile land and better rainfall, which typically includes the more southern and western edges of the region. This strategy is also well suited to some of the elevated areas that experience wetter conditions, such as the slopes of Mount Moroto inhabited by the Tepeth and the Nyangia in the hills of Karenga Sub-County in Kaabong. In a 2015 study conducted by FIC and Mercy Corps in Karamoja, a diversified livestock and planting strategy was increasingly being adopted by households in recent years as a result of the general improvements in the security environment (Howe et al. 2015). Improvements in security and declines in cattle raids have had implications for personal security, specifically for women and children who have been increasingly able to work outside of the home (ibid.). In the 2015 study conducted by FIC and Mercy Corps, data revealed links between improved mobility of local residents and improved economic and food security. Female participants reported being able to "travel safely outside their village, allowing improved access to cultivation areas, firewood, and wild foods" (ibid.: 5), while men highlighted that this enabled them to better take animals to watering and grazing points (ibid.). Both men and women report better access to markets as a result, which highlights how this particular access point has changed in recent years in contrast to earlier studies, even those completed as recently as 2012 (ibid.). Additionally, by engaging in cultivation when possible without giving up animals, households are able to balance livelihood strategies without losing the key economic, social, and cultural status that livestock provide for families in Karamoja (Gray et al. 2003).

Risk Profile

Agro-pastoral livelihoods manage risk beyond strictly pastoral or agrarian strategies, but still remain prone to a number of risks, particularly climatic events (especially droughts) that impact conditions for both grazing and planting. The diversified nature of these livelihoods means that they are also vulnerable to risks associated with combining both activities. Risks for pastoral livelihoods include: government marginalization and lack of support for pastoral production systems; economic challenges posed by the potential to be crowded out of the sector as a result of commercialization, which also exacerbates inequity; limits in accessing natural resources as a result of competition with agrarian livelihoods; animal epidemics and limited veterinary services; and challenges posed by environmental degradation and natural resource management. While widespread, systematic cattle raiding is no longer prevalent in Karamoja, new forms of violence have emerged in the form of the *lonetia*, young men who engage in theft of livestock, food, and non-food items opportunistically and in small groups (Stites and Marshak 2014). It is notable that some households who have chosen to step out of the livestock sector but still retain some footing in it have done so as part of an overt strategy to mitigate some of the security risks. Oral history within Karamoja, for instance, postulates that the Labwor of Abim District shifted away from cattle and into settled agriculture in order to minimize losses from raids, though this shift was facilitated by the rich soil and relatively higher rainfall in this western district. Risks of course also exist within the agrarian sector, including erratic rainfall, crop diseases and pests, crop failure, market fluctuations for the sale of goods, limited storage facilities, and crop theft.

Shifts to Agrarian Livelihoods

In addition to stepping out, some households have moved out of the livestock sector entirely and have shifted to agrarian livelihoods. Major food crops produced include groundnuts, beans, red sorghum, millet, maize, white peas, cassava, mangos, papayas, oranges, passion fruit, potatoes, tomatoes, cabbage, onions, spinach, eggplants, pumpkins, and carrots (Burns et al. 2013). Given the expansion of markets in the region, there is a potential to further promote cash crops, including cereals, pulses, oilseeds, groundnuts, and fruit trees, in the greenbelt zone in Abim District and parts of Karenga (see maps in Annexes 1 and 2) (ibid.).

Access Profile

There is diversity among agrarian households as well. Some households may have moved out voluntarily to pursue anticipated or promised better opportunities. Many of the households engaged in agrarian livelihoods do so because they have access to fertile land with higher average rainfalls. These include many Labwor and Pian communities in Abim and Nakapiripirit Districts respectively, as well as some Bokora in Iriri and Lokopo Sub-Counties, as well as other pockets of high productivity spread throughout the region. Others, in contrast, have entered the agrarian sector after being pushed out of livestock production due to several factors, including loss of animals (to raids, disease, or distress sales), loss of access to resources, pressure by the government, lack of support services for pastoralism, or idiosyncratic shocks such as the death or injury of key household members, particularly able-bodied men who herd animals. These individuals have reported being "unable to continue as agro-pastoralists" (Levine 2010: 7). These include widows who no longer have herds, young men who utilize settlements for income opportunities on a seasonal basis and split the rest of their time in towns, peri-urban, or urban settings, and the very poor.

Given the recent security improvements in the region, it will be interesting to note further population movements in either direction between agrarian and pastoral livelihoods. Better security may entice people to again attempt animal husbandry, but economic pressures also remain and push them towards more settled strategies. The GoU has heralded opportunities in the agrarian sector through various programs and initiatives that aim to provide greater access to agrarian livelihoods, such as KIDDP, now known as the Karamoja Integrated Development Plan (KIDP). Past qualitative interviews by FIC researchers have also revealed that promises of government or donor programs caused households to shift to agrarian livelihoods in hopes of support and services, particularly at designated "resettlement sites" in the western zones. There is little information on outcomes in these zones, although some international organizations, such as the Food and Agricultural Organization (FAO), have provided farming inputs working in collaboration with GoU (Food and Agricultural Organization 2014). FIC researchers working in southern Karamoja in 2009 came across a number of individuals who had moved to resettlement sites in hopes of material or financial assistance in shifting to agriculture, but had returned home disappointed.

Risk Profile

There is a range of risks associated with subsistence or commercial crop production in Karamoja. As agrarian production is dependent upon favorable farming land and consistent rainfall patterns, the expansion of this sector has forced newly settled populations to farm outside of optimal areas (Burns et al. 2013). Settled households dependent on crop production face a higher risk from drought than those who primarily obtain their livelihood from livestock production or from a balance of the two systems (ibid.). Data from the area also suggest that crop dependency is associated with increases in food insecurity and vulnerability (ibid.). This may be because of the different constraints to crop production: rain failure and drought; deforestation; soil erosion; crop diseases and pests; a lack of tools needed to harvest crops; poor storage facilities; and difficulties transporting harvests to settlement sites and to markets (ibid.; Human Rights Watch 2014). This livelihood shift is one of several factors linked with decreased milk supply, including for agrarian populations, and has potentially severe impacts on child malnutrition and maternal health (Stites and Mitchard 2011). Karamoja's variable climate also compounds these risks, which is why pastoralism developed and emerged as an effective livelihood to begin with (Ellis and Swift 1988; Scoones 1998; Gray 2000). Karamoja has been characterized by unpredictably localized low rainfall, patchy vegetation, variation in the timing of both the rainy season and in rain amounts, and uneven access to water (Gray 2000).

Those who left pastoral or agro-pastoral livelihoods to pursue agrarian livelihoods but fail compound their vulnerability (Levine 2010). Because these individuals have often lost their social networks in addition to the cultural capital that characterizes pastoralism in Karamoja, they have a reduced ability to cope with failure of agrarian livelihoods as a result. Even the Karamoja Livelihoods Programme, a US$15 million initiative from 2010–2015, overseen by the GoU Office of the Prime Minister (OPM) and the European Union (EU) to reduce household risk and improve both food security and overall security, acknowledges the potential dangers of crop farming given environmental degradation and uneven rainfall (Diederichs 2015).

Overall, there is limited commercial economic potential for crop farming in Karamoja (Burns et al. 2013) and producing for local markets would likely lower prices due

to increased competition, which would be beneficial for net consumer households but challenging for net producers. In addition, this expansion into crop farming risks increasing conflict and competition for existing land and resources between farmers and pastoralists, as the better agricultural areas often overlap with the preferred dry season grazing routes and areas (ibid.).

Migration and Urban Livelihoods

A third major shift in livelihoods in Karamoja is the migration from rural to urban or peri-urban settings (in the context of Karamoja, urban settings include large towns). Urban areas throughout Karamoja that have received the most migrants include Abim (estimated population 17,400), Moroto (estimated population 14,818), Kaabong (estimated population 11,543), and Kotido (estimated population 13,990) (National Population and Housing Survey 2014). While data specifying population movement over time are limited, especially due to past conflicts, there is a consensus that urban areas have experienced growth in recent years in Karamoja, most likely much higher than the above numbers indicate. In urban areas, many people engage in over two, and as many as four, types of livelihoods simultaneously. This practice of multiple small jobs is so common in Karamoja that it has become known as *leji-leja*, or having more than one casual labor job simultaneously (ibid.). Those who pursue urban livelihoods can be divided into three main groups: 1) those who move to urban or peri-urban areas while also cultivating or keeping herds in the rural areas; 2) those who migrate seasonally between urban and rural areas; and 3) those who move permanently into urban livelihoods. The literature on urban migration reveals that many people who move to urban areas maintain ties to rural settings and keep a foothold in each setting as a way of managing risk. As one woman interviewed in Moroto revealed, "In the village, something can go wrong, so I may need to take refuge in town" (ibid.: 20). As discussed below, however, being able to maintain a foothold in both settings requires adequate financial and social capital.

Different households maintain these urban-rural ties in different ways. It is worth noting that many of these relationships are symbiotic for households, with benefits flowing back and forth from the urban and rural areas. Notably, well-off individuals are the most successful at navigating the balance of maintaining strong ties in both urban and rural areas (Stites et al. 2015). Well-off individuals also have access to more lucrative urban livelihoods that require pre-existing capital, such as brewing *agwee* (local liquor), which requires a number of utensils, and engaging in quarrying, which frequently requires access to tools. The better-off migrants are also much more likely to own property in urban areas, thus reducing the extreme burden of generating enough cash to pay rent (Stites and Akabwai 2012).

Many members of households in urban areas keep their ties with rural areas by sending back remittances or food (ibid.). As a 2014 FIC study highlighted, "Nearly all the respondents who did have rural connections reported sending cash or in-kind support to rural relatives on a regular basis" (Stites et al. 2015:8). This same study highlighted that out of a group of 23 respondents in Moroto, only six respondents had relatives in rural areas and did not send remittances to them; three of these six respondents in fact received support and food from the rural areas (Stites and Akabwai 2012). For other households, ties are maintained via social support from broader communities (Stites et al. 2015). Men in some cases had more than one wife, and "kept" one wife in the rural area, and one in the urban area (ibid.). In other cases, children are kept in rural areas to care for livestock and to live with other family members, while their parents seek new livelihoods opportunities in urban areas (ibid.). While people interviewed discussed the necessity of maintaining ties in both rural and urban areas, data have also pointed out the challenges of having a bifurcated existence, including the need for social capital to maintain linkages in both regions (Stites and Akabwai 2010). As a result, not everyone retains such connections. Data revealed that single women and female-headed households had the weakest ties, and often were unable or did not wish to maintain ties with rural zones after being mistreated, abandoned, or widowed (Stites et al. 2015).

Access Profile

In contrast to the more gradual diversification into agro-pastoral or agrarian livelihoods, many people who migrated to urban areas pointed to one major trigger event that caused them to move. These events included the death or sickness of a family member (especially a primary breadwinner), repeated environmental challenges, and large-scale violence or raids, which often entailed major asset loss (Stites and Akabwai 2010). For one young man in Kotido, the loss of his cattle due to raiding sparked migration:

> **I lost my cattle to raiding and we were hungry. I had to support my kids and the only place to do this is in town. I had thought of raiding myself to get revenge and steal back my cattle, but I decided moving to town would be preferable as I might get killed. It's better to sweat than to die. (Stites et al. 2015: 21)**

There were also individuals surveyed who indicated that they migrated because of repeated and extended rural hardships. In rural areas there is a clear perception that more lucrative livelihoods opportunities exist in urban or peri-urban areas (Stites and Akabwai 2010). Other respondents reported migrating because there was better security and personal safety in urban areas, while others sought to access urban livelihoods to acquire new trade-

Photos by John Burns

Brick making and market trade in Karamoja

related skills and benefits, including education for their children, which they viewed as critical for long-term well-being (ibid.).

There is a common perception that migration from rural areas in Karamoja is primarily done by able-bodied youth and men. One 2007 FIC study in Bokora County, Moroto reveals that able-bodied youth, including young men and women, were the most likely to out-migrate on a seasonal basis, often leaving their families to work for stock associates—those who have long-standing horizontal relations based on livestock exchange—during times of hardship or severe drought (Stites, Akabwai, Mazurana, and Ateyo 2007). However, data also indicate that both male and female respondents are moving to towns; they often bring children and other relatives with them (Stites and Akabwai 2012). An FIC study from 2014 demonstrates that the respondents surveyed most frequently traveled to towns alone (35% of respondents), traveled with a spouse and children 24% of the time, and traveled with only children 24% of the time, the latter primarily consisting of widows or abandoned women (Stites et al. 2015).

Many respondents reported independently making the decision to migrate. Data also suggest that mothers, in particular, were key decision makers regarding migration, and may even be more inclined to leave rural areas than men as a result of economic difficulties, given their roles in managing household food security (Stites, Mazurana, and Akabwai 2007). While several women with husbands who left rural areas reported that their husbands made the decision to leave, they also reported that they did not object to their husbands' decision (Stites and Akabwai 2012). A 2012 FIC study also found that "None of the respondents in the study population reported that he or she had been compelled or pressured to leave home for an urban area" (ibid.: 8). In order to migrate to towns, many respondents reported quickly selling their assets, or in the case of those who planned their move over time, gradually saving the money to migrate by digging gardens or collecting and selling firewood (ibid.). Many who left rural areas to work in towns are seeking entry into the casual or wage labor market. The types of livelihood opportunities available to people in these sectors are highly gendered.

Women engage in myriad livelihoods in towns, including but not limited to sweeping maize and other cereals from warehouse and shop floors, selling charcoal, washing clothes, cooking, selling or making local brew, washing dishes, bartending, fetching water or firewood, selling tobacco, cleaning shoes, and picking up trash. While studies found some similarities between livelihoods in rural and urban areas, these studies also noted that women tend to do certain tasks (such as fetching firewood) less in urban areas than in rural areas. This could potentially be explained by the more diverse and lucrative livelihoods opportunities available in an urban or peri-urban setting, or by the great distance needed to travel from urban areas to the forest resources and back again (see Chapter 3 by Mahmoud that shows fear of gender-based violence is another reason town women do not collect firewood in surrounding forests) (Stites et al. 2015).

Men, on the other hand, tend to engage in new and different urban livelihoods in comparison to their rural pursuits. These included heavy manual labor, such as pushing wheelbarrows at local markets, making bricks, unloading buses, construction, roasting meat, repairing shoes, cutting grasses, carrying stones at quarries, serving as a butcher, making and selling crafts, and working as a security guard or night watchman (Stites and Akabwai 2012). Artisanal mining is also a major form of livelihood in or near some of the towns, especially in the dry season (Human Rights Watch 2014). Some of these livelihoods, such as the practice of *akidep*, or collecting grains that have fallen in a warehouse or market, provide direct benefit (i.e., workers are allowed to keep the grains), while others offer payment in cash or in direct exchange for food (Stites and Akabwai 2012).

Children and adolescents who accompany their families or migrate to cities independently also engage in livelihood opportunities, including selling scrap metal, working at the markets, begging for food, collecting food from garbage bins, and carrying firewood (Stites et al. 2015). The trends

in urban and peri-urban livelihoods also reveal the benefits of assessing individual factors, given migration's different effects on men, women, and children in urban areas.

Many people living in towns are pursuing urban and peri-urban livelihoods on a seasonal basis. A common pattern is evident in the tale of a 50-year-old man in Moroto interviewed for one FIC study, who "makes bricks during the dry season and returns to his gardens in the wet season to grow maize, simsim (sesame), and sorghum" (Stites and Akabwai 2012). Other research in Mbale reveals that while laborers feel they acquired unique skills in the urban areas, they are concerned about their ability to use these skills in Karamoja given the unreliable rains. Hence they move back and forth between Karamoja and Mbale, using their skills while in Mbale and engaging in rural livelihoods while back in Karamoja (ibid.). Many of the urban and peri-urban areas to which people are moving are within Karamoja, including Abim, Kaabong, Kotido, and Moroto, or in the immediate surrounding districts, such as Mbale, Soroti, and Kitgum. Large (but impossible to quantify) numbers of people do leave the region entirely for larger Ugandan cities, but the GoU has actively discouraged migration to locations such as Kampala and Jinja through incarceration, abuse, and forced return to Karamoja (Stites et al. 2015; Stites, Mazurana, and Akabwai 2007).

Many respondents view urban migration as a temporary way of getting by until they are successful enough to return to rural areas to pursue pastoral or agro-pastoral livelihoods. Artisanal gold miners, for example, indicate that they only seek opportunities in the mining sector to save enough income to rebuild their herds (Stites and Akabwai 2012). Some respondents indicate their desire to stay in towns until they save enough money or gain enough animals to restock (ibid.). As one 32-year-old man in Abim reports:

> **I plan to return home in a year. I own a plot of land back home and plan to cultivate it. I hate farming. I am weak. I am a herder, but I have no choice but to farm to support my family. If I had money I would buy some livestock. (Stites et al. 2015: 35)**

This data, and the need for respondents to leave pastoral areas to pursue livelihoods outside of pastoralism, reflect the broader challenges with government-led and safety net programs that promote sedentarization in these same areas, which are perceived to have limited opportunities outside of pastoralism.

Risk Profile

While there are many perceived opportunities in pursuing urban and peri-urban livelihoods, these also come with unique risks, including the risks generated by migration on a permanent and seasonal basis. In urban areas, many respondents in studies indicated that it was not extremely difficult to access work initially, but that it was a major challenge to both maintain and sustain the livelihoods they engaged in. Respondents indicated particular challenges such as the constant need for cash, maintaining steady work with regular pay, avoiding physical demands and dangers from the labor, securing housing, and over-reliance on their employers (ibid.).

Female-headed households and single women who migrate to urban areas and do not maintain ties with the rural areas face disproportionate risks. They have left behind their former social networks and thus are forced to re-establish themselves amid challenging economic and often discriminatory contexts based on the fact that they may be alone, female, have ethnic differences, and come from a rural area (ibid.). Female-headed households are also more food insecure, experience greater maternal malnutrition, and expose children to greater nutritional risks (ibid.). In urban areas, while there are myriad opportunities for women to work through casual labor, they are still expected to handle domestic responsibilities at home. Women also face heightened domestic violence risks in urban areas given these pressures, especially if the casual labor that women engage in fails to provide for their family (Stites and Akabwai 2012). Domestic violence in this context can also be explained by traditional notions of masculinity, which expect men to provide for their families, and thus cause frustrations when they cannot do so and have difficulty securing livelihoods.

Children and adolescents also face heightened risk in urban and peri-urban contexts, which are also gendered, exposing young women to greater protection risks, while young men face greater risks of injury due to the limited options outside of heavy manual labor. The lack of consistent and safe accommodation in urban areas provides enhanced security concerns—including sexual exploitation and abuse—for children (ibid.). When housing is secured, it tends to be more crowded in urban areas, thus exposing children to heightened risks of hygiene-related illnesses and communicable diseases (ibid.). Another major protection concern is human trafficking, though the extent to which children are trafficked as opposed to out-migrating for livelihoods alternatives is challenging to quantify (ibid.). Adolescents also are further removed from their families and communities, thus removing them from this developmental opportunity and, in some cases, placing a greater burden of care on their parent or parents with them in urban areas (ibid.). Overall, the work that children and adolescents engage in poses greater hazards than the livelihood opportunities for adults and often for significantly less pay (Stites et al. 2015).

Urban risks often operate simultaneously and have a negative multiplier effect. For example, many respondents in urban areas face extremely limited access to financial

services, which poses challenges for low-income individuals, especially as there is simultaneously a sudden need to rely on cash for accommodation and purchasing goods at markets (ibid.). This challenge renders jobs that provide accommodation more attractive, such as a nighttime security guard, domestic cleaner, or worker at a lodge (Stites and Akabwai 2012). However, these same jobs often do not allow families to stay overnight, further separating individuals from their social networks, which can also increase vulnerability. Other challenges faced include obtaining water for domestic use, paying school fees for children, and having to pay for all food sources instead of relying on subsistence agriculture to meet most food needs (Stites et al. 2015).

Moreover, urban and peri-urban areas in Karamoja currently lack the capacity to sustain large migration movements in the long term. Just as greater entry into the agrarian sector has caused stresses on the farming system, cities and large towns have a limited ability to respond to population increases by providing goods and services in response to increased demand (ibid.). This is complicated by poor infrastructure and a lack of urban planning; many towns and cities are already congested, have hygiene challenges, and have limited capacity to fight the spread of disease, posing great challenges with increased migration flows (Stites and Akabwai 2012). In one study in Kaabong, Kotido, and Abim, only 43% of respondents reported regular access to latrines (Stites et al. 2015). There are also associated risks of natural resource degradation in surrounding areas, as urban zones with greater populations require more firewood, charcoal, bricks, and other materials to meet basic needs (Burns et al. 2013).

Overall, while well-off populations are able to navigate the balance of maintaining ties in both urban and rural areas, there have been greater challenges for the most vulnerable populations, who have greater difficulty acclimating to urban contexts without their social networks and who face greater discrimination and difficulties obtaining employment as a result (Stites et al. 2015).

Furthermore, people staying in the same areas but diversifying their livelihoods have a more comprehensive understanding of the risks involved, and can use this to make informed decisions (Stites and Akabwai 2012). Individuals who migrate to unfamiliar urban environments, often without social networks, lack the awareness of these risks and thus face greater unforeseen challenges.

DRIVERS OF LIVELIHOODS DIVERSIFICATION AND ADAPTATION

There are both push and pull factors or drivers that explain livelihood diversification in Karamoja.

Push Factors

Many of the livelihood diversification strategies and adaptations visible in Karamoja over the last 10–15 years are the result of push factors, including idiosyncratic and covariate shocks, in addition to daily stressors. It is challenging to establish direct causality between one specific shock and livelihood change, especially in an environment with overlapping push factors. This section discusses the push factors highlighted by people in Karamoja as influencing shifts in their livelihood systems. Some of these push factors have direct effects on livelihoods themselves, while others have an indirect impact. While there is debate over this, some data suggest that livestock numbers have declined overall or been severely redistributed to the better-off households, which also leads to more limited availability of livestock for most pastoralists and challenges the cultural and social institutions that underpin livestock-based livelihoods in Karamoja (Burns et al. 2013). As in many conflict and post-conflict areas, many factors operate in simultaneous and consecutive spheres, so that impacts in one area may also exacerbate push factors in another. As one 58-year-old woman from Moroto described:

> **I left home because of poverty, and hunger. My husband used to beat me a lot so I decided to leave the village and come to town. Later all our animals were raided by Loputuk raiders. (Stites and Akabwai 2012)**

Limitations on Mobility

Restrictions on mobility of both people and livestock have been a major factor in reducing the viability of animal-based livelihoods in Karamoja. While the primary scope of this chapter is the last 10–15 years, successive governments dating from colonial times have aimed to settle pastoralists with "almost obsessive zeal," pushing them out of livestock and into agricultural production (Burns et al. 2013). There have historically been restrictions on cross-district movement of people and animals, driven partly by negative experiences of raiding in these districts and later by restrictions implemented by district and national officials (Stites 2013). International borders that were once porous for herd movements have been tightened. Additionally, there is increased gazetting of land for wildlife and forest reserves, and increased population in agrarian settlements, including in former grazing areas such as the Teso and Lango regions and the district of Abim. Insecurity has also prevented access to certain key areas, including grazing and water sites, as discussed below. After 2006, the impacts of the disarmament process and the program of protected *kraals* restricted both human and animal mobility, either intentionally or inadvertently bolstering government strategies to increase sedentarization (Stites and Akabwai 2010). These restrictions eroded the livestock habitat by overuse of grazing areas, making it more challenging for pastoralists and agro-pastoralists to remain in the livestock sector.

Government-protected *Kraals*

Pastoral and agro-pastoral livelihoods were strongly impacted by the establishment of the government-protected *kraals* throughout Karamoja that began with the 2006 disarmament campaign led by the Uganda People's Defence Force (UPDF). Livestock that belonged to disarmed communities were confined in and around military barracks for the purpose of enhanced security and protection for the animals (Catley et al. 2013). However, while protected *kraals* did improve security to a degree, they also brought negative consequences for animal-based livelihoods, primarily by limiting animal mobility. Animal owners had limited decision-making power about herd mobility once animals were in the protected *kraals*. Regular access to animals was constrained to specific times, and grazing was only allowed in these short windows. Animals suffered from the lack of adequate pasture and mobility, and their lives were largely in the soldiers' inexperienced hands (Stites and Akabwai 2010). The limited mobility and overcrowding in poor conditions brought higher rates of animal death and disease, and also lowered reproduction rates and decreased milk production (with negative implications for both human and animal health) (ibid.). Due to the lack of livestock rotation, land erosion and overgrazing became major issues, compounding existing environmental challenges for local communities (ibid.). Moreover, the restrictions on traditional mobile *kraals* denied regular human access to these animals, which had long been a strategy to provide nutritional support to the most vulnerable in a community, including lactating women and undernourished children. The inability of these groups to have this access at the military *kraals* caused major survival challenges for households (ibid.).

The protected *kraal* policy had a particular impact on young men, with long-standing implications for pastoral and agro-pastoral production systems. The role of young men as the primary protectors and herders of animals was supplanted by soldiers guarding and managing the protected *kraals*. Because young men did not have weapons, their role as community and family protectors was also undermined, which brought changes to household power dynamics by eroding traditional notions of masculinity and taking away young men's sense of pride and self-esteem (ibid.). For the most part, soldiers allowed only young boy herders to access the protected *kraals* (as the boys did not pose the same threat as the young men), and these boys were left to herd with people with whom they had no familial ties. This left relatively inexperienced herders to work with soldiers who had little interest in their well-being and also reduced the strength of familial and community social networks gained through inter-generational herding responsibilities (ibid.). Furthermore, military protection went disproportionately to the *kraals* at this time, leaving the *manyattas* (homesteads) open to attack from those who had not yet been disarmed. Insecurity also increased in "bush" areas, which disproportionately affected women and children who moved in these areas to gather firewood and wild foods (ibid.). For many pastoralists and agro-pastoralists, the protected *kraals* resulted in loss of animals and loss of profit—due to animal death, distress sales, and lower nutritional value gained from animal milk—which became a push factor away from livestock-based livelihoods.

Today, the protected *kraals* have been mostly disbanded. The protected *kraal* system began to be dismantled in 2010, with only two remaining in 2014 (Food and Agriculture Organization 2014). Recent trends in improved security in the area has lessened the need for them (ibid.).

Decreases in Animal Health

Declines in animal health have challenged pastoralists and agro-pastoralists and have resulted in livelihood adaptations and diversification. The protected *kraal* system was responsible for an increase in livestock disease due to overcrowding, decreased animal nutrition, and limited access for experienced herders (Burns et al. 2013). Broader problems include limited access to adequate veterinary drugs and health services and little cash to cover such costs when the drugs did exist. State-provided animal health has little support in comparison to government agricultural interventions, receiving just over $500,000 in comparison to more than $20,000,000 allocated for crop-based interventions in the 2009–2014 GoU Karamoja Action Plan for Food Security (ibid.). Deteriorating animal health can lead to distress sale of livestock, which often are sold for well under what they would have been worth in normal circumstances. Many people shifted away from pastoral production systems after the loss of their animals due to death or distress sales. However, it is worth noting that animal health and quality of livestock for sale in regional markets has largely improved in the last few years, likely linked to the greater freedom of mobility after the disbanding of the protected *kraal* system and better overall security in grazing areas (Food and Agriculture Organization 2014).

Threats to Food Security

Over the years, conflict has had serious impacts on household food security throughout Karamoja (Stites 2013). Livelihood diversification is an obvious response to worsening food security. Households pursue various strategies to improve food security, including: acquiring cash or replacements for dietary items; decreasing reliance on specific food items such as milk and blood; and adopting new livelihoods, including exploiting natural resources, engaging in casual labor, selling traditional brew, selling livestock and household items to buy other food, selling surplus crops, and acquiring items through illicit or illegal means (Stites and Mitchard 2011). Households also try to cope throughout these periods by

decreasing food sharing within communities, limiting food and milk available for visitors, becoming more dependent on relief food and humanitarian assistance, shifting to a more vegetable-based diet, limiting local cultural rituals, and decreasing the quantity and number of daily meals (ibid.). Many of these strategies entail a gradual or abrupt move away from animal-based to more agrarian livelihoods or migration to urban centers (ibid.). Additionally, food insecurity has both been affected and compounded by other push factors, including land grabbing by private sector and external actors, as will be discussed later in this chapter. This is because a loss of land in Karamoja is correlated with higher levels of hunger in households, and it subsequently fuels more harmful coping strategies, such as engaging in *lonetia* activity (i.e., theft and looting) (Howe et al. 2015).

Conflict and Security: From Cattle Raiding to Modern Forms of Violence

Insecurity has been a major factor in most facets of life in Karamoja for several generations. Evidence suggests that long-term conflict can have deleterious impacts on human capital, demonstrating that even in times of relative stability, livelihoods are impacted (Bevan 2008; Gray et al. 2003). Long-standing cattle raiding and associated violence led to the stripping of productive and essential assets, the erosion of coping mechanisms for vulnerability, and limitations on the dual migratory-settlement systems (i.e., base settlement with mobile herding camps) central to the animal-based livelihood systems practiced throughout large parts of eastern Africa (McPeak et al. 2012). Violence has profound impacts on trade, human morbidity and mortality, settlement patterns, and governance. The government perceives weapons to be the root causes of these problems, as opposed to a more complex combination of political, cultural, and economic factors compounded by lack of development, marginalization, and the absence of law and order. Thus, while later sections of this case study will discuss how insecurity has relatively improved in the last few years, it is critical in the context of Karamoja to discuss how conflict and raiding have impacted the region throughout history.

The disarmament campaign of 2001 was rushed and uneven and reduced specific communities' ability to defend themselves, leading to widespread opportunistic attacks by other groups (Burns et al. 2013). The widespread livestock losses and worsening violence in the early 2000s pushed many households out of animal-based production systems entirely (ibid.). The next disarmament campaign began in 2006 and was accompanied by high levels of human rights abuses and a decrease in community-level security (Human Rights Watch 2007). This also initially resulted in major livestock losses, in addition to severely limiting mobility of livestock and people, as discussed above, which made pastoral livelihoods less productive. Historically, livestock raiding had negative impacts on food security, human security, mobility of people and animals, and on crop production. In the words of an elder interviewed by Kennedy Mkutu:

> **Raiding was not just a means of restocking, but it was also an ancient form of wealth redistribution among the Karimojong. It is a traditional and central form of restocking. Young warriors were compelled to accumulate cows in order to gain status. Their respect depended on the number of successful raids. (Stites and Marshak 2014: 8)**

At the same time as it is part of the cultural fabric, armed raiding has also been "the critical factor in recurring famines and epidemics in Karamoja since the 1970s" (ibid.: 9), demonstrating its deleterious effects on pastoral and agro-pastoral livelihoods. Raiding and associated violence became pervasive, undermining social systems and eroding coping mechanisms in response to shock.

As one respondent interviewed several years ago stated, "Even if you give us cows now, raiders will drive them away," noting that this insecurity directly pushed him to abandon his pastoralist livelihood (Stites and Mitchard 2011: 27). To put it simply, having cattle was seen as a security risk and economic liability, and pastoralists weighed this liability and, in some cases, decided to move out or step out of pastoral livelihoods (ibid.). While some wealthier pastoralists were able to respond to, adapt to, or even benefit from conflict given their access to resources, engagement in the raiding business, and potential linkages to larger markets, poorer pastoralists faced much greater challenges, and were often pushed out (Catley et al. 2013). As studies on urban migration demonstrate, cattle-raiding caused families who were previously considered well off with livestock to shift to livelihood activities that would have formerly been considered for poorer classes (Stites and Akabwai 2012). These include the sale of natural resources (including firewood, charcoal, timber poles, thatch, hunted game, and wild foods), working as herders for others, petty trade, and casual labor in towns. As one 28-year-old woman from Moroto described,

> **We lost animals that were the main source of livelihood, there was no way other than going to quarry marble that was formerly…done by those poor households. (ibid.: 7)**

Raiding has also had profound impacts on identity politics throughout Karamoja, reflected at times by a fragmentation of the traditional age set system that has underpinned all aspects of life in the region (Gray 2000). Thus, although raiding in itself is no longer prevalent in Karamoja, because local dynamics have long been shaped by these practices, they continue to have repercussions in Karamoja today, as depicted by the current forms of violence: *lonetia* attacks and SGBV. While *lonetia* activities

represent a shift from widespread raiding to smaller, more opportunistic theft, SGBV is common as domestic violence with at times severe injuries that curtail livelihood options for its survivors (Stites and Marshak 2014; Howe et al. 2015).

Lonetia are typically male youth who carry out theft opportunistically in groups of approximately two to five young men (Howe et al. 2015). *Lonetia* activity is both a form of livelihood diversification, having evolved from the pastoralist raiding tradition, and a push factor in itself, as *lonetia* theft can cause households to diversify, including migration to urban settings for households who have lost everything. The thefts are much smaller than past patterns of cattle raiding, typically involving fewer than ten animals, in addition to non-livestock items including household goods, food stores, relief aid, and farming tools (ibid.). However, these thefts are disastrous for the most vulnerable, who experience difficulty replacing basic assets. *Lonetia* attack homes and homesteads at night more than livelihood systems during the day. While it is challenging to quantify direct causality, research shows that *lonetia* crimes increased in years following the beginning of disarmament in 2006, supporting the idea that youth engage in *lonetia* because they know that households lack weapons for self-defense, and also that these male youth lost other productive livestock-based livelihood opportunities (Stites and Marshak 2014). As a result of more widespread access to small arms and light weapons (SALW) in Karamoja, youth have been more easily able to acquire guns, and raids could be carried out without widespread community planning led by traditional authorities. This access to SALW changed notions of wealth and power in society, and it led to an erosion of traditional measures of customary authority that had previously ensured that raiding was done with knowledge and support of the community (Kareithi 2015). Although large-scale raids have diminished in Karamoja, this same lack of authority by elders has given space to youth and the rise in *lonetia* crimes. Many respondents say that *lonetia* are from *within their own communities*, and some acts of physical violence against elders have been reported—events unheard of in the past (Stites and Marshak 2014).

Domestic violence is primarily conducted by men against women in their homes and often has serious impacts on women's livelihoods. While there is an absence of reliable data on these trends overall, the abuse of alcohol appears to correlate with high rates of domestic violence (Howe et al. 2015). Additionally, domestic violence may be related to the erosion of pastoral systems and the frustration this has caused males, undermining their masculinity by reducing their ability to be the provider of their household, with women gaining increased economic status (Stites and Akabwai 2010). Injuries are reported to have resulted in severe or permanent disabilities and in some cases death of women (Howe et al. 2015). The impacts of SGBV on women are damaging in both the immediate and long term, resulting in health consequences, psychological trauma, social stigma and exclusion, insecurity and fear, and even migration (Food and Agriculture Organization 2009). Data on rural to urban migration indicate that SGBV is a specific push factor for women to migrate to urban areas to escape danger, stigma, and discrimination. Given survivors' psychological trauma, the severance of social ties and community networks that SGBV often causes, and risks of single women migrating to urban areas, survivors are often subject to further discrimination and can have difficulty securing livelihoods.

