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Climate Change and Conflict in Uganda: The Cattle Corridor and Karamoja

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COVER PHOTO: Jeffrey Stark
Karamoja, Uganda, June 2010.

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CONTENTS

ACRONYMS ii

EXECUTIVE SUMMARY 1

Background 1

Ugandan Context 2

Pastoralism in Uganda 2

Climate Change and Conflict in Luwero, Nakaseke, and Nakasongala Districts 3

Climate Change and Conflict in Karamoja 3

Climate Change Data Limitations 5

Concluding Observations 5

INTRODUCTION 7

METHODOLOGY 9

Areas Visited and Organizations and Individuals Interviewed 11

THE UGANDAN CONTEXT 13

Ethnic Division and Political Conflict (1962-1985) 13

Economic Growth, Democratic Hopes, and Democratic Decline (1986-2010) 14

PASTORALISM AND CLIMATE CHANGE IN THE CATTLE CORRIDOR 19

The Environmental Advantages and Practical Predicament of Pastoralism 19

Climate, Natural Resource Management, and Conflict in Luwero, Nakaseke, and Nakasongola Districts 20

Karamoja: Culture, State, and Conflict 23

Poverty, Drought, and Climate Change Impacts in Karamoja 26

Climate Change and the Data Dilemma 31

CONCLUSION **35**

RECOMMENDATIONS **41**

RESOURCES **45**

Appendix I 45

Appendix II 50

References 52

ACRONYMS

ADRA	Adventist Development and Relief Agency
CAF	Conflict Assessment Framework
CCCAF	Climate Change and Conflict Assessment Framework
CCU	Climate Change Unit
CEWARN	Conflict Early Warning and Response Mechanism
CMM	Office of Conflict Management and Mitigation
CPR	Common Pool Resources
DRC	Democratic Republic of the Congo
ESAF	Environmental Security Assessment Framework
FAO	Food and Agriculture Organization
FESS	Foundation for Environmental Security and Sustainability
FEWS NET	Famine Early Warning Systems Network
FFP	Food for Peace
IDP	Internally Displaced Persons
IK	Indigenous Knowledge
IPCC	Intergovernmental Panel on Climate Change
KAPFS	Karamoja Action Plan for Food Security
KIDDP	Karamoja Integrated Disarmament and Development Programme
LRA	Lord's Resistance Army
MWE	Ministry of Water and Environment
NAPA	National Adaptation Programmes of Action
NRA	National Resistance Army
NRM	National Resistance Movement
OFDA	Office of U.S. Foreign Disaster Assistance
PELUM	Participatory Ecological Land Use Management

PENHA	Pastoral and Environmental Network in the Horn of Africa
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UPDA	Uganda People's Democratic Army
UPDF	Uganda People's Defence Force
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VEDCO	Volunteer Efforts for Development Concerns
WFP	World Food Program

EXECUTIVE SUMMARY

BACKGROUND

In 2007, the Intergovernmental Panel on Climate Change (IPCC) projected that rising global temperatures will contribute to an upsurge in severe storms, floods, droughts, glacier melt, and sea level rise. Such climate-related events clearly have the potential to impede or reverse economic development and generate humanitarian crises in vulnerable areas of the developing world, but will climate change also lead to conflict?

From 2007 to 2009, a series of well-publicized policy studies addressed this question and concluded that there is a strong likelihood that the natural hazards and environmental stresses associated with climate change will have destabilizing social and political consequences and trigger or amplify conflict. One academic study published in the Proceedings of the National Academy of Sciences analyzed historical linkages between civil war and temperatures in sub-Saharan Africa and suggested a 54 percent increase in armed conflict incidence by 2030. Only a few studies took a more nuanced and skeptical view of the climate-conflict linkage.

In the context of such projections of conflict driven by climate change, the Office of Conflict Management and Mitigation (CMM) of the U.S. Agency for International Development (USAID) asked the Foundation for Environmental Security and Sustainability (FESS) to review the current state of knowledge about climate change and conflict linkages. FESS concluded that the analysis of the climate-conflict relationship to date is very largely conceptual, schematic, and deductive and noted the need for a more focused and contextual approach to the understanding of the climate-conflict relationship in specific countries or regions. Relatively little field research has been done to look at the interaction between climate change at the national or subnational level and the political, social, economic, and cultural specificities of selected conflict-prone states. This is due, in part, to the challenges of obtaining downscaled climate data and the difficulties that still remain in producing multifaceted conflict studies that use evidence-based analysis to advance conclusions of broader applicability.

The main purpose of this case study is to help fill this gap in knowledge. USAID/CMM asked FESS to produce case studies on climate change and conflict in selected countries, with a view to producing findings relevant to Agency and Mission interests and programs. The first of these case studies is the present study, focusing on the so-called Cattle Corridor and the area of Karamoja.

To conduct its first climate change and conflict case study and guide its methodological approach, FESS relied on elements of both its Environmental Security Assessment Framework (ESAF) and core components of USAID's Conflict Assessment Framework (CAF). Both the ESAF and CAF emphasize one of the main conclusions of recent conflict analyses: conflict is almost always the result of the interactions of multiple political, economic, social, historical, and cultural factors, and it is never driven by a single causal factor. This study on the potential effects of climate change on conflict situates the Ugandan case within this broader context.

From June 26, 2010 to July 9, 2010, the two-person FESS research team conducted 52 interviews and met with more than 110 persons from local communities, civil society organizations, local and national government, elected officials, and international organizations. Interviews were conducted in Kampala and selected districts within the Cattle Corridor and Karamoja. Questions were asked of interviewees to get their perceptions concerning such issues as: the impact of environmental and climatic change; the coping capacities and resilience of affected groups; the responses of local and national governments; the drivers of conflict and their linkages, if any, with climate change; steps needed to

address any climate-related challenges with potential conflict linkages; and anticipated conflict trends with potential linkages to climate change over the next ten years.

THE UGANDAN CONTEXT

Yoweri Museveni became the president of Uganda in 1986. After a quarter century of military coups, ethnic conflict, economic crises, political chaos, and massive violence, Museveni set out to stabilize a country desperate for peace and security.

Viewed from the perspective of macroeconomy, Uganda has had considerable success under President Museveni. In the late 1980s, he instituted reforms to liberalize the Ugandan economy. GDP growth during the Museveni era has been consistently at or above the 6 percent annual growth rate necessary to outpace a rapidly growing population, which has more than doubled during his tenure. Since the mid-1990s, inflation has been held in check, and national poverty levels also have decreased. Nevertheless, the demographic composition of population growth—about half the population is now under 15 years of age—means that job creation has become a major challenge for the country.

By the mid-1990s, Museveni was receiving international praise as one of a new breed of promising African leaders. Notwithstanding these early assessments, Museveni's re-elections in 2001, 2006, and 2011 were marked by often repressive and divisive campaigns that disappointed hopes for increased democratic competition and soured most observers on Museveni's democratic credentials.

In the late 1990s, Uganda became embroiled in the political turmoil and armed conflict of its neighbor, the Democratic Republic of the Congo (DRC). The Uganda People's Defence Force (UPDF) controlled the northeast corner of the resource-rich DRC and allegedly became engaged in the illicit extraction of such resources as gold, diamonds, timber, coltan, ivory, and coffee. Although denounced by the Ugandan government, a 2010 UN report stated that Ugandan troops engaged in "torture and various other cruel, inhuman, or degrading treatments" while in the DRC.

From the late 1980s until recently, northern Uganda was afflicted by the war between the Lord's Resistance Army (LRA) and the Government of Uganda. The roots of the LRA and its evolution as a rebel movement are complex, but today it is largely known for its attacks on northern villages and brutal atrocities against civilians. The LRA was eventually subdued in Uganda and displaced to neighboring countries but at the cost of more than a million internally displaced persons, years of skirmishes with the UPDF, and continuing regional instability.

The use and allocation of land, water, and forests in Uganda also have been tied to allegations of government corruption and political patronage. Environmental governance is weak. While Uganda has well-developed environmental laws, they are poorly implemented and enforced.

Hence, while President Museveni's lengthy tenure as head of state has provided stability and generally good economic performance, the context for the consideration of climate change and conflict in Uganda includes already existing vulnerabilities to episodes of violence and conflict related to ethnic tensions, persistent poverty, suspect electoral competition, deeply embedded corruption, weak institutions, the mismanagement of natural resources, and poor military command and control.

PASTORALISM IN UGANDA

Pastoralism is a livelihood and set of cultural practices based on cattle-herding that uses mobility to make maximum use of scarce natural resources in arid or semi-arid environments characterized by limited and erratic rainfall. In these drought-prone areas, pastoralists move their cattle to water and pasture based on annual weather cycles and prevailing climatic conditions.

Pastoralists are among the poorest Ugandans, with high rates of infant and maternal mortality, low levels of literacy, and limited political participation. They also are often poorly regarded by both government and their fellow citizens. Pastoralism is considered by many Ugandans to be a backward or declining livelihood with a limited future and headed toward a more or less inevitable transition to ranching, farming, or other alternative livelihoods. Nevertheless, the livestock sector contributes about 8 percent of GDP, and pastoralists, not ranchers, hold the majority of the national cattle herd and produce the great majority of the country's milk and beef.

Despite its economic contributions and environmental advantages, pastoralism in Uganda is besieged by a series of difficult challenges, involving demographic change, land rights, the gazetting of land for protected areas and mineral exploration, and landscape conversion and fencing for areas under development. Uganda's rapidly growing population has expanded the land under cultivation, disrupting pastoralists' traditional access to pasture and water and bringing them increasingly into conflict with farmers. As a consequence, pastoralists have sometimes moved from conflict to conflict. Land disputes have overwhelmed the already weak and overburdened court system, which many citizens perceive to be corrupt. Land conflict is very likely to continue to increase in the Cattle Corridor.

CLIMATE CHANGE AND CONFLICT IN LUWERO, NAKASEKE, AND NAKASONGALA DISTRICTS

Nearly every person in Luwero, Nakaseke, and Nakasongola Districts repeated similar comments when asked if the weather has changed:

- "Yes, there are more droughts and the rains are unpredictable."
- "We used to plant at the same time every year, late February or early March. Now, we do not know when to plant."
- "We have to plant whenever the rain comes. However, sometimes the rain comes, we plant, and then the rain disappears, causing our crops to fail."

Climate change effects intertwine with poor weather forecasting and poor natural resource management. Weather forecasts are poorly communicated and are viewed with great skepticism by interviewees. The felling of trees for charcoal production and the unregulated destruction of wetlands exacerbate the effects of droughts and intense storms. Farmers and pastoralists alike believe that more frequent droughts are linked to new or worsening infestations of pests and diseases in their crops and in their livestock. These outbreaks are contributing to low livestock and crop productivity.

For most farmers interviewed in Nakasongola, conflicts with cattle keepers are generally low-level affairs. Cattle encroach on crops and there can be disputes or conflicts at boreholes or valley dams. Often these are settled through negotiations or payments. However, for pastoralists in northern Nakasongola, more serious conflicts and violence can ensue when numerous pastoralists bring their cows to a valley dam at the same time.

Few pastoralists or farmers appeared to be practicing any sort of climate change adaptation. However, a few NGOs were just beginning to assist farmers in "timely" or "early" land preparation, so their gardens would be ready for immediate planting when the rains arrived. Other strategies include drought-resistant and longer-lasting crops, better storage, and kitchen gardens.

There are many factors contributing to conflict in the Cattle Corridor, including public perceptions of arbitrary and corrupt government rulings over land issues. The running thread that unites them all is competition over sometimes scarce pasture and water, scattered over a patchwork of locations that are either shrinking or increasingly fragmented and subject to uncertain land tenure.

By increasing the frequency and severity of scarcity, climate change is likely to interact with these factors in ways that multiply the number of conflictive circumstances having potential pathways to violence. The relatively weak capacity of pastoralists in the region to organize and mobilize for conflict probably represents a limit on the scale of violence. At the local level, however, episodes of deadly violence appear probable. At the same time, climate adaptation remains a very underdeveloped mechanism for conflict prevention and mitigation in the Cattle Corridor.

CLIMATE CHANGE AND CONFLICT IN KARAMOJA

As difficult as living conditions are for pastoralists in the Cattle Corridor, the situation in Karamoja is far more challenging in terms of culture, livelihoods, security, national policy, climate change, and conflict.

The inhabitants of Karamoja, known collectively and generically as the Karamojong, are made up of three main

ethnicities—the Dodoso, Jie, and Karimojong, the latter of which subdivides into a number of sections, including the Bokora, Matheniko, and Pian. The arid and drought-prone environment of much of Karamoja always has made food security and survival difficult and challenging for these groups.

Cattle are highly valued by the Karamojong, not only as a means of providing sustenance but also for social and cultural reasons. The Karamojong have longstanding practices of cattle raiding among their various tribes and groups. In recent decades the Karamojong conducted cattle raids not only against their tribal counterparts but also against farming communities in other regions of Uganda to the west. When the Idi Amin government fell in 1979, Ugandan Army soldiers abandoned their barracks in Moroto, leaving behind a huge stockpile of 60,000 weapons, which quickly began circulating throughout Karamoja. Other arms came to the region from Sudan, where civil strife was taking place.

In response to the violent raiding in Karamoja and its neighboring districts, the Ugandan government launched a series of disarmament campaigns in 1984, 1987, 2001, and an ongoing effort since 2006. The disarmament campaigns began on a voluntary basis, but often evolved into forcible disarmament. Disarmament by the UPDF in 2006-2007 through so-called "cordon and search" operations was heavily criticized by human rights groups for including beatings, torture, and killings. As resentments grew, UPDF soldiers increasingly became the targets of Karamojong warriors.

Intertwined with this background of chronic conflict are conditions of deep poverty, rapid population growth, severe food insecurity, and poor health conditions. While the percentage of the national population living below the poverty line is 31 percent, in Karamoja it is 82 percent. Some 89 percent of the population is illiterate, compared to 33 percent nationwide.

Local people ranging from 40 years to 70 years of age who were interviewed in Karamoja stated—often using vivid examples—that the climate has changed noticeably and markedly in recent years. Perennial rivers and streams are now seasonal. Riverbeds that traditionally were reliable dry season sources of water now yield no water. In 2007, when the rains did come, they were torrential downfalls and crops were destroyed.

Severe droughts that used to occur on average approximately every five years are now arriving every two to three years. It takes an estimated two years to recover from such drought events; the time between droughts has become so short that the asset base of communities has been reduced. Poverty, deprivation, cattle raiding, food insecurity, and social disintegration are now intertwining with the effects of climate change in negative ways that have the potential to deepen conflict.

In 2009, to deal with the problems of Karamoja in a more integrated fashion, President Museveni appointed his wife, Janet Museveni, as State Minister for Karamoja. Under the Karamoja Action Plan for Food Security (KAPFS) for 2010-2015, the government is seeking to improve water availability, increase crop production and livestock production, restore degraded natural resources, improve storage facilities, promote markets, and build the capacities of indigenous stakeholders. However, according to former local officials and church leaders, the government must overcome a legacy of severe mistrust. In addition to the abuses of the military, the people of Karamoja feel that the government has made repeated promises of reform and assistance without fulfilling them.

The Government of Uganda's view of pastoralism as an archaic and outdated livelihood is perceived by many in Karamoja to be a condescending and unrealistic posture that discourages cooperation. If not handled well and targeted toward areas clearly suitable for agriculture, efforts by the Government of Uganda to promote a shift from pastoralism to agriculture, however reasonable as an alternative development strategy over the long term, may in fact increase tensions.

Despite new attention by the state to address Karamoja's historical marginalization and the decreasing number and availability of illicit arms, the continuation of cattle raiding (increasingly for market-based reasons), ongoing restrictions on movement, persistent abuses by the UPDF, the erosion of traditional social roles, and the severe consequences of repeated and increasingly frequent droughts worsened by climate change, all make efforts to reduce conflict there extremely problematic.

CLIMATE CHANGE DATA LIMITATIONS

The subjective testimony of the people living in Karamoja and the Cattle Corridor is a far more powerful indicator of climate change than the available meteorological data, which is very limited and fails to capture in a compelling way the erratic and severe shifts in seasonal rainfall patterns, lengthening dry spells, and changes in rainfall intensity that at times wreak havoc on the lives of pastoralists, agropastoralists, and farmers. As officials from the Uganda Department of Meteorology readily acknowledge, a lack of weather stations and time-series data (in some instances the result of interruptions caused by conflict), as well as limited human resources, significantly limit the available quantitative information.

In terms of conflict analysis, the relevant question is how well (or whether) evidence-based information is communicated to citizens and how that knowledge influences their perceptions and expectations. The most immediate concern is the need for short-to-medium-term weather forecasts that are reasonably reliable and that can be communicated to farmers and pastoralists in a form and language they can understand and act upon.

The most promising advance in relation to climate change is the recent creation of a Climate Change Unit (CCU), within the Ministry of Water and Environment (MWE), with the support of the Danish government and assistance from the World Food Program (WFP) and the Food and Agricultural Organization (FAO). At present, the staff is small and overburdened with the responsibilities associated with coordinating across government a rapidly expanding scientific and policy area. More support and close monitoring of early results are needed if these efforts are to be successful and useful for future climate adaptation measures.

CONCLUDING OBSERVATIONS

Pastoralists in the Cattle Corridor face population pressures, diminished access to pasture and water, the fencing of land, and contention and conflict over land rights with farmers and other pastoralists. The formal institutions of the state do a poor job of defusing these tensions—in fact, they often enflame them with what appear to affected groups to be arbitrary decisions favoring the particular interests of one group or ethnicity.

The local people who met and spoke with FESS in three central districts of the Cattle Corridor were eager to adopt new techniques, take some risks, and share their knowledge and successes with others. This knowledge includes an already existing, sophisticated understanding of the environmental conditions in the Cattle Corridor. The engagement and use of indigenous knowledge is a key asset in addressing climate change impacts and enhancing community resilience in the Cattle Corridor.

Absent improved environmental governance, both formal and informal, as well as more effective institutional responses to land and water disputes, the cumulative stresses and climate trends in the Cattle Corridor are likely to contribute to increased conflict. Those conflicts generally should remain small-scale and local, although they may spread to adjacent areas as pastoralists migrate to other areas as a coping mechanism. However, as the effects of climate change grow stronger and the pressures on the already stressed resource base are increased, outbreaks of localized violence may become more frequent.

In Karamoja, conflict is already far more prevalent, severe, and chronic than elsewhere in the Cattle Corridor, with a constellation of contributing factors that are embedded in a distinctive pastoral culture in which cattle raiding has played an important part. With so many contributing factors at play, it might be thought that climate change plays a relatively minor role in conflict in Karamoja. However, just as it would be simplistic and wrong to assert that climate change is the major driver of conflict in Karamoja, so too would it be short-sighted to fail to recognize that climate change (or at least the climate trends of the last several decades) has exacerbated resource scarcity and placed tremendous pressure on the pastoralist livelihoods and food security of the people of Karamoja, thereby increasing the potential for conflict.

The real choice is not between a cultural nostalgia for the return of a form of unfettered and self-regulating pastoralism that is never going to come back or a sudden transformation to a predominantly agricultural model for which the Karamojong are still poorly prepared and about which they have had little to say. As one church leader put it, “Change must come to Karamoja, but it cannot be forced change.”

Tensions and mistrust between the state and the citizens of Karamoja run high. The loss of pastoralist mobility imposed by security concerns threatens livelihoods and erodes the traditional social roles of both Karamojong elders and youth.

In Karamoja, the key task will be to empower Karamojong communities to participate actively in the design and implementation of livelihood and food security programs and other development initiatives of both the Uganda government and donors. Without their direct involvement and the actual incorporation of some of their ideas, conflict in Karamoja is likely to continue unresolved. Climate adaptation offers the unique possibility of engaging Karamojong participation through the explicit incorporation of indigenous knowledge as an important part of coping strategies. This is an opportunity for building trust and strengthening livelihood resilience, while promoting stability and effective climate adaptation, which should be seized.

Elsewhere in the Cattle Corridor, local organizations can be key partners in that effort. NGOs such as PELUM and VEDCO have identified a number of specific climate adaptation activities that can serve as a useful starting point. District level officials of the Uganda government also are eager to work in support of climate adaptation.

At least in the case of Uganda, some of the worst-case generalizations and predictions of climate-related conflict appear to be overstated. Although it is natural to ask to what extent or degree conflict is being caused by climate change, the question runs the danger of implying the answer can be quantified. With multifactor causality and contingent interactions, the idea that violence or civil war can be said to be "x percent" more likely because of climate change is a counterproductive conceptual error. A more realistic approach is to trace out the main pathways to conflict and look for programmatic possibilities that can increase the incentives and options for nonviolent behavior. It is important to consider local social and institutional resiliencies, including climate-related coping capacities, in order to strengthen them where possible to prevent conflict and promote sustainable development.

In response to commonly asked questions about whether climate change effects such as scarcity, migration, population pressure, land degradation, and food insecurity will trigger conflict, the answer in Uganda is that is depends on a host of other factors, not the least of which is governance. The good news is that a great deal can be done to mitigate climate change effects through climate adaptation measures (e.g., water harvesting, better crop storage, improved crop selection, and alternative livelihoods), and that many of these are "no-risk" steps because they deal with already existing, unaddressed development challenges. Climate change and the potential for climate-related conflict simply make such actions more urgent and push the cost-benefit analysis of undertaking them toward a more positive balance.

Recommendations based on the findings of this study can be found on page 41.

