MAY 2014

CCAPS

CLIMATE CHANGE AND AFRICAN POLITICAL STABILITY

INSTITUTIONAL CAPACITY FOR NATURAL DISASTERS: CASE STUDIES IN AFRICA

STUDENT WORKING PAPER NO. 6

Edited by Jennifer Bussell, PhD

Photo credit: Todd Smith

ABOUT THE CCAPS PROGRAM

This paper is produced as part of the Strauss Center's program on Climate Change and African Political Stability (CCAPS). The program conducts research in three core areas, seeking to investigate where and how climate change poses threats to stability in Africa, identify strategies to support accountable and effective governance in Africa, and evaluate the effectiveness of international aid to help African societies adapt to climate change. The CCAPS program is a collaborative research program among the University of Texas at Austin, the College of William and Mary, Trinity College Dublin, the University of Denver, and the University of North Texas.

The CCAPS program is funded by the U.S. Department of Defense's Minerva Initiative, a university-based, social science research program focused on areas of strategic importance to national security policy. Through quantitative analysis, GIS mapping, case studies, and field interviews, the program seeks to produce research that provides practical guidance for policy makers and enriches the body of scholarly literature in this field. The CCAPS team seeks to engage Africa policy communities in the United States, Africa, and elsewhere as a critical part of its research.

ABOUT THE STRAUSS CENTER

The Robert S. Strauss Center for International Security and Law at the University of Texas at Austin is a nonpartisan research center that engages the best minds in academia, government, and the private sector to develop unique, policy-relevant solutions to complex global challenges.

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Dr. Jennifer Bussell is an assistant professor at the University of California at Berkeley and former assistant professor at the LBJ School of Public Affairs at the University of Texas at Austin.

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ALP Adaptation Learning Program
CCA Climate Change Adaptation
CDA Civil Defense Act
CERF Central Emergency Response Fund
CPA Civil Protection Act
CPU Civil Protection Unit
CRM Climate Risk Management
CRS Catholic Relief Services
CSM Cerebrospinal Meningitis
CSO Civil Society Organization
CSPC High Commission for Civil Protection (Senegal)
CTDT Community Technology Development Trust
DCP Department for Civil Protection
DEEC Directorate for the Environment and Established Settlements (Senegal)
DFID Department for International Development
DMC Drought Monitoring Centre
DMCF Disaster Management Consultative Forum (Zambia)
DMMU Disaster Mitigation and Management Unit (Zambia)
DPC Civil Protection Directorate (Senegal)
DRM Disaster Risk Management
DRR Disaster Risk Reduction
DVG Disaster Volunteer Groups
ECOWAS Economic Community of West African States
EMA Environmental Management Authority
EOC Emergency Operations Center of the Disaster Mitigation and Management Unit (Zambia)
EPDMA Emergency Preparedness and Disaster Management Act
EWS Early Warning System
FAO Food and Agriculture Organization
FEWS NET Famine Early Warning Systems Network
FTLRP Fast Track Land Reform Program (Zimbabwe)
GDP Gross Domestic Product
GEF Global Environmental Facility
GFDRR Global Facility for Disaster Reduction and Recovery
GNU Government of National Unity
GPA Global Political Agreement
HDI Human Development Indicators
HFA Hyogo Framework for Action
HIPC Highly Indebted Poor Country
IMF International Monetary Fund
INGC National Disaster Management Institute (Mozambique)
INGO International Non-governmental Organization
IO International Organization
JICA Japanese International Cooperation Agency
LDC Least Developed Country
MDC Movement for Democratic Change (Zimbabwe)
MDD Movement for Multiparty Democracy (Zambia)
MPI Multidimensional Poverty Index
MoA Ministry of Agriculture
MoA&C Ministry of Agriculture & Cooperatives (Zambia)
MPI Multidimensional Poverty Index
MSD Meteorological Services Department
NADMO National Disaster Management Organization
NAPA National Adaptation Program of Action
NCPC National Civil Protection Committee
NDC National Democratic Congress
NDMA National Disaster Management Agency (Gambia)
NEWU National Early Warning Unit
NGO Non-governmental Organization
OCHA United Nations Office for the Coordination of Humanitarian Affairs
ODA Official Development Assistance
PPP Purchasing Power Parity
Plan ORSEC National Emergency Plan (Senegal)
Plan Orsec Plan d'Organisation des Secours en Catastrophes au Togo
SADC Southern African Development Community
SARCOF Southern Africa Regional Climate Outlook Forum
SNDP Sixth National Development Plan (Zambia)
UN United Nations
UNDP United Nations Development Program
UNICEF United Nations Children's Fund
UNIP United Independence Party (Zambia)
UNISDR United Nations International Strategy for Disaster Reduction
UN OCHA United Nations Office for Coordination of Humanitarian Affairs
USAID United States Agency for International Development
USDA United States Department of Agriculture
WDI World Development Indicators
WFP World Food Programme
ZANU-PF Zimbabwe African National Union-Political Front
ZEPRIS Zambia Emergency Preparedness and Response Information System
ZINWA Zimbabwe National Water Authority
ZRA Zambezi River Authority
ZVAC Zambian Vulnerability Assessment Committee

INTRODUCTION

By Jennifer Bussell and Adam Colligan

Natural hazards, such as floods, drought, earthquakes, and tropical cyclones, do not necessarily result in disasters, but they present a clear policy challenge for national governments: how does a country prepare for the often unexpected? This challenge is exacerbated by the fact that natural shocks have the potential to impose significant economic costs and loss of life. These dynamics have resulted in national governments often adopting diverse natural disaster management strategies. This report details the findings of a research initiative under the Climate Change and African Political Stability (CCAPS) program to explore the causes of variation in government policies to reduce the risk of, prepare for, and respond to natural disasters. The discussion focuses on the African continent and ten case studies within Africa, but the findings of the analysis should be relevant to a broader set of cases, particularly developing countries.

While natural disasters are a frequent risk around the world, and national governments play a key role in disaster management, often intermediating between local and international actors, analysts have little leverage for understanding why national governments take, or fail to take, a particular stance toward investment in activities that should reduce the overall vulnerability of their countries to natural hazards. This lack of knowledge regarding the drivers of government behavior is not due to a dearth of theoretical insights into the potential causes of variation in natural disaster policies. Indeed, recent academic literature has developed a range of potential explanations for observed variation in the ways in which governments do, and do not, prepare for and respond to natural disasters. But a key current limitation is the lack of empirical testing to evaluate which of these individual hypothetical explanations, or which combination of hypotheses, provides the greatest leverage for explaining particular policy outcomes. Without evaluating the relationship between theory and reality on the ground, there is little basis for making practical recommendations for strategies to improve disaster management policies in general.

The goals of the project presented here, then, are two-fold. The first goal is to provide a current assessment of natural disaster management capacities in a set of African states. This effort emphasizes the role of national policies in providing a framework for all actors engaging in natural disaster-related programs and shaping the environment in which these activities occur. The second is to offer the first comprehensive empirical test of arguments regarding the incentives of states to invest in disaster management activities. Based on an extensive literature review, the research documents the range of hypotheses in the social science literature on the potential factors influencing government policies regarding natural disaster management. These hypotheses are then tested, using case-based evidence from ten African states.

In order to achieve these goals, this project takes a wide-ranging perspective and uses a qualitative paired-case study design. In doing so, the analysis provides evidence both for and against a number of theoretical hypotheses while also offering a more nuanced perspective on the ways in which the hypothetically important characteristics of states interact to affect policy choices and institutional robustness. This has important implications for understanding the relationship between national governments and both bilateral and multilateral aid agencies in the face of natural shocks. Both domestic and international actors need to know which kinds of precursor conditions must be supported in order for risk-reducing institutions to be able to thrive in a challenging new century. Are resources and attention best spent: building up the institutional bureaucracy in disaster management directly, supporting the personal and financial commitments of political leaders to facing natural hazards in a structured way, or contributing to the improvement of underlying economic and political realities that can be assumed to generate good disaster institutions spontaneously? This report attempts to shed new light on these questions and to inform debates over the most appropriate and efficient uses of aid and national resources for dealing with natural shocks.

This introduction sets the stage for the chapters that follow and briefly summarizes the overall findings presented in the report. In each empirical chapter, two country cases are presented together, to allow for comparison between neighboring states facing similar natural hazards. Here, an overview is offered of the findings from all ten countries, to allow for more generalizable conclusions based on the experiences of a diverse set of states. To preview, hypotheses are evaluated related to the perceived risk of natural hazards, moral hazard, democracy and electoral conditions, political development, civil society, the role of external actors, and economic conditions. While the evidence offers general empirical support for the majority of the most common versions of these arguments, glaring exceptions to nearly every "rule" also emerge. This suggests that even for the more robust hypotheses, important causal factors can be strongly influenced by relatively subtle differences in political and economic characteristics. By contrast, there is considerable evidence against the claim that "governments underinvest in disaster prevention when they know that they will be bailed out in the event of a disaster,"[1] or that moral hazard plays a role in national decisions regarding whether or not to invest in disaster preparedness. This finding has important policy implications, as the previous literature emphasizing this argument has suggested that international aid agencies and non-governmental organizations (NGOs) should modify, if not limit, their activities with regard to natural shocks so as to moderate any unanticipated outcomes in domestic policy.[2] Instead, the findings presented here suggest a more positive outcome, that current international practices are more likely to be complementary to national government strategies than supplementary.[3]

The following sections review the existing literature and arguments on variations in national preparedness and response strategies, emphasizing, where possible, the existing empirical evidence. The methodology used for the research is then reviewed before discussion of the findings for each primary hypothesis across the set of countries. The conclusion offers a discussion of policy implications as well as the limitations of this research.

BACKGROUND AND EXISTING HYPOTHESES

Areas of Focus

This project approaches the question of natural disaster preparedness and response primarily from the perspective of national governments and attempts to address the potential causes of government decisions regarding investment, broadly understood, in countries' abilities to reduce the risk of, prepare for, and respond to disasters. While quite broad in its aims, the goals set aside more than they attempt to achieve, including, for example, the decision making of international aid agencies, local NGOs, and more generally the dynamics of post-disaster recovery. Instead, the objectives are, first, to gain some traction in understanding the policies, or lack thereof, themselves and second, the effects of these policies on the actual capacity of the state to deal with the threat of natural hazards.

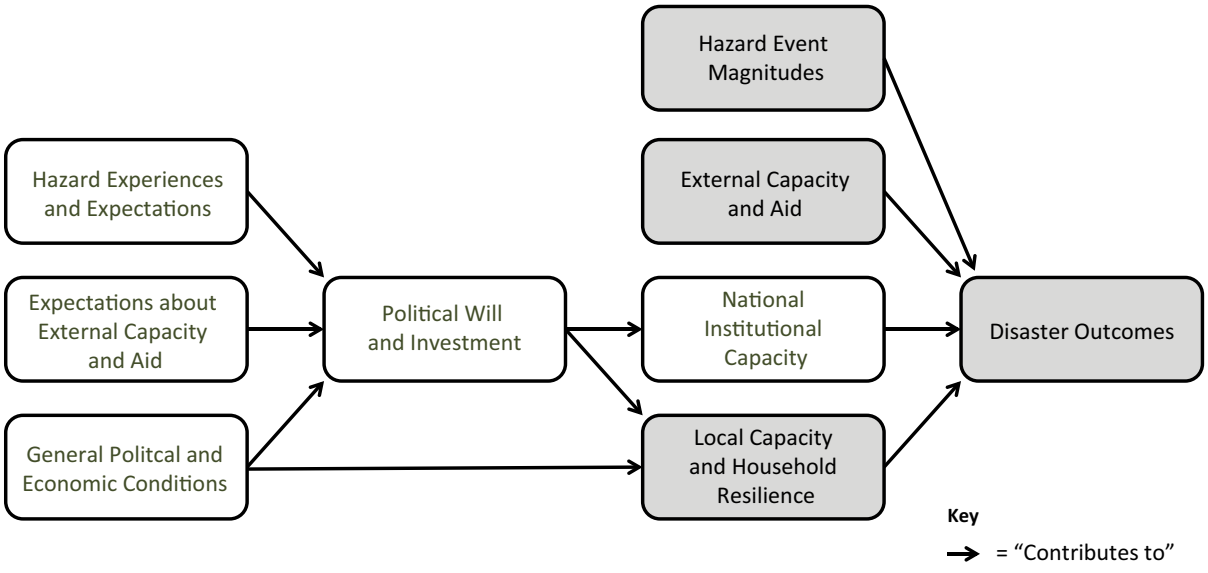
This perspective, while reasonably narrow, still runs up against the constraints of a highly complex area of analysis. In order to gauge the quality of government capacities to prepare for and respond to natural shocks, it is necessary to at least attempt to have some sense of both the outcomes of natural shocks and hypotheses on the causal chain leading to those outcomes. The analysis is framed such that national policies, and the implementation of those policies, are the primary dependent variables of the study, but this comes with the assumption that these variables have some independent effect on the outcomes of natural shocks. This is a complex and often problematic assumption for two main reasons. First, explanatory models of disaster outcomes often rely on a long causal network of lower-order factors, many of which—such as electoral conflict, population dispersion, and climactic patterns—are themselves very complex, poorly understood empirically, and often subject to stochastic shocks in any given real-world situation. Second, researchers can all too easily conflate one kind of concept (such as "outcome" in terms of disaster deaths) with a logically related one (such as "outcome" in terms of how much money was invested in preparedness and response), making comparisons within and across seemingly similar research initiatives quite difficult.

The goal here is to begin to test more rigorously the relationships between potential explanatory variables, while keeping in mind the need for caution in dealing with a diverse set of natural shocks. For example, it is quite likely that the relationship between preparedness spending and mortality reduction varies wildly depending on the type and intensity of the hazard confronted. This should dissuade researchers from using one as a simple proxy of the other in most circumstances, and the discussion below considers in more detail the many difficulties associated with empirical data on natural hazards and their outcomes. For current purposes, the report attempts to communicate as clearly as possible the boundaries of the research, keeping in mind that the variables involved can have complex relationships that are difficult to parse in any single research initiative.

Figure 1 illustrates the main factors considered in this study within a local "neighborhood" of relationships that are relevant to disaster risk. The boxes in white are the main topics of study, while those in gray are closely related areas outside the focus of the research. The project reviews and pursues some of the most prominent hypotheses concerning how diverse factors affect a government's political will to invest in disaster outcome mitigation, as manifest in the commitment of money, skilled personnel, and political capital to dealing with the problem. It also examines how selected bureaucratic and institutional factors mediate between that investment input and the subsequent perceived capacity of national institutions to carry out those functions they are funded to perform.

In this project, the term "national institutional capacity" is used to encapsulate both the effectiveness of pre-hazard risk reduction programs and post-hazard response and recovery programs. Logically, these efforts can flow into each other and make distinguishing between the two difficult: investing in a levee to hold back flood waters, investing in boats to be ready to ferry stranded victims, or investing in employees who are trained to disburse ad-hoc recovery aid funds are economic investments representing both preparedness and response. In addition, the research tends to find that the pre-event preparedness and risk reduction institution is also the body that is charged with disaster response. However, from the standpoint of international, and some domestic, actors, these activities are differentiated, with greater attention at the international level in recent years placed on risk reduction, rather than preparedness or response. Domestic actors, in contrast, are still more likely to focus on response and, to a lesser degree, preparedness. There can be a very wide gap in both public and government views on preparation and response, as discussed below.

Figure 1. Research Focus on Factors Influencing Disaster Outcomes



EXISTING HYPOTHESES

This section provides a review of the key arguments proposed to date and tested in this research initiative. The current literature highlights a large number of hypotheses to explain variation in the degree to which national governments prepare for and respond to natural shocks. In particular, an important focus of this work is the political and economic factors influencing policy-making, recognizing that "the incentives faced by human actors can affect the prevention, mitigation, and damage of natural disasters."[4] These efforts have helped to increase attention to the behavior of political actors in shaping the outcome of otherwise "natural" events.

While research to date has broadened our theoretical expectations about the behavior of state elites with regard to natural shocks, the empirical testing of these hypotheses has been limited. Authors such as Cohen and Werker[5] present some case evidence and summary statistics, but theirs is largely a theoretical effort. Similarly, Keefer, Neumayer, and Plumper[6] present an evaluation of one type of natural hazard, earthquakes, while Raschky and Schwindt[7] and Healy and Malhotra[8] each test a particular hypothesis. All of these efforts provide important contributions, but they also leave substantial room for developing a comprehensive evidence-based examination of the dynamics shaping disaster policies. It is an empirical analysis of the broad set of hypotheses, as presented in this report, that offers leverage to provide a more thorough understanding of national disaster management strategies.

The overall set of hypotheses covered in the analysis is shown in Table 1. For each category of hypotheses there is a primary hypothesis and a number of sub-hypotheses, which may or may not logically agree with the primary hypothesis but are concerned with similar issues. This table serves as a reference for the evaluations of each hypothesis and sub-hypothesis presented in the following chapters.

Perceived Risk

A key factor for states' disaster policies is likely to be the overall perceived risk of future hazards. In countries hard hit by disasters in the past, previous experience with international aid and the difficulty of dealing with diverse sources of assistance may help incubate policies to improve local disaster preparedness activities (instead of increasing the likelihood of reliance on external support).[9] The literature on this topic tends to emphasize the *formalization* of national knowledge about expected future hazards as the key parameter in that knowledge having an impact on investment decisions.

Economic Conditions

Economic arguments also predominate in much of the literature, with the typical expectation that wealthier governments will spend more on prevention.[10] However, authors differ on the logic underlying this argument, with some emphasizing economies of scale while, with regard to earthquakes, Keefer et al. posit that "the opportunity costs of expenditures to limit earthquake mortality are higher in poor countries, so that rich countries should respond more strongly than poor countries to higher earthquake propensity."[11] Other literature highlights the potential negative feedback effects from increasingly devastating disasters, which can threaten the productivity of wealthy countries or regions within countries while weighing down on poor economies and further dampening their ability to invest.[12]

Electoral Incentives and Democracy

The nature of the political system is also expected to play a role, and analysts have become increasingly cognizant that disaster and disaster-related policies are directly linked to political incentives, which can differ dramatically across countries. As Keefer notes, "government incentives to provide the public policies needed to mitigate disaster risk and damage vary across countries; institutions and politics are the sources of those incentives."[13] A range of factors, however, can affect the nature of political incentives. While authors such as Kahn posit that democracy, in general, is associated with fewer deaths from natural

disasters,[14] Keefer argues that democracy, or electoral competition, alone is insufficient for explaining variation in disaster outcomes.[15] Instead, Keefer, Neumayer, and Plumper suggest that institutionalization of the party system can boost the propensity of governments to prepare for natural shocks, in particular earthquakes, by increasing the demand for public goods provision. Specifically, "in countries where citizens or members of the ruling party can more easily sanction leaders for poor performance, leaders should respond more quickly to higher earthquake propensity."[16] This characteristic, which can arise in both democratic and nondemocratic regimes, is argued to be even more relevant for policy outcomes than electoral competition on its own.

Electoral conditions may also shape the distribution of spending, both in terms of preparedness and response. Cohen and Werker argue that governments may target spending to favor "regions that are politically aligned with the party in power."[17] Here, politicians in democratic environments may be more affected by "electoral myopia," in that they invest only in expectation of the next election, rather than for long-term preparedness. Authoritarian regimes may thus be more likely to invest in overall, rather than targeted, preparedness.

A related issue may arise with regard to funding for disaster response. Garrett and Sobel, as well as Healy and Malhotra, find evidence of targeting to particular electoral constituencies in the wake of disasters in the U.S.[18] The timing of elections can also play a role, with Cole et al. showing that governments in India were more likely to spend generously on disaster relief during election years, when they could more directly benefit from citizens' appreciation of their efforts.[19]

The expectation of future natural shocks may also interact with electoral conditions to affect policy. Spending on disaster preparedness is often difficult to translate into electoral benefits: "Building codes, early warning systems, disaster relief planning and floodplain management are all difficult for citizens to observe. Even if individuals can observe them, they cannot easily assess the contribution they make until a disaster occurs."[20] The same opacity is a problem for both researchers and citizens: even where prevention spending can be identified in a budget, project quality and effectiveness can remain very difficult to assess after a hazard event has taken place. As a result, and because it is easier to evaluate the quality of spending on response, multiple authors highlight that voters are more likely to reward response spending than spending on preparedness and mitigation.[21] However, as natural shocks become more frequent, citizens may become less likely to punish politicians for the preparedness activities that then reduce the chances of a negative electoral response when a shock does occur.[22]

Political Development

Another political factor may be the overall character of government institutions. In particular, characteristics such as the degree of development in the bureaucracy and the presence of corruption in government operations may shape the quality of programs put into place to prepare for or mitigate the effects of natural shocks. With regard to corruption, the willingness of bureaucrats and politicians to skim funds from programs intended to support preparedness and response as well as to accept bribes from individuals and companies attempting to affect regulations or avoid their enforcement can limit the quality of policies put into place. In the case of earthquakes, Escaleras et al. argue that corruption is a key factor in the enforcement, or lack thereof, of building codes.[23]

Political development more generally concerns the degree to which the bureaucracy is meritocratic and insulated from political whims in the implementation of policy. As Evans and Rauch[24] have shown, the "Weberianness" of a bureaucracy, or the extent to which government agencies use meritocratic recruitment and offer predictable career paths, can be linked to policy outcomes such as economic growth. More "Weberian" bureaucracies may then also be better able to promote other policy outcomes, such as those related to disaster preparedness. Similarly, the degree to which bureaucrats are insulated from political interference may affect their ability to implement new policy initiatives.[25]

There is a certain tension in this line of argument with the proposal that electoral incentives will drive higher commitments to disaster risk projects because they *do* politicize government action in this arena, whereas it would otherwise be ignored by officials. Here, on the other hand, a Weberian bureaucracy is expected to promote better disaster risk reduction because it is *autonomous* of political interference (breaking the electoral incentives causal chain) but at the same time effective in lobbying the political authority for its own professional vision and securing the funds and authority needed to see it through. These lines of logic are not necessarily irreconcilable, but their relationship with each other and their association with general trends in what is termed political development – consisting of both more electoral competition and more Weberian bureaucracies – will tend to make for a complex analysis. Corrêa d'Almeida and Klingner,[26] as well as Roberts,[27] offer insights on the interaction between public criticism and what is termed "bureaucratic autonomy" in the history of the Federal Emergency Management Agency in the U.S., which has experienced dramatic shifts in both its political standing and institutional authority in the past two decades.

Moral Hazard

Another key argument in the literature draws on the idea of moral hazard to posit that, "governments underinvest in disaster prevention when they know that they will be bailed out in the event of disaster."[28] Keefer argues that, "Aid has two potential and offsetting effects. One is to loosen budget constraints that prevent countries from investing in ex ante disaster risk reduction…. However, past aid is a signal to countries of the amount of aid that they can receive in the event of a disaster…and countries substitute post-disaster relief for pre-disaster risk reduction."[29] Raschky and Schwindt provide an empirical test of this hypothesis in the case of earthquakes, storms, and floods. They find evidence to support predominance of a negative aid effect in the case of storms, but the results are ambiguous for floods and earthquakes.[30] These findings suggest both that analysts and practitioners should be cautious in overestimating the negative effects of aid and that there is reason to consider the type of natural shock when evaluating the incentives for investing in preparation and mitigation. The inverse of this hypothesis, that countries not expecting to receive international support in the event of a disaster, will be more likely than others, all else equal, to invest in preparedness, is in some cases referred to as the "pariah" state hypothesis.[31]

Civil Society

Civil society organizations (CSOs) are often seen to play a part in promoting, and engaging in, disaster preparedness activities. The presence of local NGOs in a country implies the availability of actors who can directly engage in disaster preparedness and who may have an indirect influence on disaster-related spending through lobbying efforts directed at the national government. In the former case, these organizations may take over responsibilities from the state, either by contract or of their own volition, when state capacity is insufficient. During non-crisis periods this often takes the form of general services such as education and health,[32] but civil society actors also engage in activities specific to disaster risk reduction and preparedness.[33] For these reasons, levels of disaster preparedness may be higher with a stronger civil society presence in general and, in particular, when there are more disaster-oriented NGOs on the ground.

External Actors

A similar argument can be made for the role of international actors in promoting disaster risk reduction and preparedness. Here, entities such as international aid agencies and INGOs may again play both direct and mediated roles in disaster-related activities. Direct actions include implementation of preparedness projects and support of activities by local NGOs. State actors may then learn from these activities and adopt related state-led programs. External actors may also work directly with the national government, supporting activities such as development of risk reduction and preparedness plans, building state disaster management institutions, and funding of related initiatives. In either case, the presence of external actors involved in disaster-related activities is expected to be associated with stronger national disaster preparedness programs.

In addition to international actors, domestic governments may learn from the activities of their neighboring states. Particularly where countries in the same region face similar natural hazards, the disaster preparedness activities of one country may serve as an example to their peers. Under these circumstances, countries where state leaders are exposed to more developed natural disaster programs in nearby states may also exhibit greater investments in disaster risk management (DRM).

Consolidated Hypotheses

The hypotheses chosen for inclusion in this project, based on review of this and related literature, are summarized here and shown with their sub-hypotheses in Table 1.

1) **Perceived Risk:** If governments perceive that the risk of a natural hazard is high, then they will invest more in preparedness.

2) **Economic Strength:** If a country has greater economic resources overall, then it will spend more on disaster preparedness.

3) **Electoral Incentives and Democracy:** If a government perceives disaster preparedness to be electorally beneficial, then it will spend more on preparedness.

4) **Political Development:** If a government is more developed in terms of the quality of its politicians and the quality and independence of bureaucrats, then it will prepare better for natural hazards.

5) **Moral Hazard:** If governments anticipate that other actors will spend on preparedness or response, then they will spend less on preparedness.

6) **Civil Society:** If there is a strong civil society in a country, then there will be greater investment in preparedness.

7) **External Actors:** If a government has greater exposure to disaster preparedness from the actions of external actors, then it will invest more in preparedness.

Table 1. Hypotheses

This study sought to test the range of existing explanations posited in academic and policy literature regarding national investments in disaster management capacity. Field research gathered empirical evidence to test seven primary explanations, each associated with several sub-components.

Perceived Risk – If governments perceive that the risk of a natural hazard is high, then they will invest more in preparedness.
- If a country has experienced more natural hazards/disasters in the past, then the government will invest more in preparedness.
- If a country anticipates more natural hazards in the future, then it will invest more in preparedness.
- If a country (or region) is small, then it will invest more in preparedness (given the greater threat of a hazard to the country's overall welfare). This encompasses an argument about local areas being more likely to invest in preparedness than central governments.
- If a country is at risk of large natural shocks (but not necessarily frequent), then it will be more likely to invest in preparedness.
- If the at-risk population is concentrated in smaller areas, less money will be required to offer them the same level of protection, and so less will be spent. This half-conflicts with the smaller country will spend more theory, but only in the geographic sense.
- If the at-risk population is wealthier or more productive than the national average, more money will be spent on DRR to protect them and their contribution to the economy/tax base. If they are a drain on resources, less will be spent.

Economic Strength – If a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area.
- If a country has a higher GDP, then it will be more likely to spend on preparedness.
- If a country receives a large amount of international aid, then it will be more able to spend on preparedness. This contrasts with the moral hazard argument.
- If there is a vibrant market economy, then there will be more investment in preparedness. This will be due to: Market actors pressuring the state to protect their own investments or market actors engaging in their own preparedness activities.
- If a country is constrained in its spending, and preparedness is seen as a substitute to development spending, then the government will spend less on preparedness.
Electoral Incentives and Democracy – If a government perceives disaster preparedness to be electorally beneficial, then it will spend on preparedness.
- If events are rare, then governments will not invest in preparedness, because efforts will be hard to measure and thus electoral benefits will be limited.
- If a government has differing support across regions of a country (including from particular ethnic groups), then it will invest more in preparedness in areas dominated by its supporters.
- If politicians perceive that citizens respond more to disaster response than to preparedness, then they will spend less on preparedness and will spend more if a natural disaster happens.
- If the media gives more attention to preparedness activities (thereby increasing the likelihood of an electoral benefit), then governments will invest more in preparedness.
- If preparedness spending has spillovers into areas that are likely to help politicians electorally, then they will be more likely to invest in preparedness.
- If the population suffers from an acute natural shock, then they are less likely to hold the government responsible than they are for slow-onset disasters, and so governments will invest less in being ready for more acute shocks.
- If a government is in a country with a more advanced democracy, then it will invest more in preparedness.
- If there are competitive elections in a country, then the government will be more likely to invest in preparedness because it is more likely to be held accountable by the population.
Political Development – If a government is more developed (in terms of the quality of politicians and bureaucrats and the independence of bureaucrats), then it will prepare more for disasters.
- If a country's politicians are more corrupt and if international aid flows are more easily diverted into rents than preparedness funds, then the government will be less likely to invest in preparedness.
- In general, if a country has more corrupt politicians and bureaucrats, then they will invest less in preparedness.
- If government agencies are largely insulated from politics, then they will be more likely to engage in preparedness activities.
- If local officials, who have more first-hand knowledge of and exposure to risks, are in control of budgets and projects, then the country as a whole will spend more on preparedness.
Moral Hazard – If governments anticipate that other organizations will spend on preparedness or response, then they will spend less on preparedness (governments will invest in preparedness conditional on their expectations about the preparedness and response activities of others).
- If a country expects international aid in the time of a natural hazard, then it will invest less in preparedness.
- If a country believes that its security situation would deter effective external aid, especially on the ground, then it will invest more in preparedness.
Civil Society – If there is a strong civil society, then there will be greater investment in preparedness.
- If civil society actors pressure the state to invest in preparedness, then the state will invest more.
- If there is a strong civil society, then civil society actors will engage in their own preparedness activities.
- If there are strong local kinship networks, then local actors will invest more in preparedness.
External Actors – If a government has greater exposure to disaster preparedness from the actions of external actors, then it will invest more in preparedness.
- If a state is proximate to states that are investing in preparedness, then it will invest more in preparedness.
- If a state has more exposure to international organizations and non-governmental organizations that promote preparedness, then it will invest more in preparedness.

This presentation of the hypotheses belies to an extent the potential for interactions between hypotheses. In the discussion below, in addition to a summary evaluation for each individual hypothesis, key areas

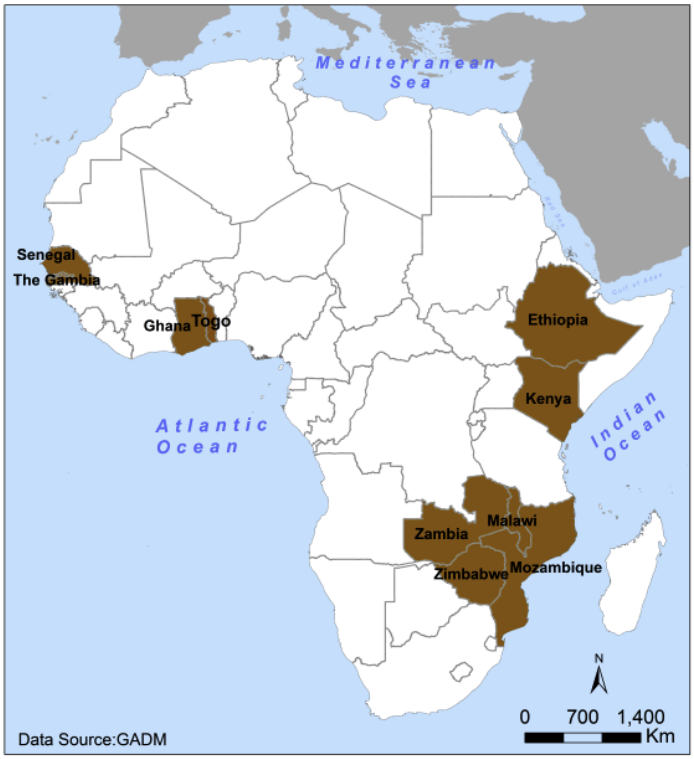
are considered in which the empirical analysis highlights important relationships between the various mechanisms identified in the hypotheses.

RESEARCH STRATEGY

The findings presented here are based on primary and secondary research conducted on ten African states. The research design utilized a paired comparison model, in which each country was evaluated in conjunction with one other neighboring country. The principal goal was to establish comparisons in which two countries face as similar a set of natural hazards as possible, and often the same specific hazard, so as to facilitate comparisons of the responses by national and local governments to similar hazard profiles.

At the same time, the selection of countries attempted to include the range of natural hazards typical to the African continent, including drought, floods, and tropical storms or cyclones, and to incorporate countries from across the continent. The resulting country pairs cover all of Africa's Sub-Saharan regions.[34] The paired country cases are: Senegal and the Gambia, Ghana and Togo, Ethiopia and Kenya, Malawi and Mozambique, and Zambia and Zimbabwe (see Figure 2).

Figure 2. Ten African Country Case Studies



This study represents one of, if not the, most comprehensive attempts to date to examine the determinants of variation in disaster policies within Africa from a first-hand qualitative perspective. While the findings are to an extent particular to the experiences and types of hazards common in the African context, the conclusions should be more generally relevant to understanding political decision making with regard to disasters elsewhere, especially in other developing countries.

What this design does not do is resolve an inherent problem of small-N research, which is the presence of many potentially important independent variables and an insufficient number of cases with which to test sufficiently each potential cause of variation. What the design does allow for is the expression of expert narrative opinion from within the national, international, NGO, and "ground-level" environments about what is causing national political commitment, resource investment, or institutional effectiveness. To provide the broadest possible set of perspectives, the research team utilized a snowball sampling approach that began with multiple initial starting points in each country and resulted in a wide range of respondents, including politicians, bureaucrats, NGO representatives, academics, and individual citizens.

Limits of Quantitative Research on Natural Hazards and Institutional Capacity

The qualitative, comparative case design was used in large part due to fundamental limitations of current quantitative modeling related to natural hazards, which are worth considering in detail here. As recently

noted, "there are no universal standards for archiving environmental parameters for defining hazards and related data. Data exchange, hazard analysis, and hazard mapping thus become difficult,"[35] not to mention analyzing the correlates of natural shock outcomes. Lack of broad-coverage data availability is only one symptom of a larger set of deeper conceptual problems plaguing quantitative inference as to the causes of different disaster outcomes (where outcomes are deaths, economic damage, etc.).

Foremost among these problems is the inability to standardize sufficiently scales for the magnitude of a shock that is being used to measure hazard input. Great strides have notably been made on standardizing ground-level accelerations during earthquakes and even integrating some of this data with basic knowledge about people and structures experiencing the shaking.[36] But this is the exception rather than the rule and is made possible by the unique features of seismic events themselves. Researchers are still far from being able to express a shock in generic units of "potential death" or "potential damage." And even when hazard types are taken one at a time, the proxy variables used to describe their magnitude are often highly questionable. Rainfall totals are often very indirect indicators of the pressure placed on human lives and livelihoods by flood or drought, where the real effects may be hundreds of miles away from the meteorological anomaly and heavily mediated by market conditions and the loss of income. Cyclone intensity is sometimes given as a single measure of wind speed,[37] but even for cyclones in the developed world, the destructive power of winds is known to be at least geometrically related to wind speed;[38] wind speeds would ideally need to be summed over the land that they are actually impacting, and wind itself is frequently not even the major determinant of cyclone losses, depending on the geography of the landfall.

Analysts may be tempted to use disaster deaths or damage cost as a proxy for hazard magnitude, but this would be recursive, even when considered for a country over a large number of years. To regress disaster deaths on disaster deaths, even if the model included other proxy variables for institutional capacity, would destroy the ability of a model to infer either the effect of institutional capacity on deaths or any trends in a country's capacity over time. Ultimately, there seems to be no escape from the need to use physical science data to standardize magnitudes of hazard inputs, and the ability to effectively do this has not yet arrived in the field.

It is also worth noting how difficult it can be to find standardized magnitude data for these disaster *outcomes* themselves. The Center for Research on the Epidemiology of Disasters, the most widely cited source for all-hazards historic disaster data, relies on a wide variety of published and official accounts for damage value and persons killed, affected, displaced, etc. by a natural shock.[39] Other hazard-specific databases, such as the Global Active Archive of Large Flood Events[40] and the U.S. Geological Survey's Prompt Assessment of Global Earthquakes for Response[41] rely on proprietary sources and must apply their own cutoff criteria for when a death or other impact is considered "caused" by a flood, presumably often depending on reports that are not standardized. Even where sources are diverse, they are subject to serious concerns about reporting bias, where countries with less pervasive media coverage, less international attention, or less capable government bodies may tend to show fewer events or a broader spread of estimates of outcomes than they would otherwise. Improvements in reporting coverage over time also make comparisons between outcomes of recent shocks and those of just a few decades ago highly problematic.

The potential problem of reporting bias is joined by other difficulties in standardization to eat away quickly at the useful degrees of freedom in comparative quantitative analysis of disaster events between countries or country-years. The number of events of a given hazard type in a given country-year tend to be so small that more and more disparate data drawn from circumstances that may not be comparable must be included to support an inferential conclusion. In order to mitigate this issue, researchers are faced with either (a) including a large number of proxy control variables in a model that may not adequately capture the political and historical nuances of a state's experiences or (b) resigning themselves to a random- or fixed-effects approach that concedes that disaster events are very difficult to compare across countries, time periods, and hazard types. Because the input magnitudes of hazards have generally not been well standardized, the possibility that one country tends to experience events that have a much

higher potential for destruction than another country also always looms large in such analysis, especially in the former case.

The effect of national, disaster-specific institutional capacity on the outcome of shocks is also tremendously challenging to distinguish quantitatively from a number of other factors that are logically associated with both higher institutional capacity and better disaster outcomes. These include a range of general development factors including household wealth, economic diversification, private infrastructure quality, and international partnerships. The use of many of these factors as control variables is problematic because in some circumstances they are truly complimentary to explaining disaster outcomes, and in others they may dilute the significance of more relevant variables through multicollinearity.

Given this range of difficulties with quantitative research on natural hazards and their effects, this project opts instead for the complications of qualitative research. The approach is also one that is appropriate to preliminary empirical research, in that a wide range of hypotheses are evaluated, rather than one primary hypothesis. Because the theoretical literature highlights a large number of potential explanatory variables, without providing clear justification for privileging any particular hypothesis over the others, an inclusive approach seemed most appropriate for this stage of discovery. Semi-structured interviews were used to focus discussions with respondents on data collection to test these hypotheses but also to allow for flexibility across individual cases.

Fifteen research associates, graduate students in the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin, conducted the majority of the fieldwork for the project and interviewed more than 125 individuals to gather information on specific policies related to disaster preparedness and perspectives on these policies.[42] The research team also, where possible, collected primary government data on disaster spending, natural hazards, and related policies, as well as secondary data from media, NGO, and academic reports. All of this information was combined to produce comparative studies of disaster policy experiences in each paired case, documented in the following chapters, as well as the overall comparative analysis presented here.

Evaluating Natural Disaster Capacity and Investment

In order to conduct the analyses, it was necessary to establish a framework for evaluating government capacity to reduce the risks of, prepare for, and respond to natural disasters and investment in this capacity. The Hyogo Framework for Action, established at the World Conference for Disaster Reduction in 2005, serves as the starting point for structuring the analytical work. This framework outlines a set of five overall priorities for countries to shape policies for disaster risk reduction, including effective preparedness and response policies, over the period 2005-15, which are summarized in Table 2. Given the timing of the research in the middle of this implementation period, the Priorities for Action offer a good baseline for evaluating the progress of countries in this area against an international standard. In addition, initial reports for many African countries provided important secondary data to inform interviews in the field.

Evaluating investment in disaster policy specifically is a difficult task, as acknowledged by much of the previous literature. Many studies, such as Rashcky and Schwindt,[44] resort to using disaster outcomes such as deaths and damage as proxies for investment. In reporting economic returns for disaster risk reduction projects, Vordzorgbe relies on World Bank-funded projects in Africa as examples and notes that "research on…the costs and benefit of DRR interventions has been limited."[45] While many countries have established specific departments or ministries to oversee disaster-related activities, and the funding for these agencies can in the best cases be determined through public government accounts, the majority of spending that contributes to disaster preparedness activities is likely to go through the budgets of other departments related to building codes and enforcement, education, health, infrastructure, and agriculture. This said, a lack of budget transparency in many states is still a hurdle.

Table 2. Hyogo Framework Priorities for Action

Priority	Examples of Activities and Proposed Outcomes
1. Ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation	- National institutional mechanisms with designated responsibilities - Inclusion of DRR in developing policies and planning - Assessment of human resources and capacities - Foster political commitment to addressing DRR - Community participation
2. Identify, assess, and monitor risks and enhance early warning	- Risk assessments and maps - Indicators on DRR and vulnerability - Early warning mechanisms and people-centered information systems - Scientific and technological development including data sharing, space-based earth observations, climate modeling, and forecasting
3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels	- Information sharing and cooperation - Networks across disciplines and regions - Use of standard terminology - Inclusion of DRR in school curricula - Training on DRR for communities and local authorities - Increased public awareness and use of media for public education
4. Reduce the underlying risk factors	- Sustainable ecosystems and environmental management - DRR strategies integrated with climate change adaptation - Food security for resilience - Protection of critical public facilities - Recovery schemes and social safety nets - Public private partnerships - Land use planning and building codes - Rural development plans and DRR
5. Strengthen disaster preparedness for effective response at all levels	- Increased policy, technical, and institutional disaster management capacities - Dialogue and coordination between disaster managers and development sectors - Regional approaches to disaster response with risk reduction focus - Preparedness and contingency plans - Emergency funds

Source: United Nations International Strategy for Disaster Reduction[43]

An even larger and more permanent challenge in this type of analysis is the role of dual-use investment, especially in infrastructure, that may not be formally predicated on disaster risk but nevertheless forms the backbone of a country's ability to cope. Transport networks, sanitation works, economic diversification projects, and local government block grants are all big-ticket items that one might expect to be strong components of disaster resilience but that may not formally form part of a disaster risk reduction budget or strategy. As a result, an understanding of relevant spending in these areas must often be estimated through imprecise discussions with actors involved in disaster-related activities, both state and non-state.

The focus here is on those explicit, dedicated channels of investment whose predominant focus is risk reduction. The research team has done whatever possible to evaluate both explicit funding for disaster-related policies and associated budget items that may contribute to the overall capacity of the state to manage natural hazards. In addition, understanding of investment disparities within countries was leveraged: while the total value of overall investment may be difficult to quantify, interviewees were also prompted to discuss the locations and sectors in the country that were the main focus of attention, gaining insight into institutional priorities and motivations.

FINDINGS

In this section, each of the primary hypotheses is reviewed in the context of the ten countries included in the project, with specific summary evidence to support or refute key elements of each argument. To provide context, Table 3 highlights the hydrometeorological threats faced by each country, while Table 4 summarizes the team's assessment of the progress made by each country on priorities of the Hyogo Framework, relative to the other countries included in the study.

Table 3. Types and Levels of Hydrometeorological Threats in Case Study Countries

	Flood	Cyclone	Drought
Ethiopia	Low/Moderate	Minimal	Severe
Kenya	Low/Moderate	Minimal	Severe
Gambia	High	Minimal	Low
Senegal	High	Minimal	High
Ghana	High	Minimal	Moderate
Togo	High	Minimal	Low
Zambia	Moderate	Low	Moderate
Zimbabwe	Moderate	Low	Moderate
Malawi	Severe	Moderate	Moderate/High
Mozambique	Severe	Severe	Moderate
Scale: Minimal, Low, Moderate, High, Severe			

Source: Scoring is based on country case reports, supplemented by data from the Global Risk Data Platform and UNEP/GRID-Europe.

Table 4. Progress in Meeting Hyogo Framework Priorities for Disaster Response Capacity

	PRIORITY 1 Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.	**PRIORITY 2** Identify, assess, and monitor risks and enhance early warning.	**PRIORITY 3** Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.	**PRIORITY 4** Reduce the underlying risk factors.	**PRIORITY 5** Strengthen disaster preparedness for effective response at all levels.
Ethiopia	4.3	4.3	2.7	3.7	3.3
Kenya	3.0	4.0	3.4	2.6	2.3
Gambia	4.0	2.0	2.8	1.9	2.4
Senegal	3.5	2.8	3.2	2.0	3.1
Ghana	3.3	3.2	2.9	1.9	3.4
Togo	2.5	1.3	2.3	1.1	1.7
Zambia	4.3	3.3	2.8	2.1	3.3
Zimbabwe	2.1	3.0	4.1	1.8	3.0
Malawi	3.4	3.5	3.4	3.4	3.2
Mozambique	3.8	3.3	2.9	3.6	4.3
Scale: 1 to 5, with higher scores implying greater progress on a given goal. Scores are relative to other case study countries.[46]					

Source: Case study teams' deliberations after country visits produced country scores for each Hyogo priority.

Table 5 summarizes the findings of the ten case studies across all of the major hypotheses considered here. A "+" sign in a cell indicates that the evidence from that country largely supports a given hypothesis, either in its stated form or in the reverse. For example, in the case of economic strength, a "+" may indicate either that the country is reasonably well-endowed economically and it is investing in disaster preparedness activities, or that it is relatively poor and it is not investing in these areas. A "-" sign indicates evidence against a given hypothesis, and a "?" denotes that there was conflicting or insufficient evidence to determine decisively whether or not the case supported the hypothesis. Throughout the discussion and in the conclusion of the section, a number of ways in which the mechanisms underlying each hypothesis interact with each other are considered, recognizing that the dynamics of policy making are considerably more complex than can be understood through a single hypothetical argument.

Table 5. Overall Findings

Potential explanations for why governments vary in their approach to disaster management	Ethiopia	Kenya	Gambia	Senegal	Malawi	Mozambique	Ghana	Togo	Zambia	Zimbabwe
Perceived Risk	+	–	+	+	+	+	+	–	+	+
Moral Hazard	–	+	–	–	–	–	–	–	–	+
Electoral Incentives & Democracy	–	+	+	?	+	+	+	+	+	+
Political Development	+	+	+	+	+	–	+	+	+	+
Civil Society	?	+	–	+	+	–	+	+	?	–
External Actors	+	?	?	+	+	+	+	–	?	?
Economic Strength	–	–	+	+	+	+	+	+	+	+

Perceived Risk

The strongest case can be made for hypotheses emphasizing a relationship between the perceived risk of a natural hazard occurring and the likelihood that a government will institute policies to respond to these hazards and invest in disaster-related activities, as shown through review of the cases considered here. At the same time, the specific activities of governments and the ways in which they are engaging with other actors to implement disaster policies cannot be fully explained through simply an analysis of perceived risk. It is through the investigation of the other established hypotheses in the literature that a more comprehensive understanding of the diverse choices being made by African governments in the face of natural hazards is developed.

The most dramatic cases of perceived risk are perhaps Ethiopia and Mozambique. Prior to the millennium, Mozambique faced somewhat regular annual flooding, but it was not until the dramatic floods of 2000 that the extreme threat of this hazard became clear. The deaths of more than 800 people and the difficulties faced by both the national government and international actors in responding to the floods contributed to making hydrometeorological hazards a key priority for the national government. Since 2000, and in light of continued annual floods since then, Mozambique has developed a focused disaster management agency, and the interviewees contacted for this project confirmed that the risk of severe flooding has helped to ensure that this body receives clear support from the central government. In Ethiopia, interviewees also linked the long history of droughts and expectation that droughts will continue in the future with the national government's efforts to invest in its preparedness and response capacity.

In Zambia, the threat of regular – but slow onset – hazards such as floods and droughts has been linked to a consistent level of attention to natural hazards over the last two decades. The government's efforts have become more sophisticated since 1994, when initial disaster management policies were put into place (and subsequently revamped in 2010), but in general disaster management efforts have been a

consistent part of government policy and have been incorporated into overall development efforts. The Gambia, a country flanking the Gambia river, also faces the persistent threat of natural hazards, in this case flooding. While the government has invested minimal financial capital in disaster preparedness, it has made a concerted effort to develop a disaster management agency that is tasked with developing and implementing relevant policies, and the Vice President heads this organization, underscoring high-level government commitment. This example places some pressure on the idea that political commitment and financial commitment will always go hand in hand; however, it is still possible that a strong organizational foundation could pave the way for future concrete investment.

In the neighboring country of Senegal, the government also seems to have increased its attention to natural hazards in light of expectations that these threats, particularly from sea-level rise and flooding, will increase in frequency and magnitude in the future. Interviews suggest that representatives of the government are well aware of these risks, and external actors frequently noted that recent increases in the prevalence of flooding had been closely followed by an uptick in the government's attention to natural hazards. At the same time, the investments made by the Senegalese government often seem ad hoc and focused on response rather than constituting a comprehensive, proactive plan. Some potential explanations for this discrepancy are considered in the discussion below.

Ghana is a case in which persistent historical flooding has been met with a recent increase in the severity of floods. This shift in the degree to which natural hazards threaten the local population seems to have instigated a shift in policy within the national government. While the state had previously been seen as highly reactive and not focused on improving the country's preparedness for natural shocks, approximately half of the interviewees noted a recent shift toward policies attempting to develop a more proactive stance toward disasters. One interviewee recounted specifically that NADMO, the disaster management agency, "is largely perceived to be a reactive agency that dedicates few resources towards prevention. Yet in the past two years, due to the increased frequency and severity of hazards, NADMO is working to change their approach and their image."

The cases that offer little evidence in favor of the validity of the hazard perception hypothesis are Togo and Kenya. In Togo, natural shocks have typically been less frequent than in many of the other countries considered here, offering a potential explanation for the lack of attention to these issues in national policy. However, since severe floods in 2007, flooding has become much more common to the extent that interviewees acknowledged a need for a comprehensive disaster management agenda. Yet such an agenda has yet to take shape. For Kenya, the most dangerous type of hazard historically is drought, which has been a threat on a regular basis for many years. It was not until the drought of 2011 that the national government implemented a revised drought management plan that has been pushed by non-state actors for at least several years. The introduction of the policy in the wake of a particularly destructive drought, but one that followed on years of similar occurrences, suggests that it was the result of factors other than simply perceived risk, including those considered below.

Economic Conditions

In general, the case study evidence supports an argument stressing the importance of strong economic conditions for investments in disaster preparedness and response capacity. Unfortunately, the bulk of the evidence highlights the difficulty African states face to invest in disaster-related policy initiatives due to their weak economic positions. Countries including Ghana, the Gambia, Malawi, Senegal, Zambia, Zimbabwe, and, especially, Togo, have invested relatively low levels of their own capital in preparedness activities. Non-state actors often dominate natural hazard-related spending in these countries, where it occurs. National governments themselves tend to have minimal flexibility to spend their limited resources in an area such as disaster preparedness, where the benefits are often difficult to measure and appear at an unpredictable time in the future. As discussed below in consideration of the moral hazard hypothesis, this does not imply that all of these countries are doing nothing with regard to the risks of natural hazards, indeed they are often making important policy strides with the support of external actors, but they are most likely doing less than would be feasible with stronger economies.

Two countries that highlight weaknesses in the economics argument are Kenya and Ethiopia. On one hand, Kenya, despite the highest gross domestic product (GDP) per capita in its region, has invested very few of its own resources in preparedness activities for natural disasters; the Kenyan state relies primarily on external parties for disaster preparedness and response. On the other hand, Ethiopia, a relatively poorer state, has made a much stronger commitment to investing its own resources in efforts to reduce the threat of natural hazards. In these cases, factors other than economics must be considered to explain the outcomes of natural disaster policies.

Even within economic considerations, examining only national GDP, or even the tax base, can hide important factors in a government's consideration of a disaster-related investment's value. In Zambia, there has been substantial concentration of risk reduction investments in the Copperbelt region, which is the center of the country's mining export economy and a key source of future resources for development. This is a reminder that it is not only immediate human vulnerability but also the protection of key economic development assets that can drive government disaster investment strategy.

Electoral Incentives and Democracy

The relevance of democracy and electoral incentives to policy making in the face of natural hazards has been an important focus of recent work in this area and has helped to shed light on political dynamics potentially affecting the lives and livelihoods of individuals living in disaster-prone regions. In particular, this work has helped to highlight the potential negative effects of electoral incentives on disaster policy, as voters are more likely to reward costly and post-hoc disaster response activities than more cost-effective investments in preparedness.[47] Additionally, recent research[48] has emphasized the importance of accountability, enabled through transparent elections and/or highly institutionalized and responsive party systems, for ensuring that politicians respond in effective ways to acknowledged natural threats.[49]

Ghana, one of the most democratic countries in the study, provides evidence to support the argument that electoral incentives often encourage governments to spend more on disaster response activities than on preparedness. The Ghanaian public perceives the national disaster management body to be a source of relief and supplies in the wake of natural disasters[50] and has responded positively to these actions. However, when the agency has attempted to engage in risk reduction through moving of at risk populations to less vulnerable parts of the country, the result has been clashes between citizens and the government and the return of many individuals to their original home areas. While the government is attempting to moderate public antipathy toward preparedness activities through recent media campaigns, if voters continue to privilege response actions over preparedness, this is likely to reduce the incentives for the state to pursue similar actions in the future.

Senegal, another relatively democratic country by African standards, provides additional support for the argument that disaster response activities are perceived to provide greater electoral benefits than disaster preparedness. The Senegalese government is more likely to invest directly in response and often does so in the wake of public outcry about a current flooding situation. In contrast, in those areas where there is little media attention to floods, such as in the slum areas of Dakar, floodwater often remains present for months at a time with no government assistance.

The Senegalese case also provides support for a secondary hypothesis on the relationship between disaster-related government investments and electoral incentives. Multiple interviewees noted the politically motivated allocation of disaster relief funds to sub-national regions aligned with the central government. During the municipal elections of 2009, opposition parties overtook the national ruling party to take control of a substantial number of local governments. Subsequent to the elections, the national government decentralized responsibility for flood management; a move that many newly elected leaders felt was an attempt to shift responsibility for a delicate area to the opposition.[51] Then, in the effort to act on their new responsibilities, many local governments held by the opposition, such as that of Saint-Louis, the "most flooded" city in the world, found it difficult to acquire substantial resources from the central government. This provides the strongest evidence across the cases of a country in which the importance of natural disasters to the voting public is manipulated by the national government for political advantage.

Mozambique presents an interesting case in which electoral incentives seem to play an important role in the behavior of the government, despite the success of the FRELIMO-controlled government in maintaining a largely one-party state at the national level. Since the extreme flooding of 2000, the national government has made a clear and largely effective effort to improve the country's preparedness for natural disasters. Multiple interviewees noted that there is a sense within the ruling party that, despite their control over the government, if there were another disaster on the scale of that in 2000, then this would put FRELIMO at a significant risk electorally. The fear of this disaster-induced electoral threat has then contributed to the clear investment the government has made in its natural disaster management agency, the INGC, and in developing strong relationships with non-state actors to facilitate implementation of its policy goals. Also, perhaps because past experience has highlighted to both the government and the public the important contribution that preparedness can make in reducing the effects of hydrometeorological hazards, the national policy on natural hazards includes a more substantial set of preparedness components, such as educational programs in communities and schools as well as pre-stocked supply posts in vulnerable areas, than is observed in many other African states.

In Zambia, the most obvious expression of electoral relevance in terms of natural hazards was in the previous presidential election, in which the ruling party used its experiences responding to recent disasters in an attempt to discount the expertise and planning abilities of the opposition candidate. The ruling Vice President Kunda on multiple occasions criticized the candidate Michael Sata and his Patriotic Front party for having no vision for the country while highlighting his own government's efforts to build infrastructure and institute agricultural policies that would protect the country in times of crisis.[52] While these comments do not imply a direct electoral cause for disaster-related investments, they highlight the government's perception that these issues are of relevance to the voting public. That said, the ruling party lost the 2011 election for the first time in Zambia's independent history, and it is yet to be seen how the now more competitive environment may be shaping the new administration's approach to natural hazards.

Countries with more authoritarian regimes, such as Togo, the Gambia, and Zimbabwe, are also among the most limited in their investments in disaster preparedness and response, which is consistent with the electoral hypothesis, though it might not be strong evidence for the hypothesis *per se*, as these are also some of the poorest countries in the sample. Togo does not have an electorally competitive political system or an institutionalized party system that would allow for accountability within the state. The Gnassingbe family has controlled the government for more than 45 years and only in the most recent election of 2010 was there successful multiparty participation that was perceived by the public as a step toward democracy.[53] Thus, the lack of substantial investment in preparedness and response is aligned with this electoral environment, as would be predicted by the electoral hypotheses: even if citizens were to demand increased attention to natural hazards, there are few to no electoral levers for them to pull to increase the chances that the government would prioritize these issues. In the Gambia, interviewees noted that voters see regular flooding as a natural phenomenon and do not seem to attribute responsibility to the government. While Zimbabwe seems to have invested relatively more in preparedness and response than Togo and Gambia, there is no evidence that this is due to electoral conditions and in fact the relatively new coalition government, marking a nominal increase in the country's level of democracy, has been associated with no clear policy improvements regarding natural hazards.

Political Development

In general, countries with higher levels of political development—more Weberian bureaucracies, less political interference in the bureaucracy, and lower levels of corruption—are expected to have stronger programs to prepare for and respond to natural shocks. Overall, the findings suggest that this is the case and, perhaps even more importantly, that low levels of political development can reduce the chances for implementation of quality disaster management programs even where other factors should encourage such programs.

Kenya is perhaps the most striking case in which low levels of political development have contributed to the minimal effort exerted by the government to respond to the challenges it faces from natural hazards. The bureaucracy is highly politicized and the cases in which there seem to have been some successes in disaster management, such as with regard to droughts, are attributed to the involvement of agencies led by high-ranking politicians. In most cases, however, the bureaucracy is seen to have been only a minimal contributor and reactive to natural hazards, at best, with NGOs playing a more predominant role in disaster-related activities. This said, it is worth noting that the funds provided by international and non-state agencies to disaster preparedness and response programs are seen to reach their targeted ends, despite perceptions of high corruption levels within the Kenyan state. In this regard, it is perhaps helpful that the bureaucracy is less involved in these efforts, and thus less able to extract rents from the programs that are in place.