Environmental Push Factors

Environmental factors have significantly impacted livelihoods in Karamoja. The unpredictable and variable climate in Karamoja has caused specific challenges for crop production (Levine 2010). There has also been damage to boreholes throughout Karamoja as a result of overuse (Catley et al. 2013). This has implications for pastoral and agro-pastoral populations, particularly during the dry season, by limiting access to local water sources and causing challenges to animal production and human health as a result (Burns et al. 2013). Overall, however, research suggests that environmental factors may impact agrarian and agro-pastoral livelihoods more than pastoral livelihoods. Data and the lessons of history have provided evidence on the abilities of pastoralists to cope with environmental shocks. In contrast, in the event of a complete crop failure, agrarian farmers have limited capacity to cope without external support (Levine 2010). While Karamoja had a common trajectory of crop failure in recent years, this is primarily caused by poor rain distribution, and has been exacerbated by pro-settlement government policies and overreliance on dryland farming, thus impacting agrarians differently from pastoralists (ibid.).

Government policies promoting sedentarization have also resulted in natural resource exploitation, particularly in urban areas and in regions where farmers have expanded and land use between pastoralists and farmers and among communities is disputed. Increased competition for firewood, wild vegetables, charcoal, water, and thatch further strains livelihoods, in addition to being a potentially dangerous trigger for intra-community conflict. In addition to expanded government policies, the commercialization and commodification of sectors as well as population growth in urban areas have caused communities to over-exploit natural resources (Stites and Akabwai 2012). An additional environmental challenge is posed by poor natural resource management, exacerbated by trends that have privatized communal resources and a lack of formal mechanisms to adjudicate land disputes. Communal land has been privatized by better-off pastoralists and the GoU, including the gazetting of lands by the Ugandan Wildlife Service without local consent or

reparations. Lands have been taken over by corporations for mining or extraction (Byamugisha 2014). Mineral exploration licenses alone have been rumored to be granted for 62% of the 27,000 square kilometers in Karamoja (Ssekika 2015). These licenses also encroach upon local customary land rights and remove decision-making authority over land from pastoralists. By privatizing communal land, inequality among pastoralists is exacerbated. Rangeland enclosures, private water development, and other measures provide greater security for wealthy populations who are able to afford the land but increase vulnerability for those who cannot (Catley et al. 2013).

Other Push Factors

While urban migration can be viewed through the lens of both push and pull factors, it is notable that many women feel pushed to migrate to urban areas, specifically because of lack of inheritance rights, husbands' deaths, mistreatment, and lack of land rights in rural regions, among other factors (Stites et al. 2015). Poor national infrastructure is also seen to be a push factor, because it limits reliable access to livestock markets during the wet season, which affects processes of trekking and trucking trade animals (Burns et al. 2013). This compounds the difficulty of engaging in livestock-based livelihoods, and pushes people to urban areas to pursue other livelihoods.

Pull Factors

As discussed above, several different push factors contribute to livelihood diversification in Karamoja. This section turns to the pull (attraction) factors that have also affected livelihoods in Karamoja in recent years.

Migration from rural to urban and peri-urban areas represents the starkest change in livelihood systems in Karamoja and, not surprisingly, this shift has some of the clearest pull factors. Pull factors to leave rural homes include perceptions of better safety and security, increased food security, the opportunity to acquire new technical skills, lucrative wage labor opportunities, and the opportunity for children to be better educated (Stites and Akabwai 2012). Increased commercialization and commodification has also influenced livelihoods, as is discussed in greater detail later. As one 20-year-old man from Moroto reported:

> **Town life has changed people, they know about good hygiene, school, bathing, washing clothes, Christianity, pay less attention to witch doctors. More land will be opened for agriculture; [more] inter-marriages. (ibid.: 17)**

However, it is notable that while not all of these pull factors necessarily materialize, the prospect of them is enough reason for many respondents to move to urban settings. For example, although access to better schools is cited by some as a reason to move, urban migration in and of itself does not automatically lead to increased school attendance.[8]

Pull factors to agrarian production include the hopes for or promises of better land, services, and government assistance. Pull factors to a more agro-pastoral livelihood system may be similar to those for agrarian shifts, but also include the benefits of a more diversified and balanced livelihood system that has worked well for much of the region's population.

While insecurity has historically been a push factor, over the past several years, large-scale violent raids have decreased, and respondents in multiple locations across the region report that security has drastically improved. As this improvement in security has led to improvements in household livelihoods and mobility, we also view this recent trend as a push pull factor as people take opportunities to diversify their livelihoods.

Research conducted in 2015 by Mercy Corps and FIC in northern Karamoja found that women were able to move freely outside their village with improved access to cultivation regions, while men have enhanced security to graze and water their animals. Both men and women report increased freedom of movement to markets, which enables them to trade and sell agricultural products and livestock (Howe et al. 2015). This is in contrast, for instance, to data from a 2013 FIC study in northern Karamoja that found women in Kotido and Kaabong were unable to work in the fields, collect wood, or gather wild fruits due to severe insecurity outside their village, including sexual and gender-based violence (Howe 2013). Men experienced both physical assault and robbery, often while carrying their goods to markets (Howe et al. 2015).

Communities credit these improvements to so-called "two-for-one" policies (known as the Nabilatuk Resolution and the Moruitit Resolution in southern and northern Karamoja respectively). These policies require alleged thieves to pay back double the number of animals stolen in addition to one more (ibid.). If the thieves are not identified or do not pay, the animals are taken from the entire community. These resolutions are enforced by a combination of customary mechanisms and, according to local UPDF officials, are supported by the legal system. The UPDF and local peace committees collaborate in the tracking process (ibid.). While there are some complaints over the issue of collective retribution, these criticisms are mostly voiced by outsiders, and local communities feel these interventions have been largely positive. Overall, the

[8] Ibid. Prohibitive factors include financial costs of attending school, and that children may need to offset the expensive costs of accommodation and food in towns by working.

improvements in security over the last few years in Karamoja provide reason for optimism in regard to improved livelihoods, particularly in comparison to past decades of extreme violence and upheaval. It remains to be seen if these improvements are sustainable, particularly given the presumed imperative for the UPDF to hand over law and order to police forces and a civilian justice system.

Technological change has been widespread in Karamoja in the past 10–15 years, with mobile phone use and coverage expanding rapidly. Although more information is needed on the exact impacts of this advancement, innovations in mobile technology are likely to have "enormous potential in Karamoja, and include platforms for money transfers, credit, insurance, market information systems, and agricultural apps" (Burns et al. 2013: 3). With enhanced technology, people in Karamoja could be better connected to markets and improve both agricultural production and livestock-based livelihoods.

Improvements in the security situation also facilitate increased access to institutions, goods, and services. This includes increased access to financial services, which allows people to manage risk and smooth consumption, as well as to engage in new forms of livelihoods. One of the most prominent has been the growth of Village Saving and Loan Associations (VSLAs) facilitated in part by government and development actors (ibid.). Most of the VSLAs in Karamoja include 20–30 members, who pool their own cash resources in order to lend funds to each other and charge a modest interest rate (ibid.). Groups have used their pooled funds to invest in business ventures with shared profits. One group in Kotido, for example, rented land for vegetable crop production with the funds, thereby expanding livelihood options (ibid.). A social fund portion of VSLA programs provides participating members with insurance against idiosyncratic shocks, including illness or death of a family member (ibid.). While VSLAs have had various challenges, they appear to have resulted in smoothed consumption and provided greater protection of people's assets during shocks and stresses, which likely include livestock assets (ibid.). Enhanced access to goods and services means that transfer costs for production are lower and people gain increased access to markets. This also strengthens the sustainability of existing livelihoods and creates new opportunities for people, such as the Kotido VSLA group that used their funds to start crop production.

However, not all access to services contributes to sustainable livelihoods in Karamoja. This is particularly true in regard to the expansion of humanitarian and development aid. Some people have reportedly stopped or shifted their livelihoods in hopes of participating in cash for work or other development programs. In 2009, a stakeholders assessment of humanitarian assistance to livelihoods in Karamoja and Uganda overall highlighted concerns over aid dependency and the effects of humanitarian aid on livelihoods diversification and called for a more participatory role for community members in these programs to strengthen livelihood support in the long term (World Food Programme nd.). Another study reported:

> **No one specifically reported giving up other forms of labor to engage in cash for work, but the fact that several people were (reportedly) not engaged in any additional forms of activity and said that they had been deleted from cash-for-work rosters could imply that they stopped other activities in the hopes of being involved in these projects. (Stites et al. 2015: 15)**

Thus, although pull factors might imply greater choice and agency on the part of local actors, not all pull factors have positive impacts or result in positive long-term livelihood change.

OPTIONS FOR DIVERSIFICATION AND ALTERNATIVE LIVELIHOODS

In addition to the range of available livelihood assets and strategies, livelihood systems are determined by the governing environment, specifically the formal and informal policies, institutions, and processes (PIPs) (Lautze and Raven-Roberts 2006). Internal and external shocks, as well as vulnerability, influence how households make livelihood decisions (Young 1980). In Karamoja, some of these external shocks with long-lasting impacts include conflict, environmental and climatic trends, and demobilization processes. The aforementioned push and pull factors have resulted in options for diversification and alternative livelihoods. However, while some of these options are driven by opportunity, such as increased access to markets and better road infrastructure, others are driven by sheer necessity, such as the need for a single mother to travel to an urban center following the loss of her husband and cattle and given the dearth of livelihood options in rural areas.

One major factor influencing options for diversification and alternative livelihoods is the security situation. While there have been ups and downs and regional differences in security over the past 10–15 years and opportunistic theft through *lonetia* remains a significant challenge, the overall trend is in a positive direction, with current marked improvements in security as compared to one decade ago. Improved security both bolsters animal-based livelihoods and broadens alternative and diversified livelihood opportunities by providing greater access to grazing lands, natural resources, and other assets needed for successful agro-pastoral livelihoods. Another conceptual shift in recent years has been the trend in migration to urban and peri-urban areas, particularly as networks of families and communities establish ties in these locations. While both

security and migration have been discussed in detail above, another major underlying and cross-cutting factor deserves further explanation: recent trends in commercialization and commodification of markets.

Commercialization

A dynamic and complex market exists in Karamoja, with major hubs, including the district headquarters, as well as a number of smaller vibrant market towns (such as Iriri and Matany in Napak, among others). Links exist between these centers and other regional centers (including Gulu, Mbale, Soroti, Pader, Lira, Kitgum, and points in Kenya), which then are linked to larger formal and informal markets (Burns et al. 2013). During the years covered by this study, this market network has increasingly expanded into northern Kenya and South Sudan (ibid.). This expansion is due not only to improved security but also to increased trade and movement across borders—through formal, informal, and illicit channels. The region as a whole has become more commoditized, with larger markets, more cash, and more goods for sale and purchase. This commoditization provides different livelihood opportunities, as well as exposure to new risks.

In Karamoja, milk has become an increasingly important market commodity, due to the decrease in household milk supply as a result of the declining numbers of livestock at the individual household level and, during the period of protected *kraals*, the limited access to milking animals (Stites and Mitchard 2011). While in the past milk was typically only sold or traded in towns because, "Everyone in the village had enough milk" (ibid.: 17), research in 2010–2011 found that milk was being sold in rural areas to generate cash for other food items and essential commodities, including veterinary supplies, medicine for children, clothing, salt, shoes, groundnuts, dried fish, maize, and school books (Burns et al. 2013). Similar trends have happened with respect to other goods and services, as demand has increased in areas where it did not previously exist. Major commodities include meat, thatch, vegetables, firewood, and charcoal. A range of additional natural resources in Karamoja have economic potential, and some have been the focus of entrepreneurial efforts, including desert date, gum arabic, aloe, and shea nut (Catley et al. 2013).

Commercial trade has multiplier effects in the region. There is increased demand for: transporting livestock to fattening lots, abattoirs, and sale yards; high-quality fodder to fatten livestock; and milk to supply towns, among others (ibid.). Commercialization has gendered impacts; in various households, females are dismayed at males' purchases with newfound access to cash, including increased purchase and consumption of alcohol (Stites and Akabwai 2012). Household responsibilities and power structures have also shifted as a result of the shift away from animal-based livelihoods. FIC research found that women were often the main providers of food based on market purchases, funded by the sale or exchange of natural resources. This is in contrast to the past, when livestock management provided food and cash needs for households.

Given the internationalization of East African livestock markets, future commercialization and expansion would also have significant implications for livelihoods, specifically for pastoralists and agro-pastoralists. However, even to meet market demand, there would need to be increased supply within Karamoja, and as a 2013 study points out, "The commercial potential of the livestock sector remains untapped, yet is contingent on security and herd growth that could be achieved through investments in animal health and the availability of livestock credit" (Burns et al. 2013).

With increased urban-rural ties, we can also assume that there are expanded contraband routes and movements of illicit goods between rural areas and towns and cities. Much of this trade is thus informal and unregulated, as pastoralists, agro-pastoralists, and farmers navigate their own networks to buy and sell food and animal products. Yet hurdles still exist for residents of Karamoja to access regional and international markets in Kenya, Sudan, and Ethiopia, and beyond. Specifically, border restrictions, corruption, outdated veterinary controls for animals, and excessive taxation all need to be navigated to bring goods, services, and livestock to different markets. In addition, even though past development programs have focused on livestock market interventions, it is important for physical market infrastructure to be built on a limited and careful basis, if at all, by international actors. Evidence suggests that there is limited impacts of these interventions on poverty reduction in Karamoja (ibid.).

Inequity and Crowding Out

Not everyone has equal access to or receives equal benefits of the new livelihood opportunities opened up by commercialization. Recent research shows troubling trends in inequity and crowding out of markets. First, engaging in official markets and benefitting from regional commercialization may only be possible for those who have large herds. Hence the herd size of the wealthy continues to increase, while those with smaller herds lack access to market benefits (Catley et al. 2013). This is also problematic because idiosyncratic and covariate shocks impact different people in different ways, having disproportionate impacts on poor pastoralists and women (ibid.). When shocks take place, wealthier herders have greater access to key resources, including water and grazing areas, in addition to the financial and political capital needed to secure and maintain control over these resources. Meanwhile, poor pastoralists may have to resort to distress sales of animals and other assets for survival, which may render them unable to sustain pastoral

livelihoods altogether. Additionally, there are fewer numbers of livestock available in the region than in the past as a result of past conflict and disarmament practices (including the protected *kraals'* impacts on animal health) (Burns et al. 2013). Current trends in *lonetia* violence also disproportionately affect the poor, who have greater difficulty maintaining their livelihoods and recovering when both livestock and household items are stolen.

Results from a survey conducted in Abim, Kaabong, and Kotido in 2013 demonstrated considerable heterogeneity among income sources across different wealth groups, with livestock sales making up a significantly higher percentage of income for the wealthiest than for the poorest classes (ibid.). Additionally, although shifts in herd size are not new, larger herds are increasingly concentrated in the hands of fewer wealthy pastoralists, as commercialization processes have the potential to drive poorer herders out of livestock-based livelihoods (ibid.). If inequity trends are linked to dynamics of people falling out of pastoralist livelihoods, this implies limits to the potential for herds to be redistributed, even with herd growth and animal health improvements (ibid.). In the future, it will be important to monitor if trends in inequity are being exacerbated by further processes of commercialization.

EVALUATING DIVERSIFICATION OPTIONS

When assessing the merits of livelihood adaptations and diversification practices over time, it is important to exercise caution in categorizing household livelihoods as largely positive or negative. While some decisions may have negative impacts at the individual level, especially for females, they may have net positive benefits for the household. This is the case for a family who sends a girl into the casual wage labor market instead of to school to support overall household income. In Karamoja, many household decisions involve prioritizing short-term risk in the hope of establishing stability in the long term.

Risks of Bad Diversification

While livelihood diversification and adaptation should ideally smooth consumption and mitigate risks, some options can exacerbate risk for individuals and/or households. Livelihood-based risks have been discussed earlier; this section will highlight the risks of bad diversification holistically.

Some livelihood diversification practices are bad in the sense that they are not productive or efficient. As already mentioned, agrarian livelihoods are not as productive or reliable as agro-pastoral livelihoods given the variable climate and uncertain rainfall in Karamoja, leading to greater potential risks of food insecurity and deepening poverty (Stites 2013). In addition, there is also a real risk that continued expansion of agrarian livelihoods will cause significant environmental degradation and prevent disaster risk reduction efforts (Levine 2010). This also has the potential to fuel and exacerbate community-level conflict between farmers and pastoralists over scarce land and resources.

Alternately, other livelihoods may be productive, but yield increased risks for personal safety, health, or other individual-level hazards. Artisanal gold mining typifies this trend. It can be lucrative in Karamoja, but the lack of regulation, hazardous working conditions, gender inequalities, the absence of formal miners' organizations with bargaining rights, and lack of overall planning cause serious challenges for miners (Human Rights Watch 2014). Beer brewing for commercial purposes has also become a popular livelihood in Karamoja, especially for women. However, there are serious issues with alcohol abuse in the region, particularly by men, and so although beer brewing may be a viable livelihood strategy, research shows a correlation between alcohol use and increases in SGBV against women, particularly with respect to domestic violence and rape (Howe 2013).

In addition, some of the livelihoods discussed in this case study are not sustainable in the long term and rely upon the heavy exploitation of goods, resources, or institutions—typically at the expense of others—to achieve livelihood goals. These represent maladaptive livelihood strategies, which are livelihood opportunities that often arise in contexts with limited options. While they may meet immediate needs in the short run, they are not viable long-term livelihood options and may be linked with violence, coercion, and/or exploitation (Young 1980). While the term "bad diversification" implies a normative judgment, maladaptive livelihoods focus on whether the strategies employed by a household or individual to get by over time will be feasible given the constraints of the surrounding ecosystem, as well as the potential impacts on others of the pursuit of a particular livelihood strategy.

In Karamoja, one of the most common maladaptive livelihoods at present is *lonetia* activity. This livelihood centers on opportunistic or organized theft, often geared towards offsetting food insecurity (Stites and Marshak 2014). As research has shown, this strategy may meet individual needs in the short term, yet "does not appear to bring sustainable satisfaction, as evidenced by the declining optimism for one's future and perceptions of current power as the frequency of theft increases" (ibid.: 21).

FUTURE ANTICIPATED IMPACTS ON LIVELIHOODS

What livelihoods trends can we anticipate in Karamoja moving forward? At present, we are seeing marked improvements in security and associated positive impacts on livelihood systems, including livestock-based production. There have, however, been previous periods of security improvements in Karamoja followed by worsening

conditions and, ultimately, a repeated crackdown by the state. As the UPDF has been the central actor in improving security over the past decade, moving forward it will be critical to assess changes in security if and when the government scales back the UPDF presence. The UPDF is primarily playing a role normally given to police forces, i.e., maintaining basic law and order. Assuming that the government opts to transfer this role to the police, there will be a significant need for capacity training, police facilitation, efforts to decrease police corruption, and community sensitization to the role of the police. Local efforts (at times facilitated by the military), such as the two-for-one resolutions, will need to continue to be monitored, and initiatives to quell *lonetia* activity need to be undertaken. Hopefully, the positive gains of improved security have created shifts in community views on violence and raiding, which may allow for a period of continued stability.

An additional and unknown impact on livelihoods relates to land use and changing environmental aspects. Given increasing trends towards sedentarization and restrictions on mobility, there is growing pressure on shared and limited natural resources. Urban growth is bringing heavy exploitation of resources in and around town centers. As a result, natural resource management will become increasingly important in the years ahead in Karamoja. Climate change is likely to further impact Karamoja's variable climate, although it is too early to predict how this will specifically affect local livelihoods. Additionally, what impacts will broader commercialization in the region have on inequity, and will this result in greater crowding out of small pastoralists and farmers? Will Karamoja be increasingly connected to regional markets as a result of improved regional infrastructure and links with South Sudan and Kenya, and will this result in new opportunities for livelihoods diversification?

IMPLICATIONS FOR USAID STRATEGIES AND PROGRAMS FOR RESILIENCE-BUILDING IN THE DRYLANDS

This case study reveals lessons for USAID policy and practice in Karamoja, and in the broader eastern Africa region. Recommended considerations when implementing future USAID programs follow:

- **Mitigate conflict and enhance law enforcement:**
  - Consider implications for livelihoods of any transition from military protection to a community policing model, including training needs for incoming police forces to maintain and uphold existing systems, such as the Moruitit and Nabilatuk Resolutions
  - Address the shift in violence from the public sphere to the private sphere, including increased support for survivors of SGBV. This could be done by initiating community-led dialogue efforts and outreach initiatives to mitigate domestic violence by appealing to local notions of masculinity; providing support for local health infrastructure and ways for SGBV survivors to be treated with both dignity and discretion; and raising awareness about the impacts of alcohol abuse on SGBV.
  - Continue efforts to provide alternative livelihoods for young men to counter the shift toward *lonetia* activities, which could potentially include educational support, vocational skills training, and exploring the possibility of scaling up VSLAs to incorporate more young men. Support community-centered efforts at peace and reconciliation to support local authority and conflict resolution mechanisms, etc.
- **Support natural resource management systems:**
  - Support and facilitate existing natural resource management fora, including those that involve young men and women, particularly in the sustainable but realistic use of forests, water sources, and rangelands
  - Monitor levels of intra-community tensions that may arise as a result of potential encroachment of land and shortage of natural resources in regions with overlapping populations of farmers and livestock-herding communities
  - Promote local dispute resolution mechanisms for conflicts that may arise over scarce natural resources between the above populations.
- **Support land tenure and land use policies:**
  - Given recent increases in privatized land and the prospect of future private development of the mining sector, USAID should support efforts to include customary land owners in decision-making processes over their land and resources, including mineral rights
  - Empower customary institutions to mitigate conflicts between pastoralists and farmers
  - Educate populations about land rights and the relationship between government institutions and local customary institutions to improve recognition and security of tenure to communal land owners, especially in parts of Karamoja where private sector exploration is ongoing.

- **Advocate for smarter policies toward livestock producers:**

  - o Use the commercial potential of the livestock sector as leverage to enable GoU to understand the contributions of pastoralism and agro-pastoralism to national economic growth (Gross Domestic Product [GDP]) and also to regional livelihoods

  - o Promote efforts within GoU to better support regional policies and reduce discrimination toward pastoralists. This could include greater support for the existing African Union policy framework on pastoralism, which could then also be used as vertical support for pro-pastoral policies at the national level.

  - o Commission evidence syntheses or robust literature reviews examining the long-term viability of pastoralism vis-à-vis agrarian livelihoods

  - o Leverage the GoU's desire to potentially export meat with greater support for livestock value chains that would increase the ability of livestock producers to meet greater regional demand for meat

  - o Engage in training and awareness raising for district- and national-level policy makers about the role, appropriateness, and importance of pastoral production systems.

- **Address migration, urbanization, and access to markets:**

  - o Strengthen livelihoods programming that specifically targets urban and peri-urban populations, including both those who have abandoned pastoralism and those who are keeping one foot in the rural areas. These programs should aim to mitigate risk and to make these livelihoods safer and more sustainable for households, in particular female-headed households and single women. Supporting social networks between rural and urban areas would support both agro-pastoralists and those who maintain bifurcated livelihood strategies. This might include strengthening support for trade between rural and urban areas, such as in milk, meat, fodder, and other livestock inputs, as well as improving transit and transportation links.

  - o Promote greater access to markets specifically for female-headed households and single women in urban areas. This could potentially be done by expanding VSLAs, starting cooperatives, providing livelihood support for opportunities that typically attract women, and other activities to reduce liquidity constraints, perhaps through mobile technology.

  - o Facilitate urban planning and the provision of goods and services in urban and peri-urban areas, including hygiene and sanitation, lighting, and public safety

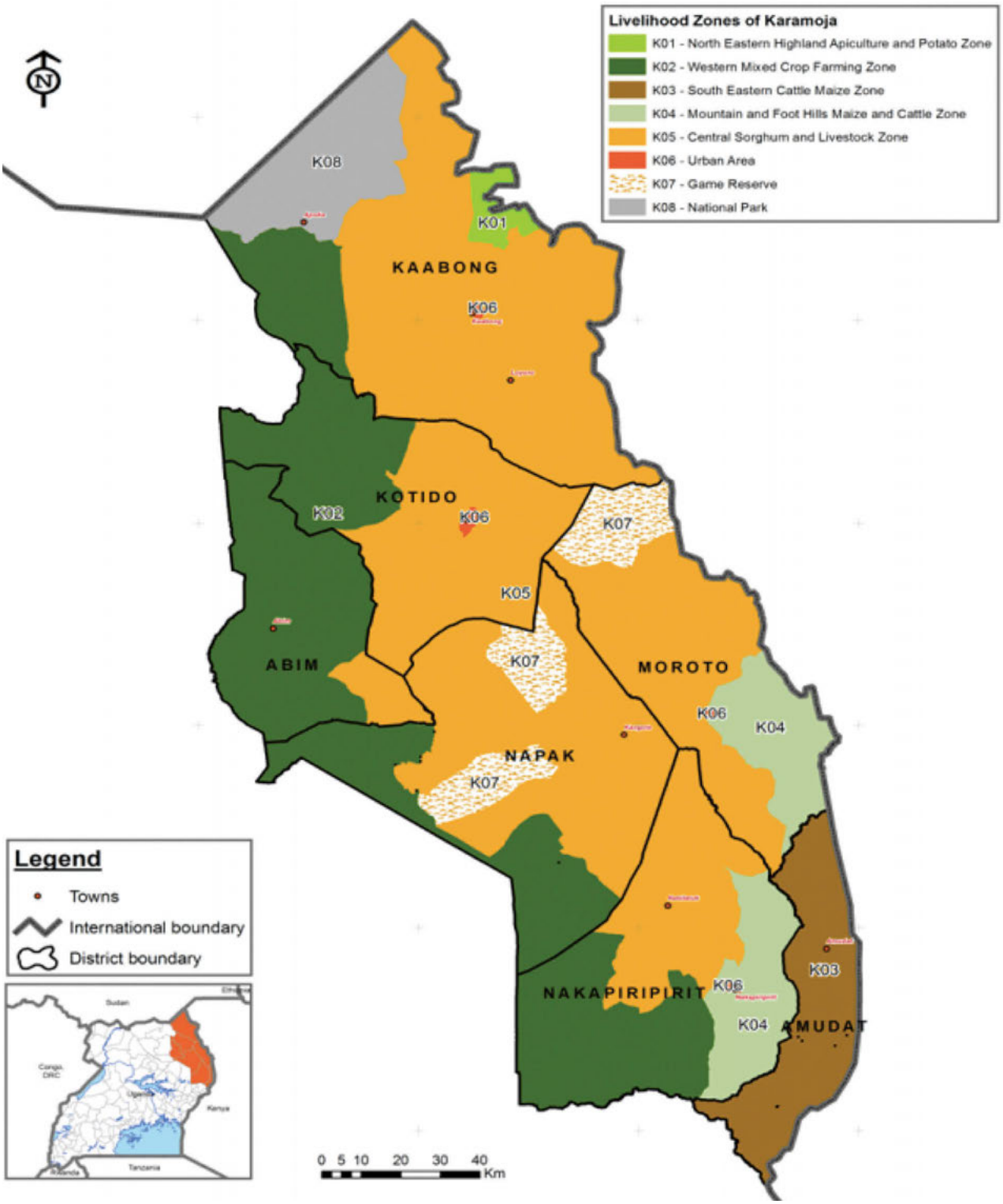
  - o Strengthen and support legal systems to enhance migrant workers' rights, especially in the artisanal mining sector

  - o Reduce transaction costs associated with access to markets by supporting road, storage, transit options, and communications infrastructure between rural and urban areas; support investments in mobile phone technology and access to remittances.

RECOMMENDATIONS FOR FUTURE RESEARCH

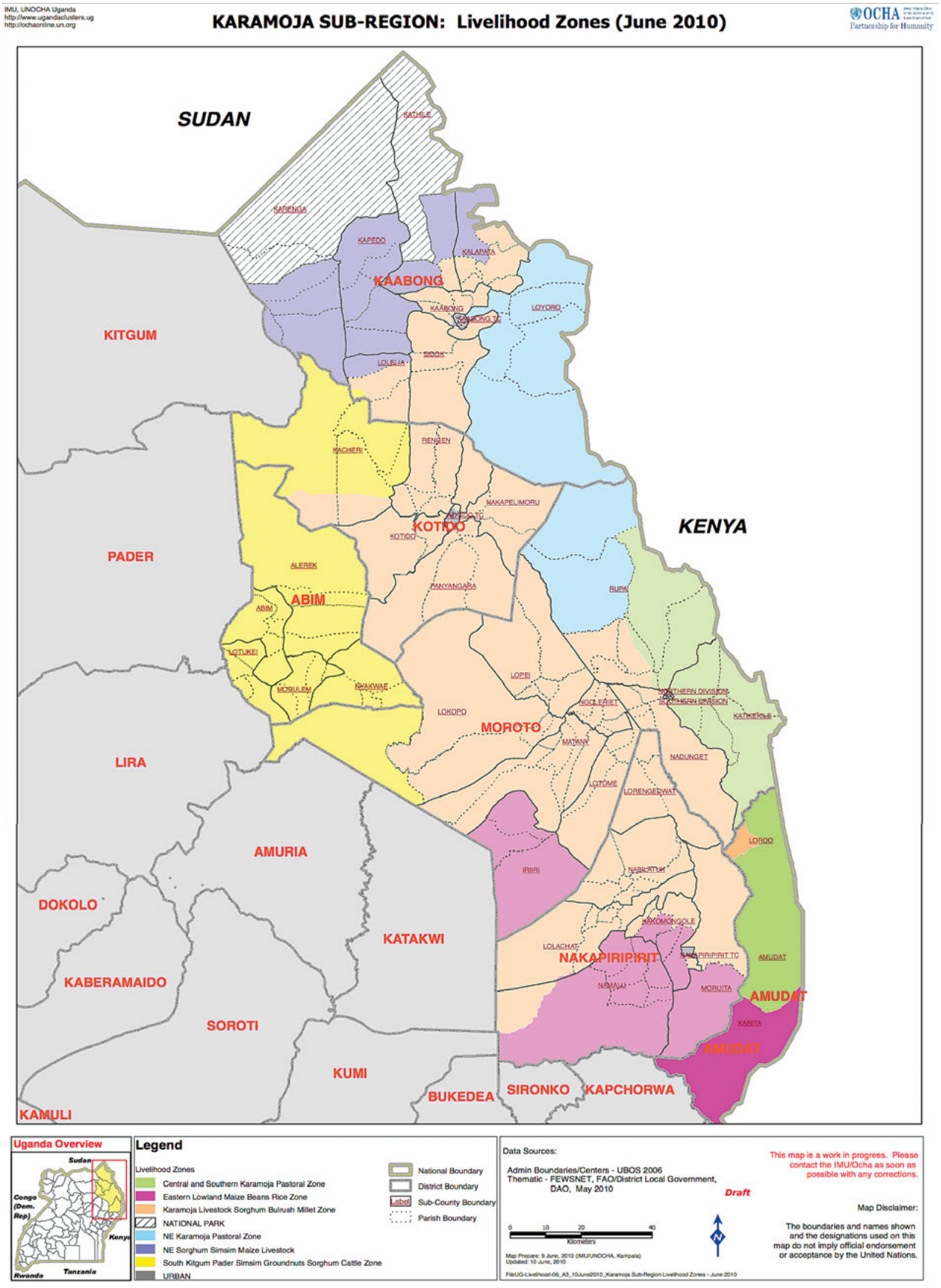
While the evidence base on livelihoods in Karamoja is robust, the authors of this study welcome future research to assess how livelihoods diversification trends will be impacted by recent developments in the region, specifically improvements in security. Additionally, it will be important to pay attention to local security dynamics to assess what will happen to livelihoods for Karamoja's inhabitants if the current system of military protection evolves to a police and community-centered system of law enforcement. Given the increasing trends in commercialization and commodification of goods, research for this study revealed several trends in growing inequity at the household and community level; a formal examination of inequity and its impacts on poorer pastoralists and rates of crowding out would help enhance policy and market-based interventions that support poorer pastoralists or pastoralists who have shifted to other livelihood sectors. Moreover, as the linkages between urban and rural areas continue to expand, research that seeks to quantify the tangible benefits of these bifurcated social and economic networks would also better explain livelihood and protection benefits. Furthermore, additional research is needed to analyze reasons for the shift in violence from the public to private sphere and the impacts of the increase in home-based violence on livelihoods. More research is needed on *lonetia* overall. Finally, statistical information on out-migration from Karamoja to towns beyond the region would yield important insights about why people stay in Karamoja, who leaves, and who among these groups are successful in establishing and maintaining livelihoods in new urban and peri-urban environments.

Annex 1: Livelihood Zones in Karamoja in 2014



Source: Government of Uganda, Food and Agriculture Organization of the United Nations (FAO), and FEWS Net. 2014. "Food Security Outlook in Uganda." **http://www.fews.net/east-africa/uganda/food-security-outlook/february-2014**.

Annex 2: Livelihood Zones in Karamoja, 2010



Source: Relief Web. 2010. "UN OCHA: Karamoja Sub-Region Livelihood Zones." **http://reliefweb.int/sites/reliefweb.int/files/resources/F079DD7AB22363C78525775300650D7B-map.pdf**.

CHAPTER 3
RESILIENCE AND RISK IN PASTORALIST AREAS: RECENT TRENDS IN DIVERSIFIED AND ALTERNATIVE LIVELIHOODS IN GARISSA, KENYA

Hussein Abdullah Mahmoud

INTRODUCTION

East African pastoralists pursue diversified and alternative livelihoods for three major reasons: first, to meet income and consumption needs; second, to circumvent livelihood shocks produced by drought and famine, political turmoil and insecurity, animal disease and market failure, as well as longer-term factors, such as population growth, loss of common property resources, and commoditization of the economy; and third, to seek investments outside pastoralism that diversify the assets of wealthy pastoralists (Fratkin 2013; Little, Smith et al. 2001). While wealthy pastoralists pursue non-pastoral economic activities to enhance their economic prospects and investments, poor pastoralists do so as a survival strategy (Little 2001). Engaging in non-pastoral economic activities is not a new phenomenon for pastoral communities of the Horn of Africa. However, the forms and types of diversification activities and opportunities available now are very different than in the past, which often involved only farming, hunting, trading, and, in a few cases, investing in urban housing. Pastoral livelihood diversification is a complex issue, but livelihood shocks, such as droughts and conflict, and the desire to access employment, business opportunities, and social services such as education and health care all contribute to the need to diversify.

According to Little (2001), gender is an important characteristic that plays a significant role in diversification options, and men and women take different paths when diversification is pursued. Under current stressful circumstances, women seem to be deviating from the mainstream norm, which confined them to homestead chores and child care, and now selling milk (see Little 1994) and doing domestic work for others. Former pastoral women not only hire themselves as domestic workers in Garissa, but purse the same strategy when they migrate out of the country.[9] For example, in Yemen, de Regt (2007) shows that Somali refugee women seek work as domestic hires for Yemeni and better-off Somali families living there. However, selling milk continues to be the main occupation of former pastoral women, as I will demonstrate in this study and has been shown to be an important diversification option elsewhere in the region (Little 1994). In addition, fodder marketing and selling *miraa* (also called *khat*) will be shown to be important diversification options for former pastoralist women in Garissa.

A new means of looking at livelihood diversification options is to see them as possible paths that pastoralists take as a result of extreme events, such as droughts or conflicts, or the need to expand into other economic sectors for investment or accumulation. Accordingly, better-off pastoralists are "moving up" through commercialization within the livestock sector, thereby increasing their diversified investments. The second category of households are "stepping out" of pastoralism into other activities, but still retain a significant involvement in pastoralism. The third category are those individuals unable to remain in the pastoral sector but with few alternatives but to "move out" (Catley and Aklilu 2013).