INTRODUCTION

In 2007, the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) predicted with "virtual certainty" that temperatures will increase over most land areas in the decades ahead.[1] The IPCC further projected that rising global temperatures will contribute to an upsurge in severe storms, floods, droughts, glacier melt, and sea level rise. In vulnerable areas of the developing world, extreme weather is expected to intensify pressures on land and water resources, disrupt agricultural production, threaten food security, and provoke involuntary migration.

Such climate-related events clearly have the potential to impede or reverse economic development and generate humanitarian crises, but will climate change also lead to conflict?[2] From 2007 to 2009, a series of well-publicized policy studies addressed this question and concluded that there is a strong likelihood that the natural hazards and environmental stresses associated with climate change will trigger or amplify conflict, especially in vulnerable or unstable areas of the developing world (CNA Corporation 2007, CSIS and CNAS 2008, SIDA 2008, Fingar 2008, UN 2009).

Many of the projected scenarios envisioned alarming consequences. The findings of the Center for a New American Security were typical of other studies:

"…the United States can expect that climate change will exacerbate already existing North-South tensions, dramatically increase global migration both inside and between nations, lead to increasingly serious public health problems, heighten interstate tension and possibly conflict over resources, collapse agricultural markets and global fisheries, challenge the institutions of global governance, cause potentially destabilizing domestic political and social repercussions, and spur unpredictable shifts in the global balance of power" (Campbell and Weitz 2008).

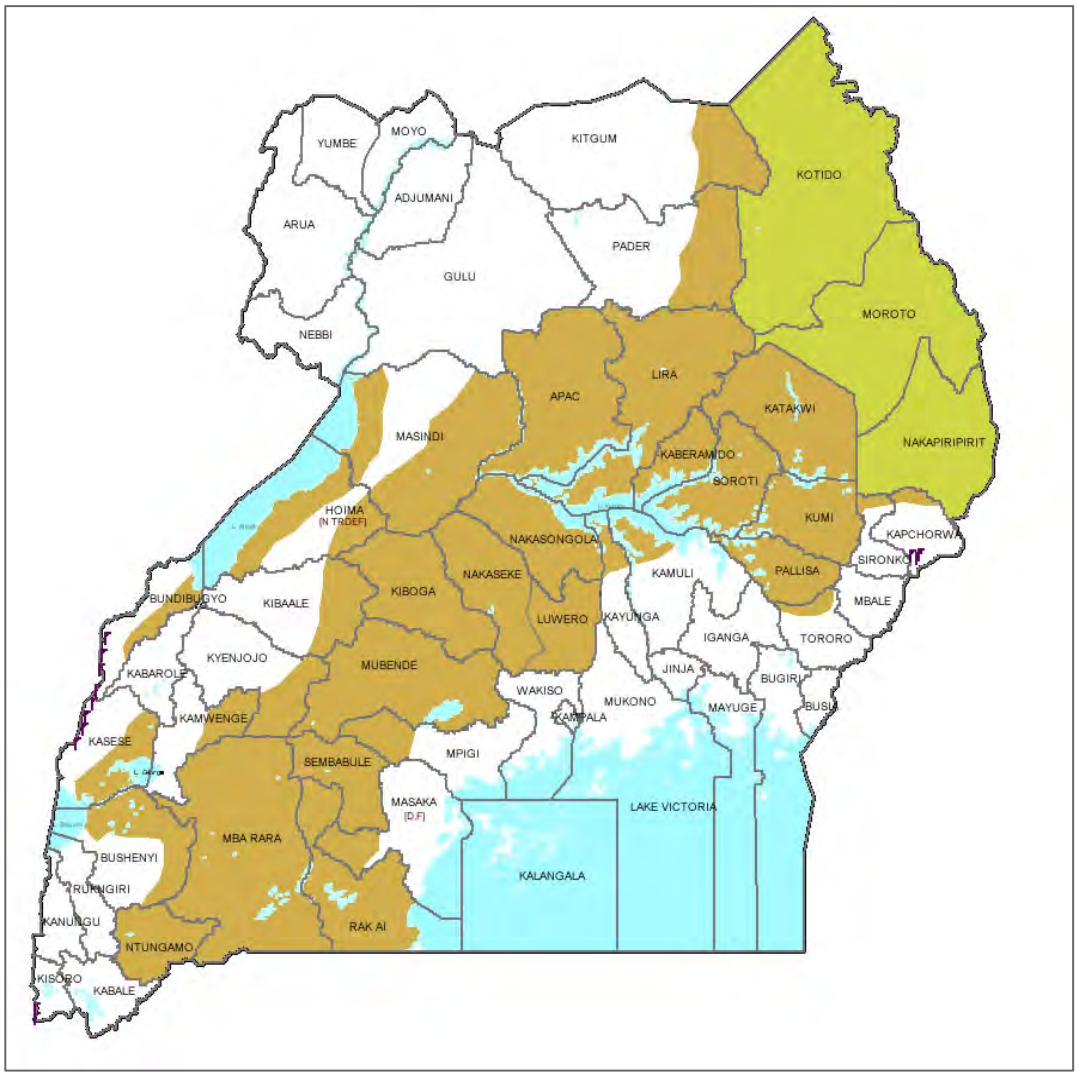
The CNA Corporation also envisioned a confluence of factors that might overwhelm weak or flawed systems of governance and public institutions, setting the stage for conflict. Climate change impacts:

"… will likely foster political instability where societal demands exceed the capacity of governments to cope…. Economic and environmental conditions in already fragile areas will further erode as food production declines, diseases increase, clean water becomes increasingly scarce and large populations move in search of resources. Weakened and failing governments, with an already thin margin for survival, foster the conditions for internal conflicts, extremism, and movement toward increased authoritarianism and radical ideologies" (CNA Corporation 2007).

Academic researchers also have sought to address the potential climate-conflict linkage, with a specific focus on Africa. A team of researchers from the University of California Berkeley, New York University, Harvard University, and Stanford University analyzed historical linkages between civil war and temperatures in sub-Saharan Africa. Combining those findings with climate model projections for the future, they found their data suggested "a roughly 54% increase in armed conflict incidence by 2030" (Burke et al. 2009).[3]

In this context of such projections of conflict driven by climate change, the Office of Conflict Management and Mitigation (CMM) of the U.S. Agency for International Development (USAID) asked the Foundation for Environmental Security and Sustainability (FESS) to synthesize the emerging literature and discussion about climate change and conflict linkages and to review the current state of knowledge. FESS found that, upon closer examination, "the analysis and discussion of the climate-conflict relationship to date is very largely conceptual, schematic, and

Figure 1: Drought-Affected Areas of the Cattle Corridor in Uganda (with Karamoja in



SOURCE: ADAPTED FROM BARIHAIHI 2010.

deductive," and noted the potential for "costly initiatives" in response that "run ahead of firm evidence that they are meeting their stated goals." Noting the multidimensional origins of conflict, the paper recommended "more granularity in the understanding of the climate-conflict relationship in specific countries or regions" (Stark et al. 2009).

The main purpose of this case study is to begin to fill this gap in knowledge regarding how climate-related vulnerabilities interact with the dynamics of conflict in specific locations. Toward that end, USAID/CMM asked FESS to produce case studies on climate change and conflict in selected countries, with a view to producing findings relevant to Agency and Mission interests and programs. The first of these is the case of Uganda, focusing on the so-called Cattle Corridor and the area of Karamoja.

Uganda's drylands area, commonly referred to as the "Cattle Corridor," stretches along a broad swath across the country from the southwest to the northeast encompassing 84,000 square kilometers (see Figure 1). The drylands cover more than a dozen of the country's 97 districts.[4] They include (from southwest to northeast) Ntungamo, Mbarara, Rakai, Sembabule, Mubende, Kiboga, Nakaseke, Luwero, Nakasongola, Kamuli, Soroti, Katakwi, Nakapiripirit, Moroto, and Kotido Districts. The drylands area receives irregular and low rainfall, experiences periodic and extreme drought, and is considered to encompass some of the country's most fragile ecosystems. Varying levels of conflict occur throughout this pastoralist region, with the highest levels of violence and cattle raiding occurring in Karamoja and neighboring districts. The area of Karamoja is composed of the districts of Nakapiripirit, Amudat, Moroto, Napak, Abim, Kotido, and Kaabong (see Figure 1).[5]

METHODOLOGY

"Conflict is almost always the result of the interactions of multiple political, economic, social, historical, and cultural factors, and these must be taken into account in any analysis."

To conduct the first climate change and conflict case study, FESS developed a seven-phase framework to help guide the methodological approach—the Climate Change and Conflict Assessment Framework (CCCAF). The framework provides a process for considering a wide variety of background data that supply context for analysis of the climate-conflict nexus. It relies in part on FESS's Environmental Security Assessment Framework (ESAF) methodology, while integrating core components of USAID's Conflict Assessment Framework (CAF). Both the ESAF and CAF emphasize one of the main conclusions of recent conflict analysis: Conflict is almost always the result of the interactions of multiple political, economic, social, historical, and cultural factors, and these must be taken into account in any analysis. The influence of climate change on conflict can only be understood within this context. The existence of grievances related to the impacts of climate change does not mean they will necessarily result in conflict. The quality of governance and the resilience of political, economic, and social institutions all mediate the relationship between environmental change and conflict in important ways. Even discontented populations whose grievances find inadequate or aggravating institutional responses will be unable to engage in violent conflict if they lack the requisite resources for organization and mobilization. Shocks or fast-moving and unanticipated events also may open windows of vulnerability or opportunity that animate or inhibit conflict.

The purpose of the CCCAF is to serve as a toolkit for analysis and to raise relevant, case-specific questions about these relationships. However, it is not a formal template for the structure of the report itself.

In briefly describing the successive phases of the CCCAF below (the CCCAF is attached as Appendix I), it should be kept in mind that it is not used in linear fashion. Each phase provides new information that may be relevant to earlier phases. Thus, while presented sequentially, the phases of the CCCAF provide a continual feedback mechanism for revisiting and revising preliminary information and findings.

The first phase of the CCCAF reviews conflict-prone areas of the selected country that have experienced extreme climate variability (e.g., droughts, floods, and unseasonal temperature fluctuations). Patterns of conflict within these areas with potential linkages to climate effects are then identified. In Uganda, these criteria resulted in a focus on the Cattle Corridor and Karamoja.

Phase two seeks to ground the study in the specific context of the country or region under study. Despite the

importance and attention often given to triggering events, conflict is better understood as an outcome produced by the intertwining of numerous factors (Kahl 2006; Hewitt et al. 2008; Marshall 2008). Because of these interrelationships, understanding how climate change may be contributing to conflict in any specific country or region first requires knowledge about the relevant national context and already existing areas of contention and conflict. All societies not only are marked by such cleavages but also possess a range of resiliencies or coping mechanisms that are used to reduce the likelihood of conflict. Formal and informal political, economic, and social institutions respond to threats in ways that are more or less successful in resolving or mitigating complaints and real or perceived injustices. The degree of a country's or society's resilience is pivotal in determining the pathways toward or away from violence.

Governance, in particular, is often of decisive importance. Where citizens perceive political and cultural institutions to be legitimate, representative, accountable, and responsive, the potential for violent conflict is reduced significantly. Conversely, where political leadership and state institutions lack legitimacy and are unresponsive to or suppress citizen expressions of dissatisfaction, this increases tensions and the possibility of conflict. Where the state employs extra-legal force against citizens or commits human rights abuses, acts of retaliatory violence are not uncommon. However, even where governance is weak or corrupt and grievances and resentment are at high levels, large-scale conflict still may not occur if angry individuals or groups lack the means to marshal effective collective action and engage in organized violence.

Phase three links environmental and socioeconomic factors to ask how climate change may be posing threats to essential resources, livelihoods, food security, and cultural values in the areas under study. For example, in poor rural areas of developing countries, extreme weather and increased pressures on land, water, forests, and rangelands can undermine agricultural productivity, provoking food crises and placing populations at risk. Phase three further seeks to understand which groups and economic sectors are affected by these environmental threats and the consequences that they entail. Returning to the question of resilience, phase three focuses more specifically on the capacity and effectiveness of formal and informal mechanisms for environmental governance and natural resource management. Is natural resource management, whether that of the state or traditional authorities, reducing or contributing to the potential for conflict?

The fourth phase of the CCCAF looks more closely at the responses of affected communities and individuals to climate variability, extreme weather events, and their consequences. It asks how social, human, physical, financial, and natural capital and assets are used to build resilience or coping strategies for communities and social groups. In addition to examining whether or not these responses have succeeded or failed, it also looks for second-order (or unintended) consequences of coping strategies and their impact on traditional forms of social organization and community or group relations with state authorities.

Phase five identifies the relevant stakeholders from government, civil society, and affected communities and solicits their perceptions and experiences of the impacts of climate variability and natural hazards. It investigates whether and how these impacts intertwine with citizen grievances, stakeholder interests, mobilizing factors, and the potential for conflict. Stakeholders are asked to describe their own response capacities and those of other stakeholders and to give their perceptions of the political, social and institutional responses to climate-related challenges. While stakeholder perceptions drive actions and behavior, reliable empirical information—and its dissemination—also is key to framing stakeholder incentives and decisions. Thus, phase five also is devoted to gathering available empirical data about climate variability and climate change in the areas under study.

In phase six, based on the synthesis of all of the data and field research, scenarios are developed to illuminate potential futures. These scenarios are not predictions but ways of describing plausible future outcomes and their accompanying levels of potential conflict. The scenarios include consideration of windows of vulnerability and opportunity (or triggering events).

The CCCAF concludes in phase seven by bringing together the impacts of environmental and climate change, relevant core grievances and drivers of conflict, mitigating factors and windows of vulnerability or opportunity, projected future climate vulnerabilities, and the links between climate change and potential conflict as well as links between climate change and adaptive resilience. Phase seven identifies lessons learned, good practices, programmatic gaps, and target areas and opportunities to improve the provision and coordination of interventions that can address climate change and climate-related conflicts. This phase focuses on ways that USAID's development assistance could make a positive contribution toward filling current

programmatic gaps. Recommendations suggest approaches and responses that provide viable options for USAID and other development organizations.

AREAS VISITED AND ORGANIZATIONS AND INDIVIDUALS INTERVIEWED

From June 26, 2010 to July 9, 2010, the two-person FESS research team conducted 52 interviews and met with more than 110 persons from local communities, civil society organizations, local and national government, elected officials, and international organizations (a list is appended in Appendix II). Several other individuals not identified on the list spoke with the team on background. A number of these discussions resulted in dialogue that continued over the next three months, including the exchange of additional data with these and other individuals. Given the practical time constraints of this preliminary study, interviews were conducted in selected districts within the Cattle Corridor and Karamoja. In both Karamoja and Nakasongola, representatives from local community organizations assisted with translations in group discussions.

In addition to meetings in Kampala, discussions and interviews took place in the following districts and locations:

- Kotido (Kotido Town, Nakapelimoru)
- Nakasongola (Kisweramainda village, Kalongo sub-county; Mayirikiti village, Kalongo sub-county; Kirowooza village, Kakooge sub-county; Kakonde village, Nabiswera sub-county; and Wabinyonyi sub-county)
- Nakaseke (Nakaseke Town)
- Luwero (Luwero Town)

Interviews followed a loosely structured format that permitted the natural flow of conversation and discussion of each person's or organization's responsibilities and priorities. Within that format, the following basic questions were addressed, followed by more in-depth discussion:

a. Has the environment/climate changed in recent years?[6] If so, how?

b. What have been the impacts of environmental/climate change? How have they affected you?

c. How have local people responded or tried to cope? Who is doing what?

d. How has local and national government responded?

e. Are there conflicts in your area?

f. If so, what is causing them and how serious are they?

g. Has environmental change contributed to potential or actual conflict?

h. If so, how?

i. Is environmental/climate change of greater or lesser importance in relation to conflict? How and why?

j. What further responses are necessary to deal with the negative consequences of environmental change?

k. Given current environmental trends, what is your vision of the future 10 years from now with/without future interventions (in addition to current coping mechanisms)?

"The degree of a country's or society's resilience is pivotal in determining the pathways toward or away from violence."

THE UGANDAN CONTEXT

"...environmental governance suffers from both a lack of political will and a lack of institutional resources."

ETHNIC DIVISIONS AND POLITICAL CONFLICT (1962-1985)

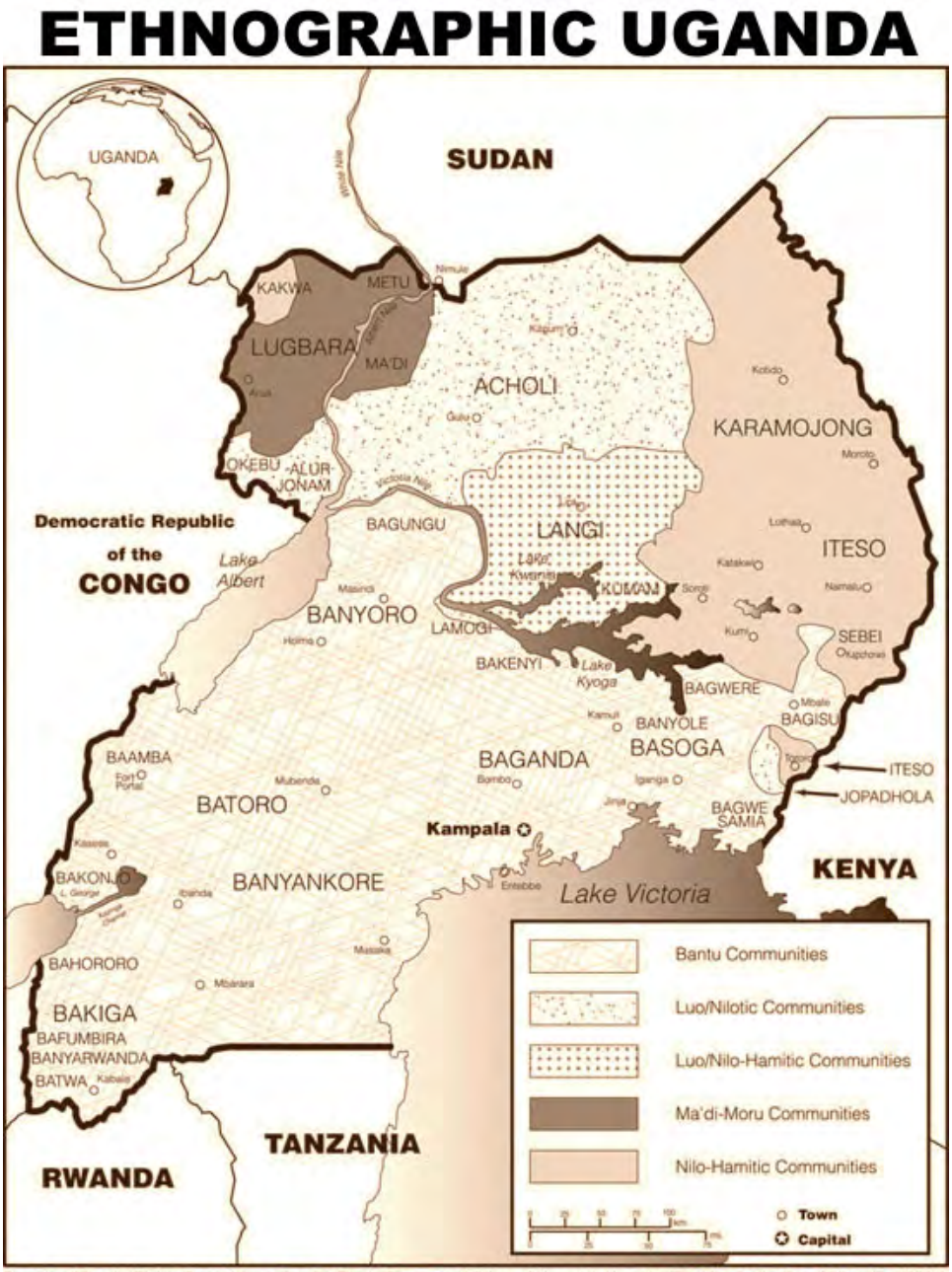
An amalgamation of diverse ethnic, cultural, and linguistic groups, Uganda reflects a common pattern of European colonialism in which kingdoms traditionally antagonistic to each other, such as Buganda and Bunyoro, were joined together under British rule. Uganda is cut in half horizontally by the Nile River, which is the geographical marker of a divide between regions that stems from a complex history of environmental, economic, social, and political differences. For the most part, in the northern region composed largely of semi-arid to arid plains, communities have evolved as relatively small clusters of Nilotic- and Central Sudanic-speaking peoples (e.g., Acholi, Langi, and Karamojong) whose livelihoods depend on a mix of agricultural and pastoral activities and whose political organization is based on clan leadership. The southern "fertile crescent," fanning out from Lake Victoria, has given rise to primarily Bantu-speaking communities (e.g., Baganda, Banyoro, Banyankore, and Basoga) supported by agricultural production and centralized political organization.

Under the British protectorate established in 1894, the region south of the Nile benefited from colonial investments in cash crop exports, infrastructure, industry, administration, and education. Conversely, the region north of the Nile served primarily as a labor reserve and recruitment area for armed forces personnel and experienced minimal economic development. The marginalization of groups within society along geographic, sociocultural, and economic lines has contributed to national disunity. These disparities fostered instability and periodic outbreaks of violence in the country in the first quarter century of the post-colonial period.

Figure 2 outlines the larger ethno-linguistic areas of Uganda and shows the horizontal division created by the Nile River, extending through Lake Kyoga.