Similarly in Togo, the development of the bureaucracy is very low and corruption levels are quite high, according to the Country Policy and Institutional Assessment scores of the African Development Bank from 2009.[54] In Togo, however, the quality of the bureaucracy seems to be less of an issue than the lack of funding for disaster-related programs in general. As one interviewee noted, there is little corruption in the disaster management arena because there is no funding from which administrators could skim. In neighboring Ghana, while the bureaucracy is in general more developed than that of Togo, high levels of corruption are seen to have impeded implementation and, in particular, enforcement of disaster preparedness efforts to date. Representatives of the national disaster management agency noted the difficulties they experience when attempting to deal with district-level planning agencies and government building officials, both of whom are seen to be willing to take bribes that make enforcement of disaster risk reduction measures such as building codes extremely difficult.

In contrast to these cases, the Ethiopian bureaucracy was found to be reasonably well-developed and able to implement disaster preparedness activities well and without substantial interference from politicians. Additionally, despite scoring poorly on international indicators of corruption,[55] a number of interviewees expressed the belief that the bureaucracy was relatively uncorrupt and that skimming of resources intended for natural hazard-related programs was not a substantial problem in the country. In multiple ways, then, Ethiopia's bureaucracy seems better prepared to deal with natural hazards than that of Kenya, Togo, and Ghana. The commitment of Ethiopian government institutions to taking ownership of disaster-related projects does, however, come packaged with the reality that the Ethiopian authorities seek to exercise much greater control over foreign and other non-government actors within the country. This could be read as an example of an aspect of *limited* political development – authoritarian tendencies and suspicion of outside entities – that has actually contributed to the formation of a very proactive role for the bureaucracy in managing resources.

Zambia presents a middle ground in which the bureaucracy has become more developed over the last two decades and is seen to be gaining successively greater capacity to prepare for and manage disasters. At the same time, the main agency for dealing with natural shocks, the DMMU, sits directly under the Vice President and is thus not insulated from political maneuvering. As evidence of this, one government official noted that the agency feels pressure to spend its limited resources on visible disaster risk management projects, such as infrastructure, despite the fact that its main priority is to complete a set of district level vulnerability assessments. This highlights a link between the nature of electoral incentives and the nature of political development in shaping disaster policy outcomes.

A related observation can be made for Mozambique, which offers the strongest evidence against a political development hypothesis. The Mozambican bureaucracy is tightly linked to the ruling party and interviewees noted that it was difficult, if not impossible, to acquire a bureaucratic post without being a member of FRELIMO. Yet the national disaster management agency, INGC, is perceived to be a well-run organization that has led the country's dramatic improvement in disaster preparedness and response. This is not to say that political interests are irrelevant to INGC's operations. Rather, it is more likely that it is the importance of high quality disaster management to the Mozambican state, as noted above in discussion of electoral conditions, that enables the agency to function well in an otherwise

relatively underdeveloped bureaucratic environment. If the national government did not see this issue as a political priority, it is unlikely that Mozambique's bureaucracy would have the capacity to pursue disaster management of its own accord.

Moral Hazard

For the majority of the countries considered here, the findings suggest that the moral hazard hypothesis provides little explanatory value for understanding the behavior of state elites with regard to disaster preparedness and response activities. In Ethiopia, a country that has received substantial international aid in response to natural disasters in the past, the receipt of aid has not minimized government investment in preparedness and response activities and, in contrast, seems to have increased the national government's desire to invest in ways that minimize its dependence on external actors. The government is actively investing in preparedness activities in response to the threat of future droughts and targeting a reduction in its reliance on international food aid, with the goal of independence from international support in this area within the next decade. Similarly in Mozambique, past experience with substantial international intervention during the floods of 2000 helped to instigate activity within the national government to insure both that the country would not face such devastating natural disasters in the future and that the government would not be reliant on external actors in responding to hydrometeorological hazards.

In Ghana, despite a clear increase in international funding over the last decade (from $800 million to $1.6 billion), the government has developed a national contingency plan (in partnership with the UNDP) and allocated $500 million to disaster response. Alongside substantial investments from international actors in the area of disaster preparedness, the Ghanaian state is contributing its own human and financial resources to develop preparedness strategies. At the same time, the national disaster management agency (NADMO) is seen to require substantial additional funds to fulfill its goals, and Ghana, unlike Ethiopia and Mozambique, seems far from attempting to make itself independent in the arena of natural disasters.

The government of Zambia has relied heavily on international assistance for the majority of its time as an independent country, suggesting that it might be a likely case in which the moral hazard hypothesis would hold weight. This is somewhat difficult to evaluate, because the emergence of a clear disaster management body in the country occurred in parallel with the Hyogo framework and a decline in the relative amount of international aid received. However, there is no reason to assume, nor did interviews reveal, an expectation that the country would not receive support in the wake of a natural disaster. Thus, the efforts to launch a dedicated disaster management body and to use this body to coordinate the activities of donor and NGO activities in the realms of preparedness and response suggest a commitment to issues of disaster preparedness that goes beyond simple reliance on non-state actors.

Malawi provides an even more striking case against a moral hazard argument. The government adopted a disaster preparedness plan as far back as 1991 and has continued to develop its capacity to deal with natural hazards over the subsequent decades. Currently, the majority of funding for disaster management and disaster risk reduction programs is from external sources, but the Malawian government also contributes to these efforts and is seen to play an important role in the overall shaping of disaster-related policy.

In the case of Senegal, the evidence suggests an interaction of moral hazard and electoral effects. With regard to disaster preparedness, the government has invested very little relative to international actors such as the World Bank, which contributed $15 million for an Integrated Marine and Coastal Resources Management Project, and relative to the government's own investments in large scale public projects such as the African Renaissance Monument. At the same time, the national government has a reasonably strong record of responding in the wake of natural shocks, such as the flooding that occurred in 2008[56] for which the state allocated $13 million for recovery. This is less surprising in light of the relevance electoral considerations seem to have in Senegal. Because citizens are more likely to respond positively to disaster response spending, rather than disaster preparedness,[57] the Senegalese government has incentives to

allocate spending on response activities, particularly given the willingness of international actors to invest in preparedness activities.

Kenya provides some of the strongest evidence in support of the moral hazard hypothesis. The country receives substantial international aid, $3.5 billion overall in 2009, and natural disasters play an important role in perpetuating this assistance. In particular, this research shows both that the national government invests very little in its own preparedness and response activities and that the presence of aid for people living in arid regions of the country reduces the incentives for these individuals to adapt and move away from otherwise unlivable areas. The emphasis of international actors on rural, drought-prone areas is also in contrast to the lack of attention to the need for improved disaster mitigation and preparedness strategies for urban areas, which are at risk due to overpopulation, weak infrastructure, and constraints on access to necessary resources. Neither the international community nor the national government is placing an emphasis on reducing risks in urban areas, despite the majority of interviewees noting the high vulnerability in these areas.

The fact that Kenya is such a focus, and home base, for international organizations (IOs) may contribute both to the perception that moral hazard is a problem and the actual relevance of the dynamic. However, it seems that other characteristics of Kenya's institutional structure are interacting with the strong presence of aid organizations to magnify this problem. In particular, the lack of bureaucratic capacity within the country has led the government to rely on external actors in many areas of service provision, not only in the arena of natural disasters.[58] This implies that an important strategy for reducing the relevance of moral hazard may be to focus on improving the development of state institutions in general, so as to increase the capacity of national and local governments to take on responsibilities otherwise adopted by international and local non-state actors. One complicating issue in the Kenyan case is the large number of refugees from neighboring states who comprise some of the most vulnerable people in the country. One might argue that it is more appropriate for IOs to reduce the risks for this population, in which case the Kenyan government's underinvestment could be considered less deserving of a "moral hazard" label. This argument cannot account, however, for the clear lack of attention by the government to disaster risks in urban areas and rural parts of the country less affected by immigration from the north.

Zimbabwe also provides evidence to support a moral hazard hypothesis. Despite its status as a largely pariah state, given sanctions on aid into the country, Zimbabwe has continued to receive substantial external support, largely through funding of NGOs. Food aid, in particular, is seen to have enabled farmers to continue to grow maize, even if their crops are only profitable every four to six years, thus reducing the incentives to adapt to more sustainable crops. In general, donors and NGOs often noted that they felt the Zimbabwean government perceived their support as a substitute for state funding, rather than a complement. Thus, the government still expects external support and invests less of its own resources in response to potential natural hazards as a result.

For the Gambia, the reverse of the moral hazard hypothesis, or the "pariah" hypothesis, seems to hold weight. Here, many government officials reported that they did not expect to receive substantial aid, particularly relative to the surrounding country of Senegal. While some aid was received from the United Nations Development Program to support the creation of the National Disaster Management Agency, this agency has continued to receive funding, if only small amounts, subsequent to the completion of the UNDP's participation. In contrast, in Togo, there is little evidence to support the pariah hypothesis. Togo has been considered an "aid orphan"[59] since the early 1990s, when electoral irregularities and human rights violations caused international donors to withdraw aid support from the country. While aid has increased in the last five years, the government continues not to expect to receive substantial assistance in the form of aid. In the wake of substantial increases in flooding since 2007, however, the government has invested little to no money in disaster preparedness and response. Thus, the expectation that the state will not receive support during a disaster has not led to increased investment in preparedness and response.

The overall evidence from this set of countries suggests that the relevance of the moral hazard hypothesis is limited, at best, and that other characteristics of national environments are relevant for determining the extent to which national governments will be at risk of succumbing to this dynamic.

Civil Society

Civil society, made up of the non-state and non-market actors active in civic and social activities, is expected to play both direct and indirect roles in influencing the nature of disaster preparedness in a given country. Indirectly, NGOs and CSOs may lobby government actors in an effort to improve the nature of formal policies to prepare for and respond to natural shocks. This type of activity will often require a large number of domestic organizations or organizations representing the interests of large segments of the population. Directly, civil society may contribute in two primary ways, either by engaging in self-directed disaster preparedness activities or by supporting the government through acting as the implementers of state policies. In either case, this may take the form of activities such as community education programs, stockpiling of resources, or providing support to families permanently relocated as a part of risk reduction programs.

Overall, there is mixed evidence to support the civil society hypotheses, and in a few cases there is insufficient evidence to draw a firm conclusion in support of or against the role of civil society actors in affecting overall capacity for disaster preparedness. The states that provide supporting evidence for an argument about the role of civil society are Ghana, Kenya, Malawi, Mozambique, Senegal, and Togo. Perhaps the most striking case is Kenya, for reasons that are also relevant for considering the role of external actors, as discussed below. In Kenya, the government itself has done relatively little to establish a comprehensive framework for disaster preparedness and response and what it has done, such as the creation of a Drought Management Authority and the National Drought Contingency Fund, are seen to be the result of substantial pressure from civil society. At the same time, the predominant role of civil society can mean that the government itself is less technically prepared than CSOs themselves or community actors in areas supported by CSOs. Thus, a strong civil society does not always result in parallel capacity within the government.

Similarly in Senegal, civil society actors, such as local radio and television stations, have devoted considerable attention to documenting natural shocks and attempting to raise public awareness of risks associated with issues such as coastal erosion. Community groups have also pressured the government to invest more in flood management capacities. These efforts seem to have had a moderate effect on government policies, contributing to the introduction of one flood risk reduction plan in 2005. Yet, this is a case where moderate pressure from civil society seems to be associated with moderate government outcomes in terms of preparedness investment: civil society is not as strong in Senegal as in some of the other cases considered here, nor is the government's preparedness capacity robust, but it does exist in some areas and this is at least in part thanks to the actions of civil society actors.

In contrast, the Ethiopian case provides an example of CSOs pressuring government but also acting largely within the framework established by the state. For Ethiopia, CSOs pressure the state to engage in disaster preparedness activities, but they also implement their own programs, as well as the government's, in the context of a disaster risk management program led by the national government. Thus, here CSOs are playing all three roles within a context where the national government dominates national disaster management strategy and has developed a reasonably strong capacity to implement programs, often through CSOs.

Togo supports an argument about civil society by providing evidence for the reverse of the hypothesis: in a country with minimal civil society presence, less disaster preparedness should be observed, all else equal. The NGOs that do exist in Togo are perceived to have contributed to government-organized preparedness activities since the creation of a national disaster plan in 2007, but they have done little on their own to further the capacity of the state.

The civil society hypotheses received mixed support from Mozambique and Zambia. In Mozambique, the presence of domestic civil society is minimal, but many INGOs have established long-standing domestic presences. These actors also work within the broad framework established by the national government and work closely with the national disaster agency during natural shocks, including daily meetings to coordinate response activities. Similarly in Zambia, a recent NGO Act requires registration of all NGOs and constrains activities to approved areas. At the same time, NGOs often implement programs for the government and are incorporated into the Disaster Management Consultative Forum, in which they can raise concerns or provide information from local sources on areas or communities that may be vulnerable to natural shocks. Thus, while they do not strongly pressure the government to act in certain ways, they can inform policy and play an important role in its implementation.

Gambia and Zimbabwe provide evidence against the civil society hypotheses. In the Gambia, non-state actors seem to place minimal pressure on the state, most likely due to suppression of CSOs by the semi-authoritarian government. CSOs tend to adopt an apolitical stance and do not attempt to pressure the state on policy issues, so as to maintain their ability to engage in other, non-political activities. At the same time, local organizations do play a role in disaster-related programs, but only under the guidance of the state. Similarly in Zimbabwe, NGOs are allowed to act within the country, but they must work within the framework established by the state. While non-state actors may contribute to the government's activities, there is no evidence that they are able to pressure the state to engage in additional disaster preparedness investments.

External Actors

In contrast to the domestic focus of the civil society hypotheses, the external actors hypotheses all concern the role of parties outside the country, such as neighboring states, regional organizations, multilateral and bi-lateral aid agencies, and other IOs. For each type of actor, the hypothesis is that if a country experiences greater exposure to disaster preparedness and risk reduction activities by an external actor, then it will be more likely to invest in its own preparedness. This set of hypotheses, then, is related to the moral hazard hypotheses. In the case of moral hazard, direct investment, or expected investment, by international actors in *response* is expected to reduce the degree to which states invest in *preparedness* activities. In this case, investment by external actors in *preparedness*, either in their own domain or within the country in question, is thought to *increase* the likelihood of domestic preparedness spending. The relationship between these hypotheses is considered in greater detail in the discussion section below. Overall, there is either supporting or mixed evidence for the external actors hypotheses.

The most common way in which external actors have influenced national preparedness activities in the study cases is through partnerships between IOs and INGOs and state actors to develop DRR and DRM plans and institutions. In Ghana, the nodal disaster management organization, NADMO, has a close working relationship with the UNDP, which has helped the government to develop a disaster risk reduction plan and to implement a range of prevention activities, including regional disaster management plans, guides for building, and the mainstreaming of DRR into broader development planning. While the activities of neighboring states, such as Togo, have had little influence on DRM strategies in Ghana, IOs are playing a critical role. The UNDP played a similar role in the Gambia, working with the government to develop a national disaster management framework and to create the National Development Management Agency (NDMA). Since its introduction, the NDMA has continued to work with multilateral agencies both to design preparedness activities and to assess natural shocks as they emerge. In Ethiopia, the government also frequently draws on the international community for preparedness information and resources. Indeed, for many years, IOs and NGOs led preparedness activities, but recently the government has been taking more of a leadership role, while still relying on external actors to support their activities. In either case, the role of these organizations in fostering DRM has been an important element of the country's preparedness.

In other countries, such as Zimbabwe, the national government has less exposure to international actors with an interest in natural disaster management. While there are many INGOs acting in the country,

only a small number have an explicit focus on preparedness activities, thus offering few examples from which government actors can learn. The efforts that the Zimbabwean government has put forth with regard to disaster preparedness, then, should not be attributed to the influence of external parties. Zimbabwe's neighbor, Zambia, provides a similar example, in which minimal attention from international agencies, relative to other countries in the study, suggests a limited causal role for external actors. While representatives in Zambia noted that the national disaster risk reduction platform initially drew from the experience of South Africa, they also argued that the Zambian approach has now gone beyond what is done by its southern peer. In this way the Zambian and Zimbabwean cases do not contradict the argument, as there is evidence of some preparedness activity in each country, but this activity cannot be attributed to the influence of external actors.

Only in Togo is there evidence against the role of external actors in shaping preparedness investment by the state. Despite Ghana's more aggressive strategy for developing preparedness capacity, its neighbor has adopted few similar measures. For the most part, external actors lead the minimal preparedness activities that do occur in Togo. Yet, despite these investments by international actors, the government has not pursued additional preparedness activities of its own. In this case, it seems that international actors in general play little role in preparedness investments.

DISCUSSION

The analysis above helps to highlight the relative strength of each hypothesis for explaining variation in national efforts to promote preparedness for natural hazards and to reduce the risk of these shocks occurring. It is also relevant to consider the ways in which an evaluation of this range of hypotheses has helped us to gain a more comprehensive understanding of the opportunities and constraints faced by countries attempting their disaster management capacities. No single hypothesis offers a consistent and deterministic explanation for observed policy outcomes, however the combination of characteristics emphasized by multiple hypotheses can provide what is likely to be a reliable set of expectations regarding the propensity of states to invest in disaster preparedness.

The two clearest predictors of investment in preparedness activities are economic strength and perceived risk of natural threats. States that expect to face natural hazards in the future, particularly as a result of having faced them in the past, and that have the economic resources available to dedicate toward these risks, are more likely than their less threatened and poorer peers to invest in disaster preparedness.

However, economic strength and perceived risk on their own are apt to mean very little when there is limited electoral incentive or bureaucratic capacity to implement substantial preparedness operations. Funds will be wasted, or misdirected, if there is not an institutional structure to facilitate the implementation of disaster management programs. Kenya is perhaps the best example of this, a relatively well-off country economically that faces regular natural hazards, but that has failed to implement substantial preparedness programs in large part due to the lack of political development within the state. Thus, the nature of electoral conditions and political development help us to understand whether governments have the *incentive* to invest in preparedness activities and whether they have the institutional *capacity* to do so. On the one hand, where these conditions do not hold, there should be fewer efforts to invest in disaster management, even where financial resources are available. On the other hand, where there are incentives and capacity, one should observe efforts to invest in preparedness even if perceived risk and financial resources are low.

The acts of governments also cannot be fully understood without attention to the role of non-state actors. In many poorer countries, governments are still often attempting to build capacity to prepare for natural threats. In these cases, preparedness activities are often supported by external actors, such as IOs and both international and domestic NGOs. It is the explicit focus on *both* preparedness and response, when a shock does occur, by these non-state actors that seems to limit the relevance of the moral hazard argument in the majority of cases considered here. When external agencies engage with

national governments to promote preparedness, this effectively nullifies the ability of these states not to invest in preparedness while relying on external actors to provide aid for response.

With regard to domestic civil society in particular, its effects on national investments in capacity are often only relevant on the margins, but the same cannot be said for the role of civil society in contributing to overall national capacity in the face of natural hazards. NGOs are often the main actors implementing government plans to increase awareness and preparedness for natural shocks. Where governments do not have their own disaster preparedness programs, these organizations serve as the primary actors in building national capacities to deal with natural shocks. In countries without these actors on the ground, the countries considered here are considerably more constrained in their abilities to manage the risks of natural disasters.

External actors, such as the UNDP, on the other hand, often play a direct role in providing funding and personnel for preparedness activities, working in close coordination with national governments. These activities may not result in increased financial investment on the part of states, but do require the investment of time, personnel, and political capital that contribute to the development of domestic capacities related to disaster management. Thus, attention to the role of external actors can also help to explain the presence of disaster management capacity in states that might otherwise not be expected to have such resources.

INSTITUTIONS AND DISASTER RESEARCH

Disasters by definition overwhelm the immediate ability of human beings to absorb a shock and move on as before. They have always been known to be chaotic in the popular meaning of the term, disrupting orderly human systems and instilling a fear and desperation that can upend normal patterns of understanding. But are they also destined to be chaotic in the mathematical sense? In other words, are the outcomes of natural shocks ruled more by the broad sweep of structures, well captured by an explicit political and economic narrative? Or are lives and livelihoods ultimately at the mercy of differences in initial conditions that are so small, so variant between disasters, and so subtly hidden among mountains of plausible explanations that researchers have little hope of pinning them down and proposing policy intervention?

Quantitative models that give a comprehensive view of the important control variables – natural hazard magnitude and end-state human consequences – are still in their relative infancy, and the precision needed to perform predictive and inferential modeling that is good enough to justify serious counter-intuitive commitments of resources is still lacking. Even when these arrive, it will require a heroic effort of science to disentangle variables that are reinforcing, canceling, or switching each other on or off in innumerable and intricate ways.

But it is clear that in times of natural disruption, wealthy societies with advanced disaster risk reduction and management capacity draw not only on individual reserves but also on pooled resources of expertise, material, and authority. The structure of these pooled resources is determined by political will and funding and explained in a political and institutional narrative. Regardless of whether central institutions that reduce risks and act as pooled emergency resources have the same impact in developing nations as they do in developed ones, central capacity is a vital part of understanding disaster. Capturing that political and institutional process from as many perspectives as possible provides much-needed insight, even if it is not feasible at this time to assign it a numerical value in terms of how many lives are saved when institutions advance.

Indeed, what is most compelling from this qualitative perspective is that national institutions are emerging from clear structural foundations. Better institutional capacity is not merely something that appears to be *accompanying* development via myriad hidden and chaotic processes. Rather, institutions are being built up according to a visible and explicit political narrative that can be readily identified and coherently critiqued by stakeholders on the ground. In each country, the evidence shows that it is also possible to

identify large-scale precursor conditions that are seen to have been relevant in giving rise to the current situation. These are not perfectly consistent *across* borders, giving us a hint that subtle, more chaotic factors may always continue to hound the predictive aspirations of this field. But they do *tend* toward agreement with the common sense of established hypotheses in the research literature. And where they do not, the findings do not offer new mysteries, but rather clear alternative explanations rooted in the recent history of those states and articulated by local actors.

This research contributes to the larger pursuit of good predictors for disaster vulnerability, which is becoming ever more urgent as international actors struggle with the allocation of resources to offset climate-change-related risks. It explicitly targets institutional capacity at a national policy and bureaucratic level. It does so while recognizing that there are numerous and inter-linked causal chains between country conditions and disaster outcomes that lead not just through national institutions, but also through households, international aid actors, higher-level constitutional structures, and the whims of Mother Nature. The work presented here is an important reminder that it is a set of existing political economic conditions, not a new pattern of natural hazards, that shapes national capacities to manage and prepare for natural shocks.

CHAPTER 1. Flooding in Senegal and The Gambia: Current Challenges and the Future of Disaster Risk Management

By Anustubh Agnihotri, Zachary Child, Anna Koob, and Rachel Wald

This paired case study discusses government capacity to prepare for and respond to natural disasters in Senegal and the Gambia. These neighboring countries experience similar natural shocks and so offer an opportunity to compare the effects of different variables on investment in disaster management. Senegal and Gambia share some other characteristics, such as many similar ethno-linguistic groups, including Wolofs, Jolas, Mandinkas, and Fulas. However, the countries have divergent colonial histories, which have influenced the formation of their political institutions.

Field research in December 2011 in both countries revealed that variations in Senegal and Gambia's political systems, relationships with international donors, and economies provide the strongest evidence for analyzing and comparing the governments' ability to cope and prepare for natural shocks.[60]

While Gambia and Senegal both face a variety of natural shocks, including drought, locust plagues, coastal erosion, and sea-level rise, this chapter focuses on government capacity to prepare and respond to flooding. The majority of interviewees highlighted flooding as a major threat to both countries. Respondents in Senegal also emphasized the country's vulnerability to drought and coastal erosion. However, this chapter emphasizes flooding, particularly in urban areas, in order to draw out the comparative aspects of disaster response between the two countries.

The analysis finds that four hypotheses are particularly relevant to explaining differences in disaster preparedness and response between the two countries: moral hazard, electoral incentives and democracy, political development, and economic strength.

In Senegal, a major recipient of foreign assistance including DRM aid, moral hazard plays a role because of the country's dependence on international donors to finance major disaster preparedness activities. Gambia, on the other hand, has a low profile within the donor community and does not attract significant foreign aid, which is reflected in its relatively lower DRM spending.

Urban flooding in Senegal, viewed as one of the most advanced democracies in Sub-Saharan Africa, is an increasingly important political issue. The government's investment in flood management, especially post-disaster assistance, has become an electoral issue and a source of tension between political parties. The Gambia, in contrast, is a less democratic system. The fairness of presidential elections is in question and political rights are limited. The citizens in Gambia do not view government response to natural disasters as an electoral issue.

The level of political development is also related to disaster spending in both countries. While interviewees in Senegal did not indicate that there was a high level of political corruption in the country, some donors observed a tendency of the government to rush into infrastructure projects for DRM without first conducting necessary studies. There was some suggestion that this inclination prevented the country from receiving more funding. The semi-autocratic nature of the political system in the Gambia influences the country's disaster response framework. The centralization of power in the Gambian political system influences the mandate and functioning of the nodal agency established to coordinate and plan disaster activities.

Both Senegal and The Gambia are Least Developed Countries (LDCs). The majority of interviewees in both Dakar and Banjul pointed to limited budgets and economic resources as constraints on investment in preparedness activities. However, in Senegal, the government has promoted efforts to mitigate and adapt to the threats of sea-level rise and coastal erosion, in part due to the country's reliance on economic activities along the coast. This commitment contrasts with the government's spending on flood

management, which is largely reactive in nature. In comparison to Senegal, interviews in Gambia revealed no strong evidence of private sector investment in DRM, nor private-public partnerships on disaster preparedness. However, despite weak economic indicators, Gambia exhibits strong political will to tackle the challenges of natural hazards.

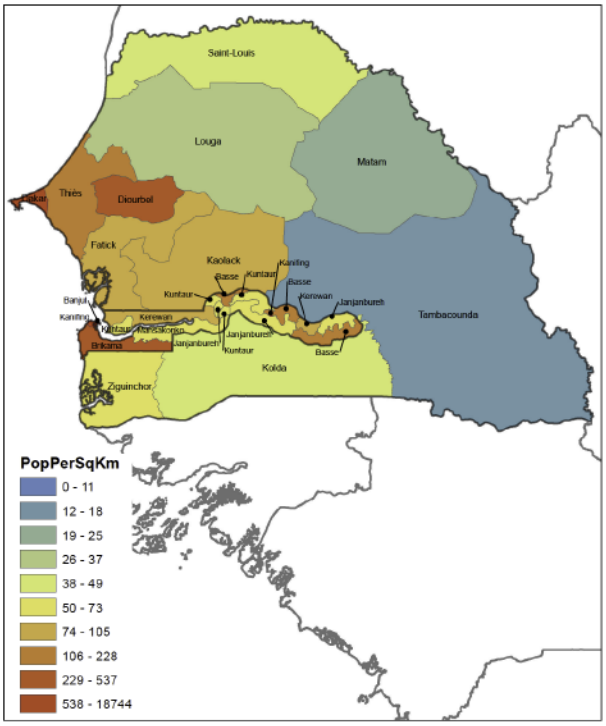
The following section provides an overview of the natural hazards endemic to Senegal and Gambia and discusses the political history and socioeconomic conditions in each country. An assessment of Senegal and Gambia's institutional capacity for disaster risk management is then discussed, with each country's capacity evaluated using the Hyogo Framework's five priorities for action.

SENEGAL

Natural Hazards in Senegal

Senegal, a country of 12.6 million people on the Atlantic coast, has an area of approximately 196,722 square kilometers and is roughly the size of South Dakota. Senegal borders Guinea and Guinea-Bissau to the south, Mali to the east, and Mauritania to the North. The country almost entirely surrounds its smaller neighbor Gambia and its capital, Dakar, a city of 2.8 million, sits on a peninsula and is the westernmost point in mainland Africa (see Figure 3).[61] Senegal is vulnerable to four natural hazards: drought, locust invasion, flooding, and sea-level rise.

Figure 3. Map of Population Density in Senegal and Gambia



Source: Data from national statistical offices compiled by Todd Smith, 2012

During the rainy season, it is hot and humid with strong winds from the southeast. The dry season is characterized by the dusty Harmattan wind that blows south from the Sahara. Senegal is in a transition zone between the northern Sahelian climate and southern Guinean climate, which means that there is significant rainfall variation within the country. The country's northern regions—located in the Sahel—are arid and subject to drought, while the forested South receives ample rainfall.

Research on the effects of climate change in Senegal project that mean annual temperatures will increase by 3.1°C by the 2060s and by 4.9°C by the 2090s, compared to the average annual temperature of 27.8°C from 1960 to 1990.[62] These increases in warming will occur fastest in the interior of the country and more slowly along the coast. Forecasting models predicting whether Senegal will receive more or less rainfall in the future have been less conclusive. However, projections indicate that the country will receive more of its precipitation in heavy rainfall events, which is likely to cause more flooding and coastal erosion.[63]

Table 6. Recent History of Major Natural Disasters in Senegal

Year	Type	Location	Dead/Injured/Affected
1993	Flood	Kaolack region, Saint-Louis	5,000 affected
1994	Flood	Saint-Louis region	17,500 affected
1998	Flood	Saint-Louis, Tambacounda, Kaolack, Kolda	300,000 affected
1999	Storm	Kaolack, Thies, Ziguinchor	22 killed, 95, 853 affected
1999	Storm	Casamance	165 killed
1999	Storm	Kaolack, Thies & Ziguinchor	22 killed, 65,853 affected
2002	Flood	Linguere region	Unreported
2002	Flood	Podor, Dagana, Matam districts (Saint Louis region), Louga region	28 killed, 179,000 affected
2002	Drought	Unspecified	284,000 affected
2003	Flood	Kanel, Nioro, Kaffrine, Matam, Kaolack, Tamcacounda, Kolda	8 killed, 7,769 affected
2004	Storm	Velingara department, Kolda region	2 killed, 1,000 affected
2004	Insect Infestation	Matam, Bakel	Unreported
2005	Flood	Rufisque, Pikine, Guédiawaye (Dakar region)	50,000 affected
2007	Flood	Thies, Matam, Kaolack, Tamba, Dakar, Saint Louis, Diourbel	8 killed, 5,300 affected
2008	Flood	Thies, Diourbel, Saint-Louis, Kaolack, Dakar and suburbs	1 killed, 23,600 affected
2009	Flood	Pikine, Guédiawaye (Dakar region), Saint Louis, Matam, Tambacounda, Kédougou, Kaolac, Kolda, Fatick, and Kaffrine	6 killed, 264,000 affected
2010	Flood	Kolda	2 killed, 22,125 affected
2010	Flood	Saint-Louis	80,391 affected
2011	Drought	Sahel region of Senegal	Ongoing, with estimates of 850,000 affected[64]

Source: EM-DAT[65]

Though floods are the most frequent natural shock in Senegal, drought affects the most people. Droughts largely occur in the arid Sahelian regions in the North and have deleterious consequences for Senegalese farmers, who make up 78 percent of the labor force and largely depend on rain-fed agriculture.[66] Between 1977 and 2002, there were six major droughts in the country and during the most recent drought for which there is available data—in 2000—peanut revenues in the country declined by almost 75 percent and those for millet/sorghum dropped by 60 percent.[67] Many observers point to droughts starting in the 1970s as a proximate cause of continual migration to the country's urban centers, primarily in the suburbs outside Dakar.[68,69] In 2011, low rainfall across the Sahel caused drought throughout much of the region. International observers at the time estimated that the drought would affect 850,000 people in Senegal, but the government delayed in acknowledging the situation. Some suggest that the government's focus on the presidential elections in February and March 2012 is the reason for its silence, but opponents did not seem to be turning government inaction on drought relief into an electoral issue.[70]

Rising sea level and increased storm surges cause coastal erosion and threaten the country's 531 kilometers of coastline on the Atlantic Ocean. Estimates suggest that erosion poses a threat to 74 percent of households in these areas and has negative effects for economic activities such as fishing, tourism, and agriculture.[71] Those monitoring the coastline observe a decline rate of one to two meters per year. A recent spatial analysis of the Dakar Metropolitan Area estimated that approximately $2 billion in assets have a "high natural hazard potential" due to sea-level rise.[72] As one bureaucrat who works on these issues affirmed, "The problem of coastal erosion is, above all, an economic problem for us."

Flooding occurs in all of Senegal's 11 regions but affects the most people in the urban areas of Dakar, Saint Louis, and Kaolack. The incidence of flooding events in Senegal increased starting in 2002, with major floods occurring in 2002, 2003, 2005, 2007, 2008, 2009, and 2010 (see Table 6). The severity of flooding has also increased within the past decade. In the years from 1980 to 2008, flooding affected 600,000 thousand people in Senegal and caused 45 deaths. In the year 2009 alone, flooding affected 264,000 people. Causes of the flooding are varied. In some areas, floods occur after rivers (especially the Gambia and Senegal rivers) overflow due to heavy rains. In others—especially in Dakar's peri-urban areas—flooding is the result of high rainfall combined with a lack of proper drainage infrastructure.

Flooding in Senegal

While flooding occurs in many parts of the country, it receives the most attention in urban areas of Saint-Louis and Dakar because this is where recurrent floods affect the most people. The focus of this analysis will largely center on the latter case, but Saint-Louis deserves mention as a city that is addressing its vulnerability to flooding. In December 2010, the United Nations International Strategy for Disaster Reduction (UNISDR) named Saint-Louis a 'role model city,' recognizing measures that the city has taken for disaster risk reduction and climate change adaptation.[73] Saint-Louis is located on the coast and sits on the mouth of the Senegal River. The city's vulnerability to flooding is exacerbated by its poor drainage and sanitation systems and low-lying areas. Local government has led efforts to reduce the risk of flooding in Saint-Louis, including large infrastructure projects, such as the building of a dike-road and a large run-off canal to mitigate flooding, as well as accurate mapping of the timing and extent of recurrent flooding in the city.[74]

As in Saint-Louis, vulnerability to flooding in Dakar's peri-urban areas is due to a confluence of factors. Chronic shortages of rain have occurred in Senegal since the end of the 1960s, which has contributed to rapid urbanization. In moving to urban centers, migrants created unofficial settlements in available low-lying areas, especially the suburbs of Pikine and Guédiawaye.[75] The low elevation and high water table in these suburbs meant that they were already prone to flooding and the lack of urban planning prevented the building and maintenance of proper drainage infrastructure. Despite these conditions, Dakar's low-lying suburbs did not experience flooding until the early 2000s due to a prolonged period of drought. As a result, in 2005 when Dakar experienced its largest rainfall in two decades, the flooding was especially severe. A flood in 2009 that largely affected Pikine and Guédiawaye stands out as being particularly damaging.

Case Highlights: Flooding in Pikine and Guédiawaye

While the country had been experiencing recurrent flooding during the past decade – especially in the peri-urban areas of Dakar – it was unprepared for the July-September flooding in 2009. Rainfall of that year was 173 percent above average, which, combined with other conditions, caused flooding throughout the country, directly affecting 360,000 people in the Dakar Metropolitan Area and 125,000 elsewhere in the country.[76]

Flooding was most serious around Dakar where many areas were under water and the only road out of the capital was impassable in several places.[77] At the worst stages, flooding covered 85 percent of the suburb of Pikine and three months after the flooding started in August, the homes of tens of thousands of residents remained underwater.[78] Four months after the height of the flooding, many area schools were still inundated with floodwater and had not reopened. The stagnant waters in these areas served as an

incubator for disease and posed serious public health problems. As one local NGO worker described at the time, "The malaria rate has increased and diarrhea, dysentery and skin diseases are also increasing, creating a sort of Molotov cocktail of illnesses and health hazards."[79]

In response, Senegal's prime minister triggered Plan ORSEC (the National Emergency Plan), releasing $4.5 million to finance relief efforts for those affected.[80] International donors also stepped in with the World Bank financing much-needed water pumps and the UN providing $278,000 worth of equipment to help the pumping efforts. A host of NGOs working in the country provided support to the affected areas, helping to drain floodwaters and collect waste and by distributing water storage containers, mosquito nets, and emergency food supplies.[81]

In the wake of the disaster, the government requested that a Post-Disaster Needs Assessment (PDNA) be conducted to determine the losses and damages from flooding and create a plan for recovery and reconstruction that would help prevent future disasters. Financed by the GFDRR and led by the Ministry of the Interior with help from IOs, the PDNA estimated the cost of the flooding at $103 million, $56 million in damages and $47 million for losses.[82] The PDNA also estimated the total revenue lost by those affected at 14 percent of average annual household revenue.[83] To recover from the flooding and mitigate and adapt to future flooding, the PDNA recommended both structural measures (such as storm water drainage, sewage disposal, and building of new urban roads) and non-structural measures (e.g. better integration of risk in town planning, institutional reform and capacity building, and improved early warning systems). The government and international donors have begun to initiate reconstruction efforts that reflect these priorities.

While Senegal's environmental exposure to natural hazards is more or less exogenous to institutional capacity, political factors are endogenous variables that affect the nature of the country's disaster management. The next section examines the nature of democracy in Senegal, which is central to an analysis of the country's capacity for disaster risk management.

Political and Socioeconomic Conditions in Senegal

An overview of the post-colonial history of Senegal provides insight into the country's institutional responses to complex emergencies. Senegal's political system since independence has centered on strong presidents, who through constitutional revisions and patronage networks have sought to consolidate decision making within the executive office. This centralization of power in the hands of the president has led to a lack of independence within the government's ministries, including those responsible for DRM activities.

In September 1960, Senegalese poet, politician, and cultural theorist Léopold Sédar Senghor was unanimously elected the first president of Senegal by the electoral congress, which appointed his long-time political ally, Mamadou Dia, as prime minister. Senghor and Dia governed in a parliamentary system but quickly came into conflict.[84] When Dia was arrested after an attempted coup d'état, Senghor led the creation of the Constitution of 3 March 1963, which created a strong presidential regime.[85] In establishing a powerful executive at the head of Senegal's government, Senghor put his personal stamp on the country's constitution, a move that his successors would repeat.

Senghor's Senegalese Progressive Union, now the Parti Socialiste (PS), was the only legally permitted political party until 1973. In the face of growing economic and political pressure for liberalization, Senghor opted to gradually open the country's political system in the 1970s in an attempt to protect his regime. Within this system of patrimonial democracy, leaders assured their continued rule by "controlling the scope and implementation of democratic reforms through their patrimonial relationships."[86]

When Senghor retired from power in 1980, his handpicked successor and prime minister, Abdou Diouf, became president the following year. Diouf continued the process of political liberalization started by his predecessor. One of his first acts was to introduce legislation creating a complete multi-party state.[87]

As a means to promote stability, Diouf expanded government relations with social and religious leaders, including Islamic marabouts, religious figures who wield significant political influence in the country.[88] This increased political dialogue occurred in the context of increasing centralization of power under the president. Diouf's government introduced 13 revisions to the constitution during his two decades in power, including both the elimination and reestablishment of the office of the prime minister and the introduction of a seven-year presidential term.[89] Despite the superior organization of the ruling party, continuing demands for political liberalization, the loss of support from the marabouts, and continuing economic decline during the 1990s led to Diouf's defeat in the 2000 presidential election to Abdoulaye Wade's Parti Démocratique Sénégalais (PDS).[90] 2000 marked Senegal's second peaceful transition of power since gaining independence and the first from one political party to another.

Wade inherited the highly centralized administrative system established under Senghor and Diouf. He had led government opposition since 1983 and spent time in prison after claiming electoral fraud and ballot rigging after the 1988 presidential elections, but quickly moved not only to revise the constitution, but to introduce a new one.[91] The Constitution of 2001 removed the Senate of Senegal, established just two years earlier, and reduced the number of seats in the National Assembly, which the president now had the authority to dissolve. The seven-year term would be retained until the presidential elections of 2007, after which five-year terms and a two-term limit would be established.

Major opposition parties boycotted National Assembly elections when Wade was reelected president in 2007. This protest was motivated by an energy crisis in 2006 that caused widespread blackouts and a growing dissatisfaction among Senegalese over their country's economic future and the government's management of the economy.[92] In 2008, the National Assembly approved a constitutional amendment increasing the presidential term from five years back to seven. In 2009, Wade signaled his intention to run for a controversial third term in 2012.[93]

In January 2012, the constitutional court approved the 85-year-old president's bid for a third term in February elections. Wade's critics claimed the president was undermining the constitution's two-term limit and the political stability of the country, long seen as a forerunner of democracy in Africa.[94] Wade claimed that despite his role in the creation of the 2001 constitution, which adopted a two-term limit, these changes were enacted after his 2000 election and did not apply to his candidacy.[95] After the court decision, angry protests erupted in the capital Dakar and in other towns across Senegal, reportedly resulting in the death of one police officer and several protesters.[96] Despite the controversy that surrounded the elections, opposition leader and former prime minister Macky Sall won the presidency in an ostensibly free and fair second round run-off election in March 2012.[97] In conceding defeat, Wade signaled a third peaceful change of power since the presidency of Senghor and the second change of ruling party.[98]

Senegal lacks substantial natural resources and relies heavily on assistance from international donors. Most Senegalese depend on farming for their livelihood, but while over 77 percent of the population earns its income from agricultural work, Senegal is a net importer of grains. Agriculture's share of GDP amounts to only 16 percent.[99] Senegal's economy is mainly driven by the service sector, at 62 percent of GDP. Approximately 20 percent of the entire population resides in Dakar, the country's service hub for administration, tourism, information technology, and telecommunications services.[100]

Lowered price controls and subsidies helped spur real GDP growth toward an average of over five percent per year between 1995 and 2007.[101] Between 1995 and 2005, the percentage of Senegalese living on less than two dollars per day dropped from over 79 percent to about 60 percent.[102] This progress has promoted privatization and market-oriented reform, but Senegal remains a Least Developed Country (LDC) and has among the highest unemployment rates in the world at 48 percent.[103] Foreign direct investment has grown in absolute terms but has amounted to an annual average of only 1.5 percent of GDP over the last decade.[104] Senegal's lack of power capacity and unfriendly business environment continue to hinder external private investment.[105]

Senegal ranked 155th out of 179 on the UNDP's 2011 Human Development Report, a composite index measuring average achievement in a population's ability to have a long and healthy life, knowledge, and a decent standard of living.[106] Notwithstanding the efforts of the government, international donors, and NGOs to meet the Millennium Development Goals, Senegal's health, nutrition, maternal mortality, and education indicators remain weak. Chronic poverty, climate change, volatility in global food prices, and over exploitation of fish stocks continue to hinder the country's food security and development.[107]

Institutional Capacity for DRR, Preparedness, and Response in Senegal

One of the main sources for Senegal's articulated DRM strategies is the Hyogo Framework for Action. The Framework's five priorities provide a model of what high capacity for disaster management should look like. This section enumerates these priorities and uses them to assess Senegal's capacity for DRM. A summary of activities related to the development of institutions related to disaster management is shown in Table 7.

Table 7. Senegal Capacity Timeline

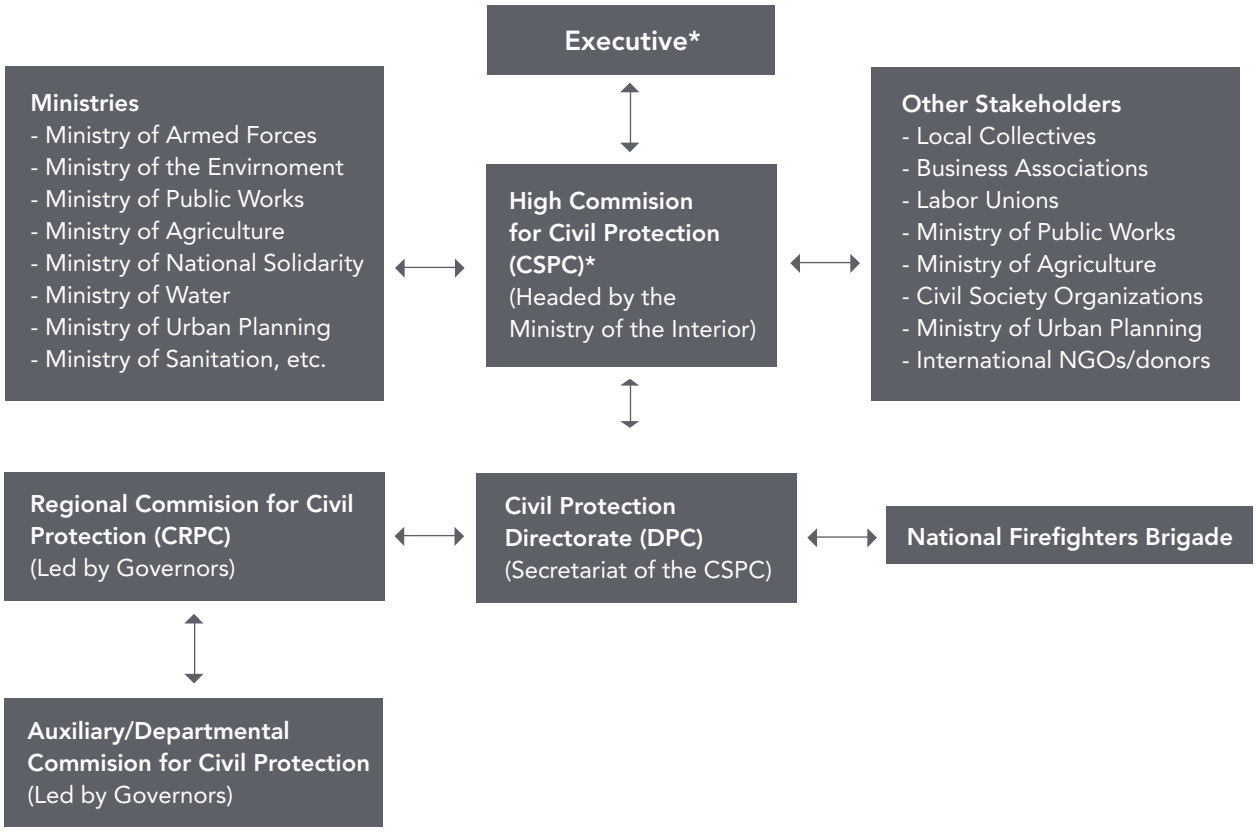
Capacity Timeline
1993 – Plan ORSEC (Emergency relief plan) adopted to coordinate relief operations in times of disaster
1993 – The High Commission of Civil Protection (CSPC) under the Ministry of the Interior created. Commissions of Civil Protection also created at the regional and auxiliary levels.
1999 – Directorate of Civil Protection created to act as the Secretariat of the CSPC
2001 – National Commission for the Forecast Management of Floods (CONAGPI) created, coordinated by the Ministry of Urbanization and Land Use Planning
2003 – National Unit for the Prevention and Fight against Floods (CNLPI) created, headed by the Minister of the Interior
2005 – National Strategy for Social Protection and Risk Management developed
2006 – Senegal's National Action Plan for Adaptation to Climate Change (NAPA) developed by the Ministry of the Environment and Nature Protection. Coastal protection receives significant attention in the document.
2006 – Government announces Plan Jaxaay, dedicating US $104 million to relocate those in Dakar's suburbs vulnerable to flooding
2006 – Senegal's second Poverty Reduction Strategy Paper (PRSP) identifies "Disaster and Risk Prevention and Management" as a priority pillar
2007 – National Commission for Prevention, Supervision and Monitoring of the Fight Against Flooding created, headed by the Prime Minister
2008 – National Strategy for the Protection and the Fight Against Coastal and Marine Erosion developed
2008 – Creation of the National Agricultural Insurance Company of Senegal (CNAAS)
2008 – Government mobilizes about US $13 million to respond to the year's floods
2009 – Creation of the High Commissariat in charge of Flooding following flooding in 2009
2009 – National Program of Prevention and Reduction of Major Risks and Natural Disasters Management developed by DPC to act as a framework for DRM interventions
2009 – The Senegalese Government, with funding from the GFDRR, creates a Post-Disaster Risk Analysis in response to the major flooding of that year
2009-2011 – Senegal named as one of the priority countries for the World Bank Disaster Risk Management Team
2011 – Adaptation Fund provides US $ 8.6 million in financing for Senegal's Adaptation to Coastal Erosion in Vulnerable Areas project, the Fund's first ever project

Priority 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

While an institutional framework for disaster risk management does theoretically exist in Senegal, the complicated organization and undefined relationships between actors within the system render it weak. A survey of this framework reveals its complexity (see Figure 4). At its center is the Ministry of

the Interior, which houses the High Commission for Civil Protection (CSPC). Created in 1993, this body involves representatives from all ministries, unions, CSOs, and international and private sector actors. Together they advise the Minister of the Interior on all matters relating to civil protection, including disaster management.

Figure 4. Institutional Framework for Disaster Risk Management in Senegal



***Plan ORSEC (the National Emergency) can be initiated on any of these levels, but the expectation is that it will first be initiated on the departmental level**

Source: Adapted from GFDRR (Global Facility for Disaster Reduction and Recovery), "Senegal Disaster Risk Management Country Note," 2009

The Directorate for Civil Protection (DPC) is the institutional hub of DRM in Senegal and works with actors at every level for disaster mitigation, preparation, relief, and recovery. The Directorate acts as the lead implementer of the Hyogo Framework and as the secretariat and operational body of the CSPC, coordinating interventions for DRM among government agencies and other non-governmental stakeholders. However, the creation of the DPC predates the Hyogo Framework. The government created the Directorate in its current capacity in 1999 and provided the organization with a far-reaching mandate that gives the DPC responsibility "for ensuring, in times of peace and war, the protection of persons and the preservation of public and private installations, resources and property."[108] Field research was unable to verify the exact amount of funding that the organization receives for DRM, but two interviewees mentioned that the DPC's annual budget is around $2 million.

Despite the existence of the DPC as the center of disaster risk management operations in Senegal, responsibility and liability for DRM is diffuse across several organizations and depends on the type of disaster. For example, despite its seemingly large mandate, within the realm of natural disasters the DPC largely focuses on flooding, while the Ministry of the Environment's Directorate for the Environment and Established Settlements (DEEC) works on DRM related to sea-level rise and coastal erosion. For drought, the Ministry of Agriculture largely assumes responsibility for risk management. While the diffusion of responsibility among these three ministries allows for a higher degree of flexibility and specialization in dealing with each disaster type, it also complicates coordination efforts.

At the local level, "the implementation framework for disaster risk management is ambiguous, complex, and unclear."[109] Increasingly, local actors have responsibility for mitigation efforts as well as response, but there are numerous administrative jurisdictions existing at the sub-national level and responsibilities are not well defined across actors. Additionally, funding for DRM activities remains centralized at the national level. While local governments do receive some funding for disaster response efforts, the national budget does not include line items for local disaster risk reduction activities.[110]

Priority 2. Identify, assess, and monitor disaster risks and enhance early warning.

In Senegal, a number of early warning systems exist for identifying risks and assessing the severity of natural disasters. The oldest and strongest of these systems exists under the Ministry of Agriculture and monitors drought. The Famine Early Warning Systems Network (FEWS NET), the USAID-funded organization that employs a range of data to predict the location and intensity of food crises, supports Senegal's capacity in this area. Increasingly policymakers in Senegal are using early warning systems to examine other disasters, such as flooding and sea-level rise. Unfortunately, this has resulted in the development of multiple uncoordinated systems across a variety of ministries and other research organizations. In recent years, international actors have been working with the DPC and the National Meteorological Service to correct this by creating a national platform to standardize and share data from early warning across users. At a regional level, early warning systems for food security and drought do exist, but monitoring systems for other hazards are largely undeveloped.[111]

A central challenge for Senegal in its attempt to improve monitoring of hazards and early warning involves integration at the local level. While data collection in the country is improving, data still lack granularity, which makes local forecasting problematic. Another difficulty is that there is no protocol for communication that prompts those at the national level to alert sub-national actors of relevant forecasts.[112] An interviewee working to strengthen early warning capacity in the country noted that more needs to be done to create a policy that prompts action based on early warning reports.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

Disaster risk management remains a fairly high-level concept in Senegal. The Government has not made systematic efforts to educate the public about concepts of disaster risk reduction by including information in school curriculum or conducting national awareness campaigns.[113] A senior official at an IO working prominently on issues of DRM in Senegal highlighted this point, explaining that much more community-based DRM was necessary to create a broader culture of resilience.

However, Senegal's national bureaucracy is starting to employ a more research-based approach to the country's DRM policies.[114] An example of such research is a cost-benefit analysis on the value of building expensive coastal walls to prevent erosion that is underway in the Ministry of the Environment as part of the INTAC project, funded by the Japanese International Cooperation Agency.

Priority 4. Reduce the underlying risk factors.

The Senegalese Government's progress on reducing underlying risk factors has been mixed. While the country's National Adaptation Plan for Action (NAPA) mentions disaster risk reduction as an objective of environmental policy, there is a lack of coordination between the Ministry of the Environment's

DEEC, which is charged with implementing the NAPA, and the DPC. Senegal's National Report on the Implementation of the Hyogo Framework mentions this lack of "synergy" between actors to reduce environmental vulnerability in the country.[115] This reality complicates efforts to approach risk reduction activities and broader development goals as interrelated and mutually reinforcing.

The government's approach to reducing vulnerability among populations has improved over time. After flooding became a recurrent phenomenon in Dakar's suburbs in the 2000s, the government invested over $100 million to relocate several thousand households to areas not at risk of flooding under an initiative called Plan Jaxaay. While seemingly well intentioned, the focus on relocation was unsustainable and only reduced vulnerability for a small portion of the affected population. The government's PDNA released in response to the 2009 flooding appears to mark a shift in approach. Instead of relocation, this document advocates for a combination of infrastructure projects—such as improved drainage systems—with non-structural measures, like public education. Still, several interviewees expressed the view that the Senegalese government is largely concerned with disaster response and invests little of its own money in measures intended to reduce disaster risk.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

While Senegal's national policies increasingly recognize the importance of being prepared for disasters, this recognition does not always translate into effective response, especially at the local level. In the immediate aftermath of a disaster, the Minister of the Interior is in charge of putting the ORSEC Plan into effect through the CSPC. Adopted in 1993, the Plan is an organizational framework that mobilizes resources for relief in the event of a disaster. The DPC acts as the coordinator of Plan ORSEC, streamlining response between the CSPC and sub-national organizations, such as the Regional Committee of Civil Protection (CRPC), and the Auxiliary Committee of Civil Protection (CAPC). While official policy dictates that the CRPC and CAPC initiate Plan ORSEC within their jurisdictions before the national government becomes involved, sub-national governments lack capacity and adequate funding for disaster preparedness and response. More often than not, it is the national government that first declares Plan ORSEC, usually well after the disaster has occurred.[116]

The country has instituted a Fund for Floods as well as an Agricultural Disaster Fund, which theoretically finances relief and reconstruction efforts in the event of these disasters, but whose cumbersome operating procedures for use do not allow for timely mobilization.[117] While Senegal's efforts are laudable, the existence of institutions, such as Plan ORSEC and contingency funds, do not guarantee effective response. Despite these deficiencies regarding disaster preparation, the Senegalese government has shown that it will spend on disaster response. In 2008, the Government mobilized $13 million for flood relief, more than six times the $2 million that the DPC receives annually to carry out disaster risk management activities in the country.[118]

Only a slight majority of interviewees who directly discussed Senegal's ability to respond to flooding (6 out of 11) acknowledged an improvement in government capacity in recent years. Skepticism over the effectiveness of national efforts remains, despite the development of institutional frameworks and government action plans for DRM. The presence of numerous donors and NGOs working on disaster risk management in the country does not seem to have motivated the government to invest its own money to reduce disaster risk reduction and preparation for disasters.

While Senegal's functional capacity remains low, the prospects for improving DRM capacity in Senegal are fair. The Senegalese bureaucracy boasts a large number of technocrats working on issues related to disaster management, particularly climate change adaptation and coastal erosion. As a GFDRR priority country, Senegal has also received significant international funding for DRM projects with diverse objectives. Donors are funding initiatives to support the country in improving the functionality of its institutional framework for DRM, building drainage infrastructure in communities vulnerable to flooding, and strengthening early warning systems. While government spending on disaster risk reduction remains very low, officials, supported by external donors, are identifying the weaknesses in Senegal's institutional capacity for DRM and working to improve them.

THE GAMBIA

Natural Hazards in The Gambia

The Gambia is the smallest country in Sub-Saharan Africa. At only 11,300 square kilometers, Gambia is surrounded by Senegal to the north, east, and south. Its small, Atlantic coast once served as a port for the slave trade between Africa and Europe and the Americas, and today facilitates fishing export as major industry. Gambia's territory encompasses the river's north and south banks. The fertile land flanking the river supports agriculture as a crucial part of the Gambia's economy, accounting for more than one-third of GDP and 70 percent of employment.[119]

The relationship between agricultural dependence and hydrometorological shocks is clear in the Gambian case. Gambia experiences cyclical rainfall and flooding, which is the primary natural shock discussed here. In addition to flooding, coastal erosion, deforestation, and some drought symptoms threaten the Gambia. Sea-level rise and coastal erosion threaten the most important assets to the country. Banjul, the capital, and the majority of Gambia's tourist activity are situated along its small coastline. Tourism accounts for more than 10 percent of government revenue, making the Gambian beaches a key asset to the nation.[120]

Gambia's extensive agricultural industry has lead to significant deforestation in the region. In addition to clearings needed for cropping, logging, and land degradation due to cattle, drought and bush fires threaten the Gambian forest. According to an UNESCO report, "ill-adapted agricultural practices such as continuous cropping without the use of natural fertilizers and the application of bush fires have left their mark on the environment with disastrous consequences."[121]

Gambia, like Senegal, is in the Sahel region of Western Africa, and experiences similar droughts as its neighbors. Because a majority of the land sits on the banks of the Gambian river, much of the country is wetlands, but areas vulnerable to drought do exist. Drought-induced crop failure causes food price hikes, putting additional strain on the already predominantly poor population.[122]

Table 8. Recent History of Major Natural Disasters in Gambia

Year	Type	Location	Dead/Injured/Affected
1999	Flood	Central River and Upper River divisions	53 killed, 27,000 affected
2001	Flood	Kachikally, Farokono areas (Bakau)	1 killed, 250 affected
2002	Drought	Unspecified	Not reported
2003	Storm	Mansajang Kunda, Manneh Kunda, Alluhareh, Basse, Kobe Kunda (Basse Santa Su area, Upper River Division	3 killed, 19 injured, 8,000 affected
2004	Storm	Allunhari, Kanubeh, Nyakoi Kerewan Nyakoi Taibatu (Basse region)	2 killed, 112 injured, 6,025 affected
2004	Insect Infestation	Unspecified	Unreported
2007	Flood	Sinchu Bala	300 affected
2008	Storm	Darsilameh village (Western region)	300 affected
2008	Flood	Unspecified	Unreported
2009	Flood	Unspecified	5 killed, 14,258 affected
2009	Storm	Banjul, River Region	2,350 affected
2010	Flood	Western, Upper River, Lower River divisions	8 killed, 21,194 affected
2010	Flood	Unspecified	1 killed, 17,767 affected

Source: EM-DAT

Flooding

Over the past five years, several major floods have affected the Gambia. Most flooding is due to heavy rainfall and overflowing bodies of water. The trend of urbanization exacerbates flooding by establishing temporary settlements on wetlands and natural drainage areas and, in so doing, clogging water drainage systems. According to ReliefWeb, The Gambia was affected by many storms and flood disasters over the last several years, as shown in Table 8.