It is increasingly evident that livestock commercialization (Aklilu and Catley 2010, Catley and Aklilu 2013), land grabbing (Galaty 2013; Nunow 2013), rangeland enclosures (Tache 2013), and pastoral impoverishment (Hogg 1980) have destabilized pastoral production systems and compelled many pastoralists in eastern Africa to step out or move out of pastoralism. In attempts to address this problem, massive intervention programs have been undertaken to provide livelihood support to a population that is becoming increasingly vulnerable. The increasing pastoral vulnerability to shocks has increased the intensity of intervention and mushrooming of donors and implementers, especially during droughts. It is widely acknowledged that the level of intervention in pastoral areas of the Horn of Africa has increased considerably in recent decades, although further study is necessary to better understand the impact of these interventions.

There have been push and pull factors in the tendency to seek diversified and alternative livelihoods among pastoral households in Garissa County, Kenya. Pursuit of alternative livelihoods occurs when pastoralists abandon pastoralism altogether to seek a different type of livelihood, such as urban trading and casual waged labor in Garissa town. Diversification of livelihoods is defined as when a pastoralist opts to stay in pastoralism, but broadens his or her income and livelihood by including other activities,

[9] Somali people are the predominant ethnic group in Garissa County.

such as operating a wholesale shop in Garissa, while maintaining a herd in the rangelands. There is no doubt that recurrent droughts have increased pastoral vulnerability and pushed many households out of pastoralism due to widespread livestock losses and desperation. On the other hand, the growth of Garissa town and accompanying rapid economic growth, with expanded business and education opportunities, and the presence nearby of a massive refugee camp, also have contributed to a growing number of pastoral households moving to town to "step out" of pastoralism or abandon it altogether. Both push and pull factors have opened up a set of livelihood options for pastoral households in and around Garissa town. These options have different levels of risks and accessibility, and risk and access profiles of these different options therefore need to be examined.

This chapter examines the main options for alternative livelihoods and livelihood diversification in and around Garissa town in northeastern Kenya. It provides historical perspectives and describes recent trends in diversified and alternative livelihoods. Secondly, it highlights household characteristics and diversification choices available and analyzes the implications for resilience-building strategies and programs. The question of gender also is explored in this chapter, particularly how men and women opt for different diversification strategies as well as their ease of access and the levels of risks they face.

METHODS

A qualitative approach was used in this study to help answer questions about pastoralist diversification. Key informant interviews were done with the Garissa county staff of the Ministry of Livestock and Pastoral Economy, the Ministry of Agriculture, Irrigation Services and Fisheries, and Womankind Kenya, an international NGO that deals with the welfare of women. While interviews with the county officials were conducted to learn about their views on diversification, the discussions with Womankind Kenya's personnel were to understand their own experiences of diversification in Garissa.

Another set of interviews were conducted with 15 pastoral households who either have "stepped out" but maintain some involvement with pastoralism, or moved out of pastoralism for various reasons and at different times and are now engaged in alternative livelihoods. The questions asked included the background information of the head of the household, such as sex, marital status, age, place of birth, current residence, reasons for migrating to Garissa, the size of the family, livestock ownership, species of and effect of drought on herd, level of education, and ability to read and write. Other questions asked covered the main livelihood options that they pursued after migrating to Garissa, risks involved in the options, and the ease of access to the options.

Drivers of changes in pastoral livelihood systems and the factors that provided individuals either with a wide/good choice or narrow/bad choice of diversification options were also examined. It was also important to understand how gender affected choices around diversified and alternative livelihoods and risks that women and girls faced while pursuing diversified and alternative livelihoods. Age of respondents was recorded as demonstrated in Table 3.2 to find out if it was an important variable in determining diversification path. Questions on migration and remittances were asked to understand their roles in reducing risks to shocks and helping to provide alternative livelihoods. While migration still remains a viable strategy to cope with risk in Garissa, remittances were not a prominent part of diversification strategies among those who have stepped out or moved out of pastoralism. Finally, a focus group discussion was held with community elders and pastoralists of Hagar Buur village, located about 50 km east of Garissa on the Garissa-Liboy road. This group keeps animals in the rangelands but also is well connected to the urban economy, and some members of the community operate small kiosks selling food, tea, and *miraa* (*khat*) to travelers.

Direct observation of diversified livelihoods that pastoral and ex-pastoral households have adopted were instrumental in understanding the changes taking place in pastoral livelihood strategies and options. We visited several farms along the river bank to talk to farming families and observe the activities going on there. Small businesses are spread throughout the town's main streets and alleys where women sell textiles, *miraa*, and tea and men push wheelbarrows for merchants and direct charcoal-laden donkeys into town.

Both the population of Garissa town and the county have increased considerably over the past 20 years (see Chapter 1). According to the Garissa County government, there are 623,060 people comprised of 334,939 males and 288,121 females now living in the county.

THE DADAAB REFUGEE CAMP

The Dadaab refugee camp is a critical feature in Garissa. It is the largest refugee camp in the world and was established in 1991 to accommodate up to about 90,000 people, but the numbers have increased several fold in the past 20+ years. As of 2012, the camp hosted an estimated 463,000 people (UNHCR 2012). While the camp was initially designed to host Somali refugees fleeing war from Somalia, it was expanded to host displaced people from across the Horn of Africa region. It also hosts several thousand internal persons displaced by droughts and poverty and/or seeking education and economic opportunities. It is a facility that is making a huge impact on all aspects of life in Garissa and surrounding counties, including the local economy, politics, security, and environment. Also, it has had large impacts on pastoral

livelihoods in the region, which makes it interesting for understanding diversification generally.

DIVERSIFIED AND ALTERNATIVE LIVELIHOODS: HISTORICAL PERSPECTIVES AND DRIVERS

Diversification among pastoralist communities is not a new phenomenon in the Horn of Africa. In the past, pastoralists in the region diversified and sought alternative livelihoods because of droughts, floods, diseases, and conflicts. Pastoral households adopted two basic options when disasters threatened. The first was trying to manage with what remained of their livestock, and raiding or exchanging with neighboring communities. The second option was to take refuge with other, often non-pastoral communities, which happened in the 1890s when many pastoral Maasai lived temporarily with bond friends among Kikuyu, Meru, Chagga, Arusha, and Luo communities. They worked as laborers on farms in these communities and eventually were able to acquire livestock again for restocking their herds (Waller and Sobania 1994). According to Hogg (1980), a history of droughts, disease, and war have caused the impoverishment of the Boran pastoral community in Isiolo, Kenya. The community responded to these disasters by diversifying and seeking alternative livelihoods through farming, seeking wage labor in urban centers, and engaging in trade. Later, the Sahel drought of the early 1970s devastated pastoral herds and destabilized pastoral economies and was a turning point in creating pastoral destitution and the need for pastoral diversification and alternative livelihoods in the Horn of Africa.

Every community has an origin, and the origin of Somalis is pastoralism, and every Somali is linked to pastoralism in one way or another (Abdullahi,[10] personal communication). He states that because Somalis were involved in ancient trade through maritime commerce and also interacted with settled traders, they have a long history of association with towns and cities. In other words, pastoral Somalis used towns for trade in livestock and livestock products and to access supplies of foodstuffs and other materials. The existence of small trading centers on main roads and feeder roads in the pastoral hinterlands is evidence of these strong linkages with traders and towns. Consequently, some pastoralists did opt to settle in towns and trading centers for different reasons at different times. Abdullahi further narrates that when droughts resulted in some people leaving pastoralism, they became a cheap source of unskilled labor in Garissa, providing services as cooks, livestock brokers, and security guards.

Livestock production is an important enterprise and always has been close to the heart of pastoral Somalis for centuries throughout the Horn of Africa (Bashir,[11] personal communication). Bashir states that the drought of early 1970s is believed to have completely changed the pastoralism scenario in northeastern Kenya and unlocked the possibilities for exploring alternative livelihoods as the 1971–74 drought decimated livestock and displaced populations. Hopelessness set in, and pastoralists were forced to find a way to survive. Some pastoralists lost everything in that drought and decided to come to town to look for something to do. Bashir looks at things from a different perspective by stating that: "It is probable that those of us from Garissa and northeastern Kenya generally who went to school and secured senior jobs in government, development agencies, and the private sector could be the offsprings of pastoral dropouts of the droughts of early 1970s. That drought gave us the opportunity to go to school."

There have been a lot of changes over the past approximately 20 years in pastoral livestock production and marketing in the county. Local elders provide narratives of an abundance of good pasture, adequate rains, and a healthy pastoral economy in the past, but that is no longer the dominant account. Reality may have started changing in the 1980s, with more changes in the 1990s, but really drastic changes occurred from 2000 and onwards. It was at this time that massive migration into alternative livelihoods began, livelihoods that were more sedentary in nature. In remote villages, pastoralists started to establish trading centers with shops for businesses.

From these narratives and interviews with key informants, it is evident that droughts and the need to access education are emphasized as motivating diversification and alternative livelihoods. It is possible to talk about pull and push factors. While droughts push pastoralists out of the rangelands, the existence of educational and economic opportunities act as pull factors and give hope of secure incomes and stable livelihoods that are not dependent on unpredictable climatic patterns. The next section discusses the major findings in the study highlighting diversification and alternative livelihoods options, as well as their risk and access profiles.

EDUCATION TRENDS IN GARISSA

The demand for education is growing among Somali pastoralists in the Horn of Africa, especially young people. A study conducted in the Somali Region of Ethiopia indicates that young people aspire to high levels of education, in order to secure employment that would allow

[10] Abdullahi Mohamed Abdi is the Executive Director of Womankind Kenya, Garissa Office.

[11] Bashir Abdullahi is the former District Agriculture Officer and currently is the Minister of Agriculture, Irrigation Services and Fisheries in the County Government of Garissa.

them to contribute to the development of their communities and the country (Jackson, 2011). According to the same study, the majority of young people interviewed desired to take up a job with the government, while a few expressed a wish to engage in private business (ibid.). The Somali Region in Ethiopia indicates that many employment opportunities in the government sector exist, providing ready employment for fresh graduates, unlike northeastern Kenya, where government jobs are difficult to find, especially when compared with non-governmental and private sector jobs. The latter employment options have become the preference of recent school graduates.

The school attendance trend in Garissa is encouraging as there has been an improvement in school enrollment. For example, the number of those who attended school between 1999 and 2009 increased from 11.8% to 28.5%, with the number who never attended school decreasing from 76.8% to 55.1% during the same period (Kenya National Bureau of Statistics 1999 and 2009). There is no doubt that as the demand for education increases in Garissa, so will the number of schools. There is need for further research on schools and school enrollment in Garissa to better understand the long-term trend and implications for pastoral diversification.

RECENT TRENDS AND DRIVERS IN DIVERSIFICATION AND ALTERNATIVE LIVELIHOODS

This section of the report looks at recent trends and drivers in diversification and alternative livelihoods, including the risk and asset characteristics (profiles) that help to explain them. A number of individual case studies are presented to highlight the variation in diversification activities and the challenges and opportunities that women and men have faced.

Farming along the River Bank

According to the Ministry of Livestock and Pastoral Economy official who was interviewed, people who lost livestock during recent droughts and came to town seeking assistance were allocated riverine land by the government in order to produce vegetables and fruits. Thus, farming seems to have been widely encouraged and adopted in Garissa as both an alternative livelihood by former pastoralists and a worthy enterprise by current pastoralists Pastoralist families have adopted agricultural production along the river bank to minimize the effects of droughts on their livelihoods. Farming families often are assisted by the government, non-governmental organizations (NGOs), and other donors who provide them with funds, irrigation equipment, farm inputs, and advice. These families are required to form groups and then register with the government's social services department before they are allocated land to farm. These group farms usually are family or clan-owned, which is why they are called family farms.

There are 178 farming groups, of which 160 are group and 18 are individual farms. Although the land may be owned by a group, each individual member farms his or her own plot within the group farm. There also are farms owned by institutions, including the Kenya Prisons and the Young Muslim Organization (the latter is an institution for orphans based in Garissa). According to the Ministry of Livestock and Pastoral Economy staff member, "There seems to be no going back to pure pastoralism for these people because their lifestyles have changed from pure pastoralism to agro-pastoralism with a very strong connection to urban economy and even the export market." These farms produce high-value horticultural crops, such as mango, pawpaw, banana, sweet melon, and watermelon, as well as fodder (with support from the Ministry of Livestock and Pastoral Economy). Some farmers are said to be exporting their products to the Middle East. The transition to a farming occupation seems to be a gradual process. Some aspiring or compelled pastoralists may first step out of pastoralism to pursue farming and then move out completely to take on farming as a full-time activity. Some of these farmers have generated a considerable income through large investments in their farms. While small-scale farmers accept farming to supplement their incomes, it is large-scale farmers who are reaping massive profits and success from agriculture.

Different systems of farming exist in Garissa. There are cases where families farm during the wet season, but migrate with their animals to the rangelands during the dry season. There also are examples where former pastoral women and children stay on the farm, and the men migrate with animals to the rangelands. All of the cultivated land along the river is supported by irrigation (see Figure 3.1).

Farming families are involved in other income-generating activities, such as bee keeping and dairy businesses. In fact, some farms of pastoralists and ex-pastoralists supply milk to hotels in town from their local breeds. Many of these farmers also keep animals, which is why they are called agro-pastoralists, and they use fodder from the farms to feed their livestock during the dry season as well as use cash from crop sales to purchase livestock during the wet season. These new farmers are committed to farming and seem to be adapting to the new lifestyle. Because they are advised by NGOs and/or government on what to cultivate and how, they seem to be doing well. Three households in our sample indicated that they are farming.

Access Profile

In the past, families and others who were allocated farms did not pay, but now they have to pay for farmlands, which are fast becoming scarce. Therefore, it is increasingly difficult for poor pastoralists to access farms and pursue farming, because most pastoralists who have moved out of pastoralism with little or no capital are not in a position to

Photos by Hussein A. Mahmoud

Figure 3.1: Horticultural farms along Tana River, near Garissa town

purchase farms. On the other hand, access is relatively easy for those people whose families or clan members already own a farm. An important strength of the Garissa community is the existence of a strong social support system. For example, one of the respondents in this study was instructed about farming by a relative and soon made a decision to invest in it. As the respondent is old, his son soon took over the farming enterprise, and they seem to be doing well, with the farm supporting many of the family's consumption needs.

Risk Profile

The Somali community took up farming in Garissa because profits were attractive, and they were reluctant to engage in food-for-work programs, which they found less appealing than cultivation. Until recently Somali pastoralists have despised farming and took immense pride in livestock production. Recent changes have forced some Somalis to take up farming out of desperation, but others pursue it as a type of investment. In contrast to food-for-work programs, there have been successes in programs for businesses, business training, and establishment of village savings and loans programs.

Farming is a totally new activity for poor pastoralists, but Somalis have been involved with business activities for a long time. To make them successfully adapt to farming requires considerable support in terms of inputs and bush clearing, the latter needing much labor.

Risks in farming include crop failure, which leads to economic losses like any other type of investment. There is the risk of possible rejection by existing farming families who may resist new arrivals and provide little support for them. Moreover, farm products can be destroyed by wildlife, such as monkeys and warthogs, especially since farms may not have proper fences and security. Sometimes farmers also face shortages of water or floods, which cause massive damage to crops. During the El Nino floods of 1997–8 farmers incurred a lot of economic losses. Water pumps also can break down, leavings crops to wilt until the pumps are repaired, a process that can take considerable time as funds for repair usually are provided by the government. In some cases, women's groups are asked to repair the pumps and are refunded the costs later. There also is a lack of organized marketing strategy for farm produce, which compels most farmers individually to sell their produce in the open market, earning unattractive income. Snakes on the farms also are a problem, since they can harm farmers. In addition, theft cases are common, especially when farmers go to town to attend Friday prayers and during Muslim holidays of Idd. Finally, rape cases have been reported as some isolated farms are more than 10 km from Garissa town, and women who work alone are exposed to gender-based violence.

Selling Firewood and Charcoal

Several former pastoralists are engaged in charcoal burning and cutting and selling firewood in Garissa. Four out of fifteen of our interviewees reported cutting and selling firewood after they dropped out of pastoralism and moved to Garissa town. Wood resources are used for firewood in

homes and restaurants, while building materials are supplied to the booming construction sector in the town. As the population of Garissa has rapidly expanded in recent years, the demand for wood-based energy and construction materials has also risen. Tapping into range resources, such as trees, is not an alien occupation for former pastoralists like farming is. Although cutting trees and burning charcoal is not unfamiliar to them, it has risks as will be demonstrated in the case histories of former pastoralists.

Case Histories of Former Pastoralists—Mr. A. K.

Mr. A. K: Mr. A. K. is 77 years old and initially migrated from Wajir to Tana River County and then to Garissa in 1979. He appears to have been highly mobile until he decided to settle in Garissa. He says that because droughts were frequent, migration was the norm. When he finally moved to Balambala area in Garissa County, he had 70 cattle and 200 goats, but most of the livestock died during a drought. At the time, he had no camels, but had only one donkey that died in the drought as well. The final leg of his migrations took him to Garissa town with only two head of cattle. He sold them to facilitate settling in the town and provide for his family during the transition to a settled life.

The second reason that compelled Mr. A. K. to migrate to Garissa town was that he wanted his children to go to school and *madrasa*. He went to Quranic School himself, but has lost most of the Quranic knowledge he had gained due to the numerous migrations he has undertaken. Now, he says he can only write his name and that of his father. At the moment, he has a family of 16 people living with him in Garissa town.

Livestock Trading

His work history reveals that he had tried many activities before and after migrating to Garissa. While he was a nomadic pastoralist, he traded livestock and transported livestock to sell in Ukambani, Meru, and Nanyuki Districts, Kenya. He was introduced to livestock trade by people living in the same area. The profits in livestock trade were meager. He used that money to buy foodstuffs to sell in his village, which allowed him to earn extra income. He was engaged in livestock trade for less than one year, and he quit because of lack of progress. At the time, there were strict security monitoring processes, which required livestock traders to report to local chiefs when they moved their animals through their areas. They would spend the night in a chief's location and then move on the following morning.

Firewood Collection

Access Profile

He was involved in cutting firewood from the rangelands and selling in Garissa. The area surrounding the town was forested and was a rich source of firewood. He used to go to the bush in the morning and be back in town by evening. Firewood cutting and charcoal burning are activities that most pastoralists are familiar with, and they do not require clan or family connections to access the resources necessary for the activities. However, some former pastoralists are introduced to firewood collecting by friends and relatives who take them along on wood-cutting trips. In some cases, recently-arrived pastoralists are shown different sources of assistance that can help in selecting a diversification option as demonstrated in the following example.

Soon after his arrival in Garissa, a close relative of Mr. A. K. told him that he had to do something for a living. The relative asked Mr. A. K. to accompany him to the woods to cut firewood. Mr. A. K. did not have a cart and a donkey and needed tools, such as a machete and food supplies, to engage in the activity. He was advised to go to an Arab businessman in town, Mr. Faraj, and ask for a cart and a donkey, because the merchant provided equipment to help poor people start small-scale businesses. He was given a cart and a donkey and started cutting firewood and selling in town. The payment to Mr. Faraj was a load of firewood delivered to his house once every month. After six years, Mr. A. K. saved enough money to purchase his own cart and a donkey, and he then returned the old cart and donkey to the businessman. Mr. A. K. says that he used to hide his savings from his wife until he had enough to buy the cart and donkey. He bought the donkey for Kenya Shillings (KSh)800 (US$9.42, at exchange rate of US$1=KSh85). He sustained his family with the firewood business, and he also started to purchase a small number of goats for his *boma* (household corral). He did not buy the land he is living on now in the outskirts of Garissa, but settled there when it was forest even though the area has now become part of the fast-expanding Garissa town. When they first settled in Garissa, there they had only three children (they were a household of five in total).

Risk Profile

Mr. A. K. engaged in firewood collecting when he exited the rangelands, and this activity involves different risks. Snake bites were common, and he once was bitten by a snake and had to be treated at a hospital. There also were bandits in the bush, and his colleagues have been attacked in the past. Firewood is an extremely tedious occupation, and injuries were not uncommon in areas where medical services are very scarce. Market risks are minimal as there is a large demand for charcoal and firewood in Garissa.

Farming

Access Profile

Mr. A. K. was still in the firewood-selling business when a relative mentioned farming to him, and he soon became interested. He was given a piece of land to farm by the

Photos by Hussein A. Mahmoud

Figure 3.2: Charcoal and building poles being sold in Garissa

government, and he started cutting trees from the new farm to sell in the town. He stopped going to the bush for firewood. The main form of transport for his farm produce was a cart and a donkey. He now produces mangoes, tomatoes, kale, and other products. His son also is engaged in the farm full time and supports the family needs.

Mr. A. K. and his wife now have 30 goats that they keep around the homestead, and his son mainly is engaged in the farm. The son's wife, in turn, sells bananas in the market, while another son sells firewood. All the family members live in the same compound. Occasionally, he receives cash through M-*pesa* (Kenya's mobile phone-based money transfer company) from his daughter who lives in Nairobi, and he uses the money to supplement family expenditures. He states that he visits his daughter's family during the month of Ramadhan every year "to escape from the Garissa heat."

When asked to comment on pastoralism and livestock production, Mr. A. K. stated "livestock is the rose flower of our eyes. We cannot live without livestock because Somali and livestock are inseparable. Our children are introduced to livestock in early age." He does not invest in livestock currently other than the few goats they keep in town.

Risk Profile

Wild animals, monkey, warthogs, and giraffes destroy farm produce, and there is scarcity of water occasionally.

Case Histories of Former Pastoralists—Mr. G. H.

Mr. G. H.: Mr. G. H. is 53 years old and is a firewood seller who migrated to Garissa in 1993. There were two reasons he migrated to Garissa: first, he lost most of his livestock in droughts, and second, an armed militia entered his village and harassed people in Wajir County, near the border with Somalia. He left after these incidences. He has two children in the rangelands, and eight are with him in Garissa.

Firewood Collection

When Mr. G. H. came to Garissa he was first employed as a farm laborer, and his salary was KSh1,500 per month. After a while, he purchased a donkey and a cart and started cutting firewood and building poles to sell in town and is engaged in that business until now. He says that a donkey load of firewood sells for KSh2,500 in Garissa town. He is able to make about 4–5 trips per month, which earns him adequate income to sustain his family. This income is steady as he has specific business customers in town whom he supplies with firewood, and they, in turn, sell to their customers.

Access Profile

In terms of access, nobody introduced him to farm work, but a relative introduced him to the firewood business and told him that selling firewood was better than being a farm laborer. He seems to have no regrets about his livelihood choice.

The photos in Figure 3.2 show a donkey cart carrying sacks of charcoal on the way to the town either on a delivery to a customer or seeking a buyer. The other photos show building materials being sold in town.

Risk Profile

Risks he faces include wildlife attacks, which he says are common in the bush. Once he and his donkey were attacked by a hyena when he was sleeping at night. It is tedious work as he spends up to three days in the bush cutting and collecting firewood. He says that there are no government restrictions on cutting trees for firewood in the bush, so environmental effects of these activities cannot be easily determined. There were many people engaged in this activity in the past, but that number seems to be dwindling, and competition is lessening. He attributes this to some of his colleagues aging and others finding jobs in other places and sectors. He has about 85 sheep and goats now and occasionally sells milk from the herd. The herd is under the care of his son in a nearby village.

Seeking Refuge at a Refugee Camp

This has been an option for dropout pastoralist families to earn a living, but access has been restrained and risks have increased in recent years.

Access Profile

In the past, access to refugee camps was easy but has become difficult and a tedious process in recent years because of increased screening of persons who wish to be registered as refugees. Acceptance and registration of new

Photos by Hussein A. Mahmoud

Figure 3.3: Women selling milk under milk shades in Garissa

arrivals takes longer now as agencies take extra care because of security threats and overstretched resources.

Risk Profile

The major risk is that the children of refugee families are not issued with Kenyan identification documents (popularly known as ID). It can be a big problem to the children of Kenyan families who have sought refuge in the camps while running away from the effects of droughts. Persons who do not possess Kenyan IDs cannot access jobs and other crucial services that Kenyan citizens are entitled to. It is a difficult dilemma between accessing a free refugee livelihood and risks of abandoning the rights and freedom that come with Kenyan citizenship.

Unskilled Labor

Provision of unskilled labor in the Garissa context is a situation where persons come to town early in the morning and undertake any kind of job offered that day, usually for any pay and under any circumstances. This type of job ranges from carrying bags from bus stations, sweeping people's compounds, washing clothes and dishes, working at construction sites, and a range of other jobs. Large-scale governmental or non-governmental projects are uncommon in the county, but as Garissa town expands, construction projects are on the rise, which provide temporary work for many people.

Access Profile

To access these jobs is not easy because there is lack of information on where they may be located and at what times or days.

Risk Profile

The following are risks associated with these kinds of jobs:

- Low payment
- Unavailability
- Unreliability/unpredictability
- Risks of injury with no compensation
- Denial of payment by employer.

Family Support System

This is a type of diversification strategy whereby desperate families give children to relatives and close family members in Garissa to take care of them. Children are kept in the care of close relatives so that they do not starve in the rangelands due to lack of food and other supplies.

Options for Women Ex-pastoralists in Garissa

Most former pastoral men work as farm laborers, establish their own farms, or head to the bush to cut trees for firewood or building poles. However, most former women pastoralists opt for jobs in the town in various sectors of the local economy. Examples are outlined in the following sections.

Selling Milk in Town

A strong supply connection exists between the pastoral economy and Garissa town whereby traders and residents receive meat and milk supplies from the rangelands. Pastoral women have been active in supplying or dealing in milk and using the income to support their families. Aid agencies also have recognized this vital market link and have provided funds to erect market places. These facilities provide shade for milk and milk vendors, the majority of whom are women, as shown in Figure 3.3.

Housework/Domestic Servant

Employment agencies exist in Kenya that secure and facilitate travel for job seekers who wish to be domestic servants in Middle Eastern countries. Many Kenyan women have used these services in the past several years. Although this form of employment is popular among girls and young women from other parts of the country, especially Nairobi and Mombasa, this is not the case for Somalis. There are no employment agencies in Garissa that are involved in this business. There have been reports of gross mistreatment of girls and young women who went to work in Saudi Arabia in the Kenyan media. However, movement of girls and young women from Garissa to Nairobi and Mombasa to work as domestic help is not uncommon. The risks may not be clear, as these

arrangements are mostly based on existing social relations and employment connected to close relatives. There is a need to better understand ex-pastoralist women's involvement in this business and its current trends through further studies.

Access Profile

Accessibility to local domestic jobs is relatively easy since the population of Garissa has increased considerably, which results in increased demand for house-helpers in recent years. The pay for such jobs has increased from about KSh500 per month a few years ago to about KSh4,000 (US$40 at 2015 exchange rates) per month now.

Risk Profile

Domestic work by women involves several risks in Garissa, such as:

- Nonpayment of salaries by their employers
- Beatings, physical abuse, and molestation by their employers, which lead to bodily injuries and psychological trauma
- Risk of rape from male members of the employer's family.

Fodder Harvesting

Fodder harvesting from the river banks and selling in town is a common economic activity among women in Garissa.

Access Profile

It is relatively easy to access work for women who have migrated to town and are looking to earn a living. Access is not difficult as most women are allowed to harvest fodder along the river for free because they come from poor households. In some cases, however, farm owners may charge them to collect fodder.

Risk Profile

Although fodder access may be hassle-free, it is not without risks. There is no market for fodder during the rainy season because of abundant pasture. Second, it is not sustainable because it can only be harvested when grass is available. Third, harvesting fodder is only good on Wednesdays because that is the day of the weekly livestock market. Many market animals need fodder during their stay in the market and town before they return to the rangelands if unsold, or are transported to other parts of the country if sold. Fourth, it is demanding and laborious work to cut, carry fodder on one's back, and trek from the farms to Garissa town, a distance of 10 km or more, and wait to sell it in the sun and heat of Garissa without shelter. Fifth, there is a significant risk of sexual assaults and the so-called practice of "sex for grass," which may be demanded by farm owners and workers.

Livestock trade in Garissa is expected to continue to grow, because the new county government is emphasizing trade improvement and finding new markets for livestock. These initiatives include finding export markets in the Gulf States where the Garissa governor has travelled to sign trade deals and look for markets.

Selling Miraa *(Khat)*

Garissa is one of the most prominent *miraa*-chewing towns in Kenya. Although the *miraa* business in Garissa has been condemned by community elders and religious leaders as a waste of money and time and a contributing factor in family breakups and youth idleness, demand for the product has soared, and it provides income for numerous actors. Most *miraa* vendors in town are women who obtain the product from suppliers on credit. The women sell the product and keep whatever profit they earn after repaying suppliers. The suppliers are said to select mainly beautiful women and girls to be salespeople, believing it will enhance sales. According to the National Council for Science and Technology (1996), the northeastern region of Garissa, Wajir, and Mandera counties consumes about four tons of *miraa* per day, which is one-third of the total amount consumed in the country. At an average price of KSh1,000 (US$10) per kilogram, residents of the northeast spend about KSh4 million daily and KSh1.46 billion (US$1.46 million) annually on the stimulant (National Council for Science and Technology 1996). *Miraa* in the northeast keeps people busy and money flowing. Demand for the product seems to be on the rise. Despite ethical and social concerns, it continues to be a crucial source of income for many residents, both in towns and villages.

Access Profile

Access seems to be determined by physical appearance and the courage of the woman or girl to be a *miraa* vendor. Preference usually is given to attractive women, and unattractive ones are excluded. It seems that no experience and capital are mandatory to become a *miraa* saleswoman.

Risk Profile

- Increased competition in the market that may lead to conflicts between *miraa* vendors
- Exposure to males who harass and mistreat them
- Unwanted pregnancies
- Exposure to sexually transmitted diseases
- Addiction to *miraa* and other forms of drugs (Figure 3.4)
- Credit defaults as some of their customers may disappear with their money, and the women have to pay for it
- Restricted selling spaces and competition for spaces as the county government has relocated *miraa* vendors to specified locations in town
- *Miraa* selling entails sitting on the verandah of shops in the main streets, especially in the evenings and stretching into the night, of which Somali society does not approve. Women *miraa* vendors face risk of rape and attacks at night.

Photo by Hussein A. Mahmoud

Figure 3.4: Miraa *being sold in Garissa market*

Prostitution

Prostitution is rare in Garissa, especially among the Somali population, but it occurs. It may lead to exposure to sexually transmitted diseases and unwanted pregnancies as well as being a taboo in Somali society.

> ***Pastoral Women in Town—The Difficult Choice***
> Pastoral women who come to Garissa face many challenges. One of our female respondents states that, when women drop out of pastoralism and come to town, some engage in the firewood and charcoal business, buying and selling these products in the market, while others sell *miraa* and vegetables, and it is difficult for most of them to adapt. Some are abused when they come to town because they have little knowledge about town life and work. Those selling *miraa* at night could be raped and beaten by police. The choice to sell *miraa* or tea in the streets at night is due to lack of capital to engage in another activity, as well as the fact that they need cash to feed their families. It is not always due to a lack of social support; many families and kin are unable to extend assistance to families for extended periods of time. Families also feel a need to be independent and often resort to small-scale businesses, such as selling *miraa* and charcoal.

DRIVERS OF DIVERSIFICATION AND ALTERNATIVE LIVELIHOODS

The drivers of diversification in pastoral livelihoods include drought and famine, population growth, loss of common property resources, commoditization of the economy and the increased need for cash, sedentarization and urban migration, political turmoil and insecurity, animal disease, and market failure (Fratkin 2013; Little, Smith et al. 2001). These factors are general in nature; not all of them are applicable in the Garissa case. For example, loss of common property resources and conflict may not be prominent factors in Garissa, but the war in Somalia has had dramatic effects on livelihood diversification in Garissa. First, the war created an unprecedented presence of the UN in this part of the country. Through this intervention, hundreds of thousands of Somalis of all nationalities in the Horn of Africa have been settled, registered as refugees, and provided assistance in various forms. Kenyan Somalis have also gained access to these benefits, with one of our key informants settling in the refugee camp to avoid drought. Also, the growth of the livestock economy and associated businesses in Garissa town resulted more from livestock trade with southern Somalia and southern Ethiopia than from livestock trade within Garissa County or from people settling in and around Garissa town (see Mahmoud 2010).

Drought

Drought is the main phenomenon behind the need for Somalia pastoralists to diversify and seek alternative livelihoods. In Garissa, all respondents blamed drought for abandoning pastoralism and pastoral rangelands and seeking diversification and alternative livelihoods. Table 3.1 and Figures 3.5–3.7 show livestock ownership before and after the 2011 drought for 15 key informants interviewed in Garissa. The average household livestock holding before the drought was 20, 95.1, and 167.6 for camels, cattle, and sheep/goats, respectively. After the drought, the averages were reduced to 9.7, 3.5, and 47.3 for camels, cattle, and sheep/goats, respectively.

Table 3.1: Livestock ownership before and after the drought of 2011

Household	Camels		Cattle		Sheep and goats	
	Before	After	Before	After	Before	After
001	0	0	4	0	60	3
002	40	4	50	0	100	3
003	0	0	2	0	200	30
004	15	0	0	0	200	85
005	50	0	200	0	200	40
006	10	20	0	0	50	10
007	10	7	50	10	100	8

continued on next page

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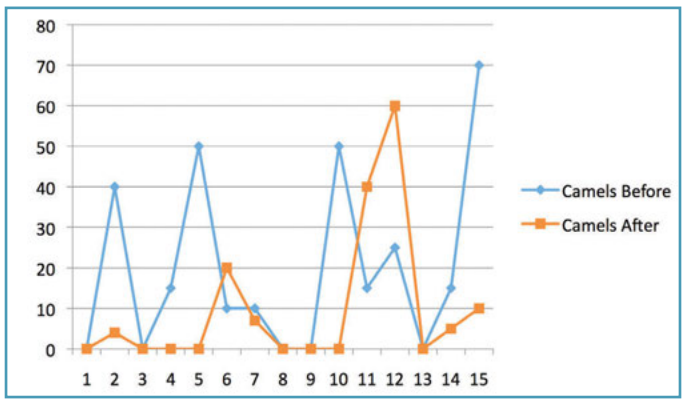
Household	Camels		Cattle		Sheep and goats	
	Before	After	Before	After	Before	After
008	0	0	100	20	500	50
009	0	0	10	15	80 (sold)	0
010	50	0	0	0	200	50
011	15	40	0	0	37	150
012	25	60	0	6	50	200
013	0	0	0	0	0	0
014	15	5	10	0	450	30
015	70	10	1000	2	200	50
Mean	**20**	**9.7**	**95.1**	**3.5**	**167.6**	**47.3**
% loss	**51.5**		**96.3**		**71.8**	

Source: Data collected and analyzed by author

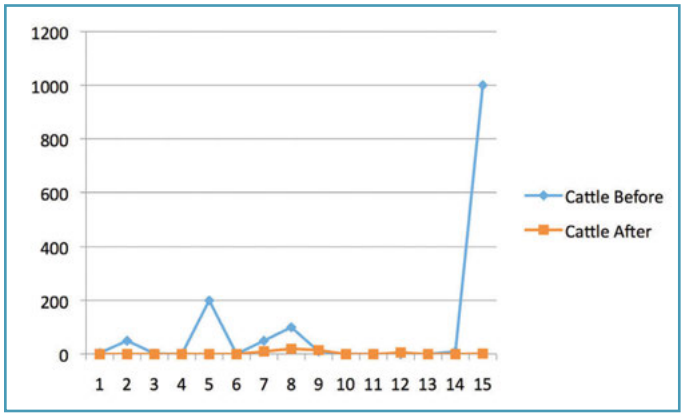
The percentage losses across all the three species of livestock were 51.5, 96.3, and 71.8, respectively, for camels, cattle, and sheep/goats. Largest losses are reported for cattle; nearly the entire herd was decimated by drought. In some instances, there are increases in livestock owned by individuals after the drought, which could reflect herd rebuilding through livestock purchases or donations from kin and clan members.