Uganda gained its independence in 1962. Although the Baganda king, Sir Edward Mutesa, was named head of state in 1963, Prime Minister Milton Obote, a Langi, overthrew him, and the Buganda kingdom was divided into four administrative districts. Idi Amin, a brash military officer from the West Nile region, became the increasingly powerful army commander. Amin took power through a coup in 1971 while Obote was out of the country on state business. Fearful of retaliatory attacks from Acholi and Langi army and police loyalists, Amin struck

Figure 2: Ethnography Map



Based on Minority Rights Group International's 'Ethnic Groups and Tribes of Uganda', Uganda: The Marginalization of Minorities (2001). Boundaries are not definitive but are intended to show traditionally inhabited areas.

SOURCE: CONCILIATION RESOURCES (CR), DECEMBER 2001. HTTP://WWW.C-R.ORG/OUR-WORK/ACCORD/NORTHERN-UGANDA/MAPS2.PHP.

preemptively, ordering the killing of hundreds in the security forces and replacing them with his own West Nile supporters. When Obote loyalists based in Tanzania did try to invade, Amin unleashed death squads, killing thousands of people perceived to be threats to his regime. He also deported some 50,000 Asians (primarily Indian) in the commercial and professional sectors and confiscated their properties. A Muslim, Amin courted support from radical or fundamentalist elements in the Arab world. Over time, Amin's erratic and extreme actions led to dissent even among the Ugandan military, and an abortive invasion of Tanzania that he ordered resulted in a counter-strike of some 45,000 Tanzanian troops. Unable to maintain his hold on power, Amin fled Kampala in 1979, eventually ending in exile in Saudi Arabia.

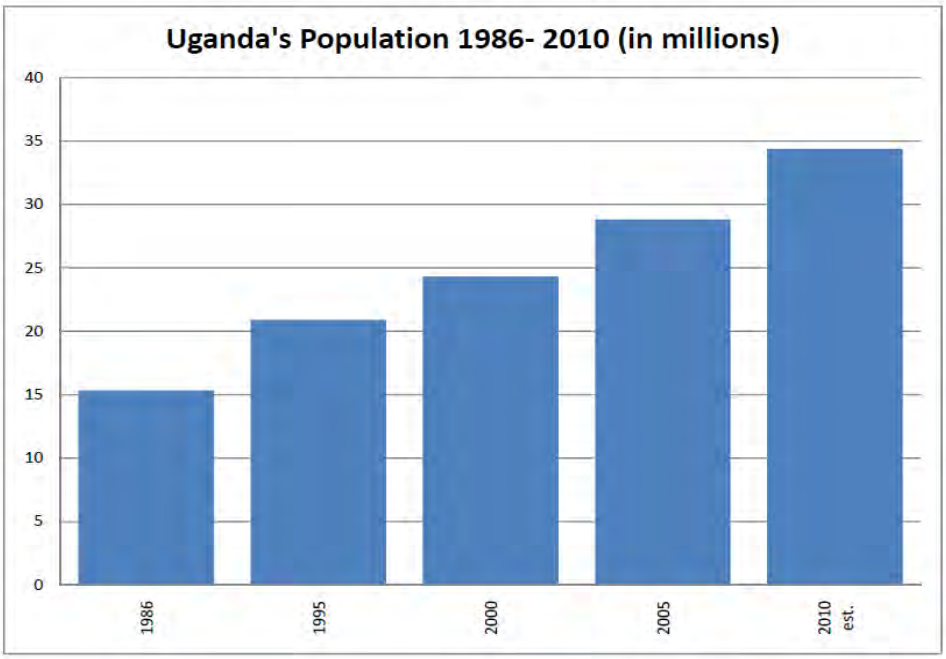
In the wake of the volatility and violence of the Amin years and a short period of further instability, Milton Obote was returned to power via an election marked by significant vote irregularities in 1980. A rebellion by the National Resistance Army (NRA), led by Yoweri Museveni (one of the losing presidential candidates) and based in the Luwero Triangle, an area in the Bantu-dominated south, was met with fierce repression by Obote. At least 100,000 Ugandans (and perhaps as many as 300,000) perished in the violence that raged from 1981 to 1985. Eventually, Obote was driven from office by forces within his own military. Peace negotiations followed, but the NRA continued to pursue its military advantage and took over the reins of government.

ECONOMIC GROWTH, DEMOCRATIC HOPES, AND DEMOCRATIC DECLINE (1986-2010)

On January 26, 1986, Yoweri Museveni became the president of Uganda. After a quarter century of military coups, ethnic conflict, economic crises, political chaos, and massive violence, Museveni set out to stabilize a country desperate for peace and security.

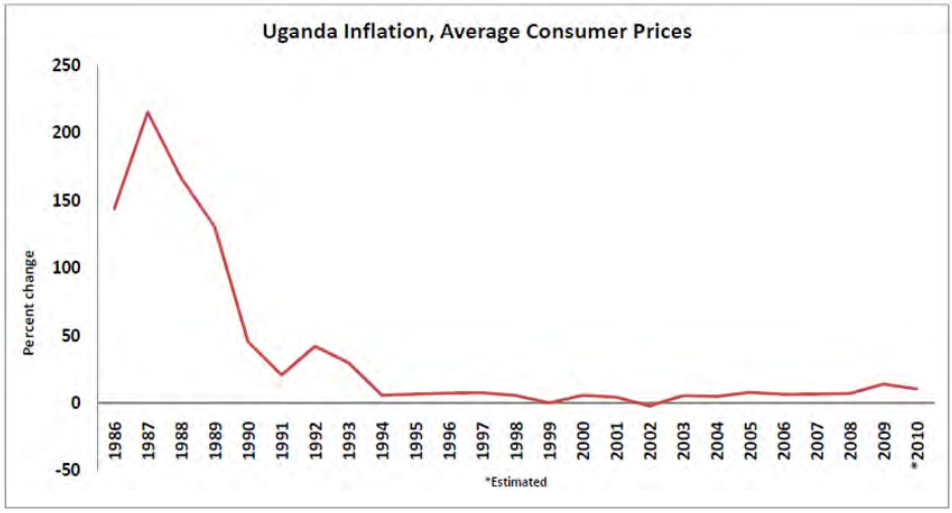
Viewed from the perspective of macroeconomy, Uganda has had considerable success under President Museveni. In the late 1980s, he instituted reforms to liberalize the Ugandan economy, which was based on mostly subsistence agriculture practiced by the overwhelmingly rural population and on exports of coffee, tea, tobacco, and cotton. GDP growth during the Museveni era has been consistently at or above the 6 percent annual growth rate necessary

Figure 3: Population in Uganda



SOURCE: WORLD ECONOMIC OUTLOOK DATABASE APRIL 2010, INTERNATIONAL MONETARY FUND.

Figure 4: Inflation in Uganda



SOURCE: WORLD ECONOMIC OUTLOOK DATABASE APRIL 2010, INTERNATIONAL MONETARY FUND.

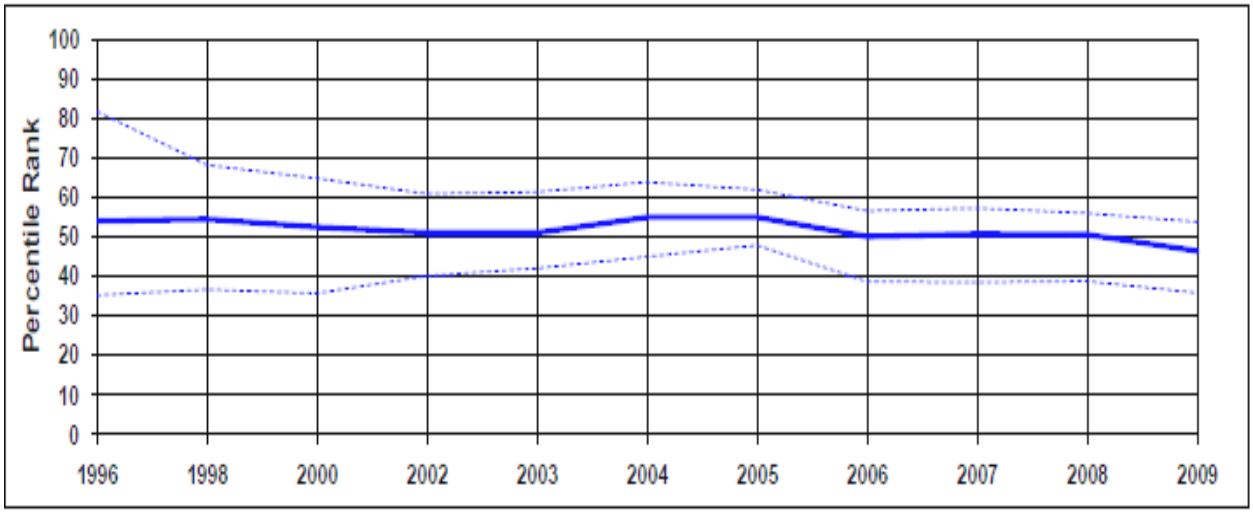
to outpace a rapidly growing population, which has more than doubled during his tenure (see Figure 3). Since the mid-1990s, inflation has been held in check quite effectively (see Figure 4). Poverty levels also have decreased from 56 percent in 1992/93 to 44 percent in 1997/98 and 31 percent in 2005/06 (Republic of Uganda 2010). Nevertheless, the demographic composition of population growth—about half the population is now under 15 years of age—means that job creation has become a major challenge for the country.

The end of two decades of violence under Amin and Obote was followed by a kind of controlled stability managed by President Museveni and his National Resistance Movement (NRM). Ostensibly, the "Movement" was a "no-party democracy" designed to defuse ethnic and regional conflicts and discourage the use of force for partisan political ends. Compared to the first 25 years of Uganda's independence, this model was largely successful and, by the mid-1990s, Museveni was receiving international praise as one of a new breed of promising African leaders. Notwithstanding these early assessments, Museveni's re-elections in 2001, 2006, and 2011 were marked by repressive and divisive campaigns that disappointed hopes for increased democratic competition and soured most observers on Museveni's democratic credentials. The president was able to run for re-election in 2006 only by virtue of a parliamentary vote to eliminate term limits. The chief opposition candidate, Kizza Besigye, was sidelined from most of the campaign by allegations of rape and treason that appeared to be politically motivated. In practice, the NRM became Uganda's quasi-one -party system, with supporters mostly coming from the president's base in the west and the Buganda heartland. Yet, there was considerable day-to-day latitude given to the media for criticism of the government—only when critics struck a nerve or threatened to expose corruption did the government strike back.

This relative room for freedom of expression is reflected in Figure 5, which shows Uganda's percentile rank among the world's countries for "voice and accountability" in the World Bank's Worldwide Governance Indicators.[7] In the noisy and heated debates in Ugandan politics, there is plenty of "voice" (if less accountability), which is reflected in a middle-of-the-pack ranking.

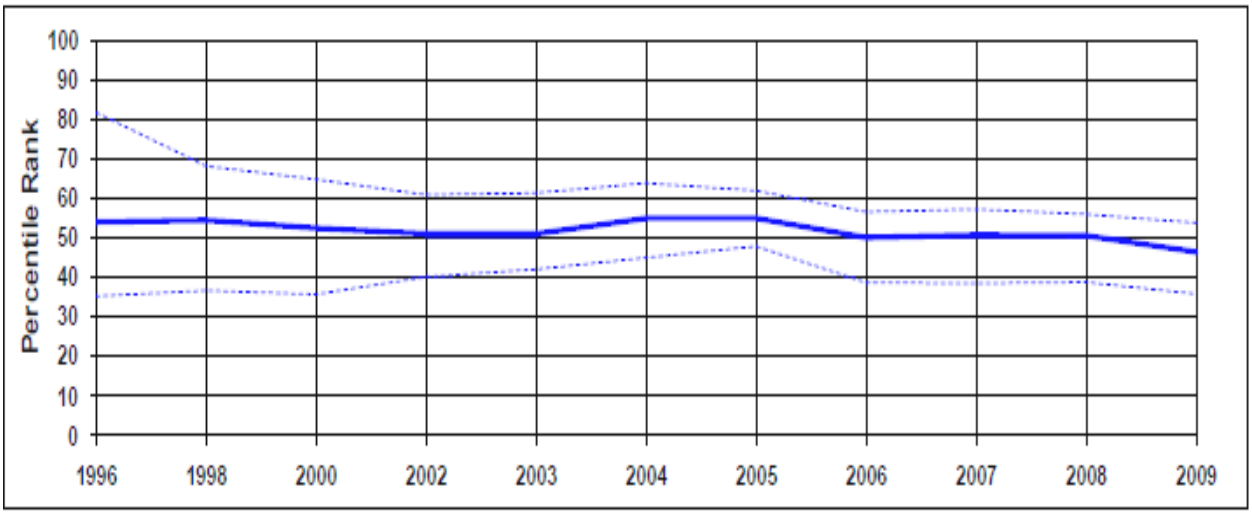
As seen in Figure 6, however, the government's ranking on corruption is quite negative. The World Bank's assessment shown here is echoed by that of Transparency International's

Figure 5: Uganda 1996-2009 Voice and Accountability



SOURCE: WORLDWIDE GOVERNANCE INDICATORS, WORLD BANK, 2010.

Figure 6: Uganda 1996–2009 Control of Corruption



SOURCE: WORLDWIDE GOVERNANCE INDICATORS, WORLD BANK, 2010.

2009 Corruption Perceptions Index, which ranks Uganda at 130 out of 180 countries (Transparency International 2009).

The use and allocation of natural resources and land is an issue frequently linked to corrupt government practices. In the late 1990s, Uganda became embroiled in the political turmoil and armed conflict of its neighbor, the Democratic Republic of the Congo (DRC). The Uganda People's Defence Force (UPDF) effectively controlled the northeast corner of the resource -rich DRC and soon became engaged in the illicit extraction of such resources as gold, diamonds, timber, coltan, ivory, and coffee. Journalist Martin Meredith has described how the networks operated:

> "…Uganda allowed high-ranking army officers a free rein to make private fortunes. Among the key players were members of Museveni's family, notably his brother, General Salim Saleh. The Ugandan army was used to enforce their business empire and facilitate trade. Aircraft arrived from military airfields in Uganda with consumer goods, foodstuffs, and arms, and departed with diamonds, gold, and coltan in highly profitable ventures. Congo gold became a major Uganda export" (Meredith 2005).

These activities allegedly were accompanied by even more egregious

actions by the UPDF. According to a recent UN report, Ugandan troops engaged in "torture and various other cruel, inhuman, or degrading treatments" while in the DRC. Uganda's foreign minister called the report "a compendium of rumours, deeply flawed in methodology, sourcing, and standard of proof" (*New Vision* 2010).

The protection, use, and allocation of land, water, and forests also have been tied to allegations of government corruption and political patronage. Land tenure in Uganda is complex, with four prevailing systems (customary, *mailo*, leasehold, and freehold) based on a sometimes contradictory and overlapping mix of formal and traditional systems of authority and adjudication. For example, so-called Balaalo pastoralists[8] who came to Buliisa District during the past decade seeking grazing land made purchases approved by local officials and what they believed were legal documents, only to encounter objections from traditional authorities who resented the pastoralists' presence on what they considered to be customary, ancestral land long used for agriculture by the Bagungu.[9]

The protection of wetlands also is a land issue that exemplifies the weak, erratic, and unequal application of the law. While wealthy and politically influential individuals have been able to build developments, resorts, or homes on what are supposed to be protected wetlands, poor populations have been sometimes evicted by the government in incidents that have produced protests and conflicts. Controversy and conflict surrounded an executive decision in 2007 to provide about one-third of the land in the Mabira Forest Reserve to the Mehta Group for a sugarcane plantation. Public demonstrations against the "Mabira giveaway" turned violent when vigilantes known as the "Kiboko Squad" assaulted protestors (Muhumza 2010). The Mabira decision was later suspended. Such episodes and controversies have taken place in the broader context of a markedly weak capacity to implement environmental laws and regulations. Thus, environmental governance suffers from both a lack of political will and a lack of institutional resources.

Looking forward, these defects and vulnerabilities may lead to even higher levels of conflict in relation to the discovery of vast oil reserves, estimated at one billion barrels of oil equivalent, in the Lake Albert region that is shared by Uganda and the DRC. Knotty issues of shared governance and the distribution of oil revenues are likely to increase frictions among contending ethnic groups in the region as well as between the two national governments (Banfield 2010).

While Museveni's rule has seen far less overall violence than that of his predecessors, the underlying rifts in the country between the north and the south and among various ethnic groups have persisted. In the late 1980s, the Uganda People's Democratic Army (UPDA) fought in Acholiland against control by the NRM-led central government. Although the UPDA was defeated and the Acholis reintegrated into national political life, pockets of resistance remained and evolved into extreme forms, most notably including the Lord's Resistance Army (LRA). Bereft of a coherent political agenda, the LRA turned against the Acholi people themselves, looting villages, forcibly recruiting child soldiers, and committing atrocities against women and children. Many Acholis were forced into IDP camps in northern Uganda for more than a decade, while the Ugandan military was ineffective in its efforts to eliminate the LRA. Peace negotiations also failed and while stability has been largely restored in northern Uganda, the LRA still remains at large, seeking refuge and unleashing further violence and predation in neighboring Sudan, the DRC, and Central African Republic.

Recurrent violence of a very different sort has taken place in the northeastern area of Uganda known as Karamoja. The Karamojong pastoralists, discussed in greater detail below, have practiced cattle raiding for at least several hundred years. Composed of several different groups or clans, the Karamojong move seasonally to search for water and pasture within Karamoja and surrounding areas such as Teso, Lango, and Acholiland to the west. Cattle provide not only a livelihood but also are linked to social status and religious beliefs. Clans seek to expand or replenish their herds by raiding other clans or farmers. Over the past 30 years, a huge increase in the circulation of weapons in Karamoja has contributed to heightened levels of violence and retaliation. The Ugandan government has responded with a number of disarmament campaigns of mixed success. In 2006, ostensibly voluntary disarmament efforts by the UPDF involved forced confiscations accompanied by serious human rights abuses. According to Human Rights Watch (2007), these included unlawful killings, torture, looting, and arbitrary arrests and detention. As a result, "[b]ecause of the impact of past and current disarmament initiatives (notably the violence involved), many Karimojong view the UPDF as hostile invaders in their territory" (Bevan 2008).

Nearly 12 percent of Ugandans are Muslim (Republic of Uganda 2002), and the government has been concerned for some time about the possible destabilizing influence of Islamic extremism. At the time of the 1998 bombings of the U.S. embassies in Nairobi and Dar es Salaam, Ugandan officials believed that the U.S. embassy in Kampala also had been a potential target. Since the September 11, 2001 attacks on the World Trade Center in New York, Uganda has aligned itself with U.S. efforts to prevent the spread of terrorism by Islamic radicals. In 2007, President Museveni sent troops to Somalia as part of an African Union peacekeeping force. In apparent retaliation, on July 11, 2010, 74 people were killed in suicide bombings at two locations in Kampala. Al-Shabab, a Somali Islamist militant group, claimed responsibility for the attacks. However, President Museveni reaffirmed his commitment to anti-terrorism efforts as well as the continued use of Ugandan forces in multilateral peacekeeping efforts.

In sum, while President Museveni's lengthy tenure as head of state has provided stability and generally good economic performance, the relevant context for the consideration of climate change and conflict in Uganda includes already existing vulnerability to episodes of violence and conflict related to ethnic tensions, persistent poverty, deeply embedded corruption, suspect electoral competition, weak institutions, the mismanagement of natural resources, and poor military command and control.

To these fault lines can be added the fundamental problem of flawed electoral competition. Despite protests from numerous domestic and international critics that he has evolved into yet one more African "president-for-life," President Museveni ran for another term of office in elections held in February 2011. In December 2009, the U.S. Congress directed the Secretary of State to report every 120 days on key criteria related to the progress of the 2011 Uganda elections, including the treatment of opposition candidates, freedom of assembly, and freedom of the media. In his State of the Nation address of June 2, 2010, President Museveni responded by saying that: "I would now like to advise our Development Partners from Europe and the USA, if they really want to help Africa as they keep saying, to concentrate on energy, roads and the railway and to some extent, on education and health. We do not need help on elections. This is a simple exercise." However, in July 2010, the second mandated "Clinton Report" to Congress noted that, among other shortcomings, "the Ugandan government continued to intimidate and restrict the activities of opposition parties," and "Uganda authorities used sedition, defamation, and security laws to prevent media outlets from criticizing the National Resistance Movement (NRM) government and President Museveni." Although the political opposition was divided among various parties, the potential remained for grievances, tensions, and conflict as the presidential campaign intensified. For many Ugandans, the government lacked credibility and accountability, but Museveni's grip on power seemed as strong as ever.[10]

"...while President Museveni's lengthy tenure as head of state has provided stability and generally good economic performance, the relevant context for the consideration of climate change and conflict in Uganda includes already existing vulnerability to episodes of violence and conflict related to ethnic tensions, persistent poverty, deeply embedded corruption, suspect electoral competition, weak institutions, the mismanagement of natural resources, and poor military command and control."