The 2010 floods in The Gambia were particularly damaging. Flooding caused by consistent heavy rains beginning in July:

> hit the Western, Upper River, Lower River, North Bank, Central River regions and the Kanifing Municipal Council. The River Gambia in the Upper River Region part over-floated for about 150 meters of the riverbanks causing flooding in residential areas, markets and the…located in Basse. Access to both banks of the river proved to be very difficult with ferry crossing at a standstill. The movement of people, goods and services from both sides have been handicapped. This has affected the data collection process from the field and has created limitation in the assessment process within the Upper River Region.[123]

In September, over 1,995 houses were completely destroyed and 371 others were damaged.[124] The number of affected people countrywide is estimated at 14,258 or 1,914 households, while 1,995 families were displaced and others forced to remain in unsuitable homes.[125] The Gambian Red Cross Society was only able to support 354 displaced families in recovery of their livelihoods.[126]

Beyond damage to poor communities' property, Gambia's crucial agricultural sector suffers under floods. The rainy seasons and increased vulnerability to flooding have a major impact on the success of Gambia's crop yields. June and July are sowing months for major crops like maize, millet, rice, and sorghum. During those months seeds take root in the soil. The rains in 2010, which led to severe floods, came in July, August, and September, wiping out the seeded crops and causing the agricultural yield to suffer.

Overall, during the 2010 season, floods destroyed 80 percent of swamp rice fields across 17 villages in the Upper River Region. One farmer said of the flooding, "We were expecting a good harvest this year because there was enough rain, but our crops were destroyed by floods." The village head of Chamoi Bunda village noted, "Forty hectares of my village's communal rice fields, as well as a number of individual and family farms, were all lost to the floods."[127]

Political and Socioeconomic Conditions in Gambia

The Gambia was a British colony until 1963 when the country undertook preliminary self-governance. Gambia won full independence in 1965 and established itself as a republic in 1970.[128] In its first election, Dawada Jawara became president and subsequently competitive, freely contested elections became a regular occurrence. In 1994, a coup led by Yahya Jammeh set off a new era in Gambian politics. By 1996, a new constitution legalized the multiparty system, but excluded several parties from participation in the election. Jammeh was relected, and remains in power today. His terms as president have not been without scandal. Gambia's recent history is marred by foiled coups, corruption outrage, and questionable limitations of free media. Although election observers did not criticize his initial rise to power, Jammeh has become more radical in rhetoric and election techniques. His radical statements regarding homosexuality, claims that he can cure AIDS, and imprisonment of journalists critical of his rule suggest a less than democratic character.[129] Freedom House characterized Jammeh's 2010 bid for the presidency by "[public threats to] those in opposition to his rule…[intimidation of] journalists throughout the year, and [prosecution of] dissenters [who] were sentenced to death in July for their alleged involvement in a coup plot against Jammeh in 2009."[130]

Gambia is not endowed with a wealth of natural resources. As such, the economy depends heavily on agriculture and tourism. Gambia's colonial heritage included programs which subsidized urban interests such as a tax on rural farmers' sale of nut crops. The policy drove farmers to produce only enough for subsistence or to evade taxation, either by selling goods across the Senegalese border or by moving to the urban center of Banjul. Gambia's size also forces the country into a price taker position in the commodity market and makes it vulnerable to market and weather fluctuations.[131]

According to a UNDP report from 2008, about one-third of the Gambia's territory is used for agricultural production, representing 75 percent of the labor force and 25 percent of GDP.[132] Because such a major portion of The Gambia's economy is weather dependent, the country is particularly vulnerable to threats from climate shocks, like flooding, drought, and sea-level rise.

The Gambia ranked 168th on the 2011 Human Development Report from UNDP.[133] Fifty six percent of the population lives under the poverty line and a majority depends on subsistence farming for access to food.[134] In an assessment of food security conducted by the UN World Food Program and the Gambian government, a majority of households surveyed noted insufficient availability of food.[135] Among many reasons for food insecurity, many of those surveyed noted the negative effects of inadequate infrastructure on food security. "Farmer communities are seeking external assistance in addressing the issue of inaccessibility to rice fields due to blockage of feeder roads during the rainy season…despite the improvements made in emergency preparedness measures in Banjul and Kanifing areas (e.g. clearing of drainage and community sensitization on waste management) there is still work to be done in addressing land use and settlement issues and in particular preventing building sites on water ways."[136]

"Gambia is a low-income country with a structural food deficit but it has managed to post relatively strong growth rates over the past three years. In 2010, growth slowed to 5.4 percent from 6.7 percent in 2009 as the global slump continued to be felt on re-exports, tourism and remittances."[137] Natural disasters in Gambia threaten to deepen the existing food deficit and limit tourism.

Institutional Capacity for DRR, Preparedness, and Response in Gambia

The Gambia's unique geography and location makes it susceptible to a number of disasters. The contingency plan for Gambia mentions floods (including wind storms), forest fires, oil spills, disease outbreaks, and population movements as the top five hazards. The DFID report on Disaster Risk in 2006 places Gambia on the 24th position among Least Developed Countries facing a high risk of disasters. According to the Gambian national contingency plan, flooding is the disaster with the maximum risk and poses a significant challenge for Gambia (see Table 9).

The Gambian contingency plan states that "20 percent of Gambian land space [is] covered by freshwater swamps and salt marshes, which serve as a trigger for river line flooding."[140] Moreover, low-lying areas along the river face the risk of inundation during the rainy season. Gambia has experienced floods as early as 1948. The latest floods of 2010 affected 50,000 people in the Gambia.[141] The present analysis focuses on assessing the capacity of the Gambia, in the context of flooding. The capacity statement is organized according to the five priorities in the Hyogo Framework.

Table 9. Probabilities, Likelihoods, and Impact Levels of Disasters

Hazard	Assignment of Probabilities		Impact Levels		Risk Ranking	Numbers Likely to be Affected and Population at Risk
	Probability Level	Descriptor	Consequence Level	Descriptor		
Floods and Wind Storms	3	Almost Certain	B	Major	High Risk	30,000 people likely to be affected-men, women and children (high risk)
Forest Fires	1	Certain	B	Major	Moderate Risk	15,000 people like to be affected-men, women, and children (high risk)
Oil Spill	1	Likely	B	Major	Low Risk	5,000 people likely to be affected- men (high risk), women, and children
Population Movement	1	Likely	B	Major	Low Risk	15,000 people likely to be affected-men, women (high risk), and children (high risk)
Disease Epidemic	2	Certain	B	Major	Low Risk	5,000 people likely to be affected-men, women, and children (high risk)

Source: Contingency Plan of Gambia[139]

Priority 1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.

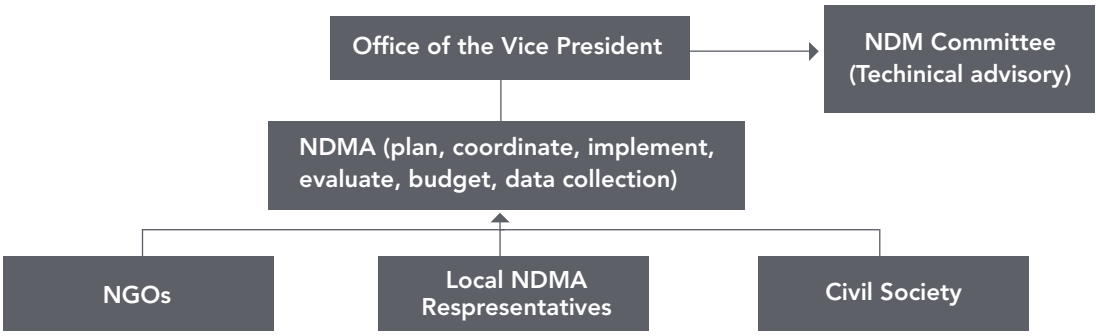
The Gambia has a strong institutional structure to invest in capacity to prepare for and respond to natural disasters (see Figure 5). The legislation to support DRR was drafted by the Gambian parliament and the responsibilities are well defined. Gambia also displays the political commitment necessary for making disaster management a priority.

The National Disaster Management Agency of Gambia is based on the Hyogo Framework priority to create national institutions and legislative frameworks for disaster response. The UNDP led the Gambia disaster management project between 2005 and 2008 to create a framework from disaster management, response, and mitigation. This effort led to the creation of a nodal agency for coordinating disaster efforts in the Gambia.[142] In 2008, the Gambian parliament passed the National Disaster Management Act creating the NDMA, empowering the agency to plan, coordinate the implementation of, and monitor all activities relating to disaster risk reduction programs throughout the country both at national and local levels.[143]

The NDMA has a mandate for planning and coordinating the implementation and monitoring of all activities related to disaster risk reduction throughout the country both at national and local levels.[144] The framework aims to ensure that the existing resources in Gambia are used efficiently with the help of a nodal coordinating agency, which focuses on utilizing the comparative advantage of all actors in the disaster reduction field. The Gambian disaster management framework also advocates for focus on disaster risk reduction and planning rather than response.

The NDMA reports directly to the Office of the Vice President. The agency is responsible for day-to-day administrative affairs as well as implementation of strategy and policy. The framework also creates the National Disaster Management Council chaired by the vice president. The council comprises the Figure

Figure 5. Institutional Framework for Disaster Risk Management in Gambia



Source: CCAPS Gambia Research Team

secretaries from the departments of Interior, Defense, Finance and Economic Affairs, Health and Social Welfare, Forestry and Environment, Local Government and Lands, Attorney General, National Search and Rescue Mission Coordinator of the National Search and Rescue Council, and the Executive Director of the National Disaster Management Agency. The framework also allows for a Technical Advisory Group to solicit feedback from civil society groups, NGOs, and experts. The Technical Advisory group advises the NDMA on creation and review of the National Disaster Management Plan. The NDMA has strong political support and the vice president plays a pivotal role in highlighting NDMA's work on disaster management.

Priority 2. Identify, assess, and monitor disaster risk and enhance early warning.

This research finds that the overall capacity of the Gambia to identify, assess, and monitor disaster risk is low. The Gambia lacks the knowledge on risk assessment and does not focus on making early warning information available to the public at large. The country also lacks the scientific and technological capability to conduct extensive data analysis and understand emerging risks. Close to half of the interviewees stated that the NDMA does not have adequate expertise on DRM at all levels. The lack of data on development indicators was a common theme in the research interviews with multilateral donor agencies. The IOs and local NGOS also highlighted the lack of data on development as a major constraint on making decisions regarding resource allocation. The last census conducted in the Gambia was in 2003 and no comprehensive household surveys have been done to assess the poverty situation in the country. Lack of adequate data gathering is one aspect of institutional capacity that is lacking in the Gambia.

The Strategic Action Plan activity matrix sets aside $160,000 for creation of knowledge to manage disasters effectively.[145] One of the key goals within the strategic action plan is the development of an information database for disasters and improvement of early warning systems. NDMA has actively partnered with IOs and world-renowned research organizations on understanding vulnerabilities in the Gambia. A high-ranking NDMA official provided insight into NDMA's collaboration with a top tier U.S. university on mapping climate change vulnerability in the Gambia. Priority area 6 of the Strategic Action plan states that a goal of the NDMA is: "To strengthen national capacity in the timely detection, prevention, control, investigation and reporting of Avian Influenza and other diseases within animal and human populations."

However, the NDMA has not taken the necessary steps toward implementing these goals. In one interview, a government official mentioned that weak warning systems equipment across The Gambia is a particular problem. The easternmost rain monitoring station was not functional at the time of the interview, putting the Upper River Region, an already vulnerable area, at greater risk for flooding. An important local NGO also pointed out that the country does not have a geological profile and the government has not taken adequate steps in this direction. Moreover, the quality of data collected by the Gambian authorities in the form of census and household surveys is poor. While monitoring risk and creating early warning systems is a priority, the implementation on this front is lacking.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

The research found little evidence to explore the use of knowledge, innovation, and education to build a culture of safety and resilience in the Gambia. The field research also did not uncover adequate information on the training of local level community organizations on disaster preparedness. The use of DRR terminology was common in high-level interviews with NDMA and other government officials, but it was not clear how this translated into understanding of DRR on the ground. Interviews also highlighted the role of state controlled media in increasing public awareness regarding disaster management. In conclusion, the analysis does not have adequate information to understand the capacity of the Gambia to address the third Hyogo framework priority.

Priority 4. Reduce the underlying risk factors.

The Gambia has not taken adequate steps to reduce the underlying risk from natural disasters. The research team did not find evidence that DRR mainstreaming is a priority in the Gambia. While government documents set forth mainstreaming of DRR as a priority, the country has not taken steps to translate this into practice. The Gambia lacks a sustainable development policy for integrating disaster activities into climate change, food security, rural development, and health policy. Uncontrolled urban sprawl is a challenge from a disaster management point of view, yet interviews found little evidence for new land use planning and building codes.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

The lack of training and capacity in the National Disaster Management Agency was a common theme in the interviews conducted by the research team. Several interviewees in both local non-profit and international NGOs questioned the capacity of the National Disaster Management Agency to respond to disasters. The interviews pointed toward the concentration of expertise on disaster management at the top of the organization. The middle and lower level bureaucracy did not have the capacity necessary to implement a disaster plan. The lack of a comprehensive vulnerability profile of Gambia also highlights the lack of expertise in the area of disaster management and reduction.

The weakness of local capacity also came across during a field visit to Banjul Island, which was used to evaluate the disaster preparedness of the island, the main administrative capital of the country. Banjul Island has been historically prone to flooding during the rainy season. The earliest floods recorded go back to 1948 while the island was the administrative center for the British. The British built a pumping station for removing excess water. The NDMA recently made efforts to widen the canal system, improve the pumping capacity, and educate local communities regarding flood preparedness. However, during the field visit, the team found that the pumping station was dysfunctional and the drainage leading up to the canal was clogged. Moreover, NDMA does not provide any monetary support to local communities for cleaning the drainage system.

In theory, the framework created in Gambia is very decentralized with responsibilities of disaster response relegated to the village level. The Regional/Municipal Disaster Management Committees are given the responsibility to coordinate disaster activities in local urban areas. Similarly, the District/Ward Disaster Management Committees are responsible for preparing regional plans for disaster prevention and mitigation of any disasters, disseminating information on disasters, and training personnel for emergencies and disaster duties. However, the majority of interviews with local NGOs stated that local capacity for disaster management was lacking.

Conclusion

Government departments, IOs, and local NGOs in the Gambia are well aware of the importance of preparing for, managing and responding to floods. As a small, least developed country of 1.7 million people defined by a river, the severe flooding has serious consequences for the country's economy.

This concern and awareness has translated into creation of a framework for disaster management. The NDMA as a nodal agency is in a position to act as a coordinating agency and also take up the task of implementing disaster plans. Yet, many see this as a serious conflict of interest, since NDMA cannot objectively evaluate its own implementation.

Overall, the Gambia suffers from shortage of funds and resources to coordinate and respond to big natural shocks and the understanding of disaster preparedness and risk reduction is limited to higher levels of NDMA. The middle and lower bureaucracy in NDMA and disaster experts in the Gambia at large do not focus on risk reduction. The local capacity in NGOs and NDMA is lacking and needs to be built further. There are not enough disaster experts in the country and scientific understanding of flooding in the Gambia is lacking. This is a serious challenge at the local community level, where lack of expertise affects the effectiveness of DRM activities. The Gambia has established a framework for implementation of disaster response. The nodal agency for DRR/DRM has the necessary mandate and authority to coordinate disaster management. But, the country lacks the capacity to implement the DRR plan and is especially susceptible to large natural shocks.

EXAMINING HYPOTHESES FOR VARIATION IN CAPACITIES

This section evaluates the applicability of each of the seven hypotheses to the cases of Senegal and Gambia. Despite the unique geographical proximity and similar hazard profiles of the two countries, differences in size, political system, and relationship with the international donor community provide an interesting basis for comparing the factors influencing each country's institutional capacity for disaster risk management. This section examines the evidence from both countries—first Senegal and then Gambia—that either supports or contradicts each of the hypotheses, noting also where evidence was inconclusive.

Senegal

Moral Hazard

Senegal has been a major recipient of foreign aid for decades. Known as a "darling" of international donors for its political stability since gaining independence, Senegal depends on foreign assistance for 23 percent of its national budget.[146] The country received an average of over US $1billion per year in total international development assistance between 2006 and 2009.[147]

Reviewing the major ongoing DRM activities in Senegal reveals that international donors are investing more in long-term disaster preparedness efforts, such as improved drainage systems, than flood response.[148] For example, between 2004 and 2011, the World Bank invested US $15 million on the Integrated Marine and Coastal Resources Management Project, whereas after severe flooding in 2009, USAID/OFDA humanitarian assistance to Senegal was US $50,000.[149] The Senegalese government's emphasis on both the necessity of such large-scale public projects and, at the same time, the country's inability to pay for these projects suggests that moral hazard may have an effect on the government's investment in preparedness spending.[150] A technical adviser in climate change asserted in reference to coastal erosion DRM, "We need money. We have already done the necessary studies. It's easy to help someone go where he's going." This interviewee suggests that while Senegal may have a clear understanding of the necessity for disaster preparedness investment, the government expects external donors to cover the costs.

While Senegal appears to depend on foreign donors for investment in disaster preparedness, the country's own allocation of funds for emergency flood relief suggests that leadership is motivated by factors besides moral hazard when investing in disaster response. A sub-argument of the moral hazard hypothesis states that if a country expects international aid during or soon after a natural hazard, that government will invest less in DRM. According to a senior officer in Senegal's disaster management agency, Senegal's annual DRM budget is $2 million. Apart from these resources, the central government

has invested additional funds in flood response after serious natural hazards. For example, Senegal earmarked about $13 million in government funds to cope with 2008's floods.[151] This evidence suggests that the Senegalese government, despite being dependent on foreign aid, is still willing to spend on relief measures after significant natural shocks.

While moral hazard does not appear to limit the Senegalese government's investment in disaster response, evidence also points toward a lack of consensus within the government over the fundamental importance of these efforts. For example, the central government spent millions of dollars on prestige projects in Dakar, such as the African Renaissance Monument, during years of major flooding. Construction began on the $27 million, 49-meter-tall bronze statue before the 2008 floods, and the monument was completed in the spring of 2010.[152] During construction, a critic wrote, "Impoverished residents in the statue's shadow endure incessant power blackouts and flooding."[153]

A variant of the moral hazard hypothesis also posits that if a country believes that its security situation would deter external aid, that country will invest more in disaster preparedness. This hypothesis potentially applies to Senegal because, since the 1980s, the Movement of Democratic Forces in the Casamance (MFDC) has led a low-level separatist movement in the country's southern regions.[154] However, throughout this long-standing conflict, Senegal has continued to receive substantial foreign aid. The conflict has been confined to the regions south of the Gambia, far from Senegal's financial and administrative center in Dakar. Additionally, Senegalese leaders have remained on friendly terms with international donors and have participated regularly in international peacekeeping and regional mediation.[155] This evidence indicates that while Senegal has experienced internal political conflict and has marginalized opponents to the national government, the state security facet of the moral hazard hypothesis does not apply, as the conflict has not prevented external aid to Senegal.

In conclusion, there is insufficient evidence to fully accept or reject the moral hazard hypothesis in Senegal. Senegal's continued dependence on foreign aid for large-scale flood prevention measures, especially related to infrastructure improvements, has been associated with the government investing less in this area, opting instead to spend on other projects. However, in terms of response, Senegal has spent millions of dollars in the wake of natural disasters. Whether or not these efforts are a national priority is debatable. Because Senegal's disaster relief spending is large in comparison to international donations in this area, the moral hazard argument does not apply to the country's disaster response investment. These mixed conclusions point toward a complex relationship between Senegal's competing priorities for spending on disaster response and long-term preparedness. Yet ultimately, without verifiable data on Senegal's budgeting for DRM over time, it is difficult to draw robust conclusions about how Senegal's investment in flood preparedness or response has changed in the presence of aid.

Perceived Risk

In response to forecasts predicting an increase in the frequency and severity of disasters—especially those related to flooding and sea-level rise—the government has increased its investment in disaster management in these areas.

Based on field interviews, the government of Senegal and other stakeholders are very aware of the disaster risk existing in the country. This awareness is due to the rising number of natural disasters that the country has experienced in past decades as well as forecasts predicting that it will experience more frequent and more severe disasters in the future. The growth of perceived risk coincides with more attention to these issues within government. A representative from an IO working in Senegal indicated that their focus on disaster risk management began after the number of flooding events in the country rose. Another interviewee observed, "Ten years ago the country had no capacity to respond to disasters but flooding has brought more attention to this area."

While controversial, one example of Senegal's investment in risk reduction for flooding is Plan Jaxaay, which represents Senegal's largest government-funded investment in preparedness. As mentioned previously, the Plan, which means "big bird" in Wolof, is aimed at relocating a large portion of those in

the areas of Dakar most prone to flooding to higher elevation neighborhoods. The Government initiated the program in 2006 and, for the first phase of the project, appropriated $104 million from both national funds and funds originally designated for legislative elections.[156] As of 2009, the site houses about 2,000 families but hundreds of thousands remain in low-lying vulnerable areas.[157] While some have criticized the investment as unsustainable and contend that politics motivated the government to implement the well-publicized program, it is difficult to contend that the increasing incidence of floods did not play some role in motivating this expenditure.[158]

Plan Jaxaay seems to represent an anomalous case of high spending on DRM instead of a consistent commitment on the part of the Senegalese government to deal with flooding hazards by investing significant sums of money in preparedness measures. At the same time, one representative from an IO commends the government for abandoning expensive projects such as this. The interviewee commented that the Senegalese Government has since become "more realistic" about managing floods, because instead of focusing on high-cost relocation efforts that affect only the chosen few, they are trying to address underlying factors that cause flooding. He contends that recommendations for reconstruction and recovery in the 2009 PDNA--including new focuses on land use planning, building drainage infrastructure, and community-based education--reflect this shift. Still, government funding for activities under this new (and seemingly improved) strategy has come nowhere near to matching that of Plan Jaxaay.

The sub-hypothesis that small countries or regions will invest more in preparedness due to the greater threat of a hazard to the country's overall welfare does not seem to apply to Senegal. It is difficult to assess whether or not Senegal qualifies as a small country without some sort of standardized definition. The evidence does not support the idea that Senegal's size, whether large or small, has a strong bearing on the country's investments in disaster risk management.

An additional sub-hypothesis theorizes that when at-risk populations are concentrated in smaller areas, less money is required to offer a similar level of protection, and, as a consequence, less money will be spent. While the prevalence of urban flooding in Senegal means that the case meets the condition of the sub-hypothesis that at-risk populations be concentrated in small areas, interviews did not yield evidence that less money is spent in these areas as the result of a simple cost-benefit analysis. While it is true that flooding attracts less funding than sea-level rise, for example, the reasons for this asymmetry are more complicated than this proposed explanation suggests.

Several of the interviewees provided support for the "protect your seeds" theory which hypothesizes that a government will spend the most money on disaster management in areas that are the wealthiest and make up a disproportionate amount of the country's tax base. An anecdote from one interview subject supported this idea. The interviewee described an example where, in 2007, the middle class neighborhood of Mariste in Dakar flooded. In this case the government acted swiftly while the poorer neighborhoods of Pikine and Guédiawaye remained inundated. A representative of a large bilateral aid agency supported the idea that flooding in Dakar's peri-urban areas received inadequate funding due to the poverty and political marginalization of the affected population.

The significant attention that the government gives to coastal erosion appears to provide further support for this sub-hypothesis. While storm surge and coastal erosion does not pose a large threat to human lives, it does threaten the fishing and tourism industries along the coast, two sectors that contribute significantly to Senegal's economy. One representative from a multilateral donor agency confirmed that the Senegalese Government focuses on coastal erosion above other disaster types. Another official working within the Ministry of the Environment articulated the threat that coastal erosion poses to the country's economy, explaining that, "For [Senegal], coastal erosion is, above all, an economic question."

The final sub-hypothesis postulates that fewer resources will go toward preparing for deadly disaster types because securing a population against these disasters is more costly and therefore has a lower return. While there may be some sense that droughts—the natural disaster that affects the most people in Senegal—are an intractable problem for which preparedness spending has little effect, interview subjects did not speak to this point.

In conclusion, the evidence suggests that the hypothesis of perceived risk is applicable in the case of Senegal. Senegalese officials recognize the risks brought on by natural hazards, and, as a result, their strategies increasingly reflect the idea that preparedness measures are needed. Still, it is worth noting that while the risk of both flooding and coastal erosion in Senegal are high, the economic risks that coastal erosion poses receive more attention within the national government than the humanitarian dangers related to urban flooding.

Electoral Incentives and Democracy

Having transitioned from a single-party state to a multi-party system with competitive elections, Senegal has long been considered among the most mature democracies in Africa.[159] However, despite Senegal's competitive elections and relative stability, critics contend that President Abdoulaye Wade's personal control over political institutions prevented an independent bureaucracy from effectively funding and implementing DRM efforts.[160] Charges of rampant cronyism and corruption came to the international media's attention in the wake of Wade's controversial decision to run for a third term as president.[161] Senegal elected a new president and ruling party in March 2012. It is too early to draw conclusions about President Macky Sall's stance on disaster preparedness. However, available research on democracy in Senegal and evidence from field interviews suggest that while Senegal's electorate has influenced the government to invest in disaster response, voters have not motivated the government to make lasting commitments to disaster preparedness.

In evaluating the effects of Senegal's democracy on DRM activities, it is crucial to note that although Senegal has competitive elections at the national and local level, the country is not an advanced democracy. The 2011 Economist Intelligence Unit's Democracy Index identifies Senegal as a hybrid regime, one that displays characteristics of both democracies and authoritarian states.[162] In hybrid regimes, elections are less than free and fair, civil society is weak, corruption is widespread, and judicial independence is limited. Freedom House similarly describes Senegal as "partly free" due to limited respect for political rights and civil liberties.[163]

As an example of the weakness of democratic institutions in the country, Wade was able to twice delay municipal elections originally scheduled for 2007 in the face of protests from opposition party members.[164] One Senegalese team leader at an IO suggested that these elections were postponed to allow Wade, who was voted in for a second term in 2007, to minimize the political impact of flooding during previous rainy seasons. When Senegal finally held municipal elections in the spring of 2009, opposition parties led by the coalition United to Boost Senegal (BSS) performed well. BSS members won in the majority of cities and regional capitals, including Dakar and Saint-Louis.[165] Soon after the elections, Wade's government announced that flood management would devolve to local collectives. Newly elected opposition leaders condemned the national government's decision as a political maneuver to shed its responsibilities.[166]

Major flooding occurred again in 2009. According to a Senegalese lecturer on coastal management and vulnerability, the decentralization of disaster management prior to this flooding event created the widespread perception that the central government was punishing local opposition governments by delaying or reducing DRM funds. This argument, echoed in media reports after the flooding in 2009, supports the sub-argument of the electoral incentives hypothesis, which states that if a government has differing support across regions of a country, then that government will invest less in disaster management in areas dominated by its opponents. Observations of electoral politics in Saint-Louis add weight to the claim that flooding may have been used as an opportunity for the ruling regime to punish those in opposition. According to the Secretary General of an international NGO in Senegal, when a mayor from the opposition took power in 2009, Saint-Louis received less assistance to cope with floods than in previous years. More generally, the majority of interviewees acknowledged the growing politicization of flood management. A regional adviser for a major bilateral donor described this trend by stating that his organization limits funding for flooding in Senegal precisely because it is "too political."

A common theme running through the majority of interviews was the emphasis placed by the government on disaster response rather than preparedness. In part, the government's focus on reactive measures seems to be a result of the country's inability to adequately fund substantial long-term DRM projects, such as residential relocation plans and improved drainage systems. In terms of electoral incentives, interviewees supported the electoral hypothesis sub argument that if politicians perceive that citizens respond more to disaster response than to preparedness, then politicians will spend less on preparedness and more on response. Three Senegalese development experts claimed that government management of post disaster relief directly affects voting behavior.

The Senegalese government appears to be responsive to the public's calls for disaster response when the failure to provide assistance affects the government's political capital. An associate director at an IO made the specific claim that the government's primary concern when investing in disaster preparedness and response was not the effect of these policies on citizens, but rather the effect of these policies on the party's political standing. As an example, this interviewee pointed to 2005 flooding in the middle class neighborhood of Mariste in Dakar, after which the outcry of influential residents prompted rapid government response. This outcome was compared with inadequate flood response in poorer areas, such as Pikine and Guédiawaye, where floodwater sits for months every year. After continued political pressure in 2005, the government launched Plan Jaxaay, then President Wade's plan to build housing and relocate citizens living in communities vulnerable to flooding.[167] While this plan represented a landmark public statement from the government on the importance of disaster preparedness, launching the initiative may have reflected the government's immediate political needs to pacify protestors rather than a desire to shift policy toward greater disaster prevention efforts. Relocation activities slowed during the less severe rainy season in 2007.[168] Four years after the government launched the plan, only half the planned homes were built and hundreds of thousands of people remained in flood zones.[169]

On a field visit to Pikine and Guédiawaye, two of the hardest hit areas in Senegal during flooding in 2009, interviews with flood victims revealed further complexities inherent in the relationship between flooding and electoral behavior. A resident of Pikine who has experienced flooding in her home every year since 2005 blames the government for poor relief efforts but believes a new government will not improve response to the affected areas. A resident of Guédiawaye also criticized local leaders for failing to provide resources during floods but did not pass this blame on to former President Wade, who, according to the interviewee, focused on longer-term flood victim relocation efforts under Plan Jaxaay. In contrast to these two perspectives, an article published shortly before the 2012 presidential elections quoted many local residents of Pikine and Guédiawaye who looked forward to using the election to voice their concerns about flooding. The mayor of Pikine, Aliou Diouk, stated, "There has been much talk but little action. The expectations are enormous. The suburb is aware of the stakes of this election, all eyes are fixed on that hope."[170]

News stories such as this provide evidence for an additional sub-argument regarding electoral incentives: If the media gives more attention to disaster management activities, then governments will invest more in these activities. Senegalese interviewees working in and outside of the government agreed that the media plays a role in influencing public attitudes. While Freedom House ranks Senegal as having limited media independence, these interviewees noted regular television programming by the independent network Walf TV, which broadcasts interviews of flood victims. An associate director of an IO recalled flood victims interviewed by the network declaring that they would make President Wade pay in the next election. While this interviewee claimed that media coverage helped to inform the public about DRM needs, a senior officer in the government's disaster agency described the media as "catastrophic" in its pursuit of sensational stories on flooding.

A final sub-argument of the democracy and electoral incentives hypothesis states that if preparedness spending has spillovers into areas that are likely to help politicians electorally, then they will be more likely to invest in preparedness. Because no interviewees raised the topic of spillover effects or suggested them as a point for further investigation, there is insufficient evidence for or against this sub-hypothesis.

In conclusion, the evidence suggests that the democracy and electoral incentives hypothesis is applicable in Senegal. Due to the frequency of major flooding events over the past decade, electoral incentives have come to play a major role in government decisions involving DRM. Evidence from the interviews suggests that flooding has provided an opportunity for the ruling party to diminish the popularity of opposition members in office by withholding or delaying resources after natural hazards. Additionally, the government favors disaster response over preparedness activities. The contentiousness of party politics in Senegal seems to influence the government to invest in response efforts only when they will result in a clear political benefit to the ruling party, and as a result, central governments will provide post disaster assistance to politically powerful constituents while ignoring more marginalized populations. The motivation to limit gains for political opponents may also explain the government's preference for disaster relief rather than long-term disaster prevention measures, which could benefit future administrations. An analysis of the available facts and arguments leads to the conclusion that government flood response, more so than flood preparedness, is an influential election issue, but disaffected voters—observing public officials denying government support to flood victims as a political weapon—may doubt the sincerity of leaders' DRM plans, regardless of their party.

Political Development

The presence of skilled technocrats within the Senegalese government strengthens the country's institutional capacity for DRM, while, at the same time, the lack of bureaucratic independence acts as a hindrance. The country's lack of fiscal decentralization is another important feature of political development that affects DRM. While sub-national governments increasingly have the responsibility for risk management, they do not have the revenue raising capabilities to finance such activities

Indicators of political corruption in Senegal have stagnated in the last decade (40 out of 100) while levels of transparency have decreased (from 62.5 to 56.25, out of a scale of 100).[171] Despite suggestions that decreasing transparency and stagnant political corruption would increase the risk of diversion and lower donors' willingness to fund related activities, interview subjects provided only limited support to this hypothesis. However, this may have more to do with international donors' own practices rather than the incorruptibility of public officials. One representative of a donor organization said that her agency closely monitors projects and will block funding if there is risk of diversion. An official at another organization also asserted that he does not worry about corruption because, except in the case where funding is provided for budget support, the organization monitors its own projects.

One NGO worker did cite corruption as a problem for his agency, saying that while they have committed to not paying bribes in order to get their work done, sometimes this can make things difficult in an environment in which other people are willing to pay. He explained that during disasters the organization's non-payment of bribes made it difficult to get supplies through customs in a timely manner and strongly affected their ability to do their work. In this way, corruption in Senegal does affect the quality of disaster response in the country.

While generally positive, there was also some variation in interviewees' assessment of the bureaucracy. An employee of a bilateral donor agency commended the technocrats in the national government for being "up-to-date on climate change awareness." The regional bureaucracy also received mention by a university lecturer on coastal vulnerability as being very capable with a high degree of technical knowledge. The expertise of those they spoke to in the bureaucracy also impressed this research team. However, one interview subject saw bureaucratic capacity for activities related to disaster risk management as lacking. A representative of an international NGO, this interviewee contended that forecasting and early warning systems in the country remained weak due to lack of human capacity and expertise on climate change issues within the bureaucracy.

Two international donors noted a tendency among government ministers to solicit funding for expensive infrastructure for DRM without providing the necessary studies and cost-benefit analyses to ensure that

such investments would have a worthwhile impact. One interviewee spoke about government-initiated projects to prevent coastal erosion. When the Ministry of the Environment came to his organization to solicit funding for building expensive dykes and walls, the organization provided technical assistance instead of capital investment. They were concerned, he said, because the government had not conducted their own research to justify the cost of these projects.

Another representative from a donor organization corroborated this viewpoint. Her organization also provides funds for activities to mitigate coastal erosion and she spoke of the government's tendency to rush into projects without proper planning, which she described as a "race for funds." Instead of a sign of bureaucratic incompetence, this representative saw the prioritization of new funding over sustainable development as a problem of management and politics. She cited the Minister of the Environment, who received the post after converting from the opposition party, as an example of the political patronage that prevents organizations such as hers from funding projects. While many national bureaucrats are highly skilled technocrats, the system has "blocked innovation" by installing heads of Ministries who are uninformed and incapable of clarifying the project proposals developed by their employees. She also complained of ministers not showing up for meetings, which has stalled projects. This representative's account suggests that it is not poor technical capacity, but rather a lack of bureaucratic independence that prevents effective policy for DRM.

In theory, Senegal's move toward decentralization since the 1990s gives regional and communal governments more freedom to tailor their disaster risk management plans and to use local knowledge to spend more effectively on risk reduction activities. Constitutionally, Senegal's fourteen regions are autonomous in the sense that officials are elected and receive revenue transfers from the government for budgeting.[172] One official from an office in the Ministry of the Environment described how each level of government receives an annual budget for disaster management, allowing them to set their own priorities. In the region of Kolda, he explained, bushfires are common so they allocate money to prepare for and respond to this hazard. In practice, however, both budgeting and land use planning are largely centralized at the national level.[173] As a result, local governments lack the resources and the authority to implement measures to prepare for disasters. A representative from the government's disaster management agency confirmed this, commenting that, because local governments are responsible for first implementing Plan ORSEC, their funds are largely used for emergency response activities. In this way, it is very difficult to get funds appropriated for disaster preparedness at the local level.

Senegal's level of political development helps explain the nature of DRM in the country, providing support for the hypothesis. While Senegal boasts a relatively well-informed and capable bureaucracy working on DRM issues, less positive dimensions of the country's political development hamper effective risk reduction. On the whole, disaster preparedness in Senegal seems to suffer from a low degree of bureaucratic independence and some instances of corruption, as well as from its centralized budget. The former qualities may prevent donors from funding new projects that help build institutional capacity, while the latter complicates the allocation of responsibility and resources for disaster risk management among sub-national actors.

Civil Society

The civil society hypothesis states that in countries with strong civil societies, there will be greater investment in disaster management. The two sub-arguments of this hypothesis state that in countries with strong civil societies, non-government actors will 1) pressure the state to invest in DRM, and or 2) engage in their own DRM activities.

Several Senegalese interviewees noted that journalists play a role in publicizing the impacts of natural disasters on local communities. Walf TV, in particular, travels to peri-urban and rural communities to produce feature stories on those affected by disaster. Rufisque, a suburb of Dakar, has run radio programming on the risks of coastal erosion. A Senegalese lecturer on coastal management and vulnerability suggested

that these media efforts help disaster victims to communicate and come together to put pressure on local government, which in turn puts pressure on the national government for action. Before the beginning of the rainy season in 2009, local residents who organized in a community-based organization, ADDAD, marched to demand state action. Walf aired protesters yelling "We are not frogs! …We demand water evacuation equipment and water pumps."[174]

Serious flooding during the rainy seasons in recent years has led to community groups coming together to press for improved government flood management. Yet while protests in part led the government to introduce Plan Jaxaay in 2005, as discussed in the section on democracy and electoral incentives, this action may have reflected the government's desire to pacify protestors rather than commit to long-term investment in disaster prevention activities. After 2009's flooding, Plan ORSEC dispersed $4.5 million. Despite this allocation of funds, poor areas of Dakar remained flooded and, as previously noted, local residents likely perceived this neglect as retribution for having voted the opposition into office earlier in the year. In March 2010, Wade instructed the government to make eradication of floods a national priority. This action suggests that the government may have begun to view long-term investment in flood preparedness as a political necessity. However, when heavy rains again flooded Dakar in 2010, the government was still unable to provide comprehensive response measures and faced another public health and safety emergency.

Cycles of severe weather, flooding, protests, and inadequate responses by the government have persisted over recent years. While protests have helped push the government to develop disaster preparedness projects such as Jaxaay, such initiatives remain underfunded. Further, the government has repeatedly neglected preparing to assist flood victims despite—or because of—their protest and voting habits. Senegalese civil society's inability to force the government to make substantial and sustained investment in DRM suggests that although it is a robust community of civic groups and local NGOs, Senegal's civil society is relatively weak in this area.

In conclusion, the evidence suggests that the civil society hypothesis is not broadly applicable in terms of Senegal's DRM investment. However, local and international NGOs have consistently provided independent disaster response. A senior program officer working with a research institute claimed that most of the flood response work in the suburbs of Dakar is being done by NGOs. A colonel working in DRM readily acknowledged the presence of international NGOs in flooded areas. A senior official in Senegal's disaster management agency also noted that international NGOs regularly enter communities without the support or knowledge of the government to provide relief services. This evidence suggests that local and international non-governmental actors help to fill a gap in the country's disaster response needs currently unmet by the government. The role of external actors in Senegal's DRM activities is discussed further in the following section.

External Actors

The hypothesis concerning external actors states that if a country or government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness. In the case of Senegal, the evidence for this hypothesis is mixed. IOs and NGOs are very involved with Senegal's disaster preparedness activities, which certainly affect the level of total spending for DRM in the country, but this has less clear implications for Senegal's own investments in and capacity for DRM. Interviews did not yield much evidence indicating that the influence of neighboring countries or regional organizations such as the Economic Community of West African States (ECOWAS) played a very strong role in motivating disaster risk reduction, preparedness, or response activities in Senegal.

In Senegal, the presence of international donors working to reduce disaster risk, especially for sea-level rise and urban flooding, is especially pronounced. The GFDRR considers Senegal to be one out of nine of its priority countries in Africa and has budgeted $5 million for the country from 2010 to 2015 to reduce disaster risk. Donors and IOs actively involved in DRM in the country include the World Bank, the UN system, and bilateral donors, particularly the Japanese government. The World Bank has been

actively involved with the country's DRM activities for the past ten years and its "Senegal Disaster Risk Management and Climate Change Adaptation Project," approved in October 2011, uses funding from the GFDRR to strengthen the institutional arrangements for DRM in Senegal. The first phase focuses on clearly defining and making operational the roles of different agencies for more effective disaster risk management. Another component aims to develop a coordination unit for early warning systems so that this information can be used to mobilize stakeholders across different sectors to better prepare for and respond to disasters.

The UN System has also housed major projects aimed at developing Senegal's capacity in DRM and stakeholders credit the UNDP for helping to clarify the country's institutional framework for DRM. The agency has worked with and funded the DPC to develop the exhaustively titled "National Program of Prevention and Reduction of Major Risks and Natural Disaster Management," which acts as Senegal's strategic framework for DRM.[176]

Significant foreign aid for disaster risk management and climate change adaptation has come from the Japanese Government, which has partnered with UNDP to provide $2.9 million over three years for the "Mainstreaming Adaptation to Climate Change into Sustainable Development in Senegal (INTAC)" project. The INTAC project was designed to study the effects of coastal erosion on the country and improve the technical and managerial capacity of government to deal with these challenges. A bureaucrat working under the DEEC on the INTAC project said that while the Japanese International Cooperation Agency (JICA) provides funding, the idea for the project came from the Senegalese government and that they have a high-level of freedom at the technical level to design the activities related to the project. He described work he had done in the seaside resort of Saly, just south of Dakar, to demonstrate the effectiveness of a type of stone embankment that prevents coastal erosion.

While the presence in Senegal of large and well-funded IOs that increasingly emphasize the importance of disaster risk management is indisputable, the overall effect of these activities on Senegal's own capacity is not straightforward. Exposure to international donors does not seem to have motivated Senegal to increase its own funding for disaster preparedness, a situation for which the moral hazard hypothesis provides support. However, the emphasis that donors place on evidence-based activities and those that explicitly focus on building capability within the government may have a positive effect on institutional capacity. Donors described the emphasis they place on long term projects aimed at reducing underlying risks as well as the impact studies and cost-benefit analyses they require as a condition of funding. These conditions may motivate the government to encourage and incentivize the development of skills and knowledge that donors value within the bureaucracy, thereby strengthening the country's capacity for disaster risk management. While none of the interviewees suggested this was not the case, they did not provide explicit evidence in support of this causal mechanism, which therefore remains speculative.

Our research did not uncover evidence to indicate that levels of disaster preparedness among Senegal's neighbors in Western Africa have affected Senegal's own DRM spending. Senegal's immediate neighbors (Gambia, Guinea-Bissau, Guinea, Mali, and Mauritania) are not known to spend significantly on DRM and Mali is the only neighboring country that receives money from the GFDRR for disaster risk reduction activities. The hypothesis that a country will invest more in disaster risk management if their neighbors have invested does not seem to apply in the case of Senegal.

There are, however, regional partnerships that may prompt Senegal to invest more in preparedness than it otherwise would. ECOWAS coordinates programs for climate adaptation in the region while the AGRHYMET Regional Centre provides a platform for countries in the region to discuss drought control in the Sahel. Another area for cross-border cooperation involves the Senegal River. The four riparians – Senegal, Mauritania, Mali, and Guinea – were recipients of a $4 million grant from the GEF from 2004 to 2005 to ensure environmentally sustainable development of the river basin.[177] While these regional programs may put pressure on Senegal to invest in disaster preparedness measures to fulfill the terms of their involvement, the exact impact on spending is unclear.

In conclusion, the evidence provides mixed support for the external actors hypothesis in Senegal. External actors working with the Senegalese are helping to strengthen the country's institutional framework and may be supporting the country's capacity for DRM, but these efforts do not seem to lead to greater preparedness spending on DRM by the Senegalese Government. The country's immediate neighbors also do not seem to be having a noticeable effect on Senegal's spending decisions. While regional institutions may provide a platform for information sharing and facilitating the management of shared natural resources, this research did not support the idea that participation in these organizations had helped Senegal develop its own individual capacity for DRM.

Economic Strength

The majority of interviewees noted that a lack of financial capacity is a major constraint in the development of the country's flood risk management capacity. Senegal is a Least Developed Country with an estimated GDP per capita of $1,900 and among the highest unemployment rates in the world at 48 percent.[178] A sub-argument of the economics hypothesis states that if a country has a higher GDP, then it will be more willing to invest in DRM. The reverse of this hypothesis appears to apply in Senegal. In part due to its low GDP, Senegal has not been able to invest as much as it might in disaster risk management activities.

A further sub-argument of the economics hypothesis is that, in contrast to the moral hazard argument, countries that receive large amounts of international aid will be more able to invest in preparedness. This sub-hypothesis does not receive supporting evidence from the case of Senegal. Although the country is a major recipient of DRM foreign assistance, the influx of donations does not appear to have greatly enhanced the Senegalese government's own spending in this area. For example, while a specialist at an IO pointed to the Japanese International Cooperation Agency (JICA) as a leader in providing funds and technical assistance for disaster preparedness, such as a $10 million contribution to a drainage infrastructure improvement project in Dakar, indigenous Senegalese projects such as Plan Jaxaay remained stalled.

The economics hypothesis also contains two sub-arguments related to a country's private sector: if a country has a vibrant market economy, then there will be more investment in DRM due to 1) market actors pressuring the state to invest, and/or 2) market actors engaging in their own activities. The domestic private and labor sectors in Senegal are underdeveloped. In addition, Senegal's restrictive business environment and inability to meet its energy needs hinder both local and foreign investment. Starting businesses costs over twice the average annual income, and completing licensing requirements requires over four times the level of average annual income.[179]

In line with this data, interviews yielded little evidence that market actors have substantial influence to pressure the government to increase investment in DRM. No interviewees suggested that private actors independently engage in disaster management activities. However, a technical advisor on climate change with the government discussed a collaborative public-private sector initiative started in May of 2011 on coastal erosion mitigation in the tourist city Saly. The project calls for the creation of a partnership between the city of Saly, the military, hotel owners, and the Environmental Directorate. While no other interviewee mentioned this or any other type of collaboration between the private sector and government, projects such as this suggest that market actors may collaborate with the government on disaster preparedness activities when those actors are engaged in industries, such as tourism, that are central to the country's economy. These partnerships notwithstanding, poor macroeconomic indicators and the lack of a strong formal private sector suggest that market actors in Senegal are themselves not a major force for driving disaster management investment. Because the country's weak economy prevents it from making significant investments in DRM, the economic hypothesis is applicable in the case of Senegal.

Gambia

Moral Hazard

The Gambian case provides evidence for the reverse of this hypothesis, in which countries that do not expect to receive aid are more likely to invest in preparedness activities. According to the U.S. State Department, Gambia's 2010 budget was $203.5 million, and ODA accounted for nearly $51 million, or 25 percent of the budget. The country depends on foreign aid to fill its balance of payments gap.[180] Since the establishment of the Global Facility for Disaster Risk Reduction in 2006 and the emphasis on climate change adaptation and disaster risk reduction as priorities in global development, the Gambia has received over $2.5 million specifically linked to projects aimed at mitigating disaster risk.[181]

Although 25 percent is a substantial portion of Gambia's budget, interviewees working in Disaster Risk Management (DRM) suggested that Gambia is "invisible" to international donors. Because it is the smallest country on the African continent, and it is surrounded by Senegal, which has been a darling of the aid community, Gambia has not attracted as much attention from the international aid community. Even though Gambia's aid is 17.5 percent of GDP compared to Senegal's 8 percent of GDP aid, the fact that Senegal's GDP is 16 times that of Gambia must also be considered in the comparison. Regardless of aid figures compared to Senegal – aid represents almost equal parts of the budgets for each country – the perception from government officials that Gambia is not likely to receive substantial aid suggests that moral hazard is not the driver of internal investment in disaster management.

Despite the significant flow of GFDRR aid, the international community's disaster risk reduction effort, into Gambia, the country shows homegrown political will in support of a National Disaster Management framework. The Gambian government's support of the NDMA and investment of political capital suggests the reverse of the moral hazard hypothesis. The government of the Gambia does not appear to expect foreign aid and thus, it is investing in disaster management through internal monetary and human capital.

Although the UNDP trust fund provided the necessary support to establish the National Disaster Management Agency, the project was limited to the foundational steps—development of a disaster management policy and legal framework, strengthening of disaster management committees at both central and divisional levels, establishment of a disaster management office, and development of a prepared plan and capacity building of disaster management committees. The UNDP no longer funds NDMA's work. Because the NDMA has continued to function and receive funding from the government of Gambia after the completion of UNDP's foundational investment, it appears that the Gambia is not shying away from DRM investments in hopes of international aid dollars.

In addition to the ongoing presence of NDMA in Gambia, the vice president provides support to the NDMA through rhetoric and action. In a speech to the second session of the GFDRR in June 2009, Vice President Njie-Saidy said of her country's efforts:

> For its part, The Gambia Government has given attention to public awareness creation, building political commitment, and development of national policy and action to disaster and climate risk management. We have recently concluded a detailed hazard profile, risk and vulnerability analysis of the country together with partners, and this will be used as the empirical basis for the development of a national contingency plan.[182]

However, the picture of moral hazard is more complicated than these examples suggest. According to an interviewee, Gambia spent $1 million on Disaster Risk Management in 2010, which is less than 1 percent of the budget. Given the percent of GDP tied to agriculture, and thus tied to resilience against natural disasters, one might assume more spending is appropriate for risk management. Yet it is impossible to make this claim without further comparative data on spending in other regions and a full understanding of Gambia's budget and investments in, for example, alternative industries. Field interviews repeatedly linked a lack of funding to NDMA's limited capacity to fully execute its disaster risk reduction strategy. In order to fulfill its mission, NDMA needs a far greater budget and Gambia, in general, needs far deeper capacity to achieve its mission.

A sub-argument of the hypothesis poses a relationship between in-country conflict and disaster management spending—specifically that a country concerned with its security situation will spend more on disaster mitigation for fear that the country would not attract aid during ongoing conflict. In The Gambia, because there is no internal conflict, the government does not exhibit this behavior. Managing conflict is not a concern of the Gambian government and not a driver of spending decisions related to DRM.

The evidence from Gambia suggests that the moral hazard hypothesis is applicable in this case. Although the relevant evidence for the argument presents a complex picture of aid's role in DRM investment and decision-making, the fact that members of the government prioritize disaster-related policy initiatives, though less so than major spending programs, while perceiving the country to be a low priority to the aid community, provides support for the "pariah" version of this hypothesis.

Perceived Risk

This hypothesis states that a country with high levels of perceived risk will spend more on disaster risk management and preparedness. In the Gambian case, evidence affirms this outcome because of the significant risk and related investments – of both capital and political will – made by the Gambian government. The risk posed by the Gambia's typical cycle of a dry season followed by the rainy season's severe flooding is a problematic pattern. Increases in the severity and frequency of floods have led to dire predictions for continued natural shocks, which threaten livelihoods and assets in the country.[187]

As stated in the hypothesis, a country experiencing frequent disasters or anticipating more disasters is expected to spend more on disaster preparedness. In the Gambian case, an increase in capital—political and monetary—was directed toward disaster policy, as exhibited in the launch of NDMA. Shocks in Gambia encompass most of the very small country and create large disruptions. Investment in preparedness given Gambia's size and the effects of flooding supports this hypothesis.

Case Highlights: 2010 Floods and Kotu Quarry

The rainy season in The Gambia arrives annually between the months of May and September. The 2010 season was particularly devastating as rains came at nearly 56 percent above the normal range.[183] Over the course of only two days in September 2010, the country received rains equivalent to 20 percent the annual average, threatening homes and livelihoods of 25,000 people. On September 7, Gambia declared a national disaster for the first time in its history. The event was NDMA's first foray into coordinating response to a declared disaster.

According to the Gambian Red Cross Society's assessment, 24,532 people were directly affected by flooding. The severity of the 2010 floods overwhelmed the government and local capacity. The Disaster Relief Emergency Fund (DREF) supported the response operation with 300,000 Swiss Franc (about US $330,000) and assessments revealed immediate need for sanitation, shelter materials, and technical support. Cash coupons for rebuilding homes, non-food items such as blankets, sanitation kits, and mosquito nets as well as training in hygiene and latrine construction were part of the response.

The Red Cross reported several lessons learned from the national disaster:

- The use of cash coupons was well received by the community. They were better able to make home repairs as a result of cash coupons.
- Shelter trainings conducted within the Red Cross organization made staff better able to work with community members to appropriately rehabilitate structures.
- Pre-positioned stocks of materials facilitated immediate aid to several hundred families.
- NDMA's coordination was challenging leading the NDMA to create a national contingency plan for future disasters.[184]

One major center of disaster during the 2010 floods occurred at the Kotu Quarry, an abandoned mining area. Located in the Greater Banjul Area, the Quarry is the site of an electrical plant servicing Banjul. Several interviewees pointed to Kotu Quarry as an example of urbanization and the erection of slums along waterways as exacerbating factors for floods. The settlers in Kotu have no legal rights to the land, which disenfranchises the population from government assistance. A member of the Kanifig Municipal Council, which is responsible for Kotu, told reporters that the NDMA has taken charge of affairs such as provision of relief materials. He went on to say "The biggest problem that the KMC is facing is the rapid urbanization of the municipality." In August 2010, one resident said: "Last year we suffered seriously here, many of our houses collapsed and properties destroyed, usually we don't experience such but last year was quite different. We have so far contacted our ward councilor to plead for help from the authorities."[185] The low lying ditch, lack of drainage, and accumulation of waste from the community and surrounding areas limit water flow and create rancid living conditions.

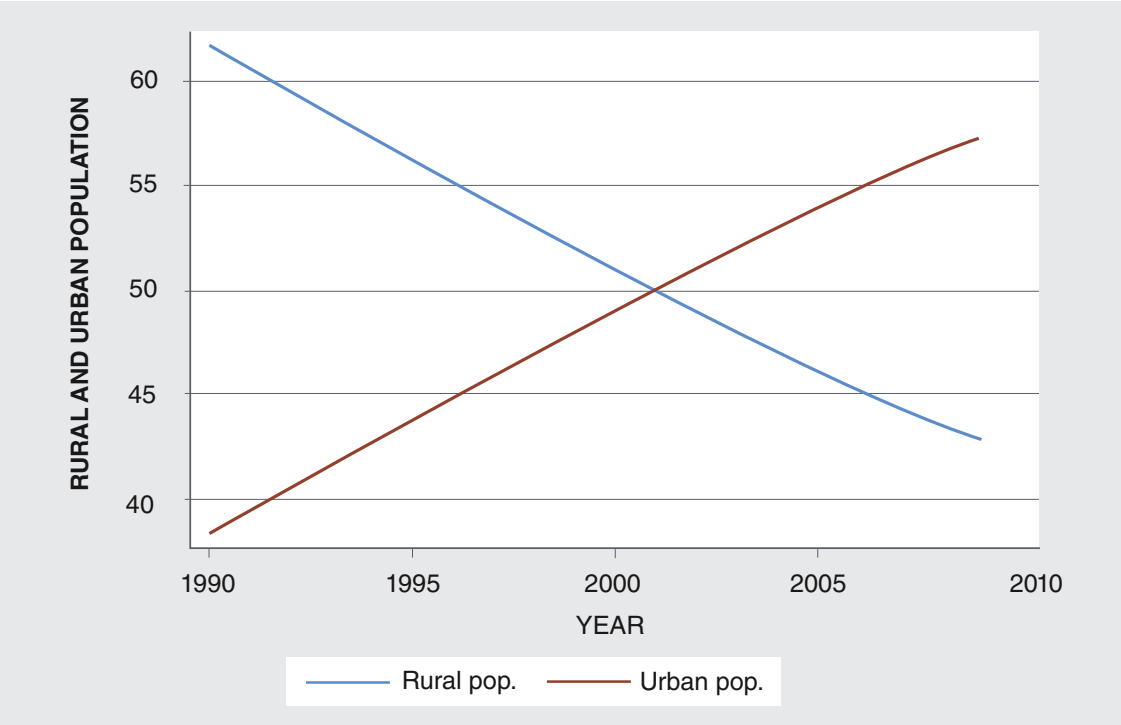
By 2011, after the devastation of the 2010 floods, the Gambian government demanded that the Kotu Quarry settlement be vacated and leveled. Authorities threatened to demolish homes even if residents did not vacate the area. The response from the community was uproarious. An apparent disconnect between ministry officials and the Jammeh regime appears in citizens' dialogues. One elderly man called on the president to "intervene to tell those who are involved in this ugly move to refer to the constitution" to know his rights as a Gambian. Others complained that the area designated for their resettlement was uninhabitable for its thick forest and that it would be impossible for people living under the poverty line to resettle effectively before the rains came in 2011 without government assistance.

A statement by President Jammeh as early as September 2010 expressed deep dissatisfaction with the condition of Kotu Quarry. He visited the site and called the issue an "administrative failure" of the departments of environment and planning. He placed blame on the population as well, noting that clearing the space in 2008 had not deterred people from resettling there as intended. In the same interview, Jammeh announced his government's plans for the area. His priorities were to preserve the wetlands and no longer tolerate settlements that block waterways. Jammeh continued:

> "So I am giving everyone a notice that come December you are going to leave because we are going to demolish the whole of this area. There is no politics in this because human health is better than politics. I am concerned about the health of the people. Can you imagine the children living here and the types of insects here; the type of the stink in this place. We have to clear the waterways because nobody is praying for the rainfall to diminish or reduce. I prefer heavy rains to drought - because during the time of the drought, when there were few rainfalls, that is when people build on the waterways. The government is going to enforce the law, there are regulations that have to be implemented or enforced by Physical Planning, the National Environment Agency."[186]

During field interviews at the end of 2011, NGO and government personnel alike were still pointing to Kotu Quarry as a vulnerable community. Several noted that the people who had been evacuated simply came back to their old settlement in Kotu because the land that the government provided was too far from opportunities available in urban Banjul. This provides a vivid example of the challenges in The Gambia. First, the government lacks enforcement capacity to resettle the Kotu community. More importantly for the purposes of this study, the NDMA has undertaken a broad mission of disaster management, which implicates the agency in tasks related to urban and environmental planning. The research team's fieldwork did not suggest that the NDMA possesses the technical knowledge included these disciplines within its limited capacity. The challenge may instead speak to a coordination failure in the 2010 floods and the aftermath in Kotu Quarry.