Figure 3.5: Camel ownership before and after the 2011 drought



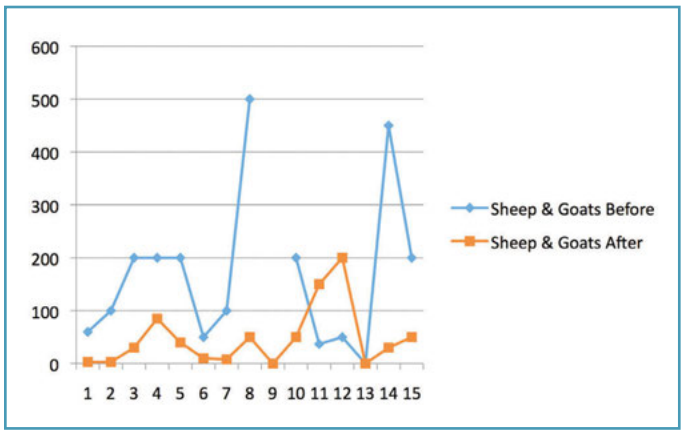
Source: Data collection and analysis by the author

Figure 3.6: Cattle ownership before and after the 2011 drought



Source: Data collection and analysis by the author

Figure 3.7: Sheep and goat ownership before and after the 2011 drought



Source: Data collection and analysis by the author

HOUSEHOLD CHARACTERISTICS AND DIVERSIFICATION CHOICES

Six female and nine male respondents were key informants in the study. The average age of the respondents is 43.8 years, with the youngest being 20 and the oldest 77 years old. The marital status of the respondents is varied, with eight married, three single, two widowed, and two females divorced. Seven respondents attended Quranic Schools, while five respondents never acquired any form of schooling. One respondent went to an adult literacy school and two attended or completed primary school. Five respondents reported having an ability to read and write while ten had none.

Family size of respondents

The average household size is 7.1 persons. The minimum number of members in a household is 1 and the maximum, 16. The following are the size of households and composition of its members.

1. Household 001 has 9 people in total. An elderly female, her son, his wife, and their 3 daughters. There are 3 girls who are the son's stepsisters (i.e., different mother).

2. Household 002 has 10 members: the 2 parents and their 4 girls and 4 boys.

3. Household 003 has 16 members: the father and his wife, a son and his wife and their 4 boys and 3 girls. Three of the old man's sons and a grandson whose mother has been divorced also live in the household. The sixteenth member of the household is the old man's sister.

4. Household 004 has 12 members in total: 8 children live with the family in Garissa while 2 live in the rangelands. There are 7 boys and 3 girls.

5. Household 005 has 4 members: a divorcee and her 2 boys and a girl.

6. Household 006 has 8 members: a divorcee, her 4 children (3 boys and a girl), and 3 children belonging to her brother (2 boys and a girl).

7. Household 007 has 4 members: the 2 parents and their 2 children.

8. Household 008 has 10 members: the 2 parents, their 6 children (4 boys and 2 girls) and the husband's 2 nieces.

9. Household 009 is a 20-year-old single male.

10. Household 010 has 9 members: the 2 parents and their 4 children (3 girls and a boy) and the woman's parents and a grandparent.

11. Household 011 has 14 members: the man and his 2 wives; the first wife has 10 children (7 boys and 3 girls) and the second wife gave birth to 2 girls (1 has died).

12. Household 012 is a 30-year-old single man.

13. Household 013 has 5 members: a mother with 5 children (3 boys and 2 girls), but 1 boy died.

14. Household 014 has 4 members: the 2 parents and their 2 boys.

15. Household 015 is a 29-year-old single man.

Diversification choices

As the chapter has shown, diversification choices are many. Pastoral dropouts often attempt many activities and then eventually choose high income-earning and less risky occupations. Table 3.2 summarizes alternative livelihood paths and the progression of those pastoralists who have stepped out, as well as those who dropped out of pastoralism after arrival in Garissa. The data reveal different paths of seeking alternative livelihoods based on gender distinction. Farming seems to be the domain of males, and only one female farmer was interviewed. Firewood cutting and charcoal burning is an exclusive male occupation, and no females reported cutting firewood, although they retail firewood and charcoal in town. From the 15 key informant interviews, the following choices are indicated by those who either stepped out or dropped out of pastoralism: farming, burning charcoal, selling firewood, Somali hut (*aqal*) weaving, selling building poles, construction work, farm labor, textile hawking, textile shop, becoming a refugee, mechanic, bookshop manager, pushing a wheelbarrow, tailoring, traveling to South Africa and back, driving, selling bananas, security guard, livestock market broker, shop assistant, and livestock trading. Migration of persons out of the county is not uncommon in Garissa, and these paths have taken migrants to other parts of the country, to other countries in the region, to Middle Eastern countries, to South Africa, and to other parts of the world. The age of respondents generally does not seem to determine diversification and alternative livelihood choices among Garissa residents.

Table 3.2: Gender and age and alternative livelihood paths and progression

Household	Gender	Age	Alternative livelihood paths after arriving in Garissa
001	Female	70	Weaved Somali huts (*aqal*), but now retired and staying at home, son is a farmer
002	Male	35	Burning charcoal, selling building poles, construction worker
003	Male	77	Firewood seller, farming
004	Male	53	Farm laborer, firewood seller
005	Female	63	Farming and selling farm products in the market for 33 years
006	Female	50	Textile hawker, textile shop owner
007	Male	35	Refugee, mechanic, bookshop attendant, bookshop manager
008	Male	39	Farm laborer, pushing wheelbarrow, tailor, tailoring shop owner
009	Male	20	Attended school but dropped out at Class 6, trained and worked as a tailor, tailoring shop owner
010	Female	40	Husband was firewood seller, but quit and now she is textile shop owner
011	Male	51	Never worked in town, lives off his livestock and assistance from relatives, an elder who presides over disputes, clan and family issues
012	Male	30	Was brought to school at age 7, completed primary education, trained as a mechanic and employed, travelled to South Africa, came back and now is a driver with an international NGO based in Garissa
013	Female	37	Selling bananas, textile shop owner
014	Male	28	Construction laborer, security guard, livestock market broker, seeking assistance from relatives, now jobless but sells his livestock occasionally to meet daily expenses
015	Male	29	Shop assistant in Mombasa, livestock trader but quit after attack, now jobless but sells his livestock occasionally to meet daily expenses

Source: fieldwork data

Textile trade and tailoring

Textile trade and tailoring are closely related, and these activities have been taken up by pastoralists who have dropped out of pastoralism, as well as by those who have stepped out to engage in other businesses to cushion themselves against the risks of drought. Both men and women are involved in this economic activity. In our small sample, two men are tailors and three women own textile shops. We also observed in the market women who are tailors and men who sell textiles.

Case Histories of Former Pastoralists—Mrs. F. D. and Mr. M. A.

The following are case histories of a woman and a man who came to Garissa to seek an alternative livelihood as a textile shop owner/co-owner.

Mrs. F. D.: Mrs. F. D. is a 40-year-old married woman who migrated to Garissa in 1996. Her husband started by selling firewood to keep the family fed. She has four children (three girls and one boy) and lives with her mother, father, and grandmother—a

total of eight people in one household. All of them now depend on her small textile shop and the 50 sheep and goats the family owns in the surrounding rangelands. When they first arrived in Garissa, they found a plot in Bulla on the outskirts of Garissa and built a small house. Her husband sold firewood until 2005 when he quit as she opened her textile shop in Garissa market. She sold a camel to initially start a small kiosk in Bulla, which she later upgraded to a textile shop. She then moved it to Garissa town. She started the kiosk and textile business on her own, and it was a good form of diversification. The beginning was difficult because of lack of experience, but now she seems to be happy with her textile business.

The big risk, she says, is the government security force, which burnt down one entire market area in 2012 hosting hundreds of small businesses, including her shop. Angry soldiers went on a rampage at the time killing people, destroying and burning businesses to revenge the killing of three colleagues by unknown people. The traders and shop owners, including Mrs. F. D., have not been compensated to date.

Her livestock now are increasing in number and she is counting on them for assistance when the need arises. For example, when her textile shop was burnt down in 2012, she sold some of her livestock to reopen the shop. The shop meets the food and school fees requirements of her family. Although she says there is no going back to a pastoral lifestyle, she realizes that livestock are important to her economic activities and provide income and an asset she can count on when shocks occur.

Mr. M. A.: Mr. M. A. is 39 years old and was born in Hulugho, southern Garissa County. In 1999, he migrated to Garissa to look for work after losing his livestock due to the heavy El Nino floods of 1997–98 and in response to advice from a close relative. His family livestock holdings diminished from 100 cattle to 20 and from 500 sheep and goats to 50. Mr. M.A. is the only respondent in this study who lost his livestock due to floods, a rare but often catastrophic event in the Horn of Africa as was the case in 1997–98 (see Little, Mahmoud, and Coppock 2001). The remaining animals are now in Singaulu, southern Garissa County. Mr. M. A. is a good example of a wealthy pastoralist who almost became destitute. He has six children (four boys and two girls), and two of his sisters live with him, making it an extended family of ten. He is literate and had a few animals remaining from the El-Nino floods—characteristics which may have made it easy for him to pursue a diversification path.

Mr. M. A. started off as a farm laborer and worked as one for two years. He had no family or clan connections when he landed the job. He came back to Garissa town and started working with a wheelbarrow carrying goods for people at a fee. He had a hired wheelbarrow for a fee of KSh10 per day; later on he purchased his own for KSh1,500. He did this for one year and says that it was better than the farm job. Again he decided to explore other opportunities and thought of training as a tailor. While contemplating what to do, he decided to work with his wheelbarrow during the day and train as a tailor at night. Upon qualifying as a trained tailor, he switched to tailoring in 2006, and that has been his main occupation to date.

Risk Profile as a Farm Laborer

- He was attacked by bandits on his first night at the farm, and they stole food and belongings. Although the bandits had weapons, the laborers were not injured.

- The pay was low as he was earning a meager KSh600 (US$8.57) per month in 1999.[12]

Risk Profile as a Wheelbarrow Pusher

- He was working for a woman in the market and there were 12 men hauling goods. Once the woman missed some clothes from the shop and accused the workers of theft. Nine of his colleagues were arrested, but not him. However, he received insults from the employer, which prompted him to quit that job, and he vowed not to work for anyone again as he was extremely traumatized by the attack that night. He decided to seek self-employment, a venture that took him to tailoring.

Access Profile as a Tailor

- He did serious thinking about what else to do for a living and decided to train as a tailor rather than as a driver, which had costly training requirements.

- When he qualified as a tailor, he leased a sewing machine at KSh500 (US$7.14) per month. After one year he purchased a secondhand machine at KSh3,500 and was able to adequately provide for his family.

- Later on he purchased a bigger machine at KSh5,500 (US$78.57) and took the old one home for work during Friday holidays, Idd holidays, and early in the morning before going to the shop.

[12] KSh600 was equivalent to US$8.57 at the rate of US$1 to KSh70 in 1999.

Risk Profile as a Tailor

- Quarrels with female customers who often complain about sewing quality. One female customer brought to him a poor quality cloth and when he completed making the dress, she disowned it and claimed that she brought a higher quality material. To end the dispute, he purchased that material and sewed it for her at his own cost.

Partnership Tailoring

In June 2011, a fellow clan man and a former fellow tailor returned from South Africa and asked Mr. M. A. to look for a shop (see Figure 3.8). He wanted to be a partner and start a tailoring shop rather than doing the street business or another activity. The idea was appealing to Mr. M. A., and they found a shop together and purchased it for KSh360,000 (US$4,235.29).[13] Mr. M. A. is based full time at the shop, and his partner's brother assists him. His partner was assisted by a relative who worked in South Africa and came back with some capital to establish the current business with Mr. M. A. He says that the current shop is better than livestock keeping because it has fewer challenges. The shop has two parts—the first part consists of sewing machines and offers sewing services to customers, while the second part deals with selling sewing materials. While the profits from the first part of the shop are shared between the two partners, the proceeds from the second part are invested back in the shop.

Access Profile

- Capital was a problem in the beginning, but they were able to raise the money through a partnership.
- He purchased 10 goats and then increased them to 20 and sold them to pay university fees for his brother studying in Sudan.
- The 50 goats and 20 cattle in Hulugho belong to the family; his mother and three of his brothers live there, looking after the livestock and obtaining their livelihoods from the animals.
- He says that had those livestock in Hulugho belonged to him, he would have sold all of them and invested in his business in Garissa.
- In the future, he might invest in livestock and keep some for trading and some for production.

Risk Profile

- No risks involved in the tailoring shop, including theft and burglary cases.

Photo by Hussein A. Mahmoud

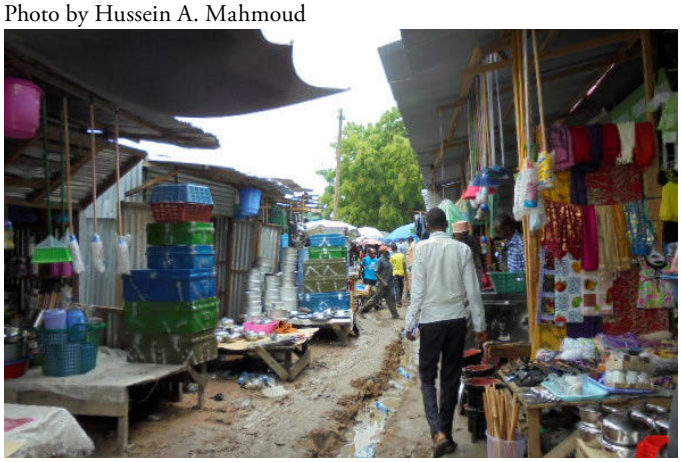


Figure 3.8: Small businesses in Garissa

Case Histories of Former Pastoralists—Mr. A. H.

Mr. A. H.: The life history of the 35-year-old Mr. A. H. is fascinating. In a span of ten years, he rose from a pastoralist dropout to a bookshop manager without going to school or without any formal training. Mr. A. H. was born in Hulugho, Garissa County and is married with two children. In 1992, he migrated with his family from Hulugho to Dadaab refugee camp to register as refugees. They were a family of seven—the two parents, three boys, and two girls. The reasons for migrating to the refugee camp were loss of livestock due to droughts and also to access services at the camp. He states that droughts had led to a decrease in livestock populations and an increase in poor pastoralists moving to towns. Many young people from pastoral areas came to town and now are working as barbers, *matatu* (commuter taxi) conductors, waiters in restaurants, shop attendants, and other occupations in rapidly growing Garissa town.

After the rains, Mr. A. H. and his family migrated to Fafi area, Garissa, in an effort to return to pastoralism. They had 7 camels, 20 cattle, and 8 goats, and they were exiting the refugee camp. Soon after that move, their livestock numbers increased to 10 camels, 50 cattle, and 10 sheep and goats, but they lost most of these in the 2005 drought. That is when he decided it was time to explore an alternative livelihood in Garissa. That was why they migrated to Garissa, including his parents and siblings. Mr. A. H. started off by selling 10 cattle from the family herd and settled in Bulla Iftin, a suburb of Garissa town. The family now has 7 camels, 10 cattle, and 8 sheep and goats.

Before settling on a particular job, Mr. A. H. applied for a national identity card (ID). Although he is a Kenyan, many pastoralists in northern Kenya are faced with registration difficulties, which delays the issuance of IDs to them. Some of them wait until the

[13] US$1 was exchanged for KSh85 in 2011.

opportunity to come to Garissa town before applying. Mr. A. H. tried many potential livelihood-related activities, including a driving school and training as a mechanic. He states that pastoralism is a risky livelihood system; sometimes one builds his/her herd, and suddenly it perishes due to a drought. Thus, the family decided to come to Garissa to find menial jobs that would earn them a steady income. When he registered for driving lessons, he did not understand a word of Swahili, so he always came to the driving school with a translator.

While training as a mechanic, he was asked to work at a bookshop in 2010. He accepted the offer, but the challenges he faced were many. He went through an adult literacy school and can now read and write, which he had to learn for his driving, mechanic, and bookshop jobs. Mr. A. H. is the current manager of one of the largest, busiest Garissa bookshops, which sells books and supplies and other teaching materials. He was employed at the bookshop in 2010 but was illiterate then and could not communicate with customers effectively. He also was unable to recognize the titles of textbooks that were on shelves. He told me how a book called "Utengano" was a secondary school textbook that he first came to understand from its color and, when someone wanted to purchase the book, he would recognize it by its color, not its name. Later on, he was able to recognize all the textbooks on the shelves by their colors and publishers, such as Oxford, Longhorn, Jomo Kenyatta Foundation, and Moran Publishers. From 2011to 2014, he became the cashier and was also monitoring the stock. At the end of 2014, his boss, who was the bookshop manager, quit his job and Mr. A. H. was appointed as the new manager. He says about his new post, "When you persevere, you can achieve your goals, so I decided to struggle and now have attained my goals." Mr. A. H. had livestock wealth at his disposal to enable him to settle and support his parents and siblings and pay for his initial trainings as a driver and mechanic as he sold 10 cattle to start him off, as mentioned earlier. He was offered the bookshop job because of family connections.

He also has been invited to join his friends (a group of three people) who have won a contract from the County Government of Garissa to construct a fish pond. He is planning to sell four of his camels to join the partnership to raise fish. Currently, a camel can fetch up to KSh35–40,000 (US$380–434)[14] in Garissa, so he will raise about KSh140,000–160,000 (US$1,521.74–1,739.13) to join the partnership. In addition to fish production, his plans include the establishment of a farm along the Tana River and buying livestock for restocking and giving them to his relatives to raise for him in the rangelands. Figure 3.9 shows the well-stocked bookshop in the central business district of Garissa that Mr. A. H. manages and where he recently ascended to a managerial position.

Photo by Hussein A. Mahmoud

Figure 3.9: The bookshop in Garissa

IMPLICATIONS FOR RESILIENCE-BUILDING STRATEGIES AND PROGRAMS

According to Hogg (1985), poverty and destitution among pastoralist communities is becoming a permanent way of life and a non-reversible phenomenon. Although destitution seems irreversible, viable means are available to reinvigorate pastoral production systems. Little (2001), for example, argues that herd mobility and herd diversification remain the major means of managing risk in pastoral areas of the Horn of Africa and that these strategies should not be obstructed when efforts to encourage diversification are introduced.

Education is a key investment among pastoral communities and appears to be a practical means of enhancing positive diversification through salaried employment (Little et al. 2009). The research gap to understand the role of education in pastoral diversification needs to be filled. Stepping-out and dropping-out pastoralists want their children to have access to quality education, both secular and religious. That is why there is a proliferation of private educational institutions throughout northeastern Kenya providing what they call integrated education, which combines both the secular and *madrasa* systems. The proliferation of schools is due to increasing local demand for education. The fact is that not all families can afford private education, and the status of state-run schools is very poor as they often lack basic teaching equipment, qualified teachers, and proper classrooms. Documentaries on national and international television stations often show Kenyan children walking for several kilometers to schools and then receiving instruction under trees for lack of classrooms. Education is sought by all, and

[14] US$1 was exchanged for KSh92 in April 2015.

families and many individuals stated that they abandoned the rangelands for urban centers in order to access education for themselves and their children. There is a growing belief that education is directly related to improved incomes through accessing well-paying jobs. Policies to increase access to education through improved learning infrastructure and reduced costs will be beneficial in the long run (also see discussion in Conclusion chapter).

It is important to note that the motivation among many Somalis to engage in livestock production is not disappearing, since this has been and remains the predominant livelihood system in Garissa. Some farming families still keep herds of animals in the rangelands and supply fodder from their farms during times of feed shortages, while others living in town supplement their incomes from livestock sales to meet educational, health, and food obligations. Farming families have the opportunity to restock their herd with farm incomes, thereby strengthening the link between farming and pastoralism.

The population of the urban poor comprised of moved-out ex-pastoralists is burgeoning, and so is the lack of jobs and businesses that can provide adequate support for them. There is no doubt that women who have moved out of pastoralism and migrated to Garissa have greater burdens than men, since they have to feed a family and raise children, which is especially difficult when they are widowed or divorced. Programs that target former women pastoralists in terms of business skills development, rights protection, and work-based risk reduction would help promote welfare among this very vulnerable segment of the population.

There is a strong indication that those who are dropping out and those stepping out ("combining pastoral and non-pastoral activities") are not completely disassociating themselves from pastoralism. Whenever they obtain an opportunity, many of them invest in livestock. This is so because many members of their families still live in the rangelands where they can herd the livestock. Specific policy interventions should be in line with the aspirations of pastoral populations who are dropping out and stepping out of pastoralism. As noted above, improving access to and quality of education in Garissa county in general and the town in particular is of immense importance. With access to better-paying jobs and increased capacity to remit income, education can indirectly support investments in pastoralism.

CHAPTER 4
RESILIENCE AND RISK IN BORANA PASTORAL AREAS OF SOUTHERN ETHIOPIA: RECENT TRENDS IN DIVERSIFIED AND ALTERNATIVE LIVELIHOODS

Dawit Abebe

INTRODUCTION

Adopting a wide range of livelihood choices and strategies has allowed pastoralists to respond to climate and socio-economic shocks and stresses. Pastoral livelihoods and income diversification or alternative livelihood activities and strategies can be broadly divided into pastoral and non-pastoral origins, as well as those that are coping (immediate) versus adaptive (permanent or structural) livelihood strategies (e.g., Fratkin 2013; McPeak and Little 2005; Little, Smith et al. 2001). The diversity of livelihood options and strategies are dynamic, and changes depend on different shock or stress factors. These strategies, in turn, have implications for the resilience of pastoral systems, especially in regard to climate and other shocks. The literature on pastoralism demonstrates that pastoral livelihood systems are increasingly under pressure because of multiple and reinforcing natural and anthropogenic disturbances (Fratkin 2013). In response to these pressures, households over time have supplemented pastoralism with non-pastoral strategies to survive and adapt to different shock risks (especially drought), which has forced many households to pursue livelihood diversification as a long-term strategy (Little 2001).

Catastrophic livestock losses caused by recent droughts in the Horn of Africa have generated tremendous interest among donors and national governments in support of livelihood diversification as a "drought resilience-building" initiative. More specifically, following the 2010–11[15] drought, the concept of "resilience building" prominently featured in donors' and national governments' strategies to reduce chronic vulnerability to climate risk.[16] The focus on livelihood and income diversification by international development agencies and governments is driven by a growing discourse on the linkage between resilience building, climate change, and disaster risk reduction (DRR). Previous studies show that diversification is an important element of resilient livelihoods and socio-ecological systems (e.g., Carpenter et al. 2001; Adger et al. 2005; Folke 2006; Walker and Salt 2006; Norris et al. 2008; Bahadur et al. 2010, 2013).

However, all livelihood diversification and alternative livelihoods pursued by pastoralists themselves or driven externally by donors and government may not always contribute to resilience building. While some diversification enhances welfare and resilience, others can be erosive or maladaptive and do not build resilience but rather increase risk and vulnerability (Little 2009). Analyses of patterns of livelihood diversification and alternative livelihoods over time are important to evaluate their impacts on resilience building (Gunderson and Holling 2002; Berkes et al. 2003). Whether or not a new livelihood strategy enhances the adaptive capacity and resilience of the socio-ecological system, or instead exacerbates vulnerability, is rarely questioned.

This chapter, therefore, investigates the dynamics of livelihood options, income diversification, and alternative livelihoods pursued by Borana pastoralists of southern Ethiopia. It addresses the following questions: (1) What are the main historical diversification and alternative livelihoods, and what were the drivers of these changes?; (2) How have options for diversification and alternative livelihoods changed over time and why?; and (3) What are the implications for resilience-building strategies and programs?

[15] The 2010–11 drought was widely reported as "the worst drought in 60 years" in the Horn of Africa (e.g., BBC 2011; USAID/FEWS NET 2011). However, analysis and comparison of major droughts, including their magnitude, frequency, and duration, during the last four decades in Borana using Standard Precipitation Index (SPI) methods refute this conclusion (see Abebe, D. "Analysis of the Dynamics of Borana Drought," unpublished report). A similar study at a national level (Ethiopia) also revealed that the 2010–2011 drought was not the most severe compared to earlier disasters (Viste et al. 2013).

[16] For example, the UK's Department for International Development (DfID) has made resilience building a core part of its international development assistance. Similarly, the European Commission (EC) used resilience building as a "key to avoiding the increasingly frequent recurrence of severe food crises in Africa" (EC 2012). Moreover, the Food and Agriculture Organization (FAO) has made enhancing livelihood resilience a priority for disaster risk reduction for food and nutrition security (FAO 2013). Finally, the Drought Disaster Resilience and Sustainability Initiative (IDDRSI) launched in the Horn of Africa and supported by World Bank, African Development Bank (ADB), USAID, and others under the auspices of the Intergovernmental Authority on Development (IGAD), is one of several resilience-building initiatives triggered following the 2010–11 drought. The focus on resilience stems from the motives to end humanitarian relief by creating sustainable livelihoods in the region that can withstand and recover from shocks without catastrophic loses.

THEORETICAL AND EMPIRICAL REVIEW

A livelihood is defined as "the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household" (Ellis 2000a: 10). Livelihood diversification is thus defined as "the processes by which households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living" (ibid: 14). The diversity can be conceptualized as the differences in livelihood characteristics (e.g., livelihood diversification, crop diversity, biodiversity, social group diversity) and processes, and the multiple ways livelihoods function.

Ellis (1998) distinguishes livelihood diversification from related concepts, such as income diversification, by arguing that a livelihood is a broader concept encompassing availability and access to capital assets (i.e., social, environmental, physical, and cultural) as well as the institutions, property rights, and strategies that sustain the livelihood system (Ellis 1998). In contrast, income diversification has a narrower meaning as sources of revenue earnings, such as sales of agricultural produce (crop or livestock), wages, rents, remittances, and in-kind items used for own consumption or transferred/exchanged between households valued at market prices (Elis 1998 and 2000b). The concept of alternative livelihood, in turn, refers to a variety of natural resource- and non-natural resource-based activities that can have positive or negative feedback on the sustainability and resilience of the livelihood and socio-ecological system that underpins it (Bennett 2010).

A decision at the household level to diversify livelihood activities either is driven by necessity, including for survival, or is a conscious choice to spread risk and increase economic gains (Ellis 2000a). Mutenje et al. (2010) describe this two-fold distinction as distress-push and opportunity-led diversification strategies associated with so-called push and pull factors, respectively. Diversification as a necessity is usually distress-driven and occurs involuntarily in response to a crisis and as a survival or coping strategy. Activities include, for example, casual unskilled labor, charcoal making, and petty trade, and are adopted mainly by poor households (Little 2009; Little, Smith et al. 2001). The causal factors underlying this type of diversification include poverty and food insecurity, population pressure, land fragmentation, and/or a response to drought (Fratkin 2013; Little, Smith et al. 2001; Ellis 2000b; Barrett et al. 2001). Diversification as a choice (opportunity-led), in contrast, is a deliberate strategy adopted by rich households with motives to accumulate and diversify assets (Little 2009; Little, Smith et al. 2001; Ellis 2000a). The activities include, for example, investment in retail businesses, rental houses, and different forms of crop-livestock integration (Little 2009; Little, Smith et al. 2001). Such initiatives are usually triggered by pull factors, including a desire to intensify, commodify, and/or sedentarize/settle. These processes largely are associated with changes in land tenure and property rights, such as a transformation from communal to private and/or state property regimes driven by government policies (Fratkin 2013; Little 2009; Barrett et al. 2001). The capability of a household to diversify is determined primarily by differences in its resource endowment and entitlement (ownership and access to livelihood capitals) (Ellis 2000a; Barrett et al. 2001;). Poor households find it very difficult to pursue opportunity-led diversification due to minimal endowments and capital entitlements (Lay et al. 2009). Besides the limits imposed on diversification options, asset portfolios can also determine the effects of diversification either positively or negatively (Mutenje et al. 2010).

Livelihood activities can be also distinguished as extractive versus non-extractive (Ngugi and Nyariki 2005) or supportive versus harmful/competitive strategies, in part depending on their impacts on the natural resource base (Little 2009; Little, Smith et al. 2001). In pastoralism, extractive/competitive diversification includes activities based on the use of assets and capabilities required for a pastoral livelihood system. Charcoal/firewood production and crop cultivation are the most commonly identified livelihood activities that are competitive with pastoralism (Little 2009; Little, Smith et al. 2001). Trade in livestock products (for example, milk, hides, and skin), community-based wildlife tourism (Homewood et al. 2012 and 2009), apiculture, and poultry keeping (Ngugi and Nyariki 2005) are some non-pastoral livelihood activities potentially supportive of pastoralism (Little 2009; Little, Smith et al. 2001).

Drivers of Livelihood Diversification and Alternative Livelihoods

Several studies of livelihood and food security in pastoral regions assert that diversification is the norm among pastoralists (e.g., Fratkin 2013: Little, Smith et al. 2001; Barrett et al. 2001; Fernandez-Gimenez and Le Febre 2006). However, diversification among pastoralists and the causes of it are multi-faceted and vary among pastoral groups based on cultural, economic, and ecological differences. For example, the process and pattern of livelihood diversification among pastoralists in the rangelands of northern Kenya and southern Ethiopia show variations based on several important variables, including climate, distance to market towns, gender, wealth, and education (Little, Smith et al. 2001). Livelihood assets, incomes, and activities within the same pastoral community can also change over time (see for example Ulrich et al. 2012; BurnSilver 2009). The diversification path varies, ranging from adjustments within pastoralism as an adaptation to environmental and socio-economic changes, to complete or partial transformation into

non-pastoral ventures. Diversification within pastoralism includes adjustments to herd composition, adoption of new species, and/or shifts in breeding strategies. Fulani pastoralists in northern Senegal, for instance, have increased the proportion of shoats and beef cattle herds, because the former have a relative advantage in surviving droughts, while keeping beef cattle using supplementary feeding is driven by increased market demand (e.g., Adriansen 2006). FulBe pastoralists in Cameroon, in turn, pursue intensive cattle production using industrial feed supplements as a response to human population pressure and shortages of grazing lands (Moritz 2012). The use of feeds by herders also is widely reported as a drought emergency response in pastoral areas of the Horn of Africa (e.g.,; Morton et al. 2002; Aklilu and Wekesa 2001) and Botswana (Kgosikoma and Batisani 2014).

Elsewhere in eastern Africa, Maasai pastoralists of Kajiado District, Kenya diversify into agriculture, business, petty trade, and wage labor; remittances are sent back to rural areas (BurnSilver 2009). Similarly, Maasai herders in Tanzania integrate agriculture with pastoralism, with cultivation supporting pastoralism by reducing the need to sell animals to purchase needed grains (McCabe et al. 2010). Likewise, the Mvumi agro-pastoralists in central Tanzania diversify their livelihood through bee keeping, horticulture production, charcoal making, and business of local brewing, which are driven largely by proximity to markets centers and increased demand (Liwenga 2009). Although similar activities are pursued by pastoralists in the Horn of Africa, they are mainly used as a coping strategy during droughts. Income diversification through livestock trading, petty trade, and wage employment are diversification strategies widely reported among pastoralists in the Horn of Africa (Fratkin 2013; McPeak and Little 2005; Little, Smith et al. 2001). Nevertheless, with increasingly destructive effects of drought aggravated by other multiple non-climatic stressors, a shift from pastoralism to agro-pastoralism has been observed in different pastoral communities, including Somali (Devereux 2006) and Borana (Coppock 1994) pastoralists of Ethiopia and Kenya.

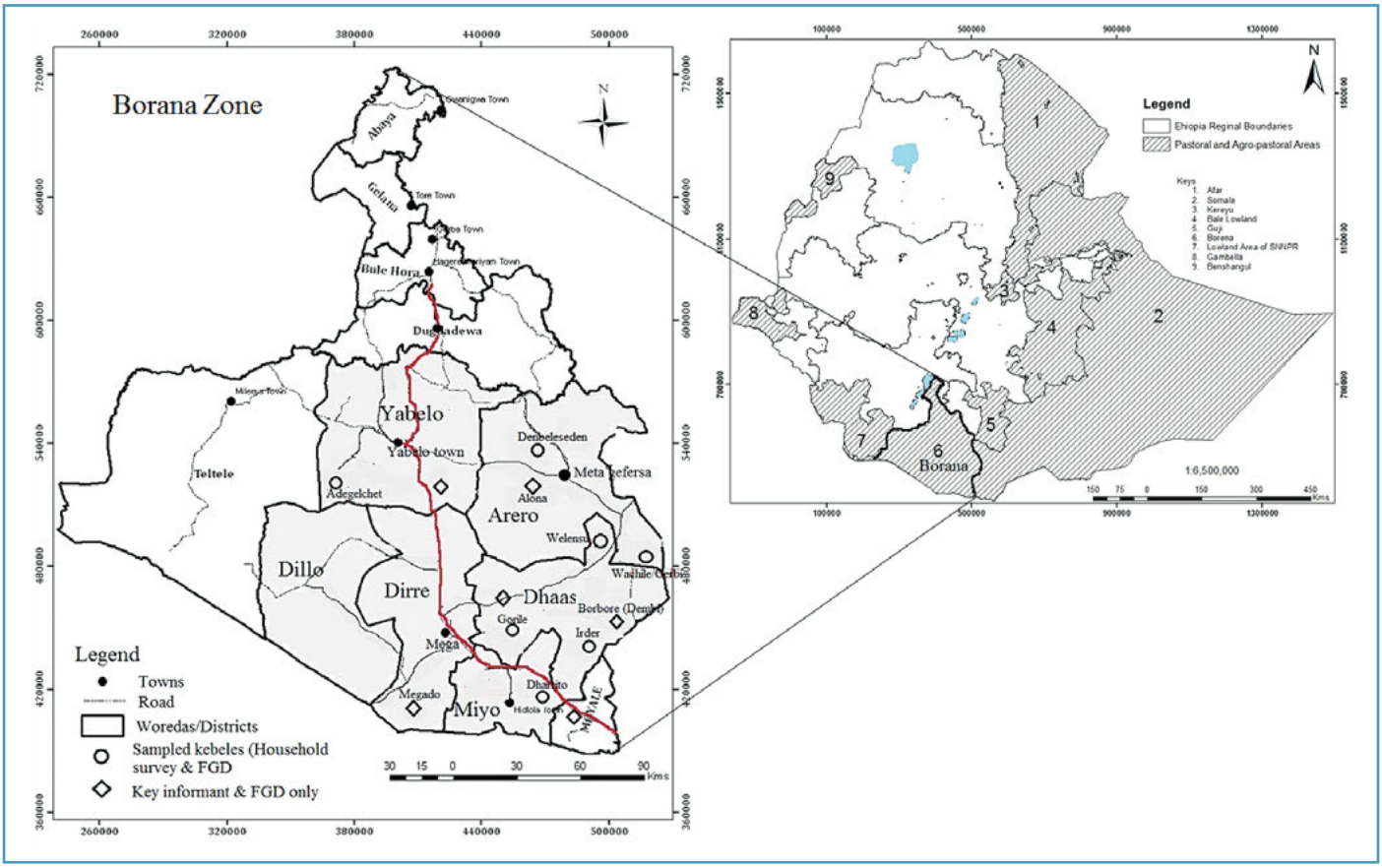
Migration to urban areas is another livelihood strategy increasingly pursued by pastoralists. Migration can be seasonal, circular, rural-urban, or international, and can contribute to household livelihood and food security through remittances. These flows of cash also provide opportunities for diversification and building assets that strengthen resilience at individual and household levels (e.g., Devereux 2006;). Institutional support for livelihood diversification includes the formation of various types of cooperatives, such as livestock and milk marketing, and credit and savings organizations.