PASTORALISM AND CLIMATE CHANGE IN THE CATTLE CORRIDOR

"Despite its economic contributions and environmental advantages, pastoralism in Uganda is besieged by a series of difficult challenges, involving demographic change, land rights, the gazetting of land for protected areas and mineral exploration, and landscape conversion and fencing for areas under development. "

THE ENVIRONMENTAL ADVANTAGES AND PRACTICAL PREDICAMENT OF PASTORALISM

Widely practiced throughout the Horn of Africa and East Africa, pastoralism is a livelihood and set of cultural practices based on cattle-herding that uses mobility to make maximum use of scarce natural resources in arid or semi-arid environments characterized by limited and erratic rainfall. In these drought-prone areas, pastoralists move their cattle to water and pasture based on annual weather cycles and prevailing climatic conditions. Pastoralists derive their principal sustenance and livelihood from milk, blood, meat, skin, hides, wild fruits, and honey, but many also supplement their diet and livelihood by combining seasonal agriculture or agropastoralism. Pastoralism is a highly evolved and efficient response to the problem of scarcity in which spatial mobility provides the required adaptability and resilience. Biologists and environmentalists also note that mobile grazing in the Greater Horn of Africa contributes to biodiversity and environmental sustainability. Through the pastoralists' management of their herds, cattle consume grasses and biomass, transport and distribute seeds, and fertilize the ground, adding to plant biodiversity and the range of wildlife in the grasslands. In the estimation of the International Institute for Environment and Development (2009), "pastoralism is chronically undervalued." Because the survival of pastoralists depends on making the right decisions about the timing and direction of their movements in search of water and pasture, they are deeply attuned to and knowledgeable about their biophysical environment. Traditional knowledge about seasonal changes in the flora and fauna of the landscapes they traverse, as well as intimate familiarity with the intricacies of weather patterns, constitute a vast storehouse of information that is passed on from generation to generation.

The geographical reach of pastoralism in the Horn of Africa is striking, covering over 70 percent of the region, while in Uganda pastoralists of the Cattle Corridor range across approximately 60 percent of the nation's territory. Approximately 5 percent of Uganda's population, or 1.5 million people, are pastoralists. The livestock sector contributes about 8 percent of GDP, and pastoralists, not ranchers, hold the majority of the national cattle herd and produce the great majority of the country's milk and beef (Oxfam 2008; Rugadya et al. 2005). However, as a group, pastoralists are among the poorest Ugandans, with high rates of infant and maternal mortality, low

levels of literacy, and limited political participation. They also are often poorly regarded by their fellow citizens, who view them as "people who escape government administration, are a potential threat to security, and are tax evaders" Rugadya et al. 2005). In general, pastoralism is considered by many Ugandans to be a backward or declining livelihood, with a limited future and headed toward a more or less inevitable transition to ranching, farming, or other alternative livelihoods. This point of view is shared by President Museveni, although he himself comes from a pastoralist region in the southwest of the country. In the wake of the severe drought that hit many areas in 2009, Museveni observed, "[w]e must start planting grass for our cows and other domestic uses in preparation for future catastrophes and reduce practicing pastoralism" (Mambule and Buregyeya 2009).

Despite its economic contributions and environmental advantages, pastoralism in Uganda is besieged by a series of difficult challenges, involving demographic change, land rights, the gazetting of land for protected areas and mineral exploration, and landscape conversion and fencing for areas under development. Uganda's rapidly growing population has expanded the land under cultivation, disrupting pastoralists' traditional access to pasture and water and bringing them increasingly into conflict with farmers. As a consequence, pastoralists have sometimes moved from conflict to conflict, as cultivators who face their own problems with land fragmentation and environmental degradation have had decreasing tolerance for the pastoralists' shared use of natural resources. The Balaalo who migrated to Buliisa District near Lake Albert are a case in point. The groups in Buliisa District who objected to the presence of the Balaalo obtained a court order evicting them from the land. Although the pastoralists initially resisted, many of them were resettled in areas such as Kayunga, Kiboga, and Apac Districts. There, however, authorities of the Buganda kingdom refused to let the pastoralists graze and water their cattle, so their peregrinations continued, marked by further episodes of conflict. Professor Nkote Nabeta of Makerere University has described the situation in more formal terms: "The cattle corridor has experienced a transition process from public good characterized by non rivalry and non excludability to common pool resources (CPR) defined by [zero sum] subtractability." In response, "the Ugandan government has intervened to resolve the conflict through relocation of the pastoralists, [but] it has not resolved the conflict permanently" (Nabeta 2008).

Because individual property rights are not well established in many parts of Uganda, local communities have difficulty negotiating with pastoralist "outsiders," and tensions among different ethnic groups can escalate quickly. Moreover, the allocation of land for national parks, forest reserves, ranching, irrigation, and other development schemes has further reduced the open grazing areas once available to pastoralists. Land disputes have overwhelmed the already weak and overburdened court system, which many citizens perceive to be corrupt. According to Judy Adoko of the Land and Equity Movement in Uganda, for all of these reasons, "land conflict is bound to increase" in the Cattle Corridor.

CLIMATE, NATURAL RESOURCE MANAGEMENT, AND CONFLICT IN LUWERO, NAKASEKE, AND NAKASONGOLA DISTRICTS

To these difficulties faced by pastoralists and others in the Cattle Corridor can be added what many Ugandans perceive to be the effects of climate change. Moving north from Luwero to Nakaseke and Nakasongala in the Cattle Corridor, FESS interviewed residents who reported increasing incidences of drought and growing challenges of seasonal unpredictability. These perceptions track with the findings of Uganda's National Adaptation Programmes of Action (NAPA), the document that sets out the country's climate change priorities (Republic of Uganda 2007a).

Nearly every person in Luwero, Nakaseke, and Nakasongola Districts repeated similar comments when asked if the weather has changed:

- "Yes, there are more droughts and the rains are unpredictable."
- "We used to plant at the same time every year, late February or early March. Now, we do not know when to plant."
- "We have to plant whenever the rain comes. However, sometimes the rain comes, we plant, and then the rain disappears, causing our crops to fail."

The senior environmental officer for Luwero District echoed these statements, noting that "the people say the rains are not coming in the right season." But she also saw climate change effects commingling with other factors that are causing environmental stress. Intensive charcoal production is leading to rapid deforestation, wetland conversion is rampant as drought

REPUBLIC OF UGANDA. **2007A**. CLIMATE CHANGE: UGANDA NATIONAL ADAPTATION PROGRAMMES OF ACTION.

ABOVE: Drought in Nakasongola 2005.

drives people to use wetlands for agriculture, bush burning intended to create pasture destroys the ecosystem, and overgrazing causes soil erosion.

The district environmental officer of Nakaseke District observed that "climate change is with us" and the area is suffering from increased temperatures, declining sources of water, and drying of wetlands. The calendar of the planting season "has changed greatly, and rains are not predictable." As for agro-pastoralists, "when it starts raining, they just plant."

The head of natural resource management in the district stated: "Things are not predictable. By the fifteenth of October, the second rains should come. Now, there are more pronounced dry spells. The dry spells are longer and the temperatures are hotter than before. Then, the rain comes when it is not expected, with hail and strong winds. This is a new phenomenon. Before, hail sometimes came during the second rains. Now, the hail storms can come at any time. Also, hail stones can stay on branches for two days. They used to melt in 30 minutes."

Here again, however, climate change effects intertwine with poor natural resource management. The Nakaseke district officer observed that the production of charcoal and brickmaking is nearly uncontrolled. The environmental officers from Luwero and Nakaseke both asserted that deforestation from charcoal production is contributing to local climate change. As a result of deforestation, it is believed, there are serious outbreaks of termites moving into Nakaseke from Nakasongola. The termites consume the remaining vegetative cover, leaving bare ground.

Farmers and pastoralists alike believe that more frequent droughts are linked to new or worsening infestations of pests and diseases in their crops and in their livestock. These outbreaks are contributing to low livestock and crop productivity. For example, one pastoralist interviewed reported that "climate change is reducing the amount my cows produce. This is because the droughts are hard on the animals; some even die, particularly when the herd must travel long distances for water and pasture."

According to Uganda's NAPA, "[Livestock] productivity is still low due to severe reduction in quantity and quality of pastures and drinking water and increased disease and vector prevalence. These lead to death of animals during extreme drought and flood periods. Lack of water accounts for 72% of livestock production issues… Malnutrition and worm infection accounts for 41% of livestock health issues. Other important diseases are tick borne and Newcastle representing 29%" (Republic of Uganda 2007a).

In Nakasongola, one farmer told FESS researchers that she is "seeing more dry spells, more drought, and lower yields." Her response to this situation demonstrated some of the potentially perverse outcomes produced by the uncertainty and risk associated with climate change. Fearing that planting at the "usual" time of the year might squander all of her seeds if the rains failed, she planted on only one-fourth of the land on which she would normally plant. This ensured that she would not lose all of her seeds, but also severely limited her potential harvest.

Speaking on behalf of a group of farmers from Nakasongola, another interviewee lamented the changes that he has witnessed: "The climate is changing. The cassava has rotted, the cow peas are diseased, the ground nuts, too, and birds have begun to eat the corn before it is mature because so many trees that used to provide them with sources of food have been cut down." The farmers also asserted that temperatures have increased, with one observing, "In the past during the dry season, morning temperatures were quite cold. Now, it is hot in the morning and even hotter in the afternoon."

The interaction of resource scarcity (both natural and anthropogenic) and the changing climate results at times

CHRISTINE MATAYA

ABOVE: Thousands of bags of charcoal are trucked from Nakaseke to Kampala every day.

in local disputes, notably involving farmers and cattle keepers in search of water in the dry season. However, for the farmers interviewed in Nakasongola, conflicts with cattle keepers are generally low-level affairs. Cattle encroach on crops, and there can be disputes or conflicts at boreholes or valley dams. When pastoralists damage crops or cause harm at water points, fines are levied by the local water management committee. Emmanuel Tiger Baingana of the Cattle Corridor Development and Management Initiative noted that the sharing of resources is often a negotiated process: "It has been customary that if you find someone's well, you ask to stay for two days. If the well owner refuses, it is seen as brutal. Watering rights are requested for emergency purposes only. Sometimes, the farmer will refuse. Then, the pastoralist may pay rent to use the water source."

However, in the areas visited with higher numbers of pastoralists, the respondents were more concerned with conflict. For pastoralists in northern Nakasongola, accessing water in the dry season is particularly challenging. Conflict can ensue when numerous pastoralists bring their cows to a valley dam at the same time. One pastoralist said that "there is conflict because many people converge in the same area and they are all struggling for the purest water for their cows or for human consumption. In the process, serious quarrels can result." In the dry season, some 5,000 cattle are watered every day at the Nabiswera community dam in Nakasongola, exposing them to diseases and generating heightened risk of conflict (Twinomugisha 2010).

Among the pastoralists and farmers interviewed, few appeared to be practicing any sort of climate change adaptation. Tree planting projects occur on a modest scale throughout the area, but it is unclear if they are capable of producing any impact on the local climate. Moreover, they appear to be far outstripped by the market-driven felling of trees for charcoal.[11] In the northern sub-counties of Nakasongola, there have been some successful efforts to harvest water for individuals and neighbors to share, but the water tanks are too expensive for most people. In the sub-counties dominated by farmers, some interviewees are diversifying crops for food security and to sell to the market with the help of training by Volunteer Efforts for Development Concerns (VEDCO). Farmers were employing "timely" or "early" land preparation, as suggested by VEDCO, so their gardens would be ready for immediate planting when the rains arrived. In addition, farmers had access to new crop varietals, particularly drought-resistant cassava, and were successfully planting and harvesting these crops on their farms. Local farmers believe these efforts—not all of which began in response to changing weather patterns—are improving overall household security.

A study released in August 2010 by Participatory Ecological Land Use Management (PELUM), "Towards Enhancing Small-Scale Farmers' Livelihoods and Food Security through Indigenous Climate Change Adaptation," focused on Nakasongola and Mubende Districts and produced similar findings. Farmers highlighted the unusual, erratic, and intense alternations of drought and rain. In fact, as the study's author, Ben Twinomugisha, charted in detail, the names of the month in the Luganda language, which are based on traditionally observed environmental and agricultural cycles, no longer fit well with actually observed seasonal changes. The PELUM study adds three other common strategies used for climate adaptation: food reserves

are stored in granaries by families who can afford them (poorer families use sacks in their houses, a less healthy alternative); more food crops are grown that stay in the ground for a long time, such as cassava, sweet potatoes, and yams; and kitchen gardens are now commonly used to grow additional fruits and vegetables for household consumption.

Government at both the national and local levels has very limited capacity to respond to the challenges of climate change and climate adaptation. Weather forecasts are poorly communicated and viewed with great skepticism in any event. As one local natural resource official put it: "They tell us to expect rains and we don't get rains. They tell us it won't rain and it rains. They predicted an El Niño, but we never got it. Data is not good here." Wetlands are not protected, and in less-populated areas like Nakaseke and Nakasongola, landscape conversion is largely unregulated. When droughts arrive, their effects are intensified by these and other anthropogenic factors.

Funding for environmental and natural resource management is very limited at the district level. In Nakaseke, there is no district environmental action plan or district state of the environment report because of lack of funds. The district still needs to establish community environmental committees at the sub -county, parish, and village levels. If these committees were in place and provided with basic information and training, district staff could use their assistance in monitoring wetlands and other natural resources. Currently, one natural resources staff member covers the entire district on a motorbike. Some officials expressed concern that the repeated creation of additional districts for political reasons will further subdivide an already inadequate budget for crucial environmental issues.

In the Cattle Corridor, the potential for conflict derives from many sources that combine in different ways in specific contexts. Among the most fundamental contributors to conflict are rapid population growth, land fragmentation, overlapping land tenure systems, the coexistence of sometimes incompatible traditional and modern forms of dispute resolution, public perceptions of government corruption, increased internal migration, anti-pastoralist attitudes, environmental degradation affecting both pastoralists and farmers, a significant reduction and blockage of traditionally open grazing areas, and the vicissitudes of natural climate variability. The effects of the increasingly erratic and intense weather changes that most Ugandans believe are signs of climate change are now an additional factor with the potential to contribute to local grievances and exacerbate existing stresses.

As a general rule, the factors that lead to conflict do not combine in a linear relationship; they are nonlinear, interactive, and contingent.[12] But it is clear that most of the factors contributing to the potential for conflict in the Cattle Corridor are intensifying. The running thread that unites them all is competition over sometimes scarce pasture and water, scattered over a patchwork of locations that are either shrinking or blocked and subject to uncertain land tenure. While zero grazing schemes for agropastoralists, which are based on producing fodder locally, were viewed positively by some interviewees, the fencing of land for commercial ranching as an alternative to pastoralism was perceived by many as simply preferential treatment for the politically well connected rather than a serious alternative.

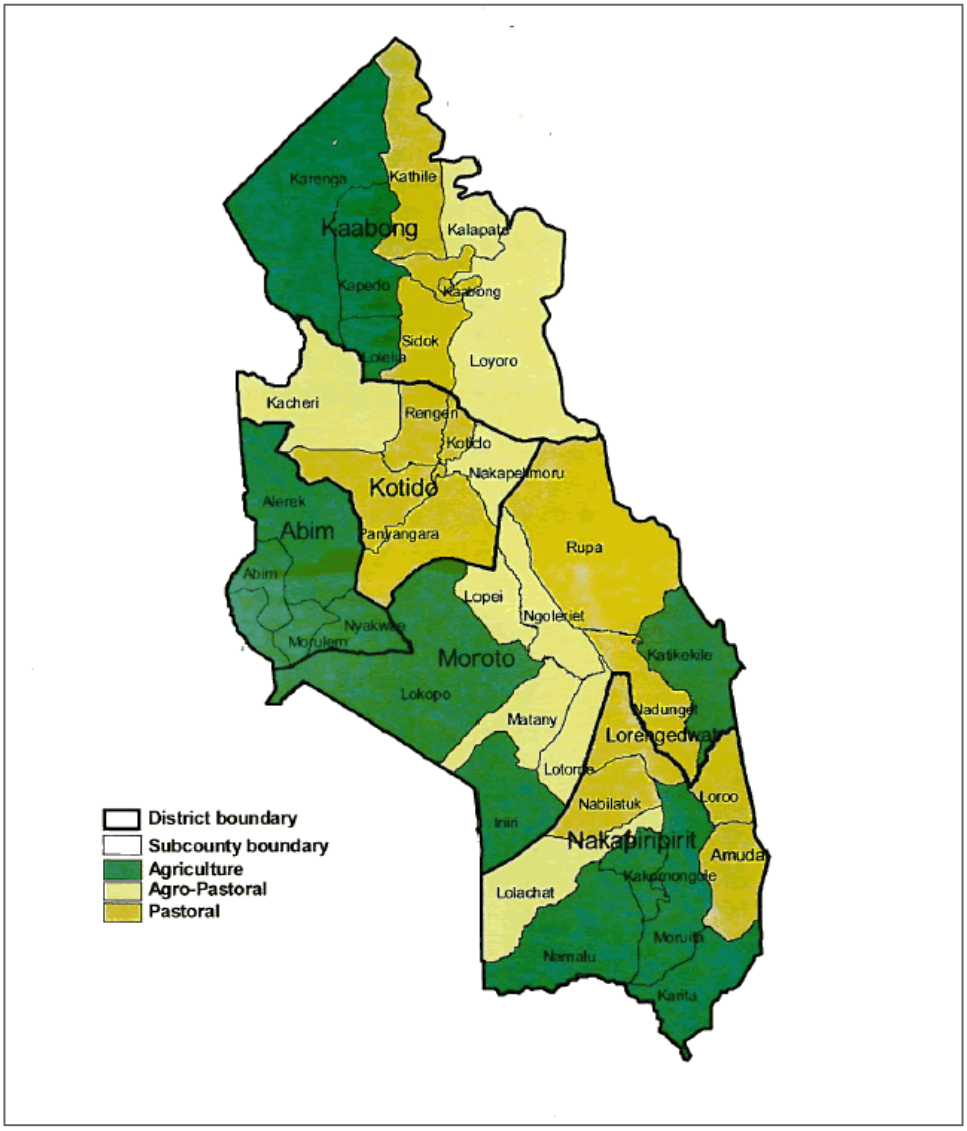
By increasing the frequency and severity of scarcity, climate change is likely to interact with these factors in ways that multiply the number of conflictive circumstances having potential pathways to violence. Although the levels of risk and intensity of conflict cannot be specified with precision, the relatively weak capacity of pastoralists to organize and mobilize for large-scale conflict probably represents a limit on the scale of violence. At the local level, however, episodes of deadly violence appear probable. At the same time, based on FESS interviews, it is clear that climate adaptation for increased resilience to both natural climate variability and anthropogenic climate change remains a very underdeveloped mechanism for conflict prevention and mitigation in the Cattle Corridor.

It is important to note that the distinction between climate variability and climate change is a difference of degree not a difference of kind. Thus, the kinds of climate adaptation mechanisms appropriate to climate change (e.g., better storage facilities, careful crop selection, water harvesting, and small-scale irrigation) are also useful responses to natural climate variability. From this perspective, climate change gives new urgency to the need for such measures, but the climate adaptation agenda amounts to a no-risk strategy that will carry benefits even if the effects of climate change are more modest than anticipated.

KARAMOJA: CULTURE, STATE, AND CONFLICT

As difficult as living conditions are elsewhere in the Cattle Corridor, the situation in Karamoja is far more complex and challenging in terms of culture, livelihoods, environment,

Figure 7: Karamoja Production Zones



SOURCE: GOVERNMENT OF UGANDA 2010A.

poverty, security, national policy, and conflict.

The inhabitants of Karamoja, known collectively and generically as the Karamojong, are made up of three main ethnicities—the Dodoso, Jie, and Karimojong, the latter of which subdivides into a number of sections, including the Bokora, Matheniko, and Pian. Along the border with Kenya to the east are found the Turkana and Pokot tribes, while to the north in Sudan are the Toposa. The so-called "Karamoja cluster" extends from these shared borderlands of Uganda, Kenya, and Sudan to the southwestern corner of Ethiopia. These tribes and sections have common Eastern Nilotic origins, politico-religious rituals, and social organization by age-class (Knighton 2003, 2005).

Most Karamojong practice agropastoralism across the semi-arid and arid plains of this region, although in Karamoja there is sufficient ecological variation to constitute three distinct production zones: agricultural; agro-pastoral; and pastoral (see Figure 7). The agricultural zone, which mostly runs along the western border of Karamoja, also is referred to as the "green belt" of Karamoja. In the green belt, where rainfall on average is nearly double that of the pastoral areas, a wide variety of crops can be grown, including corn, sorghum, beans, millet, cow peas, ground nuts, and a number of tropical fruits. However, the majority of Karamojong live in the agropastoral and pastoral areas, and livelihoods there are based primarily on livestock rearing.

For hundreds of years, the arid and drought-prone nature of much of Karamoja has made food security and group survival often difficult and precarious. Famine is not a new phenomenon. Cattle are highly valued, not only as a means of providing sustenance but also as bridewealth, social status, and ceremonial centerpiece. They are "the medium of all social values, the means of livelihood, and the stock of wealth" (Knighton 2005). In this mix of scarcity, environmental shocks, and highly valued livestock, the Karamojong have developed longstanding patterns of cattle raiding among the various tribes and sections. These, too, are not only acts of aggression to obtain more cattle or replenish diminished herds, but also demonstrations of prowess and heroism on the part of the community's young initiates or karachuna, commonly referred to as the Karamojong "warriors." Karamojong settlement patterns reflect the need for protection against cattle raiding by rival groups in the form of manyattas (a village or collection of households) and kraals (a mobile camp of mostly men for herding cattle, sheep, goats, and donkeys). Both of these are guarded and sturdily constructed with thorn bushes and other local materials to defend against enemies.