Figure 6. Urbanization in Gambia



Source: World Bank, World Development Indicators[188]

A general consensus emerged during field interviews on the risk posed by natural disasters, especially flooding, to the Gambia. Moreover, the government's commitment to NDMA and the presence of several UN organizations and NGOs, suggests that it recognizes the risks posed by recurrent flooding. At a GDP of only $355 per capita (constant USD 2000), almost 30 percent of GDP from agriculture, and with 65 percent of the employed population working in agriculture, major natural disasters have significant effects on the whole country.[189] Given these figures and the national breadth of NDMA's mandate, it is apparent that high-level officials in the Gambia realize the risks of repeated severe flooding and are taking steps to increase awareness among citizens. While NGO professionals pointed to the need for deeper understanding at the community level, policy makers at the national level appear to understand that the Gambia is vulnerable to disasters and have devoted political capital and some budget expenditure to the cause.

In one interview, a government official mentioned that weak warning systems equipment across The Gambia is a particular problem. The easternmost station was not functional at the time of the interview, putting the Upper River Region, an already vulnerable area, at greater risk for flooding. The country also declared the 2009 floods as a natural disaster for the first time in its history. According to one interview, during the aftermath of the 2009 floods, President Jammeh donated to the National Emergency Fund for the first time. Despite these investments, interviewees from the NGO community assert that capacity remains low and that the overall damage to the economy from big floods could be significant. All of these points illustrate the complex relationship present between risk and actions in managing said risk. Warning systems exist in the Gambia, but are not functional or maintained. A formal disaster declaration followed the 2009 floods, but challenges still plagued communities, and local level disaster protocol and preparedness knowledge is low.

A sub-hypothesis suggests that populations facing greater threats will receive divergent disaster management spending, but substantial threats throughout Gambia imply a demand for investment

throughout the country. In addition to natural shocks, trends toward urbanization and settlements along low-lying waterways increase risk of flooding disasters. There is a cyclical relationship at play between recurrent flooding, poor agricultural yields, and urban migration of people seeking opportunities other than farming.[190]

Gambia's small population of fewer than two million people is most highly concentrated in the Greater Banjul area.[191] At 26 percent of the population, Greater Banjul is the most densely populated region in The Gambia. According to the 2003 census, roughly 357,000 people live in Greater Banjul, and 50 percent of the Gambia's population within 20 kilometers of the Atlantic Coast. Banjul is also the economic center of the Gambia. Due to the concentration of people and assets in the greater Banjul area, flooding disasters pose serious threats there.

The geography of the Gambia is such that the whole country, which flanks the banks of the river, is flood prone. The rapid urbanization of the Greater Banjul area over the course of the last 20 years has created a greater concentration of people and, as in the case of Kotu Quarry, exacerbated the flooding in urban areas. Based on interviews, the prevalent themes in international discourse about risk vulnerability and increasingly common natural disasters are present in The Gambia as well. Challenges regarding urban settlements and threats to livelihoods of vulnerable sectors like agriculture make the conversation around DRM more pressing for the Gambian aid community and government. Evidence, like the vice president's statements above, suggests that the government acknowledges risk and has joined the international community's efforts to face these challenges.

While the central Gambian government is aware of its vulnerability to natural disasters at high levels of government, field interviews suggest that at the community level awareness is less saturated. Narratives like that of Kotu Quarry may indicate that people either do not understand the risks posed to health and property by severe flooding, or rather that they value proximity to the urban core over mitigating said risks. Despite awareness of the risk as demonstrated through NDMA's mandate and the political will supporting the agency, spending in The Gambia does not reflect posed risks. For example, if the agricultural yield for a given year were completely destroyed by floods, resulting in a 25 percent loss of the net GDP, the Gambian economy would suffer tremendously. Still, spending on disaster risk management does not appear to reflect the gravity of the threat, providing evidence contrary to the hypothesis.

In sum, risk in The Gambia is high and awareness of the risk is present at the decision-making and high political office level, but it is not reflected spending on DRM. Rather, political capital towards NDMA, the country's coordinating body for natural disasters, and engaging the institutional mechanisms such as declaring disaster for the first time in 2009 exhibits comprehension of risk in the Gambia, and confirms the hypothesis.

Electoral Incentives and Democracy

Fieldwork in the Gambia suggests that citizens do not associate disaster management with elections. Where elections do not provide accountability to the government, DRM will not hinge on election results.

Flooding events in The Gambia happen many times a year and do not reflect the election cycle. Events are not rare, and the government's investment is constrained by budgetary concerns. This research does not suggest that more or less frequency or severity would spur more investment. In several interviews, personnel in non-governmental and donor organizations in the country noted that Gambians see flooding as a natural phenomenon and do not blame the government for its effects. One interviewee suggested that in the aftermath of disasters and during flooding season, political parties are forgotten. None of the interview subjects suggested that regional differences in political support drive preparedness or response spending as stated in the sub-hypotheses.

Having had minimal change in political structure since President Jammeh took power in 1994, Gambia has had a relatively stable political system. According to the World Governance Indicators, Gambia ranks

in the 54th percentile for political stability, reflecting Jammeh's strong hold on power.[192] However, other sub-indicators including government effectiveness, control of corruption, and regulatory quality remain low. Because political power in the Gambia is strongly centralized, regional differences in political support do not come to bear in directing disaster management funding. Despite its several ethnic groups, friction is minimal and not politically charged. Without these key factors, DRM in The Gambia appears to occur separately from electoral activities.

Voice and accountability is the lowest of Gambia's governance scores, in the 20th percentile. Low scores likely reflect media censorship and centralization of power in The Gambia. According to Gambia Media Support, a Danish NGO, and confirmed through field interviews, the state controls the only national television station in The Gambia.[193] According to Freedom House's measures of freedom of the Press, in 1993, before President Jammeh's coup to take power, Gambia's media was listed as "Free." In every year since 1993, the media has been "Not Free" by Freedom House's measures.[194]

Interviews with the Red Cross, Gambia suggest that within the NDMA's model, farmers and citizen are included in discussions to identify community needs. In particular, one interviewee pointed out that after a major disaster, community members have an opportunity to provide input into the allocation of relief funds, but the participation is low and does not have major influence. Although the question lay outside the scope of this project, lack of participation in public forums may speak to citizens' lack of confidence in the effectiveness of their voice.

The final electoral sub-hypothesis is: if preparedness has electorally beneficial spillover effects, then governments will invest more in disaster management. Because no interviewees raised the topic of spillover effects or suggested them as a point for further investigation, there is not sufficient evidence for or against this sub-hypothesis.

In the Gambia's semi-autocratic society, electoral incentives are unlikely to influence disaster management policy. Interview evidence suggests instead that Gambians do not use election polls to influence policy change, nor do they link elections to their experience with natural disasters. In this semi-autocratic regime, the Gambian people do not associate disaster response with political leadership and thus the government does not face popular pressure for investment in DRM.

Political Development

The political development hypothesis is applicable for the Gambia. The National Disaster Management Agency (NDMA) is the nodal agency responsible for coordinating all disaster related activities in the Gambia. Since its formation, the NDMA has become the focal point for all disaster related activities and plays a crucial role in disaster preparedness and response. As a coordinator, NDMA interacts closely with government departments, IOs and local NGOs working in the sphere of disaster response. The political centralization of power and effective bureaucratic structure contributed to making the NDMA an effective coordinator in disaster preparedness and response.

This research did not find evidence that corruption in Gambia limited the government's ability to prepare for, and respond to, natural shocks. Field interviews with government officials, IOs, and local NGOs were used to understand the level of corruption in Gambia as well its impact on disaster preparedness and response. The majority of interviews with IOs and local NGOs noted that the disbursal of disaster aid by NDMA was done in a transparent manner. The interviewees also highlighted use of the media to inform people about the disbursal of disaster funds. One interviewee gave a specific example of media coverage about the provincial governor in Bassee region, who was informing people about their entitlements during the disbursement of aid.

The Transparency International (TI) and Ibrahim Foundation indicators, two of the most important corruption perception indicators for Africa, were used to triangulate the information about corruption perceptions in political and bureaucratic structures of the Gambia gathered from field interviews. The time series Corruption Perceptions Index of Transparency International shows that in recent years the Gambia has improved in corruption perception (higher values are better). From 2007 Gambia has shown a steady

improvement on the transparency international corruption index. In the year 2009 Gambia overtook Senegal in the TI rankings. On the other hand the Ibrahim index on accountability and corruption for the Gambia shows a steady decline in recent years. Further, freedom house index downgraded the Gambia in its recent report on press freedom.[195]

The global indicators look at overall corruption trends in the Gambia. The field interviews, on the other hand, focus on a specific institution – the NDMA – and its ability to disburse aid in disaster prone areas. Thus, the trends from global corruption indicators may not apply to the NDMA. The NDMA has developed a separate bureaucratic structure, which differs in its characteristic from the overall Gambian bureaucracy and does not have strong interaction with business enterprises. The overall corruption perceptions do not seem to have an impact on the DRM activities in Gambia. The field interviews suggest that the effect of corruption within NDMA on disaster response and management is minimal, but this is difficult to verify. In sum, the research does not conclude that overall corruption in Gambia or the corruption within NFMA affects DRM activities in Gambia.

The National Disaster Management agency is largely insulated from politics due to the centralization of power and the role of the vice president in heading the organization. The insulation of the bureaucracy from political pressures contributes towards making the NDMA an effective nodal agency for DRM activities in the Gambia.

The effectiveness of NDMA as a coordinator and planner was highlighted in all the interviews conducted by the team in Gambia. A majority of the interviewees viewed the NDMA as necessary for effectively responding to natural disasters. Disaster reports by other agencies in Gambia also consistently cite the coordination efforts headed by the NDMA.[196] The effectiveness of the NDMA is directly linked to the strong mandate granted to it by the Gambian parliament and its ability to enforce the mandate effectively by setting the disaster management agenda in the country and demanding compliance from all actors in the DRM field. Centralization of power is an important characteristic of the nature of political development in Gambia. President Jammeh, the current president, took power after a coup in 1994. Since the coup, the president has consolidated his power and moved away from free and fair elections. Absence of competitive democracy allows for government institutions in Gambia to work without high political interference. Thus, independence of the bureaucracy from political forces plays an important role in allowing NDMA to work as an effective agency.

While the semi-autocratic system of Gambia has allowed for centralizing of power and development of an effective institutional structure for national disaster management, other factors must also be taken into consideration. The Gambia is a small country with limited institutions and manageable bureaucracy. The consolidation of power could also be effective due to the small size of the country and lack of complex political institutions and multiple stakeholders.

The vice president of the Gambia, Nije-Saidy, the first female vice president in West Africa, heads the NDMA and the executive director handles the day-to-day administrative affairs of the NDMA. This research uncovered the crucial role played by the vice president as the head of the National Disaster Management Framework. In all interviews with IOs and NGOs, interviewees mentioned the positive role played by the vice president in the field of disaster preparedness.

The political will demonstrated by Vice President Nije-Saidy to support Disaster Risk Management is demonstrative of attention to DRM from high levels of the government. According to an interview at a Multilateral Donor Organization, the vice president makes appearances in flood prone regions during the rainy season. The interviewee pointed to these public appearances as evidence of an increased concern for Disaster Risk Management in the Gambia, but stopped short of saying that the vice president's efforts are responsive to Gambians' voice. Respondents in the non-government organizations also claimed that they could provide feedback to the vice president directly on matters related to DRM. This points toward the importance of individuals in the political system in making DRM a priority. The strong role of the vice president could also lead to a more independent bureaucratic functioning in Gambia, thereby improving coordination and management of disasters.

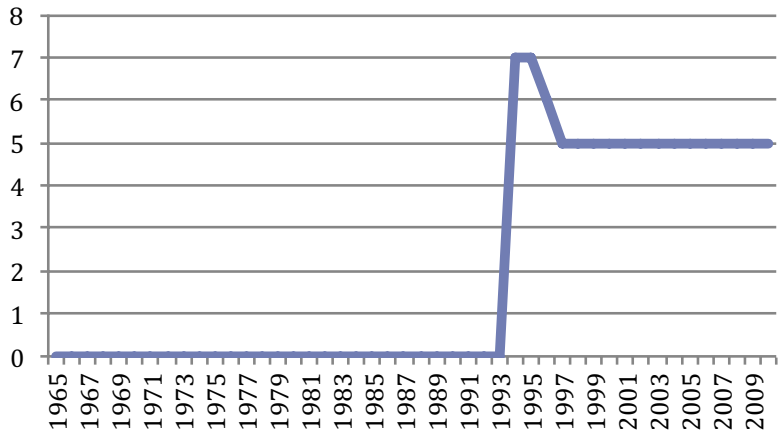
In conclusion, the evidence for diversion of international aid for DRM due to corruption is weak and the evidence for overall corruption in the bureaucratic and political system is mixed. The lack of corruption in DRM and concomitant support for this policy area provides support for the sub-hypothesis that corruption should be associated with ineffective disaster preparedness and response and vice versa. We also find that the political centralization of power insulated the NDMA from politics and improves the disaster coordination activities undertaken by the NDMA. The ability of the NDMA to demand compliance from all actors in the DRM realm is influenced by the semi autocratic political structure in Gambia. Moreover, the vice president heading the NDMA has played a crucial political role in making disaster management a key national priority. Thus, the political development hypothesis is applicable in the case of Gambia.

Civil Society

This research finds that the role of civil society actors in disaster preparedness and response activities in the Gambia is not discernable. There is little evidence for civil society's ability to influence the Gambian state or to engage in its own DRM activities. Thus, it is not possible to support or reject the civil society argument in the case of the Gambia.

Gambia has been a semi-autocratic state since the 1994 coup that over threw the government (see Figure 7). The president of the Gambia maintains a political stronghold and political rights in Gambia are limited. In the latest Freedom House report the Gambia dropped from being partly free to not free due to the suppression of political opposition, civil society, and media in the run up to the last presidential elections.[197] The Gambia National Adaptation Program for Action (NAPA) on Climate Change, published in 2005, acknowledges the fact that CSOs and political pressure groups are not prominent in the country.[198]

Figure 7. Autocratic Index for Gambia, 1995-2010



Source: Autocratic Index, Polity Database[199]

The political climate has resulted in NGOs adopting an apolitical approach to their engagement with the government on policy issues, including minimal direct policy pressure. The process of agenda setting for natural disasters in Gambia is more based on technical expertise and comparative advantage of individual NGOs rather than political bargaining. Although NGOs are generally apolitical, conversations with NGOs suggest that the NDMA sees them as a competitive influence for directing resources and public opinion. As one government official described, "Government sets the development agenda not the NGOs." The lack of political nature in CSOs in Gambia is also linked to disaster management not being an electoral issue in Gambia. The fact that the media in Gambia is state owned further limits the ability of CSOs to inform public opinion of disaster management. Gambia's small size also makes it possible for the government to centralize power around NDMA and monitor activity nationwide. According to one

minister, the government's efforts are meant to ensure that non-governmental activities do not duplicate public efforts on the ground.

While the oversight of NDMA on CSOs limits their ability to influence disaster preparedness activities from a political point of view, they do play a technical role. The national Disaster Management framework allows for inputs from civil society in the form of a Technical Advisory council, headed by representatives from the NGOs. One of the NGOs interviewed by the research team was currently the second chair of the Technical Advisory Council. The Technical Advisory Council provides inputs to the NDMA and helps in the formulation and review of national and regional disaster plans. Moreover, the NDMA holds regular meetings for coordination on disasters and during these meetings NGO representatives provide their assessment of the disaster situation. The NGOs also conduct their own assessment of disasters. While feedback from CSOs influences decisions on disaster spending, it does not translate into political pressure. Moreover, the national disaster management agency closely coordinates with all DRM actors on a regular basis. The strong role of NDMA as an independent actor limits the ability of the NGOs and IOs to engage in their own disaster preparedness activities. There I support for the sub-hypothesis that if there is a strong civil society, then civil society actors will engage in their own preparedness activities. In Gambia a weak civil society and a string national agency prevent CSOs from engaging in their own disaster preparedness activities.

The third civil society sub-hypothesis states if there are strong local kinship networks, then local actors will invest more in preparedness. Kinship networks in rural Gambia are strong. People in the rural areas of Gambia rely on the community and have strong social ties.[199] The Kafo blood groups formed on the basis of age, gender, and blood relations also play an important role. One of the interviewees with an IO pointed out that people in rural areas first depend on local networks during a disaster before expecting help from the government. But little evidence was found for local kinship networks influencing spending on DRM. One interviewee highlighted the lack of capacity at the local level in Gambia.

In conclusion, this research did not find enough evidence to conclude that the CSOs engage in their own disaster preparedness activities or pressure the state into spending more on disaster preparedness activities. The ability of civil society to prepare its own engagement activity is however limited by the agenda set by a government agency. The majority of NGOs in the Gambia are part of the National Disaster Management Framework, and they use the national platform to advocate for changes in disaster spending. However, this cannot be attributed to the existence of a vibrant civil society in Gambia. Better coordination by the NDMA may have led to more efficient disaster management, rather than the presence of civil society. Thus the team does not find enough evidence to support or reject the civil society hypothesis in the Gambian context.

External Actors

This research suggests that the external actors hypothesis is partially applicable in the case of Gambia. The first sub-hypothesis suggests that if other countries in the neighborhood are investing in preparedness, then the country will invest more in preparedness. Senegal and the Gambia share a common history and at different times have been politically and economically close to each other. In recent past, however, the countries have not maintained a favorable relationship due to Casamance rebel groups seeking independence from Senegal and taking refuge in Gambia. The influence of Senegal's disaster management policy on the Gambia is difficult to ascertain due to the limitations in the field research. Interview evidence lacks the necessary information to evaluate this sub-hypothesis. Given the recent tensions between the two countries, however, it is difficult to imagine a diffusion hypothesis being in play.

The second sub-hypothesis states that if the government has more exposure to external actors that promote preparedness, then it will invest more in preparedness. The formation of the disaster management framework was based on a UNDP project, which was eventually adopted as a law and led to the creation of the NDMA. Thus external actors and their expertise are directly related to the formation of the NDMA.

Moreover, multilateral donor organizations actively engage with the NDMA on disaster response and management activities. For example, the early assessment of disasters involves a joint effort by IOs, local NGOs, and government.

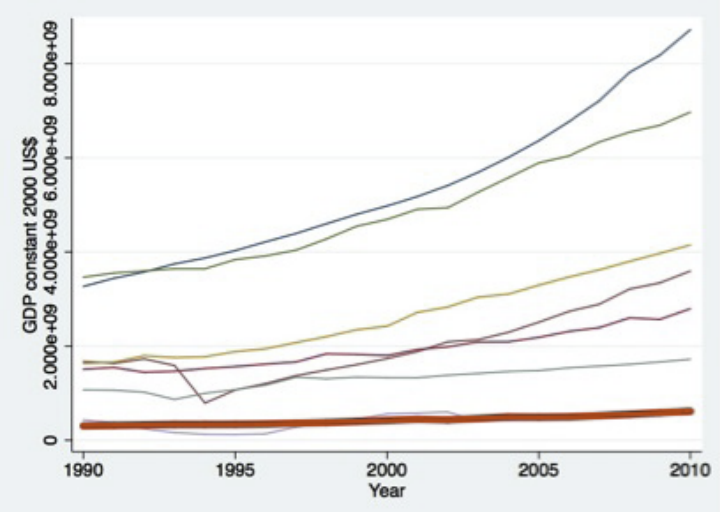
While the NDMA closely interacts with external actors on disaster preparedness, it has not led to greater spending on DRM directly. However, the research finds partial support for the influence of external actors since the creation of the national platform for disaster management, NDMA, can be directly attributed to the exposure to the expertise at UNDP. In sum, there is mixed evidence in support for the external actors hypothesis in the Gambia.

Economic Strength

The research finds evidence to support the economic strength hypothesis in the Gambia. The lack of economic resources of the Gambia negatively affects the disaster preparedness spending ability of the government.

The first sub-hypothesis states that if a country has a higher GDP, then it will be more likely to spend on preparedness. The Gambia is a Least Developed Country with high levels of poverty. The economy is highly dependent on exports and tourism, which account for close to 50 percent of GDP.[200] Within the West African region, Gambia has a lower than average GDP per capita and government revenue (see Figure 8). According to a recent IMF report, government revenue collection continues to be low because of partial implementation of a new fuel price formula, poor tax compliance, and falling duties on non-fuel imports. Simultaneously, Gambian government expenditure has gone up from 14.5 to 18 percent of the GDP.[201] This has led to Gambia having a high debt to GDP ratio with debt close to 30 percent of the GDP. The weak monetary system also accounts for the high lending rates in the country.

Figure 8. GDP in the ECOWAS Countries



Red = Gambia

Source: World Development Indicators[202]

Despite the global economic downturn, Gambian overall GDP rates have remained steady. This can be seen as a positive sign considering the high dependence on tourism, remittances, exports and agriculture, all sectors prone to economic and natural shocks and global economic fluctuations. One of the potential reasons for stable GDP growth is the combination of fiscal management by the state and the monetary tightening by the Gambian central bank. It is in this fiscal context that this research seeks to understand the role of the economy in influencing government's decision to invest in disaster preparedness and response.

Table 10. Hypothesis Findings for Senegal and Gambia

Hypothesis	Explanatory Power?	
	Senegal	Gambia
Moral Hazard – If governments anticipate that other organizations will spend on preparedness or response, then they will spend less on preparedness.	Mixed - While the Senegalese government does not spend on preparedness, instead relying on the international community to fulfill this role, it does spend on disaster response (though international donors would likely step in).	Yes - International donors do not have a strong presence in Gambia, so the government makes its own investments.
Perceived Risk – If governments perceive that the risk of a natural hazard is high, then they will invest more in preparedness.	Yes - Perceived risk of both flooding and coastal erosion is high, but the economic risk posed by coastal erosion receives more attention than the humanitarian risk that flooding poses.	Yes - Gambia perceives flooding risk to be high which has prompted the expenditure of political capital to create the NDMA.
Electoral Incentives and Democracy – If a government perceives disaster preparedness to be electorally beneficial, then it will spend on preparedness. If a government is in a country with a more advanced democracy, then it will invest more in preparedness.	Yes - Senegal's electoral system and relatively democratic system influences the government's action on DRM, however it also allows for risk management to become politicized.	Yes - Gambia's government is not a responsive democracy and elections do not provide a means for citizens to pressure the government on DRM.
Political Development – If a government is more developed (in terms of the quality of politicians and bureaucrats, independence of bureaucrats), then it will prepare better for disasters.	Yes - Senegal's political development is high in terms of bureaucratic capacity, but low in terms of bureaucratic independence. These realities interact and affect DRM capacity and spending.	Yes - Gambia's bureaucracy working on DRM issues is largely insulated from politics, which allows the NDMA to have a strong mandate.
Civil Society – If there is a strong civil society, then there will be greater investment in preparedness.	No - Senegal has a strong civil society composed of domestic and international groups, but these actors are unable to effectively pressure the government to make substantial investments in DRM.	Mixed - Gambia's civil society is weak, but evidence is insufficient to assess how this is impacting investment in DRM.
External Actors – If a country/ government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness.	Mixed - External actors working in Senegal are helping to strengthen Senegal's institutional framework and capacity for DRM, but these efforts do not seem to lead to greater preparedness spending in DRM on the part of the Senegalese government.	Mixed - While the input of external actors, especially UNDP, led to the creation of Gambia's National Disaster Management framework, exposure to external actors has not led to a sustained investment in DRM activities by the government.
Economic Strength – If a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area.	Yes - The lack of financial resources limits Senegal's capacity to invest in DRM.	Yes - Gambia's lack of revenue prevents large investment in DRM.

In more than half of interviews conducted with government, NGOs, and IOs, lack of economic resources came up as a consistent reason for lack of investment in disaster preparedness. The steps for disaster preparedness require addressing the challenge of urban sprawl and change in the overall drainage system, which is capital intensive. The interviewees in local NGOs as well as IOs were unanimous in their acknowledgment of the political will in NDMA towards spending on disaster preparedness, but pointed out that the budget is a constraint. As mentioned earlier, some of the budget constraints were also noted during the field trip to Banjul Island. However, during the 2009 flooding the government declared flooding as a Natural Disaster for the first time in the nation's history and donated one million dalasi to recovery (US $31,000).

One of the sub-hypotheses states that market actors can pressure the state to protect their own investments by investing in disaster preparedness activities or market actors will engage in their own preparedness

activities. There is little evidence to discern the relationship between market actors on disaster spending in the Gambia, but market actors do not seem to have a strong influence on the state actors' decisions on allocation of resources towards disaster preparedness.

Another sub-hypothesis emphasizes that if a country's economy is dominated by agriculture, then it will take steps to invest in flood disaster preparedness activities. Agriculture, while not the biggest contributor to the economy, accounts for the majority of employment. However, there is little information from the field research to explore whether the Gambian government's decision to invest in disaster preparedness is influenced by agriculture productivity.

In conclusion, the Gambia does not have a strong economic position and this affects government spending in all sectors including disaster management. This conclusion is supported by the interviews conducted by the team in the field.

CONCLUSION

This comparative case study analyzed a set of seven hypotheses and provides the most compelling evidence for four explanations of variation in institutional capacity to respond to natural disasters. For these four hypotheses, this research highlights strong empirical evidence for factors influencing preparedness and response spending in both Senegal and the Gambia:

Moral Hazard

In the case of the Gambia, the perception of being invisible to the international donor community motivates the Gambian government to take steps to invest in Disaster Risk Management. In contrast, Senegal attracts substantial international attention and funding, especially for large-scale DRM activities related to coastal erosion and urban infrastructure. International funding for these projects influences Senegal's own investment decisions. Analysis of Senegal's DRM activities finds that, while the moral hazard argument applies to these large-scale activities, Senegal's spending on response to disasters is also highly influenced by its own domestic political considerations.

Electoral Incentives and Democracy

In Senegal, competitive elections have increased government responsiveness to public demands. Urban environments, where increases in major flooding events have mobilized public opinion against inadequate government response, provide important points of electoral influence. However, since independence Senegal has been a quasi-democratic state with power centralized in the Office of the President. This has provided the ruling party with the ability to punish opposition-led regions by withholding funding for disaster management activities. In Gambia's semi-autocratic political system, voters lack political awareness and do not link voting decisions to the government's performance in disaster response. Public opinion regarding disaster response does not influence electoral politics in The Gambia's semi-autocratic government. Voice and accountability in Gambian democracy is sufficiently low to prevent voters to mobilize against the government through the voting polls.

Political Development

Senegal's low bureaucratic independence and elaborate sub-national administrative structure complicate the allocation of responsibility and resources for DRM. While Senegal's technocrats are well-informed of disaster risks within the country, political appointments to leadership positions are made without respect to DRM expertise. Additionally, the existence of overlapping administrative jurisdictions, especially in urban areas, has hindered the implementation of a comprehensive DRM plan coordinated across different sub-national regions. In the Gambia, the centralized power structure has helped in the creation and sustenance of a disaster management framework. The National Disaster Management Agency (NDMA) sets the agenda for disaster coordination and implementation. NDMA's strong mandate, supported by

Gambia's executive, allows it to act as the central nodal agency and facilitator of all DRM activities in the country.

Economic Strength

Senegal's Least Developed Country status and the country's economic indicators and statements from interviewees point to an inability to invest in DRM activities. The private sector may be willing to partner with the government on efforts to protect economic assets, especially those at risk to coastal erosion. However, these public-private partnerships are inadequate to meet the costs of major preparedness projects, and these partnerships are absent for flood response. In the Gambia, also an LDC, the government's lack of economic resources affects its ability to invest in disaster management. Despite this lack of spending power, Gambia exhibits strong political will to tackle the challenges of DRM. In comparison to Senegal, interviews in Gambia revealed no strong evidence of private sector investment in DRM, nor private-public partnerships on disaster preparedness.

Interactions between Hypotheses

Research in Senegal and Gambia also revealed several ways in which key hypotheses interact with and influence one another. Crucial interactions exist between both the insurance and perceived risk hypothesis and economics, and the political development hypothesis and electoral incentives and democracy.

Risk in The Gambia is high and high-level officials in the government recognize the risk posed by hydrometeorological shocks. The investment in NDMA and the expenditure of political capital to support its mandate suggest Gambia's recognition of its risk, but insufficient funds hamper the agency's ability to fulfill its duties. Equipment for early warning systems, flood pumps, and other critical infrastructure remain out of order for extended periods of time. Interviewees repeatedly pointed to lack of funding as a hindrance for NDMA to carry out its responsibilities.

For Senegal, evidence for insurance and perceived risk interacting with economics occurs when flooding, sea-level rise, or other shocks threaten economic assets. Here, expenditure to protect coastal tourism and Dakar's essential government and banking industries appears to supersede investment in human settlements. Evidence suggests that risk perceptions interact with economic constraints when the Senegalese government neglects human settlements in favor of key assets that provide critical contribution to Senegal's GDP and governance.

Additionally, the Senegalese government has invested in a large bureaucracy under the Ministry of Environment, which is responsible for mitigating the effects of sea-level rise. Sea-level rise threatens key industries along the coast such as tourism and fishing, as well as the financial center of Dakar. The government has been successful in attracting international funding for projects focusing on sea-level rise and coastal erosion. Although flooding poses more serious risks to human settlements, the framework for addressing flood-related disasters is less robust than that of coastal erosion and reveals Senegal's DRM priorities within its limited budget.

The nature of democracy and the power of the executive in Senegal also interact with political development to affect capacity in a complicated and contradictory way. Senegal's democracy allows the electorate to hold politicians accountable for the management of disasters. Public demonstrations have prompted the national government to appropriate funding for disaster response. At the same time, centralized decision-making and budgeting in Senegal limit the democratic nature of governance and impede the capacity of the bureaucracy and local governments to prepare for and respond to disasters.

For The Gambia, the political development and democracy hypotheses interact in a different way. The highly concentrated executive power enabled politicians to create a central, national disaster framework, but the agency is not held accountable for its failure to deliver results due to the lack of electoral voice in the Gambian system.

Policy Recommendations

Based on this examination of disaster risk management and capacity in Senegal and Gambia, this research offers several policy recommendations.

First, improvement of local level capacity and knowledge is essential for long-term disaster resilience. By disseminating information and creating more knowledgeable communities, both Senegal and Gambia can better withstand flooding and other shocks. Decentralization of expertise and administration of emergency response will enable quicker, more efficient aid and decision-making. In both countries, the centralization of power and budgeting around disaster management creates ineffective and inefficient processes, which can delay aid and exacerbate challenges during disasters.

Second, while Senegal boasts a more robust democracy and electoral system than Gambia, Senegal can learn from its smaller neighbor where institutional arrangements for DRM are concerned. The DPC's lowly status as an office within a ministry means that it has little power to effectively mobilize different ministries and other nongovernmental actors to invest in disaster management. Gambia, in contrast, has defined a much clearer role for its national disaster agency. Additionally, as an office directly under the vice president, NDMA has the authority, though not the resources, to act as an effective coordinator and the director of disaster risk management activities in the country. Recognizing the differences between the two countries that have led to their disparate systems, Senegal would do well to recognize the benefits to DRM that come from providing more status and authority to the national disaster agency.

Both Senegal and Gambia must invest in infrastructure and service delivery in urban centers. Both countries experience urban migration as people seek opportunities outside of the agricultural sector. Growing urban centers and increasingly dense populations are acutely exposed to threats of flooding and coastal erosion. Without more investment in urban infrastructure such as roads, homes, and sanitation systems, cities like Dakar and Banjul will be unable to meet the needs of growing urban communities during natural disasters.

Future Research

These case studies attempt to clarify some of the factors motivating (or preventing) a country's investment in disaster preparedness. Field research, combined with an analysis of existing literature and quantitative data on DRM in both countries, confirms that a wide range of interacting variables come to bear on a country's decision to reduce disaster risk. For example, it appears in the case of Gambia that an authoritarian regime, a relatively small population, and the lack of reliable aid from the international community have combined to create a country with a fairly streamlined institutional infrastructure for DRM. In the case of Senegal, the country's relative ease in attracting foreign aid and the tension between diffusion of responsibility and the centralization of budgeting are influential characteristics leading to a significantly more fragmented institutional framework for DRM. In this way, one area for future research involves a more thorough and systematic analysis of the interactions between endogenous and exogenous variables that determine the character of a country's DRM activities.

Another area that deserves more attention is the relationship between urbanization and disasters. In both countries, unsustainable agricultural practices and lack of economic opportunities have resulted in a trend of urbanization over recent decades. The influence of rapid urbanization on the effects of—and responses to—natural shocks is beyond the scope of this report. However, as the world's populations become increasingly urbanized, further study on the relationships between DRM, urban labor markets, and urban planning would contribute to a broader understanding of sustainable development in the face of increasingly severe natural disasters.

CHAPTER 2. Donors, Disasters, and Development: Flooding in Ghana and Togo

By Sarah DeCuir, Rachel Fuerst, Christina Iannuzzi, and Jaclyn Leaver

Ghana and Togo are two geographically small countries, sharing a 579-kilometer border, located in West Africa on the coast of the Gulf of Guinea. Both countries border Burkina Faso to their north, with Benin on Togo's eastern side and Côte d'Ivoire on Ghana's west side. Given their proximity, Ghana and Togo experience similar perennial weather patterns. The rainy season begins in May and stretches until October. During this period, both Ghana and Togo experience severe recurrent flooding. Though flooding has historically occurred seasonally, floods have increased in severity since 2007. Previous research suggests that climate change may alter existing weather patterns and increase the unpredictability of rains and flooding in West Africa.[204]

The geographic location of Ghana and Togo has also created a shared history, including a legacy of colonial control and some cross-border ethnic groups. Both countries are highly ethnically diverse. Ghana has seven major ethnic groups, while Togo has three major and thirty-four smaller ethnic groups.[205] Ghana received independence in 1957 from the British Commonwealth, making it the first country in Sub-Saharan Africa to gain independence and placing it on a path to future growth and development. In the last decade, Ghana has attained a high level of democracy.[206] Togo, meanwhile, received independence from France in 1960, and in 1967 was taken over in a bloodless coup by Gnassingbe Eyadema, who ruled the country through long periods of political unrest and instability. Eyadema's son rules the country today.[207]

In December 2011, graduate students under the CCAPS program traveled to Ghana and Togo to collect data and conduct interviews about the state of disaster risk reduction (DRR), preparedness, and response in both countries. Researchers conducted interviews with organization officials in Ghanaian and Togolese civil society as well as government representatives and academics, in an effort to develop a thorough picture of natural disaster management in the two countries.[208]

The results of this research suggest that several of the hypotheses presented in the Introduction to this report are particularly relevant for explaining the nature of DRR, preparedness, and response in Ghana and Togo.

Based upon the Hyogo Framework, Ghana is making efforts to improve state and NGO capacity to manage and prepare for disasters. While these efforts are taken at the national level, the state lacks the capacity and resources to effectively implement preparedness policies at the regional and district levels. The government's ability to monitor and assess impending hazards is limited at all levels. Recently, IOs and NGOs have collaborated with the government to educate local populations on DRR. Generally, the government has been mildly successful in reducing underlying risks in the northern region, however, not much has been done to combat these risks in Accra.

In Ghana, a strong civil society has influenced the government to increase investment in disaster preparedness as well as relief activities. NGOs have increased overall investment in disaster management activities in Ghana both through pressure on the Ghanaian government to invest more and by engaging in their own preparedness activities. In Togo, however, weak civil society helps to explain the lack of DRR, preparedness, or response, as civil actors are unable to pressure the government sufficiently to increase its investment while providing minimal support for these activities themselves.

Ghana and Togo both provide evidence to support economic strength hypotheses. Togo is an "aid orphan," receiving relatively low amounts of aid compared to its need. Its economy is also small, with most of the workforce employed in subsistence agriculture. Togo's low GDP, combined with a lack of external aid, inhibits government and NGO investment in disaster management. Ghana receives a much higher amount of aid, and its economy is larger. The greater resources available to the government and NGOs enable increased investment in disaster preparedness and response.

Finally, Ghana offers evidence against the moral hazard hypothesis. The increasing amount of aid received in recent years has led the government to increase its investment in disaster management. Though there are no other factors that would otherwise prohibit external disaster response aid in a time of catastrophe – such as a deteriorating security situation – Ghana continues to invest in disaster preparedness and response in increasing amounts. Togo's aid orphan status creates difficulties in making conclusions about the effects of this hypothesis. While Togo does not expect aid from other organizations, neither does it spend on disaster management itself.

Other hypotheses include the perceived risk hypothesis, which receives mixed support from Ghana and Togo. Though both countries have suffered from severe annual floods since 2007, only Ghana has increased its preparedness spending since that time. The effect of democracy and electoral incentives is similarly mixed. In Ghana, citizens seem to have effectively pressured the government to increase disaster spending. Togo's problematic electoral record makes judgment difficult, though the completion of fair, multiparty elections in 2010 have not increased government spending on disaster preparedness.

With regard to political development, Ghana's above-average quality of institutions and officials suggest a connection with its higher spending on disaster preparedness. Togo receives worse scores on corruption and effectiveness scales, and this aligns with its lack of investment in disaster preparedness, though qualitative evidence suggests that low levels of spending also imply low levels of leakages due to corruption. Finally, the external actors hypothesis claims that greater exposure to disaster preparedness activities from geographically proximate countries or NGOs will increase investment in preparedness. While Ghana has increased its spending on disaster preparedness due to exposure to NGOs that promote those activities, Togo has not increased spending, despite sharing a border with Ghana and the presence of a couple of NGOs within Togo that promote preparedness activities.

This chapter will examine the specific mechanisms in Ghana and Togo that produce positive and negative outcomes for DRR, preparedness, and response investment. It begins with an overview of the historical and political context at work within each country, followed by a closer discussion of the individual hypotheses.

The following section of the report provides an overview of the natural hazards as well as the general political and socioeconomic conditions in Ghana and Togo. It also outlines the institutional capacity for DRR, preparedness, and response in each country.

GHANA

Background on Natural Hazards

Ghana is divided into ten regions, with governing bodies at the national, regional, and district levels. These regions are Ashanti, Brong Ahafo, Central, Eastern, Greater Accra, Northern, Upper East, Upper West, Volta, and Western.[209] The natural hazards facing Ghana occur throughout these ten regions, with greater vulnerability to floods and droughts in the Greater Accra, Northern, Upper East, and Upper West regions.

The agency tasked with disaster management in Ghana, the National Disaster Management Organization (NADMO), categorizes seven disasters facing the country: geologic, hydro-meteorological, fires and lightning, pests and insects, man-made, disease and epidemics, and nuclear and radiological.[210]

Earthquakes in Ghana take place in approximately 65 year cycles. The most recent and severe earthquake, a 6.4 on the Richter scale, struck in 1939.[211] Landslides occur in the Akwapim Scarps in the Eastern region, the Kwahu Scarps, also in the Eastern region, and the Ashanti Mampong Scarps in the Ashanti region. The Northern, Upper East, and Upper West regions experience pronounced soil erosion. Areas in the Greater Accra region, the Shai Hills, Akuse areas, and areas with clay deposits are vulnerable to expansive clays.

Large-scale fires are initially caused by bushfires, industrial and domestic fires, and lightning. Bushfires occur in the three northern regions and the northern parts of the Volta region.[212] Domestic and industrial fires are prevalent in old buildings, industrial establishments, commercial institutions, fuel depots, mines, and factories due to mismanagement of electrical and gas devices.[213] Lightning occurs rarely, but has extreme potential to cause fires during dry seasons. Man-made disasters include collapse of buildings, mines, and dams, industrial accidents, aviation and maritime accidents, pollution of water supply from mining and other activities, air pollution, oil spillage, deforestation/desertification, and ethnic conflicts and wars. Ghana experiences epidemics caused by Cerebrospinal Meningitis (CSM), Cholera, and Yellow Fever. Ghana maintains radiological material in the Korle-Bu Teaching Hospital and 37 military hospitals in Accra, the Komfo Anokye Teaching Hospital in Kumasi, the Tema Harbor, mining companies at Obuasi and Tarkwa, and the Ghana Atomic Energy Commission, which has a miniature nuclear reactor.[214]

The primary focus of this case study is hydro-meteorological shocks, and in particular floods, as these are the most frequent and severe disasters facing Ghana. Intense rainfall, dam-bursts, and tidal waves cause floods in Ghana. These, with the exception of tidal waves, occur all over the country. Flood prone areas include Accra along the Odaw River, Pra and Ankobra River, the Western region, White Volta River in the Northern region, Black River in the Upper West region, River Oti in the Northern and Volta regions, and Afram Plains in the Eastern and Ashanti regions. These flood prone areas make up a large portion of Ghana. Rain and windstorms typically occur in May/June and September/October. When the rains fail, Ghana experiences acute drought, particularly in the Greater Accra, Northern, Upper East, Upper West, and Volta regions.

Table 11. Recent History of Major Natural Disasters in Ghana

Year	Type	Location	Dead/Injured/Affected
1983	Drought, Food Shortage	Northern Ghana	
1999	Flood	Northern Ghana	
2002	Localized Conflict	Northern	4 dead, 2,000 displaced
2007	Flood	Upper East, Upper West, Northern	20 dead, est. 260,000 affected, 9 bridges collapsed
2009	Disease (H1N1)	Greater Accra	40 cases, no fatalities
2009	Flood	Volta River Basin	8 dead, 6,352 houses destroyed
2010	Flood	Volta, Greater Accra, Central, Eastern, Western	36 dead, 33,602 affected, 15,000 houses destroyed
2011	Flood	Greater Accra	14 dead, 43,000 affected, subsequent cholera outbreak – 130 cases
2011	Transport	Volta	44 dead after transport ferry sank

Sources: UN OCHA and secondary sources[215]

Socioeconomic and Political Background

In 1957, under the leadership of Kwame Nkrumah, Ghana became the first Sub-Saharan country in colonial Africa to gain its independence.[216] A series of military coups followed until Lt. Jerry Rawlings took power in 1981 and banned political parties. By 1992, Rawlings had approved a new constitution and restored multiparty politics. This new constitution established a presidential system, with four-year presidential terms and a two-term limit.[217] Rawlings won the 1992 and 1996 elections but was constitutionally prevented from running for a third term in 2000. John Kufuor was elected in 2000 and again in 2004. In 2008, John Atta Mills was elected and served as the head of state until his death in July 2012. John Mahama, who was vice president under John Atta Mills, became president after Mills' death and was elected to a full term in December 2012.[218]

Socioeconomic conditions in Ghana have improved marginally in recent decades. The World Development Indicators (WDI), published by the World Bank, show that Ghana's GDP per capita has increased from $254.87 in 2000 to $358.45 in 2010.[219] GDP per capita adjusted for purchasing power parity (PPP) displays the same effect, as it increased from $1,046.91 in 2000 to $1,472.39 in 2010.[220] Agriculture, the primary sector of the economy, contributes 31.6 percent of the country's overall GDP.[221] This share has decreased from 39.4 percent in 2000.[222]

Twenty-four million people live in Ghana, with a 50 percent split between urban centers and rural regions.[223] The population density of the Northern, Upper East, and Upper West regions, which face the greatest occurrence of natural hazards, is about 106 people per square kilometer.[224] Ghana's population is comprised of eight major tribes.[225] The Akan tribe, the most prevalent, represents 45 percent of the population while the Mole-Dagbon and the Ewe make up 15 percent and 12 percent respectively.[226] The Ga-Dangme tribe makes up sevent percent, the Guan four percent, the Gurma four percent, the Grusi three percent, and the Mande-Busanga one percent, with the remainder of the population made up of smaller groups.[227] The Akan tribe is mostly situated in the central and western regions of the country while the Ewe dominate the south eastern region and the Mole-Dagbon, Gurma, and Grusi are prevalent in the northern region.[228]

Poverty levels provide another indicator of Ghana's socioeconomic conditions. According to the WDI, 30 percent of the population lives on less than $1.25 a day. The Multidimensional Poverty Index (MPI), which measures education, health, and living standards, estimates that 30 percent of the population is impoverished.[230] The Human Development Report, which uses health, education, and income indicators to measure poverty, ranks Ghana 135th out of 196 countries.[231] The high poverty levels throughout the country further exacerbate the vulnerability of communities in regions facing more frequent natural shocks.

Institutional Capacity for DRR, Preparedness, and Response

Capacity in Ghana to prepare for and respond to natural shocks is determined not only by the capacity of the National Disaster Management Organization (NADMO), but also by the capacities of NGOs, IOs, and communities that participate in disaster management. Generally, these efforts have been overwhelmingly reactive to natural shocks – NADMO and many NGOs focus on response, with preparedness and DRR slowly rising as a priority among organizations and agencies.[232] Table 12 highlights major moments in the development of Ghana's disaster management capacity.

Table 12. Ghana Capacity Timeline

1983: The National Mobilization Programme is established to implement disaster relief in response to major droughts and food shortages during this year.
1986: Ghanaian government adopts the National Oil Spill Contingency Plan (NOSCP), developed by Ghana's Environmental Protection Agency (EPA).
1992: Ghana signs the United Nations Framework Convention on Climate Change.
1996: Ghanaian parliament enacts Act 517 that creates NADMO, in response to the UN's declaration in 1989 that named the 1990's the "International Decade for Natural Disaster Reduction." NADMO replaced the National Mobilization Programme.
2005: Ghana adopts Hyogo Framework for Action.
2007: NADMO recognizes the need for a consistent approach to preparedness.
2008: National Contingency Plan covers preparedness for floods, earthquakes, and post-election/ethnic conflicts.
2009: EPA revises NOSCP.
2009: The World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) identifies Ghana as a priority country.
2010: National Contingency Plan covers floods, earthquakes, oil spills, and pandemic influenza.
April 2012: Japan donates $8.5 million of rescue operations equipment as a part of Japan's "Programme for the Improvement of Capabilities to Cope with Natural Disasters Caused by Climate Change."

Source: Interviews and secondary sources[233]

In 1996, the Ghanaian parliament established NADMO, which is part of the Ministry of the Interior. NADMO's objectives are twofold: first, to manage disasters by coordinating government agencies, resources, and NGOs, and second, to develop the capacity of communities to effectively manage disasters and reinforce livelihoods by reducing poverty. The National Disaster Management Plan, developed by NADMO with assistance from organizations and experts specializing in natural shocks, outlines policies that facilitate the execution of these objectives. NADMO recently revised its National Disaster Management Plan, which had not been updated since 1997. In its revisions, NADMO sought to increase its efforts and strengthen its strategies in DRR and Climate Risk Management (CRM).[234] NADMO adopted the Hyogo Framework for Action in 2005. In spite of the limitations facing NADMO, the organization has made significant efforts to implement the five priorities for action.[235]

Priority 1: Ensure that disaster risk reduction is a national and a local priority, with a strong basis for implementation.

A National Secretariat, 10 Regional Secretariats, 168 District and Municipal Secretariats, and 900 zonal offices comprise NADMO. Technical Advisory Committees support the Committees at the national, regional, and district levels. These committees implement the policies informed by the research and expertise of the advisory committees. With offices in each district and region, NADMO is a well-placed organization to manage and prepare for disasters in Ghana.

However, NADMO lacks the capacity, resources, and budget to implement effectively its policies at the regional and district levels.[236] This is particularly the case with DRR policies, as revealed by its reputation in the country. Since its creation, NADMO's publicly perceived role was defined by the fact that it disbursed funds to NGOs for relief items to citizens affected by natural shocks. Thus, Ghanaians and NGOs largely see NADMO as a response agency.

There are signs, however, that NADMO's reputation is slowly changing. Over the past five years, since the severe floods in 2007 and the increased technical and financial support of international agencies, NADMO has intensified and strengthened its preparedness efforts. It is yet to be seen whether comprehensive DRR programs will soon follow.

NADMO's major role is to coordinate response teams composed of local and international NGOs and, in cases of severe shocks, the Ghanaian Armed Forces. International and local NGOs coordinate their efforts through an Inter-Agency Working Group or through the NGO Consortium, which advises NADMO's Disaster Technical Committees on the proper coordination of NGO resources and manpower. A few respondents perceived the coordination efforts of NADMO to be one of NADMO's strongest characteristics (namely representatives from NADMO and a representative from the Ghanaian Armed Forces).

Yet respondents representing their NGOs, as well as those representing Western donor agencies and the UN, painted a more complicated picture, implying that the reality of this coordination process is far from ideal. These agencies described the challenges NADMO faces in its attempts to coordinate relief efforts after disasters. One key challenge is that during disaster situations, disaster response NGOs seek relief grants and are reluctant to share important information in order to maintain an advantage over other NGOs. The rush to receive grants reduces the efficiency of the coordination system.

The floods in 2007 provided a particularly revealing picture of the inability of stakeholders involved in emergency response and risk management to communicate and coordinate. NADMO was unable to forecast and provide early warnings to affected areas so that stakeholders could prepare and respond to the emergency early. In addition, NADMO lacks an emergency operations center where all NGOs and stakeholders can meet and receive updated and accurate disaster assessments. As a result, NGOs had less information than would be preferable and did not have a dedicated location in which they could share the information they did have. Such a center would facilitate cohesion among stakeholders and increase the speed and efficiency of response to natural shocks.

Priority 2: Identify, assess, and monitor disaster risks and enhance early warning.

NADMO relies upon the national Hydro-Meteorological Agency to provide weather information, but NADMO's capacity to monitor and assess hazards is limited at all levels. NADMO's Technical Advisory Committees support this process by identifying, monitoring, and assessing hazards, but the predictive capabilities of these committees could be improved if NADMO provided more training to their members.[237] The Ghanaian government recently initiated countrywide hazard mapping, but this mapping fails to distinguish between hazard exposure and vulnerability.[238] Hazard exposure merely accounts for geographic susceptibility to hazards. Vulnerability accounts for social, economic, and physical characteristics, which imply greater risks for vulnerable populations during a natural shock. According to a joint UNDP-World Bank report, Ghana needs to develop a decentralized, multi-hazard early warning system. The report suggests that NADMO, the Ministries of Environment, Agriculture, Water, Energy, and Health coordinate on the early warning system, so that information can be sent smoothly across many lines of communication.[239]

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

Based on discussions with IOs in Ghana, local NGOs are constrained by their lack of adequate financial accounting systems and inadequate operational capacity to conduct needs assessments and deliver relief on a large scale and in a timely manner. Moreover, local NGOs have less capacity to raise their own funds, due to a lack of familiarity with donor procurement procedures. Thus, very few local NGOs have the capacity to serve as the main implementing grantees in a disaster, though they do serve as sub-contractors to international NGOs. The most recent disaster, in October 2011, portrays the inadequacies of local NGOs. Ghana's capital city, Accra, faced a massive flood that impacted 43,000 residents. A Western donor agency sought a local NGO to grant $50,000 in relief money. A call for grant proposals was disbursed among eight of the prominent relief NGOs. Many of them were disorganized and slow to respond to calls for proposals, with only three organizations producing legitimate proposals.

Several NGOs offer training programs for communities, as does NADMO, in collaboration with the Ghanaian Armed Forces. The Adaptive Learning Program, run by CARE International in Ghana, trains individuals in a few vulnerable communities in northern Ghana on how to adapt to climate change and how to build their capacity to deal with disasters. This includes planting climate change resistant crops and avoiding building homes in low-lying areas. Ghana's Red Cross hosts trainings to prepare people for disasters and to recruit volunteers to be a part of community response teams in all ten regions of Ghana. Trainees are trained in first aid and disaster management, and occasionally conduct disaster assessments on the ground for Ghana Red Cross. With the help of the Ghanaian Armed Forces, NADMO conducts training sessions for volunteers in communities across Ghana.

Priority 4. Reduce the underlying risk factors.

The Ghanaian government and other agencies have yet to revise building and zoning codes in Accra where the majority of hazardous structures are erected and where severe flooding occurs. These codes date back to the 1920s when flooding was less frequent. Efforts by the UNDP to influence the government to change its building policies have thus far come to no avail. Moreover, revision and enforcement of building codes is further complicated by the fact that the District Assemblies are the planning authorities in each district – NADMO is not party to the committees tasked with planning and zoning. However, UNDP continues to support national and regional platforms by mainstreaming DRR activities into development plans. For example, UNDP worked with NADMO to produce a booklet in 2011 with instructions for building lightly loaded structures that can better withstand floods and other disasters Ghana faces. The booklet was designed to encourage better building practices as well as to help people recognize buildings that need to be reinforced.

In addition to a lack of proper building codes, the drainage system in Accra is grossly outdated. The channels that carry the wastewater out of the city are large, uncovered cement tunnels that run along the edges of streets. These tunnels are used not only for household or shop waste, but also for whatever

else might happen to fall into them. Because there are no proper waste disposal procedures, trash and other items pile up in these drains, clogging them and creating intense flooding when it rains. Many of the poorly built structures in Accra are built over these drains. During the perennial floods, these homes are destroyed by the overflow of waste. Although building codes have not changed, the government is aware of the situation and in 2009, NADMO organized a cleanup exercise to clear the drains and channels before the onset of the rainy season. A NADMO official who participated in this process explained that NADMO brought together different agencies, such as the Hydrological Services Department, to assist with this activity, in order to help them understand the importance of clearing and building new drains.

More recently, in October 2011, Accra was hit with a serious flood in which the main drains overflowed and many of the buildings built over the channels had to be destroyed in order to clean out the sewer system. Officials from the UNDP and NADMO are hopeful that local contractors will consult their joint-produced *Building Guide for Lightly Loaded Structures* booklet as homes begin to be rebuilt. One UNDP official noted that there was an official request from President John Atta Mills for UNDP to work on short-term relief of the floods as well as address long-term needs for preparedness and DRR to mitigate the risks involved. This provides some evidence that the government is informed of the problems the drainage system creates when natural disasters occur.

The three northern regions of Ghana, near the border with Burkina Faso, flood on a yearly basis when the Burkina Faso government opens the Bagre and Kampiengo dams. These dams directly affect the banks of the Black and White Volta Rivers as well as the Oti, Sissili, and Kubori Rivers. In the past, there has been no communication between the Burkina and Ghanaian governments about the opening of these dams. Recently, however, there have been efforts in both countries to communicate effectively. In preparation for the opening of these dams, officials from NADMO in Ghana have visited the communities living near these rivers to try to persuade them to relocate during the dams' opening to avoid spillage effects.[240] Many of these families are reluctant to move because of their farming and cattle rearing activities. As an incentive to relocate, one NADMO official explained that the government has purchased pumps to get water to higher ground so farming activities may continue unabated during the flooding season.[241] Families began to slowly move out of the area once these pumps were in place so they could avoid flooding.

Priority 5. Strengthen disaster preparedness for response at all levels.

The DRR platform has been adopted at the national and regional levels, but the districts have yet to adopt and implement this platform. Moreover, in spite of the adoption of the platform, regions struggle to implement DRR strategies because they lack financial resources, and stockpiled resources are not strategically placed throughout the country.[242]

In spite of these difficulties, NADMO has made significant strides in adopting a DRR platform and attempting to implement preparedness strategies. NADMO provides education and training to individuals at the local level, as well as conducts disaster simulations based on contingency plans with all stakeholders.[243] Such activities have contributed to strengthened preparedness at these levels. A representative from a Western donor agency noted that NADMO strengthened preparedness capabilities at the local level when he spoke of the 2010 floods. "Many people thought that the disaster would impact more people than it did. The floods had a lesser impact than expected, because people at the local level were more aware and educated on disasters and took measures to mitigate risks." The director of land operations for the Ghanaian Armed Forces also credited NADMO with "doing well with its limitations."

TOGO

Background on Natural Hazards

On August 2, 2007, the Oti plains flooded, affecting populations living in the Kpendjal, Tone, and Oti regions in Togo. The flood caused 20 deaths, injured 58 people, and displaced 34,000, destroying 22,129 huts or cabins. The devastating floodwaters also carried away or damaged 101 bridges. The flooding left 46 elementary and middle schools either damaged or destroyed and three grain-storage sites in unusable condition.[244] In total, the disaster affected 127,880 people.[245] While flooding is a common problem in Togo, many assert that this particularly intense year of flooding surprised both the Togolese government and citizens.

Togo is a small West African country situated on the Gulf of Guinea. It is 56,785 square kilometers, extends 579 kilometers from north to south, 160 kilometers from east to west, and shares borders with Ghana, Burkina Faso, and Benin.[246] Togo shares waterways with a number of other countries. Of particular significance is the Upper Volta River Basin, which is shared with Ghana and Burkina Faso, and the Mono, which flows along the border with Benin.[247] Burkina Faso controls a dam on the Upper Volta River, while Benin controls a dam on the Mono. When water levels rise too rapidly, the dams are opened without warning to the Togolese government, resulting in substantial flooding of the northern and eastern regions of Togo.

Flooding is the primary natural hazard in Togo, though drought also affects the northern parts of the country. Togo has two different weather patterns. The North experiences tropical Sudanian weather, marked by distinct and cyclical wet seasons from May to October and by a dry season from November to April. The South experiences a Guinean system including two dry and two wet seasons of varying length.[248] The rainy seasons are less predictable than in the past and, increasingly, rain is not equally distributed throughout the country.

In the nearly 70 years between 1925 and 1992, Togo experienced 60 floods of varying magnitude.[249] In the past ten years, Togo experienced six major floods with severity increasing substantially in 2007. The floods, which disproportionately affected the Savanes region, served as an impetus for increased awareness of potential flooding both to the Togolese government and people. After the 2007 flood, the government continued to under-invest in preparedness measures that could have mitigated the impact of future flooding. Rather than seeing the flooding as part of a series of severe and recurrent floods, the government believed it to be a particularly bad year of flooding and therefore failed to explore disaster risk reduction measures.