The various diversification and alternative livelihood strategies pursued by pastoralists support Ellis' definition of livelihood diversification as "the processes by which households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living" (Ellis 2000a: 14). For the rural poor, empirical evidence shows that livelihood diversification is beneficial in reducing risk and stabilizing income flows and consumption (Barrett et al. 2001). It also can lead to wealth accumulation and food security (Coppock et al. 2011). Despite the considerable evidence that diversification can enhance income, well-being, and poverty reduction among pastoralists, impacts of diversification vary depending on context-specific factors and thus, cannot be generalized across different localities and regions. A recent study among the Kazak pastoralists of northern Xinjiang in China, for example, strongly suggests that livelihood diversification does not improve welfare for pastoral households (Liao et al. 2015). In some cases, diversification can even be counterproductive, eroding the adaptive capacity and resilience of pastoralism itself (Little et al. 2009; Davies 1996), and in some cases, especially for the poor, can be an indicator of a lack of resilience (Pain and Levine 2012). For example, the incorporation of crop farming can compete for grazing lands as well as labor for herding and, thus, undermine the viability of pastoral livelihoods, as well as make pastoralists less food secure (e.g., Liao et al. 2015; Fratkin 2013; Homewood et al. 2009). There also is evidence that shows the negative ecological and social effects of charcoal production and local brewing (Liwenga 2009). Moreover, the long-term sustainability of dry rangelands is challenged by diversification through rainfed crop cultivation in the face of climate change and increased rainfall variability where the probability of annual crop failures is high (e.g., Berhanu et al. 2007).

STUDY AREA AND METHODOLOGY

Borana pastoralists belong to the larger Oromo ethnic group who occupy parts of southern Ethiopia and northern Kenya. This chapter is based on a study carried out among Borana of southern Ethiopia. Until recently, the geo-spatial territory occupied by Borana pastoralists covered 95,000 km2 (Coppock 1994), but has shrunk to 63,028 km2 following the sub-division of administrative boundaries along ethnic and political criteria adopted in 1992. Under the present administrative structure, Borana mainly reside in Borana Zone (see Figure 4.1). The study area covers a large proportion of the zone, particularly the arid and semi-arid areas. Ecological data for the study were collected at different spatial and social scales. Ecological analyses of soil, climate, land use, and land cover were conducted across the entire study area: Yabelo, Dirre, Dillo, Arero, Dhaas, and Miyu woredas (districts). However, socio-economic data were collected from six *kebeles*: Dembela-Seden, Ade-Gelchet, Irder, Gerbi, Welensu, and Gorile (see Figure 4.1). Survey sites were selected to make the sample representative in terms of coverage of different geo-ecological areas.

Figure 4.1 Study area



Sample Size and Sampling Methods

A household census list was obtained from the respective *kebele* administrations and was used as sampling frame. The total number of households in the selected *kebele* rosters was 3,405, ranging from 269 to 900, depending on the *kebele*. Based on 95% confidence level and a 5% sampling error, 341 households (10% of the total) were used as the sample size. Sample size for each *kebele* was then determined proportionally, with 32 (9%) of the survey data discarded because of poor quality, and 309 (91%) used in the study (see Table 4.1).

Table 4.1 Sample size for household survey

Kebele	Total population	Sample
Dembela Seden	623	62
Adegelchut	761	76
Irder	552	55
Gerbi	300	30
Welensu	269	27
Gorile	900	90
Total	**3405**	**341(10%)**

The *kebele* administrative boundary is equivalent to the *medaa* residential structure of the customary socio-ecological territory, which is too large to use as a sampling frame. Therefore, the household list was restructured following the customary residential territories of *ardaa/reraa* (large customary grazing unit) and *ollas* (settlement or village). Then, with the help of *abba olla* (head of the village) and senior elders, households within each *olla* were differentiated as *deega* (poor), *bultiqabesa* or *giduuglessa* (middle-wealth), and *dureessa* (rich). Prior to this, wealth indicators and social classes were identified by the community through focus group discussions.

Collecting historical data is an important aspect of understanding livelihood diversification. For instance, livelihood pathway analysis requires the understanding of how the system behaved historically and influenced resilience building. This means the collection of data over multiple decades, and age is an important criterion for selecting informants. For this survey, an age above 60 years was used to select informants for interviews about history. The age limit is based on the Borana *gada* timeline in which authority and leadership offices are transferred between five patrilineal clan classes, a process known as *gogessa*. One *gada* period covers a fixed term of eight years and thus, a complete cycle between handing over and returning to office for one *gogessa* takes 40 years.[17] Therefore, a person born when his *gogessa* was in office will turn 40 years of age before his *gogessa*

[17] *Gada* is a socio-political institution held for fixed term of eight years that guides rituals, politics, and pastoral production, as well as the governance and leadership (Legesse 1973).

takes over power again. According to oral history, most of the major socio-economic and ecological changes in Borana began during the *gada* period of Jaldessa Liban (1961–1968), which can be used as a baseline marker. For an informant to recall events during the base period in the 1960s, he/she should have been at least 20 years of age then. There are five *gada* between Jaldessa Libaan (1961–1968) and Guyo Goba (2009–2016) and thus, the informant should be at least 60 years old in 2010–11 to be used as an informant.

A wide range of quantitative and qualitative data collection and analysis methods were used in the study. The quantitative tools include a household survey and analyses of land cover/use dynamics data obtained from satellite images and by using GPS tools. The qualitative methods include: semi-structured interviews; key informant interviews; focus group discussions; participant observation; reconstruction of a timeline of events using respondent recall (see below); and participatory mapping. Historical memory of social, ecological, livelihood, conflict, and political dynamics was collected from 12 key Borana elders between 62 and 96 years of age using semi-structured interviews of one to three hours depending on the informant's knowledge and recall ability. In addition, life history narratives of social and economic changes were collected from several key informants. Qualitative data also were collected by the author through focus group discussion and key informant interviewees across the entire study area, including the six *kebeles* where the household survey was carried out.

Retrospective Approach of Data Collection: Recall Method

As noted above, analysis of historical data is an important aspect of understanding livelihood pathways, especially regarding when, how, and why livelihood activities changed over time. Recall was used to elicit household memory of livelihood events and dynamics. The reliability of information generated through the recall method has been questioned by some researchers, because of the reliance on the informant's ability to recall key events (Howard 2011). This potential shortcoming can be addressed by asking questions in the context of significant life course events, which can be used as a markers to facilitate recall (McCabe et al. 2010). In Borana society, important events are stored in the community's social memory through oral history and reinforced through the *gada* system. The storage and retrieval of memory is structured following the *gada* timeline. Drought, conflict, epidemics, and other life events are named after the name of the incumbent *abbaa gada* (*gada* leader) when the event occurred. For example:

- *Oola qollajji* during *gada* Guyyoo Boruu (1945–1952) was a severe drought that caused households to lose almost all their cattle, and forced them to sell hides from dead cattle (*Qollajji*), in order to buy grain. The drought is remembered as *oola qollajji* (the drought during which Borana started selling animal skins and hides).

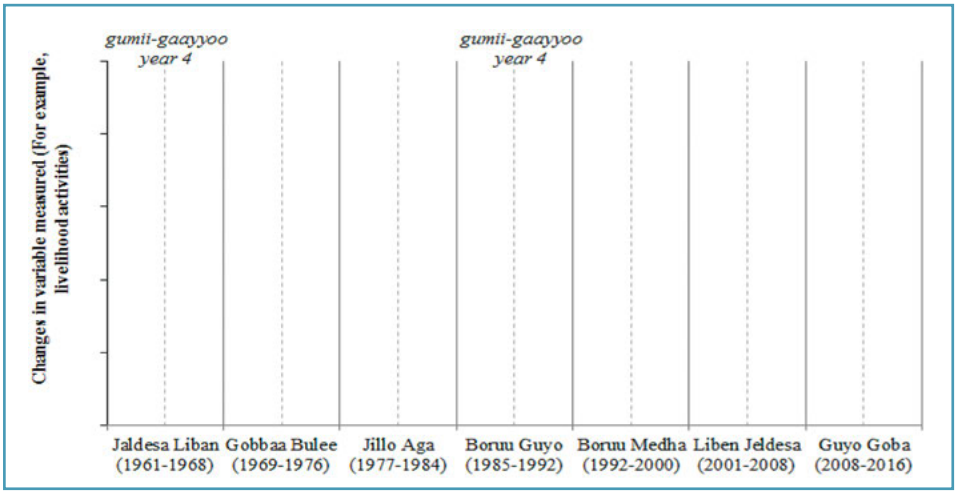
- *Baraa c'iina tiite guracha* (the period of infestation by black flies) refers to the time when cattle died and decomposed from Rinderpest outbreak during *gada* Liban Jaldesa (1888–1896). There was severe famine at the time and people survived eating wildlife and donkey.

As indicated here, historical information was collected using the *gada* timeline to facilitate recall. Specific markers in the *gada* system are: (1) the first year of the *gada* term when the incoming *abba gada* receives power (*bali fudhe*); (2) the fourth year (mid-term) of the *gada* term, also known as the year of *gumii gaayyoo*[18] (the broken line in Figure 4.2); and (3) the end of the term when leadership is transferred to the incoming *abbaa gada* (*bali debersu*). For example, if an informant says that he/she started crop cultivation during *gada* Jillo Aga, a follow-up question—"before" or "after" *gumii gayoo*?—will provide a more specific time marker for when he/she began to farm.

Livestock ownership by households was another type of information collected using the recall approach. The information provided by each family may not be highly precise, since it requires more detail than most questions. Nevertheless, it is sufficiently accurate to understand and identify trends in household livestock wealth and herd composition. To identify livestock wealth during the survey period, two sets of human and population demographic data were collected from 625 households (309 sampled households for trend analysis and 316 additional), including 80 households participating in the Productive Safety Net Program (PSNP).

[18] *Gumii* means gathering and *gaayyoo* is a place where the Borana general assembly takes place every eight years in the middle (fourth year) of the *gada* period. Legesse (1973) referred to this meeting as the "meeting of the multitude." It is commonly referred to as the "lawmaker's assembly" because of the different roles of the meeting. These include formulation of new rules and reviewing and amending existing rules in response to changing social, economic, and environmental contexts. In addition, the *gumii gaayyoo* has the mandate to adjudicate different socio-economic, environmental, political, and cultural issues that remain unresolved at lower institutional levels.

Figure 4.2 Framework used to facilitate recall of historical memory



cattle with a loss of social identity. Borana herders strongly believe that changes in number of cattle owned influences not only household food security, but also social and cultural activities (such as marriage, resource redistribution, and collective actions). Analysis of a timeline of events between 1696–2011 (Abebe unpublished report) based on focus group discussions and *gada* chronology reveal that cattle dynamics of booms and busts are mainly determined by drought, conflict, and disease outbreaks (see Tiki et al. 2013).

RESULTS AND DISCUSSION

Historically, Borana livelihoods are based on combinations of three core assets: cattle (economic capital), social resources (social capital), and grazing and water resources (natural capital). Although cattle are the primary species of household herds, sheep and goats and camels also are kept (Coppock 1994; Cossins and Upton 1987; Upton 1986).) Cattle are the principal asset, providing milk for household consumption during rainy seasons. Cattle sales generate cash for the purchase of grain and other non-pastoral consumer items, particularly during dry seasons. Although sheep and goats form part of the livestock production, cattle is the only form of accumulated wealth in Borana society that is primarily owned by the family head.

In Borana society, the family forms the basic unit of human reproduction and cattle (economic) production, and clans serve as the main unit of social organization beyond the household. The clan is a key social asset that is strongly embedded in the kinship system, ideology, and identity of Borana culture and its *gada* political system. Although cattle are the principle property of the family unit, clan networks define multiple and overlapping property rights differentiated at different levels between kinship members and non-kin members. Property rights over cattle for individuals within the family can come from inheritance or transfer of cattle from father to son (*Loon handhuraa*) and transfers to extended family members in response to losses because of conflict (*hirba* exchanges) and drought (*bussaa-gonofaa* exchanges). Exchanges of property rights between non-kin members are mainly associated with the right to use livestock products (milk and meat) between households that share the same residential territory.

In terms of social capital, cattle wealth is an important social resource used for building social and political capital within the *gada* system. Borana herders describe their relationship with cattle by simply saying, "If you do not have cattle, you are not a Borana," equating having no

Similar to other pastoral systems, environmental variability is the key determinant of livestock production in the Borana pastoral system. The distribution of grazing and water resources is highly variable across spatial and temporal scales and is influenced by differences in soil, topography, and climate characteristics (e.g., Coppock 1994). Regardless of ecological variability, Borana pastoralism is described as the most successful system in East Africa (Cossins and Upton 1987), attributed to the use of several interrelated and interdependent adaptive strategies. This includes: (1) skillful uses of multiple natural resources and management of livestock; (2) strong local natural resource governance and institutions; (3) vast productive territorial system; and (4) an extraordinarily productive and physiologically superior cattle breed, called Boran.

Natural Resources and Livestock Management

Natural resource and livestock management strategies are adapted to the area's ecological variability and include the use of communal forage reserves for calves during dry seasons, dividing up landscapes into dry and wet season grazing areas, and separating cattle based on reproductive and physiological functions into *warra* and *foora* herds. The former category comprises milking cows, calves, and small stock kept at the settlement camp (*warra guda*), and the latter herd consists of immature cattle and dry cows kept away from the main camp. Seasonal movement of livestock is another strategy used to enhance livestock productivity, as well as resting grazing areas after heavy use and ecological disturbances.

Governance and Institutions of Natural Resources

Governance and institutions related to natural resource use include common property regimes, different rules of access and use, and sanctions for violators to ensure the sustainability of Borana pastoralism. The overall principle of Borana resource governance and institutions

reflects the general principles of a common property system (e.g., Ostrom 1990). However, the organization of property right rules and access rights are distinguished between grazing and water resources and organized along clan and residence-based networks. In practice, different governance institutions coordinate jointly the seasonal use of grazing and water, as well as collective action and cooperation to manage and sustain them. The bottom line is that, in spatially and temporally heterogeneous ecologies, institutions of common property regimes, which confer multiple and overlapping rules of access and use, enhance the coping and adaptive capacities of pastoralists (Fernandez-Gimenez and Le Febre 2006).

Spatial and Boundary Characteristics

The spatial extent and flexibility of grazing system boundaries are other factors that determine the success of Borana pastoralism. According to local oral history, the spatial extent of the Borana grazing territories used to be considerably larger than it is today, extending all the way to the coast of Somalia in the east and to present-day northern Kenya in the south. Several studies of Borana history and cultural systems corroborate these markers of Borana territory (see for example Helland 1980; Legesse 1973; and Bassi 2005). Although the territory is divided between different social groups, ecological boundaries remain ambiguous and flexible. Such a vast geographical area comprises considerable ecological and topographic heterogeneity (Hobbs et al 2008; Kortliar and Wiens 1990). Borana herders distinguish their environment based on topographic features and climate characteristics classified as *badda* (humid/sub-humid), *carii* (semi-arid), and *gammojjii* (arid). They also use another classification system for residential territories structured from smaller to larger units, *olla* (village), *ardha*, *maddha*, and *deheedha* (large grazing ecosystem), although boundaries between them are flexible. The large grazing territory enhances the buffering capacity of the system against seasonal and annual grazing variability often caused by drought (Hobbs et al. 2008). However, to access resources across multiple scales of ecological heterogeneity requires mobility, which in turn depends on flexible and negotiable resource use boundaries (Scoones 1994).

In sum, cattle wealth, ecological heterogeneity, indigenous knowledge systems, animal husbandry, social capital, and rules of access to natural resources sustain Borana pastoral livelihoods (e.g., also see Angassa et al. 2012 Tache 2008; Coppock 2004; Desta and Coppock 2002, and several others). Similar characteristics and strategies underlie the success of pastoralism elsewhere in eastern Africa (e.g., Scoones 1994; Niamir-Fuller 1999; Fernandez-Gimenez and Le Febre 2006). In recent decades, however, Borana households have begun to diversify their livelihood strategies both within and outside pastoralism. The next section addresses the pattern of livelihood diversification that is taking place.

Pattern of Livelihood Strategy Change and Wealth Differentiation

As stated above, traditional Borana households depend on cattle production as means of livelihood and income, although small stock and camel are used as supplementary to cattle. However, during the last 30–40 years, biophysical, socio-economic, policy, and cultural changes have made the system untenable for cattle production, which has compelled herders to diversify their sources of income and adopt alternative livelihood strategies. The present finding in general supports the livelihood diversification trend reported by previous research (e.g. Coppock 1994; Berhanu et al. 2007; Tache and Sjaastad 2010). The forms of livelihood diversification identified in this study distinguished between those within pastoralism and non-pastoral livelihood and income activities and discussed as follows.

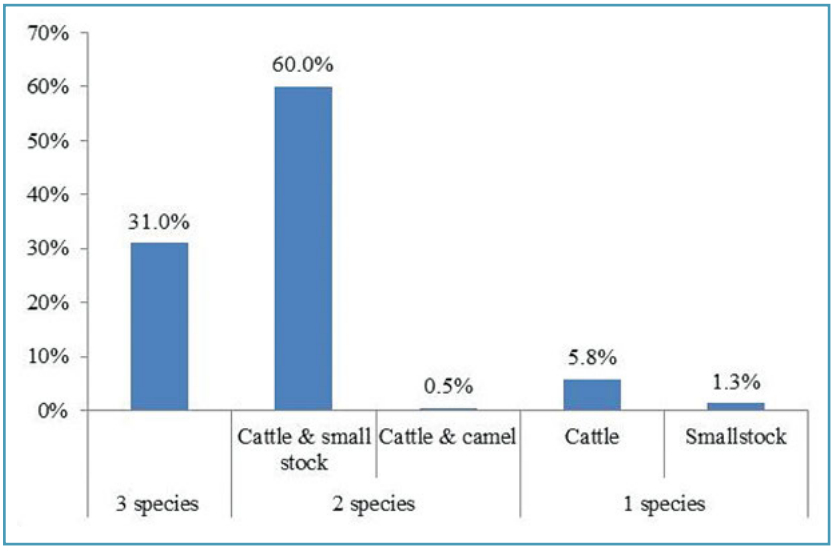
Diversification and Intensification of Livestock Production

Analysis of the dynamics of livestock breed and species composition and household wealth status are important to understand the dynamics of livelihood diversification and resilience to climate change and variability. Livelihood diversification activities within pastoralism range from changes in animal breed and species composition, to adoption of poultry production and intensification of livestock production. The term "intensification" refers to increasing the productivity of livestock through capital, labor, and other inputs, such as purchased feed (Mortiz 2012). In this context, intensification of pastoral production involves a number of changes, including: a shift in livestock species; use of improved breeds; fodder production; stall feeding during part of the year; and hiring labor for herding (Moritz 2012; BurnSilver 2009). The major livestock diversification and intensification measures adopted by Borana pastoralists are discussed below.

Herd Breed and Species Composition

As indicated earlier, Borana households depend predominantly on cattle production for subsistence and cash, although other animal species are also kept. Over the years, however, the importance and contribution of small stock and camels has gradually increased. Herd ownership data collected from 625 households reveal that a large percentage of household own multiple species (see Figure 4.3).

Figure 4.3 Herd compositions in the study area



Source: Own analysis of household survey data, 2010–11

Diversification of Cattle Breed

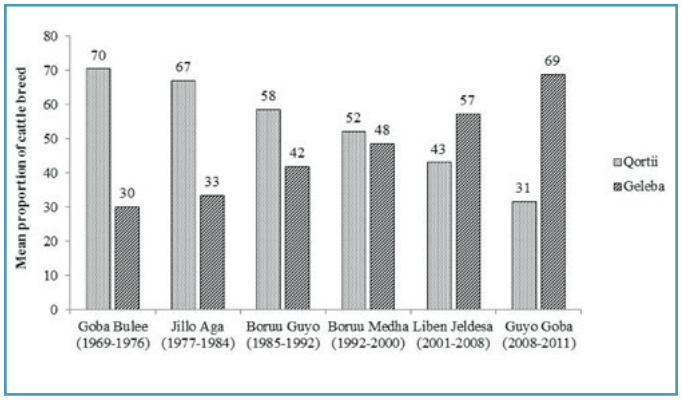
Historically, Borana herders kept only one breed of cattle, widely known as the Boran breed and locally known as *qortii*. However, the analysis of livestock production dynamics has identified the introduction of a different cattle breed, locally known as *geleba*. The local Boran cattle *qortii* breed belongs to the East African Shorthorn Zebu (*Bos indicus*) breed, while the recently introduced *geleba* cattle type is categorized as an Abyssinian Shorthorn Zebu or the Small Somali Zebu breed (Helland 1980). Borana herders are able to differentiate the two breeds based on phenotypic features. They describe *qortii* cattle phenotypically as having a light and dark grey coat color, a broad body frame, a long neck and dewlap, short horns, and a short tail. In contrast, the *geleba* cattle do not have a distinct coat color, and are described as having a smaller body frame and being lighter in body weight than *qortii*. In terms of milk and meat productivity and calving rates, the *qortii* cattle are far superior to the *geleba*. Herders emphasize that *qortii* have higher demand and market value than the *geleba*; for example, one mature male *qortii* is considered equivalent to five *geleba* cows.

According to key informants and focus group discussions, *geleba* cattle were introduced from neigboring Konso and Guji areas of southern Ethiopia. Analysis of the proportion of *qortii* versus *geleba* cattle over time shows an increasing trend of *geleba* in Borana herds during the last 40 years (see Figure 4.4). A proportional scoring tool based on a participatory approach is used to measure the proportion of *qortii* versus *geleba* within a herd during the last six *abba gada*. The analysis of the score using the Friedman Rank Test shows that the shift from *qortii* to *geleba* is significant ($X2 = 565.85$, $p < 0.0001$). The proportion of *geleba* cattle in the herd is higher in the northern part of the region bordering Guji and Konso than in southern Borana.

In spite of its high productivity, disease resistance, tolerance to high temperatures, and general hardiness (Helland 1980), Borana herders have increasingly adopted the lower-yielding *geleba* over *qortii* cattle. According to local herders, feed shortage is the primary factor influencing this management decision. They note that *qortii* require much more feed than *geleba* because of their larger body frame. Thus, as land cover and use change and reduce available grazing and feed availability, particularly during droughts, herd composition has favored *geleba* cattle with its smaller feed requirements. *Geleba* cattle also can survive by feeding on tree branches and other nutritionally poor fodder during extended dry periods or droughts (personal observation by author during the 2010–11 drought).

The introduction of *geleba* cattle into the Borana pastoral system occurred in two ways: (1) post-drought trading of mature male *qortii* for *geleba* milking cows to restock herds; and (2) cattle rustling from neighboring groups.

Fig. 4.4 Cattle breed diversification trend between 1969 and 2011

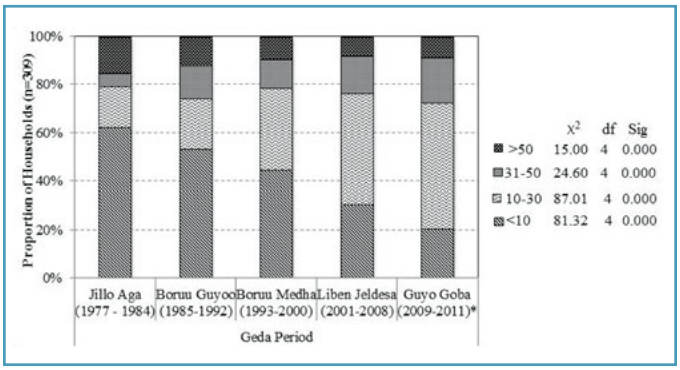


Source: Own analysis based on field survey data

Increasing Small Stock Ownership

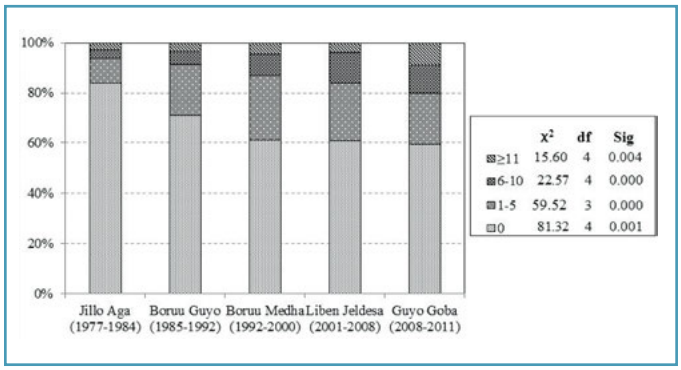
Borana herders have shown an increasing tendency towards keeping small stock in response to increased environmental change and drought risk. Analyses of small stock dynamics during the last five *abba gada* periods (1977–2011) show a significant upward trend in the proportion of households keeping small stock in their herds (Figure 4.5). The proportion of households owning less than ten shoats (sheep and goats) declined from 60% during *gada* Jillo Aga (1977–1984) to 20% at present (2011). Conversely, the proportion of households keeping 10–30 and 31–50 shoats significantly increased during the last 30 years.

Fig. 4.5 Household small stock ownership trend between 1977 and 2011



Source: Own analysis based on field survey data

Fig 4.6 Dynamics of household camel ownership between 1977 and 2011



Source: Own analysis based on survey data

Table 4.2 Livestock species distributions (%) by wealth classes

Wealth	Total	Poor*	Middle**	Rich***
Cattle	6514	12.5	48.8	38.7
Small stock	5943	17.7	55.1	26.5
Camel	571	5.8	54.6	39.6
Chicken	1543	44.5	44.1	11.5

Source: Own analysis based on household survey in 2010, n=625
*Less than or equal to one TLU (Tropical Livestock Unit, defined as 1 TLU=1 head of cattle, 0.7 camel, or 10 sheep/goats) per capita; **between 1.1–4.4 TLU per capita; ***Greater than 4.5 TLU per capita

Increased Adoption of Camels

Historically, camels have not been part of Borana production systems. However, the species has been increasingly adopted during the last 30–40 years. Although Oba (1998) reported that the introduction of camels into Borana system dates back to 1552–1560 (*gada* of Abayyi Orro), it is only during the last 30–40 years that they have been owned in large proportions by Borana herders (see Figure 4.6). According to survey results, households owning at least one camel increased by 15% between *gada* Jillo Aga (1977–1984) and *gada* Guyo Goba (2009–2016) (see Figure 4.6). The increase in households owning camels—although most own fewer than ten camels—is significant for traditional cattle pastoralists like Borana. In Borana culture, a camel was without social and economic value except as a pack animal for hauling water. Its social and economic value is slowly being recognized despite cultural resistance to consumption of camel milk and meat by specific religious groups (*Qallu*) and clans (*Raba Gadaa*[19]) in Borana.

Distribution of Different Species by Wealth Class

As shown in Figure 4.3, about 7% of households have only one livestock species (cattle or small stock). Among households keeping multiple species, the distribution of species varies according to wealth class, with wealthy herders having more cattle and camel and the poor more small stock (see Table 4.2).

Previous studies in Borana have reported the changing composition of household herds. For example, Solomon et al. (2007), based on a survey carried out in 2001 in central Borana, reported that all of their surveyed households owned cattle, small stock (goats/sheep), and/or camel, with the respective figures being owned by 89.8%, 64.1%, and 46.2% of households. Homann and colleagues, based on field surveys carried out in 2000–2002 in Did Hara and Web, reported that 34% of households kept camels together with cattle (Homann et al. 2008).

Intensification of livestock production: Fodder production and supplementary feed

Intensification of livestock production through pasture production, use of reserve enclosures, and use of commercial feed are other strategies adopted by herders. While the tactic of pasture production is used as an adaptive strategy, the latter two techniques are employed during drought to enhance the survival of breeding stock. Traditionally, Borana pastoralists enclosed grazing patches within a residential territory as a dry season reserve for calves. It is known as *seera yaabii*, which literally means "custom of grazing reserve for calves." One grazing reserve is shared by 2–3 encampments. The size of the one *seera yebbiye* is about 10 ha (Coppock 1994) unfenced, but access is restricted to owners of the calves.

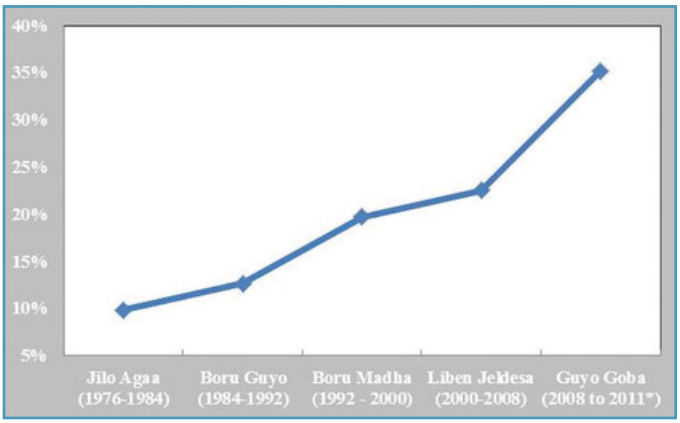
Qualitative and quantitative analysis of land use in Borana shows that the use of grazing reserves has changed during the past 40–50 years. This includes a change in the name

[19] *Raba Gadaa* are clans within the *gada* leadership cycle.

Source: Taken during field survey 2011

Plate 1 Forage harvesting, collection, and storage for dry season use by Tedecha Denbella in Denbele seden kebele

Figure 4.7 Trends in number of kaloo over gada time scale



Source: Own synthesis from field survey data

from *seera yaabii* to *kaloo*,[20] an increase in the number of protected patches, the use of fences to protect reserves, the use of enclosures by cooperatives (*weldaa*) as a type of ranch for fattening cattle, and establishment of reserves by individual herders (*dhunffaa*). Historical, tenure, and spatial data (through use of GPS tools) were collected for 71 (88% of total) enclosures (*kaloo*) identified during focus group discussion in central and northern parts of Borana.

Data analyses reveal that the size of *kaloo* ranges between 0.8 and 3,202 ha,[21] distributed across the landscape, particularly along valleys or seasonal streams. About 23% of the *kaloo*, with an average size of 6.4 ha (0.8–18.5 ha) are owned exclusively by individual households. Most of these *kaloo* are larger when compared to the size of customary calf-grazing reserves (*seera yaabii*), which were only approximately10 ha and shared among 20–30 households. Analysis of ages of each enclosure shows that the number increased gradually at first, but then grew from 42% before 2000 to 58% after 2000 (see Figure 4.7).

How and what the grazing reserve is used for is another indication of production intensification. Instead of it being used only for calves, households now report they use *kaloo* for milking cows, fattening male cattle for market purposes, raising plow oxen, and/or harvesting and storage of hay for dry season use (see Plate 1).

The use of commercial feed is another aspect of intensification of Borana livestock production. Historically, Borana livestock production depended entirely on natural grazing resources. However, during the last decade, the use of commercial feed, such as crop-straw and wheat bran (a byproduct from food industries), has grown. The use and supply of commercial feed is linked with drought events and often introduced by aid agencies to prevent loss of breeding stock. For example, during the 2010–11 drought, one wealthy herder and one livestock trader reported buying ten truckloads of hay and feed concentrate together for their livestock.

Increased Livestock and Milk Commercialization

Despite a decline in cattle herd sizes, livestock production remains the most important source of food and income for the large majority of Borana and the preferred livelihood for the majority (97%) of households. About 97% of informants report livestock production as their primary livelihood activity, and 66% of these report income from the sale of livestock and livestock products (especially milk) (see Plates 2 and 3). Nevertheless, herd composition and wealth distribution and ownership vary widely between poor and wealthy households. The poor own largely small stock, and the rich have a larger proportion of their herds in cattle and camel (see Table 4.2).

[20] The term *kaloo* is borrowed from neighboring Guji agro-pastoralists who keep private fenced grazing reserves. According to oral history, the practice was introduced by a Borana herder from Did Hara during the *gada* of Goba Bulle (1968–1976).

[21] The overall size of enclosures under private use indicated here does not include the huge tract of land allocated to government and private ranches, which are estimated to be as large as 6,000 ha (Angassa and Beyene 2003).

Source: Dawit A

Plate 2 Milk marketing in Did Hara

Plate 3 Livestock market Borbore

Table 4.3 Non-pastoral diversification by wealth category

Diversification	Percent			
	Overall	Poor	Middle	Rich
Crop production	79	37	29	12
Food-for-work (PSNP)	34	34	0	0
Gum & Resin harvesting & sale	25	13	9	3
Unskilled labour wage	18	13	5	0
Petty trade	11	9	2	0
Charcoal & fire wood production & sale	7	7	0	0
Drink & food sale	5	5	0	0
Investment (Rental building)	4	0	0	4
Animal feed sale	2	2	0	0

Source: Own synthesis based on household survey data, n=309

Non-pastoral Livelihood and Income Source Diversification

Household livelihood and income types (Table 4.3 below) illustrate that Borana households do not solely depend on livestock to meet their food and welfare needs. Their pattern of livelihood change is very similar to pastoral livelihood diversification elsewhere in sub-Saharan Africa (see Homewood et al. 2009; Little, Smith et al. 2001). In addition to using livestock as sources of subsistence and income, households also depend on non-pastoral livelihood activities (see Table 4.34.). This includes crop cultivation for subsistence, sale of crop produce, food-for-work (PSNP in the case of Ethiopia), collecting and selling gum arabic and incense, wage employment, petty trade, remittance, charcoal and firewood sale, food and drink sale, investment in rental properties, and sale of livestock feed.

Crop Cultivation

After pastoralism, crop cultivation (*obruu*) is the second-most important livelihood activity practiced by Borana herders. Historically, crop cultivation was never part of Borana livelihoods, but its contribution has grown substantially during the last 40 years. Table 4.3 shows that 79% of households are involved in crop cultivation, out of which 36% sell part of the crop produced.

According to oral history, crop cultivation in Borana was attempted for the first time during the regime of *abba gada* Morowa Abay (1680–1688). Besides violating the traditional land use system, cultivation was considered an insult and disgraceful to Borana culture and identity, as well as a sign of bad luck and evil. In order to discourage the practice, the *gada* council at the time executed the first person who attempted to farm (Oba 1998). However, during the inclusion of Borana under the administration of the Menilek regime, highland settlers from Konso and neigboring regions encroached into Borana territory and began to farm in humid and sub-humid areas around Yabelo, Mega, Hiddi-lola, and Tuka (Oba 1998).