However, in recent decades the Karamojong have conducted cattle raids not only against their tribal counterparts but also against farming communities in other regions of Uganda to the west, including Teso, Langi, and Acholiland. In the dry season, the Karamojong take their herds west to wetter areas where pasture and water are still available. Once there, they have preyed upon the livestock of cultivators to add them to their herds. One interviewee who grew up in the Langi region said that the people there referred to the Karamojong as "chameleons," because they would arrive peacefully to water their cattle, but when they were ready to return to the east, they would attack farmsteads and steal cattle, at times killing the inhabitants who resisted.

While conflict associated with cattle raiding has been endemic to Karamoja for many years, the level of violence has increased significantly since the mid-1970s. Foot and mouth disease reduced cattle stock significantly in 1975, and a severe drought and famine took many lives and further reduced livestock in 1980. The Karamojong sought to restore their cattle wealth by raiding. However, a new development made this surge in raiding especially lethal. When the Idi Amin government fell in 1979, Ugandan Army soldiers abandoned their barracks in Moroto, leaving behind a huge stockpile of weapons. The Matheniko came into possession of some 60,000 weapons, which then began circulating to allies, while leaving other groups unarmed and vulnerable to predation (Bevan 2008). Among the worst hit were the Bokora, attacked by the Matheniko, and the Dodoso, who first lost their cattle and then were decimated by the 1980 famine (Bevan 2008).

This situation created a classic "spiral of insecurity" in which unarmed tribes and clans scrambled to find arms by any means possible in order to defend themselves and to conduct their own retaliatory raids. Civil war to the north in Sudan helped to make this possible. Through trade and alliances, thousands of weapons found their way from Sudan into Uganda, either directly or via the Turkana in Kenya. As armed raiding and the arms trade grew in Karamoja, the UPDF increasingly sought to put a halt to them. However, by many accounts, even while seeking to suppress armed violence, a number of UPDF soldiers and commanders also entered into the arms market, thereby bringing new caches of weapons into circulation (Akabwai and Ateyo 2007).

In response to the violent raiding in Karamoja and (perhaps even more) its neighboring districts, the Ugandan government launched a series of disarmament campaigns in 1984, 1987, and 2001, and an ongoing effort since 2006. The 2001 disarmament campaign began well on a voluntary basis, collecting thousand of guns from a number of groups and clans. However, it evolved into an increasingly forcible disarmament and was then cut short, as the UPDF were redeployed to fight the Lord's Resistance Army (LRA) in northern Uganda. This had a perverse double effect—the Karamojong came to see the UPDF as aggressors, and new imbalances were created between those who had voluntarily disarmed and those who had retained their weapons (Bevan 2008). As military operations against the LRA wound down, the government again sought to implement a disarmament scheme in Karamoja, although recast in a broader conceptualization that was supposed to incorporate lessons learned from the 2001 experience and combine disarmament with development. This strategy was synthesized in 2005 in the Karamoja Integrated Disarmament and Development Programme (KIDDP). In addition to community sensitization, the KIDDP also outlined steps to help develop alternative livelihoods and peace-building (Republic of Uganda 2007b). Moreover, the KIDDP addressed a felt need—according to a study by the Feinstein International Center, extensive focus group interviews showed that "views on disarmament as a goal were overwhelmingly positive" (Stites and Akabwai 2009).

Unfortunately, the "integrated" approach envisioned in the KIDDP design was pre-empted by the reassertion of forcible disarmament by the UPDF in 2006-2007 through so-called "cordon and search" operations. As noted above, multiple beatings, torture, and killings were reported by witnesses (Human Rights Watch 2009). As resentments grew, UPDF soldiers increasingly became the targets of Karamojong warriors.

Since that time, cordon and search tactics have diminished, and many weapons have been collected through the "disarmament exercise." According to interviewees, security in Karamoja generally has improved and a number of new development initiatives have been launched. In 2009, in what was said to be an expression of his determination to deal with the fundamental problems of Karamoja in an integrated fashion, President Museveni appointed his wife, Janet Museveni, as State Minister for Karamoja. In July 2010, the UPDF claimed that, since 2001, approximately 29,000 guns had been collected in Karamoja, with only 700 illegal guns remaining in the hands of Karamojong warriors. Further, the military asserted that it had sealed off Uganda's porous borders with Sudan and Kenya, cutting off the inflow of new guns (Kasasira 2010). These would appear to be welcome

developments, given the toll that conflict took in Karamoja in the 2000s. According to the Conflict Early Warning and Response Mechanism (CEWARN) of the Intergovernmental Authority on Development, from July 2003 through November 2009, there were 1,912 violent incidents officially recorded, resulting in 2,852 deaths and 121,301 cattle raided (CEWARN 2010).

However, despite the military's claims of success in reducing the material inputs contributing to violence (i.e., the number and flow of weapons), the outcomes in the level of violence in the first half of 2010 did not change correspondingly. For the period of January through April 2010, CEWARN reported 142 violent incidents, resulting in 175 deaths and 11,810 livestock losses—a pace of conflict and theft roughly unchanged from the 2003-2009 time frame (CEWARN 2010). Moreover, news accounts continued to report accusations of human rights abuses committed against the Karamojong by the UPDF and denials by the military and Ugandan government. A UPDF operation in Rengen sub-county on April 24, 2010 became a particular matter of controversy. It was alleged that 28 to 43 civilians were killed as the UPDF tried to recover livestock the Jie had raided from the Dodoth. President Museveni appointed a military probe into the killings, but the UN High Commissioner for Human Rights, Navi Pillay, rejected that self-investigation and called for an independent inquiry (Mugerwa 2010). In August 2010, the UPDF's army spokesman, Felix Kulayigye, wrote an article in the New Vision stating that the UPDF's investigation had shown only 10 people had been killed in the episode, and the deaths had taken place during an exchange of fire (Kulayigye 2010).

Thus, tensions continue to run high between state authorities and the Karamojong, and many within the local population regard the UPDF as an antagonist to be feared and reviled. A number of people interviewed by FESS in Kotido noted they continue to receive reports that UPDF soldiers are taking stolen cattle for themselves rather than returning them to their owners. On July 2, 2010, at the conclusion of FESS's interview with 22 Jie warriors in Nakapelimoru, an older man rose to state that the previous day he had 87 cattle stolen from him by the Matheniko. He alleged that when he reported the theft to the UPDF, instead of receiving help, he was beaten. He lifted his shirt to show marks on his back.[13] The next morning, a number of the young warriors went into Kotido to board the bus for Moroto, hoping to track down what had happened to the stolen cattle.

POVERTY, DROUGHT, AND CLIMATE CHANGE IMPACTS IN KARAMOJA

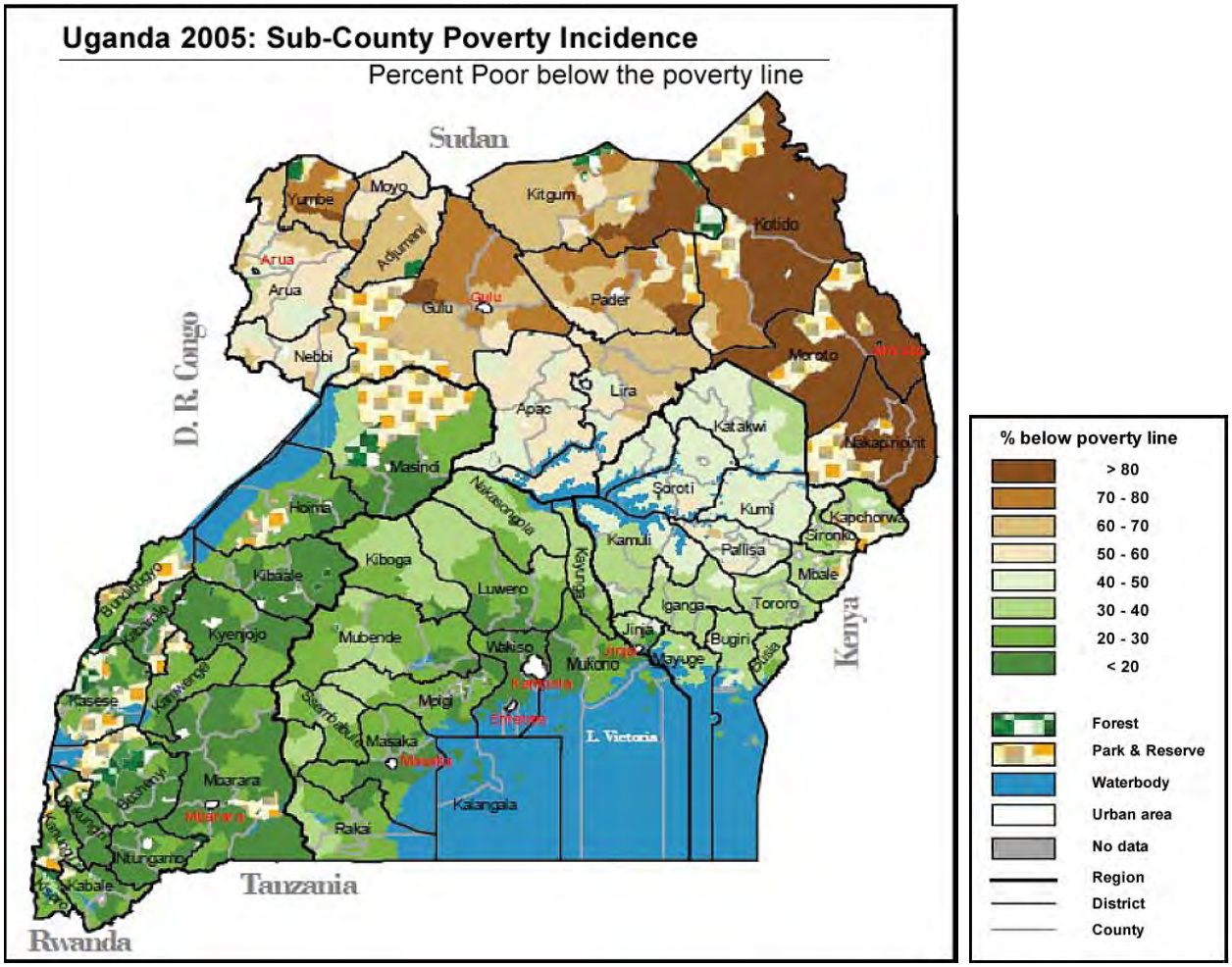
Intertwined with this background of

Table 1: Social and Economic Indicators: National Data vs. Karamoja Data

Indicators	National	Karamoja
Estimated Population [UBOS 2008]	29.6 million	1.02 million
Annual Population Growth [UBOS 2008]	3.2%	5.1%
Population living below poverty line [UNDP MDG Progress Report 2007][a]	31%	82%
Maternal mortality rate (per 100,000 live births) [UDHS 2006, WHO 2008]	435	750
Infant mortality rate (per 1000 live births) [UDHS 2006]	76[b]	105
Under 5 mortality rate [UDHS 2006]	137	174
Access to sanitation units [MoH 2007, OCHA/OPM 2008]	58.5%	8%
Access to safe water [UBOS 2008]	68.6%	40.5%[c]
Immunization (children 12-23 months old, fully immunized) [UDHS 2006]	46%	48.2%
Illiteracy [UNDP HDR 2007]	33.2%	89%
Net primary school attendance rate [UDHS 2006]	82%	43.3%[d]
HIV/AIDS prevalence rate [HSBS, 2005][e]	6.4%	3.5%

[A] MINISTRY OF FINANCE, PLANNING AND ECONOMIC DEVELOPMENT (MOFPED) STATE OF UGANDA POPULATION REPORT 2007, P.40.
[B] UGANDA HIV/AIDS SERO BEHAVIOURAL SURVEY (UHSBS) 2004-2005.
[C] KARAMOJA STATISTIC FOR WATER COVERAGE DOES NOT INCLUDE ABIM DISTRICT, FOR WHICH THE RELEVANT FIGURE WAS NOT AVAILABLE.
[D] UDHS.
[E] MINISTRY OF HEALTH, HEALTH SECTOR STRATEGIC PLAN 2005/6 – 2009/2010.
SOURCE: *ADAPTED FROM UNICEF PRESENTATION TO KARAMOJA WORKING GROUP, JUNE 15, 2010.*

Figure 8: Incidence of Poverty in Uganda by Sub-County

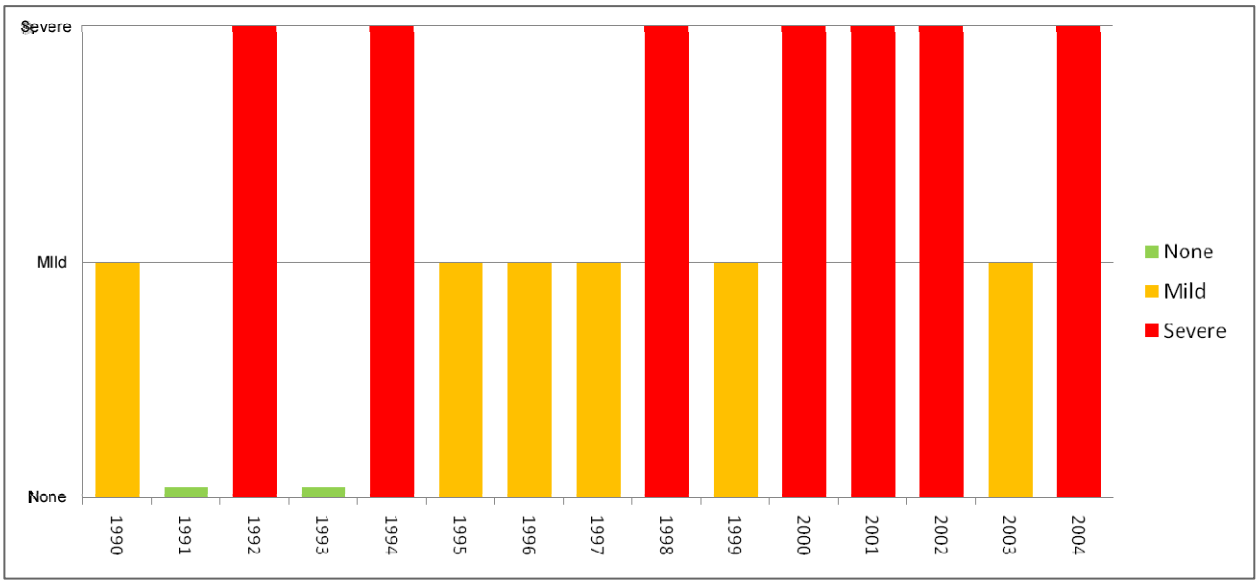


SOURCE: UGANDA BUREAU OF STATISTICS 2008.

chronic conflict are conditions of deep poverty, rapid population growth, severe food insecurity, poor health conditions, and increasing drought. According to Uganda's NAPA, "The rate of population growth is highest in arid areas, averaging 9.7% in Kotido and 6% in Moroto and Nakapiripirit [all in Karamoja]. Thus the highest growth rates are found in the most vulnerable ecosystems" (Republic of Uganda 2007a). Table 1 highlights the extremely difficult living conditions in Karamoja by comparing a variety of social and economic indicators with national averages. While the percentage of the national population living below the poverty line is 31 percent, in Karamoja it is an astronomical 82 percent. Some 89 percent of the population is illiterate, compared to 33 percent nationwide.[14] The map in Figure 8 shows the concentration of extreme poverty in Karamoja, revealing a marked contrast even when compared to other areas of the Cattle Corridor or the less-developed areas of northern Uganda.

Without exception, local people ranging from 40 years to 70 years of age who were interviewed in Karamoja stated—often using vivid examples—that the climate has changed noticeably and markedly in recent years. A number of Karamojong respondents noted that they traditionally made use of a highly evolved system of "signals" from nature to make decisions on both crop planting and movements in search of water and pasture. One interviewee referred to these as "grassroots indicators" and "our version of satellite imagery." For example, in the past, birds and animals made noises and plants flowered at certain times of the year that indicated the onset of the rainy or dry seasons. Perennial rivers and streams are now seasonal. Riverbeds that traditionally were reliable dry season sources of water through the coordinated work of a team of diggers now yield no water. In 2007, when the rains did come, they were torrential downfalls at an inopportune time in the agricultural cycle, and crops were destroyed. Respondents gave many examples of now-unreliable traditional, indicators such as the ngataparkitela, a

Figure 9: Drought in Karamoja



SOURCE: ADAPTED FROM FEWS NET 2005.

migratory bird whose arrival from the north was formerly associated with the rainy season. These events are no longer occurring as they once did, a point also made with many examples in FEWS NET's "Conflict Baseline Study Report Conducted in the Karamajong Cluster of Kenya and Uganda" (2005). However, one Karamojong interviewee framed the point in broader terms, saying "if knowledge is power, then the Karamojong feel they are losing the power of their indigenous knowledge as the climate changes. It is one more aspect of their feeling of powerlessness."

For many, a clear manifestation of climate change has been the increasing frequency of drought. Figure 9 shows the quickening trend from 1990 to 2004. Three more bad years followed in 2007, 2008, and 2009. On average, 30 percent of food needs are covered by aid in Karamoja. According to a FEWS NET analyst, severe droughts that used to occur on average approximately every five years are now arriving every two to three years. It takes an estimated two years to recover from such drought events; the time between droughts has become so short that the asset base of communities has been reduced. The weekly cattle market in Kotido brings buyers from Pader, Lira, Kitgum, Gulu, and elsewhere, as cattle are sold off as a coping mechanism. Yet, as more cattle enter the market, sale prices tend to fall. The rains of 2010 promised the first good harvest in years.

The effects of drought, deprivation, food insecurity, cattle raiding, social disintegration, and state policies intertwine in manifold ways that have the potential to contribute to conflict. Perhaps the most damaging outcome for the Karamojong pastoralists has been the loss of their mobility—the cornerstone of Karamojong resiliency. According to an official from the UN Office for the Coordination of Humanitarian Affairs (OCHA), harsh drought conditions—as well as occasional but severe floods—forced many Karamojong to change their settlement patterns. As the viable areas for water and pasture became scarcer, the Karamojong responded by cocooning themselves in more concentrated settlements. This intensified overgrazing and spread epidemics and cattle diseases. However, this climate-driven concentration of settlements, at variance with traditional practices, was a response to and inscribed within a far more restrictive set of policies associated with the disarmament exercise. Because complete and comprehensive disarmament across Karamoja has not been accomplished, many groups and individuals have been disarmed, but others have not. Those who have disarmed are vulnerable to cattle raids and need protection, especially under widespread conditions of scarcity. However, attempts by the UPDF to provide security at "protected kraals" or "kraals at barracks" led to frustration and abuses. The UPDF soldiers were ill-prepared and ill-suited to look after cattle, and attempts to defend kraals led to civilian deaths during attempted cattle raids. The Karamojong complained that the UPDF would refuse to move the cattle when pastures had become exhausted, and the cattle confined to "kraals at barracks" were increasingly

prone to diseases (Stites and Akabwai 2009). For its part, the UPDF complained that "grazing animals and at the same time carrying out military operations stresses the officers," and that Karamojong men sometimes left the cattle with the army in order to raid animals from other communities (Wanyama 2010).

As a consequence, UPDF protection has been deployed in and around Karamojong villages, with the military's explicitly stated preference that all animals should be kept in the settlements. In sum, despite what many believe to be at least an incremental improvement in the conduct of UPDF soldiers and strong local opinion in favor of disarmament, the UPDF's logic of protection and the Karamojongs' imperative for mobility remain in direct conflict.

In a meeting with *karachuna* and several elders in Nakapelimoru, where problems with ticks and other cattle diseases are increasing, interviewees said they believe they know where there is more abundant pasture and water, but the UPDF will not allow them to travel there.[15] In fact, the young men said that the UPDF had told them, "if we find you with a gun outside of the village security area, we will kill you." The combination of drought and immobilization has placed the population in a precarious position. Water sources are dry. The concentration of people and animals using the same water resources has led to unhealthy conditions—cholera is afflicting the community. Malnutrition is high. People are surviving on wild fruit and berries collected by women. As women venture into the bush to forage for firewood, charcoal, and wild food, they are vulnerable to attack and sexual abuse by warriors from other tribes or clans (Stites and Akabwai 2009).[16] Yet, despite the near-sedentary condition of the people in the community, all of the group members said that the UPDF had still failed to protect them. They claimed that they—the Jie—had been disarmed, but the UPDF did not protect them against raids by the Matheniko, Dodoth, and Turkana.

Amid the difficult living conditions in Nakapelimoru and elsewhere in Karamoja, the traditional social structures that might serve as coping mechanisms are eroding or disappearing. In the Karamojong culture, the senior elders, akin to "a college or chapter of priests," play a fundamental role, based on consensus, in guiding decisions about cattle movements, raiding, disputes, and reconciliation with other clans (Knighton 2005). But with guns in the hands of a few young warriors, sometimes located in the remote bush, and the day-to-day control of communities in the hands of the UPDF, they have lost much of their authority. In Nakapelimoru, an elder said, gesturing, "We have no more power than those rocks scattered on the ground." Meanwhile, chafing under military constraints, young warriors are unable to lead cattle to more distant areas that have new sources of water and pasture. With drought-induced scarcity, the foraging for food by women has become increasingly important for food security. However, there is a serious problem of "coping by leaving," i.e., the out-migration of women and children to Kampala and other urban centers, where they often beg, fall into prostitution, experience abuse, are sold into marriage, or sent back to Karamoja by the authorities. Impoverished young men, now lacking clear and viable social niches in agriculture and cattle herding, have taken to crime, attacking passersby or sometimes raiding cattle not for

"Conflict in Karamoja has roots in a widely shared, aggrieved sense of 'otherness' and marginalization."

their clan but for direct sale on the market. The making of charcoal and bricks has become another alternative livelihood, as well as the quarrying and crushing of minerals and the sale of local brew.