In 2008, the rains carried away the bridge at Amakpape, which was the link between the northern and southern portions of the country. The bridge, which is on the paved National Highway 1, is essential in facilitating the transfer of goods from the south of the country, where the Port of Lomé is located, to the north and even farther to neighboring Burkina Faso. The poor infrastructure and drainage systems in cities, including the capital, Lomé, exacerbate the flooding.

The search for fertile agricultural lands has forced many individuals to move into flood prone regions. In the past, these regions did not flood as often, but in the past five to six years, the number of floods increased. Previous response efforts on the part of the government established permanent resettlement areas that are highly unpopular with citizens. People are attached to their land and refuse to move to these places, even if they live in flood vulnerable areas.

Table 13. Recent History of Major Natural Disasters in Togo

Year	Type	Location	Dead/Injured/Affected
2010	Flood	Maritime region	21 dead/10,000 affected
2010	Flood, Epidemic	Maritime region	60 dead/82,000 affected
2008	Flood	Maritime and Savanes regions	44,814 affected
2007	Flood	Maritime and Savanes regions	41 dead/141,331 affected
2003	Epidemic		40 dead
2002	Epidemic		95 dead
2001	Epidemic		187 dead
1999	Flood		125,000 affected
1998	Epidemic		239 dead
1998	Flood		30,405 affected
1996	Epidemic		360 dead
1994	Flood		125,000 affected
1989	Drought		400,000 affected
1988	Epidemic		50 dead

Source: UNEP/GRID-Europe

Socioeconomic and Political Background

Togo is divided into five regions, Maritime, Plateaux, Centrale, Kara and Savanes, with thirty departments and five sub-departments.[251] Rural poverty remains a problem. The total number of people living in poverty in Togo is approximately 62 percent. This number varies drastically depending on the region. More than 90 percent of the population in the Savanes region lives in poverty, compared to 70 percent in the Maritime region and only 25 percent in the capital of Lomé.[252] Impoverished individuals are more vulnerable to natural disasters because individuals with little income face even greater financial obstacles to rebuilding after a natural disaster.

According to the Togolese office of the World Bank, per capita income in 2005 was US $350.[253] As of 2011, it was US $253.59 (PPP = $795.95). Agricultural sales constitute a significant percentage of the country's GDP – 46 percent of the total – while industry accounts for 23 percent and services 31 percent.[254] The disproportionate amount of income earned from agriculture leaves the country vulnerable to the climatic changes and natural disasters that increased in frequency in the last 10 years. The main products produced in Togo are coffee, cocoa, cotton, yams, cassava, corn, beans, rice millet, and sorghum. There is some activity in livestock raising and fishing.[255]

With a total population of 6,771,993, Togo has a population density per square kilometer of 116.6.[256] Togo receives very low scores on the Human Development Indicators. It is ranked 162 out of 187, far below the Sub-Saharan African average. The adult literacy rate is about 57 percent, and life expectancy is only 57 years.[257]

After World War I and the signing of the Treaty of Versailles, Togoland, a former German colony, became a French protectorate. In 1960, Togo gained independence from France. In 1967, General Gnassingbe Eyadema led a military coup against then-President Nicolas Grunitzky. After he successfully took power in 1967, Gnassingbe banned political parties and stopped all constitutional proceedings.[258] During Gnassingbe's nearly 40 years as president, one-party elections were held on a regular basis. Even after the loosening of restrictions on political parties in the 1990s, Gnassingbe usually won nearly 100 percent of the vote each time.[259] In the 1990s, waves of violence spread throughout Togo as student protestors took to the streets to demand increased democratization measures, including free and fair elections.

The government responded to the protests with violence, and as a result of the human rights violations committed and the overall lack of democracy, many bilateral and multilateral donors discontinued aid to Togo in 1993. Only in recent years have many of these donors begun to resume their aid programs. On April 14, 2004, the European Union signed an agreement with the Togolese government that stipulated 22 commitments from the Togolese government in order to resume aid, one of which included creating dialogue with opposition parties.[260]

When Gnassingbe Eyadema died in February of 2005, his son, Faure Gnassingbe, led a successful coup, and in doing so became the president of Togo.[261] In the subsequent months after the coup, Faure Gnassingbe organized multi-party democratic elections in October 2007, which he won. Jean-Pierre Fabre, a prominent Togolese politician in the opposition party Union of the Forces of Change questioned the results, suggesting that there were voting irregularities. Despite these claims, most Togolese citizens saw this election as a step toward greater democracy.[262] Low-level protests engendered the support of 2,000 to 3,000 people, and continued even during the swearing-in ceremony for Faure, but remained non-violent.[263]

Togo is an ethnically diverse country, but there are two major ethnic groups, the Ewe and the Kabye. Togo began to divide ethnically under German colonial rule. The Germans favored the Ewe, as did the French. Under French rule, educated Ewe trained to become part of the bureaucracy. To this day, the Ewe hold most of the civil servant, professional, and merchant positions, though constitute only 21 percent of the population.[264] The Kabye, 16 percent of the population, constitute the majority of military and law enforcement officials, which is largely due to the fact that Gnassingbe was Kabye.[265]

Institutional Capacity for DRR, Preparedness, and Response

Togo is a signatory to the Hyogo Framework, which encourages countries to take a more preparatory rather than reactionary response to natural disasters. The National Progress Report on the Implementation of the Hyogo Framework for 2009 to 2011 clearly states the limited financial capacity of the Togolese government to respond to natural disasters.

Priority 1. Ensure that disaster risk reduction is a national and a local priority, with a strong basis for implementation.

The Togolese National Progress Report on the Implementation of the Hyogo Framework outlines the Togolese government's completion of the guidelines published in the Hyogo Framework. Under the first priority, the Togolese government made progress, creating the Poverty Reduction Strategy Document and a Priority Action Plan for the government, which integrates disaster risk reduction into environmental law.[266]

With financial assistance provided by the United Nations Development Programme (UNDP), the Togolese government created the Plan d'Organisation des Secours en Catastrophes au Togo (Plan Orsec). The document outlines the role of each government department and NGO involved in disaster response, in order to reduce duplication of efforts and avoid chaos in the case of a natural shock. The Ministry of Security and Civil Protection is the coordinating body in the event of a disaster.[267]

While the Togolese National Progress Report on the Implementation of the Hyogo Framework suggests that the Plan Orsec is decentralized, many Togolese interviewees pointed to a complete lack of capacity at the local level. In particular, one interviewee stated that all response to disasters is directed from Lomé, where the response teams and organizations are based.

The second indicator of the first priority assesses a country's financial capacity to handle disasters. Realization of important projects in Togo is inhibited by the lack of financial resources. For example, there is no national budget for risk reduction, and no funds allocated for investment in risk reduction measures such as improvements to transportation, agriculture, or infrastructure.[268] In addition, the government has no allotted budget for post-disaster reconstruction projects, nor one for institutional capacity building or an early warning system.

The institutional capacity for DRR does not extend to the local level. The Togolese National Progress Report on the Implementation of the Hyogo Framework suggests there are five local-level strategies in place that lack the financing necessary for implementation. While the government provides no funding for local-level projects, it looks to NGOs to finance such efforts. There are currently 15 civil society groups, 30 specialized associations, and 7 women's rights advocacy organizations that constitute the national disaster platform group. The group encompasses both private and public civil society actors, as well as development-focused organizations. The group meets once a month, at the Ministry of Civil Protection and Security, to discuss DRR strategies.

Priority 2. Identify, assess, and monitor disaster risks and enhance early warning.

According to the Togolese assessment of completion of the Hyogo priorities, no multi-risk studies have been completed. There are a number of other maps available, such as one completed by the Togolese Red Cross that illustrates national level disaster risk. Another map, compiled by the government and financed by UNDP, focuses on flood zone vulnerability in the Maritime and Savanes region, which are particularly affected by floods. Interviews with scholars at a Togolese university suggest that the development of a predictive model showing the impact of climate change on Togo is nearing completion, which could provide important information leading to more targeted DRR efforts.

Previously, the government compiled information about damages and losses after natural disasters, but it was not until 2010 that it began to monetize these figures. In 2010, the Togolese government, in conjunction with UNDP and the World Bank, released these figures in the document, Evaluation des Dommages, Pertes et Besoins de Reconstruction Post Catastrophes des Inondations 2010 au Togo (Togolese Evaluation of Damages, Loss, and Reconstruction Needs Post-Flooding Disaster, 2010).

The Early Warning System developed by the Togolese Red Cross, with financial support from the German Red Cross, uses color-coded indicators to alert citizens to rising water. These indicators are posted in rivers in the Savanes and Maritime regions, where the greatest likelihood for flooding exists. The government is working to expand the Early Warning System to encompass the whole country. The current system is not effective in communicating information on a national level.

Though both Togo and Ghana are subject to flooding, and Burkina Faso controls a dam that routinely overflows into the Togolese Upper Volta Basin, there are currently no cooperation measures in place. In addition, the Togolese share a river with Benin called the Mono. The government of Benin controls a dam on the Mono, which it opens without notice to the Togolese government. Togo is working to develop better communication with Burkina Faso and Benin to help prevent flooding in Togo. In 2009, the UN System arranged a simulation of flooding in Benin and Togo in order to pinpoint the weaknesses of the two governments and to encourage unified actions between them.[269]

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

There are no mechanisms in place for the dissemination of disaster-related knowledge in Togo, but the government recognizes the need to develop further local capacity and knowledge.

There is no formal education on disaster risks in the Togolese education system. While students learn about brush fires, landslides, and other natural phenomena, these are not linked to disaster risk education. The general public in disaster vulnerable areas receives some education on disaster risk, but the main focus of the government is to train NGOs and other local associations to intervene in rural communities under the Disaster Risk Management and Prevention Programme.

Priority 4. Reduce the underlying risk factors.

Togo has a National Adaptation Plan to help combat climate change, as well as legal mechanisms that protect the environment. While plans to protect the environment exist, the Togolese government lacks the necessary social mechanisms, such as insurance for crops and property, to protect citizens.

The lack of knowledge sharing among actors involved in DRR prevents meaningful dialogues about these strategies. In addition, this disconnect includes private owners that fail to heed government guidelines for land use. For example, houses are often constructed in flood vulnerable areas, with little regard for building standards. The Togolese architectural organization that should oversee construction of houses is not well organized and therefore incapable of performing this task. The government does complete environmental impact surveys, including risk of disaster, for larger projects such as dams, irrigation plans, roads and industrial mining.

Priority 5. Strengthen disaster preparedness for response at all levels.

Response capacities are spread across multiple ministries including the Ministry of Security and Civil Protection, the Ministry of Social Action, the Ministry of Health, the Ministry of the Environment and Potable-Water, the Ministry of Defense, and CSOs such as the Togolese Red Cross and Caritas Internationalis. The government has the capacity to command the search and rescue efforts, maintain a stock of materials necessary for rescue, and build or provide shelters in the event of a natural disaster. Though the government has some material capacity, it has no budget for DRR or relief.

Although the progress toward reaching the goals outlined in the Hyogo Framework has been slow, Togo is advancing despite severe budgetary constraints. The government created the Poverty Reduction Strategy Document, which integrates risk reduction. Perhaps the greatest tool to deal with natural disasters is the Plan Orsec, the Togolese disaster response plan.

In Togo, the main organizations involved in preparedness and risk reduction are the World Bank, the Togolese Red Cross, Plan International, Caritas Internationalis, and select UN agencies (OCHA, UNDP). The World Bank and the European Union are funding repairs to the Lomé drainage system in order to reduce flooding. UNDP sponsors are working on the national platform for risk reduction and providing funding for capacity building within the government.[270]

HYPOTHESES

This section will analyze each of the proposed hypotheses based on evidence from Ghana and Togo. The often-contrasting circumstances of each individual country provide fertile ground for comparing the effects of varying characteristics on developing national capacity for disaster risk reduction, preparedness, and response. In some cases, available data do not support the proposed hypothesis in Ghana, Togo, or both, while in other cases a strong correlation in both countries demonstrates that a particular variable likely has a strong influence on disaster management spending.

Ghana

Moral Hazard

By looking at the international aid given to the country and comparing this with the amount of aid allotted by the government to disaster preparedness and response over time, one can determine whether moral hazard hypotheses hold true in Ghana. In addition, the different projects being implemented by these outside organizations can be evaluated to see how much they, as well as the government, are contributing to the projects being carried out.

ODA to Ghana has risen substantially over the previous ten years, from $863,840,000 in 2000 to $1,639,520,000 in 2009.[271] Figures for the percentage of the Ghanaian government's official budget earmarked for disaster risk reduction, preparedness, and response are not available. However, the National Contingency Plan – Ghana, developed by NADMO in coordination with UNDP, the Ghanaian Red Cross, and others, explains that a Central Emergency Response Fund (CERF) was created in 2010 allotting $500 million a year for disaster response.[272] There is no clear indication of whether this money comes from the government's overall budget or if it comes from another source. The data provide evidence against

the stated hypotheses and suggests that although there is an increase in the amount of international aid given over time, the government has begun to allot additional resources to disaster relief efforts.

International agencies providing overall financial assistance to Ghana are also implementing projects specifically aimed at disaster management. For example, the World Bank has two projects – 1) Ghana North - Sustainable Development, Disaster Prevention, and Water Resources Management and 2) Community Co-Management for DRM of Marine Resources in West Africa – that cost $660,000 and $900,000, respectively, to implement.[273] These projects were coordinated with the Ghanaian government and are being co-financed by both institutions. The UNDP has five projects it is currently implementing that are coordinated and co-financed by the Ghanaian government. These projects range from $700,000 to $3 million and focus on disaster risk reduction, adaption, and preparedness efforts.[274]

Despite the fact that there are specific projects being implemented, 80 percent of our interviewees stated that the lack of financial resources is a major limitation for NADMO in carrying out its activities. A representative from the Ghanaian military noted that funding was the primary restriction for NADMO.

Although one cannot draw strong conclusions from this evidence, it is clear that the Ghanaian government does rely heavily on IOs for donations, in-kind contributions, and technical assistance for the prevention of and response to disasters. This close collaboration may contribute to the Ghanaian government's decision to spend additional resources on disaster preparedness and response initiatives to supplement outside efforts being made by IOs.

A related hypothesis states that if a country believes its security situation could deter effective external aid, especially on the ground, then it will invest more in preparedness. Levels of violence and ethnic fractionalization over time provide a good measure of the security level in this country. The WDI for battle related deaths in Ghana has a measure of zero between 1990 and 2010.[275] Ethnic fractionalization in this country is measured using the Ethnic Power Relations dataset where zero equals no access to state power and one equals complete access to state power. Ghana scores a .78 for all ethnicities.[276] Based on these indicators, the security situation in Ghana is stable and thus one might expect the state to rely on external actors to support its disaster-related needs. However, both the Ghanaian government and external organizations are supporting the country's DRR, preparedness, and relief efforts and so the evidence presented here does not support this hypothesis.

Perceived Risk

Ghana faces perennial flooding and has for many years. In the past five years, this flooding has increased in severity in local areas, particularly in the Greater Accra region, due to population growth, the lack of appropriate drainage systems, and poor urban planning. In spite of the constant and increased threat of floods, NADMO has largely focused its efforts on response as opposed to preparedness by containing emergencies, organizing the efforts of relief NGOs, and providing relief items to communities affected by disasters. Respondents interviewed from a number of NGOs and IOs confirmed this assessment of NADMO's capacity.[277]

However, according to interviews and an assessment of recent NADMO initiatives, the agency is in the process of adopting and implementing prevention strategies. For example, one respondent stated, "NADMO is largely perceived to be a reactive agency that dedicates few resources towards prevention. Yet in the past two years, due to the increased frequency and severity of hazards, NADMO is working to change their approach and their image."[278] Approximately half of the respondents echoed this viewpoint during separate interviews.

This change in focus seems to originate in 2007, when Ghana faced one of the largest floods in recent history. Intense rainfall affected large parts of Northern Ghana, the Upper West, and the Upper East Regions.[279] Approximately 400,000 individuals were affected by the floods and 20 people died. In its 2010 contingency plan, NADMO characterized this disaster as a "humanitarian crisis," and as such the agency would enact new preparedness measures, including "enhancing early warning systems, public

education channel improvement and infrastructural development."[280] The occurrence of another, less severe flood in 2009 affecting almost 200,000 people also spurred NADMO to tackle prevention strategies. In its National Contingency Plan, drafted in June 2010, NADMO outlined key strategies, including "awareness creation for prevention of natural disaster risks and gender issues, integration of disaster risk reduction measures in early recovery interventions, and the pre-positioning of emergency supplies."[282] The evidence from these interviews, the severity of recent natural shocks, and assessments of NADMO efforts support this hypothesis.

Such evidence also supports the related sub-hypothesis that if a country anticipates more natural hazards in the future, then it will invest more in preparedness. Since 2007, Ghana has experienced an increased rate of flood occurrences. During the ten-year period between 1991 and 2001, Ghana experienced four floods. This rate contrasts sharply with the rate of flood occurrences between 2007 and 2012, in which five floods occurred in a five-year period.[283] This increased rate heightens the perceived threat of floods in the future in Ghana. NADMO responded to the threat of future hazards, and initiated more preparedness strategies. Other NGOs and IOs, such as CARE International, the Ghana Red Cross, UNDP, and Rural Integrated Relief Services have also increased investment in preparedness and risk reduction.

A related hypothesis posits that if the at-risk population is wealthier or more productive than the national average, then more money will be spent on DRR to protect them and their contribution to the economy. The Ghana case study does not support this hypothesis. A representative from a local NGO, which promotes preparedness activities, stated, "The government spends equally across all groups."[284] Every respondent interviewed for this case study corroborated this statement.

Other relevant hypotheses in this set were inapplicable to the Ghana case. Ghana is not at risk of large natural shocks, but rather perennial shocks that vary in severity and are largely localized emergencies. Thus, the hypothesis that a country facing large natural shocks will invest more in preparedness does not apply to the Ghana case. In Ghana, the populations at risk of being affected by natural disasters are dispersed throughout the country, so the hypothesis relating to at-risk populations concentrated in smaller areas also does not apply in the Ghana case.

Electoral Incentives and Democracy

The democracy hypothesis states that a country with a more advanced democracy will invest more in preparedness. In the case of Ghana, there seems to be support for this hypothesis. According to the Polity IV Project, published by the Center for Systemic Peace in 2010, Ghana's democracy level is ranked as an eight out of ten.[285] Indicators considered in this ranking include the regulation, competitiveness, and openness of executive recruitment as well as independence of executive authority, and political competition and opposition. This ranking suggests that there is high confidence at an international level of the democratic system currently in place in Ghana.

A related potential incentive for DRR and preparedness suggests that if there are competitive elections in a country, then the government will be more likely to invest in preparedness because it is more likely to be held accountable by the population. Ghana supports this hypothesis because it boasts competitive elections; however, the situation is more nuanced than perceived at first glance. The Electoral Commission is one of Ghana's governance institutions provided for under the 1992 constitution. The Commission was established to manage the conduct of all public elections and to handle all matters directly relating to the conduct of elections in the country.[286] Although Ghana enjoys competitive elections, the WDI indicates that there are cases of voter fraud and/or candidate intimidation serious enough to affect the outcome of the elections.[287]

The electoral incentives hypotheses propose that if a government perceives disaster preparedness to be electorally beneficial, then it will invest in preparedness in ways that are expected to maximize electoral benefits. Whether or not the Ghana case supports this hypothesis is unclear, since the Ghanaian political system is decentralized and DRR and preparedness decisions occur at the national level. Yet

Ghana supports a range of sub-hypotheses in this category. The first proposes that if events are rare, then governments will not invest in preparedness, because efforts will be hard to measure and electoral benefits will be limited. In Ghana, events are not rare – natural shocks have increased in frequency and severity over the past five years. With the rising frequency of natural shocks, the Ghanaian government increased its preparedness efforts and programs, thus providing evidence for this hypothesis. No budgetary data exists on the percentage increase in investment in preparedness, but since 2007, the government implemented an array of preparedness measures that were previously lacking.

Though the government increased preparedness measures, the majority of its funds and efforts are reserved for disaster relief and response. The Ghanaian populace recognizes NADMO as such due to the fact that the agency has a history of disbursing funds and resources to disaster victims.[288] This perception among the Ghanaian populace lends credibility to the hypothesis that if politicians perceive that citizens respond more to disaster response then they will spend less on preparedness and more if a natural disaster happens. Ghanaians expect NADMO and the government to care for affected communities after a natural disaster. Yet, when the government attempts to relocate populations to less vulnerable locations, they clash with government officials and often return to vulnerable areas. This reveals something interesting and potentially unique about the Ghana case – as the government, namely NADMO, attempts to repackage itself as a proactive, instead of reactive organization, it may face many challenges politically. Ghanaian citizens will be forced to digest NADMO's new role as an enforcer of preparedness measures, as opposed to merely an agency that provides for their needs in the aftermath of a disaster.

Another related hypothesis posits that if the media increases attention to preparedness, governments will invest more in preparedness. This hypothesis is not applicable in the Ghana case, because NADMO has itself recently supported public awareness of DRR in the print and electronic media, through its Journalist Club for Disaster Prevention.[289] Independently, however, the media in Ghana does not actively raise awareness of DRR, though it does report on NADMO DRR activities.[290]

Political Development

The set of political development hypotheses proposes that if a government is more developed in terms of the quality of politicians and the independence of its bureaucrats, then it will prepare better for disasters. According to the Ibrahim Index, Ghana ranks above average among African countries in an assessment of its governance performance,[291] ranking seventh out of the 53 countries considered on the continent.[292] This contrasts starkly with Togo's rank of 35th.[293] At a glance, a comparison of Ghana and Togo should lend credibility to this hypothesis – Ghana's political development is far more advanced than Togo's, thus the Ghanaian capacity to prepare and respond to natural shocks is stronger than that of Togo's.

However, a closer examination of Ghana's governance and its capacity to prepare for disasters reveals a more complex story. In spite of its political development, the Ghanaian government struggles to implement successful preparedness measures. NADMO has only recently attempted to implement preparedness strategies.[294] Ghana joined the Hyogo Framework in 2005 and has since sought to implement disaster management plans at the national, regional, and district levels. The most recent progress report on the implementation of these plans reveals that NADMO successfully strengthened human capacity through training volunteers, raising awareness of DRR in the public sphere through the media, and establishing regional DRR platforms.[295] However, preparedness strategies have been largely unsuccessful for a number of reasons. A representative from a Western donor agency said, "I hear officials speaking about a DRR plan, but I have yet to see these measures employed. The government is better at responding than preparing." The most common reasons cited to explain the ineffectiveness of Hyogo priorities were the lack of adequate mechanisms for NADMO to enforce its policies and lack of financial resources.

Additional field interviews reinforced the assessment that preparedness measures are weak due to a lack of enforcement. A representative from another Western donor agency stated that the enforcement of DRR strategies was "one of the top five problems facing Ghana in DRR and preparedness." Another respondent stated that NADMO faces a dilemma on how to allocate limited resources in their budget

towards DRR and preparedness. Interestingly, representatives from NADMO cited two constraints on implementing DRR policies – legal constraints and corruption among officials at the district level. The district assemblies are the ultimate planning authorities and NADMO is not party to their deliberations or plans. Thus, the agency lacks the authority to force these assemblies to implement their DRR plans. Similarly, NADMO representatives face a challenge when it comes to enforcing building codes – government officials will take bribes for approval of building plans in waterways or other high-risk areas.

This leads to other related hypotheses on corruption and preparedness. One hypothesis states that if a country has more corrupt politicians and bureaucrats, they will invest less in preparedness. In the Corruption Perception Index, Ghana scored 3.9 (out of 10) on the level of corruption in the country. The Ghana case study does not provide strong evidence for or against this hypothesis. Rather, the Ghana case reveals another dynamic in the relationship between corruption and preparedness. Based on these interviews, corruption inhibits the ability of the national government to implement preparedness strategies, by removing its ability to enforce policies.

A second corruption hypothesis posits that if politicians are more corrupt and if international aid flows are easily diverted into rents, the government will be less likely to invest in preparedness. Based on interviews in the field and secondary sources, the Ghana case neither supports nor contradicts this hypothesis. None of the respondents interviewed (both Ghanaian officials and representatives of IOs and NGOs) for this study confirmed that there were high levels of corruption with regard to international aid. However, a respondent from a U.S. donor agency mentioned that his agency did not offer aid to NADMO, because its financial oversight is questionable. Thus, there is not enough information to confirm or reject this hypothesis.

NADMO representatives cited another constraint to its ability to promote DRR policies, namely that with each change in ruling party, the bureaucrats within the agency change. This characteristic of NADMO supports a sub-hypothesis in this set, namely that if government agencies are largely insulated from politics, they will be more likely to engage in preparedness activities. In Ghana, as NADMO employees leave with the change in party, so they have less incentive to see their projects to completion and thus less incentive to engage in preparedness activities.

A fourth hypothesis posits that if local officials are in control of budgets and projects, then the country as a whole will spend more on preparedness. In Ghana, officials at the district level are required to allocate five percent of their budgets to preparedness. NADMO representatives were unsure about whether or not the assemblies followed this stipulation. UNDP representatives confirmed that such funding was set aside, but often times this money was inefficiently managed – districts would spend the money on immediate needs as opposed investing in preparedness measures. Thus, the Ghana case does not support this hypothesis.

Civil Society

In the case of Ghana, there is very strong evidence to support the argument that a strong civil society will encourage higher spending by government on disaster preparedness. The research shows that the UNDP, United Nations Children's Fund (UNICEF), and other organizations are pushing the preparedness agenda and helping NADMO and other government institutions to focus their efforts on these types of activities. One representative from an IO stated that his department is pushing for a shift in the agenda from response to prevention and DRR with strong guidance from the organization's country coordinator. This agenda has included activities such as a national emergency simulation exercise coordinated by UNDP and NADMO. In May 2011, NADMO, along with government counterparts, UNDP, NGOs, and other CSOs took part in an inter-agency flood preparedness and response simulation exercise and de-briefing workshop.[296]

In addition, the UNDP has supported the government in developing a five-year disaster risk reduction plan of action. Other efforts by UNDP to focus on prevention include working with NADMO to produce a booklet, the *National Building Guide for Lightly Loaded Structures in Disaster Prone Areas in Ghana*, with instructions for building structures that will be secured in disaster prone areas. The booklet was designed for local masons and building inspectors at the district level to encourage better building practices as well as recognition of when buildings need to be reinforced.[297] Representatives from two IOs discussed collaboration efforts between UNICEF, NADMO, and the Ministry of Education to incorporate DRR into the education curricula at primary schools. Further evidence to support this hypothesis is found in a comment made by a representative in a government ministry, who said that a certain percentage of the government's budget should be allocated to DRR and that Ghana has the momentum to make this a reality. This change of outlook can be seen as a result of close collaboration with UNDP on the above-mentioned projects.

A related potential incentive for DRR and preparedness is that if there is a strong civil society, then civil society actors will engage in their own preparedness activities. Evidence of this was discussed during an interview with two representatives from a government agency. These representatives explained that local civil society actors, in coordination with NADMO, have organized themselves into Disaster Volunteer Groups that focus on DRR and preparedness efforts through sustainable farming and agricultural practices to combat potential natural disasters such as flooding. In addition, these groups are trained by NADMO officials on preparedness measures to reduce the effects felt when natural disasters occur. Faculty from the University of Ghana, Legon also contribute to disaster preparedness activities by offering short courses during the semester for disaster training that are open to the public. Usual attendees include NADMO officials, representatives from NGOs, government representatives, etc. These courses draw on participants' previous experiences and incorporate them into a case study project at the end of the semester that allows for practical implementation of the material learned.

A final hypothesis related to the role of civil society discusses the role of kinship networks. It states that if there are strong local kinship networks, then local actors will invest more in preparedness. The evidence in Ghana does not support this hypothesis as kinship networks are focused more on relief efforts. Members of these networks support each other after a disaster has occurred by sharing their homes, food, and access to daily labor with extended family members until those affected by the disaster can return to their normal lives. There is no evidence of preparedness measures being taken by local actors as a result of strong kinship networks.

External Actors

In this category of hypotheses, a government could be exposed to such information through neighboring states that invest heavily in preparedness or through IOs and NGOs. Ghana's neighbors do not invest heavily in preparedness, as is evidenced in the Togo case study. Nor does Ghana coordinate preparedness or relief planning with its neighbors. Thus, the hypothesis of diffusion of information through surrounding governments does not apply to the Ghana case.

Yet, Ghana strongly supports the hypothesis that a government will invest heavily in preparedness if it has more exposure to IOs and NGOs. As previously mentioned, Ghana only recently designed and implemented preparedness policies and strategies. The increased preparedness efforts can be attributed, in part, to the rising frequency of natural shocks. Yet another, perhaps more direct cause of increased preparedness policies in Ghana is the rise in DRR activities on the part of IOs and NGOs. Key organizations that contribute to increased information and preparedness policies are UNDP, CARE International, and the Ghanaian Red Cross. NADMO representatives also mentioned that USAID and Germany's International Development Agency provided their agency with immense preparedness assistance.

Based on field interviews, UNDP appears to be the major organization in Ghana that successfully advocated for more preparedness policies in NADMO. UNDP, with guidance from the Ghana country coordinator,

made it a goal to help NADMO shift its agenda from response to prevention and preparedness. To that end, UNDP supported NADMO's adoption of a five-year DRR plan and assists the country in acquiring new donors for such plans. UNDP and NADMO combined efforts to create the *National Building Guide for Lightly Loaded Structures*, which can be distributed at the district level, where it is clear that the outdated building codes are not enforced. UNDP was also instrumental in NADMO's efforts to develop disaster management plans for all the districts in the Greater Accra Region.[298] Moreover, UNDP supported national and regional platforms by mainstreaming DRR plans into development plans, thus garnering more attention and financial resources for improved DRR measures. For example, UNDP organized a DRR education project, funded by the UK's Department for International Development, in five schools in the Upper East region.

Another example is a Western donor agency that provides NADMO response support, but recently implemented a new program, which incorporates DRR strategies for community-based adaptation into development. The agency implements this five-year project in Ghana and three other African countries. The program promotes the successes of these community-based adaptation programs in the Ghanaian government, in an attempt to have the successful program adopted at the national level. The advocacy manager, who advocates for adaptation policies in Ghana, stated that the Ghanaian government offers adaptation strategies for communities in disaster-prone areas, but these strategies often consist merely of telling communities to migrate away from these areas. The adaptation program assists this process by teaching communities strategies that create sustainable livelihoods, as well as educate individuals on natural hazards and how to prepare for them.

Recently, NGOs in Ghana have begun to undertake DRR activities and to advocate for such activities in the government. Small and local NGOs, such as Rural Integrated Relief Services, have reoriented their activities toward education and preparedness. Rural Integrated Relief Services, for example, records natural disaster shocks, develops assessments of these shocks, educates individuals on issues concerning climate change, and offers training programs for disaster management. ABANTU for Development, another local NGO, raises awareness of gender issues in complex emergencies by bringing women into the mainstream of disaster prevention in Ghana.[299]

The activities of these NGOs and IOs played a large role in raising awareness in NADMO of the need for stronger preparedness policies. NADMO is now taking a preparedness approach to disasters, including incorporating DRR education in schools. It also appears that the rise in NGO and IO involvement in Ghanaian preparedness building has spurred a "'new' development agenda in Ghana," that addresses numerous DRR and climate change adaptation crosscutting fields.[300] The World Bank and the UNDP initiated a number of new projects in Ghana, ranging from mainstreaming DRR and capacity building to sustainable development, with over US $320 million dedicated to these new projects.[301] Clearly, the Ghana case provides strong evidence that supports the external actors hypothesis.

Economic Strength

These hypotheses posit in general that if a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area. The WDI show that Ghana's GDP per capita in U.S. dollars has increased marginally from $254.87 in 2000 to $358.45 in 2010.[302] GDP per capita adjusted for PPP displays the same effect; in 2000 it was $1,046.91, while in 2010 it increased to $1,472.39.[303] ODA per capita has also risen over the previous ten years, from $863,840,000 in 2000 to $1,639,520,000 in 2009.[304] On average, this places Ghana in the 63rd percentile of all African countries for the time period 2000 to 2009.[305]

This data indicates that Ghana is a poor country but receives more international aid than the majority of countries in Africa; Ghana therefore has available resources to spend on disaster preparedness. Ghana's strong framework for overall institutional capacity for DRR, preparedness, and response supports the hypothesis that a country with more available resources will spend more on disaster preparedness. In June 2010, Ghana created the CERF and together with the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) pledged US $500 million towards disaster management initiatives.[306]

However, while evidence from field interviews supports this hypothesis, it also points toward a lack of resources as a major cause for Ghana's inability to reach its full potential for DRR, preparedness, and response. Many of the individuals interviewed discussed NADMO's efforts to focus its resources on preventing and mitigating the risks associated with disasters. These include monitoring the rise in the water level of the Volta Rivers, governmental cooperation with Burkina Faso during the opening of the dam, and training volunteer groups in local communities to prepare for disasters.[307] Additionally, in 2009, NADMO organized an exercise with government departments to clear the drains and channels in Accra in preparation for the rainy season. Despite these efforts to invest additional resources in disaster management, a lack of government funding continues to hinder Ghana's ability to do more.

A secondary hypothesis is that a vibrant market economy will increase investment in preparedness, due to market actors pressuring the state to protect their investments, or market actors engaging in their own preparedness activities. Ghana's main industry is agriculture, employing half of the labor force and making up 31 percent of GDP.[308] Gold and cocoa production and individual remittances are major sources of foreign exchange in Ghana.[309] Oil production at Ghana's offshore Jubilee field began in December 2010 and is expected to boost economic growth.[310] Taxes as a percentage of GDP have decreased from 21.8 percent in 2004 to 12.6 percent in 2009.[311] This indicates neither a particularly strong, nor a particularly weak, economy though oil production offshore will likely produce some economic and commercial growth.

Qualitative evidence does not suggest that market actors in Ghana tend to engage in their own preparedness activities, nor that market actors have significant influence over government policy on DRR, preparedness, and response. None of the interview respondents indicated that market actors were a significant part of Ghana's institutional capacities for responding to disasters. Therefore, Ghana does not support this hypothesis.

A final sub-hypothesis states that if a country is constrained in its spending and preparedness is seen as a substitute to development spending, the government will spend less on preparedness. In Ghana's case, there is no evidence to support this hypothesis. After speaking with officials from a government agency, it became clear that DRR, preparedness, and relief efforts are beginning to appear under the development umbrella. In addition, officials from an IO mentioned that the Ghanaian government has begun tailoring DRR, preparedness, and relief efforts to coincide with development activities in the country. In this connection, disaster preparedness in Ghana is not seen as a substitute for development and would not take away government spending on development.

Togo

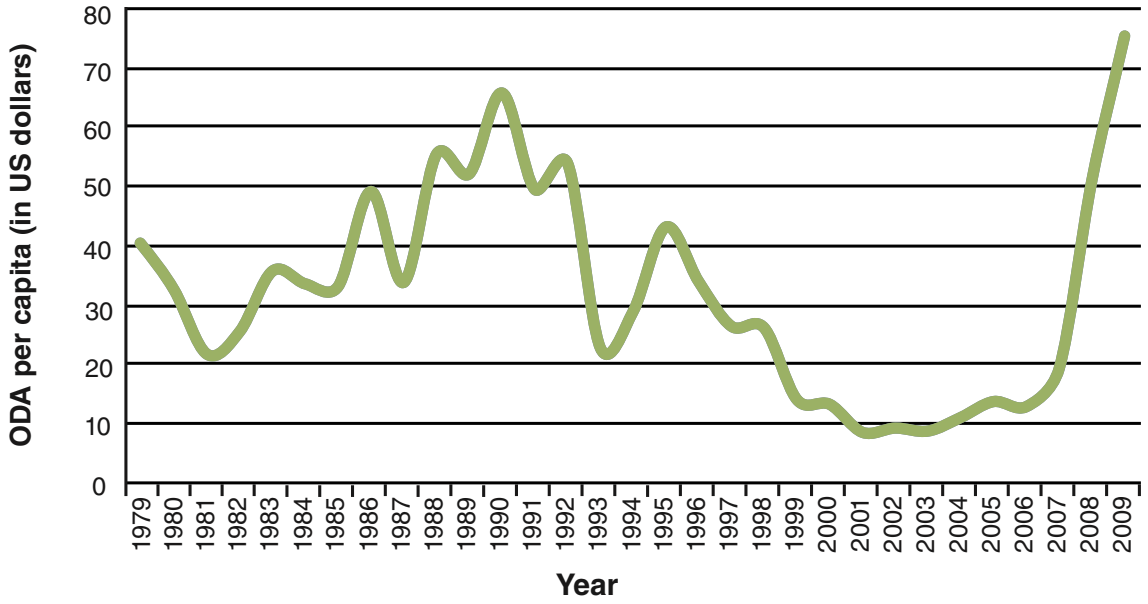
Moral Hazard

The moral hazard hypotheses explore whether a government's expectation of aid in the event of a natural disaster affects spending on preparedness and response activities. In the 1990s, donors reduced foreign aid to Togo in response to human rights violations and voting irregularities that resulted in the then-President Gnassingbe Eyadema winning reelection by nearly 100 percent of the vote.[312]

As Figure 9 shows, starting in 1995 aid to Togo decreased significantly and did not begin to increase again until 2007. In the early 1990s, prior to the pullout of major donors, the Togolese government received about $30 per capita of assistance; by 1999, this number dropped to $14. At the lowest point, aid dropped to a mere $8.52 per capita. This drop in aid is reflected in a World Bank working paper that placed Togo in the "aid orphan" category. An aid orphan is a country with a demonstrated need for more significant aid but which fails to attract donors.[313] The report states that Togo has "relatively high needs, but a weak institutional policy environment."[314]

In the realm of natural disasters, the Togolese government has no disaster response or preparedness budget, and therefore relies on donor aid or IOs to provide the funding for these activities. Given the low level of expectation of aid money, and the absence of a budget associated with natural disasters, the evidence from Togo does not support this hypothesis.

Figure 9. Official Development Assistance to Togo



Source: World Bank, World Development Indicators

The second moral hazard hypothesis posits that if an internal security situation deters effective external aid, then the country will invest more in preparedness. In the past, politically related violence was widespread in Togo. The protests that followed the 2005 death of President Eyadema sparked a mass exodus of political refugees and set-off post-election violence that resulted in 500 deaths. Following the 2010 elections, there were no major violent incidences.[315] Togo remains a relatively stable country, though violent crimes such as machete attacks and muggings have recently increased.[316]

There is no violent conflict or strong anti-government movement in Togo that would constitute a security threat to foreigners or that would deter aid donors. In the past, the political instability and human rights violations committed by the government deterred donors but the current president has made strides to be more inclusive of diverse ethnic groups, reducing ethnically motivated violence and tensions.

Given that the government does not invest any money in disaster preparedness, this hypothesis also finds no support in the Togo context and this case may even provide evidence against the hypothesis. Even when Togo received comparatively low levels of aid and experienced high levels of politically motivated violence, which would constitute a deterrent security situation, the government did not increase spending on preparedness.

Perceived Risk

The major natural hazard in Togo is flooding. As previously noted, between 1925 and 1992, Togo experienced 60 floods.[317] Though Togo experienced a large number of floods, the perceived level of risk associated with this type of disaster was not high. In 1989, Togo suffered from a drought that affected 40,000 people but since that time there has not been another significant drought, making floods the main natural disaster risk.[318] In 1995, Togo experienced two floods, which affected 185,000 people.[319] In the subsequent years, until 2007, natural disaster-related deaths and the populations affected by such events were minimal.

According to some, the severity of the August of 2007 flood surprised both the government and citizens, causing 41 deaths and affecting 141,331 people.[320] Togo had not completed any preparedness activities at the time of this flood because there was no perceived risk. As the floods became increasingly recurrent,

the government took no further steps to prepare. In 2008, flooding washed away a major bridge at Amakpape, on the national highway that stretches from the north to the south, effectively cutting the country in two. Flooding persists as a problem, killing 19 people in 2009 and 45 in 2010.

Despite the increasing frequency of floods, the Togolese government allots no funding specifically for natural disasters. Instead, it relies on the release of funds from savings. Representatives of a Togolese government ministry stated that the government would like to prioritize investments in disaster preparedness, but that there are other more pressing priorities.

The second hypothesis in this section states that if a country anticipates more natural hazards in the future, then it will invest more in preparedness. In the past five years, Togo has experienced a number of floods. Scientists working on climate change models are aware that there is the potential for increased levels of precipitation in the southern portion of the country and increased temperatures in the north. This higher level of rain will lead to more severe flooding, while the dryness in the north of the country will result in greater risk of droughts. The models were completed only recently, and therefore the report has yet to influence government policy. This hypothesis cannot be completely tested in the Togolese context, but could be evaluated in the years to come.

The third hypothesis posits that the smaller a country, the more it will invest in preparedness. Togo is a small country of only 56,785 square kilometers, with a total population of 7 million people.[321] If the hypothesis is correct, then Togo should be investing in disaster preparedness in order to safeguard against future natural disasters, yet the government allocates no funds for DRR. The fact that Togo is a small country has no impact on preparedness spending, therefore providing evidence against this hypothesis.

The fourth sub-hypothesis is that if a country is at risk for large natural shocks then it will be more likely to invest in preparedness. Togo is not at risk for any exceedingly large natural shocks that occur infrequently. The primary natural disaster in Togo is flooding. Donors and organizations such as the Togolese Red Cross, the World Bank, and UNDP are involved in preparedness activities. According to a representative of an IO, these natural disasters occur on a ten-year cycle and the Togolese are aware that the cycle will restart in 2020.

The government is conscious of the risks and considers preparedness a priority, but this does not take precedence over other concerns. Other organizations placed increasing focus on preparedness, in an effort to mitigate the impact of future disasters. The Food and Agriculture Organization (FAO) and the World Food Programme (WFP) are constantly evaluating country-level food security to make sure that a drought or flood in one country would not cause a regional food crisis. Given the lack of investment in DRR, taking into account the small size of Togo, the evidence from Togo does not support the hypothesis.

The fifth hypothesis states that if at-risk populations are centered in smaller areas, less money will be required to offer them the same level of protection and so less money will be spent. This hypothesis must be evaluated in the context of the limited disaster-related projects currently underway in Togo, which include repair and improvement of the drainage system in the capital city, Lomé, and work conducted by the Togolese Red Cross throughout the country in partnership with the International Red Cross foundation. UNDP has a project entitled Natural Disaster Prevention and Management, which includes funding for a national strategy for disaster risk management and prevention, a contingency plan and an early warning system.

While many regions of Togo are vulnerable to flooding, from the southern Maritime region to the Savanes in the north, populations in some areas are more likely to be able to respond to flooding than others. Nearly 90 percent of the Savanes population lives in poverty while only 24.5 percent of those living in Lomé experience poverty.[322] Thus, damage to the Savanes would have a significantly greater impact on the population due to the lack of financial resources, but the impact of flooding in

Lomé would have severe economic repercussions, given the city's importance as an economic center and the fact that the main airport and port are located in Lomé. As a result, projects tend to focus on the Lomé area, rather than the Savanes. Given this, it would appear that spending on preparedness is highest in this region. Spending in Togo is disproportionately given to the city of Lomé, which is much smaller than other areas that are also subject to flooding. Therefore the evidence from Togo disproves the hypothesis.

At the same time, the sixth hypothesis, which states that if an at-risk population is wealthier or more productive than the national average, more money will be spent on disaster risk reduction to protect the area where these individuals live, seems more appropriate to what we observe in Togo. The wealthiest area is the capital city, Lomé, which is more densely populated than other areas, and therefore more money spent on prevention in this area not only protects the wealthiest citizens, but also more citizens. For instance, 90 percent of residents in the Savanes department live in poverty, but the region is also not as significantly populated, so spending more in this region might not result in proportionate levels of protection.

On the other hand, other organizations such as the Togolese Red Cross, WFP, and FAO work throughout the country. Their activities are not centered on the capital of Lomé, but rather on helping flood affected victims throughout the country. The World Bank and UNDP funded projects that increase government capacity to respond to disasters by supporting the writing of the Plan Orsec, and, in the case of the World Bank, the repair of roads in Lomé. Thus projects sponsored by UNDP increase government capacity to respond to natural disasters, benefitting all of the Togolese population, not just Lomé.

Lomé is not the only area of economic importance. The center of the country is important to agricultural production. During the 2010 floods, the Lacs and Yoto areas were especially affected by the flooding. Farmers in these areas grow corn, manioc, and vegetables. Out of 12,260 producers, 9,195, or 75 percent of farmers, experienced crop loss due to flooding. Cotton, another major crop in Togo, was severely impacted, with farmers losing 170 hectares of the total 186 under cultivation.[323]

Given the vulnerabilities of the agricultural regions and the economic center to flooding, if this hypothesis were true, one would also expect to see more effort expended on preparedness in these regions. Thus, evidence from the Togo case study provides mixed support for the hypothesis that more is spent on projects that protect the wealthier or more productive areas.

Electoral Incentives and Democracy

This set of hypotheses posits that democratic incentives and the perceived level of electoral benefits affect government spending on preparedness. In essence, governments will spend on preparedness in ways that maximize the likelihood of officials being reelected.

The first hypothesis examined states that if natural hazards are less frequent, measurement of government efforts in this arena will be difficult to assess, making the electoral benefits of these events limited and therefore less will be invested in preparedness. There is little electoral incentive for the government to invest in disaster preparedness in Togo, given that the Gnassingbe family continues to control the government and has for the last 45 years. While in the past elections were not completely democratic, the elections that took place in 2010 were multi-party and democratic. Jean-Pierre Fabre questioned the results, suggesting that there were voting irregularities, but most Togolese citizens saw this election as a step towards greater democracy.[324]

A representative from an IO stated that there is no real alternative to the current president, Gnassingbe Faure, because he is the only politician with the capacity and political popularity to lead the country. The interviewee expounded on this point saying that the president consolidated power by bringing the major opposition party's leader, Olympio Gilchrist, into talks, and by allowing him to return from exile in Ghana. When asked if Faure honors his commitments to the Togolese people, the interviewee indicated that when the president engages himself in a project, he tends to complete the promised activity. The

Togolese people feel that he is a better leader than his father, especially because he allows multi-party democratic elections and is making an effort to improve economic and social conditions for the average citizen. Given the political climate in Togo, government spending on disaster preparation has no real impact on voting patterns.

The second hypothesis posits that government spending on preparedness is spent disproportionately on favored ethnic groups or the government's support base. When asked about ethnic fractionalization in Togo, a representative from an NGO implied that because the current president is half Kabye and half Ewe, unlike his father, he is less likely to favor a specific ethnic group. Faure's father, former President Eyadema Gnassingbe, was 100 percent Kabye and favored this ethnic group and his home region of Kara.

Under Eyadema's presidency, ethnic tension was extensive, with preference for government positions given to northern Togolese ethnic groups, and the Kabye in particular. Through political nepotism, the Kabye continue to dominate ministerial positions.[325] According to Freedom House's *Freedom in the World* report, ethnic tension still exists amongst Togo's more than 40 ethnic groups.[326] Though ethnicity is important in determining the composition of the Togolese government, it is donors and not the government that fund and make decisions about projects, which means that ethnicity does not play an important role in determining where preparedness spending is allocated. When asked about whether the government misdirected preparedness funds, a representative from an IO stated that the amount of funding for preparedness was not significant enough to be redirected. Another interviewee stated that donors only provide the government the funds necessary to complete a particular project, avoiding altogether the problem of funds mismanagement.

Individuals in the flood-prone village of Baguida implied that during the 2010 floods, they received little aid from the government. They felt that the aid went to certain regions, particularly those in the north, and that it was not equally distributed. Ethnicity could influence government decisions to provide aid, but in general, the lack of adequate financial resources means that the government must make difficult decisions about which regions are the most affected by the flooding and therefore the most in need of this aid. In addition, the organizations involved in response work are typically not influenced by ethnic composition of regions but rather by the level of need.

The third hypothesis states that if politicians perceive that citizens respond more to disaster response than preparedness then less will be spent on preparedness and more on response. The Togolese government has neither a fund for preparedness, nor response. Organizations and donors undertake all preparedness activities. The Ministry of Security and Civil Protection coordinates response, directing the UN system, FAO, WFP, the World Bank, and other government branches. The government provides minimal amounts of aid to citizens after flooding.

Interviewees in Baguida stated that after the floods in 2010, they lived in water up to their hips from July to November. The Minister of Security and Civil Protection provided drinking water for a few weeks, while another NGO built camps, which residents refused to go to for fear of looting of their properties. The government encouraged residents to travel to Agoe, where the permanent settlements were constructed and where there was food. During the seven months that the town was flooded, the Togolese Red Cross provided seven small bowls of corn, some beans, and one and a half liter of oil for a family of five.

Citizens do not feel completely free to critique the government's response programs and feel that what aid is provided is minimal. However, assessment of this particular hypothesis is difficult given that government capacity to spend is limited.

The next hypothesis states that if the media give more attention to preparedness activities then the government will invest more in preparedness. According to Freedom House's Freedom of the Press data, Togo's media is not free. There are significant restraints on the media in terms of laws and regulations and also political constraints.[327] If the media are not free and the government influences the information that is reported, one could assume that the media would be more likely to report on preparedness activities of the government.

The Freedom House report highlights the situation of Togolese journalists. In August of 2010, President Faure Gnassingbe sued three Togolese publications, *La Lanterne*, *L'Independent Express*, and *La Liberté*, for defamation for their coverage of alleged human rights violations and corruption. The *Tribune d'Afrique* received a $4,000 fine for an article that exposed the president's brother's involvement in drug trafficking. The amount of the fine was meant to dissuade other publications from continuing to publish articles that were critical of the presidential family.[328]

From November 22 to 25, 2011, journalists were trained in how to report on natural disasters so as not to sensationalize the events. When interviewed, citizens reported that they did not know what the government did in the event of disasters. They did not understand the government's plans and did not know about preparedness activities. Given the lack of knowledge of citizens of government led preparedness activities, the evidence does not support the hypothesis.

The fifth hypothesis states that if preparedness spending has spillover effects into areas that are likely to help politicians electorally then they will be more likely to invest in preparedness. Though the Togolese government has no budget for preparedness, it integrates disaster risk reduction measures into other projects. According to a representative from the Ministry of the Environment, every government department uses disaster risk information to guide projects. For example, the construction of roads is guided by the risk of flooding in each region, such as creating additional drainage capacity for particularly vulnerable areas. Given the limited budget for disaster related projects, there is no spillover effect of preparedness to Togolese government spending.

The sixth hypothesis states that if a natural shock is more acute, then citizens are less likely to hold the government responsible and therefore the government is less likely to invest in preparedness. Flooding in Togo is recurrent and increasing in severity. While the onset is sometimes unpredictable, flooding is generally not an acute problem. The government can take measures to mitigate the impact of flooding such as improving the strength of infrastructure, such as bridges and roads, in order to withstand rapid moving water. In addition, increased road drainage projects would help reduce the amount of stagnate water in streets, and potentially reduce the number of individuals contracting water-borne diseases.

Citizens do see the as government responsible for poor response to natural disasters. Residents of Baguida stated that the government came and removed the water from the area but that it just came back. When the floods started in 2007, no one was prepared, and consequently citizens did not hold the government responsible for the events. As the flooding became more recurrent and the government response still did not improve, citizens became critical of the government's response efforts and preparation. Though citizens and the media are increasingly critical of both government response and preparedness, this has little impact on government decisions.

Another hypothesis states that if there are competitive elections in a country, then the government will be more likely to invest in preparedness because it is more likely to be held accountable by the population. Eyadema Gnassingbe ruled Togo for 38 years until his death in 2005. Eyadema came to power in a bloodless coup in 1967 and from that point led an authoritarian government that at times violated the human rights of the Togolese people.[329] In 1998, the Organization of African Unity, in conjunction with the United Nations, stated that the Togolese government systematically violated the human rights of protestors during post-election riots. At the time of Eyadema's death, the military installed his son, Faure Gnassingbe, despite the fact that this action was completely unconstitutional.[330]

In the 2010 elections Faure Gnassingbe won 61 percent of the vote, against Jean-Pierre Fabre who received 35 percent. The elections appear to be a step towards greater democracy and multi-party elections. A representative from an IO stated that Fabre is the only candidate that is politically viable and that therefore he will continue to win elections until there is a candidate who is equally qualified and already familiar to the majority of Togolese. Thus, a lack of substantial disaster preparedness activities is correlated with minimal electoral competition, but there is little evidence to suggest that this is a causal relationship, rather than simply correlation.

Political Development

The hypotheses in this section relate the quality of politicians and bureaucrats to preparedness for disasters. An important indicator of the quality of politicians and bureaucrats is the level of political corruption. According to the World Bank's World Development Indicators for 2005 to 2009, Togo is highly corrupt, receiving a score of two out of six for indicators of CPIA transparency, accountability, and corruption in the public sector. Togo also received a score of two out of six for the indicator of the quality of public administration. Similarly, using the Ibrahim Index of Transparency and Corruption and Corruption and Bureaucracy, in 2009 Togo received scores of 37.5 and 56.82, respectively.[331] These scores indicate low levels of transparency, significant amounts of corruption in the bureaucracy, and low quality of politicians and bureaucrats. Following the hypotheses from the literature, one could conclude that because Togo's politicians and bureaucrats are corrupt, then international aid flows are more likely to be diverted into rents than preparedness funds, and the country will invest less in preparedness.

However, a number of interviewees responded that corruption was not a serious issue in disaster risk reduction, preparedness, and response in Togo. A representative from an IO stated unequivocally in an interview on December 14, 2011, that money given to Togo for DRR, preparedness, and response is not diverted to other uses, though he conceded that diversion of funds might have been a problem in the past. A representative of another IO confirmed that diversion of funds is not an issue in Togo, adding that Togo has not received significant funds for DRR, preparedness, or response that could be taken or diverted by corrupt administrators. Interviewees from other organizations made similar statements.

A sub-hypothesis is that the more decentralized DRR, preparedness, and response are – in other words, if local officials, who would theoretically have more firsthand knowledge of risks, have more control over budgets and projects – more money will be spent on preparedness in the country as a whole. Togo has five administrative regions, which are further subdivided into prefectures. However, local governance is almost nonexistent, with the exception of local tribal leaders, and control over funding and projects is completely centralized at the national level. UNDP and the government have coordinated in efforts to develop regional contingency plans in addition to the national contingence plan, Plan Orsec. However, these localized plans have never been fully implemented. The highly centralized approach to disaster prevention and response could in part explain Togo's overall lack of investment in DRR, preparedness, and response.

The main NGO involved in DRR, preparedness, and response is the Red Cross, which maintains regional offices in each of Togo's regions and works on a very local level, in coordination with various international Red Cross societies (the Togolese Red Cross in the Plateau region works with the Danish Red Cross, in the Maritime region with the German Red Cross, in the Central region with the Swiss Red Cross, and in the Kara region with the Canadian Red Cross). The localization of these projects could be a basis of the Red Cross societies' high level of involvement in DRR, preparedness, and response.

The final hypothesis in this section postulates that if government agencies are largely insulated from politics, then they will be more likely to engage in preparedness activities. The appointment of bureaucrats and public officials in Togo is done through a system of cronyism and nepotism, where those close to and loyal to the president receive most appointed positions.[332] The bureaucracy, therefore, is not insulated from politics. However, Togo's president is autocratic, historically having run in disputed elections or against unviable, inexperienced opposition candidates representing disorganized political parties. Members of the bureaucracy face little threat of their patron being removed from office due to an election.[333] Political insularity of the bureaucracy does not sufficiently explain Togo's lack of investment in DRR, preparedness, and response.

Civil Society

Civil society hypotheses suggest that a strong civil society will result in greater investment in preparedness. This is due either to civil society actors pressuring the state to invest in DRR, preparedness, and response; or to civil society actors engaging in their own preparedness activities. Togo has a relatively small domestic civil society presence.[334] Only two main local NGOs seem to be active in DRR, preparedness, and response: Amitié et Action Développement and the Association Togolaise pour Bien-Être Familiale.[335]

Togo therefore supports this hypothesis. Its weak civil society could account for the lack of expenditure on DRR, preparedness, and response. Interviewees from NGOs indicated that NGOs working in Togo since 2007 have been well coordinated in disaster response, thanks to Plan Orsec.[336] NGOs also have a good relationship with the government, though the NGOs are more active in DRR, preparedness, and response than the government is. However, local organizations likely have little influence on government policy and investment in capacity.

An associated hypothesis is that strong local kinship networks will increase investment in preparedness by local actors. Togolese society is highly fractionalized among various ethnic groups.[337] According to interviewees, ethnic groups have not played a significant role in the administration of DRR, preparedness, or response. Local and regional governance is lacking, and local officials such as tribal community leaders do not have budgetary or project authority, making this hypothesis irrelevant in the Togolese context.

External Actors

The external actors hypothesis claims that if a country or government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness. This exposure can come from proximate states or from IOs or NGOs.

Ghana has decidedly invested more in DRR, preparedness, and response than Togo. This investment seems to have had little influence on Togo's own disaster regime. A representative of an NGO indicated that, while Ghana has periodically contributed resources – including helicopters and human resources such as rescue-trained soldiers and firefighters – to aid in Togo's disaster response efforts after flood emergencies, the countries do not systematically work together in DRR, preparedness, or response. Several other interviewees from NGOs supported this conclusion. However, representatives from government agencies emphasized Togo's good regional relations with partners including Ghana as well as Benin.

More relevant for this hypothesis is the role of ECOWAS, which in 2006 developed a regional Policy for Disaster Reduction for West Africa, in an effort to enhance disaster risk reduction and preparedness and increase regional participation in disaster-related issues.[338] Since 2007, the ECOWAS Emergency Response Team has aided in the response to the floods in Togo, and since 2008, a multi-disciplinary team of technical specialists from ECOWAS has worked on evaluating Togo's national disaster response capacity and developing the national plan for disaster response.

Bilateral donors cut off assistance to Togo in the early 1990s due to the regime's poor democracy and human rights performance. The loss of bilateral aid made Togo unable to service its debts to multilateral lenders, who ceased their programs as a result. Bilateral and multilateral aid organizations have slowly begun to return. The central nongovernmental actors in Togo's capacity to deal with disasters are agencies of the UN system, including the UN Development Program, WFP, FAO, the Population Fund, the World Health Organization, and UNICEF, as well as Caritas Internationalis, local and international Red Cross societies, Plan International, and the World Bank.