Contrary to the general assumption that cultivation is mainly a survival strategy for poor pastoralists who have lost their herd because of drought (Toulmin 1993), the present study shows strong involvement in farming by middle-wealth and rich herders. Out of the 79% of Borana households engaged in cultivation, 29% and 12%, respectively, were in the middle and rich wealth categories. However, the reason for engaging in cultivation differs between the poor and wealthier herders, with the poor farming to meet food needs, and the middle and rich households to avoid selling cattle to buy grain.

The present findings generally corroborate other studies in Borana. For instance, Angassa and Oba (2008) report an increase in the proportion of households cultivating, from 4% in the mid-1970s to 87% in 2008. Desta (1999), in turn, reveals that 85% of surveyed households in 1996–97 were involved in non-pastoral livelihood activities, with 76% of them practicing crop cultivation. Based on a community-level study, Kamara et al. (2004) report that 83% of communities (*olla*) were practicing crop cultivation in 1997–1998. Finally, a more recent study identifies 95% of Borana households engaged in farming in 2005–2006 (Tache 2008).

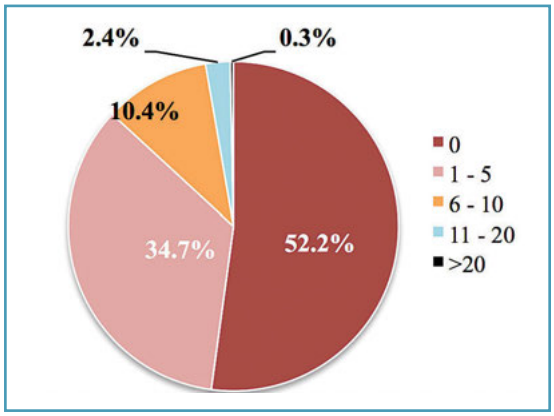
Farming has become attractive for several reasons, although it can compete for land with pastoralism and involve high risks of failure due to climate variability. First,

it is a relatively high economic return activity during good rainy seasons. Second, crop production reduces the need to sell livestock for grain purchases, thus contributing to accumulation of livestock assets. Third, the crop residue from farming is increasingly used as an important source of livestock feed and thus serves a dual purpose. For example, Solomon et al. (2007) show that 95% of households cultivate crops along with livestock keeping, which indicates that engagement in farming does not mean abandoning pastoralism.

Adoption of Poultry Production

The inclusion of poultry into Borana livelihoods is a surprising finding and a good indication of recent changes in the local economy. More than 50% of surveyed households report owning at least one chicken, with the maximum owned being 39 (see Figure 4.8). Despite the fact that owning chickens is not considered as wealth in Borana culture, the extent of ownership implies some recognition of its value for household incomes, particularly for women. Moreover, the increased adoption of poultry is an indicator of sedentarization and decreased mobility among Borana. Our finding here is consistent with a previous study in Yabelo Woreda that also reported increasing inclusion of poultry by Borana households (Desta et al. 2011).

Fig 4.8 Proportion of households with varying range of poultry ownership



Food for Work through Productive Safety Net Program (PSNP)

Thirty-four percent of households in our study participate in food-for-work (PSNP) activities. Food for work and food aid distribution from external sources is not new in the area and started as early as the 1970s during *gada* Gobaa Bulee in response to the 1973–74 drought. Since then, the use of food aid has been prevalent in the area. In recent years, however, food aid has mainly been distributed in the form of food-(or cash)-for-work schemes. The most prevalent recent intervention is the Productive Safety Net Program (PSNP) implemented by the government of Ethiopia through funding from bilateral and multilateral agencies, such as the World Bank and others. The program is administered under the national food security program for chronically food-insecure areas. In Borana, it started as a pilot intervention in 2007–08 in a few locations but expanded later. The PSNP[22] has three objectives: (1) to smooth food consumption in food-insecure households; (2) to protect household assets by minimizing adoption of damaging "coping strategies;" and (3) to build community assets through development-related public works activities.

Although it has only been three years since PSNP started in the area, an attempt has been made to document impacts on household asset accumulation (livestock). Thus, for this study, 80 households participating in PSNP public work programs were purposely selected from the larger sample of 625 households in six sites. Analysis of qualitative information from focus group discussions and key informant interviews identify several factors that could limit the effectiveness of PSNP. These include the small amounts of food transfers, temporal mismatch between the delivery of PSNP payments and household needs, the use of food and not cash as PSNP payments, and the influence of power relations and institutional constraints on targeting and timely distribution of aid.

For households that lack other sources of income, one would expect PSNP support to have a meaningful impact on livelihoods. The use of food as the only PSNP transaction is a key constraint that households identify, and they emphasize wanting cash payments as well. Several social protection studies suggest that cash transfers might be more useful in strengthening livelihoods because of the opportunity they create for self-restocking of assets. Recently, the climate change literature suggests that cash transfer is more suitable than food aid to enhance adaptive capacity and resilience because cash can be used for multiple purposes.[23] Recently, cash transfers have been used as an important component of disaster response

[22] PSNP is the largest social protection program in Ethiopia, comprising public works and direct support components. Public works are used to mitigate the impacts of climatic and food insecurity risks on chronically food-insecure households by providing employment for physically able individuals/households. The public works include bush clearing, pond rehabilitation, construction of social infrastructure, and roads. The direct support, on the other hand, involves free resource transfers to members of the community who cannot participate in public works (e.g., elderly or disabled) but need help.

[23] This may include: (1) meeting basic needs; (2) helping the poor respond to climate-related shocks; (3) helping vulnerable households to manage risk and increase their adaptive capacity; (4) transferring money for investment in long-term adaptive capacity development; and (5) facilitating mobility and livelihood transitions (Godfrey Wood 2011). In pastoral areas, food transfer as aid or in the form of food-for-work has been a standard approach to humanitarian responses and community-based development interventions for decades.

Source: Own from a shop in Wachile town

Plate 4 Gum arabic

programs in arid and semi-arid areas. For example, the Kenya government-sponsored Hunger Safety Net Programme allocated millions of Kenya shillings for drought mitigation and El Niño flood preparedness for households in northern Kenya.[24] The most critical flaws of the PSNP in Borana are the temporal mismatch between needs and delivery of aid and the inflexibility of the intervention with regard to climate patterns, as well as inequitable sharing of benefits between participants and non-participants.

Gum and Resin Production and Sale

Harvesting and selling of natural gum and resin is identified by 25% of the households as a source of income. Households involved in gum and resin collection and sale are those categorized as livestock poor and particularly include female-headed households. Household adoption of this livelihood activity shows a dramatic increase since the mid-2000s and is associated with a rapid formation of government- and NGO-sponsored cooperatives.[25] In Wachile, Irder, Ade-Gelchet, and Dhaas, collection and selling of gum and resin existed before cooperatives and external support. The natural products were purchased by shopkeepers in small towns who, in turn, supplied large traders in main towns, such as Dubuluk, Mega, and Moyale. Informants claim the establishment of cooperatives has been beneficial because cooperatives increase access to markets and help to organize gum and resin collection on a per weight basis (per kg) and for higher prices. They note that in the past individual traders offered 1 to 3 Ethiopian birr per 1 kg of gum/resin, but the price increased to 4–8 birr after cooperatives emerged. At present, therefore, households supply their products either to individual traders or cooperatives depending upon who offers the best price. Both traders and coops sell the products they collect to large-scale traders in major towns at a profit margin of 1 to 2 birr per kg.

Focus group discussions and key informant interviews show that local gum and resin collection and marketing has changed over time. Historically, only households with little or no livestock engaged in gum and resin collection and sales as a means of survival, especially during droughts/extended dry seasons. Recently, more Borana have begun to engage in gum and resin collection and marketing. While those who first started to collect and sell gums and resins were very poor, more recent participants recognize the abundance and profitability of these products and the market opportunities they afford. These traders often have other businesses, such as shops and livestock trade, and comprise better-off individuals rather than the poor. In some cases, individual traders are also members of cooperatives. Their motivation for engaging in this business is wealth accumulation rather than survival. In this context, gum and resin marketing has benefited better-off households who have multiple businesses and are knowledgeable about different market opportunities.

Based on data collected from four *kebeles* in Arero and Yabelo, a 2006 study reports an average annual income per household from gum and resin marketing of Ethiopian birr2,670 and 2,400, respectively (Worku et al. 2011). The authors note that the practice is common during droughts as a means of survival (Worku et al. 2011). Recently, a study carried out in Yabelo and Moyale shows the contribution to income from gum and resin as 18.2% of total household income (Mekonnen et al. 2013). The contribution of gum and resin to household livelihood in other dryland areas of Ethiopia and to the national economy is widely reported in other studies. For example, in Liban Zone, an area bordering Borana in the northeast, gum and resin marketing generates 32.6% of the average household income, which is second in importance, after livestock (Lemenih et al. 2003). Another and larger study based on household data from 11 purposely selected *woredas*[26] shows that gum and resin contribute 14% of

[24] http://www.hsnp.or.ke/index.php/news/current-news/12-current-news/105-hsnp-pays-drought-and-floods-emergency-payments-on-29th-october-2015.

[25] For example, Action for Development (AFD), a local NGO, has provided support in the form of initial start-up capital and trainings in bookkeeping, group management, and other skills for three of the cooperatives visited during this survey, including Goro and Mata-arba gum and resin marketing cooperatives. The cooperatives are registered with the government cooperative promotion office as legal entities and started operating during 2000 to 2007.

[26] The Districts include: Metemma and Qwara in Amhara; Yabelo and Negele in Oromia; Filtu and Moyale in Somali; Humera, Kola Tembien, Sheraro, and Tanqua Abergele in the Tigray; and Wenbera in the Benishangul-Gumuz National Regional States.

cash incomes of households (Mekonnen et al. 2013). The contribution of the sector to the national economy is also substantial. For example, between 1997 and 2010, more than 40,000 tons of different types of gum and resin products were exported from Ethiopia and earned the country US$72 million (Mekonnen et al. 2013). Finally, Gachathi and Eriksen (2011) report that gum and resin collection and selling in northern Kenya is an important alternative for poor pastoralist households, as well as an emerging investment opportunity for wealthy individuals from pastoral communities.

Unskilled Waged Employment

Cash income from unskilled wage labor is reported by 18% of surveyed households.[27] The hired work includes cash-for-work schemes supported by NGOs and public socio-economic infrastructure development activities carried out within the territory (such as schools, health centers, veterinary clinics, government administration offices, roads, etc.). The number of small urban centers increased considerably during the last five years, linked with increased creation of new *woredas* and *kebeles* and local development of public administrative, social, and economic infrastructures, under the government's decentralization program.[28] The fact that many areas had no infrastructure or centers meant that new ones had to be developed whenever a new *woreda* and/or *kebele* was established. This program has created job opportunities in two ways. First, opportunities for skilled labor were created, largely for local elites in public service occupations (i.e. administration, police, schools, and health services, etc.) Secondly, the process of public infrastructure development has created employment opportunity for unskilled labor. This implies that sedentarization and urbanization are an important set of drivers for pastoralist livelihood diversification.

Petty Trade

Diversification through petty trade of basic consumer items is reported by 11% of informants. In addition, focus group discussions reveal that women groups and mixed gender groups or cooperatives (*walda*) are involved in NGO-supported petty trade activities. Community members commend petty trade activities for several reasons, including the increased local access to non-pastoral consumer items, stabilization of local prices, and ability to access food items on a loan basis from trader groups, especially during droughts (see Plate 5).

Source: Own from Gelchet

Plate 5 Petty trade

Remittances and Skilled Labor Employment

About 8% of households receive remittances as a source of cash income. They are largely from family members (notably sons and daughters) who have permanently migrated and usually are employed by government and NGOs. The proportion of households receiving remittances has increased over time (see Figure 4.9), particularly for those households affected by drought or illness/death of a family member (i.e., idiosyncratic shock). Data on supportive mechanisms for post-drought recovery in Borana show the importance of remittances from family members working in government or NGOs. For example, a livelihood recovery and herd rebuilding assessment in Magado *kebele*[29] after the 2010–11 drought reveals that some households, who had lost almost all their livestock, did not have to mobilize *bussaa-gonofaa* (the clan-based assistance network) for restocking because of their access to remittances. A key informant interview with an *olla* leader in Magado shows that the individual received financial support from his children working in a government office in Yabelo and, thus, did not need to ask for the support of clan members. Similar cases where remittances from employed family members provided a buffer against food insecurity and vulnerability during droughts are documented among pastoralist communities in Kenya (Little et al. 2009).

[27] This is different from PSNP in terms of cash or food used as payment for labor in unskilled labor and PSNP, respectively.

[28] The creation of ethnic-based territorial sub-divisions and administrative structures under the decentralization program promoted permanent territorial occupation by residents and geographically bounded identities. Even donors' funding of local development (for example, the World Bank-funded Pastoral Community Development Fund) and NGOs are framed by administrative units (i.e., *woredas* and *kebeles*), which are used as an incentive for further sub-division and creation of geographically bounded administrative units. These fixed units and boundaries often conflict with the mobile lifestyles of pastoralists.

[29] Magado *kebele* was one of the most severely hit locations by the drought of 2010–11. The main field data collection for the study was carried out before and during this drought. However, in June 2013 a short re-visit was carried out in areas affected by the drought to assess the rate of livelihood recovery and herd rebuilding, as well as the role of social capital in supporting the recovery effort.

Charcoal and Firewood Sales

About 7% of household informants mention income from charcoal and firewood sales (CFWS). Income diversification through CFWS is not new in Borana. Analyses of household drought coping strategies demonstrate that this livelihood activity has been pursued for the past 40 years to reduce vulnerability and food insecurity during droughts. However, today this activity tends to be a permanent occupation rather than a temporary measure for survival in difficult times. Decline in livestock assets and a lack of alternative income activities are identified as reasons for continuous engagement in CFWS. This finding supports the earlier observation that charcoal and firewood sales are income diversification activities done only out of necessity by poor households (Little, Smith et al. 2001).

Urbanization associated with the decentralization of government services and administrative centers in remote areas might have encouraged households to pursue CFWS as a permanent livelihood activity. Several new urban centers were created during the last twenty years, bringing thousands of government employees and small businesses into these settlements. Without alternative sources of energy, urbanization has created a high demand for charcoal and firewood supply. Increased demand for charcoal and firewood supply, coupled with a weakening of customary institutions for regulating natural resources, may encourage herders to engage CFWS on a continuous basis.

Food and Drink Sales

Income generation from food and drink sales is mentioned by 5% of households, with high concentrations in urban areas and market centers. However, businesses based on local brew (*farsoo* or *araqee*) and/or bottled beer and liquors also have expanded in almost all large rural encampments, near roadsides, and in seasonal ritual camps (*ardaa-jilla*) and *Gummi* (the general Borana assembly). Despite the fact that the alcoholic drinks business is used as an income opportunity for some individuals, it is unanimously denounced across the region. It is said to be threatening to Borana cultural and social values. According to members of the *gada* council, they have tried to ban the sale and consumption of alcoholic drinks in rural areas, but it has continued to expand across the region, with different groups of Borana society—including *gada* leadership—buying and consuming them.

Focus groups listed the impacts of alcoholic drinks sale and consumption as contributing to poor livestock husbandry and management and negative social and cultural values. Rich and powerful individuals (*abba qabegnna*) often influence decisions of customary institutions and local government (*kebele*) leadership by using alcohol as a bribe. One informant commented that meetings (*koora*) and decisions that concern the community now are made in the *mana farsoo* or *araqee* (a place for sale of drinks—a bar) rather than under *gadissa* (tree shade), which is the customary practice. In general, other socio-cultural problems are blamed on alcohol consumption, including premarital sexual relations, extramarital affairs, non-traditional marriages, and family instability.

Investment in Rental Properties and Other Businesses

The least common livelihood diversification strategy is business investments, which was identified by only 4% percent of households. Most investors mention investments in livestock trade, rental houses in towns, and truck rentals for transporting goods. Those individuals who diversified through high-cost investments were already rich when they did so. Increased opportunities for livestock export trade was identified, but with the observation that these opportunities have increased wealth inequality within the community, as well as diminished communal insurance mechanisms, such as traditional cattle redistribution (*bussaa-gonofaa*). These types of social capital are weakened because of the unwillingness of rich herders to transfer stock to the poor. As wealth and income differentiation increases, inequality is noted to be a deterrent to the functioning of social capital and redistributive mechanisms (e.g., Karakoc 2013; Uslaner and Brown 2005).

The transfer of cattle through *bussaa-gonofaa* restocking is motivated by individual self-interest, because the recipient can be called on in the future if the need arises. With changes in social values and a growing sense of individualism, as well an increase in the number of poor pastoralists, better-off herders are uncertain if they will benefit from investments in social capital. When one becomes less optimistic about the future, the sense of shared fate and solidarity among members reduces (Karakoc 2013; Uslaner and Brown 2005). Moreover, trust is a key mediator of reciprocity between actors (Tsai and Ghoshal 1998), which can deteriorate with increasing wealth and, in turn, limit reciprocal exchanges (e.g., Smith 2011; Coffé 2009; Uslaner and Brown 2005).

Trade in Livestock Feed

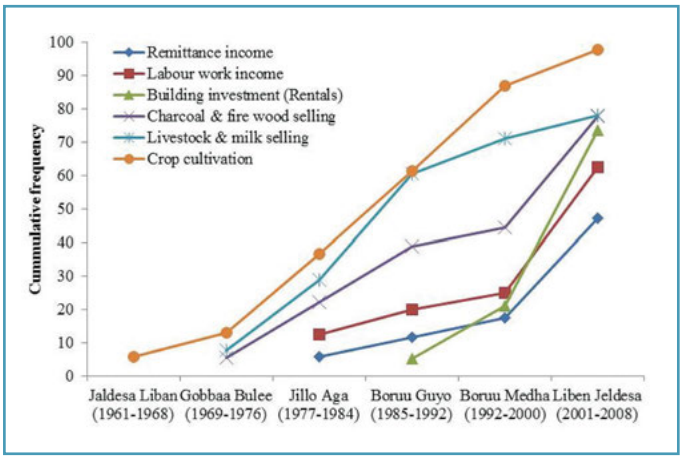
Income from the sale of livestock feed is a recent phenomenon observed during the present *gada* period (since 2008). Two percent of households mention selling fodder (hay) in local market centers or receiving fees from grazing in their private *kaloo*. Unlike hay produced from enclosures, fodder is harvested from remote areas and carried to market or camp for storage by women (see Plate 7). Feed marketing is also carried out by groups organized as cooperatives (*weldaa*). This includes cooperatives initially established to engage in livestock marketing but that later diversify their business by bringing in livestock feed (hay and concentrate) from the highlands and selling it in markets at a profit. Many *kaloo* were created by

on 15/08/20 field survey

Plate 6 Cooperative kaloo *around Melbaba*

Plate 7 Hay collection, Denbele seden

Figure 4.9 Diversification trend over* gada *time scale



Source: Own analysis based on household survey in 2010–11, n=309

clearing bush through PSNP public work activities, and the owners were able to generate income by cutting the hay for sale or allowing direct grazing on the *kaloo* on a fee-per-animal basis. For example, during the 2010–11 drought a cooperative in Buurquqe *kebele* (Miyo *woreda*) charged 1 Ethiopian birr per head of cattle to use enclosed grazing, which is the same rate that herders were charged to graze other individuals' *kaloo* (personal observation by author). Other cooperatives in Borana sell the pasture by cut-and-carry hay (see Plate 6). Prices for cut-and-carry hay depends on the quality and size of the piles of hay; some pastures are reported to range in price between 2,500 and 5,000 Ethiopian birr.

Diversification over Time and by Household Wealth

It is important to understand how rapidly the process of diversification has occurred in Borana and to identify the driving factors for this pattern (Little, Smith et al. 2001). Using reference to the eight-year cycles of the *gada* regimes, most of the diversification has occurred in the last three decades, and in the early years it involved only a few households (see Figure 4.9). For example, households practicing crop cultivation before the regime of *abba gada* Jillo Aga (1977–84) were very few (less than 10% of total) but increased rapidly after that.

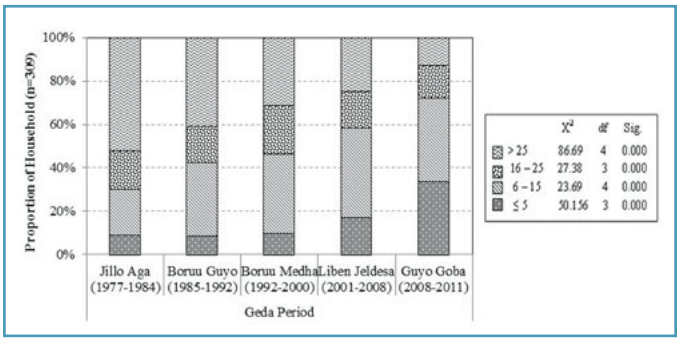
In addition, analyses of land cover and land use dynamics using three sets of land cover data (i.e., satellite imagery) from 1973, 1986, and 2000, as well as data from a ground survey using GPS tools in 2008, revealed substantial increases in cultivated land during the past 40 years.

However, the types of livelihood activities, including farming, pursued vary between wealth groups (see Table 4.4). Based on locally used indicators of wealth, diversification was analyzed according to wealth classes: *deega* (poor), *bultiqabesa* or *giduuglessa* (middle-wealth) and *dureessa* (rich). The general pattern is that diversification within pastoralism and non-pastoral high-value activities was pursued by wealthy individuals. For example, 80% of rich households (owning ≥ 4.5 TLU per capita) own three species (cattle, small stock, and camel), but only 6% of poor households do (<1 TLU per capita). Wealthy herders also are more likely than others to own private pasture enclosures (*kaloo*) and invest in commercial feed inputs (hay and concentrate). Analyses of qualitative information also reveal that livestock market traders, individuals or organized as cooperatives, are rich.

In contrast, non-pastoral livelihood activities for households classified as *deega* (poor) include petty trade, unskilled wage labor, food for work (PSNP), selling alcohol drinks, production and selling of charcoal and firewood, gum and resin harvesting, and rainfed farming (see Table 4.3). The latter two activities (gum and resin harvesting, and farming) are also performed by the *dureessa* (rich) and *bultiqabesa* or *giduuglessa* (middle) wealth groups, but the motive is not for survival as it is for poor families. Instead, rich and middle-wealth groups pursue these activities to diversify and increase household assets and incomes. As noted earlier, gum and resin have a very good market nationally and are exportable commodities (Mekonnen et al. 2013) and thus can be important sources of cash.

In sum, Borana herders diversify their livelihood options within and outside pastoralism. Although certain factors driving diversification have been noted earlier, the following section discusses these and other factors in depth.

Fig 4.10 Dynamics of household cattle ownership between gada Jillo Aga to Guyo Goba



Source: Own analysis based on household survey in 2010–11, n=309

DETERMINANTS OF DIVERSIFICATION

Household decisions to pursue different livelihood options are determined by several factors. These include loss of cattle wealth, land cover and use changes, loss of common property right regime, commercialization of livestock production, sedentarization/urbanization, conflict, education, and socio-political changes. Determining factors are not mutually exclusive, but rather diversification occurs as an outcome of the interplay between multiple and overlapping proximate (direct) and underlying or structural (indirect) drivers.

Loss of Cattle Wealth

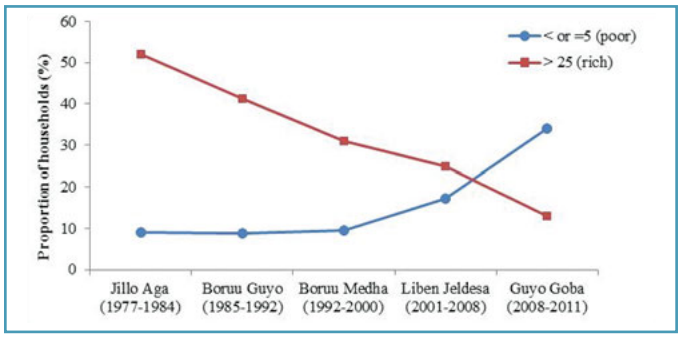
As noted earlier, declining cattle assets is the primary reason that herders pursue livelihood diversification. To examine declines in livestock holdings, it was necessary to look at changes in local definitions and categories of wealth classes and trends in household cattle holdings based on the *gada* time scale (see methods section earlier in chapter). In addition, current per capita livestock holdings are analyzed using household family and livestock survey data. Here we focus on cattle because they are the main source of the household economy, with other species (sheep, goats, and camel) as supplemental. In fact, cattle remain the standard indicator of wealth and wealth differentiation despite a growing importance of small ruminants and camels.

Shifting Measures of Livestock Wealth and Household Differentiation

Borana society has an elaborate and extended scale of wealth categories based on livestock ownership. The historical wealth classes defined from high to low categories as *dureessa ciccitaa* (very rich or "rotten rich" as described by Tache), *dureessa* (rich), *nama ufirraa bulu* (self-reliant), *harka qalleessa* ("thin-handed"), *deega* (poor), *deega bombii* (very poor), and *qollee* (very, very poor) (Tache 2008). Analyses of wealth class categories were investigated through focus group discussions and fieldwork and based on terms that Boranna used to distinguish different households based on wealth.

Wealth classification in Borana society also is tied to the indigenous system of cattle transfer (*bussaa-gonofaa*), where

Fig 4.11 Changes in the proportion of poor and rich households between gada Jillo Aga and Guyo Goba based on cattle ownership



Source: Own analysis based on household survey in 2010–11, n=309)

ownership of cattle below a minimum means that a household can petition for support from better-off families. Examining who participates in these cattle transfers—either as a giver or recipient—provides a good indication of cattle wealth. This study identified three wealth categories: *deega* (poor), *bultiqabesa* or *giduuglessa* (middle-wealth), and *dureessa* (rich) based on ownership classes of less than or equal to 5 cattle, between 6 and 25 cattle, and greater than 25 cattle per household, respectively. The present categories differ from past classifications when Borana were considerably richer in cattle. For example, in the mid-1990s, Desta uses a wealth classification for poor households of 0–50 cattle, middle of 50–100 cattle, and rich of more than 100 head of cattle (Desta 1999). An earlier study in the 1970s reports 25 cattle as the minimum threshold below which a household is exempted from obligation of transferring cattle within the clan network (*bussaa-gonofaa*) (Legesse 1973). Today that threshold is only 5 cattle. According to focus group discussants, the revision of wealth classes reflects a general decline in the size of household cattle herds.

Declining Household Cattle Holdings and Shifts in Wealth Status

As illustrated in Figure 4.10, households with more than 25 heads of cattle have declined in the past approximately 40 years, while households with less than 5 head of cattle increased during that time. The decline in cattle ownership over time for all wealth categories is statistically significant.

In addition, changes in the proportion of different wealth categories over time show how rapid the decline in livestock holdings has been. The results show that the proportion of poor households (owning ≤ 5 cattle) rapidly increased starting in Boru Medha *gada* (1992–2000). In contrast, the proportion of better-off herders (owning > 25 cattle) has decreased by 39% from 1977 to 2011. The trend in the proportion of poor and rich households over time (1977–2011) is illustrated in Figure 4.11 and the statistical significance of observed changes for poor and rich households are shown in Tables 4.4 and 4.5, respectively.

Table 4.4 Changes in proportion of poor households and its significance between different gada *periods*

Gada Periods	Jillo Aga (1977–1984)		Boruu Guyoo (1985–1992)		Boruu Medha (1993–2000)		Liben Jeldesa (2001–2008)		Guyo Goba (2009–2016)*	
	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2
Jillo Aga (1977–1984)			-0.30	Constant	0.4	0.07	8	8.45 *	25	63.19**
Boruu Guyoo (1985–1992)					0.7	0.07	9	8.45*	25	63.19**
Boruu Medha (1993–2000)							8	7.02*	25	59.84**
Liben Jeldesa (2001–2008)									17	29.12**

Significance level: *p<0.01, **p<0.001 Source: Own analysis based on household survey in 2010–11, n=309
*Refers to the *gada* calendar but the data period is between 2009–2011

Table 4.5 Changes in proportion of households owning greater than 25 heads of cattle and significance level between different gada *periods*

Gada Periods	Jillo Aga (1977–1984)		Boruu Guyoo (1985–1992)		Boruu Medha (1993–2000)		Liben Jeldesa (2001–2008)		Guyo Goba (2009–2011)*	
	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2	Change (%)	X^2
Jillo Aga (1977–1984)			-11	4.24*	-21	10.8**	-27	23..29***	-39	98.38***
Boruu Guyoo (1985–1992)					-10	1.54	-16	7.89**	-28	66.67***
Boruu Medha (1993–2000)							-6	2.50	-18	50.18***
Liben Jeldesa (2001–2008)									-12	32.14***

Significance level: *p<0.05, **p<0.01, ***p<0.001 Source: Own analysis based on household survey in 2010–11, n=309
*The data are collected in 2011 but 2009–2016 is the actual *gada* period

The analysis above is based on data collected using the recall method, which is useful when it is difficult to get the absolute number of livestock owned 30 years ago (see also methods section).

Present Livestock Wealth Distribution Based on TLU and Number of Cattle

Livestock generally is used as a measure of wealth in pastoral systems, but approaches to measurement vary across different studies. To enable comparison with previous studies in the area, Table 4.8 compares the results of measures in this study with corresponding values from other research. While 91% of the surveyed households own less than 4.5 TLU per capita, the remaining 9% have greater than or equal to 4.5 TLU per capita, which is a threshold for viable full-time pastoralism considered by some other studies (see also Figure 4.12). Out of the 91% of households with less than 4.5 TLU per capita (poor), less than 1% of them own no livestock at all and are locally referred to as *qollee* (the poorest of poor). Out of the total TLUs in the sample, households in the poor wealth category hold 62% of livestock wealth, while the wealthy category of households, who are only 9% of the households, hold 38% of livestock wealth. The finding implies that very few households are wealthy enough to specialize in pastoralism, with the vast majority needing other sources of income and livelihoods to survive.

Figure 4.12 TLU per capita distribution based on data collected in 2010–11 (n=625)

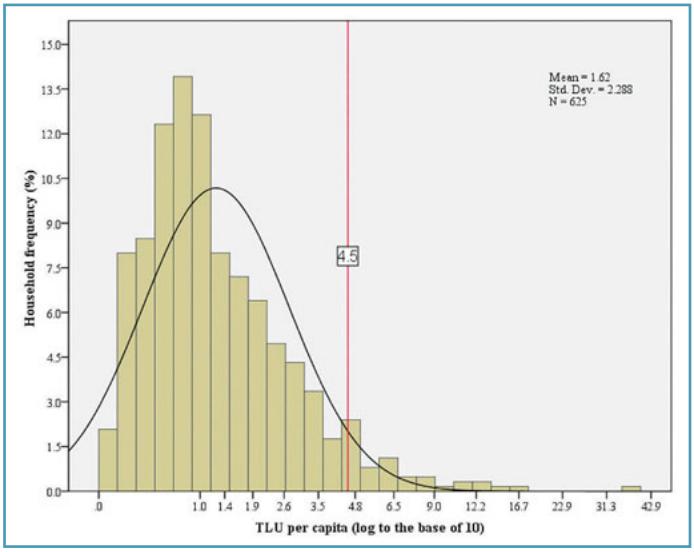


Table 4.6 Proportion of livestock wealth in numbers and in TLU with distribution by wealth classes

	Wealth	Total	Poor*	Middle**	Rich***
A	Cattle	6514	12.5	48.8	38.7
	Small stock	5943	17.7	55.1	26.5
	Camel	571	5.8	54.6	39.6
	Chicken	1543	44.5	44.1	11.5
B	Cattle TLU	6514	12.5	48.80	38.7
	Small stock TLU	594.3	17.7	55.12	27.2
	Camel TLU	815.71	5.9	54.64	39.9
	TLU	7924.01	12.2	49.88	38.0
	TLU per capita	1288.91	11.9	48.90	39.3
	Household sample	625	41.44	48.80	9.76

*Less than or equal to one TLU per capita; **Between 1.1–4.4 TLU per capita;
***Greater than 4.5 TLU per capita

Furthermore, livestock wealth distribution in terms of the proportion of different species and aggregated TLU by wealth categories reveals that poor households have a larger proportion of livestock wealth in small stock and chickens than other households. (Rich households, in turn, have more of their wealth in cattle and camel (Table 4.7).

These livestock data are generally consistent with trends reported by other researchers. For instance, in terms of TLU per capita, Desta (1999) found an average of 2.3 TLU per capita, which was substantially lower than what he found in the late 1980s (4.1 TLU per capita). The difference between the present finding (2.1 TLU per capita) and the value for the mid-1990s (2.3 TLU per capita) is lower compared to the difference between the 1990s (2.3 TLU per capita) and the value in 1988 (4.1 TLU per capita). This perhaps is associated with increased camel adoption, which can increase the average TLU per capita.

The other important aspect of TLU analysis is the contribution of different species to total TLUs: cattle (82%), small ruminants (8%), and camels (10%). This finding is consistent with other researchers' findings. For instance, Coppock and Desta show that the share of cattle in total TLUs declined from 92% in the mid-1980s to 78% in 2013 (Coppock and Desta 2013). The share of small ruminants in total herds shows an increase from 2.6% to 8% over the figure reported by Cossins and Upton in the 1980s (1987). If we assume the authors designated "other species" as camels, the contribution of camels to total TLU shows a 7.6% increase during the past approximately 25 years. The decreasing share of cattle as a percentage of TLU and the increasing percentage of small ruminants and camels in total herds are consistent with the household livestock data for our study.

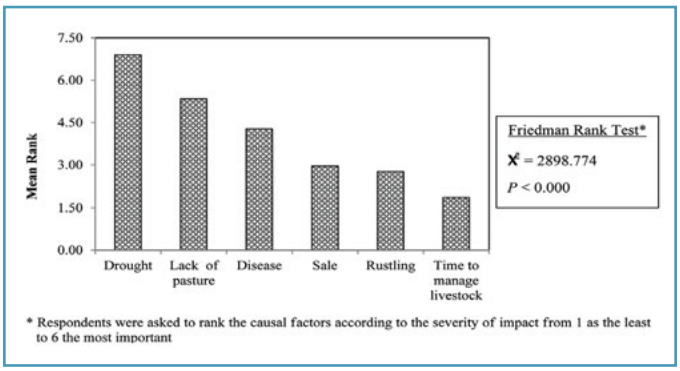
Table 4.7 Comparison of livestock wealth distribution between late 1980s and in 2011 (both estimates are regional averages)

Variables	Present finding	Previously reported findings	
		Result	Reference
TLU per capita	2.1	2.3	Desta (1999)
TLU per family	12.7	11.2	Cossins and Upton (1987)
Contribution of cattle to total TLU	82%	90% 95%	Cossins and Upton (1987) (Holden, 1991)
Contribution of small stock to total TLU	8%	7%	Cossins and Upton (1987)
Contribution of camel to total TLU	10.%	2.6 %	Cossins and Upton (1987)
Average cattle holding per family	10.42	14.6	Cossins and Upton (1987)
Average small stock holdings per family	9.5	5.8	Cossins and Upton (1987)
Average camel holding per family	0.91	0.1	Cossins and Upton (1987)
Proportion of households owning less than 15 cattle	79.5 %	75%	Tache and Sjaastad (2010)

As shown in Table 4.7, Cossins and Upton (1987) reported distribution of livestock wealth as 11.2 TLU per family in the 1980s. Compared to the present finding (12.7 TLU per family), the difference is not large in spite of the declining trend of cattle holding observed during the last 25 years. The similarity in TLUs per family is probably because of the increased number of camels in herds. As discussed earlier, current average TLU per capita is lower than the 4.5 TLU per capita threshold required for a full-time pastoral livelihood. The fact that a large proportion of surveyed households are below the 4.5 TLU per capita is unsurprising because of the large extent of diversification and alternative livelihoods identified in this study. This substantiates the comment made by Little, Smith et al. that "With declining per capita stock holdings, there is little question that many herders, both male and female, have had to diversify their income-earning activities" (2001: 422). In extreme cases of poverty, for herders who keep cattle predominantly, the decline of per capita holding below a minimum subsistence threshold obviously can push them to seek an alternative livelihood.