Small urban centers have sprung up. As David Pulkol, the former director of the External Security Organisation and mercurial Karamojong advocate puts it, "We now have two Karamojas," one made up of small urban areas and the other "second Karamoja," where "people live in manyattas" (Kasasira 2010). Karamoja is a region in transition, with a jumbled and in some ways dysfunctional reordering of social roles, a mix of old and new economic coping strategies, and the continued pursuit of pastoralism as the preferred livelihood and way of life.

Despite favorable trends including new attention by the state to address Karamoja's historical marginalization and decreasing numbers and availability of illicit arms, the continuation of cattle raiding (increasingly for nontraditional market-based reasons), ongoing restrictions on movement, persistent abuses by the UPDF, the erosion of traditional social roles, and the severe consequences of repeated and increasingly frequent droughts (very likely driven by climate change), all make efforts to reduce conflict extremely problematic.[17] Most interviewees were pessimistic about the prospects for significantly improving living conditions in Karamoja over the near to medium term.

Conflict in Karamoja has roots in a widely shared, aggrieved sense of "otherness" and marginalization. It may be the case, as the longtime observer of the Karamojong, Ben Knighton, has noted, that the Karamojong never asked to be part of the Ugandan state, but the heavy and militarized state presence, the effects of incipient urbanization, and the constant discussion of Karamoja as a problem to be solved have reinforced this aggrieved and resentful identity. The Government of Uganda's view of pastoralism as an archaic and outdated phase in the evolutionary process of development is perceived by many in Karamoja as a condescending and unrealistic posture that discourages cooperation and undermines trust. If not handled well and targeted toward suitable areas, efforts by the Government of Uganda to promote agriculture, however reasonable as an alternative development strategy over the longer term, might in fact increase tensions.

Beyond the disarmament campaign, there have been many other state and nonstate responses to the situation in Karamoja. Oxfam has worked in Karamoja for many years and has focused on strengthening pastoralism, which contributes more than half of district government's revenues but receives only a small fraction in return. Oxfam also has worked to mainstream conflict resolution into all of its activities, in coordination with the Resident District Commissioner's Office. The International Rescue Committee is sponsoring peace committees and women's and youth groups to work on cross-border peace-building and conflict resolution through cultural activities on the Uganda-Kenya border. Through its Building Bridges to Peace program, MercyCorps, supported by USAID, is working to use joint livelihood programs to engage communities and promote reconciliation. MercyCorps makes use of an intensive participatory approach to conflict mapping, dialogue, and trust-building.

Given the severe food insecurity in Karamoja due to drought in recent years, the World Food Program (WFP) has been providing millions of dollars worth of food aid. Difficulties in providing rations in 2009 due to delivery glitches and insecurity were followed by a decision to reduce emergency food aid by 70 percent and to institute the Karamoja Productive Assets Programme, which is aimed mostly at moderately food-insecure households (Browne and Glaeser 2010). The emergency operation continues, targeting extremely vulnerable households with free food distributions, as well as providing for the food needs of malnourished children.

Under the Karamoja Productive Assets Programme, participants engage in building community assets and acquiring skills through food or cash for work schemes, including the cultivation of cassava and cash crops, the creation of water-harvesting assets, including low-technology dams, and tree planting. In Nakapelimoru, however, interviewees claimed that they had planted trees, and had never had been paid with food. There also were reports that funding shortages had slowed deliveries from the Adventist Development and Relief Agency (ADRA), one of the project implementers. USAID contributed $6.8 million toward the WFP emergency relief operation in December 2009 and another $4.8 million in August 2010 "to prevent the population from resorting to destructive coping mechanisms" (Candia 2010). In September 2010, WFP announced an appeal for an additional $8 million for its "successful asset creation and livelihoods programme" (Liri 2010). However, some interviewees in Kotido expressed skepticism about the program. For example, one church worker said of tree planting, "they just dig a hole and plant the tree for food, but nobody takes care

of it."

Meanwhile, the Government of Uganda has initiated the Karamoja Action Plan for Food Security (KAPFS) for 2010-2015. The KAPFS has seven objectives: 1) to increase crop production and productivity; 2) to increase livestock production and productivity; 3) to increase the functionality of existing water production facilities (dams and valley tanks); 4) to restore and revitalize degraded natural resources; 5) to improve post-harvest storage facilities; 6) to promote markets and value addition; and 7) to promote capacity building of indigenous stakeholders and other service providers.

While the KAPFS does include attention to pastoralist needs, the strong perception of many observers in Karamoja is that both the KAPFS and the other policies promoted by State Minister for Karamoja, Janet Museveni—including road building and clearing land—tilt too heavily toward agriculture and "sedentarization." Indeed, given President Museveni's statements about the need to transition away from traditional, mobile pastoralism, there is a feeling among many Karamojong that the state is fundamentally anti-pastoralist.

Frequent anti-Karamojong comments by national politicians reinforce this view. In Kotido, one very experienced aid worker originally from Buganda said that ethnic slurs against the Karamojong commonly heard in the media "make me sick." In Kampala, a very prominent MP from a neighboring district told FESS interviewers, "Some people may think it's wrong to say so, but I think they [the Karamojong] are genetically disposed to cattle raiding and killing."

However, the more fundamental problem, according to former Karamojong officials and church leaders in Kotido, is that the people of Karamoja feel that both the central government and local government have made promises of reform and assistance for years, but they have never kept them. In the words of one longtime resident with experience in all the districts of Karamoja: "Total mistrust is the core of insecurity." Government initiatives are viewed with cynicism. With so few alternatives available to them, the Karamojong take advantage of new programs to the extent they can, but they have little faith that they will bring about real improvements in their living conditions.

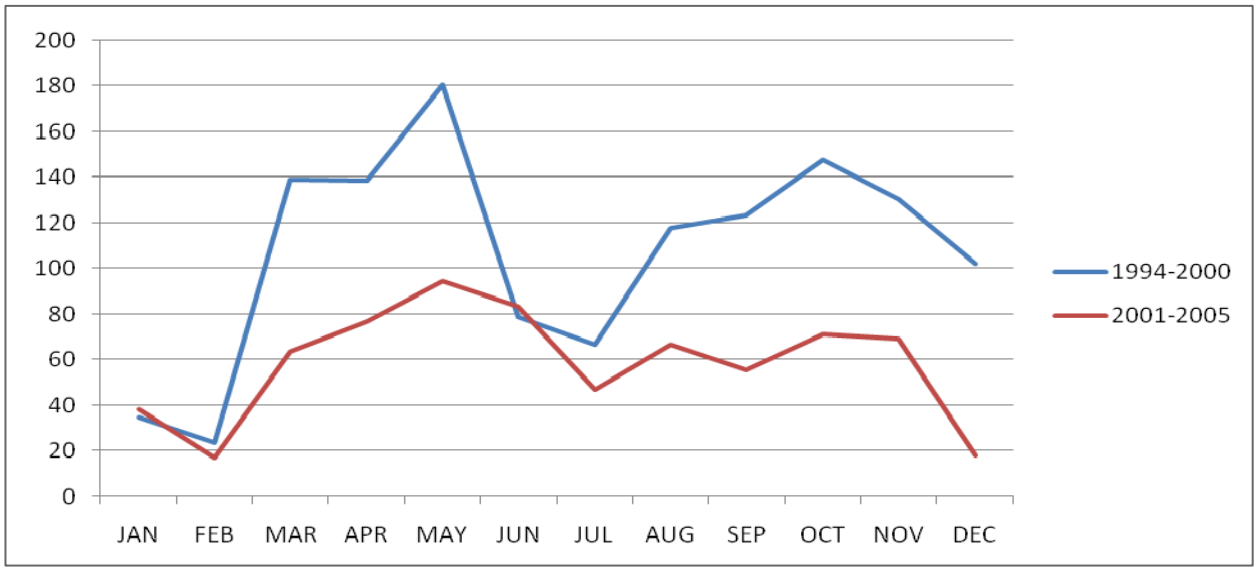
Several recent examples were given in FESS interviews that illustrate why this is so. In 2009, with intense drought and food insecurity creating crisis conditions, huge shipments of cassava sticks were sent to Karamoja. However, they arrived too late for planting, and the Karamojong used them instead for wood and feed. According to a high-ranking official in the prime minister's office, a series of bottlenecks in the delivery process turned the effort into a costly fiasco. From the viewpoint of the intended beneficiaries, it was one more expression of indifference or disregard.

During FESS's visit to Karamoja, two other episodes had similar effects. First, President Museveni arrived in Kotido to announce the graduation of 2,000 soldiers to enter into the Anti-Stock Theft Unit. Yet, the next day, after he left, the word on the street was that many of the soldiers had already been called back to Kampala. Shortly thereafter, the president announced a scheme encouraging the collection of gum arabica, which could be sold at identified locations at a unit price of 5,000 shillings. Many people tried to take advantage of this initiative, but when they arrived at the designated location, there was no money to pay them, and they were told to leave their names on a list and come back later. When they returned, some found their names had been removed from the list, and those who were paid received only 1,000 shillings. The following week, State Minister for Karamoja, Janet Museveni, came for a visit to meet with local officials, church leaders, and NGO representatives. According to one of the attendees, she expressed what seemed to be genuine concern for the situation in Karamoja and a determination to follow through on promises of water delivery, but no one mentioned to the first lady the problems with the gum arabica project.

Among the best sources of detailed information about what is really happening on the ground in Karamoja are the reports of CEWARN field monitors, who record incidents of conflict, violent deaths, cattle theft, clashes with the UPDF, and the context and circumstances surrounding them. These constitute a mosaic of the overall conflict environment that is reported monthly and quarterly. However, this information does not appear to be used at the top levels of government. In Kampala, when asked if State Minister Museveni received the CEWARN reports, the CEWARN country coordinator said, "I don't know." When the same question was posed to the Ugandan official who oversees the CEWARN country coordinator's work, there was no answer given, apparently indicating an implicit "no."

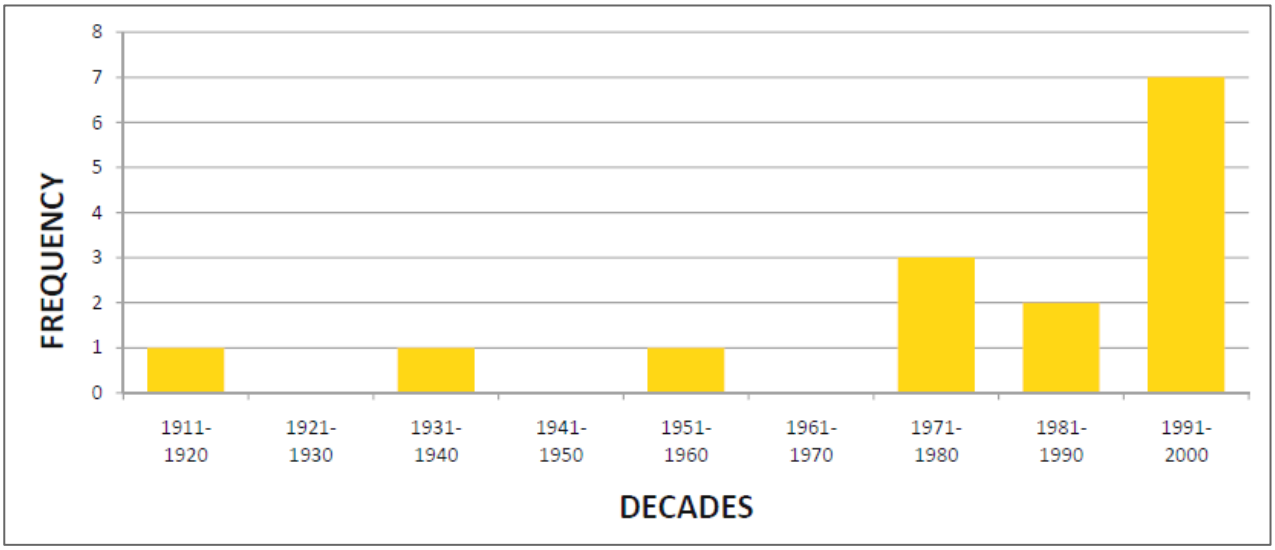
At the end of FESS's meeting with warriors and a few elders in Nakapelimoru, during which the participants had expressed great frustration and resentment toward the government and the UPDF, the executive director of Caritas in

Figure 10: Monthly Rainfall Averages in Kakooge, Nakasongola



SOURCE: UGANDA DEPARTMENT OF METEOROLOGY 2010.

Figure 11: Occurrence of Droughts in Uganda



SOURCE: UGANDA DEPARTMENT OF METEOROLOGY 2010.

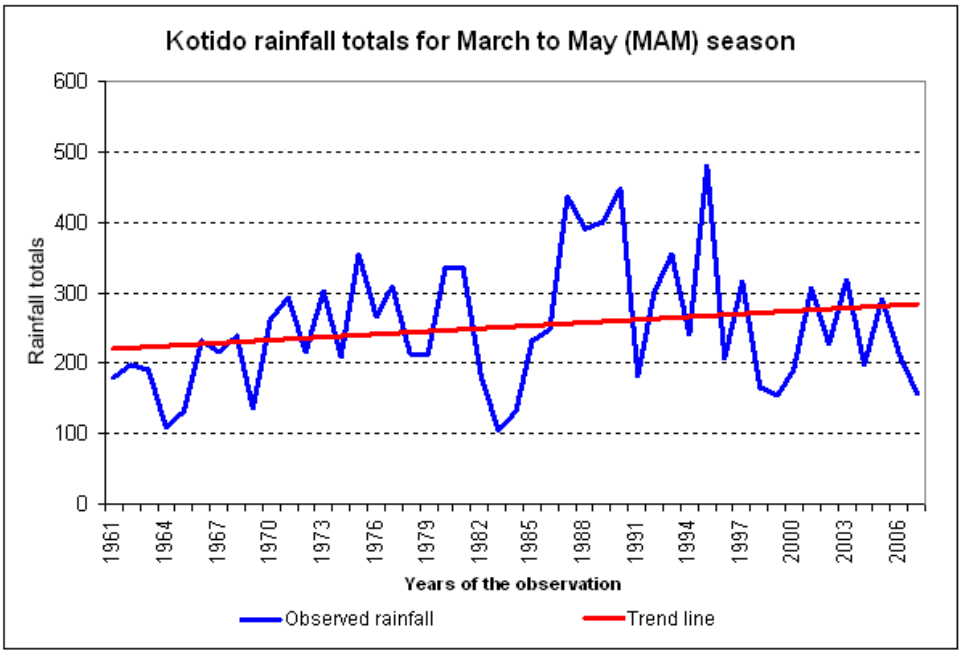
Kotido, who had arranged the meeting, posed a question: "So, after all we have talked about, all of the problems and difficulties that we face, what can we do about them, what can we do to make things better?" No one had an answer.

CLIMATE CHANGE AND THE DATA DILEMMA

In much of what has been written about climate change in Uganda, the factual basis for climate change is either implicitly accepted or accounted for by reference to the IPCC's fairly broad climate model projections for East Africa.[18] Rainfall in most of Uganda is bimodal, with the so-called long rains from March through May and short rains in the September to December time frame (ACCRA 2010). Uganda is regularly affected by El Niño (wetter) and La Niña (drier) cycles. In general, climate models project more frequent, heavy rainfall in the latter part of the year, as was the case in 2007 when the country was hit by disastrous flooding (Oxfam 2008). Karamoja differs in that it has a unimodal pattern, with most rain distributed somewhat erratically between April and September, and peak rainfall in July/August (ACCRA 2010).

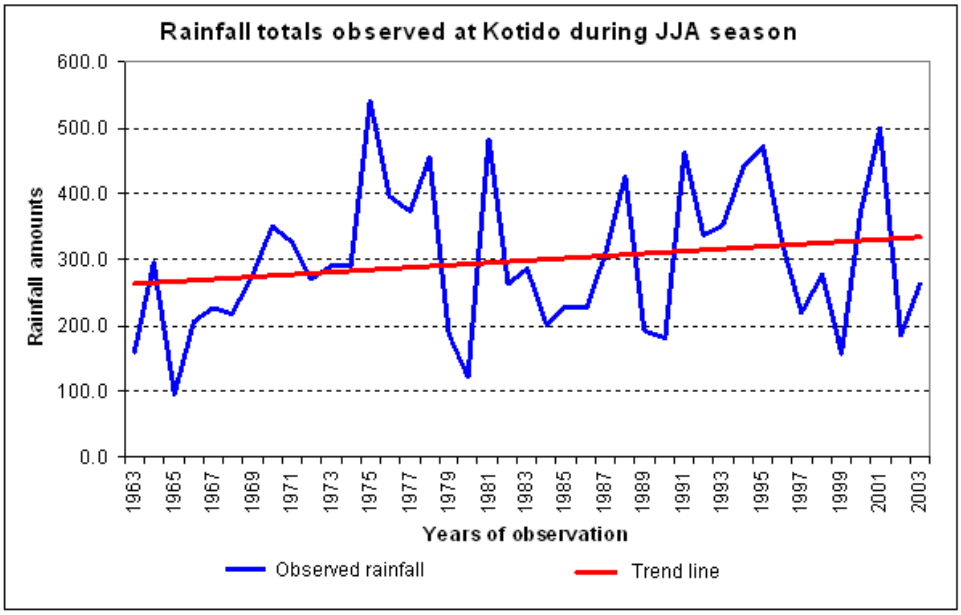
However, if climate change is occurring in Uganda, it is imperfectly captured by the available empirical data.[19] As officials from the Department of Meteorology readily acknowledge, a lack of weather stations and time-series data (in some

Figure 12: Rainfall in Kotido



SOURCE: UGANDA DEPARTMENT OF METEOROLOGY 2010.

Figure 13: Rainfall in Kotido (JJA Season)



SOURCE: UGANDA DEPARTMENT OF METEOROLOGY 2010.

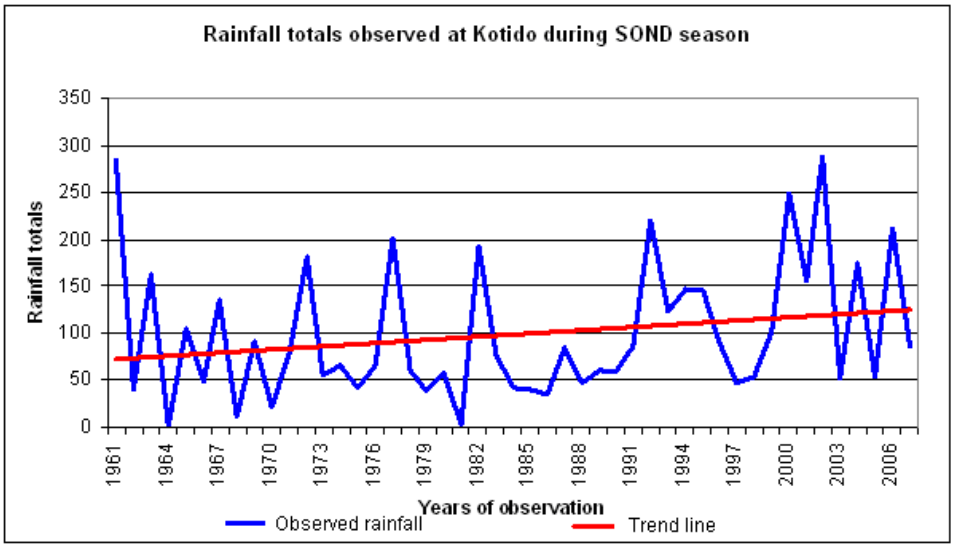
instances the result of interruptions caused by conflict), as well as limited human resources, significantly limit the available quantitative information. The limited data make it difficult to make unqualified assertions about climate change in Uganda, especially in areas that are already known for considerable climate variability. For example, the only available rainfall data for Nakasongola (see Figure 10), covering the years 1994-2000 and 2001-2005, suggest that area of the Cattle Corridor may be becoming drier (a view clearly reflected in FESS interviews), but the data set is obviously too small to warrant a firm judgment.

The most commonly cited and persuasive graphic display of climate change in Uganda is the chart showing the occurrence of droughts in Uganda by decade from 1910-2000 (see Figure 11). However, even here, only the decade of the 1990s displays a sharp increase in the frequency of droughts—for all of the other decades, the number of droughts is just three or less. A clear trend is evident, but more data will be needed to shed light on how significant a shift may be underway.

Sometimes the available information also appears to be contradictory. As seen above, Figure 11 portrays what looks like an increase in drought frequency in Karamoja. However, the rainfall data from the early 1960s to early 2000s for Kotido, located in the heart of Karamoja, presents what appears to be a different picture. Graphs for each of the three seasons with appreciable rainfall (March to May, June to August, and September to December) all show a gradually increasing trend line for rainfall (Figures 12, 13, and 14). Indeed, the Department of Meteorology states in its analysis that "there is an increase in rainfall amounts in the Karamoja region" (ACCRA 2010).