While international donors contribute relatively little to the Togolese economy, reducing any potential influence on government policy, they do contribute to a small number of disaster-related initiatives.[339] The World Bank is working on a project in Lomé, repairing and improving the drainage systems in order to reduce flooding. In other areas of the country, the Togolese Red Cross, in partnership with the German Red Cross, implemented an Early Warning System that indicates when water levels are rising on rivers and is intended to signal individuals to leave the area.

In terms of preparation for flooding, there are a number of projects underway in Togo. For instance, one of the largest contributors to disaster preparedness is the World Bank, which sponsors the road rehabilitation and drainage system improvements in the capital of Lomé. The French Development Agency and members of the UN system work on a number of DRR projects in Togo.[340] UNDP and the Togolese Red Cross are establishing an Early Warning System that alerts residents of rising water levels, making evacuation from flood prone regions easier and potentially reducing the risk of disaster-related deaths in these areas. For the multitude of organizations that are involved in preparedness, their projects provide real protection to the Togolese people by mitigating the impact of flooding.

Most of the country's capacity to respond to crises comes from these organizations rather than from the government; the Togolese government's central contribution to disaster response is coordination of governmental and non-governmental actors, and its contribution to DRR and preparedness is even less substantial.

Based on these observations, the Togo case does not support the external actors hypotheses. Proximity to Ghana's greater investment in DRR, preparedness, and response does not seem to have significantly increased Togo's own investment, either from the government or from the NGOs operating in Togo. Regional cooperation through ECOWAS and Togo's civil society presence has increased Togo's overall institutional capacity through the direct implementation of projects by these organizations. The actions of NGOs and supranational organizations have not exerted more indirect influence on the Togolese government to invest.

Economic Strength

Based on the economics hypotheses, if a country has more available resources, then it will be more likely to spend on disaster preparedness. These resources can come from the local economy or international aid flows. The GDP per capita since 2000 has fluctuated between US $245.51 in 2001 and $253.59 in 2010, placing it in the 27th percentile of all African countries for the time period.[341] ODA per capita dropped dramatically between 2001 and 2003, and gradually began to recover starting in 2004 through 2009. At its lowest, ODA was $8.53 per capita in current U.S. dollars, recovering to $75.39 by 2009. On average, this places Togo in the 25th percentile of all African countries for the time period 2000 to 2009.[342]

This data shows that Togo is a poor country with limited international aid relative to most African countries; Togo therefore has limited resources to spend on disaster preparedness. Togo's lack of overall institutional capacity for DRR, preparedness, and response supports the hypothesis that a country with fewer available resources will spend less on disaster preparedness.

Qualitative data also supports this conclusion. Almost all of the individuals interviewed, including government officials, representatives of NGOs, and academics, pointed toward lack of resources as the main cause for Togo's limited disaster preparedness and response capabilities. Most interviewees also indicated that the Togolese government in particular, as well as NGOs and IOs, would do more to prevent, prepare for, and respond to disasters if more resources were available.

A secondary hypothesis is that a vibrant market economy will increase investment in preparedness, due to market actors pressuring the state to protect their investments, or market actors engaging in their own preparedness activities. Togo's main industry is agriculture, employing the majority of the labor force and making up 47 percent of GDP.[343] However, Lomé is an important regional trading center, especially for the re-export of goods like alcohol, cigarettes, perfume, and automobiles to neighboring countries. Commerce is the most important economic activity in Togo after agriculture.[344] Taxes as a percentage of GDP have grown from 14.39 percent in 2004 to 17 percent in 2009. On average, this data places Togo in about the 50th percentile of tax revenue as a percentage of GDP for all African countries in the period 2000 to 2010 for which data is available. This indicates neither a particularly strong, nor a particularly weak economy, though the increase in tax revenue since 2004 could indicate some economic and commercial growth.

Qualitative data does not suggest that market actors in Togo tend to engage in their own preparedness activities, nor that market actors have significant influence over government policy on DRR, preparedness, and response. None of the interview respondents indicated that market actors were a significant part of Togo's institutional capacities for responding to disasters.

Table 14. Hypothesis Findings for Ghana and Togo

Hypothesis	Explanatory Power?	
	Ghana	Togo
Moral Hazard – If a government anticipates that other organizations will spend on preparedness, then they will spend less on preparedness.	No - Despite the fact that Ghana receives substantial amounts of international aid, the government has spent increasing amounts on disaster-related activities.	No - Togo receives little international aid, yet continues to spend little on disaster preparedness or response.
Perceived Risk – If a government perceives that the risk of a natural hazard is high, then they will invest more in preparedness.	Yes - Following a severe flood, the perceived risk of natural hazards increased. This was followed by an increased preparedness investment.	No - Though Togo's policy makers recognize the high risk of flooding, investment is lacking.
Electoral Incentives and Democracy – If a government perceives disaster preparedness to be electorally beneficial, then it will spend on preparedness.	Maybe - In Ghana this hypothesis is unclear, since the Ghanaian political system is decentralized and DRR and preparedness decisions occur at the national level.	Lack of data - It is difficult to determine the effects of electoral incentives on Togo without viable opposition candidates. Lack of electoral benefit could explain lack of investment.
Political Development – If a government is more developed, then it will prepare better for disasters.	No - The Ghanaian government lacks the enforcement mechanisms necessary to implement strong preparedness measures.	Maybe - Togo's government is very corrupt, though qualitative data suggests that this has no influence on disaster spending.
Civil Society – If there is a strong civil society, then there will be greater investment in preparedness.	Yes - There is a strong civil society in Ghana and the Ghanaian government invests more in preparedness.	Yes - Togo's weak civil society partially explains its lack of disaster-related investment.
External Actors – If a country/ government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness	Yes - IOs and foreign agencies contributed technical assistance and advice to the increased preparedness measures undertaken by the government.	No - Exposure to disaster preparedness from Ghana or from ECOWAS has not translated into greater investment.
Economic Strength – If a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area	Yes - Ghana receives a significant amount of international aid and has a strong framework for overall institutional capacity for DRR, preparedness, and response.	Yes - Togo receives little international aid and has a weak economy, limiting available resources to spend on DRR, preparedness, and response.

CONCLUSION

The shared history and geographic proximity of Ghana and Togo make the countries a prime paired-comparison case study of DRR, preparedness, and response. In spite of their shared characteristics, Ghana's capacity for preparedness and response is far more advanced than that of Togo. An analysis of the striking differences in their capacities, as presented in this study, reveals the mechanisms that produce positive or negative outcomes for DRR and prevention policies in vulnerable countries. This study was conducted at a pivotal moment in Ghana's disaster management history, as the government, helped by a number of IOs and NGOs, reorients its policy toward preparedness strategies, as opposed to merely addressing relief and response, and begins to pursue disaster risk reduction. Togo, on the other hand, faces far more challenges in aligning its policies with a DRR framework and in attaining adequate aid funds to increase its capacity to prepare for disasters. An assessment of both countries' capacities conducted five years from now will likely have interesting results – perhaps by that time Ghana will have successfully implemented every DRR priority and will influence Togo's preparedness capacity.

Ghana supported four of the seven hypotheses posited in this study. Togo likewise supports four. Ghana provides evidence against the moral hazard hypothesis because it increased its spending on disaster preparedness, in spite of funding from outside organizations. In Togo's case, it is difficult to make any conclusions regarding the effects of moral hazard because of its "aid orphan" status. Ghana supports the perceived risk hypothesis because the increased frequency and severity of floods in Ghana has led the government to increase its preparedness measures. Togo, on the other hand, does not support this hypothesis. Though floods have increased in frequency and severity, the heightened risk to the country has not increased investment in preparedness substantially.

Based on field interviews and data, it is unclear whether or not Ghana supports the democracy and electoral incentives hypotheses because its democracy is highly decentralized and DRR policy exists primarily at the national level, implemented through NADMO. Togo might support the democracy hypothesis, though the conclusion is unclear. Its single-party rule and lack of democracy could explain the lack of preparedness spending by the government.

Ghana is far more politically developed than Togo, and relative to Togo it invests considerably more in preparedness. Yet a more in-depth analysis of Ghanaian preparedness reveals that the country faces major challenges in implementing and enforcing its preparedness measures and thus it does not strongly support this hypothesis. In Togo, corruption has had little effect on DRR, preparedness, and response, despite its high level of corruption and generally weak political development. Political development does not sufficiently explain either Ghana's investment in disaster preparedness or Togo's lack thereof.

The Ghana case, however, strongly supports the external actors and civil society hypotheses. Strong national civil society actors and IOs played a key role in NADMO's shift in focus from purely response measures to DRR policies. Interestingly, Togo does not support the external actors hypothesis, because the increased preparedness measures undertaken by Ghana have had little effect on Togolese investment in preparedness. Moreover, civil society actors within Togo have had little influence on the government's preparedness investment.

Both Ghana and Togo support the economics hypothesis. As an extremely poor country that receives very little international aid, Togo's government spends very little on disaster preparedness. Ghana receives more international aid than many countries in Africa. The Ghanaian government's relatively high level of investment in disaster preparedness and its initiatives at building DRR capacity support this hypothesis.

CHAPTER 3. Divergent Roles for the State: Disaster Management in Ethiopia and Kenya

By Loren Riemer, Tiffany Tripson, Savin Ven Johnson, and Wes Ven Johnson

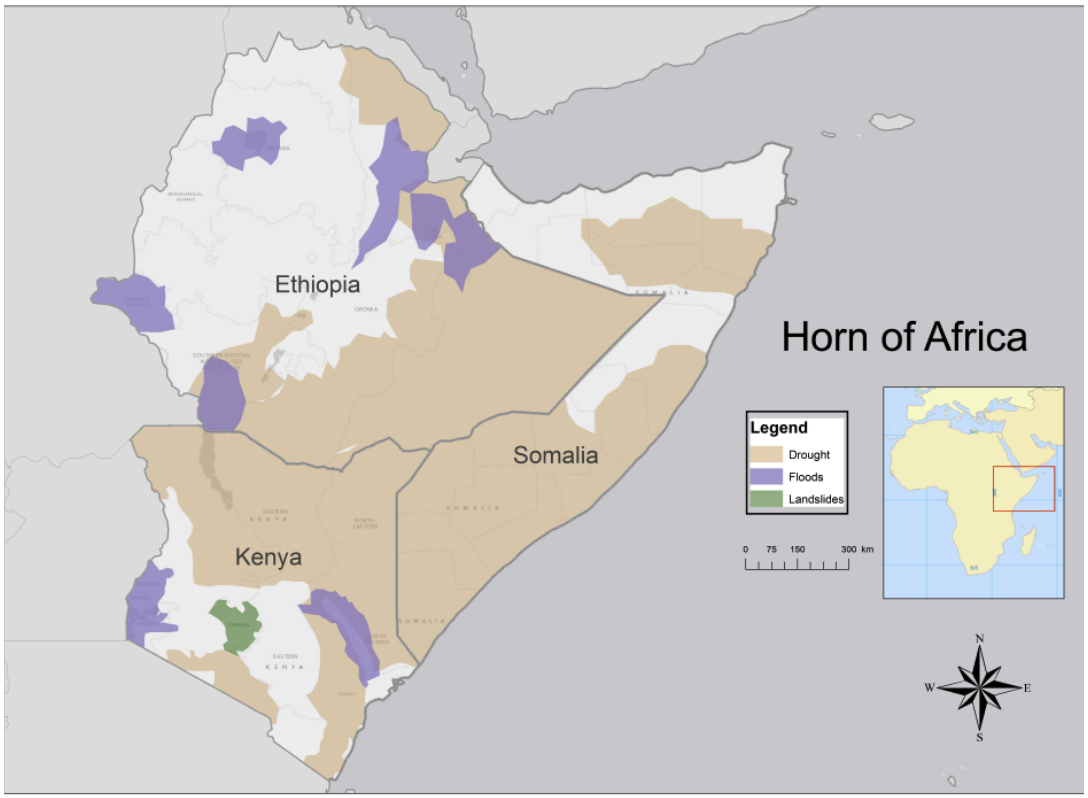
Ethiopia and Kenya have long been linked by historical, cultural, economic, and climatic similarities. Yet the countries are also distinct in many ways, particularly as post-colonial era governments evolved and asserted a future unique to each country. Just as Ethiopia and Kenya are both similar and distinct in many ways, so too is their respective capacity for disaster risk reduction, preparedness, and response.

As recently as 2011, the Horn of Africa experienced the worst drought in over 60 years, making disaster management capacity a particularly timely research subject.[345] While Ethiopia and Kenya face similar climate patterns and natural hazards, each country's government policies, socioeconomic factors, cultures, and outside involvement give them unique strengths and weaknesses in disaster management.

This chapter will first discuss similarities and differences in the disaster management capacity of both Ethiopia and Kenya, followed by a discussion at the country level regarding the specific disaster management hypotheses considered in this research program.

Field research was conducted in Kenya and Ethiopia in December 2011 and January 2012. The primary focus of this research was conducting interviews with 61 key stakeholders in central and local government agencies, IOs, and community-based organizations.[346]

Figure 10. Natural Hazards in the Horn of Africa



Sources: DPPC, FEWS NET, UNDP, Population Action International

REGIONAL SIMILARITIES

Kenya and Ethiopia share exposure to the cyclical nature of both droughts and floods, and in particular how highly dependent these hazards are on changing climate patterns. Climate change is already affecting both countries, as droughts are happening at a closer time interval and are more severe. In the past, indigenous pastoralists and farmers could predict droughts on a regular basis and plan accordingly, but the timing has now become more unexpected.[347]

Table 15. Comparative Statistics on Ethiopia and Kenya

	Ethiopia	Kenya
Total Population (2010)	83 million	40 million
2010 GDP per capita PPP, (constant 2005)	$934	$1,481
Agriculture as a percent of GDP (2007 to 2011)	48%	25%
Percent of population engaged in agriculture or pastoralism (2005/6)[348]	85%	75%
Percent of population undernourished[349]	41%	33%
NGO presence[350]	3522 before 2009, then 516 after reforms	4200
National Disaster Management Policy	Not approved	Not approved

Comparative statistics relevant to disaster management capacity and commitment are shown in Table 15. Both countries have a high percentage of their populations engaged in smallholder agriculture and nomadic pastoralism. These two groups are also the most vulnerable to natural disasters, as their livelihoods can be destroyed quickly as climate patterns change. Additionally, pastoralists live in the more arid lands where agriculture is minimally productive and drought effects are most severe.

Ethiopia and Kenya both share long borders with Somalia. The political, social, and even climate instability in Somalia ensures a steady stream of refugees pouring across both borders. Kenya is home to the largest refugee camp in the world, Dabaab, with an estimated population of over 450,000 displaced Somalis.[351] In 2011, Ethiopia's six refugee camps along the Somali border are home to roughly 160,000 Somalis, with more arriving by the day.[352] While UNHCR, WFP, and other organizations support the basic survival livelihoods of refugee populations, the large and sudden influx of refugees can have devastating effects on already fragile ecosystems and natural resources such as water and wood on which indigenous communities depend.[353,354]

While Ethiopia and Kenya share these and many other similarities, the countries diverge in terms of economic indicators, political development, and cultural characteristics. Although they both share large populations engaged in agriculture and pastoralism, the Kenyan economy only relies on this sector for 25 percent of its GDP, while Ethiopia is more agriculturally dependent at 48 percent of its GDP.[355] The political leadership is also very different in the two countries. Ethiopia has a strong central government, which is often repressive to media and provides heavy oversight of the operation of NGOs in country. Conversely, the Kenyan media is quite free and the central government, while taking the lead in many coordination efforts of NGOs, has considerably less oversight of NGO activities. Historically, the cultures in both countries differ at a minimum due to the significant impact British colonization had on Kenya versus nearly complete lack of formal colonization in Ethiopia.

Disaster management policy development in both countries has evolved in response to extreme exogenous shocks. Ethiopia began to manage disasters as a reaction to the famine of 1973 and later the famine of 1984 to 1985. For Kenya, the impetus for the formation of some of the earliest disaster

management institutions was the combined trauma of the 1997 El Niño floods and 1998 embassy bombing. Disaster management policy in both countries continues to evolve, and both have experienced delays in formalizing an official national disaster management policy under the Hyogo Framework.

The Horn of Africa, including Ethiopia and Kenya, has a long history of seasonal droughts and floods. One Kenyan government official explained that, in his opinion, ultimately all disasters, including political and ethnic conflict, were about competition for resources. Boone examines this topic as it related to electoral violence in Kenya during the 1990s. She ultimately found that "politicians manipulated land rights to mobilize supporters and punish opponents. They did so in ways that contributed directly to widespread land-related violence at election time."[356] In both Ethiopia and Kenya, resource availability is highly linked to climate patterns because a high proportion of both populations are either smallholder farmers or nomadic pastoralists. In this light, many disruptions or conflicts in the social system can be tied back to climate variability. Strong disaster management capacity can be a defense against these social disruptions. This chapter seeks to explore the strengths and weaknesses of those capacities in both Ethiopia and Kenya.

ETHIOPIA

Natural Hazards and Natural Shocks in Ethiopia

Ethiopia faces a variety of natural hazards, including fires, droughts, floods, landslides, and earthquakes, as well as disease outbreaks. Droughts and floods are the most frequently occurring hazards and result in the greatest costs in terms of lives affected, deaths, and economic loss (see Table 16). Increasing climate variability coupled with unsustainable land and agricultural practices further exacerbate environmental impacts. Climate variation is also linked to disease outbreaks. Climate change induced temperature warming is thought to be a factor in the emergence of malaria in historically malaria-free highland areas. Some diseases are specific to livestock but also affect the lives and economic security of the pastoral communities.

Droughts have produced the most wide-ranging impacts and are the main focus of disaster management strategies in Ethiopia. Effects of drought include reduced agriculture yields and livestock production, lower economic productivity and growth, diminished food supply, causing acute malnourishment among the population and especially the young; stress to land and water resources, and conflict between pastoral and agriculture-dependent groups as they compete for these resources.[357]

Food insecurity and chronic acute malnourishment are the greatest emergencies stemming from drought. Poor land and environmental management and dramatic population growth in recent decades have increased food insecurity and heightened demands for food aid and emergency relief during drought crises.

General Political and Socioeconomic Background

Ethiopia is a large country in both land and people. At 1.1 million square kilometers, slightly less than twice the size of Texas, Ethiopia ranks 27th globally in terms of size. The more critical factor is the population of 91 million people and continued high growth rate. Many people living in high risk areas makes them highly vulnerable to natural hazards regardless of whether shocks are frequent or not. Ethiopia is also among the poorest countries in the world. The World Bank classifies the state as a low-income country and its GNI per capita (PPP 2010) of $1,010 ranks Ethiopia at 199th out of 215 countries and entities.[358] The Human Development Index ranks Ethiopia 157 out of 169 based on access and level of development of social, financial, and economic indicators. Nearly 40 percent of the people live below the national poverty line and life expectancy is a meager 56.5 years.[359]

Table 16. Recent History of Major Natural Disasters in Ethiopia

Date	Type	Location	Dead/Injured/Affected
2011	Drought	Ethiopia	4.8 million affected
2009	Drought	Ethiopia	6.2 million affected
May 2008	Drought	Ethiopia	6.4 million affected
Aug. 2006	Flood	North, South, and East	862 killed, $3.2 million in damages
Nov. 2005	Drought	Ethiopia	2.6 million affected
Apr. – May 2005	Flood	East and South	156 killed, 235,413 affected; and $6.2 million in damages
2003	Drought	Ethiopia	12.6 million affected
Nov. 2000 – Jan. 2002	Epidemic	Ethiopia	622 killed
Sept. 1999	Drought	Ethiopia	4.9 million affected
Aug. 1999	Flood	Afar region	$2.7 million in damages
July 1998	Drought	Ethiopia	$15.6 million in damages
Oct. 1997	Flood	Eastern region	297 killed
Feb. 1997	Drought	Ethiopia	986,200 people affected
Apr. 1995	Flood	Kelafo, Mustahil, Ferfer, Burukur towns of Gode Zone, region 5	27 killed; 18,775 people affected; $500,000 in damages
Aug. 1994	Flood	North	80 killed; 3,000 affected; $3.5 million in damages
Oct. 1989	Drought	Ethiopia	6.5 million people affected
Sept. 1988	Epidemic	Ethiopia	7,385 killed
June 1987	Drought	Ethiopia	367 killed; 7 million affected
Jan. 1985	Epidemic	Ethiopia	1,101 killed
May 1983	Drought	Ethiopia	300,000 killed; 7.75 million people affected

Sources: Em-DAT: The OFDA/CRED International Disaster Database, Brussels, Belgium

The rural population accounts for 82 percent of the country, and agriculture makes up 48 percent of GDP, which further suggests high vulnerability and extensive need for assistance and relief during times of crisis. There has been significant harm done to the land from long history of poor agriculture practices, and the level of environmental degradation further increases vulnerability to climate-induced disasters.

Ethiopia's political history is unique among African countries in that it has never been colonized, except for five years of Italian occupation beginning in 1936. The country was at one point a kingdom, then transformed into a socialist state, and then became the current democratic federal republic. The chronological political development in Ethiopia is presented in Table 17.[360] The socialist period resulted from a military coup by the Marxist Derg regime in 1974. The regime lasted 17 years until the major opposition movement, the Ethiopian People's Revolutionary Democratic Front (EPRDF), sieged Addis Ababa and took back the government. As of the writing of this report, the EPRDF continues to rule Ethiopia as a coalition party. International rights agencies such as Human Rights Watch and Amnesty International have raised concerns in recent years of EPRDF's political repression, including election fraud, suppression of opposition parties, and restriction of human rights, especially freedom of expression.[361]

Table 17. Political Development in Ethiopia[362]

1935–1941	Italy invades Ethiopia, combines Ethiopia with Eritrea and Italian Somaliland to form Italian East Africa; Italians defeated in 1941 by Ethiopian resistance forces, British, and Commonwealth troops.
1952	United Nations federates Eritrea with Ethiopia.
1962	Ethiopia annexes Eritrea as a province.
1974	Ethiopia's Emperor Haile Selassie overthrown by military coup. The Marxist "Derg" period begins in which Ethiopia is under military rule.
1977–79	Ethiopia military leader Col. Mengistu Haile Miriam kills thousands of government opponents; begins collectivization of agriculture.
1987	The Derg period ends as Ethiopia adopts a new constitution, allowing for Col. Mengistu to now be the elected president.
1991	Ethiopian People's Revolutionary Democratic Front (EPRDF) takes control of Addis Ababa and President Mengistu flees the country; Eritrea establishes its own provisional government pending a referendum on independence.
1993	Eritrea becomes independent following the referendum; but poor border demarcation causes skirmishes.
1994	Ethiopia adopts another constitution and divides the country by ethnically-based regions.
1995	Ethiopia elects president and prime minister.
1999	Ethiopia-Eritrean border conflict turns into war, tens of thousands die.
2000	In December, Ethiopia and Eritrea sign a peace agreement. But tensions remain between both countries.
2005	Human Rights Watch accuses government and military of crimes and abuse against Anuak ethnic group.
2006	Addis Ababa gets hit with several bomb blasts. Eritrea has troop incursions into Ethiopia, violating ceasefire agreement. Ethiopian troops enter Somalia and launches conflict against Islamist forces.
2007	In December, 50,000 Somali refugees enter Ethiopia because of political instability in Somalia.
2008	Eritrea and Ethiopia sign a peace agreement; Ethiopia withdraws troops, UN peacekeeping forces leave border area between Ethiopia and Eritrea.
2009	In January, Ethiopian government passes a bill restricting activities of foreign organizations; banning activities related to human rights or conflict resolution and restricting foreign funding to local agencies.
2010	Ruling party, EPRDF, wins parliamentary elections; Prime Minister Meles Zenawi receives a fourth term. Opposition leaders demand rerun. Human Rights Watch accuses government of using development aid to suppress political opposition.
2011	In December, Amnesty International accuses government of carrying out its biggest crackdown on freedom of expression in years.

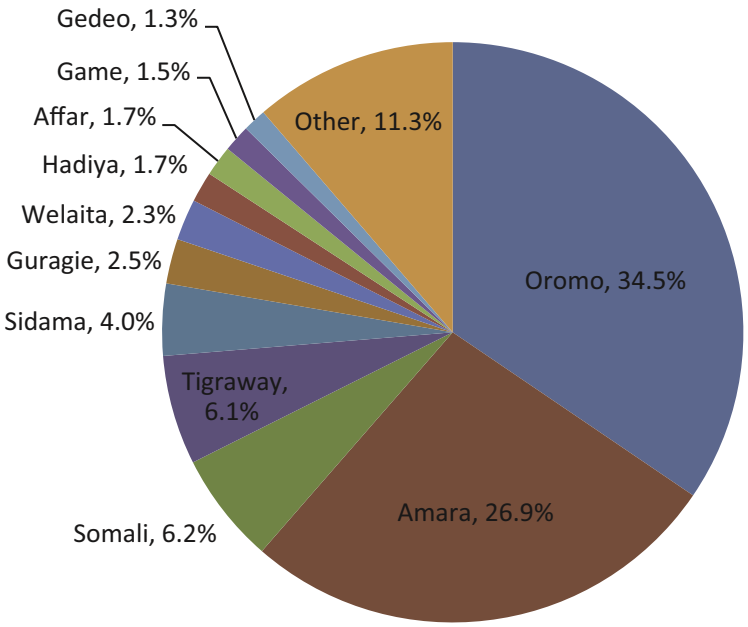
Similar to the rest of the Horn of Africa, the climate in Ethiopia is arid to semi-arid, marked by highly variable rainfall. The Great Rift Valley divides the country in half from north to south, with the food-secure areas in the central highlands and eastern lowlands, and the food insecure areas in the arid drought-prone areas to the south and especially the west, including the Somali region.

Over 83 percent of the population is dependent on rain-fed agriculture, further increasing the country's vulnerability to climate and weather changes.[363] The combination of high agriculture dependence and frequent exposure to natural disasters contributes to Ethiopia's rank as the fifth most vulnerable country in the world, with the highest risk level.[364]

Infrastructure and transportation access in Ethiopia are limited. The country is landlocked and dependent on Djibouti for the use of its shipping port. Goods must then be transported overland to Addis Ababa or other areas. The poor quality of the roads complicates and delays overland transportation. The major airport is in Addis Ababa, which is in the highlands and is also a significant distance from areas of risk. There are secondary airports in Dire Dewa in the north and a few other locations, but the transportation infrastructure connecting them is underdeveloped, making for long and difficult travel.

Ethiopia is a highly ethnically diverse country, with more than ten dominant ethnic groups (see Figure 11). The country is also divided by religion, with 63 percent of the population Christian, 34 percent Muslim, and 3 percent following traditional beliefs.[365] People generally have strong ethno-religious ties. Ethnic groups fragment the political structure, with the Tigraway-Christian minority from northern Ethiopia in control of the government.

Figure 11. Major Ethnic Groups of Ethiopia[366]



Pastoralists make up a substantial portion of the Ethiopian population. The pastoral communities are large and also among the most vulnerable to disasters. Their vulnerabilities are structural in nature, stemming from culture and livelihoods. Aside from hydro-meteorological disasters, other developments are also threatening pastoral livelihoods, including emergence of private agriculture lands and wildlife reserves. Because of their mobile and peripheral existence, the pastoralists have traditionally been excluded from government discussions.

The government exercises strict control of media, international actors, and subnational actors. In recent years, though, the central government has made shifts to provide greater autonomy and control to sub-national regional government bodies, including the regional and district level municipalities. While the decision-making authority has become more decentralized, control of financial resources remains in the hands of the central government, constraining actual capacities of subnational governments. The government's control and repression has alerted several international social justice organizations, including Human Rights Watch and Amnesty International. Both organizations have highlighted increasing suppression and persecution of opposition party leaders as well as greater restriction of freedoms of expression in the country.[367]

Ethiopia has a large presence of NGOs and IOs, with most providing food aid and humanitarian relief. From 2005 to 2009, nearly 78 percent of all humanitarian aid to Ethiopia was for food.[368] Despite the country's dependence on aid, the government exercises strict control and is involved in all major NGO activities. In 2009, the government passed legislation to increase restrictions and controls of foreign NGOs. For example, the law prohibited foreign NGOs from conducting any activity related to democracy, human rights, or conflict resolution. It also included stipulations requiring Ethiopian staff hires and budget ceilings for administrative overhead costs.[369] But despite strict government control, all NGO staff interviewed in this research noted that the government remains willing to collaborate with external partners, and

that corruption in Ethiopia is much lower than other countries in the region. In any collaboration, the government always plays the lead coordinating role. IOs, especially donor organizations, are major partners with the government of Ethiopia.

Ethiopia faces instability along its borders from all neighboring countries, including political, economic, and social conflict and refugee migration from all sides. Political instability and drought in neighboring Somalia to the east has led to an influx of about 200,000 Somali refugees in Ethiopia since 2010.[370] Refugees from Eritrea and Djibouti are entering Ethiopia for economic opportunities; South Sudanese political refugees escaping political violence are the newest group of refugees entering the country. UNHCR also reports that Kenyan pastoralists, who are ethnically similar to Ethiopians living in the region, are moving into Ethiopian territory in search of more grazing land. The continued influx of refugees is draws down existing and emergency resources.

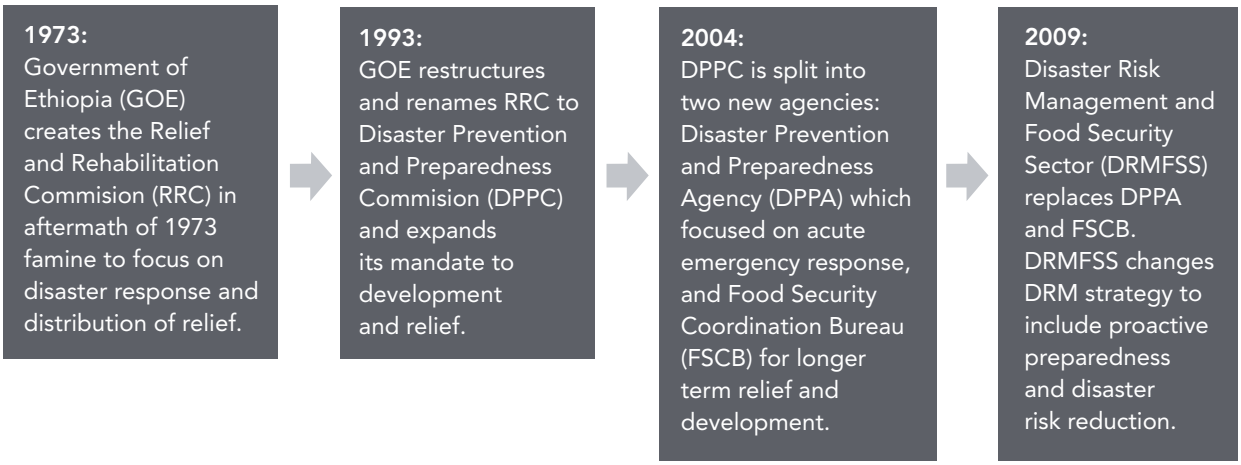
Ethiopia Risk Profile

Low socioeconomic development and limited infrastructure contribute to high-risk levels and vulnerability to disasters. The low socioeconomic development indicators point to insufficient systems and resources to help people effectively deal with and recover from disasters. The poor infrastructure constrains government and partner agencies' abilities to mobilize resources and provide aid to affected areas in a timely manner. Furthermore, the government's centralized authority constrains rapid response and resource allocation when disasters are located in periphery regions. For example, since funds and resources are controlled in Addis Ababa, appropriations and decisions for response or warnings need to be made there first before subnational governments can receive money to respond.

Institutional Capacity for DRR, Preparedness, and Response

This section discusses Ethiopia's institutional capacity for disaster risk management (DRM) and response according to five key priority actions outlined in the Hyogo Framework for Action. The Ethiopian government, with support from partner agencies, has made significant advancement in all five areas. The Disaster Risk Management and Food Security Sector (DRMFSS) is the nodal agency responsible for planning, coordinating, and implementing all DRM activities. The origin of the DRMFSS goes back to Ethiopian famine of 1973 (see Figure 12).

Figure 12. Evolution of DRM Institutions in Ethiopia[371]



Priority 1. Ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation.

Political leadership and commitment to disaster risk management are strong in Ethiopia. A representative from a bilateral aid organization noted that Ethiopia's leadership in DRM and climate change adaptation arose out of the rivalry between Ethiopia and Kenya, the major political powers in East Africa. As one official from a bilateral agency noted: if Kenya is not in the leadership position, then Ethiopia will seek to fill that role. Moreover, Ethiopia feels a sense of prestige as the home of the African Union and United Nations Economic Commission of East Africa. It consequently seeks new popular causes to champion to maintain its stature. Strong networks and coordination between the central government, donor community, and other implementing actors further enhance institutional capacity. In the coordination process, actors are assigned specific roles, consultation involves multiple stakeholders, and partner meetings are held regularly. For example, the Department of Risk Management and Food Security Sector (DRMFSS) oversees several sector forums (e.g., nutrition, health, water, and sanitation), and within each sector cluster, there is a government chair partnered with an IO sub-chair, and below them are aid organizations and various other donor and services organizations. Similarly, the Ministry of Agriculture and Rural Development leads Ethiopia's Early Warning Working Group and the NGO partners are UNOCHA, the National Meteorological Agency, World Food Program, UNDP, Red Cross, and other aid organizations.

The cluster meeting groups convene approximately once a month to share information and propose actions. The DRMFSS is the decision-making body at the top and reviews the information from each cluster and decides on what actions to take. This cluster organization network allows for stronger institutional capacity development as expertise from IOs and aid agencies is regularly shared with the central government. Moreover, the structure provides for strong harmonization and coordination of activities and resources from the national level, reducing duplication and redundancies at the community level.

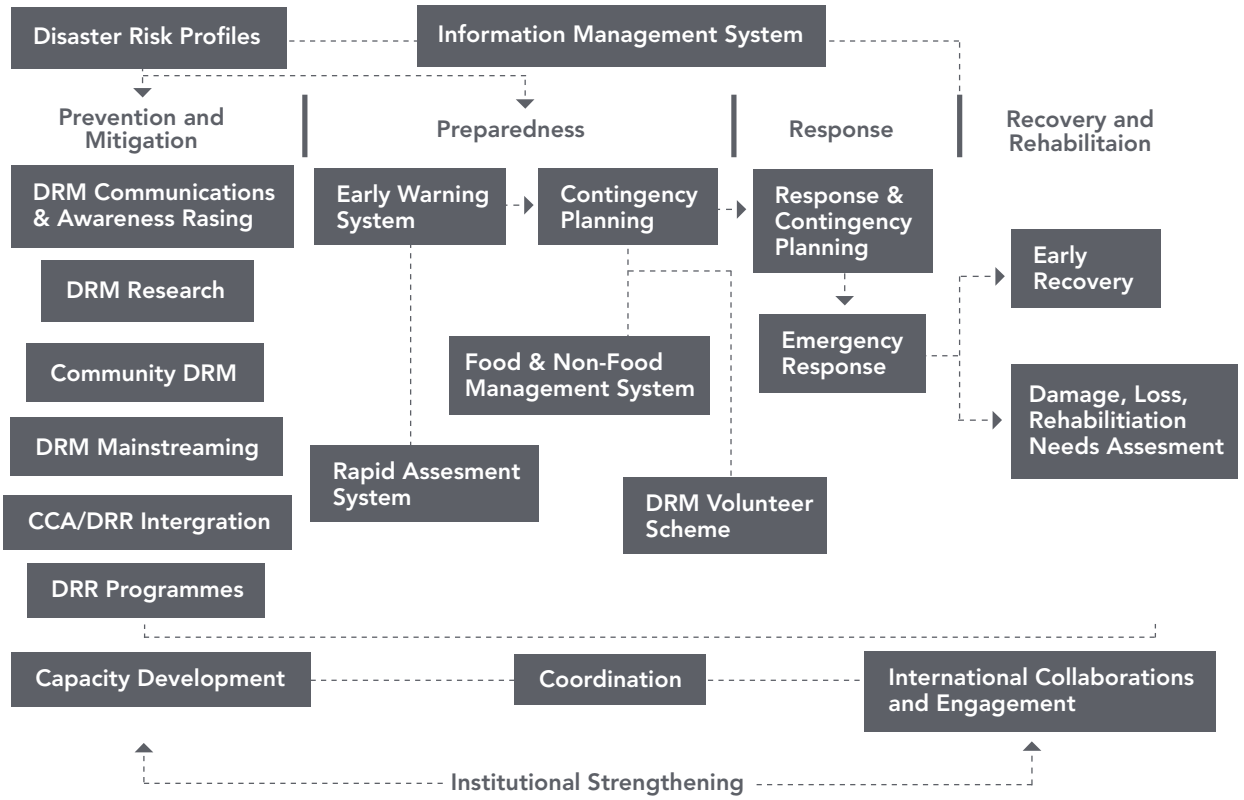
Interviews with aid organizations noted both positives and negatives about the government's DRM organizational structure. The positives include fast decision making and resource mobilization during times of crises because the sector groups meet regularly, but when situations have not yet hit crisis levels, the government is slower to respond and NGO partners are unable to affect the government's speed of response. Also, information from subnational governments in periphery regions is often not fully incorporated into the discussions of working groups at the central government level. At the same time, *woredas* and local communities have a copycat DRM organizational structure at the subnational level that enables them to discuss and develop district-specific plans to respond to disasters.[372]

The focus on climate change adaptation (CCA) is evident in many of the government's strategies and national policies. The most well known policy is Ethiopia's Growth and Transformation Plan (GTP), which aims to make Ethiopia food secure and a net food exporter by 2015. Part of the plan includes developing livelihood and environmental resilience through multiuse agriculture and crop diversity.[373] Thus, there is a strong rationale for incorporating DRM and CCA into Ethiopia's overall development strategy. The country's major income earner is agriculture, which is highly vulnerable to weather changes. Inability to prepare for and respond to climate disasters can lead to crop loss, food insecurity, and decline in GDP.

Ethiopia has clearly defined roles and responsibilities for actors in its DRM system. Moreover, the system incorporates elements of disaster risk reduction, CCA, economic development, and sustainable national planning and development. A representative of a major bilateral donor noted that Ethiopia's DRM system is better than other countries in the region and in fact other countries have adopted its DRM structure. The relatively high quality of Ethiopia's DRM framework was echoed again by officials from two other aid organizations. The Ethiopian government is working to strengthen institutional capacity with the new National Policy on DRM. A ministry official stated that the Ethiopian Parliament is likely to pass the new policy in 2012. The new DRM policy shifts strategy from reactionary crisis management toward more "pro-active ex-ante preparedness and disaster risk reduction."[374] As shown in Figure 13, the framework identifies four areas for action: Prevention and Mitigation; Preparedness; Response; and Recovery and

Rehabilitation. Several activities in the DRM framework are placed under prevention and mitigation. Activities in the field of early warning, risk assessments, and contingency planning and funding are also components of the preparedness section. Response is focused on emergency food aid and relief. Recovery and rehabilitation also incorporates assessments to identify reconstruction needs and both long- and short-term planning to recover from the disaster.[375]

Figure 13. DRM Program Framework Proposed by WFP[376]



Final approval of the new DRM national policy has been long in coming. Power struggles and ministry rivalry have led to many revisions in the national policy. Delays also stem from ministry officials' hesitation to move the office of the DRMFSS out from under the Ministry of Agriculture to directly under the prime minister. But government officials and partner organizations in Ethiopia are optimistic that this version is the final one and Parliament will adopt the new policy. Despite not having formal approval of the new policy, the DRMFSS is moving forward to establish the DRM structure for planning and information sharing.

At the community level, disaster response and preparation organizations have less capacity. Subnational entities continue to rely heavily on the central government for funds and capacity development.[377] In the process of decentralization, districts have DRM organizational structures that mirror those at the federal level. Districts have their own decision-making process as well as financial autonomy through the receipt of block grants from the government. However, the GFDRR reported that capacity building for monitoring, early warning, contingency planning, and financing continues to be needed at the district level.[378]

With regard to national level contingency planning, Ethiopia's system is forward-looking and relatively advanced for the region. Aid agencies and government ministries have built in contingency clauses that provide for funds in cases of emergency. An INGO official noted that these contingency clauses arose

from lessons learned from past experiences and the identification that there was need for a flexible funding mechanism.

Regional coordination and action is somewhat limited in Ethiopia according to comments from interviews with government and aid agencies. There is little coordination with neighboring countries. Interviewees agreed that there was a weak system for data sharing between countries; things were usually kept within their own government borders. African-regional platforms for action were also limited in impact. The Africa Climate Policy Center does not seek to change policy but rather to provide research and educate interested parties. The UNISDR regional coordination office is headquartered in Nairobi and only has one staff member in Ethiopia, stationed inside the DRMFSS, and whose main job is to provide technical assistance to the GOE rather than implement a regional coordination for DRM.

Priority 2. Identify, assess, and monitor risks and enhance early warning.

Ethiopia's mechanisms for assessing, monitoring, and providing early warning are also relatively developed and wide reaching compared to other countries in the region, according to interviews with government officials, donors, and agency partners. All assessment activities are government-led and results from assessments must have the government's approval and sign off before they can be released. Risk assessments are generally done to determine the level of food insecurity in the present or near future. Twice a year, the government brings together assessment teams from various aid organizations, including Save the Children, the World Food Program, and other United Nations agencies, and these teams travel throughout the country for a period of two months to collect various data, including rainfall, soil and climate conditions, crop yields and prices, consumption trends and needs, and health statistics to determine the amount of people that will need food aid. It was highlighted several interviews with government and bilateral and multilateral organizations that these assessments are highly detailed and comprehensive, and involve stakeholders from the community level, NGO partners and donors, and government officials at the subnational and the national level.

Monitoring is done both by IOs (e.g. FEWS NET) and national organizations (e.g. the National Meteorological Agency). Tools used for monitoring include satellite, GPS, SMS, and ground data from traditional and new types of weather stations. Ethiopia maintains a comprehensive list of data to monitor. In addition to the data from the semi-annual assessments, the government also tracks agricultural production, community level nutrition, prices of basic goods and food in local markets, and other forms of agricultural trade. The country has several risk assessment mechanisms and tools for tracking and monitoring, including Disaster Risk Profile at the district level by DRMFSS and WFP; Food Security Profile by FEWS NET and USAID; Livelihoods, Early Assessment, and Protection (LEAP) developed by the WFP and World Bank; and DesInventar historical database of disasters and losses developed and updated by the UNISDR. LEAP is a software modeling tool to quantify and index risk from drought or excessive rainfall at the administrative level on crop production and stress on livelihoods and environment. The software helps to both monitor weather risk as well as provide a guide for timely and effective response. LEAP provides proxy estimates of funds and disbursements needed for livelihood protection programs at the onset of the disaster to help food insecure populations get through the disaster. Projections and assessments for LEAP are based on ground and satellite rainfall data combined with data on vulnerable populations and livelihood practices.

However, one issue the government and partner agencies encountered with the monitoring systems is that the indigenous communities can choose not to believe the data and rather hold to their traditional practices. One interview revealed that partner agencies felt they needed to develop education, training, and trust building with the local community so that when they receive early warnings, they know what it means and trust it enough to take action. A case study by Africa Informs noted that there was a challenge in getting local communities to heed disaster warnings and make early preparations because they thought the natural disasters "were the results of God's anger and cannot be prevented."[379] One aid organization interviewed noted that the government along with NGO partners is working to address this situation by developing community-based capacity building and training with local communities on

topics such as the cause-effect relationship between human action and environmental degradation, the need to conserve, and attention to the environment and its links to natural disasters.

The early warning system is expanding beyond the bi-annual food aid assessments to incorporate more sophisticated tools for monitoring and tracking, including ground and satellite technology and data. The main issue with the early warning system is not the system, but the government's slow reaction to the early warnings. In an interview with a humanitarian relief organization, the official stated that early warning forecasts and assessments are provided to the government early on, but the government waits until a disaster impact threshold is reached before it acts. Why the government does not act earlier to prevent any disaster from occurring in the first place is puzzling to partner organizations. However, in an interview with a multilateral agency, a representative noted that the government's delay may stem from underestimating the disaster and overestimating government abilities to respond in a crisis. Nevertheless, all of the people interviewed agreed that Ethiopia has made tremendous improvements in its disaster response over the years. In fact, one interviewee noted, "If it wasn't for the Somalia situation, Ethiopia could probably handle this drought on its own."

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

Human capacity remains weak in Ethiopia but all NGO organizations interviewed confirmed that the situation is changing. New DRM programs in universities and technical assistance and capacity building from NGO partners are improving local knowledge and capacity. According to two interviews – one with the government and another with a multilateral agency - Ethiopia has been experiencing a brain drain. People that become experienced or accredited often leave the country for opportunities elsewhere. Existing employment norms and structures – including a low pay scale and wages, an office/professional culture that does not acknowledge or reward good work, and lack of incentives – are inadequate to retain qualified staff. These norms add further challenges for developing home grown capacity. The creation of local DRM training centers is aimed at addressing this lack of capacity. The first and most renowned of the centers is Bahir Dar University's DRM certification and professional training program. The program was initially launched with funding from USAID in partnership with other multilateral donors. Graduates of this program are DRM-trained professionals who are then placed in the DRMFSS or mirror organizations at the regional government or district government level. In the western portion of the country, there is another school aimed at creating professionals trained in DRM, with an emphasis on drought management.

The DRMFSS framework detailed earlier also makes room for knowledge sharing and decision making and planning between government bodies and institutional partners. In addition, there are a variety of other forums for promoting research, knowledge exchange, capacity building, and technical assistance to the government. These include the Regional Learning and Advocacy Project (REGLAP) to improve resilience for pastoralist and other vulnerable dry land communities and the activities of the African Climate Policy Centre (ACPC), which is very active in research for Ethiopia and Africa-wide. A recent ACPC publication included an assessment of the quality of all the weather stations in Ethiopia and recommendations for improvement.[380]

A representative from an international aid organization stated that a major gap in the knowledge and capacity enhancement for DRM in Ethiopia was that the current Hyogo Framework for Action (HFA) does not fit the nature of disasters in Ethiopia. HFA was written with fast-onset disasters in mind, by experts in managing fast-onset disasters, and HFA does not treat slow-onset disasters, which demand different types of schedules, planning, and responses (e.g. herd destocking and restocking). The aid representative advised that it would be more appropriate in Ethiopia's case to take concepts from drought cycle management and incorporate them into Ethiopia's HFA framework for slow-onset disaster management in Ethiopia.

It was not until 2011 that DRR experts in UNISDR turned their attention to drought cycle management (DCM) as developed by the European Commission's Humanitarian Office (ECHO) and incorporated DCM into risk reduction activities and promoted development of a new framework for DCM-related

interventions. The activities under UNISDR's DCM framework include providing technical support and advising on regional initiatives for drought contingency planning, drought early warning bulletins, and training tools.[381]

Priority 4. Reduce the underlying risk factors.

In Ethiopia, DRR financing is often put under the umbrella of emergency relief. For example, the World Food Program in Ethiopia has expertise on both DRR (livelihood resilience, agriculture diversification, land use training) and response (emergency food aid procurement and delivery), but the bulk of funding for WFP programs are for emergency food aid (response). WFP acknowledges that disasters, which are essentially droughts, are cyclical and recurring. They want to implement DRR programs to lessen the impact of drought disasters, but have difficulty procuring funding support from their donors for risk reduction activities. Aid for prevention programs is more constrained because the need is not as imminent and pleas for funding are not as effective if there are not compelling images to inspire donations, noted one official.

Thus, comments from both government and aid organizations reveal a high level of frustration with the current relief funding practices in Ethiopia. In one food aid organization, they sometimes conduct DRR activities but call it emergency response so that they receive funding. Pastoral communities are made even more vulnerable because of the lack of financing and financial support available to them. The head of a local nonprofit in Addis Ababa recommended the government establish programs with banks to buy livestock from pastoralists during drought, sell the livestock abroad, and then allow pastoralists to buy new livestock once the drought is over.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

Historically, the focus of disaster response activity in Ethiopia has been in response to drought and delivering food relief. The government has had a lot of exposure to drought, understands its cyclical and recurring nature, and is making efforts to improve the country's preparedness and response. These efforts are leading to capacity improvement, as noted by several donor and aid agency representatives in the country. GOE is working to shift DRM strategy toward more preparedness, prevention, and mechanisms for the long-term recovery by addressing the underlying structural human causes of drought vulnerability. The government through NGO partnerships seeks to increase resilience among communities. Livelihood resilience interventions have long existed in Ethiopia, but have been considered general development programs rather than risk reduction. The line between resilience and development is blurred because successful livelihood resilience programs can enable long-term socioeconomic development. Disaster response has traditionally been the target of funding and aid in Ethiopia, but given the recurring nature of droughts, if response is the only intervention, then people will continually be at risk and exposed to disasters time and time again.

Two groups in Ethiopia have faced difficulty in improving their disaster preparedness and recovery. A large portion of the disaster vulnerable population is made up of pastoral communities. Government efforts have been limited for creating effective interventions to help these communities reduce risk from, prepare for, and recover from disasters. The government faces a conflict in providing recovery assistance to pastoral communities knowing that their livelihood and way of life make them chronically vulnerable to disasters. Past responses for drought management for pastoralists have included emergency veterinary programs, food/cash transfer, and supplemental livestock feed. DRR-centered activities with pastoralists include herd resource management (regulated breeding, re- and de-stocking at times during the emergency) and capacity building; coping strategies (support from friends and family, alternative livelihoods, provision of land rights, grazing in urban areas), hardier livestock types, migration from vulnerable to non-vulnerable areas, herd diversification, shift to agro-pastoralism, herd transport services and infrastructure; seed/tools distribution, and water access points rehabilitation.

Refugees are the second group facing challenges in terms of disaster preparedness and recovery. They live in the margins of the country with limited and overstretched resources and remain vulnerable because

of limited access and resources. Efforts to improve their recovery and long-term resilience depend on the resolution of wider geo-political issues.

Successful long-term recovery depends on building resilience among communities, and this requires integrating DRR into the overall development plans of the country. There are emerging interventions that address DRR, including natural resource risk reduction (sustainable usage of natural resources), livelihood diversification, economic empowerment, and land rehabilitation (programs at the community level) to prevent flash floods and generate food and incomes for communities.[382]

Ethiopia's Capacity to Respond to, Prepare for, and Reduce Disaster Risks

The combination of strong government leadership to shift DRM strategy from reactive to a more sustainable risk reduction, combined with an effective mechanism for inclusive, multi-stakeholder engagement and action, as well as a strong level of commitment and resources from the donor and NGO community, suggests a high level of capacity in Ethiopia to deal with natural hazards. In terms of response, a long history of droughts and disasters in Ethiopia have helped both government and partner agencies develop an effective blueprint for delivering food and other supports to communities in need. This experience has helped to improve the timeliness and effectiveness of response. The largest response program, the Productive Safety Net Program, is lauded by donor and partner agencies as a highly effective, well-functioning food aid program that provides food relief to 8 to 11 million food insecure people each year. This program is singlehandedly led and coordinated by the government, attesting to the high capacity and commitment of the government in times of disasters.

Areas that need improvement in disaster management include providing emergency livestock destocking and alternative livelihood support to pastoral communities. In the realm of disaster preparation, GOE has worked closely with WFP and other donor organizations to establish warehouses with food and supplies that are easily accessible for local communities. Additionally, new programs are being developed in partnership with the WFP to provide real time monitoring and inventory accounting in each of the warehouses. Improvement to capacity for the disaster risk reduction holds the most promise. This can be seen in the GOE taking a proactive and definitive leadership role creating a new National Policy for DRM focusing more on proactive risk reduction. Components of the risk reduction programs include improved early warning systems infrastructure, education and capacity building, and development of new standardized early warning guidelines and checklists to help communities respond earlier to forecasted disasters. Assistance to pastoral communities is a key focus for DRR in Ethiopia. While resettlement of these communities is unacceptable by government and pastoralists, the government and aid communities are exploring alternative programs for lowering risk and increasing livelihood resilience. These include a shift to agro-pastoralism, providing market access and credits to help pastoralist better manage their herds and inventory. Additionally, the voice and representation of the pastoral communities is increasing in national and community based forums for disaster planning and action.

The strong central role and control of the government has helped to improve coordination and minimize duplication of services. Weaknesses resulting from this high level government control include dependence on government consent and funds before any action can be taken, delay in government action when early warning forecasts and assessments are provided, lack of transparency in government assessments of vulnerability and need projections, and low capacity of subnational groups to monitor, plan, and implement DRM at the district and community level. There is promise that these weaknesses will be addressed in the near future. The National Policy on DRM, if passed, will place greater authority by moving the DRM agency under the prime minister's office reducing the need for bureaucratic approval process using line ministries. Efforts to improve transparency include shifting to more transparent software and modeling systems and training government on using these tools better inform the decision making process.

KENYA

Background on Natural Hazards

Natural hazards continuously plague Kenya. Recurrent droughts and floods, and the subsequent landslides and fires, are all expected semi-annually. In the past 30 years, droughts have recurred more often than the once-per-decade droughts experienced throughout east Africa's history, now surfacing every two-three years, hardly allowing time for recovery before recurring.

Kenya's population of 43 million is accustomed to natural hazards, experiencing consistent drought, followed by floods, which often lead to landslides. The indigenous pastoralist community is perhaps most continuously affected by these recurrent droughts, contributing to high livestock mortality rates and minimized access to water. However, endemic drought has overarching consequences that distress Kenya's population as a whole, making food more expensive, and contributing to lower health rates.

In the past 30 years, almost 9,000 disaster-related deaths were recorded with 50 million collectively affected in some form by a natural disaster.[383] Traditionally, the most drought-prone regions are the Garissa, Mandera, and Wajir districts in the North Eastern Province, and the Isiolo and Marsabit districts in the Eastern Province. Regions of western Kenya and the Tana River district in the Coastal Province are most susceptible to flooding.

Most recently, approximately 2.4 million Kenyans remained in 2012 moderately to highly food insecure due to long-term drought conditions. Additionally, many drought refugees from Ethiopia, Somalia, and Sudan currently living in the Dadaab and Kakuma refugee camps located in the severely drought depleted northern Kenya region require food assistance from USAID/FFP's Emergency Food Security Program (EFSP) to survive on a daily basis. Only 17 percent of Kenyan land is arable and 70 percent of the population lives in non-arid districts, yet the focus of disaster risk reduction is largely on drought management. Table 18 chronicles the natural disasters in Kenya over the last several decades.

General Political and Socioeconomic Background

Kenya was under British colonial power for over 75 years from 1895 until 1964 when it became an independent republic. At this time, presidential elections were held and Jomo Kenyatta became Kenya's first president and remained so until his death in 1988. Despite holding "free" elections, Kenyan politics have resulted in the election of only two presidents since Kenyatta's death. Corruption levels are perceived as considerably high and voter fraud is rampant in presidential elections.[384] The 2002 presidential election, which brought Mwai Kibaki into office, was deemed fair and it appeared at the time that Kenyan politics were becoming more transparent.

Ethnic fragmentation plays a significant role in determining political office in Kenya. Kenya is home to 42 tribes, with eight main ethno-politically relevant groups and 85 percent ethnic fractionalization (see Figure 14).[385] In December 2007, a presidential election between incumbent President Kibaki and Orange Democratic Movement candidate Raila Odinga sparked controversy between rural factions of their respective tribes. Originally leading the vote count, Odinga refused to accept Kibaki's sudden jump in margin and reclaiming of the presidency. Inciting protests and calling for a recount, Odinga's refusal to allow Kibaki to remain president soon led to ethnic conflict, killing almost 1,000 people and displacing over half a million Kenyans from their land.

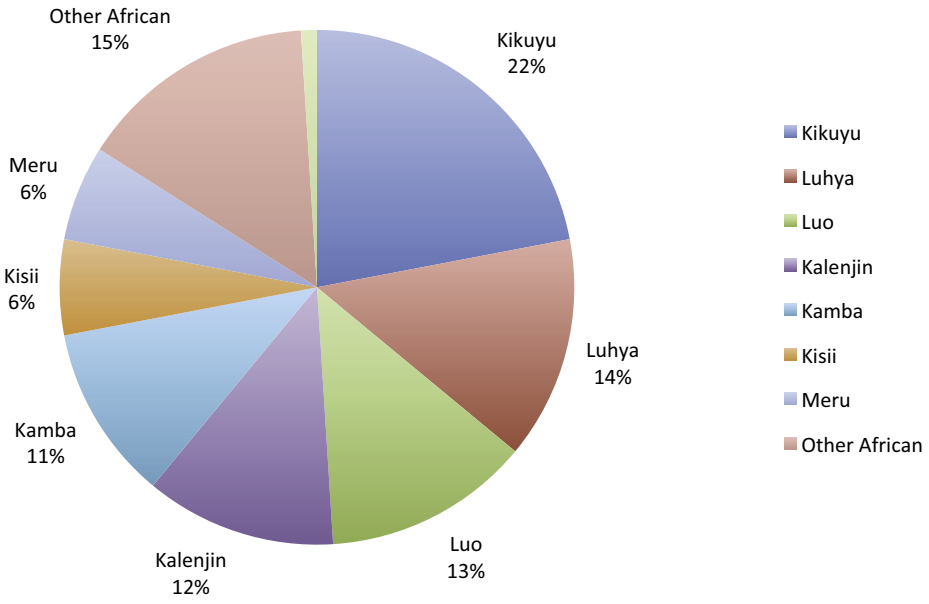
Table 18. Recent History of Major Natural Disasters in Kenya

Year	Type	Location	Dead/Injured/Affected
1975	Drought	Widespread	16,000 affected
1977	Drought	Widespread	20,000 affected
1980	Drought	Widespread	40,000 affected
1982	Floods	Nyanza	4,000 affected
1983 / 1984	Drought	Widespread	200,000 affected
1985	Floods	Nyanza, Western	10,000 affected
1991 / 1992	Drought	Widespread	1.5 million affected
1995 / 1996	Drought	Widespread	1.41 million affected
1998 / 1999	Floods (El Nino)	Widespread	1.5 million affected
1999 / 2000	Drought	Widespread	4.4 million affected by famine
2002	Floods	Nyanza, Busia, Tana River Basin	150,000 affected
2002	Landslides	Meru Central, Murang'a, Nandi	2,000 affected
2004	Floods	Widespread	50 dead
2004	Landslides	Nyeri/Othaya Kihuri	5 dead
2004 – Dec. 2005	Drought	Widespread	3.5 million affected
2006	Floods	Isiola, Western Kenya, Marsabit, Laisamis area	60 dead, Up to 10,000 displaced, 723,000 affected
2007	Landslides	Taita Taveta district	3 dead
2008	Landslides	Pokot Central	11 dead
2008	Floods	Rift Valley	24 dead, 2396 affected
Jul. 2008 – 2009	Drought	North Rift, Eastern, Central	3.8 million affected
2009	Urban Fire	Nairobi City	120 dead
Oct. 2009	Floods	Widespread	44,850 affected
Dec. 2009	Floods	Widespread	91,000 affected
Jan. 2010	Drought	Widespread	3.75 million affected
Mar. 2010	Floods	Widespread	194 dead, 141,000 affected
May 2010	Floods	Widespread	100 dead
Jan. 2011 – 2012	Drought	Widespread	~3.5 million affected[386]
Oct. – Dec. 2011	Floods	Widespread	~25 dead, ~91,692 affected[387]

Source: EM-DAT; Kenya National Disaster Management Policy Draft, 2009

Eventually, Kibaki and Odinga came to an agreement on a coalition government, allowing Odinga to serve as a prime minister with dually appointed cabinet members from both candidates' parties. This has created an environment of political stability but led to increased intra-bureaucratic competition and inefficiency according to some interviews. Most notably, in 2010, the constitution of Kenya was amended, replacing the colonial era 1969 constitution. The December 2012 presidential elections will provide a good indicator of the success of the past five years of collaborative efforts to stem ethnic division. Yet, outside forces can also play a role in domestic strife. As one international aid director points out, "how resources are allocated can either connect or divide communities." NGOs, media, and government need to be sensitive to post-emergency resource conflict pressures.