Based on analyses of herders' perceptions, losses of cattle are mainly due to drought, livestock disease, reduced availability of and access to grazing land, cattle raiding, increased marketing of cattle, and lack of labor for animal husbandry and management. However, not all these factors are equally important. Analyses of the data, using the Friedman Rank Order Test, shows drought as the most important cause of cattle loss, followed in order of significance by lack of grazing resources, livestock disease, increased cattle sales, cattle raiding, and lack of labor/time to manage animals (X^2, significant at p-value <0.0001; see Figure 4.13 below).

Fig 4.13 Factors for a decline in cattle population



Source: Own analysis based on field data

Analyses of qualitative information consistently attributes the expansion of crop cultivation as a response to post-drought food insecurity because of livestock losses. According to Cossins and Upton (1988), the 1983–84 drought resulted in a loss of 43% of the cattle, constituting 90% of calves, 45% of cows, and 22% of mature males (Coppock 1994). These catastrophic cattle losses pushed a majority of herders to farming, as well as led to changes in traditional laws and customs of land use (*aadaa-seeraa lafa*), which previously banned crop cultivation. According to local informants, the decision in favor of cultivation was officially endorsed by the *gumii-gaayyoo* (the customary assembly held every eight years) held in 1988 during the regime of Boruu Guyoo (1985–1992). Figure 4.9 depicts how the proportion of households that farmed rapidly increased after the 1980s. Part of the growth can be attributed to subsequent droughts of 1991–1992 (*Oola* Boruu Guyoo), 1999–2000 (*Oola* Boruu Medhaa), and 2006–2007 (*Oola* Liben Jeldesa), which further reduced cattle herds and slowed herd recovery. Several other studies in Borana report a similar situation (e.g., Desta 1999; Desta and Coppock 2002, 2004; Coppock 1994; Kamara et al. 2004; Berhanu et al. 2007; Angassa and Oba 2007; Tache 2008).

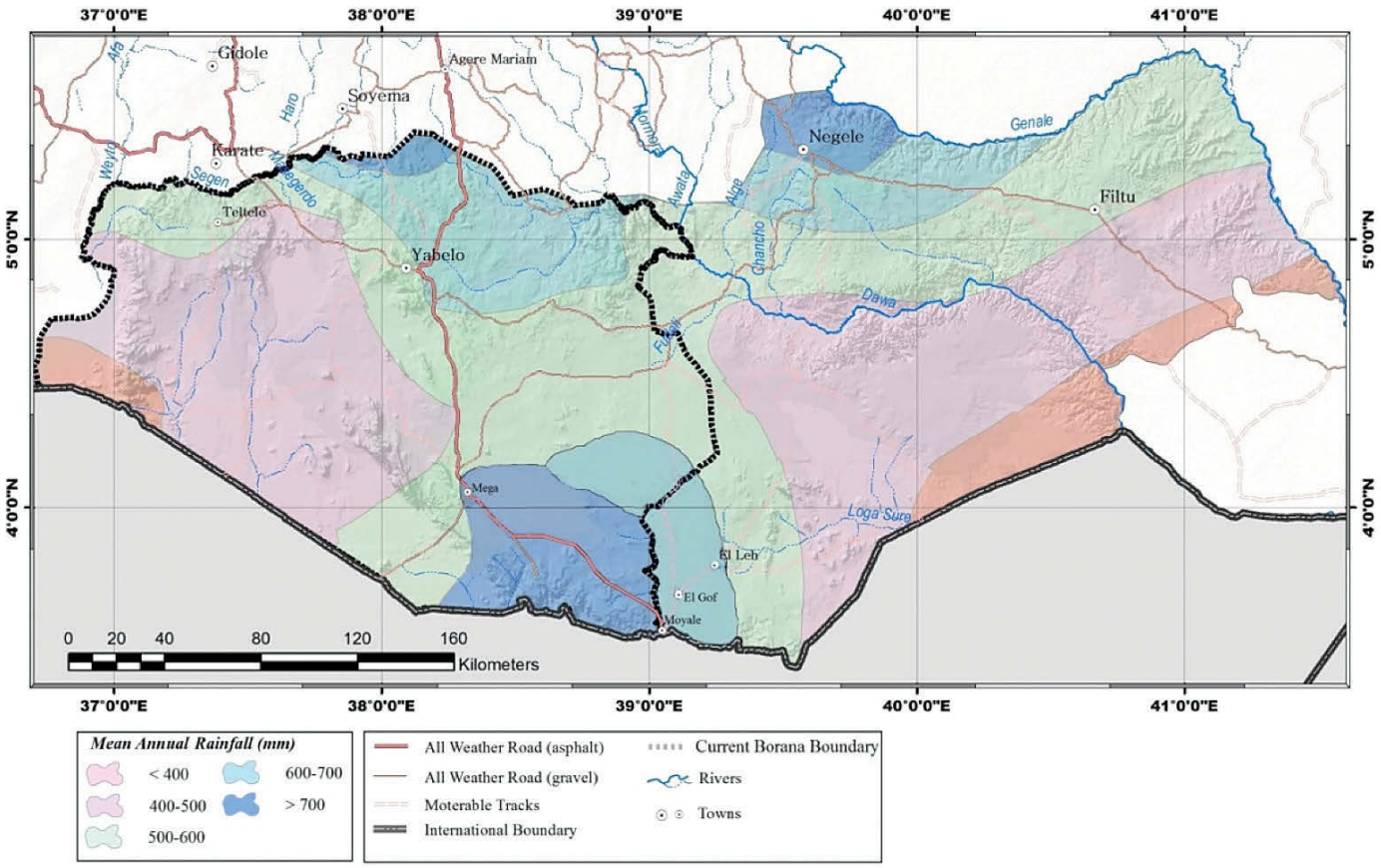
Landscape Heterogeneity: Topography, Soil, and Rainfall Variability

The Borana ecosystem is highly heterogeneous[30] in terms of topography, vegetation, soils, and climate. Soil property and rainfall are key determinants of farming because of their influences on the length of the growing season. Analyses of soil type distribution in Borana reveal high variability across topographic ranges.[31] The soil type suitable for agriculture is locally called *biyyoo kooticha* (vertisols in scientific terms) and has high moisture reserve and organic matter, but it is limited to bottomlands and floodplains (Coppock 1994). Accumulation of fertile soils in bottomlands and floodplains is because of topographic factors influencing hydrological flow and movements of nutrients and sediment depositions (Chapin et al. 2012; Illius and O'Connor 2000). The other important factor influencing land suitability for agriculture is variability of rainfall across space and time. Spatially, rainfall amounts vary following topographic gradients from high to low altitudes. Areas at the higher end of topographic gradients, such as around Mega, Hidlola, and Yabelo, receive about 600–700 mm $year^{-1}$. As illustrated in Figure 4.14, the amount of rainfall is high in areas along the mountain range running from north to south in Borana, and decreases as one moves away from high altitude areas. Spatial distribution of the average annual rainfall amounts

[30] Structural landscape heterogeneity refers to the physical (abiotic) characteristics of the landscape, notably topography, soil, and climate (Stein et al. 2014; McGarigal and McComb 1995).

[31] Based on analyses of primary data from the Oromia Water Works Design Agency, ten major soil types, including Cambisols, Leptosols, Fluvisols, Vertisols, Luvisols, Leptosols, Calcisols, Andosols, Solonetz, Nitisols, and Lava, and several sub-types are identified in Borana.

Figure 4.14 Average annual rainfall amount distribution



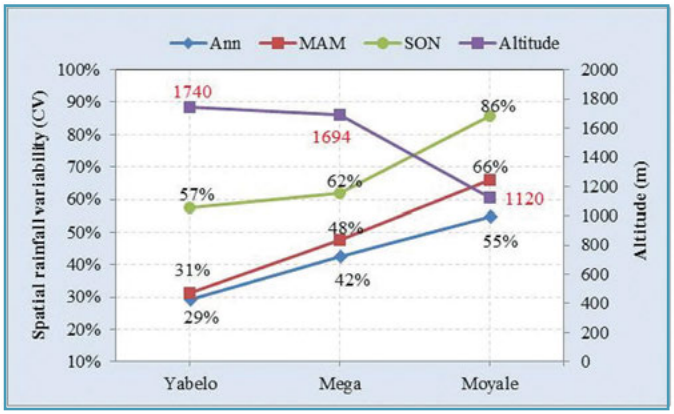
Source: Own analysis of primary data from National Meteorological Authority and previous Southern Rangeland Development Unit interpolated using Kriging geo-statistical method

is linearly correlated with the elevation gradients in such a way that for every 100-meter increase in altitude, average annual rainfall increases by 43 mm (statistically significant at $R^2 = 0.13$ and $p < 0.001$). The observed pattern is consistent with general relationships that have been observed elsewhere between rainfall amounts and altitudinal and latitudinal gradients (e.g., Nicholls and Wong 1990). The variation of rainfall across elevation gradients also implies variations in the length of growing periods (LGP).

Statistical analysis of the spatial pattern of LGP across Borana reveals LGP is a function of rainfall amounts, with a significant positive quadratic relation ($R^2 = 0.751$, $p<0.0001$). Regions at lower rainfall gradients, such as Golboo and Wayaama, have shorter LGPs and higher rainfall variability compared to such areas of higher elevation as the central plateau, including Gomoole, large parts of Dirre, and some parts of Malbe. Generally, the length of the growing period ranges from 45 to 95 and 24 to 71 days during the long-rainy season or *Ganna* (MAM) and short-rainy season or *Haggaya* (SON), respectively.

However, it is argued that rainfall variability over time is likely to have greater negative effects on vegetation

Figure 4.15 Coefficient of rainfall variability by location (space), season, and annual time scale



Source: Own analysis based on rainfall data obtained from National Meteorological Authority

biomass, composition, and distribution than mean rainfall amounts (e.g., Weltzin et al. 2003; Knapp, et al. 2002; Ellis and Galvin 1994), and there is little doubt the same is true for crop agriculture. Our analysis of rainfall variability (coefficient of variation) on seasonal and annual time scale reveals large variations across space (altitudinal range) and time (see Figure 4.15).

As illustrated in the figure above, the coefficient of variation (CV) during both the long (MAM/*Genna*) and short (SON/*Haggaya*) rainy seasons is near or exceeds 30%[32] in all sites, with an increasing trend from north to south. Thus, regions with lower annual amounts and higher seasonal variability of rainfall are found at lower elevation gradients. The magnitude of variability of the SON/*Haggaya* rainfall is higher than that of MAM/*Genna* season.[33]

Implications of Ecological Variability on Livelihood Diversification

Ecological variability constrains farm-based diversification in two ways. First, the high variability of soil characteristics and rainfall amounts across space limit the areas of land suitable for agriculture (see Figure 4.16). The reason croplands in Borana are concentrated along a certain geographical pattern around Yabelo, Mega, and Hidi lola is relatively high amounts and low variability of rainfall and presence of fertile soils in these locations. On the other hand, areas with low rainfall amounts, such as Golbo (south-western) and Weyama (eastern), are commonly described as *gammojjii* (arid) and are not feasible for agriculture. Diversification in these areas is mainly through gum and resin production and unskilled wage labor. A second important implication of ecological variability on crop production is high temporal rainfall variability. Even in areas suitable for crop cultivation, crop production often is uncertain from year to year, either because of low rainfall or low number of days with rain that may not be sufficient for growing crops. According to key informants, it is common to experience crop failure because of rainfall failure or below-average rain.

Although ecological variability in space and time makes farming in Borana unreliable, ownership of plough oxen is also identified as an important determinant of farming success. Land ploughing in Ethiopia generally depends on the use of animal draft power. In Borana, oxen are used, except in a few cases where rich individuals around Yabelo town use tractors. For very poor households, access to oxen is a problem. A pair of oxen is needed to pull the plough, but most very poor households have either only one or none. Those who have only one may combine with another household and jointly plough the fields, or they have to borrow from wealthy households in an exchange for labor. In the latter case, the poor pastoralist has to first plough the plot of the wealthy person before doing his/her farm.

Sedentarization and Urbanization

Livelihood diversification among pastoralists is often associated with sedentarization and urbanization (Fratkin 2013; Little, Smith et al. 2001; Niamir-Fuller 1999). The cause-effect relation between sedentarization and livelihood diversification in Borana is very complex because, as we have shown, poor and rich households have different motivations and "push" or "pull" factors influencing their decisions. Poor households are pushed away from pastoralism because of few or no livestock and forced to settle and seek an alternative livelihood. Earlier

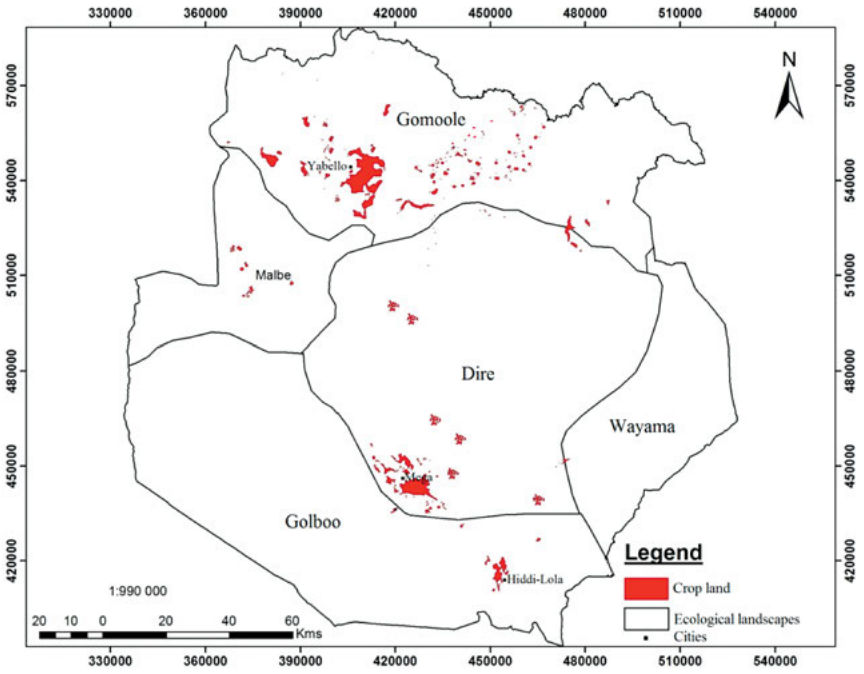


Fig. 4.16 Distribution of cropland in Borana at the end of 2008

Source: Own analysis and mapping based on primary GPS data obtained from Oromia Water Works Design Agency, 2010

[32] Ecologists of arid and semi-arid ecosystem have suggested 30% (Boone and Wang 2007; Ellis and Swift 1988) or 33% (Ellis 1995; Ellis and Galvin 1994) as a cut-off point above which suggests the unpredictability and uncertainty of rainfall.

[33] The high variability of the SON/*Haggaya* rainfall is because of the influence of a global climate phenomenon called ENSO (El Niño Southern Oscillation) and changes in sea surface temperature (SST) in the Indian Ocean. Analysis of correlation tests reveals a negative strong relation, where warming/cooling of the Pacific Ocean or El Nino/La Niña leads to increased rainfall or drought in Borana. Detailed analysis of climate characteristics of Borana rangeland is addressed separately.

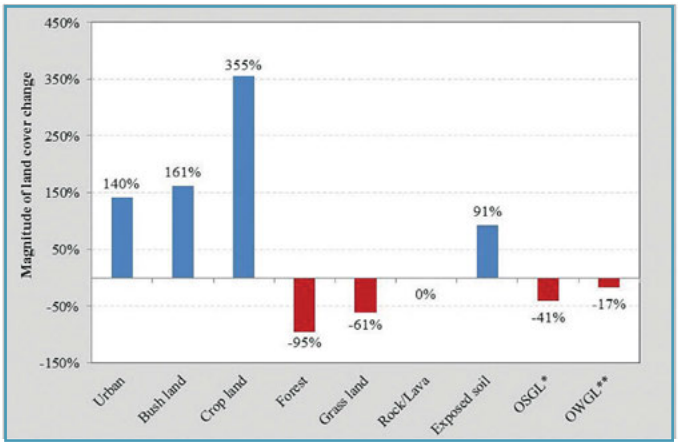
we listed the different low-return activities that they pursue in towns, including petty trade and unskilled casual labor. Sedentarization and urbanization, in turn, increase opportunities for diversification activities for the poor, who would have few alternatives if they remained in the rangelands (Little, Smith et al. 2001). The increase of some low-income livelihood activities, including charcoal and firewood selling, is associated with urban and peri-urban expansion of existing or new settlements.

Other factors forcing herders towards sedentarization is sub-division of administrative units with new boundaries that restricts pastoral mobility, loss of common grazing areas, and increased market access and dependence. In the 1970s and 80s, sedentarization in Borana was associated with local attractions, such as the construction of big water ponds, and the recent decentralization of public administrative and social-economic services has intensified the process. Moreover, land fragmentation factors, including expansion of cropland, bush encroachment, and loss of Borana land to neigboring ethnic groups, has substantially reduced access to grazing lands, which has forced herders to intensify livestock production through fodder harvesting in enclosures (*kaloo*) and become less mobile. Competition for cropland and *kaloo*, in turn, accelerates the process of sedentarization by restricting the land for mobile pastoralism.

Analysis of land cover and land use dynamics during the past several decades reveals an increasing pattern of sedentarization and urbanization. Analysis is based on quantitative and qualitative data sets collected using different tools and methods. Data include: (1) satellite imagery data collected at three time periods (1973, 1986, and 200); (2) ground survey data collected in 2008 using GPS; (3) a count of *olla* (encampment/village) and *warra* (households); and (4) qualitative information elicited through focus group discussions and key informant interviews. All these data indicate increased sedentarization and urbanization. Analysis of satellite images, for example, reveal that built-up areas (urban and pre-urban centers) have increased by 140% from 3.9 km^2 in 1973 to 9.5 km^2 in 2000 (see Figure 4.17). Similarly, the land cover and use data show that peri-urban and urban centers (only major ones) now cover about 18 km^2, which is about a 100% increase over 2000. Analyses show low levels of urbanization in the arid parts of Borana and relatively high levels in the sub-humid and semi-arid landscapes. The number of pre-urban and urban centers also have increased as a result of sub-divisions of previously large *woredas'* and *kebeles'* administrative territories into smaller units with new administrative centers. For example, the area covered by this study was divided into four *woredas* (Yabelo, Dire, Arero, and Moyale) before 1994, but three additional *woredas* have been created since then (Dilo, Dhaas, and Miyo).

In addition, local perceptions of sedentarization by senior elders in 96 *olla* in the study area show that the number of

Figure 4.17 Land cover change between 1973 and 2000 based on analysis of satellite image



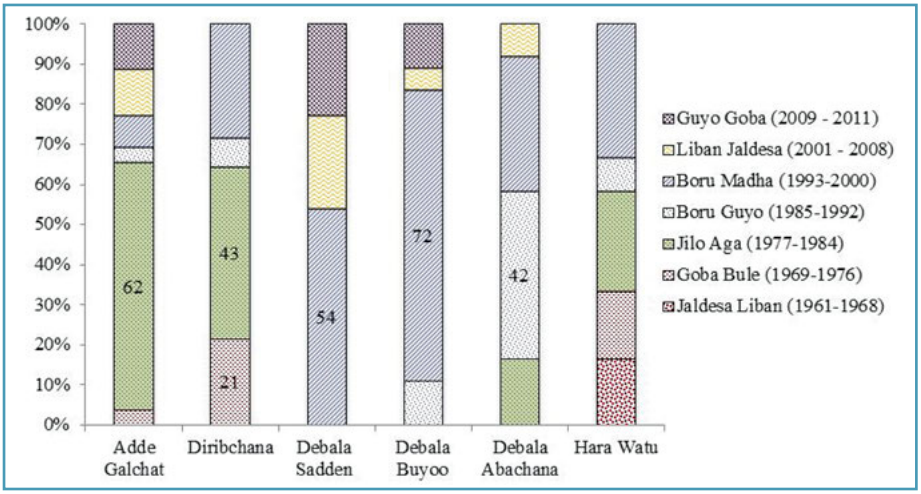
Source: Own analysis based on field survey data

permanent settlements in each site has increased during the last three decades. The information collected includes historical and present number of *olla* (villages) and the number of *warra* (households) in the *olla*, and from where, when, and why they settled in their present location.

Analyses of qualitative information consistently identify two factors underlying the sedentarization process: the construction of ponds and internal displacement because of conflict/war. Triangulation of this information with a timeline of events (shocks and trends) and unpublished secondary information, particularly from the third livestock development project archives, corroborates the increased pattern of sedentarization. For instance, the large number of *olla* (62%) in Adde-Gelchet (see Figure 4.18) during *abba gada* Jillo Aga (1977–1984) was associated with the Ethio-Somalia war in 1977–1978, when many households were displaced from pastoral areas and settled in their present locations. The fact that the households had lost their stock in the conflict forced the displaced to depend on farming with support (training, tools, and seed) provided by government. This supports the suggestion that conflict can be one of the factors underlying livelihood diversification and sedentarization (Fratkin 2013).

According to oral history, the permanent settlements of *olla* in other sites (for example, Did Hara) are associated with construction of ponds that can provide water throughout the dry season. Historically, these areas were wet season grazing territories with surface rain water that animals depended on, but during dry seasons they moved close to permanent water sources—traditional wells (*eela*). The construction of numerous ponds in wet season grazing territories created permanent settlements and changed grazing patterns. According to information extracted from the archives of the previous Southern Rangeland Development Unit (SORDU), more than 123 large ponds were dug in the rangelands from the early 1970s to 1999, which is consistent with the trend analysis of *olla* settlements across different *gada* periods.

Figure 4.18. Sedentarization pattern over gada time scale between 1961–2011 in six sites



Source: Own analysis of field survey data

Linear regression of population size against time reveals increasing trends between 1978 and 2011, with a 3.5% annual growth rate (with value *F*-test: 833.32, significant at $p < 0.0001$). During this time, the average household size increased from 4.3 in 1979 to 9.3 in 2011. Likewise, comparison of the mean value of 1994 and 2007 census data based on two tailed *t-test* statistical method, showed significant difference (*t-test*: 7.91, $p < 0.0001$) and an annual population growth rate of 4.5%. Differences in annual growth rate (3.5% versus 4.5%) between the two data sets may stem from the difference in the length of time periods that data were collected.

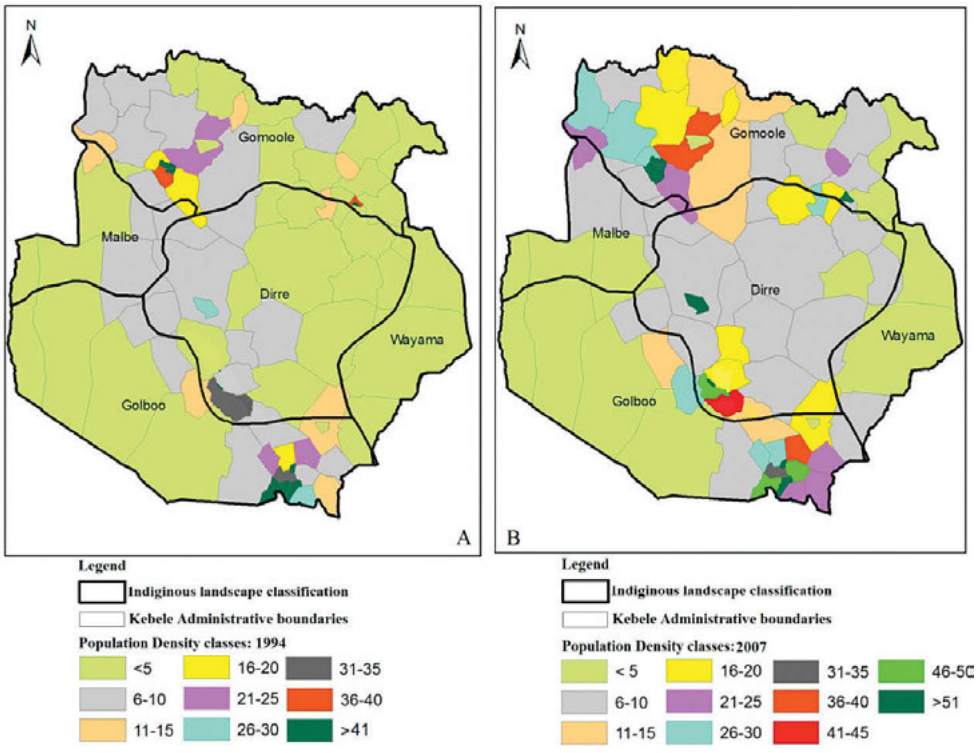
Population Growth and Density

Human population density is another factor underlying livelihood diversification and intensification of livestock production (Fratkin 2013; Little, Smith et al. 2001). Trends in population growth and density in Borana were examined using two data sets. These were, first, household[34] demographic data between 1978 and 2011 using a recall method, and second, analysis and comparison of 1994 and 2007 population census data from the Central Statistics Authority (CSA) aggregated by *kebele* administrative units. The data were analyzed using statistical methods and GIS tools to compare population density between the two data sets.

Average population density in the region also has increased between 1994 and 2007 from 6.5 to 10.6 people/km^2. However, the increase in density varies spatially, with highest density in the northern section (82.5% increase), followed by southeastern (81.5%), central (65.3%), southwestern (47.6%), and western (52.2%) parts of Borana, locally identified as *gomoole, wayama, dirre, golboo*, and *malbe*, respectively (see Figure 4.19). It is clear from a visual comparison of the population density map with that of cropland distribution that an interrelationship exists between cultivation and population density, implying that the latter is a possible causal factor in diversification.

Figure 4.19 Population density in (A) 1994 and (B) 2007

Source: Own analysis of 1994 and 2007 population and housing census data obtained from CSA



[34] Defining the concept of household in a pastoral context is very difficult because of extended kin ties and strong non-kin relationships. The definition of household in Borana suggested by Hogg (1992) is adopted here, in which a household is made up of a man, his wife, their children and any other person (kin or non-kin members) who is dependent on that household for food.

Qualitative data on population density generally corroborate the quantitative data. Some of the narratives from focus group discussions attest to population growth and increased population density as important factors:

> *Lafti kan duraa oola etii baqanuu, amma nama-abbii qabate jiraa.* The direct translation is: The land that we previously used as refuge place or escape to from drought is now occupied by people.
>
> *Namatuu baay'eete, namnii lefti weldhukamse, lafa afuura etii baafachuu bade*, which means: The land is full of people, there is no breathing place, there is no free place, implying increasing density.

Changes in age composition within Borana communities is another demographic change identified. Using age groups defined as less than 10 years: 1–20 years; 21–30; 31–40; 41–50; 51–60; and greater than 60 years between *gada* Guyyoo Gobbaa (2011) and *gada* Jaldeessa Libaan (1961–1968), it is possible to measure demographic trends using a Likert scale defined as: "no change," "declining," and "increasing." The analysis shows that the proportion of individuals within the category of less than 10 and 11–20 years has increased compared to older age groups. Kendall's test of concordance (W^a) reveals strong confirmation among informants ($W^a = 0.56$, $p < 0.000$). The observed trends of household size and population growth rate are consistent with previous studies. For example, in the early 1970s, most Borana households consisted of four members: a husband, one wife, and an average of two children (Legesse 1973), but the household size increased to about eight people within 15 years (Tilahun 1984, cited by Coppock, 1994). More recently, a study carried out in five *kebeles* reports 7.23 people per household (Solomon et al. 2007). Similarly, past population growth rate per annum was estimated in early 1970s at 1–1.5% (Helland 1996), at 2.5% in 1980s (Coppock, 1994) and > 3% in late 1990s (Helland 1998). The observed trend in age composition is generally in agreement with recent findings of household age (both male and female) composition that show declining proportions in older-age categories and increases in younger-age categories. The increases are as follows: 59% (less than 15 years of age); 29% (15–50 years), and 12% (above 50 years) (Solomon et al. 2007). Similarly, Homann et al. (2008) show population densities of 21 and 25 persons/km^2 in Dida Hara and Web in 2000–2002, where earlier studies in the 1980s estimated an average human population density of 7 persons/km^2 (Upton 1986).

In sum, demographic analysis carried out in this study shows a large increase in population size, density, and the proportion of younger- versus older-age cohorts. These changes are believed to be due to a combination of factors, including natural increase, immigration from outside, and a breakdown in customary family planning techniques.

The effect of demographic change on livelihood diversification in the Borana pastoral system occurs in two ways. First, increased human population density coupled with sedentarization constrains mobility and seasonal patterns of herd movements, which can leading to overgrazing and degradation and reduced livestock productivity. The negative effect of human population and settlement on grazing availability and access is widespread in pastoral systems in the Horn of Africa and the Sahel (Little and McPeak 2014). Second, the increase in the composition of young and unproductive age group and rapid population growth in general, with aggregate livestock growth relatively stagnant (Desta and Coppock 2003), leads to a decline in per capita TLU, which forces many households to diversify or seek another livelihood. A growing human population, on the one hand, and a livestock population that fluctuates around a long-term mean, on the other, eventually pushes pastoralists to diversify their economy (Little, Smith et al. 2001; McCabe 2003).

Several empirical studies on pastoralism confirm the negative correlation between population pressure and pastoralism (e.g., Galvin 2009; Galvin et al. 2008; Hobbs et al. 2008). Increased population pressure on grazing lands beyond a level that can sustain a pastoral livelihood leads to intensification and diversification of livelihoods (Adhikari 2013; Homewood et al. 2009; McCabe 2003). For example, the peri-urban FulBe pastoralists of northern Cameroon respond to a decline of grazing lands due to population pressure by intensifying livestock production using industrially produced cottonseed cakes to feed sedentary cattle kept in the village (Moritz 2012).

The effects of population pressure are particularly evident when land fragmentation also reduces the overall spatial boundaries of the system, limiting population dispersal and mobility (e.g., Hobbs et al. 2008; Galvin et al. 2008; Boone 2007; Reid et al. 2004; Boone and Hobbs, 2004). However, if the territory is large enough and livestock are able to move extensively without being restricted by administrative boundaries or conflict, the magnitude of population growth is reduced. For example, in a comparative analysis of seven pastoral systems across West Africa, Moritz et al. (2009) report that pastoralists have successfully responded through intensification and other techniques to population pressure on grazing resources and high population densities.

Loss of Common Property Regime and Customary Natural Resource Governance

Access to grazing lands is an important aspect of pastoral livelihood systems. The quality and quantity of pasture is highly variable across space and time. The Borana land tenure system and customary rules (*aaddaa-seeraa lafa*) provide multiple and overlapping property rights depending on the characteristics of the grazing resource

and how it is spatially distributed. After the Derg regime came to power in Ethiopia in 1974, common property rights were increasingly eroded in favor of state, private, or mixed property rights imposed by the central government. Moreover, the expansion of the government administrative structure, such as the *kebele*, undermined the legitimacy of customary institutions and their governance of natural resources.

The decline in the system of common property rights and weakening of customary institutions and governance of natural resources impacted livelihood diversification. First, differential land access between poor and rich households increased power imbalances between the groups. When *gumii-gaayyoo* approved the use of land for crop cultivation, it initially was restricted to only poor households who had lost their herds, with the size and location of the plot subject to approval by elders. At present, however, access to land is largely accessed through *kebele* leaders, not customary institutions. Individuals (poor and rich) can claim farm land by clearing bush, notifying *kebele* officials in some cases, and then starting to cultivate. The weakening of customary institutions and increased dominance of *kebele* leaders have resulted in some rich herders bribing government officials to obtain prime land for crop cultivation and/or establishing private *kaloo* enclosures. Under the customary system, a private *kaloo* was unacceptable and, as noted above, crop cultivation was supposed to be restricted to the poor. However, both of these conditions are compromised in favor of rich households, who are able to intensify livestock production through hay production on private *kaloo* and cultivation of crops on prime lands, such as along waterways or in bottomlands.

Declining Access to Bussaa-gonofaa *Networks of Clan Economic Support*

The weakening of the clan-based economic support system (*bussaa-gonofaa*) was also identified as a factor underlying livelihood diversification. Restocking of households who have lost their stock because of drought or conflict is a key mechanism to maintaining a pastoral livelihood. However, herders have reportedly noted the weakening of the customary system. The failure of the *bussaa-gonofa* restocking practice is associated with the decline in household cattle holdings in Borana. Those owning less than five heads of cattle are exempted from obligation of transferring stock to others. Since households in that wealth category have increased over the years, the number of active participants in stock transfers always has declined. The following narratives from key informant interviews in Megado *kebele* (Dirre *woreda*) explain how delay or failure of the customary restocking institution has led households to pursue different livelihood options:

> The discussion started with the researcher asking how the last drought has affected him, and how he survived and if he has rebuilt his herd.[35] Tura is a member of Kereyou clan. He is married and a father of four children aged between one and nine years. Tura had 28 cattle consisting of male, female, and immature calves before the drought, and he lost all of them during the drought. He presented his problem and claim for restocking from his *miiloo* (sub-clan) members. Accordingly, the *abbaa qe'e*— responsible for organizing a restocking assembly—organized the sub-clan meeting in the fifth month last year (i.e., May 2012). The *koora miiloo* (meeting of the sub-clan) validated the claim and decided that Tura should receive seven heifers (*radaa*). However, there were no surplus cattle among the clan network members beyond those needed to support their own families. As a result, the meeting decided that he should wait until the cows give birth. At the time of interview, Tura was waiting to receive the animals. He noted that most of the cows have delivered, and the waiting was just until the calves reach weaning age. Tura noted that while waiting for the restocking to occur, he engaged in wage labor work (i.e., laborer on a public road construction project).

The ineffectiveness of the communal insurance system is related to a decline in cattle wealth as well as a growing inequity, which has pushed some individuals into wage labor and other diversification options.

Education, Formal Employment, and Remittance

Education is a well-established prerequisite for skilled labor employment, which increases opportunities for sending remittances to family members (Little, Smith et al. 2001, Little 2009; Headey et al. 2013). Indeed, a household that has a family member with a salaried job can help the family maintain a pastoral livelihood as well as support post-drought herd rebuilding by providing remittances. The link between education-remittances and livelihood diversification is not examined systematically in this study, but access to formal education can increase employment opportunities for Borana family members and have an indirect impact on livelihoods.

According to the 2007 housing and population census data of the Central Statistical Authority (CSA 2008), there are about 111 schools in Borana, consisting of 2 preparatory (high school), 3 junior secondary, and 106 primary schools in the seven *kebele* areas covered by this study. The 2008–2009 enrollment record from Borana Zone Education Bureau showed a total of 63,721 students divided into grades 1–8 (91.7%), grade 9–10 (7.5%), and grade 11–12 or preparatory class (0.88%) (See Table 4.8).

[35] The interview was carried out in June 2013, about two years after the 2010–11 drought, as part of the survey of the role of social capital in drought resilience with a focus on *bussaa-gonofa* social networks.