The idea of simultaneously having more rainfall and more droughts is counterintuitive, to say the least. But the contradiction may be more apparent than real. According to Oxfam (2008), "meteorologists and farmers report the same phenomena; in most districts, recent years have witnessed increasingly erratic onset and cessation of the rainfall seasons, and when the rain comes it is heavier and more violent." If these, mostly qualitative, reports are generally accurate, more finely tuned meteorological data will be needed to better capture and respond to these erratic bursts followed by long dry spells. A further important factor is that, whatever the weather pattern, environmental change caused by massive deforestation and the destruction of wetlands is changing

Figure 14: Occurrence of Droughts in Uganda



SOURCE: UGANDA DEPARTMENT OF METEOROLOGY 2010.

the way precipitation patterns affect vegetative cover, agriculture, and plant and animal diseases. This would appear to be the case in areas like Nakaseke and Nakasongola in the Cattle Corridor. Temperature increases also may be changing moisture and evaporation patterns. All of these various considerations indicate that much still remains to be learned about climate change in Uganda, including all-important questions about how climate change will affect specific agro-ecological zones and vulnerable groups and areas of the country.

In terms of conflict analysis, the relevant question is how well (or whether) evidence-based information is communicated to citizens and how that knowledge influences their perceptions and expectations. The most immediate concern is the need for short-to-medium-term weather forecasts that are reasonably reliable and that can be communicated to farmers and pastoralists in a form and language they can understand and act upon. One further problem worth noting is the common tendency to view a single weather event (or season) as evidence of climate change. This is hardly a problem specific to Uganda, but in Uganda it might be used by some to stir up passions that could contribute to conflict, especially if it is linked to weak or inadequate government responses to food crises and the quite real flaws of governance in the country.

As PELUM, PENHA, and other organizations working with farmers and pastoralists emphasized in interviews with FESS, communities already possess extensive indigenous knowledge and experience that can work in combination with best-available science to identify effective adaptive strategies and avoid suboptimal or negative coping strategies that can contribute to conflict. This provides a readymade starting point for dialogue and engagement on climate-related issues.

CONCLUSION

In examining climate change and conflict in the Cattle Corridor and Karamoja, this study has used one case to ask two different sets of questions.

First, what can be said about the specifics of the Uganda case and what appear to be the most powerful or consequential factors at play in the climate-conflict relationship in the selected arid and semi-arid regions? What are the core grievances that drive the potential for conflict? How resilient are affected groups or communities? What are the current trends and how might climate change interact with them? Are there key windows of opportunity or vulnerability in relation to either conflict or peace building? What are possible lessons learned and programmatic gaps?

Second, what does the Ugandan experience tell us more broadly about the possible linkages between climate change and conflict? Are the prospects for conflict similar to those hypothesized by various think tanks, intelligence agencies, security specialists, and international nongovernmental organizations? What are the key features and dynamics of the climate-conflict relationship on which analysts and planners should focus their attention?

Both Karamoja and the rest of the Cattle Corridor demonstrate the multilayered complexity of the climate change and conflict relationship. One first analytic challenge was to gauge the nature and extent of climate change impacts in areas already subject to significant natural climate variability**.** The subjective testimony of the people living in Karamoja and the Cattle Corridor was a far more powerful indicator of climate change than the available meteorological data, which was very limited and failed to capture in a compelling way the erratic and severe shifts in seasonal rainfall patterns, lengthening dry spells, and changes in rainfall intensity (e.g., floods and hailstorms) that at times wreak havoc on the lives of pastoralists, agropastoralists, and farmers. Since subjective perceptions drive behavior, this may be less of a problem for conflict analysis than for well-informed climate adaptation responses.

In the Cattle Corridor, there was abundant testimony from pastoralists about new invasive plant species, termites and other pests, and increases in cattle diseases. Farmers and agropastoralists have tried to adapt to drought and climate change with the use of new seed varieties, but those interviewed said that they had met with limited success to date. These problems may or may not be the result of climate changes impacts, because those impacts also interact with severe and increasing environmental degradation resulting from massive deforestation for charcoal production, wetlands encroachment, and overgrazing. With the felling of trees for fuelwood, the balance of the natural habitat is disturbed, with unanticipated effects—for example, the birds that once fed on the trees now eat the farmers' crops. Those manmade environmental factors are themselves the product of poor natural resource management and weak or absent environmental governance.

In fact, these relationships are illustrative of an essential point. Pastoralists in the Cattle Corridor face an entire array of climate-related and anthropogenic problems that are combining to threaten their livelihoods and well-being. Many are driven to migrate because of population pressures, diminished access to pasture and water, the fencing of land, and contention and conflict over land rights with farmers and other pastoralists. The formal institutions of the state do a poor job of defusing these tensions—in fact, they often enflame them with what appear to affected groups to be arbitrary decisions favoring the particular interests of one group or ethnicity. Under-resourced district environmental officials are unable to form environmental committees at the lower levels of local government, despite their recognition that local efforts to identify and institute coping

mechanisms offer some of the best prospects for success. A way of life that was a highly efficient response to the demands of a challenging environment—the practice of skillfully managed mobile cattle-keeping to overcome scarcity—is now seen by many state authorities and fellow Ugandans as an impediment to development. As the country coordinator for CEWARN observed in an interview, "We have never tried to understand pastoralism."

However, according to groups visited by FESS in several different communities in Nakaseke and Nakasongola, pastoralists and farmers *do* endeavor to make arrangements to accommodate their respective interests and avoid conflict. Local water management committees provide an opportunity to find constructive, peaceful solutions for the sharing of natural resources. Organizations including VEDCO and the Nakasongola Pastoralists Association are working to promote alternative techniques in agriculture to conserve water, grow drought-resistant crops, prepare ready-to-plant fields to take advantage of the arrival of rains, and develop sustainable livelihood alternatives. These kinds of efforts can make contributions to conflict mitigation and adaptive resilience but need to be upscaled significantly, especially in view of current climate trends that indicate the likely intensification of widely spaced, erratic, and severe precipitation as well as more frequent and lengthy droughts. The local people who met and spoke with FESS in three central districts of the Cattle Corridor were eager to adopt new techniques, take some risks, and share their knowledge and successes with others. That knowledge includes an already existing, sophisticated understanding of the environmental conditions in the Cattle Corridor. The engagement and use of indigenous knowledge is a key asset in addressing climate change impacts in the Cattle Corridor.

Absent improved environmental governance, both formal and informal, as well as more effective institutional responses to land and water disputes, the cumulative resource-related stresses and climate trends in the Cattle Corridor are likely to contribute to increased conflict. Those conflicts generally are likely to remain small-scale and local, although they may spread to adjacent areas as pastoralists migrate to other areas as a coping mechanism. While the competition over scarce resources, ethnic antagonisms, and inadequate or counterproductive state responses may contribute to heightened tensions, the relatively weak capacity of pastoralists in the Cattle Corridor to organize and mobilize makes the large-scale spread of violence unlikely. However, as the effects of climate change grow stronger, placing added stress on the already vulnerable population, chronic outbreaks of localized conflict are possible if not probable.

In Karamoja, conflict is already far more prevalent, severe, and chronic than elsewhere in the Cattle Corridor, with a constellation of contributing factors that are embedded in a distinctive pastoral culture in which cattle raiding has played an important part. Within the living memory of many Karamojong, there have existed social mechanisms by which tribes, sections, and clans could communicate, negotiate, and reconcile, thereby limiting the scale of violence associated with cattle raiding. Today, after 30 years of a large-scale arms trade, with a concomitant increase in firepower and fatalities, as well as a UPDF disarmament campaign that has curtailed the Karamojongs' traditional mobility and at times degenerated into blatant human rights abuses, those mechanisms have atrophied significantly. Cattle raiding itself has been transformed to a large extent from the acquisition or replenishing of social assets to the thievery of commodities for sale on the market. Violence, confinement, the breakdown of traditional social roles and responsibilities (including environmental governance), and the improvised search for livelihood alternatives have left many Karamojong, including many young people, feeling powerless and purposeless. Yet, although interviewees expressed resentment at the UPDF and skepticism toward government initiatives, there was still a clearly expressed sense that many Karamojong would welcome a different and better way forward, whether that meant a renewed enabling environment for traditional pastoralism or opportunities in agriculture or other alternative livelihoods.

As in the Cattle Corridor, climate change impacts have intertwined with environmental degradation and, in some instances, the unintended consequences of coping strategies. Charcoal-making for export to Kampala, which began with UPDF soldiers and was then taken up by the Karamojong, has led to rapid deforestation and desertification. According to a veterinarian in Kotido, the grasses for grazing have changed. In response to dry conditions, there has been an increase in sheep and goats, but these ruminants have destroyed even more trees. In the context of reduced mobility, environmental degradation, and environmental change, indigenous knowledge has lost much of its force as a coping capacity.

In Kotido, church leaders, experienced aid workers, and Karamojong interviewees all touched upon one central problem—the Karamojong have very little input or

control in the design and implementation of programs and projects that are ostensibly meant to help them. The WFP Productive Assets Programme was given as an example. Considering the challenges of transitioning from emergency food relief to a development-oriented food security model, the Productive Assets Programme has made good progress. But it does not yet seem to have gained traction. Several people in Kotido noted funding and delivery delays. It was pointed out to interviewees that the Productive Assets Programme offered various options to participants in its food-for-work scheme, but several respondents stated that these were not real choices based on real dialogue and engagement with Karamojong target beneficiaries. It was not possible to assess these concerns in more detail, but it is clear that issues of trust and effective engagement are difficult and crucial challenges for all donors in Karamoja. When asked which organizations were most trusted in Karamoja, two Karamojong elders cited Caritas and Oxfam, both of whom have long track records in the region.

With so many contributing factors at play, it might be thought that climate change plays a relatively minor role in conflict in Karamoja. However, just as it would be simplistic and wrong to assert that climate change is the major driver of conflict in Karamoja, so too would it be short-sighted to fail to recognize that climate change (or at least the climate trends of the last several decades) has exacerbated resource scarcity and placed tremendous pressure on the pastoralist livelihoods and food security of the people of Karamoja, thereby increasing the potential for conflict.[20] Droughts and, to a lesser extent, floods have reduced access to water and pasture and reduced harvests drastically over the past few years. Despite the intertwining of a variety of problems and challenges, the core pathway to conflict in Karamoja appears to be the issue of livelihoods—both in economic terms and as a way of life. Climate variability and climate change have not only created major challenges for pastoralism, they have implications for the future development of alternative livelihoods in agriculture. While there is a consensus on developing the productivity of the green belt and other areas in Karamoja clearly suited for agriculture, interviewees in both Kampala and Karamoja expressed concern that the Ugandan government was pushing for agricultural development in areas far better suited to pastoralism and agropastoralism. Until the development of infrastructure to provide new sources of water for irrigation, climate change is likely to make agricultural development in marginal areas even more difficult and, potentially, a growing source of tension and conflict between the citizens of Karamoja and the government. In the context of the Karamojong's longstanding grievances and mistrust vis-à-vis the state, a rapid and non-consensual shift toward settled agriculture could easily produce growing tensions and conflict between the citizens of Karamoja and the government.

The real choice is not between a cultural nostalgia for the return of a form of unfettered and self-regulating pastoralism that is never going to come back or a sudden transformation to a predominantly agricultural model for which the Karamojong are still poorly prepared and about which they have had little to say. As Bishop Giuseppe Filippi of Kotido said in an interview, "Change must come to Karamoja, but it cannot be forced change. People must be given the tools and incentives to change, and feel that they are a part of it."

In terms of conflict mitigation, this translates into the need for programmatic initiatives that not only address the pivotal issues of livelihoods and food security but that also provide real empowerment of the Karamojong in their design and implementation. This is easy to say and hard to do—skillful project implementation by known and trusted project managers is an indispensable requirement if such efforts are to be successful. Climate adaptation measures for both pastoralism and agriculture also should be an important part of filling programmatic gaps. Just as elsewhere in the Cattle Corridor, climate adaptation initiatives are essentially "no risk" measures because they are equally applicable to the challenges presented by natural climate variability. Moreover, climate adaptation offers the unique possibility of engaging Karamojong participation through the explicit incorporation of indigenous knowledge as an important part of coping strategies. This is an opportunity that should be seized.

As the foregoing discussion of climate change and conflict in the Cattle Corridor and Karamoja has shown, a close-to-the-ground case study approach produces a more nuanced exploration of the relationship between climate change and conflict than the more general discussions of the topic common in policy circles. Although the relationship between climate change and conflict is likely to be significant, it is mediated by many other factors and contingencies that make it difficult to predict when and where conflict may occur or the scope and intensity of those conflicts. In response to commonly asked questions about whether climate change effects such as scarcity, migration, population pressure, land degradation, and food insecurity will fuel or trigger conflict, the answer in Uganda is "it depends."

In the Cattle Corridor, competition over scarce water resources may lead to conflict or could find peaceful resolution through well-organized water management committees and replicable and affordable water harvesting techniques. Migration tends to lead to conflict in the Cattle Corridor because of Uganda's overlapping and contradictory land tenure systems, which also are subject to manipulation by powerful private interests. In Karamoja and neighboring districts, the expansion of land under cultivation produced by rapid population growth in recent years has led to increasing conflict during seasonal migrations in search of pasture and water. However, according to interviewees, it may be possible to coordinate in complementary fashion the cycles of agricultural production in the green belt and the dry season westward migration to allow cattle to graze without conflicts. Land degradation, whether related to climate change or caused by environmental mismanagement—and it is sometimes difficult to distinguish between the two—has plainly increased pressures on pastoralists in both Karamoja and the Cattle Corridor. Food insecurity related to drought clearly triggers negative coping strategies in Karamoja, including robberies and assaults. However, it is the restrictions on pastoralists' mobility, which fundamentally threaten the viability of their livelihood that generate the most powerful grievances.

Heavily influencing all of these contingent outcomes is the question of local and national governance and policies. The absence of a national policy on pastoralism—said to be in preparation during the field research for this report—is perhaps the most evident shortcoming in Uganda. In view of President Museveni's preference for a shift away from pastoralism, several government officials expressed uncertainty about whether or in what form a pastoralist policy would appear. In the Cattle Corridor, pastoralists are sometimes caught between the conflicting viewpoints of traditional and local authorities. The lack of resources available to district environmental officials makes effective monitoring and control of charcoal production and the encroachment of wetlands a nearly impossible task. In Karamoja, there is no question that a great deal of conflict is driven by (or expressed in) the conduct of the UPDF, recent improvements notwithstanding. The widespread cynicism of the local population about the national government's various initiatives in Karamoja is based on a long history of broken promises. Such negative attitudes will persist or worsen if the government pushes in the direction of sedentarization through the non-participatory pursuit of agricultural development in areas of questionable viability.

Most of these sorts of interrelated issues and considerations are not new to conflict analysis. Instead, they represent a recapitulation of factors that have received attention in recent conflict theories and USAID's Conflict Assessment Framework (CAF), although in the present case study they are manifested in specific expressions related to climate change impacts. Although it is natural to ask to what extent or degree conflict is being caused by climate change, the question runs the danger of implying the answer can be quantified. With multifactor causality and contingent interactions, the idea that violence or civil war can be said to be "x percent" more likely because of climate change is a counterproductive conceptual error. A more realistic approach is to trace out the main pathways to conflict and look for programmatic possibilities that can increase the incentives and options for nonviolent behavior. In the case of the possible climate-conflict linkages in the Cattle Corridor and Karamoja, almost all of these programmatic possibilities entail no-risk options that will have positive effects on livelihoods and food security irrespective of climate change trends. Climate change simply makes them more urgent.

The focus on climate change issues by civil society, the national government, and the international donor community is intensifying in Uganda, providing a variety of options for engagement and collaboration. In the Cattle Corridor, organizations like VEDCO, PENHA, and PELUM, as well as district-based pastoralist organizations, are seeking to apply and learn climate adaptation techniques that can reduce competition and conflict among agropastoralists and farmers.

The Government of Uganda has had its National Adaptation Programmes of Action for climate change since 2007, but the priority projects that were identified had still not moved forward as of mid-2010. However, they represent opportunities for implementation in such areas as drought adaptation, land degradation, disease control, and the use of indigenous knowledge in natural resource management. In Karamoja, the entire Karamoja Action Plan for Food Security, although a component of the KIDDP, also is a response to the relationship between climate change and conflict, as it notes that, "In the advent of persistent climate change, the situation may further deteriorate if urgent sustainable food security programmes are not introduced in Karamoja."

Under its Feed the Future implementation plan for Uganda, USAID is addressing climate change issues through a variety of actions. In collaboration with the World Food Program, USAID has lead efforts to

shift from relief to development in addressing food security in Karamoja. FEWS NET is assisting the Government of Uganda with up-to-date climate information and analysis. USAID/OFDA, USAID/FFP, USDA, and the U.S. Department of Defense all also work in Karamoja on issues that range from food distribution, livelihoods development, school feeding, water resource management, and veterinary services.

One area of urgent need is improvement in meteorological services. The most promising advance in this area is the creation of a Climate Change Unit (CCU) in the Ministry of Water and Environment with the support of the Danish government and assistance from the World Food Program and the Food and Agricultural Organization (FAO). At present, the staff is small and overtaxed with the responsibilities associated with the very challenging mandate of engaging across government on a rapidly evolving scientific and policy area. Two of the CCU's main tasks are to provide assistance to line ministries in addressing climate change and to establish a database on climate change and mitigation to help coordinate efforts among government, civil society, and communities. More support and close monitoring of results are badly needed if these efforts are to be successful.

One of the largest efforts is the United Nations Joint Programme on Climate Change in Uganda, which projects a five-year budget of up to $35.8 million to address: 1) policy, planning, and advocacy; 2) finance; 3) research and learning; 4) district and community training; and 5) field applications. The implementing agencies within Uganda include WFP, FAO, UNDP, UNFPA, UNOCHA, and UN Habitat. However, most of the budget remains unfunded at this early stage. In terms of contributing to conflict mitigation in the areas covered by this report, the most significant projected work is the district and community training slated for Karamoja by the FAO. There, using the FAO's farmer field school models, trainers are to work with communities on needs assessment, curriculum development, and the formation of a climate adaptation network.

With these and other efforts beginning to take shape, there are new opportunities for addressing the climate-conflict linkage in the Cattle Corridor and Karamoja. However, this process is just at its very beginning. As one longtime aid worker in Karamoja said, "The main thing is to stop bringing in new initiatives that last a year or two and disappear. Whatever you do, sustain the effort." In the Cattle Corridor, local organizations can be key partners in that effort. In Karamoja, the key task will be to empower Karamojong communities to participate actively in the design and implementation of initiatives. Without their direct involvement and the actual incorporation of some of their ideas, conflict in Karamoja is likely to continue unresolved.

RECOMMENDATIONS

Based on the findings of this report, there are six key areas where USAID can take actions that will help to reduce the potential for conflict linked to climate change in the Cattle Corridor and Karamoja:

1) Promote Confidence-Building and Increase Trust Between the Government of Uganda (GOU) and the Citizens of the Cattle Corridor and Karamoja
2) Sustain and Diversify Livelihoods
3) Support Climate Adaptation for Increased Resilience in the Cattle Corridor and Karamoja
4) Promote Food Security in Karamoja
5) Contribute to Peacebuilding in Karamoja
6) Address Knowledge Gaps About Climate and Climate Change in Uganda

USAID should consider the following recommendations,[21] with careful attention to conflict sensitivity for each:

1. To Promote Confidence-Building and Increase Trust Between the Government of Uganda (GOU) and the Citizens of the Cattle Corridor and Karamoja:
Encourage and support, in collaboration with others in the international donor community, the GOU to complete and adopt a National Pastoralism Policy that is both conflict-sensitive and climate-sensitive, and that provides a policy framework that recognizes and supports pastoralism as a livelihood in transition that remains valuable and viable for many people in the arid and semi-arid regions of Uganda.

Encourage the GOU to implement the Karamoja Action Plan for Food Security (KAPFS) in a balanced way that not only promotes increased agricultural production and productivity but also recognizes and supports pastoralism as an intrinsic part of food security in Karamoja.

Encourage the GOU to implement immediately its NAPA priority project on indigenous knowledge (IK) and natural resource management in both the Cattle Corridor and Karamoja, noting in particular its potential for dialogue, conflict mitigation, and peacebuilding.

2. To Sustain and Diversify Livelihoods:
Take concrete steps to operationalize and implement the language from the Feed the Future FY 2010 implementation plan for Uganda to the effect that, "Development programs can support traditional pastoralist systems [and] improve returns on traditional activities."

Encourage and support the GOU in designing and implementing ways of coordinating the agricultural cycles of the green belt area of Karamoja to accommodate peaceful dry season migration by Karamojong pastoralists.

Build on the desire for new livelihood opportunities expressed by Karamojong youth and work with them to identify and implement pilot training projects in such areas as petty commerce, building trades, and services, while recognizing the need for equal participation among groups.

3. To Support Climate Adaptation for Increased Resilience in the Cattle Corridor and Karamoja:
Support NGOs and other community organizations in the Cattle Corridor that are working with pastoralists and agropastoralists to identify and implement climate adaptation measures that can reduce conflict between pastoralists and farmers.

Support government-civil society dialogue and capacity building through activities that bring district environmental officers into closer and more frequent contact with environmental organizations and affected communities in their district.

Support the dissemination of water harvesting techniques, timely planting methods, and drought-resistant crops throughout the Cattle Corridor and Karamoja.

Explore appropriate means of supporting and collaborating with the United Nations Joint Programme on Climate Change in Uganda, especially those activities involving district and community training in climate change adaptation that seek to mitigate the potential for conflict.

Renew the successful sustainable charcoal initiative in Luwero District and expand it to other appropriate areas throughout the Cattle Corridor and Karamoja.

4. To Promote Food Security in Karamoja:
Encourage the World Food Program to ensure that the next phase of the Productive Assets Programme identifies and implements steps to do more to engage Karamojong in every aspect of the program, from the food-for-work options to monitoring and evaluation, to see that the work completed makes a real contribution to building local capacities, ensuring food security, and contributing to development.