Figure 14. Tribal Representation of Kenya Population



Kenya is perceived to be highly corrupt. Control of corruption has scored in between the bottom 10th and 25th percentiles for the past 10 years.[388] Additionally, while Kenya is generally not perceived as a pariah state, some considered it a pariah state due to human rights violations under President Moi in 2002 and high levels of corruption as recently as 2007. Conflict events occur frequently – with 400 reported incidents in the past 20 years[389] – and attacks against foreigners in the Somalia border regions increased in 2011. Foreigners' willingness to visit Kenya declined by over 50 percent following the 2007 to 2008 post-election violence. The tourism industry is slowly recovering, though, and continues to comprise the largest portion of GDP from the service sector in Kenya.

Kenya's GDP has grown consistently since independence, currently sitting at $36.1 billion USD. However, foreign direct investment has recently dropped considerably, from $729 million USD in 2007 to just $141 million in 2010, following both the Kenyan post-election crisis and world financial crisis.[390] Overall, the Kenyan economy has grown at an estimated pace of 5, 5.3, and 5.5 percent respectively in 2010, 2011, and 2012.[391] This marks a fairly steady rise since 1980, with a brief drop in the mid 1990s. The robustness of certain sectors, particularly financial services and telecommunications, strengthens the capacity of agriculture and livestock production to adapt to climate hazards.

Kenyan GDP per capita is higher than all of its neighbors.[392] Current Kenyan GDP per capita is $1,700 USD and 50 percent of the population lives below the poverty line. This is partially due to a 40 percent unemployment rate, illustrated by a labor force of 18.5 million in a country with a population over 40 million. Seventy-five percent of the labor force works in agriculture while the remainder works in the industry and services sector. Primary agricultural products include tea, coffee, corn, wheat, sugarcane, fruits, vegetables, dairy, beef, pork, poultry, and eggs.

In terms of social expenditures, health accounts for 12.2 percent of the nation's GDP, while education spending accounts for only seven percent of GDP. The overall literacy rate is 85 percent and students, on average, spend 11 years in a traditional education facility.[393]

Sixty percent of the population has access to treated drinking water and 31 percent of people have access to sanitation facilities. HIV/AIDS rates are high at 6.3 percent or 1.5 million people. Life expectancy at birth is 63 years and only 2.7 percent of the population is over the age of 65. Fertility rates are high at four children per woman and the median population age is around 19 years.[394]

The majority of the Kenyan population is Christian, with approximately 22 percent identified as Muslim or practicing indigenous or other forms of religion. Kenya's two official languages are English and Kiswahili, but most Kenyans are tri-lingual, speaking both official languages in addition to a tribal tongue.[395]

While Kenya houses the largest airport in east and central Africa, the Jomo Kenyatta International Airport, and major ports in Mombasa, Malinidi, and Lamu, its infrastructure is still far from ideal.[396] The ports suffer many challenges due to droughts, floods, and sea-level rise. The roads and railways providing access to the ports and airports are in severe disrepair, making it difficult to transport agricultural products to an appropriate avenue for export. Inability to transport livestock out of the country before drought occurs is crippling to the pastoralist economy in Kenya.

Institutional Capacity for DRR, Preparedness, and Response

Overall, Kenya has shown little political leadership regarding its capacity to address complex climate emergencies. Despite the consistent recurrence of drought and floods, Kenya has yet to approve an official national disaster management policy. Lack of centralized response is mildly compensated for by localized government efforts, but without financial and capital building resources, these community endeavors often fall short, especially in preparedness measures. The majority of disaster-related spending in Kenya follows crises rather than being allocated in preparation for them.

One bilateral donor agency representative said the coordination of government with international and private actors is going well, especially due to UN OCHA and other government-led coordination bodies. If these coordination efforts continue, district level planning will be a viable arrangement for disaster preparedness in Kenya. District steering groups have the capacity to take every actor into account and bring them all in to share their expertise, without competition, to truly stake a claim in disaster preparedness and response within individual communities.

In general, interviewees largely regard decentralization of disaster management as the best course of action. While there is some debate regarding the level of central government involvement and coordination, all stakeholders interviewed found that higher amounts of responsibility devolved to local levels resulted in more appropriate, adaptable solutions to climate emergencies. Two respondents, both employed with INGOs, stated that the overall coordination mandate should be left to the central government in order to avoid an "emotional" response by donor organizations.

Another theme reiterated by interviewees was the need to ensure that local actors at community, district, and provincial levels have viable revenue streams to do their work effectively and at optimum capacity. Many contacts suggested creating revenue streams either through direct taxation or allocation from the federal budget for disaster management activities. Even when speaking of decentralization, many interviewees stated the importance of strong central government coordinating leadership. A representative of a multilateral organization stated that the goal should be to devolve the closest you can get to the citizen, but the government still needs to coordinate and make sure they have the capacity on the ground.

When discussing allocation of funding for disaster management activities, multiple respondents cited the need to take population density more into consideration. There was the general belief that urban populations were as vulnerable or more vulnerable than those living in drought-stricken arid and semi arid lands. In 2000, UNHABITAT estimated that urban dwellers made up 20 percent of the Kenyan population. In 2010 that figure was 22.2 percent. By 2030 roughly 33 percent, or one-third, of Kenyans are expected to be living in urban settings.[397] Currently, UNISDR reports "almost half of Kenya's capital city Nairobi's population lives in over 100 informal settlements within the city. Nairobi has some of the most dense, unsanitary and insecure informal settlements in the world."[398] So, while interviewees viewed decentralization positively overall, many suggested that funding allocations take urban poverty into greater consideration.

A few interviewees also indicated that certain central government actors, particularly the military and police leadership, may be unwilling to devolve their decision making power to lower levels considering their institutions operate within very centralized decision making processes. And yet, the new constitution established in 2010 calls for increased devolution in all government operations.[399] Therefore, negotiating the roles central government institutions play in relation to devolved actors should be an important clarification that the National Disaster Management Policy takes into account. Yet the 2009 draft does not directly address this, and the leadership of the provincial and district level committees appears very limited in the organizational structure.[400]

Interviewees regarded decentralization of many aspects of disaster response and risk reduction as one solution to the current lack of effective disaster management capacity. However, a national policy must establish the exact framework for this, and pervasive corruption must be acknowledged.

Only 17 percent of Kenyan land is arable and 70 percent of the population lives in non-arid districts, yet the focus of disaster risk reduction is largely on drought management. The World Bank funded a flood early warning system recently and another international donor is developing a tsunami early warning system, but these projects appear to be on the periphery compared to efforts to manage drought. The first policy success in disaster management was in November 2011 when the government of Kenya established the Drought Management Authority and the National Drought Contingency Fund (under the Ministry of State for Development of Northern Kenya and Other Arid Lands).[401] At the same time, the National Disaster Management Policy first drafted in 1998 has yet to be approved (under the Ministry of State for Special Programmes).[402] This signals a positive shift in the priority of DRR within the government of Kenya, but also demonstrates how much drought is the priority natural hazard and how many ministries share different disaster management authority. The following timeline shows how Kenya's institutional changes to address complex climate emergencies are often a reaction to a particularly devastating disaster occurrence, rather than proactive (see Table 19).

Priority 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Kenya only recently started to invest resources and personnel to address DRR, preparedness, and response. While climate change emergencies are perceived as an ongoing and growing threat, it is challenging to coordinate efforts in a way that utilizes all potential actors, including the Kenyan government, military, bi- and multi-lateral donors, IOs, national organizations, and community-based initiatives and individuals.

Because the Kenyan National Disaster Management Policy has not been approved, there is no official disaster management plan in existence on which actors can coordinate. While district steering committees have played an instrumental role in formulating community-centered action plans, unless they are given the authority to raise the appropriate revenue and organize themselves it is difficult to enact these plans.

The Kenyan National Disaster Operations Center (NDOC) was started in 1998, manned by officers from different ministries, departments of government, police, and military on a 24 hour basis, to "monitor, co-ordinate, mobilize reserves, and response to disaster incidents in the country." Their vision is to be the leading focal point for disaster management in Kenya. The NDOC monitors disasters, mobilizes natural resources to combat rapid-onset disasters, coordinates disaster management, and collaborates and networks with other stakeholders, including international actors and universities. Funded by the Office of the President, the NDOC is tasked with collaboration all the way down to the village committee level. Thus far, the department has remained small due to policymakers' lack of knowledge regarding the importance of disaster preparedness and response. The NDOC faces many challenges, in addition to minimal funding, including the challenge of coordination, avoiding duplication of aid and development efforts, responders traditionally responding in whatever way they see fit without informing the NDOC, and lack of trained responders in the field.

Table 19. Kenya Disaster and Capacity Timeline

Disaster Timeline	Year	Capacity Timeline
16,000 affected by Drought	1975	
20,000 affected by Drought	1977	
40,000 affected by Drought	1980	
4,000 affected by Floods	1982	
200,000 affected by Drought 10,000 affected by Floods	1984	
	1986	Six countries in the Horn of Africa established the intergovernmental authority for development and drought control in their region (IGAD).
1.5 million affected by Drought	1990	World Bank Emergency Drought Recovery Project begins.
	1992	World Bank Emergency Drought Recovery Project ends.
1.41 million affected by Drought	1994	First phase of the World Bank Arid Lands Resource Management Project begins. The two phases last 14 years.
1.5 million affected by El Niño Floods	1996	First draft of National Disaster Management Policy not approved.
	1998	The National Disaster Operations Centre (NDOC) founded to coordinate central government response to disasters.
4.4 million affected by Drought	1999	Kenya Food Security Steering Group and the Inter-Ministerial Committee on Drought and Food Security established.
150,000 affected by Floods 2,000 affected by Landslides	2000	National Disaster Management Policy reviewed, policymakers felt it needed to address a wider range of hazards.
50 dead from Floods 5 dead from Landslides 3.5 million affected by Drought	2002	Golden Spear Initiative - U.S. is "anchor partner" in what becomes the Regional Disaster Management Center of Excellence (RDMCOE).
723,000 affected by Floods 14 dead from Landslides	2004	Ministry of State for Special Programmes (MSSP) created to manage ASAL resources, coordination of DRR, the El Niño Emergency Project, and emergency response coordination.
	2006	National Disaster Management Policy redrafted to include climate change and social insurance and protection. European Community funded Drought Management Initiative begins as a four year project resulting in REGLAP and NDMA.
24 dead, 2396 affected by Floods 3.8 million affected by Drought	2008	Creation of the Ministry of State for the Development of Northern Kenya and other Arid Lands (MSDNKAL).
44,850-91,000 affected by Floods	2009	National Disaster Management Policy redrafted to entrench it within the Ministry of Special Programmes, not approved.
3.75 million affected by Drought 100 dead and 141,000 affected by Floods	2010	
3.5 million affected by Drought ~25 dead, ~91,692 affected by Floods	2011	National Drought Management Authority (NDMA) and a Drought Contingency Fund created under the administration of the MSDNKAL and not MSSP.

Sources: Kenya National Disaster Management Policy 2009 Draft, IGAD, ILRI, RDMCOE, REGLAP, Government of Kenya websites (Arid Lands, MSNKAL, KFSSG)

Instituted by the Office of the President, the NDOC officially falls under the president's purview, but is practically operated by police chiefs, military officers, government employees, and communication experts. Their role is strictly disaster coordination and the NDOC works primarily with the Ministry of Arid Lands, which is closest to the ongoing climate-related crisis.

The only recent policy success has been in establishing the Drought Management Authority and the National Drought Contingency Fund (under the Ministry of State for Development of Northern Kenya and Other Arid Lands).[403] At the same time, the National Disaster Management Policy first drafted in 1998 has

yet to be approved (under the Ministry of State for Special Programmes).[404] By this measure alone, it is clear that drought is the priority natural hazard.

Given the prevalence and consistency of drought, Kenya has established many district steering committees and community groups for this type of hazard. These committees are meant to tie government efforts, aid resources, and region-specific disaster plans together. The successful steering committees employ the expertise of experts along with indigenous knowledge to create action plans fully utilizing available resources. These committees can help aid agencies avoid duplicating efforts and provide general knowledge to the community regarding crops, livestock, food security, and safety prior to disaster. Unfortunately, many of these district committees are not adequately able to fund themselves in a way that makes a difference leading up to, during, or following disasters.

Priority 2. Identify, assess, and monitor risks and enhance early warning.

Many monitoring and early warning resources are available to Kenya, including FEWS NET early warning data, Kenya Meteorological Department predictions, and historical data on past disasters. Donors and civil society also support several flood programs and even a tsunami early warning system.

Despite access to early warning and monitoring systems, Kenya has yet to implement measures that utilize these sources in ways that lessen the long-term effects of recurrent climate emergencies. Many interviewees agreed that organizations and individuals trusted early warning broadcasts from FEWS NET and Kenya Meteorological Society as they became perceived as more accurate. Several contacts employed by NGOs mentioned that their organizations used this regular early warning climate data to inform and prepare their rural constituents.

All interviewees regarded national and local media as a positive influence on disaster resiliency in terms of their ability to disseminate early warning messages and communicate the importance of disaster preparedness. The widespread use of SMS and cell phones in Kenya also aids disaster capacity at the individual level of even the most remote pastoralists and farmers, particularly as many insurance and early warning innovations utilize these communication methods.

Droughts and floods are cyclical and expected on a regular basis in Kenya, although increasing in frequency and duration.[405] Interviewees perceived that in recent years many actors have improved their technical capacity to predict and disseminate climate disaster information, including the Kenya Meteorological Society, FEWS NET, the telecommunications industry, local radio, and other media. Yet despite this improved technical capacity in early warning and information networks, Kenya was still ill prepared for the 2011 drought.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

The recent evolution of Kenya's District Steering Committees has allowed the central government to understand better community capacities to address complex climate emergencies. From encouraging pastoralists to sell livestock before a drought hits to pushing for better infrastructure to transport crops to market, district steering groups advocate for the individuals in their region. They also provide district-specific disaster plans, so all roles are clarified before disaster strikes. Similarly, UNOCHA heads up coordination efforts that pull together community-based initiatives, IOs, and government actors to coordinate disaster preparedness and relief efforts and avoid duplicating focus. These coordination efforts allow a cross-sectoral flow of information. Tied with post-disaster crowd sourcing information, such as that produced by organizations like Ushahidi, and predictive disaster warnings from FEWS NET and the Kenyan Meteorological Society, the capacity to expand disaster risk management in Kenya is significant.

Similarly, the coordination of efforts between actors allows greater capacity within the disaster risk management space. When each entity is allowed to function within its expertise, and efforts are not duplicated, greater populations are reached with less effort and higher efficiency. For these adaptable

schemes to work, individuals must be educated on both the importance of preparedness and the geographical logistics of their region. This education must start early – at the elementary level – teaching children the effects of drought on agriculture and livestock, and the importance of harvesting water and other resources in times of plenty.

Priority 4. Reduce the underlying risk factors.

Without a disaster risk reduction policy or standard disaster recovery plan implemented by the Kenyan government, minimal national resources are allotted to DRR. This creates an overreliance on external funding for disaster response. Additionally, there is a dependency on development projects doubling as prevention/preparedness efforts in regard to complex climate emergencies. For example, improved roads act not only to improve safety and potential trade routes, they also are less likely to wash away in floods and provide accessibility to markets to offload livestock prior to a disaster.

International aid seeps into the country in part as a result of complex climate emergencies, such as drought and floods. Kenya received $3.5 million USD in aid in 2009.[407] As these resources are slotted for certain disaster response purposes, the economic idea of a restricted grant comes into play, leaving the Kenyan government able to replace funds it would traditionally reserve for disaster response with anticipated aid.

In Kenya, IOs and civil society have a high activity level in disaster risk reduction and preparedness, particularly in drought. There was no evidence from expert opinion to suggest that donor and civil society spending in preparedness increases government willingness to spend on preparedness. Compared to its neighbors Ethiopia and Uganda, Kenya's foreign aid from ODA as a percent of total government expense has remained consistently low at less than 30 percent.[407]

Priority 5. Strengthen disaster preparedness for effective response at all levels.

Much of Kenya's response to natural disasters is highly dependent on outside aid or in-country NGOs. Officially, first response is the job of the Kenyan military, but most relief is provided through secondary channels. Many development projects double as disaster preparedness, such as infrastructural improvements, water storage, and sanitation facilities. With ODA and aid received in 2009 topping 3.5 billion, disasters can be perceived as a cash cow in assistance money.[408]

Overall, Kenya's capacity for disaster risk reduction, preparedness, and response fluctuates based on external contribution. While governing entities are aware of disaster potential – due to previous and predicted emergencies – funding preparedness efforts is not a priority. Additionally, receipt of aid following disasters often allows the government to provide only minimal resources for response. However, if Kenya did have access to the appropriate funding to thoroughly invest in disaster risk reduction, it is unclear if resources would be allotted toward this effort. Despite the increased accessibility of information and the growing frequency of disasters, no one has yet championed the cause of disaster risk reduction in Kenya.

Since drought is so pervasive, little attention is given to disasters as a whole. However, since drought recurs so often, it makes up the entirety of DRR focus, and is rarely addressed in any form other than recovery. Many note the noticeable change in the length of the dry seasons. Individuals have adapted to this slow digression into longer droughts. While many admit that measures should be taken to avoid the affect of acute, rapid-onset disasters such as floods and landslides, as side items following drought impact, drought is still given the main stage in preparedness potential. Additionally, greater response is evoked following rapid-onset events, allowing Kenya to solicit aid since greater numbers are affected in shorter amounts of time. Thus, in the eyes of Kenya, no heed need be paid to rapid-onset disasters until they hit, at which point response is overwhelming.

KEY HYPOTHESES

These two countries provided evidence for differing hypotheses. In Ethiopia, the hypotheses for which researchers found the strongest empirical evidence were 'perceived risk' and 'country leadership.' The 'perceived risk' hypothesis states that if a government perceives the risk of a natural hazard is high, they will invest more in preparedness. The 'country leadership' hypothesis is a new hypothesis developed within this project developed specifically due to the unique political and social context of Ethiopia not accounted for in existing hypotheses. This hypothesis states that if a government seeks to establish local and international legitimacy in an issue area, then they will be more likely to spend there. Although Ethiopia has a long history of serious natural disasters, the government has taken steps to become better prepared for disaster risks in recent years and improved its ability to respond. The Growth and Transformation Plan (GTP) by the government of Ethiopia outlines a vision to be agriculturally self-sufficient as well as obtaining a highly developed export capacity by 2015.[409]

In Kenya, the hypotheses with the strongest empirical support were that of 'moral hazard' and 'political development.' Since the early 1990s the World Bank and the European Community in particular funded massive drought management and relief projects. These projects resulted in much positive improvement in the disaster resilience of arid land populations and increased capacity at the decentralized district levels. However, there appears to be little political will within the Kenyan parliament to tackle disaster management issues or national policy. More specifically, there are areas of disaster management where responsibilities are overlapping and inconsistent between disparate ministries. Therefore the responsibility to prepare for and respond to disasters lies largely on the shoulders of international donors and their community-based organization partners. Steering groups, working groups, and central government coordination bodies play a role in bringing actors together, but ultimately the first responders, purse strings, and policy focus appears to originate from the donor and NGO community.

Ethiopia

Moral Hazard

In Ethiopia, the research team found evidence to contradict the overall moral hazard hypothesis. Ethiopia expects annual international aid in general and even more when a natural shock occurs, yet it still invests in preparedness activities. Ethiopia has been receiving aid from NGOs and donors for many decades and there is a permanent Safety Net Program funded by outside donors. Yet it chooses to continue its efforts to eliminate dependency on outside donors. According to the GOE's most recent five-year Growth and Transformation Plan (GTP), by 2015 they will no longer depend on international food aid for emergencies.[410] This independence depends on the success of their policy to double agricultural output and a continued high rate of 11 percent average GDP growth, which has been the average for the past few years. These goals are ambitious, but signal that the GOE is committed to investing in capacity even with the existence of international aid.

The security situation sub-hypothesis states that if a country believes that its security situation would deter effective external aid, especially on the ground, then it will invest more in preparedness. The research team did not find evidence to support this. Ethiopia's overall security situation is stable and they do not believe it will affect their aid. Ethiopia has several currently active, but relatively minor, border conflicts and rebel movements such as local conflicts with Eritrea, Somalia, and some conflict on the Sudan and Kenya border. Yet, the government still invests in preparedness. Most foreign organizations are located in Addis Ababa, which is a safe city for foreigners. Rebel group attacks against foreigners occur occasionally, but this is typically in remote regions. Tourists and foreign workers perceive Ethiopia to be generally safe and so security does not impact their willingness to visit or operate. Overall, then, the evidence provides strong evidence against the moral hazard argument in Ethiopia, given the large roles played by both external actors and the government in disaster management.

Perceived Risk

In Ethiopia, the research team found evidence to support the perceived risk hypothesis. Ethiopia has experienced natural hazards and disasters in the past, so the government is currently investing in preparedness. Many interviewees repeated this point. Ethiopia invests in disaster preparedness and response capacity in response to the many droughts that have occurred in the past. The organizations in Ethiopia are certain that another drought will happen, so the perceived risk approaches 100 percent. The perceived risk of a drought-induced famine is also very high, although preventative measures may bring this down over the next decade. Droughts are cyclical following the El Niño and La Niña weather cycles. There have been droughts every few years for generations, so the GOE plans to continue to invest in preparation for the coming droughts.

The country size sub-hypothesis states that if a country is small, then it will invest more in preparedness, given the greater threat of a hazard to the country's overall welfare. The research team found evidence in Ethiopia to contradict this hypothesis. Ethiopia is a large country with a large population, yet the GOE perceives the risk of disaster to be great enough to be a threat to their welfare.

The large natural shocks sub-hypothesis states that if a country is at risk of large natural shocks (but not necessarily frequent), then it will be more likely to invest in preparedness. Ethiopia provides evidence to support this. The country's large population living in arid lands at risk for drought puts them at risk of large natural shocks. Ethiopia is more likely to invest in preparedness to reduce the number of people impacted.

The concentrated population sub-hypothesis states that if the at-risk population is concentrated in smaller areas, less money will be required to offer them the same level of protection, and so less will be spent. The research team found evidence to contradict this sub-hypothesis. In Ethiopia, the at-risk population is not concentrated in smaller areas. Ethiopia is only 17 percent urban, and most of the cities are not in high-risk areas.[411] The high-risk areas are in the lowland arid areas that have dispersed populations. But even with this low population density in high-risk areas, Ethiopia works with outside organizations to help people in these areas.

The population wealth sub-hypothesis states that if the at-risk population is wealthier or more productive than the national average, more money will be spent on DRR to protect them and their contribution to the economy and tax base. If they are a drain on resources, less will be spent. The research team found evidence to contradict this sub-hypothesis. The at-risk population is poorer than the national average and at risk of malnutrition, but money is still spent on DRM to protect them.

The disaster type sub-hypothesis states that some types of disaster are more difficult to secure people against than others. The deadlier the disaster type at issue, the lower the return of protection per investment dollar, the fewer dollars are spent. The research team found evidence to contradict this hypothesis. Drought is a difficult disaster to secure against, but Ethiopia is familiar with drought response mechanisms and they continue to invest in DRM capacity for droughts and the impact of the famines created by the drought. Ethiopia's Growth and Transformation Plan (GTP) is focused on doubling their agriculture output by 2015 so that they can respond to famines without the need for outside funding. Considering the perceived risk hypothesis and all sub-hypotheses, the evidence provides strong support for a perceived risk argument in Ethiopia, based on the expected risk of drought and the continued response by the GOE, donors, and IOs.

Electoral Incentives and Democracy

In Ethiopia, the research team found evidence to contradict the electoral incentives hypothesis. The current ruling party has a strong hold on electoral power. And since the ruling party's most recent power consolidation, there have been a series of crackdowns on pro-democracy advocates.[412] The government does not rely on electoral success to stay in power, so it is unlikely that they are improving DRM for electoral benefit. But the government may be spending more on preparedness to improve their legitimacy in the eyes of their people and the international community.

The differing support sub-hypothesis states that if a government has differing support across regions of a country (including from particular ethnic groups), then it will invest more in preparedness in areas dominated by its supporters. The research team found evidence to contradict this hypothesis. The GOE has differing support across regions of a country and from the different ethnic groups, but it still invests in preparedness in areas that are not dominated by its supporters. As stated earlier, Ethiopia's ethnic demographics include many ethnic groups. The central government bureaucrats made of multiple ethnic groups favor DRM programs and believe in helping all affected communities. Many of them were working on disaster response before the new ruling party took over in 2005 and they are continuing their work. But the Tigray ruling party from the north also supports DRM programs, even though much of the spending is in the south and east. However, they show a little favoritism by sending proportionally more funds north to Tigray.

Another sub-hypothesis states that if politicians perceive that citizens respond more to disaster response than to preparedness, then they will spend less on preparedness and will spend more if a natural disaster happens. The research found no conclusive evidence on this sub-hypothesis. The interviewees support more spending on DRM, but they are not the typical Ethiopian citizens. The field research in Ethiopia was not able to include interviews with politicians or distant affected peoples, so there is no evidence to determine how they feel about Ethiopia's DRM capacity.

The media sub-hypothesis states that if the media gives more attention to preparedness activities thereby increasing the likelihood of an electoral benefit, then governments will invest more in preparedness. The research team found evidence to contradict this hypothesis. The international media gives some attention to preparedness activities, but it gives more attention to the response after the disasters happen. And, the local media is not independent—it is very controlled by the GOE according to interviews and Freedom House, which declares the media "Not Free".[413] Because of this control, government-controlled media downplays dire predictions and emergencies, especially early on.

The spillover sub-hypothesis states that if preparedness spending leaks into areas that are likely to help politicians electorally, then they will be more likely to invest in preparedness. The research found evidence to support this. There are spillovers that allow the ruling party to channel business contracts such as the lucrative water delivery truck contracts to the Tigray ethnic group. There is political will for DRM spending, but the ruling party does not feel like it has to use it to court votes.

The acute shock sub-hypothesis states that if the population suffers from an acute natural shock, then they are less likely to hold the government responsible than if it is a slow-onset disaster, and thus governments will invest less in being ready for more acute shocks. Ethiopia's droughts are slow onset and fairly predictable, and there is will to address the problem because it happens regularly and gets international attention. The GOE wants to change that perception.

The democracy hypothesis states that if a government is in a country with a more advanced democracy, then it will invest more in preparedness. Also, if there are competitive elections in a country, then the government will be more likely to invest in preparedness because it is more likely to be held accountable by the population. In Ethiopia, there is evidence to directly contradict this hypothesis. The ruling party has consolidated their power and grip and opposition groups are regularly squashed. The Democracy Index 2011 from the Economist Intelligence Unit ranked Ethiopia 121 with a low score of 3.79 (out of a total of 10 possible).[414] Ethiopia is not an advanced democracy and yet it still invests in preparedness.

Considering the electoral benefit and democracy hypotheses and all sub-hypotheses, the evidence provides strong evidence against an electoral and democracy argument in Ethiopia, given the control of the ruling party and the continued investment by the GOE.

Political Development

In Ethiopia, there is evidence to support the political development hypothesis, at least regarding the quality of the bureaucrats. The current bureaucracy is viewed as competent and skilled and has the capacity to implement the DRM programs.

The corruption sub-hypothesis states that if a country's politicians are more corrupt and if international aid flows are more easily diverted into rents than preparedness funds, then the government will be less likely to invest in preparedness. The research found evidence to support this sub-hypothesis. According to several interviewees, Ethiopia has a low level of political and bureaucratic corruption. While contrary to TI's low index score, the majority of interviewees, both foreign and domestic, agreed on the perception of Ethiopia as reasonably uncorrupt.

A sub-hypothesis states that if government agencies are largely insulated from politics, then they will be more likely to engage in preparedness activities. The research found evidence to support this sub-hypothesis. Ethiopia's government agencies seem to be insulated from politics and provided with a fair amount of political independence. This allows them to continue to implement their DRM programs without outside interference. The National Meteorological Agency is semi-autonomous and free to gather early warning information. The DRM policy that is being passed by the legislature will remove the DRMFSS from the Ministry of Agriculture and place it under the Prime Ministers responsibility. This should give the policy more independence.

The decentralized sub-hypothesis states that if local officials, who have a more first-hand knowledge of and exposure to risks, are in control of budgets and projects, then the country as a whole will spend more on preparedness. There is evidence to support this sub-hypothesis in Ethiopia. Although DRM funding and policy is centralized, autonomy in general has been decentralized in the past eight years. This allows local officials, who have a more first-hand knowledge of and exposure to risks, to be more in control of budgets and projects. According to interviews, there is good coordination between national, regional, woreda, and community level efforts on DRM.

Considering the political development hypothesis and sub-hypotheses, the evidence provides strong evidence to support a political development argument in Ethiopia, given bureaucratic quality and independence, as well as low government corruption and continued investment in DRM and preparedness.

Civil Society

In Ethiopia, the research found evidence to support a hypothesis emphasizing the role of CSOs in disaster management. However, the CSOs are used as tools of the government and are not providing leadership. It was very clear from the interviews that leadership in DRM was coming from a strong government presence.

The CSO pressure hypothesis states that if civil society actors pressure the state to invest in preparedness, then the state will invest more. The research found evidence to support this sub-hypothesis. The civil society actors in Ethiopia pressure the state to invest in preparedness and they respond by investing more. The NGOs, as well as IOs, have been there for decades.

A sub-hypothesis states that if there is a strong civil society, then civil society actors will engage in their own preparedness activities. Ethiopia provides evidence to contradict this hypothesis because CSOs are not allowed to engage in their own preparedness activities. The CSOs are highly mobilized and integrated with the GOE and donors, but all preparedness activities are directed by the GOE. CSOs are not allowed to undertake their own programs. Multiple interviewees confirmed this information.

The local kinship sub-hypothesis states that if there are strong local kinship networks, then local actors will invest more in preparedness. This seems to be the case in Ethiopia. There are strong local kinship networks in the many ethnic groups and according to interviews, these local ethnic groups have their own traditional practices to deal with droughts and famines. There is also a new government focus to integrate those practices into new programs.

Considering the civil society hypothesis and sub-hypotheses, the evidence supports the main civil society hypothesis, but not necessarily the sub-hypotheses. The evidence provides moderate evidence to support a civil society argument in Ethiopia, given the strong level and CSOs and the GOE's continued investment DRM and preparedness.

External Actors

In Ethiopia, there is evidence that supports the hypothesis that if a country or government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness. There is a very strong international non-state actor presence in Ethiopia and the GOE uses these CSOs to enhance its disaster preparedness. Since the 1980's, the international community has focused on Ethiopia's frequent droughts, providing resources, training and information. Ethiopia has used this information and training to develop their DRM capacity and framework.

The proximate state sub-hypothesis states that if a state is proximate to states that are investing in preparedness, then it will invest more in preparedness. The research found mixed evidence to support this. Ethiopia is part of the Horn of Africa, which is a region struck by drought cycles. According to interviews, Kenyan agencies and organizations invest some resources in disaster management, but the other neighbors such as Somalia, Eritrea and Sudan do not. Ethiopia is the most prepared country in the region, causing refugees to cross into their country during difficult times such as the 2011 drought.

The exposure sub-hypothesis states that if a state has more exposure to IOs and INGOs that promote preparedness, then it will invest more in preparedness. Ethiopia has had considerable exposure to IOs and INGOs that promote preparedness, and that has helped the country invest more in preparedness policies and programs. After years of external actors promoting response and preparedness, the GOE has now taken the lead, managing the high levels of activity and coordination between the organizations.

Considering the external actors hypothesis and sub-hypotheses, the evidence supports the main external actors hypothesis, but not necessarily the sub-hypotheses. The evidence provides moderate evidence to support an external actors argument in Ethiopia, given the high level of capacity building from NGOs and the GOE's continued investment DRM and preparedness.

Economic Strength

In Ethiopia, evidence largely contradicts the economic strength hypothesis. Ethiopia is one of the poorest countries in the world and the government does not have many resources to spend on disaster preparedness. Yet, it still remains a high priority for the government and they commit resources to addressing the problems.

The international aid sub-hypothesis states that if a country receives a large amount of international aid, then it will be more able to spend on preparedness. The research found evidence to support this. As described earlier, Ethiopia receives a large amount of outside aid, yet they continue to invest in preparedness.

The market sub-hypothesis states that if there is a vibrant market economy, then there will be more investment in preparedness due to market actors pressuring the state to protect their own investments and engaging in their own preparedness activities. The research team did not find evidence to support this sub-hypothesis. Ethiopia does not have a vibrant market economy and market actors do not have the power to pressure the government to make additional investments. According to interviews, the GOE also does not trust or embrace the private sector.

The agricultural economy sub-hypothesis states that if a country's economy is dominated by agriculture, then it will invest more in preparedness. Agriculture dominates Ethiopia's economy, making up 50 percent of GDP and 85 percent of the labor force. The Growth and Transformation Plan also plans to double agricultural output by 2015. This makes Ethiopia very dependent on agriculture, so the government has a vested interest in measures that prepare them for natural shocks that may destroy their crops.

Considering the economics hypothesis and sub-hypotheses, the evidence does not support the main hypothesis, but does offer some support for the sub-hypotheses related to aid or agriculture.

Country Leadership

The country leadership hypothesis states that if a country views itself as exceptional and important, they will be more likely to invest in preparedness so that they can keep from being dependent on the international community. The established hypotheses provide some leverage for explaining Ethiopia's desire to properly prepare for and respond to drought-induced famines, but they do not completely capture the motivations for Ethiopia's disaster management activities. Ethiopia receives considerable international support in terms of funds, structure, resources, and offers of leadership and could rely on these actors to play the primary role in DRM, but they do not.

To properly and completely explain Ethiopia's drive for disaster management, an additional explanation based on Ethiopia's desire to play a leadership role in DRM may be necessary. In response to the question of why Ethiopia was so aggressively trying to build enough capacity to manage their disasters, a large number of interviewees noted that Ethiopia is a proud country with a long and rich history and that Ethiopians see themselves exerting a historically important world influence. But this history contrasts with their low GDP, high poverty level, and proneness to disasters. DRM provides an opportunity for the Ethiopian government to take a leading role in responding to the severe natural hazards in the region and potentially serving as a role model for other countries. One important element of this agenda is reducing the country's dependency on international aid.

Kenya

Moral Hazard

The empirical evidence in the Kenyan case supports the moral hazard hypothesis. Perhaps one of the greatest detriments to Kenya's disaster preparedness efforts is the understanding that international aid seeps into the country as a result of complex climate emergencies, such as drought and floods. The sub-hypothesis that if a country expects international aid at the time of a natural hazard it will invest less in preparedness is supported in this research. With $3.5 billion USD in overall aid received in 2009, disasters helped make available additional resources from international sources.[415] In 2008 to 2009, only 1.5 percent of the central government expenses were accounted for in "disaster," "drought," "famine," "flood," or "food security" line items.[416] In the same year, 8.5 percent of central government expenses were spent in support of the Ministries of Internal Security (part of NDOC), Special Programmes, Environment, Northern Kenya, and Arid Lands. The Ministries of State for Special Programmes, Environment, Northern Kenya, and Arid Lands collectively received only 2.5 percent of Kenya's central government expenses.[417]

An additional concern is that foreign aid promotes continued pastoral existence in unlivable areas. As noted by an IO director, the land carrying capacity of livestock is becoming smaller and smaller. Similarly, a livestock expert cites drought as the rangeland's attempt to control capacity. Simply stated, many northern regions highly prone to droughts simply cannot, and should not, sustain livestock. At least half of those interviewed mentioned the basically unlivable nature of the arid northern lands.

However, one academic argues that some cling to "vulnerable" status and are not willing to propel themselves forward because then they will lose outside aid options. If a community is unwilling to develop, outside attempts to force development are useless. Similarly, an organization head finds that women are no longer knowledgeable about drought resistant crops, such as sorghum, and the meals that can be made using them, making them highly dependent on food-stuffs they cannot readily produce in times of drought, further propelling the dependency cycle on emergency food aid.

Climate change adaptation, disaster preparedness, and DRR have traditionally been under-defined areas of spending in the Kenyan system. With limited funding available for development, the most ideal situation would be a marriage between development and preparedness programs, such as water storage and sanitation, irrigation systems, improved infrastructure, and livestock education programs, to cite a few examples. However, aid is so consistently available in Kenya, especially surrounding disasters, people

are encouraged to continue to live in unsound areas, without investing in preparedness measures, due to aid reliance.

While one can argue that the best use of resources is in population dense areas, this has not traditionally been the case in Kenya. The majority of involved actors cite urban centers as highly vulnerable and in need of DRR that targets weak infrastructure and resource sustainability, but this is not yet a priority in DRR planning and policy creation. The bulk of Kenyan disaster policy, IO attention, and media concentration all focus on consistently high-vulnerability rural populations. These populations are smaller and contribute less to overall GDP, yet live most consistently in recurrent drought.

Ultimately, Kenya needs to allot contingency funding for disasters despite anticipation of aid. As security in case aid does not arrive, pastoralists should receive training indicating when livestock should be diminished or replenished per drought cycle and whether or not sustaining cattle in certain regions is actually practical. Similarly, systems that make offloading weak livestock, not resilient enough to suffer drought, easily accessible should be available countrywide. This will lessen the fear of food insecurity, for both humans and livestock, nationwide.

Perceived Risk

In Kenya, there is some, but not conclusive, evidence in support the importance of perceived risk. The Kenyan case runs counter to many of the common sub-hypotheses surrounding institutional response to perceived risk. These sub-hypotheses assume that the government will invest more in highly populated areas, protect the wealthier areas, invest more in disasters they have experienced in the past, invest more in large disasters, and prepare against a risk perceived as imminent. For the most part, this is not the case, although the policy environment changed substantially in 2011. Political will for disaster management is focused on the least populated arid and semi-arid lands where the poorest Kenyans live. Additionally, droughts and floods are expected on a regular and cyclical basis, yet disaster risk reduction and preparedness activities continue to be inadequate on many levels.

However, drought is the disaster that is largest and costliest in terms of lives lost, and in November 2011 the government of Kenya established the National Drought Management Authority and National Drought Contingency Fund. This policy is a significant change in the status quo of reducing the risk of, preparing for, and responding to the slow-onset, regular, but disastrous droughts Kenya regularly experiences. Many interviewees from community-based organizations and IOs were quick to point out that stakeholders have worked on this policy for several years, but it was not until the 2011 drought that sufficient political will developed to pass the legislation. This supports the evidence from our research of the timeline of institutional change, that Kenyan political will in disaster management is more reactive to disasters than proactive. Therefore it could be argued that electoral incentives or political development hypotheses may have played a larger role in government action regarding drought management policy than simply perceiving the risk and insuring against it.

The Kenyan government perceives the risk of drought, floods, and other disasters since most of them are a regular occurrence. Early warning and technical capacity is also quite improved in recent years. Yet with only the vague rhetoric of decentralization in the 2010 constitution, a drought specific policy, and complete lack of formal national disaster management policy—even though the risk is perceived, the state does not act accordingly.

Electoral Incentives and Democracy

The empirical evidence in the Kenyan case does not support the primary electoral incentives hypothesis. Overall, Kenyans have not historically held their elected officials responsible for either the promises they make or the overall well being of the country. Voting in the rural communities is most often based on bribery or false promises rather than illustrated capacity to address crisis or national emergency. This provides evidence against the hypothesis that if a country has competitive elections, then the government will be more likely to invest in preparedness because it is more likely to be held accountable by the population.

A sub-hypothesis—that if events are rare, then government will not invest in preparedness, because efforts will be hard to measure and thus electoral benefits will be limited—also finds only limited support in Kenya's case. Kenya minimally invests in any potentially disaster—rare or consistent—despite measurability. The related hypothesis that if politicians perceive citizens respond more to disaster response than to preparedness, then they will spend less on preparedness and will spend more if a natural disaster happens is also false in Kenya, merely because Kenyans do not vote based on standards of accountability for disaster response and/or preparedness.

The hypothesis that if a government has differing support across regions or ethnic groups, then it will invest more in preparedness in areas dominated by its supporters is unsubstantiated in this case. While there is some public concern that resources are allocated in conjunction with elected entities' ethnic/tribal connections, this is not necessarily the case. Forty-two tribes are represented in Kenya, with some of them severely marginalized. This tribal diversity has led to conflict, specifically politically motivated conflict and conflict over resources. One interviewee noted all conflict is essentially climate change related, since all conflict is motivated by resources allocation, most often strained by natural hazards. Despite the concern over resource allocation and the perception that climate change can be used as a political tool, five-year election cycles make it difficult for highly preferential elected officials to remain in office.

There is considerable variation in opinion among disaster experts regarding where preparedness spending should be allocated geographically in Kenya. While the northern, drought-prone region is consistently in need, some argue preparedness should instead focus on the western "bread basket" region which would ensure greater food security nationally even through times of drought. Conversely, others argue the coastal port area should be targeted to avoid the detrimental affects sea-level rise or infrastructure-damaging floods have on trade. While some officials are preferential to spending on their home region, the constitution requires certain extra measures of protection and development focus on underdeveloped and high GDP contributing areas. This creates a stopgap in privileged resource spending. One interviewee suggested that in the developed system of governance with the new constitution, Kenyans are seeing new opportunities for resource allocation in underprivileged areas.

One sub-hypothesis—if the media gives more attention to preparedness activities, then the government will invest more in preparedness—is supported by the evidence in Kenya. Media plays a substantial role encouraging elected officials to invest in preparedness, especially when disaster response and preparedness can be tied to what one economist called Kenya's "political soap opera." While preparedness is not necessarily the media's strong suit, inciting post-disaster response and coordinating resource allocation is an added bonus to its function. While the Kenyan media is considered an "independent" press, it is still strongly tied to the political system and there is a general lack of acceptance in media diverting from the normalized reporting. Thus, while mildly peer pressured, once one main media source emphasizes the importance of disaster spending, the call quickly becomes a trending topic. As one advocate argues, people do not understand that climate change-related disasters are directly affecting what they have economically.

There is some evidence to support the hypothesis that if preparedness spending has spillovers into areas that are likely to help politicians electorally, then they will be more likely to invest in preparedness. Much development spending doubles as preparedness spending if allocated in the appropriate sectors, such as water collection and sanitation, irrigation systems, infrastructure improvement, pastoralist livelihood education, etc. This development spending potentially creates spillover benefits, which solidify politicians in their roles.

Kenyans are not known to hold their elected officials accountable for disaster preparedness or response and do not vote with this in mind. Thus, the hypothesis that if the population suffers from an acute natural shock, then they are less likely to hold the government responsible, and thus governments will invest less in being ready for more acute shocks, is unsubstantiated in this study. As one interviewee described, Kenyans have high illiteracy, low civic education, and general voter apathy. They rarely elect officials based on values or issues, but rather respond to clan relationships and money. Another interviewee stated

that Kenyan elections have no preparedness rhetoric, because Kenyans vote based only on "harambee," a Kiswahili word for bribes, whether actually delivered or falsely promised. However, politicians are beginning to take preparedness seriously as they begin to understand the potential long-term effects on the Kenyan economy. Additionally, so much information is available about potential hazards and early warning that it is starting to be impossible to ignore.

Political Development

The empirical evidence in the Kenya case supports the political development hypothesis. While Kenyan elections are officially free, ultimately, they are still decided based on ethnicity, tribe, or bribes. This close tie to ethnic bonds often leads to higher levels of acceptable corruption. The more corrupt the system, the less money is spent on preparedness for government fear of "wasting" funds if disaster never occurs.[418]

Yet, despite the perception of high corruption in Kenya, this does not necessarily appear to hinder Kenya's disaster preparedness measures.[419] This counters the hypothesis that if a country's politicians are more corrupt and if international aid flows are more easily diverted into rents than preparedness funds, then the government will be less likely to invest in preparedness. While government might avoid spending its own funds where international aid is made available, specifically allocated aid flows appear generally to reach their intended targets.

The hypothesis that if a country has more corrupt politicians and bureaucrats, then they will invest less in preparedness is substantiated by empirical evidence in this study. Elected officials have little incentive to allocate resources where international aid can make provision. The hypothesis that government agencies which are largely insulated from politics are more likely to engage in preparedness activities is unaccounted for in this study, as all government agencies addressed appeared intrinsically tied to Kenyan politics.

The rising private insurance sector and expertise of highly involved independent agencies seems to counteract areas in which the Kenyan public sector is lacking. Agencies such as ILRI, providing micro-insurance to northern Kenyan pastoralists, are not only protecting livelihoods, but decreasing aid dependency, both nationally and internationally, while educating individuals on the science behind pastoralist lifestyles and drought-condition animal husbandry.

High levels of bureaucracy at times hinder even the simplest of missions, such as authorizing a helicopter to save a drowning person, since so many documents must be signed before final approval. It is generally perceived that not only does the government not provide appropriate and necessary emergency resources, but simply does not have them. Additionally, the government is perceived as reactive rather than prepared, donor dependent instead of self-sufficient, and lacking an overall plan.

One NGO representative felt the government would never have sufficient resources to address the volume of disasters that take place in Kenya, stating that all they can do right now is plug the holes in disaster response. However, political development in Kenya is more nuanced. Several stakeholders attributed the success of the DMA and NDCT in large part to the leadership of the Ministry of State for Development of Northern Kenya and Other Arid Lands, suggesting that the individual agency of a high-ranking politician has a high impact on countering bureaucratic sluggishness.

Until a centralized response plan is approved and implemented, communities will continue to respond to disasters as long as their circumstances allow. Most agree that the national government should ultimately coordinate disaster management and implementation, but District Steering Groups, provided with revenue creation capacity, should primarily make the ground-level decisions. Decentralization of coordinated preparedness and response efforts ultimately equates with successful adaptability. Local implementation indicates a level of ownership and self-protection at the community level. Additionally, the intersectoral approach to coordinated response allows communities to streamline DRR collecting experiences to inform at both national and local levels.

Currently, common citizens are not generally made aware of impending disasters, but involved actors have some foresight. Government is the key power point in disaster response, and, so far, it has disappointed in the disaster preparedness arena. As one organizational leader pointed out, if Kenyan voters were actually educated on disaster preparedness, most politicians would lose their clout. Similarly, Kenyans educated in disaster preparedness and response could become huge assets in vulnerable communities. A Kenyan government official explained the need at the central level for more and better trained first responders, so that training at the district and community level of first responders will be more effective and consistent. He explained this human resource need because those who do have the practical and educational experience with disasters are no longer available to help affected communities when a disaster hits, and the communities should be trained as first responders as well.

The current lack of professional systems and resources at the district level leaves many communities reliant on IOs that only show up when a disaster occurs and who have minimal legitimacy. One economist admitted that many Kenyan populations live unsustainable livelihoods due to so much support from NGOs and international aid over the years. A communications expert expected this trend to continue until communities are given responsibility of their own disaster preparedness and response, explaining that devolution of centralized capacity to the district level is not happening and there is little strategic positioning of response equipment and resources.

The hypothesis that if local officials, who have more first-hand knowledge of, and exposure to, risks are in control of budgets and projects then the country as a whole will spend more on preparedness is supported in Kenya. Local officials would better equip their communities for disaster if resources were available.

Ultimately, the decentralization of disaster preparedness, coordination, and response must be allowed. Districts and individual communities should fit their individual disaster plans into an overarching national plan, coordinated and monitored by governing institutions, but ultimately left in the hands of mobilized community efforts. Political development that allows an overarching centralized response working cooperatively with district level coordination committees will allow effective, timely response to disaster and incentivize community preparedness.

Civil Society

Empirical evidence supports the civil society hypothesis in the case of Kenya. "You cannot underestimate the power of a strong civil society," stated a representative of a local NGO. In Kenya, local civil society owes its strength to funding from international donors. Many powerful donors, particularly USAID, have a policy of investing heavily in local organizations, and they prioritize a decentralized approach to development. According to several experts in the disaster management field, the 2011 policy victories for creation of a Drought Management Authority and the National Drought Contingency Fund resulted precisely from lobbying and pressure by civil society. Stakeholders interviewed credited local, national, and international organizations as a large part of the reason behind the drought policy success.

Many interviewees discussed how drought is the natural disaster that garners the largest amount of aid funding in DRR, preparedness, and response. Drought is the deadliest disaster and affects among the poorest and most disenfranchised Kenyans. This does not mean the government spends more money on drought preparedness, as the hypothesis would suggest. However, the high level of international donor involvement in drought issues has had strong policy implications. A national disaster management policy in the framework of Hyogo has yet to be approved by the Kenyan Parliament although the draft has seen various iterations since 1998.[420] Yet in 2011 after years of lobbying and advocacy, Parliament approved a drought-specific policy and contingency fund.

"Why a drought policy and fund, and not simply a policy for all disasters?" Answers from experts in the field ranged from indicating that something is better than nothing to explaining that because drought is the deadliest and different than other disasters that it deserves a different policy. Ultimately, it appears

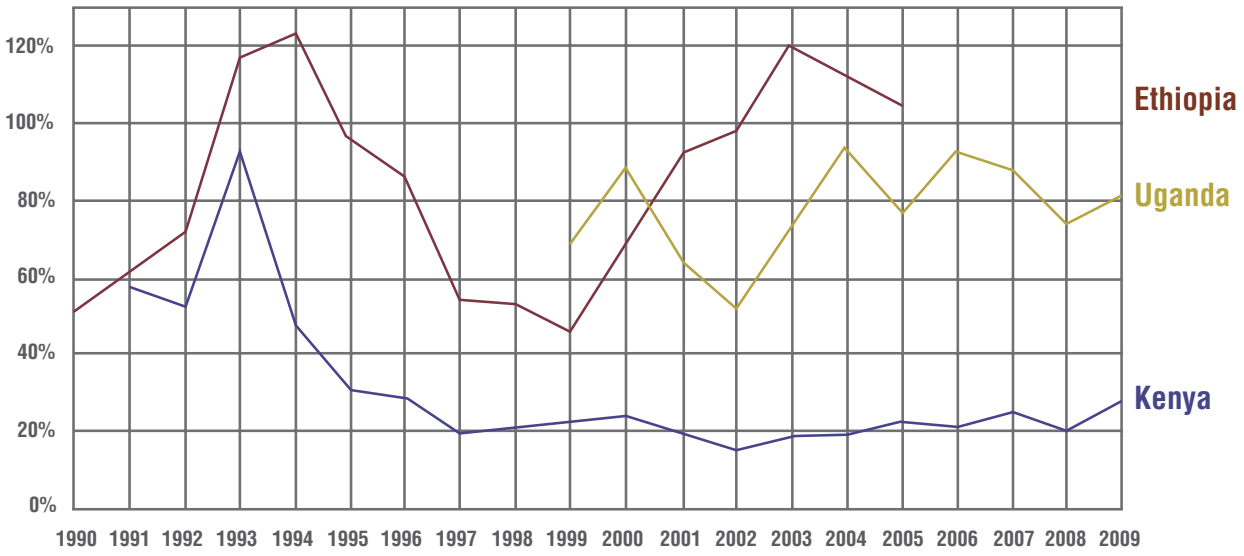
that civil society pressure was able to build political will for drought, while other disasters—including floods, landslides, and fire—were left without a clear policy framework or emergency contingency funds.

A criticism many government officials had of civil society is that while their projects often fund technical capacity in small settings at the community level, they typically do not build the technical capacity of central government services in dire need of funding. For instance, the Kenyan National Disaster Operations Centre (NDOC) is the central government, military, police, and fire brigade response headquarters. They coordinate government-owned equipment and key personnel to respond to emergent disasters. Yet they appear to be underfunded and their response team sits at two desks with a phone, computer, and whiteboard full of hand-written phone numbers. Their coordination office is located in a multi-story downtown building that would be ill-prepared to weather an urban disaster that might strike Nairobi. If a truly emergent disaster that threatened the lives of countless Kenyans occurred within the vicinity of Nairobi, the government of Kenya would effectively be unable to respond or coordinate its own assets.

However, some district-level initiatives pushed forward by civil society actors are not only more strategically located geographically, but also better funded with greater technical capacity.

As an example of the lack of central government capacity and leadership in emergent disasters, consider the flash flood of April 22, 2012, in Naivasha that caused the death of seven motorists. Several helicopters came to airlift bodies, counselors were on the scene for psychosocial support and personnel were on hand to process search and rescue for other missing persons. All of this support was from the Kenya Red Cross Society, an NGO, and not a local or central government agency.[421]

Figure 15. Net ODA as a Percent of Government Expenses



Source: World Bank, Google.com Public Data Explorer

Despite the fact that net ODA as a percent of total government expense is less than in Ethiopia and Uganda, interviewees suggested that in disaster management activities the Kenyan government relies heavily on donor and civil society support (see Figure 15). From 2008 to 2009 the Kenyan central government spent only 1.5 percent on disaster preparedness or response activities.[422] This was a time period when drought affected millions of Kenyans and floods and landslides displaced thousands. In interviews, both international aid workers and government officials were quick to blame the disastrous effects of the more recent 2011 drought on bilateral donor sluggishness to release emergency funds, rather than lack of funding and contingency plans of the Kenyan government. Revenue streams from bilateral and multilateral donors are a deeply embedded component of what Kenyan government actors

(and even multilateral organizations) expect to receive when disasters happen. It is easier to understand why the Kenyan government does not place disaster management funding and policy at a higher priority when taking the powerful role of international civil society into consideration.

International donors often favor a high degree of decentralization, evident through interviews with stakeholders from a variety of organizations. While interviewees and Kenya's new constitution frame decentralization as positive, there are also problems that decentralization without central government integration brings. Without effective, capable, and coordinated central government leadership, every disaster leaves local leaders ill-prepared, less able to access government assistance, and at the mercy of irregular donor funds. There was considerable consensus from interview subjects that the central government should play the lead coordination role in disaster management, and that this is not always the case.

One of Kenya's strongest civil society indicators is its media structure. Kenyan media is quite free in terms of its ability to express opinion. As Freedom House's 2011 assessment explains, "Kenyan media have continued to live up to their traditional reputation for vibrant and critical reporting, and the environment for media freedom improved during 2010. In August 2010, Kenya enacted a new constitution that has been widely praised for extending freedoms of the press and expression. Kenya's leading media outlets, especially in the print sector, are often critical of politicians and government actions."[423] While several interviewees assessed the media as still too focused on the "drama" of disaster response as opposed to risk reduction and preparedness, they considered that a symptom of all forms of media globally.

A major way that a state is exposed to training and information in disaster risk reduction and preparedness is through the media. Media pressure has the ability to increase political will for state actors to make disaster management a priority, as discussed in the context of political development hypotheses. However media can also diffuse important disaster risk reduction, preparedness, and early warning information to individual citizens.

Kenya is home to many innovative developments in disruptive media campaigns that empower individual citizens' capacity to reduce risk, prepare for, or respond to disasters. The "Kenyans for Kenya" campaign was an initiative publicized by a variety of radio and TV stars raising awareness of the plight of Kenyans living in arid lands suffering during the most recent 2011 drought. A consortium of Kenyan private companies and national CSOs led the campaign.[424]

Besides raising awareness, the campaign also encouraged their Kenyan audience to donate funds and question why their leaders have not better prepared for disasters. Following are excerpts from an interview with KISS FM radio host Caroline Mutoko, "Kenya is about to be 50…We can't live in a country where we have grand ideas …and then we can't feed our own people. Back to dignity, a nation and a government that can't feed its people…When I listen to what politicians will be saying…I want to know who's talking about food security…And then it's not like that they don't have the money, its put the money in the right place. Food security first."[425]

The "Kenyans for Kenya" campaign is an indication of a growing awareness and involvement of media actors in rallying citizens to respond to but also hold leaders accountable for better disaster preparedness. While none of the experts interviewed anticipated changed voting patterns because of this just yet, all viewed the media as having a strong technical capacity to disseminate information quickly in a time of emergency.