Table 4.8 Borana Zone school enrollment data in Borana Zone for the year 2008–2009

Schools	Grade 1 - 8			Grade 9 - 10			Grade 11 – 12 (Preparatory)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Arero	3099	2729	5828	254	89	343	0	0	0
Dirre	3928	3875	7803	589	206	795	64	3	67
Dilo	2064	1576	3640	0	0	0	0	0	0
Dhaas	1349	1350	2699	56	18	74	0	0	0
Melkasoda	5518	1968	7486	120	25	145	0	0	0
Miyu	3900	3617	7517	386	102	488	0	0	0
Moyale	4488	4185	8673	801	281	1082	165	11	176
Yabelo	7367	7353	14720	1199	670	1869	300	16	316
Total	**31713 (54%)**	**26653 (46%)**	**58366 (91.6%)**	**3405 (71%)**	**1391 (29%)**	**4796 (7.5%)**	**529 (95%)**	**30 (5%)**	**559 (0.88%)**

In addition, the Technical and Vocational Training (TVT) centers opened in Yabelo, and other centers have produced thousands of junior professionals in several development sectors, including agriculture, livestock, and health. Although statistics on the local labor (employment) market are difficult to find, there is evidence that most government employment, such as police, technical, development, and administrative positions, and positions at NGOs are occupied by educated Borana. The expansion of education, along with the ethnic-based decentralization program under Ethiopia's federalism system, has created an enormous number of jobs for local educated elites. There is no doubt that the benefits of employment are shared with extended family members through remittances and other support, and now is strongly embedded within the Borana social system. In spite of the positive effect of education on livelihood diversification and food security, some elders express concerns that education is posing a risk to pastoralism.

According to some elders, the negative effect of education on pastoral livelihoods is associated with changes in socio-cultural values, including rules of marriage and attitudes toward pastoralism. Maintaining the balance between human and cattle wealth is one of the cultural mechanisms that Borana society uses to ensure continuity of pastoralism. Controlling population growth was achieved through defining age of marriage and fathering a child, and establishing a family institutionalized into the *gada* system of customary marriage. According to this rule, a man is not allowed to get married before reaching the age of 32 years, and has to wait until 40 years of age to have his first child.[36] Childbearing before marriage is strictly forbidden by family customary rules. The other marriage rule relevant to this discussion is the rule that marriage only occur between couples belonging to different clans, i.e., Sabbo-Goona (inter-moiety).[37]

According to elders, the increased population in Borana is partly attributed to a failure of adherence to customary marriage rules and norms. Elders describe educated Borana elites as partly responsible for these changes:

> Educated Borana children living in Yabelo and other towns undermine and violate marriage rules and norms. They tell us that when and who should get married is an individual right, and they perceive the customary rules as backward and primitive. Education and democracy have created misconceptions by youth against culture, and some establish partnerships and have children before marriage, which is against customary rules because it is believed they are physically and mentally unready for this responsibility. This violation of custom is one factor that has led to large numbers of children in the community. Elders describe the family age rule saying *abbaa-ni ijoolee; haatoo-ni ijoolee, ijoolee-in ijoolee baatii*—meaning the father is a child, the mother is a child, and yet they have a child, where a child is carrying a child, all stay with and supported by grandparents.

[36] Age for marriage and raising a child is determined by *gada* age-set generational cycle (*gogeessa*). A male reaches marriage status (*raabaa didiqqoo*) at the age of 32 years, signifying readiness and legitimacy to have a wife; but having a child is not permitted until the age of 40, which marks the transfer into the fatherhood age-set (*raaba doorii*) (Legesse 1973). The fundamental principle of this rule is that fathers and sons must always be at least 40 years apart. In addition, having a child before marriage is socially unacceptable, and a violation leads to social rejection.

[37] Borana are a patrilineal society divided into two major clan group known as Sabbo and Goona. Marriage is allowed when one partner is from Sabbo and the other from Goona (cross-moiety). The rule was instituted by *abbaa gada* Dawwee Gobboo (1696–1704). The essence of the cross-moiety marriage is to create a relational tie between different groups, which establishes multiple and overlapping individual and collective social capital. According to a key informant, *abbaa gada* Dawwee Gobboo frequently travelled across the whole Borana area to enforce the new marriage rule and other customary rules such as *bussaa-gonofa* (social support system). During the period he was in office, he passed 99 death sentences against those who violated rules (key informant interview).

According to some Borana, the recent resettlement program implemented under the water-shade system is blamed on the expansion of formal education:

> During the Derg regime, the Amhara officials (who were appointed as administrators) forced us to settle down. Although the government pushed to stop mobility, the irony is that at present, the pressure towards settlement comes from our own children whom we supported to go to school, get educated, and work in government and NGOs. A workshop on trends, advantages, and disadvantages of different grazing land use particularly focusing on different forms of enclosure (*kaloo*) in Borana was carried out in November 2011 at Yabelo. The participants consisted of community representatives, members of livestock marketing cooperatives, and technical government and NGO officers. While elders representing the community opposed private (individual and cooperative) ownership of *kaloo*, participants from government and livestock marketing cooperative (all are Borana in origin) strongly argued in favor of ranching systems, and mobility as inappropriate.

Thus, in spite of the negative perception towards education, the increasing trends of school enrollment reported by the local government authority and the link with diversification warrant additional in-depth research. Key questions that need to be answered include whether or not the expansion of formal education is because of improved awareness and opportunity to engage in highly remunerative labor market and to support pastoralism, or is an escape route from pastoralism. Is increased enrollment because of enforcement by local authorities, or is the motivation to enroll because of school feeding programs? The school enrollment data (Table 4.8 above) shows, first, a low proportion of girls compared to males in school; and second, the proportion of students (male and female) decreases from primary to high school grades. What are the reasons for this? These kinds of questions require in-depth study.

DIVERSIFICATION STRATEGIES THAT ENHANCE RESILIENCE

As discussed earlier, Borana livelihoods depend primarily on cattle for subsistence and cash income, although Borana also keep camels, sheep, and goats as ancillary stock. Over the years, they have diversified cattle breeds and species composition in response to a range of environmental, socio-economic, and political factors as discussed earlier.

Diversification of Breed and Species Composition of the Herd

As discussed earlier, the introduction of *geleba* cattle breed was because of shortages of feed to meet the feeding survival requirements of *qortii* (Borana cattle). The herders' choice of an animal requiring a lower amount and quality of feed with lower yield potential instead of high yielding breeds implies two things. First, the adopted breed have relatively good capacity of survival and coping with drought risk; and second, the Borana would like to maintain pastoralism. As such, the breed shift is an effort to enhance existing capability and assets, and thus enhance the resilience of the pastoralist livelihood system.

Similarly, diversification and balancing species by increasing proportions of small stock and camel in herds contribute to the resilience of Borana pastoralism. The association between species diversification and resilience can be associated with the differential survival and coping capacities of different species in the face of climatic variable and vegetation changes. In light of this, Borana herders identify cattle as the most sensitive animal species to drought and shortage of feed. Empirical studies support the herder's perception that generally cattle are more vulnerable to environmental and feed shortage than other species (Lesnoff et al. 2012; Seo and McCarl 2011). The environmental change and the need to adapt may influence livestock keeper's choice of breeds and species (Seo and McCarl 2011). In the Borana case, increased woody species encroachment suppresses perennial grasses, which is a major factor that has influenced herders to maintain more goats and camel. The fact that herders turned the environmental change unfavorable for cattle production into an opportunity for increasing the numbers of goats and camels shows skillful adaptation and adjustments.

Camels have a better coping capacity to drought and water shortage and thus are able to maintain milk production when all other species, particularly cattle, are unable to do so. This reduces household vulnerability to food insecurity during droughts. An interview with a pastoralist from *olla* Halake Arero in Megado *kebele* (Dirre *woreda*) shows how the 2010–11 drought had affected him and how he survived by relying on camels.

> The interviewee reported, saying that, "I lost all my cattle because of the drought. I was lucky that I had one milking camel, which I was milking at least three times a day, and we provided our children mix the milk with tea. For adult, *baadala* (maize flour) is not bad but children need milk."

The ability and time it takes to recover after drought also varies between species of animals, and thus, have an implication on resilience of the household. Post-drought recovery of livestock population depends on several factors, including the magnitude and duration of the drought, its spatial coverage, and the ability to access key grazing areas (drought refuge). If these factors are controlled and are just based on the difference in reproductive cycle, cattle and camel have slower recovery

rates than small stock. In terms of effect on resilience of households, the two groups of animals, large stock (cattle and camel) and small stock, have opposing but complementary effects on recovery. Because of their short reproductive cycles, small stock reduces the vulnerability of households and can assist in recovery. As discussed above, camels, however, play an important role in buffering food insecurity during drought, because they are able to cope with feed and water shortages, and remain productive.

Therefore, diversification of herd composition reduces drought risk, speeds up recovery, and enhances resilience. The problem, however, is not all households, particularly the poor, are able to restock with camels because of their high prices. However, the ability of households to keep multiple species, particularly keeping more camels, is challenging. Lack of camel husbandry and management is one of the constraining factors. As camels are new to Borana pastoralism, they do not have good herding skills and ethno-veterinary knowledge of camels, such as they do for cattle. Financial capital is the other factor constraining poor households from adopting camels. This constraint is evident when one examines the proportion of livestock species across different wealth classes, which demonstrates that camel ownership is controlled by wealthy and middle-wealth herders (see Table 4.2).

Therefore, the adoption of new cattle breeds and species diversification, while maintaining the basic characteristics of the system (pastoralism), demonstrates its adaptability. The ability to adapt is one of core properties of a resilient system (e.g., Berkes et al. 2003; Folke 2006).

Intensification of Livestock Production through Commercial Supplementary Feeding

Two intensification strategies adopted by Borana herders are to increase livestock production through: (1) own fodder harvesting/production by fencing off areas (*kaloo*) from communal rangelands; and (2) use of commercial supplementary feed, such as hay and concentrates. Although both strategies are very important in reducing livestock mortality and facilitating recovery after drought, the former strategy can have a negative effect on resilience because it reduces communal grazing for other pastoralists.

Commercial supplementary feed includes hay or crop straw and industrial by-products (notably wheat bran) that are provided to calves and pregnant and milking cow during droughts. The intervention enhances the survival and recovery rates of livestock after drought. This was evident from herders' initiatives of buying hay from the market and feeding it to breeding stocks during the 2010–11 drought, instead of relying on support from aid agencies (personal observation by author). In addition, a comparison of mortality and recovery rates of herds under supplemental feeding with those that did not receive supplemental feed reveals lower mortality and higher recovery rates for herds with supplemental feed than for other herds.

According to Coppock (1994), the highest mortality rates during droughts are for cows and calves. The high vulnerability of these groups of animals is probably because of high energy needs to meet physiological requirements (lactation, pregnancy, and growth) and difficulty to travel long distances to drought-refuge areas. Thus, providing supplementary feed to nucleus breeding stock during droughts enhances recovery and reduces recovery time because of its positive effect on mortality rates. In addition, the intervention reduces offtake rates of female stock during droughts, which Borana never sell unless they are old and unproductive. In 2010–11, herders were seen selling female cows of prime reproductive age, because of forage scarcity and an inability to maintain them (personal observation by author). Thus, access to feed supplementation reduces stress sales and has a positive impact on calving rates. Along these lines, Coppock (1994) notes that access to nutrition is one of the key factors affecting calving rates in Borana. Thus, supplementary feeding may maintain or enhance calving rates, as well as maintain reproductive performance of mature cows, such as conception, pregnancy, and lactation. Lesnoff et al. (2012) identified declines in female cows, offtake of female cows, and calving rates as the most important determinants for herd population recovery. Therefore, supplementary feeding enhances resilience through reducing mortality and enhancing recovery of herds after drought.

The negative aspect of feed supplementation is that it is not accessible to all households, particularly cash-poor households. For example, during the 2010–11 drought, only wealthy herders bought hay and concentrates for their livestock (personal observation by author). The only access for the Borana poor was through emergency feed distribution programs funded by NGOs, although some of these were manipulated by local authorities. Another problem was that feed for Borana was sourced around Addis Ababa, which is more than 800 km away from Yabelo and greatly increases its price. There also are occasional feed shortages because of competition with small-scale dairy farms around Addis Ababa. In addition to the financial constraint, the uncertainty associated with feed supply questions the sustainability of commercial feed supplementation.

Gum and Resins

As the chapter shows, involvement in gum and resin sales is an important alternative cash income for pastoral households and enhances their capacity to cope with food insecurity. The long-term sustainability of the activity is generally favorable. The Borana rangelands are known as

the only region in Ethiopia that has a high diversity of gum- and resin-bearing woody species; this bodes well for this livelihood activity in the future (Worku et al. 2012).[38]

In contrast to charcoal/firewood collection and selling and crop cultivation, diversification through gums and resins marketing is not competitive with pastoralism; rather, it is supportive as it encourages mobility. The harvesting of gum and resin involves extensive movements across the landscape because trees bearing these products are spatially distributed. If herding and harvesting gums and resins are combined, this could facilitate mobility and enhance both pastoralism and the collecting of wild products, such as gums and resins. In addition to their economic and ecological contributions, gum and resin products also provide several other benefits. These include their uses as medicines for human and animal illnesses, for hygienic and perfuming (fumigation) of cloth and the body by women, for animal feed, and for food and chewing gums, particularly during dry seasons and droughts (see also Worku et al. 2011).

MALADAPTIVE AND EROSIVE DIVERSIFICATION

Intensification through production of own fodder on *kaloo* enclosures enhances resilience of individual households, but it comes at the expense of the community. The quality and quantity of forage species is highly variable across space, and the creation of a private or semi-communal *kaloo* in one location can constrain adaptive capacities of herders from other locations who are unable to use these areas. The role of mobility in managing climate and grazing variability is critical for herders and can be challenged through the creation of private enclosures (Niamir-Fuller 1999; Fernandez-Gimenez and Le Febre 2006; Galvin et al. 2008; Klein et al. 2012; Turner et al. 2014).

Borana herders practice two types of livestock mobility: (1) seasonal movements between wet and dry season grazing areas within a defined geographical territory; and (2) long-range movements outside the normal seasonal territory, often occuring during drought years to access key grazing areas. In terms of impact on livestock production, seasonal movements enhance the productivity of livestock, which increases during wet seasons and declines during dry seasons or droughts. Movement at regional, spatial, and temporal (inter-annual drought) scales is a survival strategy that reduces livestock exposures to drought and mortality. Therefore, mobility clearly enhances the capacity of households and their livestock to cope with and reduce exposures to drought. Contributions of livestock mobility to ecological resilience is also important and can be viewed from two perspectives. First, the movement of animals shifts the intensity of foraging in space and time, allowing the regeneration of previously grazed patch and ensuring continuity of pasture growth (e.g., Weerman et al. 2011; Rietkerk et al. 2004). Second, dispersal of animals across space contributes to soil fertility and nutrient cycling through dung and urine deposits, which creates opportunities for the renewal (increased) of biomass productivity (Coughenour 2008; McNaughton 1983, 1985). These properties involve continuity and renewal of the ecosystem and are core properties of mobile pastoralism and a resilient system (Cumming et al. 2005).

[38] The predominant gum- and resin-bearing woody species in Borana rangelands belongs to the genera of *Commiphora, Boswellia, Acacia*, and *Sterculia* (Worku et al. 2012; 2011), which are widespread in the rangelands (Coppock 1994). A woody species richness and density study carried out recently in two *woredas* (Arero and Yabelo) identified high species richness (39%) of gum- and resin-producing plants, accounting for 49% and 68% of the total woody population per ha in Arero and Yabelo, respectively (Worku et al. 2012).

CHAPTER 5
DISCUSSION AND CONCLUSIONS

Peter D. Little

This chapter summarizes key findings in the three case studies and literature, mainly related to two questions posed to the authors:

- What are the factors that now provide households with a wide/good choice of diversification options vs. a choice of narrow/bad diversification options? What are the risks of bad diversification?

- What are the implications in terms of development strategies and programs for resilience-building in the drylands?

CURRENT FACTORS THAT AFFECT THE CHOICE OF DIVERSIFICATION OPTIONS

Pastoralist areas remain politically marginalized in their own countries, and the glaring lack of education, health services, security, and infrastructure in the drylands is evidence of this. Political marginalization and the general underdevelopment of and underinvestment in dryland areas help to explain the poor diversification choices available to pastoralists. In fact, the main livelihood, pastoralism, in these areas receives little support from governments and, as is strongly apparent in the Karamoja case (Chapter 2), most officials are explicitly or implicitly in favor of alternatives to it. Many of the risks (for example, health, violence, and food insecurity) and costs associated with pastoralist diversification relate to government actions and/or public neglect toward these areas and their populations. That many pastoralists diversify or seek alternative livelihoods, and are unable to compete for good salaried employment in national labor markets, results in part from lack of general support and misplaced policies.

Conflict and insecurity are part of the political marginalization story, and not only do they inhibit investment in drylands but they also impoverish populations. A recent trend in violence and criminality is discussed in the Karamoja chapter, where the emergence of *lonetia* is described as small groups of two to five male youths who opportunistically steal cattle, food, and household properties and are known to even attack elders. Stites and Bushby describe it as "both a form of livelihoods diversification, having evolved from the pastoralist raiding tradition, and a push factor in itself, as *lonetia* theft can cause household diversification strategies, including migration to urban settings for households who have lost everything." It also is a livelihood option that may have some short-term benefits for participants, but will be destabilizing, with high costs for the future.

Loss of land to alternative uses has accelerated in the past 15 years and greatly narrows the livelihood options for pastoralists. At present, land rights and tenure security in most pastoral areas remain at the discretion of governments or powerful elites who have shown a proclivity to allocate land in favor of non-pastoral livelihoods and investments, which can result both in local conflicts and risky land use systems (rainfed farming) that are unsustainable over time. Female-headed households and women often are the most vulnerable to land loss and displacement when land rights are denied or allocated to investors and others. The increased conversion of drylands into croplands also has accelerated land privatization and subdivision, which creates additional constraints on livestock production. The trend toward privatization of lands poses new challenges for mobile pastoralism and herders, who may be pressured off the range and into alternative livelihoods.

Education and the lack thereof figure even more prominently today in determining the range and type of available diversification strategies than it did even 15 years ago. Why is this so? First, education improves the likelihood of attaining a salaried or skilled job and earning better wages. In Karamoja and Garissa, we learned that one of the reasons for pastoralists to move to towns is because of education, "which they viewed as being critical for long-term well-being" (Karamoja case study, Chapter 2). In a study in Baringo, Kenya, Little et al. (2009) show that households having a member "with secondary or post-secondary education" are about ten times more likely to have access to salaried employment, six times more likely to find employment outside the area, and about two times more likely to remit incomes than households with members without education. In terms of salaried or skilled employment, this accounts for very little of pastoralists' engagement in labor markets in eastern Africa (less than 10% of employed pastoralists in most studies, McPeak et al. 2012; Little 2009), with most workers employed as casual laborers and cash/food for work or self-employed as petty traders and service providers.

As the report has shown, towns have grown considerably in the rangelands, creating greater diversity of jobs and business

opportunities, as documented in the Garissa case, but also environmental problems. Mahmoud, for example, discusses one Somali businesswoman who migrated to Garissa town almost 20 years ago and now has a very successful retail textile business. She also keeps livestock in neighboring areas and periodically sells them to invest in her business. In another example from Mahmoud's chapter (3), a Garissa resident partnered with another businessman who had recently returned from South Africa to create a successful business. The merchant continues to maintain a small herd with family members in the rural areas of Garissa and notes that he will continue to invest in livestock as well as expand his business in the future. In contrast to Garissa, business opportunities and globalized labor markets of this nature currently are limited in Karamoja and Borana, where migration and labor markets remain local or national and trade in food and consumer items are key activities. As the case studies in this report reveal, ***towns matter, including their size and economic base, for livelihood options and diversification***.

Climate shocks (drought) are a normal occurrence in the drylands, but their devastating impacts in the past 15 years are abnormal. As grazing lands have been converted to other uses and herds reduced, current droughts can create widespread food insecurity, livestock deaths, and population displacements. These disasters leave vulnerable members of the community to pursue often-destructive livelihood strategies, such as charcoal making, or highly risky activities, such as attempting to cultivate in marginal areas. Herders with few livestock and who lose them to drought often migrate to towns to engage in activities not dependent on climate. These singular events, such as drought, that narrow the range of livelihood options need to be distinguished from gradual pressures that drive movements to towns and diversification.

Advances in technology, especially mobile phone technology, have opened up different options for livelihood diversification, although these are considerably more developed in the Kenyan than the Ugandan and Ethiopian cases. It also has allowed mobile rural populations to remain in touch with settled members of families and to communicate with towns about services (education, health, and security) and economic activities. The Garissa case study shows how remittances from migrant family members working in Nairobi are facilitated through the mobile phone-based money company (M-*pesa*), and this enhances household expenditures and investments of pastoralists and ex-pastoralists. Widespread access to mobile phones in all three case studies has the potential to greatly improve regional market systems, rural-urban migration and remittances, livestock-based value-added industries, small business (including a range of enterprises built around the charging, repair, and sale of mobile phones, air time, and other inputs), and information about international livestock and labor markets.

IMPLICATIONS FOR DEVELOPMENT STRATEGIES AND PROGRAMS AND RESILIENCE-BUILDING IN THE DRYLANDS

The report emphasizes diversification outside of pastoralism, including those households who seek livelihood alternatives to pastoralism. However, it is difficult to address the program and policy implications of pastoralist diversification and resilience building in the drylands without attention to pastoralist livelihoods as well, and their future scenarios. Nor is it possible to discuss pastoralist diversification without attention to broad policy concerns beyond the household and community, such as land tenure and market policies that affect "combining" pastoralists (those with pastoral and not-pastoral activities) and ex-pastoralists as well as more specialized pastoralists. Both the Borana and Karamoja case studies highlight the many reasons any discussion of resilience building in the context of pastoralist diversification and alternative livelihoods has to address policies on pastoralism, especially those related to land, security, and markets. What follows in this section are several development policy and program areas, which draw on the case study materials and other work, that have the potential to enhance resilience at household, community, and regional scales.

Land Tenure Policies

The Karamoja and Borana cases are most explicit in the recognition that strengthening customary land rights and institutions is critical for building resilience in pastoral areas. They also have important implications for pastoralist diversification strategies. In the Karamoja case, local rights to minerals and their lands often are allocated to outside investors without consultation with or benefits to local communities. Ambiguities over land rights in these areas allow mining companies and "natural product" merchants to extract valuable commodities with minimal economic benefits to communities. Government policy clearly is a driver of changes in land-use access because of its impact in the rangelands, especially with regard to the most productive ecological patches (especially river valleys) that are in high demand and often allocated for state agricultural schemes or private investors. Providing training and support to customary institutions about land laws and rights, and work with governments to develop equitable and efficient land tenure policies, are areas where development assistance can play effective facilitating roles.

Value-added Diversification in the Livestock Sector

In eastern African rangelands, employment and enterprises still revolve mainly around livestock production and marketing activities, and this pattern likely will continue in the future (Little et al. 2010). Keeping more value in the pastoralist areas from livestock production and trade not only promotes beneficial diversification for households and communities, but also enhances regional multipliers and development and productive linkages between towns and the pastoral sector. Important value-added activities include

fattening operations, meat processing, fodder production, milk processing and trade, and livestock transportation enterprises. At present, much of the fattening of livestock for markets and other value-added operations, as well as the incomes and employment that they generate, take place outside the drylands, denying herders and local traders a large proportion of the benefits from their livestock and livestock products. In some areas, herders and small-scale traders have created small enclosures in the rangelands for value-added finishing of livestock for markets, and this is done both individually and collectively by the community (see Borana case, Chapter 4). The USAID-funded Pastoralist Areas Resilience Improvement through Market Expansion (PRIME) project is supporting on a pilot basis a small number of these kinds of small-scale finishing enterprises in Borana managed by pastoralist traders as a means of keeping more value in the area from livestock trade (Waktole Tiki, personal communication). It will be important to monitor this pilot activity to understand whether or not it is successful, sustainable, and if benefits are distributed beyond a few traders.

The availability of purchased fodders and other supplemental feeds in pastoralist areas can be used both in "normal" times as part of a marketing strategy, as the PRIME project is attempting to achieve, and in dry periods as a means of protecting core breeding animals and other animals, so herders are not forced to sell animals at distressed prices (see Chapter 4). Much value is lost to pastoralist areas through ill-timed sales when feed is short and livestock prices are low, a pattern that further impoverishes herders and compels them to seek supplemental activities or alternative livelihoods that may be risky and poorly compensated. Selling livestock when prices are favorable keeps more value in local economies (Little and McPeak 2014). The increased demand for milk and meat products as urbanization in eastern Africa and international markets grow will be partly met by pastoralist production and trade, which makes it even more important that activities for maintaining value locally are developed.

Natural Product Extraction and Trade

Each of the case studies highlights the potential benefits from collection and trade in wild products, such as gum arabic and resins, that complement mobile pastoralism and sustainable land use. In the case of Borana, a surprisingly high percentage (25%) of households earn income from gum arabic and resin, and I suspect there is probably more extraction going on by outside traders and collectors that is not recorded and does not benefit local households. Although natural product extraction likely will continue to be a supplemental and niche activity to pastoralism and—in some areas—crop farming, the growth in its trade and its uses in a range of pharmaceutical, food, and other industries point to a promising future with minimal costs and increased benefits for local communities. An immediate point of entry here would be an analysis of the commodity/value chains and markets associated with each key product and the different actors (including processors, women's groups, and cooperatives) in this sector. A second step would be to examine legal and policy issues surrounding the activity, including any existing revenue-sharing and land/resource extraction laws that affect benefits to local communities. A final step might be to look at the organization of the collection, storage, and processing of these products, as well as possible technologies in the sector that could be improved or low-cost alternatives that could be developed.

Urban and Peri-urban Planning and Infrastructure in Drylands

Since towns in pastoralist areas are growing and providing many opportunities for livelihood diversification and employment, some consideration of urban and peri-urban planning and infrastructure is warranted, especially for ex-pastoralist communities. As the Karamoja case highlights, these include support for water, sanitation, and public security, all services that would especially benefit women, who make up a large percentage of ex-pastoralists in towns. In addition, support for animal health services should be considered, since animals concentrated in urban and peri-urban areas create conditions for disease transmission. Urbanization and sedentarization, especially in dry rangelands, have major environmental impacts on surrounding range areas and their resources (water and trees) and require land use planning, protection, and, in some cases, environmental rehabilitation. As Little and McPeak point out in the case of Kenya, "The strong inverse relationship between government-provided services and infrastructure investment and poverty levels in rural Kenya, for example, signals a mutually reinforcing relation wherein poorer areas, such as the arid and semiarid lands (ASAL), lose out in the political competition for scarce resources at the same time that the resulting infrastructure and services deficiencies contribute to these locations' poverty in the future" (Little and McPeak 2014: 13). At the same time, because of their good access to markets, peri-urban areas also provide good opportunities for income-generating activities and investments, such as peri-urban dairy and poultry production and small-scale enterprises.

Markets, Food Security, and Nutritional Support

Markets and food security figure prominently into issues of pastoralist resilience and livelihood diversification. Herders need to maintain market linkages to sell livestock and to buy foods and other necessities. Although there is considerable enthusiasm and investment for international livestock export trade, including in infrastructure and favorable tax programs, much data show that the benefits of this trade are highly skewed to large export traders and companies and better-off herd owners, with many of its revenues and much of its employment accruing outside the region (see Karamoja and Borana case studies). In fact, there is considerable evidence to show that livestock trade for

domestic and cross-border markets in neighboring countries in eastern Africa often generate more local benefits, food purchasing power, and employment, as well as involve more small-scale traders, than does overseas export trade (see Little et al. 2014). Since livestock trade and production is such a large economic driver in pastoral areas, policies and investments that strengthen local and cross-border trade will benefit larger numbers of herders and traders and better enhance local food security, than will international export trade. Unfortunately, most cross-border trade in livestock in the region is considered illegal despite efforts by the regional body, Intergovernmental Authority for Development (IGAD) and the African Union (AU) to support cross-border activities, including trade. The Karamoja case study shows that growth in livestock trade and associated economic multipliers will require reforms in cross-border trade policy, especially between Kenya, South Sudan, and Uganda. This is a policy area where USAID, in collaboration with its donor and regional partners (including the Intergovernmental Authority for Development [IGAD]), can have a positive effect.

Serious nutritional and child health problems often are associated with town-based diversification strategies and with pastoralist migration to towns and agricultural settlements (see Fratkin and Roth 2004). Without access to milk and dairy products and with increased dependence on starchy grains, child nutritional problems often occur. The Karamoja case study, for example, points to nutritional problems that occur when there is less milk in settlements, especially for children and nursing mothers. Introducing diverse and nutritional foods, such as sweet potatoes, into the diet of settled pastoralists is an initiative that might alleviate expected nutritional problems. While not highlighted in the case studies, agriculture-based diversification strategies, especially when they involve irrigation, also raise public health issues. For example, exposure to malaria (primary) and schistosomiasis (secondary), which are diseases that mobile pastoralists—especially children—may not encounter very often, usually increase with pastoralist sedentarization. Agricultural settlement along the Tana River in the Garissa case study is an obvious example of public health concerns, as are riverine agricultural schemes for pastoralists and ex-pastoralists throughout eastern Africa (for example, in Afar and Somali regions, Ethiopia). Pastoralists use riverine areas for grazing animals in dry seasons when malaria is not prevalent, but they are not settled permanently there as required by agricultural settlement schemes. Along with nutrition, these kinds of health risks and costs are rarely mentioned in discussions of pastoralist diversification and alternative livelihoods and are areas where USAID can provide important support.

Education

Minimal levels of education and modern skills training mean that pastoralists and ex-pastoralists often enter the labor market at the bottom rungs. Yet, this report has shown the beneficial impacts that good jobs can have on remittances, food security, and pastoral welfare generally. Investment in education is a key diversification strategy that increasingly allows herders to cope with the vagaries of climate and other economic shocks. As Little and McPeak suggest, educated individuals with access to non-pastoralist incomes also seem better able to time animal sales according to market conditions than others, because they are not driven as much by cash requirements and the need to sell animals, often at distressed prices, in order to procure food (2014: 12). To their advantage, they often can wait out unfavorable markets, which cash-strapped and hungry pastoralists find hard to do. For development practitioners, two challenges about education remain unresolved: (1) the difficulty in reconciling the need for livestock mobility with settlement-based methods of education delivery; and (2) the lack of curriculum appropriate for pastoralists. However, these education challenges need to be met as a basic precondition for other diversification activities, including employment generation and business investment, and future livelihoods (ibid.).

Employment and Training Programs for Youth and Women

With declining per capita livestock holdings and growing populations, many youth will need to find livelihoods that combine pastoralism with other activities, or find alternatives to pastoralism all together. Although we know very little about whether or not the current generation of youth wish to remain in pastoralism versus other livelihood options, we do know that many (especially males) currently are without gainful livelihoods and, in turn, comprise a large proportion of raiding and armed criminal gangs in rural areas, including the *lonetia* gangs described in the Karamoja case study. Investing in education and vocational skill training is an obvious area of potential support, but also facilitating low-capital start-up enterprises in trade and services through formation of local savings and credit groups both for youth and women (discussed below) is an equally important area that would benefit from support.

Widows and female-headed households comprise a significant majority of ex-pastoralists in towns and settlements. Examples from the case studies document numerous women-based enterprises in dairy, textiles, and service activities. They also highlight the support that they receive from women's groups and/or local business and savings and credit groups. These enterprises receive considerable donor and NGO support and are shown to help share risks among vulnerable women, distribute needed capital, and provide scale/market power when negotiating prices with wholesalers, distributors, and large-scale traders. Along with training in small business and leadership skills, they are areas where development assistance can help ex-pastoralist women establish alternative livelihoods.

Governance and Empowerment

Empowering communities in the drylands to control and manage their own lands and resources, and to petition for an equitable share of national budgets, should be on the policy radars of donors and NGOs working in these areas. This report has shown that pastoralist livelihood diversification is a reality in the rangelands of eastern Africa, and policy and program efforts to support positive types of diversification should be encouraged. Activities that strengthen linkages to the livestock and pastoral sector, especially through livestock-related, value-added activities, will keep more of the value and benefits from production and trade within communities and regions. The report also has highlighted the fact that diversification for many pastoralist households represents combining or supplementing a livestock-based livelihood, not an abandonment of it. In this respect, support for livelihood diversification should not encourage activities that undermine the key economic asset (livestock) and its producers (pastoralists) in the region.

Research and Support

Considerable evidence exists on the benefits and costs, including risks, of pastoralist diversification and alternative livelihoods in eastern Africa. Nonetheless, there are still important areas that would benefit from additional research, especially since social, economic, and environmental contexts are rapidly changing. These include:

- ***Education:*** Assessment and design of existing education models for pastoralist communities that remain mobile for part of the year needed. What level and types of education (primary, secondary education, or vocational training) should be supported, and which of these best build resilience in drylands?

- ***Crop diversification as a risk management strategy:*** What current farming practices are pastoralists pursuing? Are they using crop varieties and cultivation techniques that are suitable for drylands? What types of extension services can be provided to ex-pastoralists who may have little experience with cultivation or knowledge of appropriate techniques and seed varieties?

- ***Nutritional support for settled and ex-pastoralists:*** Contribute to evidence of best practices for supporting nutrition in pastoral settlements, in terms of dietary diversity, production of leafy vegetables and sweet potatoes where possible, and other possible interventions. What are the benefits and costs of different programs to enhance nutrition and food security among settled pastoralists or those transitioning out of pastoralism?

- ***Labor markets and migration patterns:*** We know that global labor markets have impacted some pastoralist areas of eastern Africa, especially Somali areas, where many individuals (including women) have gone to the Middle East and Europe. We also know that movements to large cities, including Addis Ababa and Nairobi, are taking place. Evidence from other studies of labor migration reveal that migrants usually are not the poorest individuals because of the cash and other resources required. We know very little about who migrants are and how labor migration operates in pastoralist areas. Is it cyclical, where individuals work for a period of time, such as in the Garissa case, and then return back to their homelands? How are remittances from migrants impacting local resilience and pastoralist diversification?

- ***Assessment of different livestock market chains:*** Which market chains, products/commodities, and associated value-added activities enhance resilience in drylands? Which market chains involve relatively low risks, employ large numbers of individuals from the area, and are sustainable over time? Which market chains involve high risks, employ few people from pastoralist areas, and are likely to be unsustainable over time?

To conclude, this report has been premised on the reality—whether positive or negative—that pastoralists in the drylands of eastern Africa continue to diversify their livelihoods out of necessity and/or to diversify investment and economic potential. It has demonstrated that all diversification strategies come with costs and risks. We have tried to outline those livelihood options where risks and costs are exceptionally high versus those where they are low relative to potential benefits. By differentiating between short-term benefits versus long-term risks and costs, the report has shown that some survival-type livelihood options, such as charcoal making or cultivation of grazing zones, may yield short-term benefits but have long-term environmental and economic costs that make communities less resilient to shocks. The report also has highlighted different livelihood diversification options and policy scenarios that can jeopardize mobile pastoralism and its underlying natural resource base, further accelerating the impoverishment of pastoralists and the number of ex-pastoralists seeking alternative livelihoods. Finally, it has shown that ***there is no single "magic arrow" or technology for enhancing resilience in drylands***, but there are multiple, incremental options, including livelihood diversification, which, when adapted to local contexts and circumstances, can increase probabilities for improved livelihoods and resilience.

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