5. To Contribute to Peacebuilding in Karamoja:
Work with Karamojong communities and GOU officials to identify and implement conflict-sensitive means of better managing and sharing grazing areas, taking note of effective inter-ethnic coping mechanisms used in the past.

6. To Address Knowledge Gaps About Climate and Climate Change in Uganda:
Explore ways to provide support to strengthen the recently established National Climate Change Secretariat (Climate Change Unit) in the Ministry of Water and Environment, especially with respect to the collection and conflict-sensitive dissemination of accessible, easily understood, and reliable climate change data and forecasts.

Continue to work with FEWS NET to help strengthen the Government of Uganda's capacity to produce up-to-date climate information and analysis and to share it in accessible form with government decision makers and the broader public.

Endnotes

1. According to the IPCC, "climate change refers to a change in the state of the climate that can be identified…by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer" (IPCC 2007).

2. As the dependent variable and central concern of this study, "conflict" refers in a technical sense to widespread, deadly violence. However, conflict management and mitigation requires attention to the precursors of violent conflict, including the emergence of group grievances, the organization of the material and social capacity for collective action (mobilization), and the impact of triggering events. In that larger context, the term "conflict" is sometimes used in the more common and less technical sense of opposing interests that give rise to social and political tensions and protests.

3. However, in August 2010, Halvard Buhaug of the Peace Research Institute Oslo (PRIO) directly refuted the claims of Burke et al. Looking at "the empirical foundation for the claimed relationship in detail" and making use of "a host of different model specifications and alternative measures of drought, heat, and civil war," Buhaug found that "African civil wars can be explained by generic structural and contextual conditions" related to political exclusion, poor economic performance, and changes in the international system (see *PNAS Early Edition* at www.pnas.org/cgi/doi/10.1073/pnas.1005739107).

4. The number of Uganda's districts has been increasing. In July 2010, during the field research for this study, the number of districts was increased to over 100. Redistricting in Uganda is politically controversial. While the government characterizes the creation of new districts as deepening decentralization and empowering local communities, critics view it as a means of extending the powers of political patronage of the president and the ruling party.

5. Karamoja's districts also have been subject to subdivision in recent years; in July 2010, a large portion of the western area of Moroto was converted into the new district of Napak.

6. While interviewers were careful not to posit climate variability or climate change a priori, Ugandans in all of the selected areas, including small rural communities, were already aware of changes in weather patterns as a much-discussed topic.

7. The data set for the World Bank's Worldwide Governance Indicators only extends back to 1996. In the chart, the solid blue line gives the percentile rank; the light blue dotted lines indicate the margin of error.

8. The word *balaalo* refers to "keeper of cows," not a specific ethnic group, although it sometimes is applied as such in specific contexts like this one.

9. FESS interview with pastoralist leader from Buliisa, Kampala, July 2, 2010. The dispute is complex and involves other issues, but it serves to illustrate how land tenure ambiguities intertwine with ethnic conflict.

10. On February, 18, 2011, according to official totals, President Yoweri Museveni won re-election with 68 percent of the vote, while the runner-up, Kizza Besigye, received 26 percent of the vote. However, the chief of the European Union election observer mission, Edward Scicluna, stated: "The power of incumbency was exercised to such an extent as to compromise severely the level playing field between the competing candidates and political parties." Scicluna's statement referred to what were alleged to be huge sums distributed from state resources to obtain votes. See http://www.bbc.co.uk/news/world-africa-12516562.

11. According to the senior environmental officer in Luwero District, USAID supported a sustainable charcoal production and licensing program there in recent years. The program mobilized charcoal producers into two associations and trained them in sustainable charcoal production. It also helped produce a district ordinance on sustainable charcoal production for the local council to approve. The rate of conversion to charcoal improved with this initiative, reducing the pressure on forest resources, and mobilizing producers to improve their livelihoods. The program also helped organize the producers to market their production more effectively. From the standpoint of the district, the program was a success that local people would like to see continue.

12. The term "nonlinear" means that there is no simple, proportional relation between cause and effect.

13. That evening, a scheduled meeting with the UPDF commander in Kotido was canceled because he had to go to Nakapelimoru. Although it was impossible to verify, Caritas staff said it was likely he had gone to investigate this incident.

14. This figure may not be completely surprising in a culture that is both pastoralist and based on oral traditions. Yet, in an interview, one church leader who has taught math and science in Uganda for 30 years said that, "in my experience, the Karamojong that *do* go to school get the highest scores in the class."

15. In an interview in Kampala, a Karamojong leader said, "when the cattle get ticks, you must move them."

16. At a Karamoja Regional Protection meeting attend by FESS in Kotido on July 1, 2010, testimony was given from each of Karamoja's districts on high levels of gender-based violence and child abuse, including at home.

17. For an excellent and detailed analysis of conflict issues in Karamoja that goes beyond the climate-conflict focus of this report, see Saferworld's "Karamoja Conflict and Security Assessment" published in September 2010 at: http://www.saferworld.org.uk/downloads/pubdocs/Karamoja%20conflict%20and%20security%20assessment.pdf.

18. While the strong consensus on the main findings of the IPCC on global climate change remains intact and is regularly bolstered by new data (such as that on retreating ice in the Arctic), criticisms on specific issues have focused attention on the need for a constant vetting of the IPCC process. One such issue was the statement made by the IPCC with "high confidence" that in Africa, "The area suitable for agriculture, the length of growing seasons and yield potential, particularly along the margins of semi-arid and arid areas, are expected to decrease. This would further adversely affect food security and exacerbate malnutrition in the continent. In some countries, yields from rain-fed agriculture could be reduced by up to 50% by 2020." A review released in September 2010 by the InterAcademy Council, a multinational organization of science academies from around the world, re-examined this claim and noted its "weak evidentiary basis." If a prudently skeptical attitude is advisable for the work of the IPCC, it is surely appropriate as well for projections made by various groups and institutions on climate change in Uganda. See "Climate Change Assessments: Review of the Processes and Procedures of the IPCC." InterAcademy Council, http://reviewipcc.interacademycouncil.net.

19. There is a misperception among some in the donor community that FEWS NET or other sources have satisfactory historical temperature and rainfall data sets for Uganda. This is not the case. Satellite data and projections based on modeling are important supplementary sources of information, but they have limits in terms of coverage and reliability. Those limits are well appreciated by those who work with such data, who are quick to point them out.

20. Stites et al. (2010) seek to make a distinction between "site-specific conflict versus conflict over sites" in Karamoja, arguing that pastoral conflicts occur at sites not over scarce resources (the resources are present) but in the interaction of groups at those sites. This may be true, but if the overall number of such sites is reduced by climate change or environmental degradation, thereby causing interactions that need not otherwise occur, the argument is reduced to a kind of hairsplitting. As they note, "Respondents uniformly agreed that availability of natural resources has diminished significantly in the past several years."

21. Most of the recommendations fit more than one category, but they are each listed here in one main category for the sake of parsimony.

RESOURCES

APPENDIX I:
Climate Change and Conflict Assessment Framework (CCCAF)

Phase I: Identification of Country Study Areas
Through official documents, secondary literature, and expert interviews, develop a list of subnational regions or communities in conflict-prone areas that have experienced extreme climate variability (e.g., droughts, floods, unseasonal temperature fluctuations).

Where possible, identify instances of conflict within these areas that may have had direct or indirect linkages to climate variability.

Phase II: Profile of the Study Areas
Analyze the linkages among economic, social, and environmental factors through the collection of qualitative baseline and trend data (include quantitative data, when available). Information collection will be guided by the Qualitative Profile, which follows Phase VII below.

Compile background information on the areas' weather and climate patterns and predicted future changes in climate.

Develop a preliminary assessment of potential political, economic, social, cultural, and historical cleavages that may contribute to instability or conflict.

Develop a preliminary assessment of the governance capacity and resiliency mechanisms of existing political, economic, social, and cultural institutions.

Identify the key concerns, grievances, and tensions that may be present. The profile should focus on the local unit of analysis but incorporate national, regional, and international influences.

Phase III: Analysis of Critical Climate Change Concerns
Identify which underlying issues, sectors, and resources potentially influenced by climate change are critical to stability. How are they critical? Who is affected when these are threatened? Who is affected when these are well managed? What have been and what could be the potential consequences?

Assess the impact of governance, with special attention to environmental governance, on the identified issues, sectors, and resources. What mitigating or exacerbating role does it play?

Phase IV: Assess the Impact of Climate-Related Events
Confirm with selected communities the nature and characteristics of a specific climate-related event or specific period of climate variability.

Investigate the responses applied to the recent climate-related event in the study areas. What range of response options did affected people and communities consider? What responses were applied? Who did affected people and

communities reach out to for help? Were resilience-building strategies used? What were the results of those strategies?

What role did social, human, physical, financial, and natural capital assets play in exacerbating the potential for conflict or mitigating conflict/building resilience?

Assess why results were linked to improved resilience versus conflict potential. How did core grievances and social/ institutional resilience play a role?

Phase V: Perspectives of the Affected Populations and Communities
Identify stakeholders interested in and affected by the climate-related event(s).

Collect information about the stakeholders' concerns, core grievances, and points of conflict; degree affected by the climate-related event(s); their response capacity; their perceptions of the social and institutional responses to the climate-related event(s); the means and resources for violent conflict; and the social, human, physical, financial, and natural capital assets that mitigated or prevented conflict.

Seek to identify the indicators of resilience versus conflict potential and the indicators of vulnerability to conflict.

Phase VI: Generate Future Scenarios
Develop scenarios based on the potential impact of similar climate-related events on the affected people or communities based on predicted future climate change patterns. What might be windows of vulnerability and opportunity?

Phase VII: Complete Final Report
Identify lessons learned, best practices, programmatic gaps, and target areas and opportunities to improve the provision and coordination of interventions that can address climate change and climate-related conflicts in vulnerable regions or communities.

Provide a comprehensive assessment of the case study areas that explains the impacts of climate variability, core grievances and drivers of conflict, mitigating factors and windows of opportunity, projected future climate vulnerability, and the links between climate change and potential conflict or climate change and adaptive resilience.

Incorporate scenarios that suggest areas of future vulnerability to conflict and recommend potential ways in which international development assistance could make a positive contribution toward filling current programmatic gaps. The primary focus of recommendations will be on approaches and responses that are within USAID's manageable interest. This will include mapping existing Mission and Agency programs and priorities against potential climate-related causes of conflict in order to identify gaps and possible areas of intervention.

A broader set of recommendations for local, national, and international stakeholders in government, civil society, and the private sector will be included in an expanded and publicly available version of the report.

Qualitative Profile
Enviro-Sustainability Profile

Land and Agriculture

What is the size of the land area under study?

Approximately what percentage is employed for agriculture?

What kind and level of inputs are used by farmers, if any (e.g., irrigation, fertilizer, pesticides)?

What is known and what is perceived by the inhabitants about the degree of land degradation?

What is the type of land on which people are farming (hilly, flat, forested) and what techniques are they using?

What is the average size of farming plots?

What is the state of land tenure (practices and ownership) including differences between men and women, and what is the general predicted trend for land ownership rights and plot sizes in the future?

What are some of the challenges with respect to soil conditions (e.g., erosion, salinization, and desertification)?

Is climate change contributing to land degradation? If so, how?

Land and Forests

To what extent is the area forested?

What is the historical and future trend of forested areas in the area under study?

Is there a high or low rate of dependency on fuel wood or biomass?

Is climate change a factor in the condition and sustainability of forested areas?

Water Sources and Availability

Where do the communities receive water from (e.g., well, collection, pipe)?

Are there any sustainability concerns in relation to water withdrawal?

Will current water withdrawal practices be affected by climate change? If so, how?

Water Use

What are the primary uses of water (e.g., agriculture, domestic, industrial, hydropower diversion)?

Which uses withdraw the most water?

Are there any planned projects, changes in population, or other factors that might change the current water usage?

Water Quality

How do communities and health officials perceive the quality of water?

Is it known to be relatively clean or contaminated?

If polluted, what are the sources/causes?

What water-borne diseases are endemic to the area?

How will climate change affect water quality?

Energy

What sources of energy are used and at what levels (e.g., biomass, hydroelectric, fossil fuels, biofuels, solar)?

Where do the energy sources originate from (e.g., local forest or ground cover, public or private electricity agency)?

What sectors consume the most energy (e.g., household, agriculture, industry, transportation)?

Is climate change affecting current or future sources of energy?

Is climate change anticipated to change energy demand in the study area?

Natural Hazards

Are there local or national authorities responsible for monitoring and responding to hazards (e.g., earthquakes, droughts, floods)? What is their response capacity?

What are the most serious natural hazards likely to occur in the area under study?

How frequently do natural hazards occur and what is their average level of intensity?

How prepared are communities to respond to a hazard event?

Is climate change contributing to the frequency or severity of natural hazards?

Econo-Environmental Profile

General Economic Indicators

What is the estimated level of income for the average family in the area under study?

Is the area's income more, less, or similar to the country's GNI or GDP per capita?

Is the region experiencing economic growth, stagnation, or loss?

What is the level of employment/unemployment?

Is the informal sector critical to livelihoods?

What factors are contributing to economic stability or instability?

Sectoral Breakdown

What economic sectors employ people and what is their relative importance to the local economy (e.g., agriculture, mining, manufacturing, construction, trade, public administration)?

To what extent are key economic sectors of the economy susceptible to climate change (positive or negative)?

What economic roles do women play in the economy versus men?

Are certain economic sectors dominated by specific ethnic groups?

Do divisions of labor result in instability or tensions?

Are there economic opportunities for youths?

If not, do they remain without jobs, migrate, etc.?

Does the area produce any important exports for the country?

To what extent are these exports providing stability to the local economy?

How critical is the natural resource base to any export sector?

Socio-Environmental Profile

Livelihoods

What is the estimated total population of the area?

How rural versus urban is the area under study?

Is the population growing, decreasing, or remaining stable?

Are there obvious forces affecting the demographic profile (e.g., migration, health, economic decline, conflict)?

What is the relationship between arable land and historical, current, and future population?

What is the age distribution of the population?

What ethnic or tribal groups live in the area?

Is there a history of grievance among these groups?

Are there internally displaced persons or refugees inhabiting the region?

In what numbers and from where?

What is the prevalence of female-headed households?

Education

What is the literacy rate for the area and to what extent is it functional?

What is the level of primary and secondary enrollment?

What are the differences by gender for literacy and enrollment rates?

How many teachers work in the area under study, serving how many students?

How does the area compare in relation to the country as a whole?

Food Security

Is the area known for chronic or severe undernourishment and periodic food shortages?

How does the area compare to the country as a whole?

What are the primary items of consumption (e.g., cereals, fruits, vegetables, meats, other)?

Has this changed recently?

What food items are grown locally?

Does the area have access to markets where local or regional food products are sold and traded?

Does the community or do individual households have a food reserve?

Is climate change affecting food security?

Health

What health care facilities does the area under study have access to?

How easy is it to reach a doctor or health center?

What are the primary diseases endemic to the area (e.g., malaria, cholera, TB)?

To what extent is HIV/AIDS prevalence a concern, and what is the general level of awareness?

How does access to health care compare with the rest of the country?

Do inhabitants have access to an improved water source?

Are there any sanitation facilities in the area?

Are changes in the climate contributing to new health problems or exacerbating the prevalence of existing diseases?

APPENDIX II

List of Persons and Organizations Consulted

Government of Uganda

Martin Owor, Commissioner for Disaster Preparedness, Relief, and Refugees
Office of the Prime Minister

Ahmed Wafuba, Head of Uganda CEWERU
Ministry of Internal Affairs

Joseph Muhumuza, CEWARN National Coordinator
Ministry of Internal Affairs

Joe Burua, UNDP-CPR-SALW, P R O
National Focal Point on Small Arms and Light Weapons
Ministry of Internal Affairs

David Ebong, Member of Parliament
Chairman, Parliamentary Forum on Climate Change
The Parliament of the Republic of Uganda

Elijah Okupa, Member of Parliament from Soroti
The Parliament of the Republic of Uganda

Samuel Odongo Otto, Member of Parliament from Pader
The Parliament of the Republic of Uganda

Christopher Moyoyo, District Councilor,
Nabiswera sub-county

Gateese Teopista, Senior Environmental Officer for Luwero District
Luwero District Headquarters

Moses Sekagya, Environmental Officer
Nakaseke District

Rafael Mubiru, Natural Resource Management Department Head
Nakaseke District

Hood Luyima, District Natural Resources Officer for Luwero
Luwero District

Civil Society Organizations in Uganda

Judy Adoko
Executive Director
Land and Equity Movement in Uganda

Ben Twinomugisha
Climate Change Activist and Formerly with Oxfam International

Mwayafu Mjuasi David, Program Officer
Uganda Coalition for Sustainable Development

Bernard Namanya, Executive Director
Climate Change Concern

Elizabeth Katushabe, Project Officer
Pastoral and Environmental Network in the Horn of Africa (PENHA)

David Pulkol, Executive Director
African Leadership Institute

Bill Farmer, Chairman
Uganda Carbon Bureau

Esther Obaikol, Executive Director
Uganda Land Alliance

Michael Mpalanyi
Uganda Land Alliance

John Mwebe, Program Assistant, Legal Services
Uganda Land Alliance

Joshua Aijuka, Program Assistant
Participatory Ecological Land Use Management (PELUM)

Joseph Mugisha, Co-ordinator
Buliisa Pastoralists Advocacy

Kabishanga Akonen
Buliisa Pastoralists Advocacy

Emmanuel Tiger Baingana
Cattle Corridor Development and Management Initiative

Samuel Kaweesi
Nakasongola Pastoralists Association

Stephen Ssenyonga
Volunteer Efforts for Development Concerns (VEDCO)
Luwero Office

Donors and Implementers

Randy Harris, Team Leader
United States Agency for International Development

Dan Glick, Regional Security Officer
United States Agency for International Development

Barry Wojega, Senior Budget Specialist
United States Agency for International Development

Bruce F. McFarland, Contracting Officer
United States Agency for International Development

Dyonne Burgers, Deputy Director
International Rescue Committee

Ms Majda Ganibegovic, Regional Peace Building Coordinator
International Rescue Committee

Michael Opio, Economic Recovery and Development Coordinator (Karamoja sub-region programs)
International Rescue Committee

Theophane Nikyema, United Nations Resident Coordinator
United Nations

Silla Ristimäki, UN Coordination Specialist
United Nations

Daniel Omodo-McMondo, Program Officer, Environment
United Nations Development Programme

Stanlake Samkange, Country Director
Wood Food Programme

Rosie Bright, Senior Program Assistant
World Food Programme

Geoffrey Ebong, Program and Policy Advisor
World Food Program

Rosie Bright, Senior Program Assistant

World Food Program

Jimi Richardson, Food and Nutrition Security Coordinator
World Food Program

Agnes Atyang, Deputy Representative
FEWS NET

Kennedy Igbokwe, Deputy Emergency and Rehabilitation Coordinator
Food and Agriculture Organization

Okoth James Robert, National Program Manager, Emergency and Rehabilitation Coordination Unit
Food and Agriculture Organization

James Wole, Director
CARITAS

Guiseppe Filippi, Bishop of the Kotido Diocese

Akoelkin Vranes, Agricultural Officer
Kotido Diocese

Owiny Charles, Youth Education Coordinator
Kotido Diocese

Ejus Denis, Facilitator – Conservation
Kotido Diocese

Amira Margaruet, Facilitator – Livelihoods Department
Kotido Diocese

Charles Wabwire, Program Officer
Kotido Diocese

Sr. Bibiama Amena, Diocesan Health Coordinator
Kotido Diocese

Rose Lokin, Coordinator FAL RIGA
Kotido Diocese

Alaso Catheringe, FAL Trainer
Kotido Diocese

Akello Susan, Livelihoods Officer
Kotido Diocese

Samuel Koroma, Acting Head of Office
Mercy Corps

Gilbert Buzu
World Food Program
Kotido

Guiseppe Filippi, Bishop
Kotido Diocese

Yusuf Logiel, National Program Officer
United Nations Office of the High Commissioner for Human Rights

Laurie Wiseberg, Human Rights and Senior Protection Officer
United Nations Office of the High Commissioner for Human Rights

James Opio
World Vision
Kotido

Harriet Otim, Program Officer
United Nations Office for the Coordination of Humanitarian Affairs Representative in Kotido

Academics and Private Sector

John Paul Baingana
Environmental Lawyer
Tumwesigye, Baingana & Co. Advocates

Banya Lagol
Former school teacher in Karamoja

Dorcus Ninsiima
Faculty of Science, Department of Zoology
Makerre University

Dr. Chris Funk
University of California Santa Barbara

Dr. Gideon Galu
United States Geological Survey, Nairobi

Community Consultations

Peter Locheng, Former RDC
Kotido

Fr. Peter Lokiru, Karamojong Cleric
Kotido

Discussions with 22 warriors and 2 elders in Nakapelimoru village, Karamoja

Discussions with pastoralists in Nakasongola district, Kakooge sub-county, Kakooge town parish, Kirowooza village

Discussions with Kakooge sub-county LC3 Chairperson Ronald Bekelaze

Discussions with pastoralists in Kakonde village

Discussions with pastoralists in Wabinyonyi sub-country

Discussions with farmers in Nakasongola district, Kalongo sub-county, Kisweramainda village

Discussions with farmers in Nakasongola district, Kalongo sub-county, Mayirikiti village

Discussions with Nakasongola District Natural Resources Office

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