The network for media diffusion in Kenyan is diverse and robust, encompassing national TV stations, local language radio programs, mobile dissemination (including internet access), and newspapers. For rural populations in particular, interviewees cited local language radio broadcasts and cell phone usage as remarkably high. Mobile and internet usage in Kenya is well above its neighbor Ethiopia and still far above the average for Sub-Saharan Africa as shown in Figures 16 and 17.[426] Research by Ushahidi indicates that internet usage is high because 98 percent of Kenyans access the internet through mobile devices.[427] Kenya also has the fourth highest broadband download performance of any African country.[428]

Figure 16. Internet Users as a Percent of Population

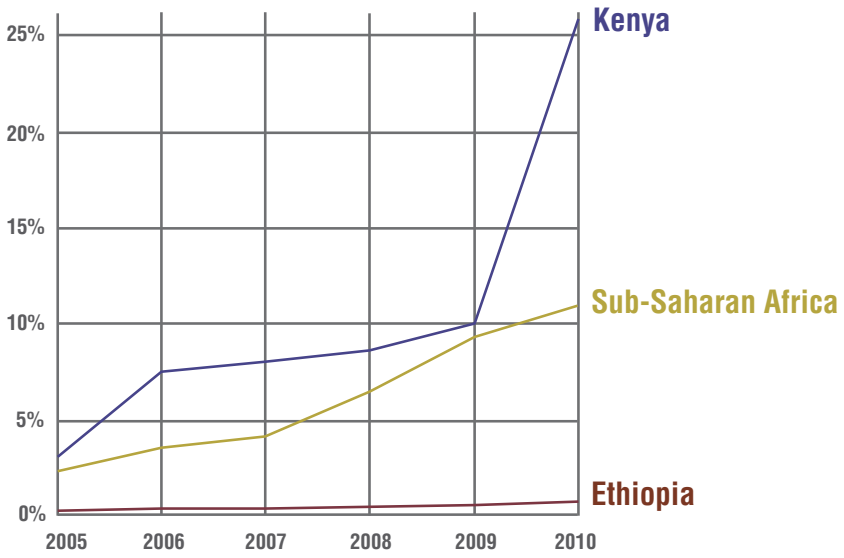
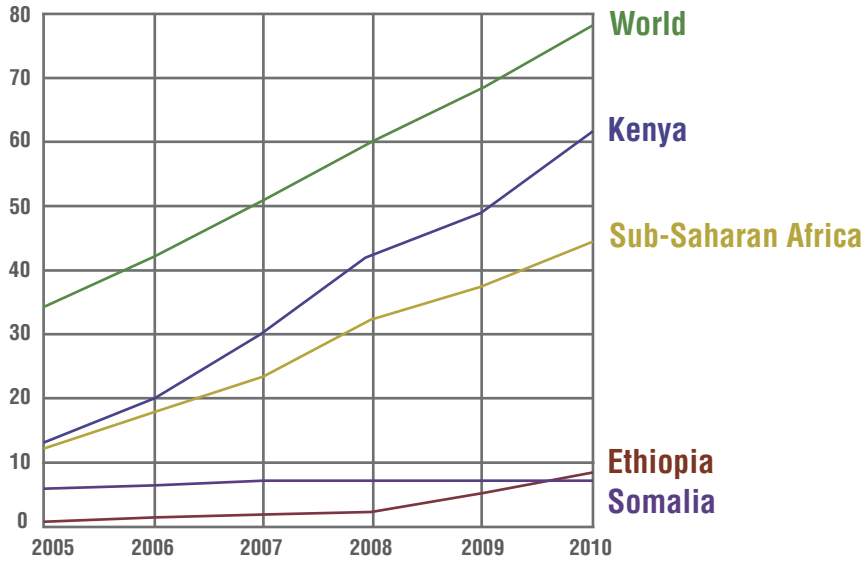


Figure 17. Mobile Phone Subscribers as a Percent of Population



Source: World Bank, Google.com Public Data Explorer

Many private industry and non-profit groups are taking advantage of Kenya's high access to information. These groups are experimenting with innovative programs to diffuse more disaster management information to rural and low-income populations. Examples of this include successful pastoralist insurance programs, crowd sourcing during emergencies, and cell phone tools that enable better community training and communication. A common theme among interviews was the suggestion that dense technical climate and early warning information must be packaged simply and succinctly for consumption by the general population, and targeted to each region's specific climate hazards and vulnerabilities. Early warning could

also be packaged with direct suggestions on when to plant, when to harvest, and when to buy and sell off livestock.

A representative of an NGO working specifically with disaster preparedness in arid lands stated that effective early warning must go along with early action, and that practitioners need to get a little bit creative and more practical when communicating with communities, and not use extremely technical language. He counseled NGOs and the government early warning systems to build on what people already do, their indigenous knowledge, and not disregard or disrespect their practices. He found that in his work communities feel very disempowered when even well-meaning projects and early warning practices change what they have been doing without integrating their traditional practices. Furthermore, a representative of a local community-based organization stated that a key gap policymakers and practitioners are not addressing is the need to see how the indigenous techniques can be intertwined with scientific knowledge.

External Actors

The external actors hypothesis states that if a country or government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness. There is some, but not conclusive, evidence in support of this hypothesis. A government official noted that heavy rains that traditionally cause flooding and crop destruction could be utilized if farmers were connected to timely and targeted information about planting schedules. He asserted that climate change can be utilized for increased production if information and action were better synthesized. External and media actors diffuse information throughout Kenya. There are several ways external actors encourage disaster risk reduction and preparedness activities to become more important to a state and citizens.

One sub-hypothesis regarding external actors assumes that a state with greater exposure to training and information in disaster risk reduction will invest more there. Government officials and aid practitioners alike agree that in just the past few years regional integration has improved, evolved, and contributed in a positive way to the capacity of Kenya to respond to natural hazards through a variety of regional economic communities (RECs). For Kenya and its neighbors, the Intergovernmental Authority on Development (IGAD) in particular serves as a focal point for policy alignment discussion, information sharing, training, negotiation of collective response mechanisms, and addressing transboundary issues. Compared to other east African RECs, IGAD is the leader in disaster management coordination. Its original name from the organization's 1986 creation, IGAD included an addition "D" for drought so there is considerable history and expertise here regarding the region's deadliest disaster, slow-onset drought.

Regarding the sub-hypothesis suggesting regional integration and investment in disaster risk reduction and preparedness would encourage investment by Kenya, there is not conclusive evidence. While RECs such as IGAD are still weak in absolute political and economic power, they have pushed the dialogue forward for better disaster risk reduction and preparedness in Kenya. Interviewees who touched on this subject all considered regional cooperation to be continually improving and felt that the deeper integration realized in neighbors' economies, trade, and policies, the more capacity Kenya would have to rely on its neighbors in times of need. It stands to reason that as regional cooperation increases, IGAD or other RECs would be an ideal forum to pressure the Kenyan government to make risk reduction a bigger priority.

Another sub-hypothesis states that exposure to disaster risk reduction and preparedness activities sponsored by international donors and community organizations make the state more likely to internalize and invest in these activities. In addition to the role of international actors in supporting civil society, there is some evidence, particularly in reference to the training and information offered by the U.S. government in the form of FEWS NET, that this hypothesis may hold true. Stakeholders interviewed all held FEWS NET in high regard as a source of meteorological information and early warning forecast information. FEWS NET plays an important role in the countries it works in to offer support services and training to state meteorological agencies to build capacity. In that regard, all stakeholders interviewed regarded Kenya Meteorological Society in a positive light, with many stating that their predictive information had become more accurate in recent years.

Economic Strength

The economics hypothesis states that if a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area. In Kenya, empirical evidence somewhat supports the economics sub-hypotheses, but not the overall hypothesis. One sub-hypothesis states that if a country has a higher GDP, then it will be more likely to spend on preparedness. While Kenya the highest GDP per capita in the region, it still does not spend enough on risk reduction or preparedness to protect against the regular droughts and floods that occur.

Smallholder farms and pastoralists are an important backbone of the Kenyan economy, yet they live and produce their goods in areas most vulnerable to droughts and floods. While only 17 percent of Kenyan land is arable, agriculture accounts for half of the country's exports and employs roughly 75 percent of the population, almost all of those on smallholder farms.[429,430] The "bread basket" of Kenya lies in the densely populated but productive Rift Valley province, an area highly vulnerable to seasonal flooding. Unlike its neighbors Ethiopia and Somalia, Kenya is a livestock-importing nation, with 90 percent of the meat consumed in country produced from nomadic pastoralism.[431] As one interview stated, because Kenya is an agricultural export economy, disaster risk reduction must be important.

The African Economic Outlook states, "Kenya will need to reduce its high reliance on agricultural outputs to limit its vulnerability to climate hazards by diversifying the economy."[432] However, there are many ways to reduce the risk of climate hazards affecting agriculture production without reducing output. Many interviewees suggested more climate-resilient roads, with proper drainage and engineered to not be as affected particularly by floods. Roads can also be a risk reduction technique during droughts as well, as better roads to more widely distributed livestock slaughterhouses was also a common theme among interviewees. When pastoralists have the opportunity to easily offload animals in the face of impending drought, they are more resilient. An interviewee estimated that upwards of 80 percent of funding in Kenya's disaster management sector is spent on response post-crises. Regarding the economic benefits of better planning for natural hazards, a multilateral bank official asked why disaster risk reduction is not seen as a low hanging fruit by the government.

A senior economist interviewed agreed with the African Economic Outlook that diversifying the economy is a first step. He suggested Kenya must focus on reducing its trade deficit through increasing export products. Kenya is a source country for many raw materials but the economy would benefit from moving down the service line with these products. The primary message from this economist was that without robust infrastructure that is disaster resilient, economic growth in a diversified economy could not be sustained, and natural hazards would produce greater economic shocks.

Considering the importance of agriculture and pastoralism to the majority of Kenyan livelihoods, food security was an important component of disaster management according to nearly all experts interviewed. Interviewees mentioned the crucial role of the Kenya Food Security Steering Group (KFSSG) in disaster risk reduction and preparedness coordination. And yet, in the 2009 draft of the Kenya National Disaster Management Policy while food security issues were addressed briefly, the KFSSG did not appear as a major player in the structure of government disaster management bodies.[433]

Eighty-eight percent of Kenya's landmass is arid and semi-arid, home to 30 percent of the population.[434] Livestock production is the economic mainstay of these areas, yet over 60 percent of this population lives below the poverty line. As an ILRI report concluded, "drought is a major factor contributing to poverty [and] dependency on food aid is increasing."[435]

Another sub-hypothesis states that if there is a vibrant market economy, then there will be more investment in preparedness. This is because market actors will pressure the state to protect their investments, and market actors will engage in their own preparedness activities. This holds somewhat true in Kenya. Economic resilience among individual citizens, particularly vulnerable pastoralists and farmers, can be strengthened through new insurance protection schemes. New research by ILRI into livestock insurance schemes helps harness the power of private industry to boost resilience among drought prone pastoralists.

In the most recent 2011 drought, ILRI made the first compensatory payouts to 650 pastoralists who lost livestock in the Marsabit district.[436] This is a culmination of years of research with the eventual goal to build enough capacity and demonstrate effectiveness so that private insurance companies will take over leadership in the years to come. While capacity at the private sector still needs to be built, interviewees generally agreed that Kenya is particularly innovative in burgeoning insurance regimes.

This sub-hypothesis that if there is a vibrant market economy, then there will be more investment in preparedness holds somewhat true in another way. Interviews with experts indicated that although private industry may have their own disaster management plans internally, their preparedness measures did not leak into creating political will for a stronger overall national disaster preparedness and risk reduction.

Instead, the sub-hypothesis regarding economics that finds the greatest support is if a country sees preparedness spending as a substitute to development spending then the government will spend less on preparedness. Interviewees indicated that foreign aid supports the majority of current disaster preparedness and risk reduction activities in Kenya. Yet this does not lead the central government to use that money "saved" towards an even higher level of spending in the sector. Most interviewees agreed with the general concept that if a restricted grant is given for use in disaster risk reduction, it means that the unrestricted money that might have been used to support those activities could now be used in other sectors of higher political priority. While Kenya has a vibrant market economy with a relatively high GDP per capita that is forecasted to continue its regular growth pattern, investment in disaster risk reduction and preparedness is not particularly strong.

Table 20 provides a snapshot of the hypotheses the research tested, and the findings for each country. In summary, the Ethiopian cases offered support for five hypotheses, while in Kenya, the research team found strong empirical support for three hypotheses and moderate support for two additional hypotheses. Across the two cases, the research team found the strongest support for the political development and civil society hypotheses, moderate support for the insurance/perceived risk and external actors hypotheses. and mixed evidence for the moral hazard hypothesis. In neither case did the research team find evidence to support a democracy hypothesis or an economics hypothesis. Even though the countries both provide evidence for some portion of the hypotheses, they do so in different ways.

CONCLUSION

Ethiopia and Kenya are similar in many ways and distinct in others. In the last decade, both countries have made some progress in their respective capacities for disaster risk reduction, preparedness, and response. The government of Ethiopia has established itself as the leader of all development programs and efforts and is at the helm of a central, integrated overarching framework for DRM. It draws on NGOs and IOs for funds, resources and knowledge; but government actors are the leaders, integrators, and coordinators. The GOE ties DRM to food security through the DRMFSS agency and has elevated DRM as a priority by planning to move all DRM functions out of line ministry control and to place them directly under the prime minister's office. DRM processes, procedures, organizational structure, and funding sources have been defined, documented, and written into legislation, effectively moving Ethiopia from a reactive response-oriented country to a proactive preparedness-oriented country. All disaster-related activities fall under the auspices of the DRMFSS, although drought draws the most attention and resources. Ethiopia was able to achieve this level of capacity because of the high donor support and NGO involvement over the past several decades. The GOE has reaped the benefits of learning from their experiences and has utilized NGO and partner agency expertise and services to their advantage. They have strengthened their capacity over the years and are on a path to deepening capacity enhancements.

Table 20. Hypothesis Findings for Ethiopia and Kenya

Hypothesis	Explanatory Power?	
	Ethiopia	Kenya
Moral Hazard – If governments anticipate that other organizations will spend on preparedness or response, then they will spend less on preparedness.	No - For Ethiopia, a continuous stream of international aid for many decades has not caused it to invest less in preparedness. It accepts donor aid but takes a strong leadership role in coordination and implementation.	Yes - Kenya contrasts in that it is very open and dependent on donor involvement, but provides little government oversight of donor activities and projects. Kenya does not spend as much on preparedness because it relies on donors. There are several forums for coordination but with little leadership and coordination from the government.
Perceived Risk – If governments perceive that the risk of a natural hazard is high, then they will invest more in preparedness.	Yes - Ethiopia has had a long history of natural hazards and understands that more are likely in the future. This motivates them to prepare for and reduce risk.	Somewhat - Kenya also perceives high risk of disasters, but the state does not act. Both donors and government officials in Kenya blame each other for delays and lack of response, revealing the government's lack of accountability and heavy dependence on foreign assistance.
Electoral Incentives and Democracy – If a government perceives disaster preparedness to be electorally beneficial, then it will spend on preparedness. If a government is in a country with a more advanced democracy, then it will invest more in preparedness.	No - Ethiopia, although a democracy on paper, is in reality an authoritarian regime, where the people's voice in government does not have much influence. Yet, it still invests in its capacity to respond to and prepare for disaster.	No - Kenya is a relatively vibrant democratic system, but voting is based in large part on ethnic and tribal identifies, and policy issues such as disaster management are not high priority for the votes, thus DRM figures weakly in government's electoral strategies.
Political Development – If a government is more developed (in terms of the quality of politicians and bureaucrats, independence of bureaucrats), then it will prepare better for disasters.	Yes - The quality and capacity of the government in Ethiopia is higher than in Kenya. Additionally, Ethiopia has clearly defined institutions that help to encourage trust among donors and partner agencies, and also improves efficiency and transparency in government activities.	Yes - Kenya has a much higher perceived level of corruption than Ethiopia.
Civil Society – If there is a strong civil society, then there will be greater investment in preparedness.	Yes - A strong and vibrant civil society that is very effective at engaging in policymaking and invests highly in DRR, however all activities are tightly controlled by the government.	Yes - A strong and vibrant civil society that is very effective at engaging in policymaking and invests highly in DRR, even when the governments do not.
External Actors – If a country/ government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness.	Yes - The Ethiopian government has taken advantage of training and capacity building from IOs to build up their own capacity over the last decade.	Somewhat - Kenyan DRM is highly influenced by external actors, but this influence is only recently becoming evident in government policies.
Economic Strength – If a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area.	No - Ethiopia is relatively poor, and yet the government invests substantially in DRM.	No - Kenya is one of the wealthiest African countries, but the government does not commit significant economic resources to DRM.

In comparison, the central government of Kenya does not play the same coordinator and leader role as the GOE with NGO and donor activities. Instead of one forum for coordination, Kenya has many, some of which the government actors themselves, according to interviews, do not consider themselves the leaders in. Kenya has shown commitment to a national strategy for drought preparedness and response, but droughts are only one of the disasters Kenya experiences, and interviews suggested there is little political will to approve a national disaster management policy under the MOSSP. Kenya relies heavily on NGOs and IOs for funds, resources, and knowledge, but unlike Ethiopia have shown little rhetorical or actionable commitment to reducing this dependence. Overall, compared to Ethiopia, at the central government level there is moderately poor coordination, a lack of financial allocation, and little political will for DRM.

The recent 2011 drought authority is placed under MOSNKAA and not MOSSP, resulting in potential policy confusion and duplication. While the rationale for drought management under the MOSNKAA is sound, it does contribute to a wider range of actors with disaster management authority than the GOE. If the intention is to diffuse disaster management authority across several central government ministries and agencies, the government should commit more resources to enhancing cooperation and collaboration between the groups. Contributing to this potential confusion is the observed lack of inter-ministerial coordination on disaster management specifically. The political rivalries within the coalition government co-leading all ministries was noted by interviews to play a part in the background political drama contributing to lack of cohesion in coordination and leadership of this sector.

Despite the weaknesses this chapter pinpoints, Kenya does not have a generally weak capacity in disaster management. In fact, there are so many committed actors both governmental and non-governmental, working on DRM, DRR, drought management, climate change, vulnerability, and food security issues, that the real issues appear to be political will building, and coordination and leadership of the disparate actors under one DRM umbrella. There are many strengths upon which the sector could build to create better overall capacity. Kenya has a robust media that has shown signs of involving the public in discourse surrounding DRM and DRR, a strong and innovative telecommunications sector, improved and accurate early warning systems, a growing and regionally high GDP, and high commitment of external actors and civil society to contribute to building DRM capacity.

Overall, while the two countries share many similarities, their culture and practice of disaster risk management are quite divergent. The Horn of Africa region is infamous for devastating droughts and subsequent famines, including the most recent crisis in 2011. Despite these recurrent crises, it is easy to overlook that DRM capacity in both countries has improved in a post-colonial era. Both countries have unique strengths in disaster management that practitioners and policymakers could better focus on to propel Ethiopia, Kenya, and their entire region to better resilience in the face of changing climate patterns. With increasing security tensions, a growing population, and often unpredictable climate variability – now is not the time to be satisfied with progress made. Rather, policymakers and practitioners alike must recognize the weaknesses and strengths and address them both so that complex climate emergencies can be averted before they occur.

CHAPTER 4. Natural Disasters in Malawi and Mozambique: Capacity and Cooperation

By Jennifer Bussell and Dylan Malcomb

Malawi and Mozambique are neighbors in southeastern Africa and have both faced significant threats from a range of natural hazards, in particular flooding and drought. In both cases,[437] the national governments have made substantial strides to build institutional capacity to prepare for and respond to these threats, though the motivation for these efforts differs to an extent across the countries, providing mixed evidence for the hypotheses considered here. While both countries highlight the importance of perceived risk, economic resources, electoral incentives, and the role played by external actors, and both provide evidence against the risks of moral hazard, they differ in the degree to which they support hypotheses related to political development and civil society, with Malawi, but not Mozambique, lending credence to these latter arguments.

OVERVIEW

History and Natural Hazards in Malawi

Malawi is an appropriate study location for the intersection of political, social, and ecological issues that are converging on many developing countries in Sub-Saharan Africa. It is a country that does not usually stand out on a map, being half the size of the United Kingdom and dwarfed by many of its neighboring countries. Mozambique borders the southern portion of Malawi on three sides and is a disaster-prone neighbor that shares many of Malawi's environmental vulnerabilities. Malawi does not stand out in global indices of health, development, or vulnerability, yet it is an apposite example where crisis compounds crisis and where poverty alleviation, sustainable development, and food security are common axioms of development. Disaster response and preparedness are playing an increasingly important role as the international community takes a greater interest in social-environmental linkages and formulating a response to a perceived global scale change in the climate.

With an 85 percent rural population, most households in Malawi are highly dependent on rain-fed agriculture and limited nearby natural resources. This combination has led to one of the highest deforestation rates in Africa at 2.8 percent annually[338] and tremendous biodiversity loss to an essential ecosystem in the region, Lake Malawi, due to overfishing.[439] Malawi is ranked 171/187 in the United Nations Human Development Index[440] and it ranks 18/104 (opposite scale) in Oxford's Global Multidimensional Poverty Index.[441] Ninety percent of Malawians live on less than two dollars per day and 75 percent on less than one dollar. Malawi ranks 14th for most overall cases of HIV/AIDS, with 12 percent of the adult population living with the disease.[442] Finally, Malawi's population of 14 million is expected to double by 2018,[443] meaning the amount of arable land per person is quickly shrinking. The urbanization rate in Malawi is the seventh highest in the world[444] and the population density is the highest in Sub-Saharan Africa.

Malawi has also endured numerous climatic hazards in the past two decades. These include dry spells, seasonal droughts, rainfall variability, and flooding. When natural shocks are merged with other vulnerabilities in the country, many segments of Malawi's population lack the adaptive capacity needed to recover from these hazards that are often operating simultaneously. With a population living on the edge of survival, these events become shocks and it takes very little to create a crisis that requires international assistance.[445]

The international community is responding more aggressively to natural hazards and disasters in general and in particularly in Malawi. Shifts in development aid patterns began favoring emergency assistance in the 1990s,[446] but there has been an increased recognition that countries must be better prepared for preventing and responding to disasters. This requires institutional capacity, and Malawi, like many

countries in Southern Africa, lacks the capacity to organically respond to its many disasters. As a signatory to the Hyogo Framework in 2005, Malawi demonstrated its willingness as a country to invest political will and resources in disaster preparedness. However, as becomes evident in this research, Malawi's programs are highly reliant on international funding. The relationship between the ruling government and the donor community is creating uncertainty over the long-term success of disaster preparedness policy and strategy.

Background on Natural Hazards

Malawi lies in the rift valley between Tanzania to the north and east, Zambia to the west, and Mozambique to the south (see inset in Figure 18). Malawi is routinely threatened by natural hazards that include floods, droughts, and dry spells. These events combine to make it one of the most vulnerable countries in Africa with floods present every year, droughts occurring on average every three to five years, and persistent dry spells becoming more common in many southern parts of Malawi.[447] Between 1979 and 2008, natural disasters in Malawi affected nearly 21.7 million people and killed approximately 2,596.[448] While Mozambique often tops indices of climatic vulnerability,[449] the southern portion of Malawi experiences a comparable frequency and magnitude of exposure to such events. Despite its relatively low recognition for vulnerability related to climate change, Malawi is the country that had the largest percentage of the population affected by disasters between 1991 and 2000.[450] Moreover, disasters in Mozambique often lead to refugees coming into Malawi, which results in added stress to southern districts.

Flooding is a major concern for many areas in Malawi. There are six river basins in Malawi that regularly experience severe flooding, including the Ruo/Shire basin which flows into the Zambezi River in Mozambique; the Likangala/Thondwe, Limphasa/Luweya, Linthipe, and Bwanje/Livulezi basins that dominate the central region; and the Songwe basin on the northern border with Tanzania.[451] The number of people affected by flooding each year fluctuates, but over the last 15 years there is an average of 285,000 people per year affected. The latest major flooding events occurred in 1996, 1998, 2000, 2002, and 2005. In one flood event in 2000, half of the districts in Malawi (14 of 28) experienced major flooding and over 500,000 people were affected. In 2005, nine districts and another 200,000 people were affected by a single flood event.[452]

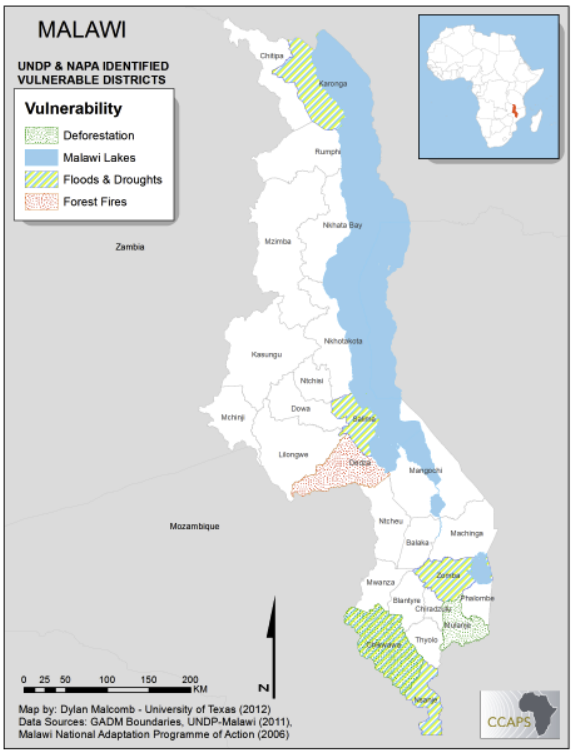
In April 2011, heavy rains throughout the northern region caused the North Rukuru River to overflow its banks and collapse a major dike on the river. Extensive flooding in the Karonga district was spread across 105 villages. Over 500 homes, built of brick and weak sand mortar, were damaged or washed away and over 28,000 people were affected in this latest example of flooding disasters in Malawi.[453] Beyond destroyed homes and displaced people, there was also extensive damage to crops in the regions inundated with water. Disasters, such as this recent example, continue to have tremendous negative effects on the harvest and lean seasons where food becomes scarce. In addition, the physical loss of assets that include livestock and stores of food will further destabilize this region of Malawi for years to come. Each flood has a lasting and negative effect on the resilience and adaptive capacity that extends beyond individual households and communities.

While flooding usually presents an immediate and visible threat, droughts and dry spells tend to be characterized as slow-onset disasters. Occurring over several years, dry conditions in Malawi have been, at times, extremely devastating. Malawi's population is resource poor, overwhelmingly rural, and highly dependent on the rain sensitive crop of maize.[454] Over 80 percent of subsistence farmers grow maize as their primary crop and Malawi is the country that receives the highest percentage of nutritional intake from maize.[455] In Malawi, the expression "maize is food" is not an understatement. The intensification of maize cultivation has been the leading strategy of the Government of Malawi (GoM) and IOs to combat food security – an initiative that grew tremendous popularity following the drought in 2005. During this event, over 4.2 million people – or 34 percent of the population – were unable to meet their food needs and much of the country required some form of humanitarian assistance.[456] However, this event highlighted the fact that droughts are sometimes compounded events that expose previous and existing vulnerabilities. In 2005, the cereal crop production fell 30 percent short of the previous year, which had

also been a deficit year. Closely following a severe drought that had occurred in the same region in 2002 – affecting 2.8 million people and resulting in over 500 to 1,000 hunger-related deaths[457] – the 2005 drought greatly reduced the resilience of many households already operating at reduced capacity. 2002 marked the sixth year that Malawi experienced a food shortage in the country and by 2005 it would mark Malawi's worst decade for food security.

The failure of rains for more than one month in the rainy season can adversely affect agricultural production and the economy of Malawi.[458] Droughts and dry spells in Malawi cause on average about one percent annual GDP loss.[459] While the future impacts of climate change cannot be stated with a high level of confidence, there is at least some expectation that natural disasters will occur in greater frequency and magnitude.[460] Malawi is particularly vulnerable to erratic rainfall because the majority of the population depends on rain-fed agriculture. Flooding can also lead to land degradation where many households are already farming on marginal lands. While predictions suggest that southern Africa will face some of the most extreme changes in the climate,[461] scientists have also determined based on climate models that there will be a serious negative impact on the production of maize in southern Africa in the future.[462] For Malawians, these events present serious and dangerous consequences to livelihoods.

Figure 18. Malawi Vulnerable Districts



To highlight the areas in Malawi of high vulnerability, the GoM and United Nations Development Program (UNDP) constructed a map for the drafting of the 2006 National Adaptation Program of Action (NAPA) (see Figure 18). The NAPA is submitted to the UNFCCC to initiate adaptation funding and Malawi was one of the first countries to apply. This initiative represented a preliminary step by the GoM to open the door to climate finance, but the map highlights the conflation of issues of land degradation, rainfall variability, and natural disasters in order to access funding for climate change adaptation funding. Unfortunately, this map also represents the most detailed analysis of Malawi's vulnerability to climate change by the government and it is largely based on the social memory of disasters rather than indicators of future climate change or impacts on livelihoods.

Political and Socioeconomic Conditions

Following independence from Britain in 1964 and the establishment of a multiparty democratic government, Malawi quickly found its national power consolidated under its tenacious and influential president, Professor Hastings Banda. Banda quickly established a one-party state that placed him firmly in control over the country for the next 30 years. As a staunch anti-communist, Banda had received favorable and continuous support from a variety of IOs over the years, but by the end of the Cold War, Malawi's socioeconomic issues were starting to emerge as international assistance and foreign aid began to retract. In 1993, internal and widespread protests coupled with international pressure forced Banda to abandon his dictatorship and he allowed democratic elections in Malawi for the first time. Since this brief, but turbulent period leading to democracy, Malawi experienced pronounced peace under two more presidents: Bakili Muluzi (1994 to 2004) and Bingu Wa Mutharika (2004 to 2012). Meanwhile, the role of international development organizations shifted to dealing more directly with Malawi's growing social vulnerabilities.

Poverty has been a serious challenge to building adaptive capacity and resilience in the country. When households struggle on a daily basis to meet their family's basic needs such as nutrition, water, and health care, then the slightest disturbance can become devastating. To this end, climate shocks and poverty work in insidious ways toward creating even greater instability and exploitation of reduced adaptive capacities. When other stressors compound poverty, the crisis can become even more pronounced. One of the subtlest links to poverty is HIV/AIDS. This disease directly impacts much of the middle-age population in Malawi who are traditionally the breadwinners, planters, and harvesters for their families. Loss of productivity can lead directly to hunger and poverty and indirectly to degraded health and well-being. An estimated 20,000 children are born each year with HIV, and over 800,000 children are orphaned in Malawi due to the disease.[463] The human health sector is often indirectly impacted by the added stress of climate variability. Rain variability can lead to missed planting windows, poor harvests, malnutrition, and poverty.[464] In these circumstances of extreme poverty, men are reported to leave the house to seek wage labor and only return when food production resumes. For women left behind, adaptation means securing nutrition, providing for their children, and often looking after orphans. In the worst of circumstances it can mean resorting to transactional sex and exposure to HIV/AIDS by the husband or wife.[465]

Another major problem is malnutrition. Cultural resistance to crop diversification has resulted in an alarming trend of stunted mental and physical development in over half the children.[466] Chronic malnutrition in children is an impending disaster in Malawi. Cultural perceptions that *maize is food* and that children are resilient enough to survive on this mono-crop diet has led to serious implications for the next generation. Malawi's government reports that infant malnutrition and chronic ailments associated with malaria, cholera, and diarrhea are a result of increasing droughts and floods.[467] Malaria is expected to increase based on the predicted warming models described earlier.[468] When climate shocks occur, a population already destabilized by health issues can present additional challenges to maintaining adaptive capacity.

Finally, a rapidly growing and densely populated population is another factor that will exacerbate Malawi's existing development problems. Forty-five percent of the population is under the age of 15, and at the current population growth rate of 3.2 percent per year, Malawi's population is expected to double by the year 2018.[469] This rapid population growth poses additional stress on the country's limited resources and capacity. With the amount of arable land per person quickly shrinking, Malawi needs a holistic strategy that addresses issues related to food security, poverty, and health to ensure the sustainability of its resources and development efforts.

Food security has been seen by many development experts to be the holistic approach that Malawi needs. Following the drought and resultant famine in 2005, President Bingu Wa Mutharika declared a national state of disaster as an estimated 50,000 malnourished children were brought food aid through various IOs. This disaster more than any other in recent memory stands out in the minds of Malawians and has dominated discourse on how best to respond to natural disasters. Prior to the 2005 drought, Malawi, on the advice of the international community, cut its program to provide free seeds and fertilizer to

vulnerable communities. Following this disaster, there was a reinvigorated commitment to food security 'at all costs.' The 2005 drought led to the president's reestablishment of a Farmer Input Subsidy Program that many scholars and academics would later credit as 'Malawi's Green Revolution.'[470]

Impacts on food production are measurable effects of hazards that are most often tied to droughts and dry spells. Small-scale fluctuations in precipitation can negatively impact farms and crops. In Malawi, even in good years, farmers may not be able to self-sustain themselves with their available land and resources. While food security is highly connected to natural disasters, this susceptibility has not prevented the processes of achieving food security from becoming tremendously political, especially between the international community and the national government. The Farmer Input Subsidy Program (FISP) was introduced in the wake of the 2005 famine by the president of Malawi. At the time of this research in 2011, the FISP accounted for 80 percent of the Ministry of Agriculture's budget and as much as 30 percent of the total government budget.[471] The FISP was the flagship project of the GoM with the basic idea that the government provides subsidized seed and fertilizer to the poorest households in the country. Since implementation, yields have risen, Malawi has become a maize exporter, and President Mutharika used this strategy as a platform for national elections.

President Mutharika also played to the side of international donors who, following the end of communism, were more interested in democracy and governance as conditions of aid. To combat images of corruption in Malawi, President Mutharika – a former World Bank economist – adopted a zero-tolerance policy. In 2005, he established the Anti-Corruption Bureau (ACB) to find and prosecute offenders and he has used these indictments to publically advance his popularity. However, in recent years the ACB has been criticized as toothless and, because the president appoints the director, some fear the ACB works (corruptly) for the president's gain. Even President Mutharika expressed doubts in a February 2012 speech about Malawi's ability to tackle corruption as Transparency International, a global corruption watchdog, recently downgraded Malawi's status.[472] This recent and gradual decline has created some uncertainty as to whether the institutional capacity within Malawi's government is really improving.

Table 21. Recent History of Major Natural Disasters in Malawi

Year	Type	Dead/Injured/Affected
1987	Drought	1,429,267 affected
1990	Drought	2,800,000 affected
1991	Flood	472 killed
1992	Drought	7,000,000 affected
1997	Flood	400,000 affected
2001	Flood	59 killed; 500,000 affected
2002	Drought	500 killed; 2,829,435 affected
2005	Drought	5,100,000 affected
2007	Drought	520,000 affected
2007	Flood	180,246 affected

Table 22. Malawi Capacity Timeline

Year	Action Taken
1991	Disaster Preparedness and Relief Act passed.
2000	FEWS NET begins drought early-warning coverage in Malawi.
2003	Malawi Vulnerability Assessment Committee formed to evaluate and coordinate early warning for the government.
2005	President Mutharika makes food security a major platform and creates Farmer Input subsidy program. Malawi signs the Hyogo Framework.
2006	Malawi becomes one of the first countries to submit a NAPA to the UNFCCC. Improving DRM is priority theme of Malawi Growth and Development Strategy.
2010	First draft of Malawi Country Risk Management Plan presented for review.

Institutional Capacity for DRR, Preparedness, and Response

Until 1991, the management of disasters in the country was conducted on an ad-hoc basis where agencies were coordinated after an event based on needs and capabilities. However, a flash flood event in 1991 in the district of Phalombe caused the death of 500 to 1,000 people and rendered 8,000 homeless.[473] This event highlighted the problematic set up of the informal system and subsequently the Disaster Preparedness and Relief Act was established, creating a legal and institutional structure. The Department of Disaster Management Affairs (DoDMA) was created as a department directly under the office of the president and all organizations (ministries and development organizations) were required to report their disaster risk management activities to the department. This act in 1991 would set Malawi on a solid framework for future policies and strategies of DRR. The timelines in Tables 21 and 22 capture the historical context of Malawi's natural disasters along with developments in building a national response that are reflective of the five Hyogo Framework priority areas detailed in the next section.

Progress on Hyogo Framework Priorities in Malawi

Priority 1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.

In January 2005, GoM was a signatory (along with 167 other nations) to the Hyogo Framework for Action – committed to reducing social, economic, and environmental impacts due to disasters. This program was nested under DoDMA, which was already responsible for coordinating and directing disaster risk management programs within the country. The 1991 Disaster Preparedness and Relief Act was an early attempt to build local capacity with the establishment of district, area, and community civil protection committees. While the 1991 act establishing the institutional framework for handling disasters has become outdated in the wake of emergent international policies and strategies, Malawi's multilevel approach would require few structural or procedural changes to become updated. This early initiative by the government should have built sufficient human resources and capacity toward disaster response.

After signing the Hyogo Framework in 2005 and submitting the National Adaptation Programme of Action in 2006, Malawi appeared on track towards addressing its social-environmental issues. In 2006, Malawi released its Growth and Development Strategy, which placed disaster preparedness as the second priority theme. With tremendous assistance from international development organizations, Malawi set to work on a national platform. A study funded by the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) in 2008 identified the strengths and weaknesses of Malawi's current policies. These were used to help develop a National Disaster Risk Reduction Framework (DRRF) in 2009 with a 2010 to 2015 vision.

Technical committees were established to help build capacity where GoM is lacking. These committees include coverage of Agriculture and Food Security, Health, Water, Transportation, Assessments, Shelters, and Early Warning. Members of these committees represent a wealth of expertise across government ministries, international development organizations, and civil society groups.

Priority 2. Identify, assess, and monitor disaster risks and enhance early warning.

Strengthening of early warning systems has been paramount to many of the strategies of IOs working in Malawi, as well as the government's own response to disasters through robust programs related to food security. Numerous studies and assessments have been conducted on Malawi's disasters.[474] As part of NAPA, Malawi's strategy to access funds under the United Nations Framework Committee on Climate Change (UNFCCC), the government assessed the future risk of natural disasters based on historical presence of extreme events. In many cases, DRR in Malawi has become paired to discussions of climate change and adaptation, which has resulted in successful mainstreaming of perceived risk areas and better monitoring of disasters.

Malawi has been a program country of FEWS NET since 2000. FEWS NET was developed to monitor climate patterns across many countries in Africa to quickly and more efficiently respond to food shortages with coordinated food aid. This early warning mechanism has proved sufficient at the national and international levels, but Malawi is in greater need of mechanisms to coordinate disaster response at a subnational level.

Additionally, the Malawi Vulnerability Assessment Committee (MVAC) was set up in 2002 in an effort to group vulnerability data across southern Africa after the 2001 to 2002 food crises. The emergence of livelihood analysis as a major theme in development has begun to redress this knowledge gap and MVAC has adopted it as an approach to analyze vulnerability. Between May and July 2003, the MVAC conducted a livelihood rezoning exercise and a Household Economy Approach (HEA) baseline survey in 11 livelihood zones in Malawi. The HEA is based on exchange entitlements and economic theories of risk. Based on these results, livelihood zones – or areas where households share similar options for obtaining food and income – were mapped. Wealth groups were established by dividing the population into categories of poor, middle, and better-off in a process that was unique to each livelihood zone based on experts on the assessment committee and district executives. Sixty-five percent of Malawi's population was considered poor. The ongoing risk assessments from the MVAC in coordination with FEWS NET have been the cornerstone for much of the government's response efforts to date.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

There is a growing recognition that more education and training programs will be paramount to sustain the capacity that Malawi already has while building better capacity at the district and community level. Disaster risk management and climate change adaptation concepts are being introduced into primary and secondary schools in an effort to integrate safety and resilience into the culture. Universities are also integrating programs and courses on DRM material in hopes that these higher-level students will become the next generation of policy makers and practitioners. However, most of these efforts covered in the literature of development organizations appear highly prospective, and the actual efforts in this priority area require further research.

Despite the novelty of these efforts, IOs and civil society groups are mainstreaming, or integrating, DRM concepts into existing projects and strategies of development. This is in an effort to make DRM a more multi-sector initiative that can better address the many existing vulnerabilities discussed in the last section. This same practice of mainstreaming has also been a major platform for climate change adaptation. In both cases, this likely represents situations where the need for interventions and activities outweighed existing financial resources, political will, and formalized strategies for addressing existing vulnerabilities. However, further research is required to determine if future strategies in DRM and adaptation represent innovations in development strategy or extensions of existing efforts. In addition, there is growing recognition that issues of disasters and climate change are converging and Malawi appears to be conflating these issues in an effort to synergize development activities.

Priority 4. Reduce the underlying risk factors.

A report on the status of Disaster Risk Management in Malawi conducted by the World Bank in 2010 highlights many activities underway related to DRR. The donor community, especially UNDP, United Kingdom, Ireland, and Norway, appear committed to implementing DRR activities in a coordinated and proactive strategy. Donors in 2010 formed a Joint Resilience Unit, in which they meet to discuss their activities and share their project information. Donors have supported the national government to develop a National Disaster Risk Management Policy and Operations Manual. As a result, DoDMA has developed flood contingency plans in the seven vulnerable districts. This multi-sectoral process involved many actors at every level and helps in strengthening the technical and scientific capacity of the country. An evaluation of the projects listed in the report indicates that food security, enhancing rural livelihoods, irrigation, and increased market access are key interventions to the overall DRM approach.

Environmental and natural resource management is a new and emerging concept at the community level where village participation and protection of nearby resources is the goal of many rural livelihood projects. Malawians are starting to take notice of the environmental degradation of their landscape due to deforestation, yet policies are not in place that provide adequate and encouraging means to discourage the cutting of trees for charcoal. The recent flood zone planning by DoDMA and UNDP are an indication that land-use planning is becoming increasingly important in Malawi.

Efforts to integrate DRR planning into health activities are potentially overshadowed by the persistent issue of HIV and AIDS within the country that is affecting nearly 12 percent of the adult population. However, District Humanitarian Affairs officers were recently trained in disaster preparedness and response planning, information management, and assessment practices as part of a UNDP supported program.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

DoDMA is clearly the central figure in Malawi's developing framework on disaster risk management. Having had a 20 year jump start on the Hyogo Framework, the capacity of this department may be higher than other developing countries that are looking at DRR for the first time. However, only recently have IOs really taken an active interest in DRR with their strategies, projects, and support to the national government. DoDMA is currently working with UNDP and the World Bank to develop a situation analysis of the disaster exposure in the Shire River Valley, the most flood prone area of the country. The years following the 1991 Disaster Preparedness and Relief Act provided little support to districts and communities, but the influx of donor participation has created a wealth of resources that appear to be percolating down to the district and communities engaged in studies and contingency planning. However, this priority area is really the culmination of the efforts of all the others and represented the least ripe area for investigation and empirical analysis prior to fieldwork.

History and Natural Hazards in Mozambique

Mozambique is an important case for understanding disaster preparedness and response in Africa not only due to the international attention that the country's regular floods have received in the last 13 years, but more importantly because of the response taken by the government and its non-governmental partners to these floods. At the same time, Mozambique is threatened by other natural shocks, such as drought, that receive comparably little attention but also put large segments of the population at risk on a regular basis. This combination of natural shocks, some of which have received more domestic and international attention than others, provides a particularly interesting case for evaluating the causes of disaster risk reduction, preparedness, and response in Africa.

Background on Natural Hazards

Mozambique's geography makes it vulnerable to multiple different disaster types. While earthquakes, insect infestations, and wildfires have occasionally occurred, the primary natural threats are inland flooding, cyclones, and drought. Table 23 highlights the major natural disasters over the last three decades. On average, Mozambique faced 1.2 major natural hazard events each year in the period 1957 to 2008.[475] Located on the southeast coast of the African continent, the country regularly faces the threat of tropical storms and cyclones. On its western border, downstream flows of water from the neighboring states of Zambia and Zimbabwe contribute to the risk of flooding. Droughts are also relatively common, and can occur in all regions of the country.

Typically in Mozambique, "[f]loods occur during the rainy season, chiefly within river basins, low coastal areas and areas with drainage problems."[476] While only approximately six percent of the country's land is typically exposed to floods, the high concentration of the population in coastal areas, approximately 60 percent, places a significant portion of Mozambique's citizens at risk of floods on a regular basis.[477] Flooding is historically caused by cyclones originating in the Indian Ocean and domestic rainfall, as well as "water discharge from dams in neighboring countries situated upstream."[478] In addition, "Due to the number of river basins in the country, including nine river basins from international rivers, Mozambique is currently vulnerable to floods regardless of whether flooding intensity increases."[479]

In 2000, Mozambique faced the worst set of floods in recent memory. A combination of record rainfall, particularly in neighboring countries, and multiple cyclones produced substantial flooding, forcing thousands of people from their homes and resulting in highly televised rescue efforts, including removal of individuals from trees in which they had sheltered from the floods for multiple days.[480] One estimate of the damages from cyclone Eline, the most devastating event of the 2000 season, put overall costs at 20 percent of the country's gross national product.[481] Flooding has continued to occur on a regular basis since 2000, with particularly serious occurrences in 2001, 2003, 2007, 2009, and 2012. As shown in Table 23, however, the number of people killed and affected by these floods has gone down rather substantially over the intervening 12 years.

Drought is also a significant threat, with the central and southern regions of the country at greatest risk.[482] The occurrence of droughts has increased since the 1980s and is seen to result, at least in part, from rainfall shortages caused by intermittent weather patterns such as El Niño.[483] Droughts are of particular risk given the predominance of the Mozambican population that relies on agriculture and animal husbandry for their livelihood and that is threatened by crop loss and reduced grazing areas in times of insufficient rainfall.[484]

Table 23. Recent History of Major Natural Disasters in Mozambique

Year	Type	Location	Dead/Injured/Affected
1979-1982	Drought	North	6,000,000 affected
1981	Flood	Mozambique	500,000 affected
1981-1985	Drought	South, Central	100,000 killed; 4.750,000 affected
1984	Storm	Maputo, Gaza	109 killed; 350,000 affected
1985	Flood	Maputo	8 killed, 500,000 affected
1988	Storm	Zambezia	100 killed, 4,000 affected
1991-1992	Drought	Center	3,300,000 affected
1994	Storm	Nampula, Zambezia, Manica, Sofala, Tete	240 killed; 2,502,000 affected
1996	Storm	Zambezia, Gaza, Maputo, Inhambane	11 killed; 200,000 affected
1997	Flood	Manica, Sofala, Tete, Zambezia	35 killed; 400,000 affected
1999	Flood	Nampula, Inhambane, Sofala	23 killed; 70,000 affected
2000	Flood	Mozambique	800 killed; 4,500,000 affected
2001	Flood	Zambezia, Sofala, Tete	79 killed; 549,326 affected
2002	Drought	Maputo, Gaza, Inhambane	9 killed; 600,000 affected
2003	Drought	Tete	9 killed; 119,500 affected
2003	Flood	Cabo Delgado	32 killed, 400,000 affected
2005-2006	Drought	Maputo, Gaza, Inhambane	1,400,000 affected
2007	Storm	Inhambane	10 killed; 162,770 affected
2007	Flood	Sofala, Zambezia, Manica, Tete	29 killed; 285,000 affected
2007	Drought	Mozambique	520,000 affected
2007-2008	Flood	Sofala	20 killed; 113,535 affected
2008	Drought	Maputo, Gaza, Inhambane	500,000 affected
2008-2009	Flood	Maputo, Inhambane, Gas	25 killed; 3500 affected
2010	Drought	South	460,000 affected
2012	Storm	Chokwe, Xai-Xai	20 killed; 40,000 affected

Sources: UN OCHA

Political Background

The major natural shocks of the early 2000s hit Mozambique less than a decade after the end of a 20-year civil war, which had followed closely on the heels of independence from the Portuguese colonial state. While Mozambique gained independence from Portugal in 1975, by 1976, the ruling government, led by the FRELIMO (Mozambican Liberation Front) party, began to face resistance incursions from Rhodesian armed forces responding to the presence of Rhodesian pro-independence actors in Mozambican territory. Subsequently, the Rhodesian government founded and provided support for the formation of an opposition group, RENAMO (Mozambican Resistance Movement), to oppose the FRELIMO government.

Though the intensity of the succeeding civil war varied over the subsequent two decades, the internal violence resulted in the deaths of approximately one million Mozambicans and displacement of more than five million, the latter representing nearly one-third of the country's total population.[485] The war had follow-on effects beyond the declaration of peace in 1992, with continued injuries and deaths from land mines, at times exacerbated by natural hazards,[486] as well as the slow process of building the institutions for multi-party democracy.

The legacy of civil war also has implications for the quality of human resources in general. Within government, there are limits on the capacity of state officials, particularly at local levels, due to a history of weak educational institutions and continued recovery from a generation of young men diverted by civil war. At the highest levels of the bureaucracy, the lack of sufficient post-graduate degree-granting institutions implies that most individuals must leave the country in order to acquire a Ph.D., resulting in a limited supply of expertise in areas such as engineering. Outside of government, the displacement of large numbers of individuals during the civil war, as well as the imposition of communal farming by the FRELIMO government, has limited the quality of broader domestic inputs into the economy, such as agricultural skills.

Since the introduction of multi-party democracy, Mozambique has held four presidential and parliamentary national elections and three rounds of local elections. Generally speaking, FRELIMO has dominated these elections and remains the principal party in the country. RENAMO evolved into the largest opposition party, but has failed to establish any regular alternation of power beyond a small number of local municipalities.[487] As a result, FRELIMO largely dominates the national government and policy-making processes.

The strength of FRELIMO also has implications for the nature of the national bureaucracy. Party membership is an implicit requirement for employment within the government, thereby limiting the range of individuals who can be drawn into public service. This, in combination with the constraints of the educational system noted above, means that the quality of the bureaucracy is likely to be more limited than would likely be the case under a more meritocratic system. This has important implications for the ability of bureaucrats to act independently in the face of complex and dynamic natural hazards.

Socioeconomic Background

Since the conclusion of Mozambique's civil war, indicators of socioeconomic status have generally improved, representing both the shift out of war and improvements in both governance and economic productivity. Table 24 highlights the changes in key indicators, including measures of educational, health, and economic performance. In comparison to its peer African countries, Mozambique has grown rapidly in recent years, with an overall economic growth rate of 7.9 percent in the period 2001 to 2010 and anticipated 7.7 percent in 2011 to 2015, behind only Angola, Nigeria, and Ethiopia in the first period and second only to Ethiopia in the second.[488] This growth is not, however, associated with similar rankings for the country on other measures of socioeconomic performance. Mozambique is in the bottom half of African countries with regard to indicators such as population below the poverty line,[489] infant mortality rate,[490] and literacy rates.[491] Thus, while overall performance seems to be improving over time, the country still faces significant developmental needs and demands for quality governance.

A key element of Mozambique's economy in the post-civil war period has been the preponderance of foreign aid as a percentage of the country's overall budget. During this period, foreign aid has typically made up approximately half of the funds available to the government.[492] This has begun to change in recent years, with the share of foreign aid in the budget declining, both due to failures of donors to make promised payments and to increases in government revenues.[493] This said, aid still accounts for a substantial portion of the overall budget. In 2010, foreign aid made up 51.4 percent of the budget, in 2011 it was 44.6 percent, and the estimate for 2012 was 39.6 percent.[494] The final allocation of the 2012 budget to aid, however, was only 27 percent.[495]

Table 24. Mozambique Socio-Economic Indicators Over Time

Indicator	1991	2001	2011
GDP per capita (current USD)	198	218	533
GDP growth rate (%)	4.9	8.8	7.1
Net bilateral aid, DAC donors (USD '000)	872,290	1,798,790	1,827,630
Net enrollment rate, primary school	42.5	60.6	89.6
Primary school completion rate (%)	26.8	18.9	56.2
Health expenditure (% of GDP)	5.3*	5.6	6.6
Life expectancy at birth	43.5	47.4	50.2
Improved water source (% of population with access)	36	42	47**
Improved sanitation facilities (% of population with access)	11	14	18**

Source: World Bank, "World Development Indicators," 2012
**1995 data, not 1991, **2010 data, not 2011*

Institutional Capacity for DRR, Preparedness, and Response

Given this background on Mozambique's exposure to natural hazards and general political and socioeconomic situation, it is possible to consider the degree to which the country has developed a comprehensive institutional response to the threat of natural hazards and the capacity both to prepare for and respond to these threats.

In many ways, Mozambique's capacity for natural disaster preparedness is one of the most important success stories in Africa. While there are clear limits to the government's abilities, the fact that the country has seen a substantial reduction in deaths and injuries from natural disasters over the last decade merits genuine accolades. In 2000, when Mozambique was faced with a set of natural and manmade shocks that resulted in deaths of more than 800 people, the aftereffects of the civil war contributed to a general lack of preparedness for a major natural disaster and it is the change in capacity since that time that merits substantial attention.

The main disaster management agency in the Mozambique government is the National Disaster Management Institute, or Instituto Nacional de Gestão de Calamidades (INGC). Established in 1999, the goal of the organization is largely to coordinate disaster preparedness and response efforts.[496] This was a strategic shift away from the model of the previous disaster-related organization, the Department of the Prevention and Combat of Natural Disasters (Departamento de Prevenção e Combate às Calamidades Naturais/DPCCN), which, despite its title, had focused primarily on distribution of supplies during relief periods.[497] The new organization was more explicitly intended to focus on risk reduction and preparedness, as noted in the 1999 National Policy on Disaster Management.

It is striking that the INGC was established prior to the major floods of 2000 and without substantial support or initiative from external organizations. This implies that the shift resulted from a general state interest in increasing capacity for dealing with recurrent natural shocks and not from explicit external pressure from donors. This is despite the fact that Mozambique has historically accounted for a substantial portion of its budget using foreign aid.

Yet, it is what happened after the 2000 disaster that is most interesting from the perspective of capacity development. Nearly every person interviewed regarding natural disasters in Mozambique highlighted 2000 as a turning point. As was noted by one analyst, "The INGC was intended to be a more strategic organization" than the Department of Prevention and Combat of Natural Calamities (DBCCN). "The floods in 2000 reinforced the need for such an organization," which would be more focused on policy and strategy development.[498] This was the moment when the government began to actively invest in developing its capacity both to prepare for and respond to natural shocks. Thus, it was after 2000 that the INGC gained the clear attention and increased financial support of the national government.

It is also important to understand the subsequent development of the INGC in the context of support from external organizations and foreign countries. The floods in 2000 resulted in an unprecedented domestic and international response. "Nine air forces came to Mozambique; according to the UN, it was the largest air rescue operation ever mounted in such a short time, [and] deployed the largest number of military aircraft ever used in a coordinated way in a natural disaster."[499] In addition, post-flood reconstruction was supported by more than US $400 million in foreign aid.[500]

Yet, it was in the mid-2000s when disaster management received the strongest governmental push, and this was explicitly to *reduce* dependence on the international community in times of crisis. Overall, interviewees from the development community note the success to date of the INGC in managing disaster mitigation and preparedness activities. As one said, "People feel that the INGC is there to deal with these disasters and that they are doing a reasonable job." Another noted, "The INGC is quite active and effective. They…received a lot of support from the government and the United Nations to turn into an organization that focuses on prevention and prediction. They have moved from a passive attitude to being proactive." Additionally, one interviewee stated more generally that the government is "able to control everything related to disasters. They are able to put funding into mitigation measures."

A related element of Mozambique's national disaster capacity is the technical branch of the INGC, the Technical Council for Disaster Management (CTGC). This organization operates at both the national and provincial levels and is made up of representatives from ministries with responsibility for some aspect of DRR and emergency response. Representatives to the council are expected to make technical recommendations and advise the INGC on decision-making, as well as "to disseminate DRR recommendations, policies and strategies in the Government sectors and local government."[501]

While the council functions well to make recommendations at the central level during the onset of emergencies, its capacity at provincial levels is less robust. Thus, in an evaluation of progress on the Hyogo Framework to date, it was noted that, "[s]trengthening provincial CTGC in parallel with establishment of [a] local information system is needed to ensure that local institutions are well equipped with knowledge and information to consistently integrate DRR in their plans and to properly respond to local emergencies using local capacity."[502]

While the INGC is the clear nodal body for managing disaster preparedness and response, this institutional clarity blurs when the question of disaster risk reduction is raised. Currently, climate change, which is often linked to disaster risk reduction, is housed with the Ministry of Planning, in order to enable activities that affect all other departments. However, both the Ministry of Environment (MICOA) and the INGC also believe that they should each be responsible for climate change-related activities. As a result, no comprehensive strategy for dealing with climate change, or for related disaster risk reduction efforts, has been developed at the national level.

Funding for disaster risk reduction and preparedness reflects both the commitment of and constraints on the domestic government. The budget allocated to DRR and DRM also reflects the level of dedication by the government to these issues. An important element of the Mozambican policy structure is the provision for a yearly contingency plan, which is typically funded at US $3.5 to 5 million.[503] The contingency plan is developed through multi-stakeholder discussions that include central and local government actors, international donors, United Nations representatives, and members of civil society.[504] In addition, this

fund can be, and has been, supplemented by the government in years of particularly bad natural shocks. As one NGO representative noted, "[w]ith this, they [the government] don't have to ask for money from donors or humanitarian agencies immediately if something happens. This is good, because it is hard for small organizations to get money when something small happens. If there is a small flood, this will not be enough to get money from the international community, but we still need money to deal with it."

At the same time, the overall direct budget for the INGC and emergency response is only approximately 0.2 percent of the governments' total annual budget. This does not account for other investments made in DRM-supporting activities such as dams and irrigation schemes or provincial and local spending programs, but in general the perception is that there is insufficient money available for all of the proposed DRR programs. "The country does not have the total volume of resources needed to [fund] all DRR activities…and this situation does not allow for a comprehensive design and implementation of DRR as a whole and [sic] to monitor the various sectors and all government achievements as well."[505]

The commitment of the state to preparedness activities cannot be judged purely on the basis of financial allocations; other state-supported programs must also be taken into account. Some of Mozambique's most important government-sponsored preparedness activities are in the area of public awareness. As a representative of an associated NGO described, "the government has put in place local community disaster management committees in all of the vulnerable areas of the country. This is for areas dealing with any of the major natural hazards in Mozambique: floods, drought, and tropical cyclones." The government partners with a number of NGOs, such as the Red Cross and Plan International, to support these committees, through training programs and provision of emergency kits. The government allocates regions of the country to particular NGOs, based on their capacity, thereby delegating the implementation of the program to non-state actors.

Similarly, the government has worked with NGOs to develop curriculum to train children in disaster preparedness. NGOs are then used to train teachers so that they are able to teach these programs in schools. While the government does not provide financial support for these activities, it supports the initiative institutionally and coordinates with organizations to implement the program.

However, actors engaged in these activities have also recently noted that community committees in particular are at risk of falling into disuse due to lack of continued support and attention from the state. "The government does have limited capacity. There were 800 DRM committees formed, mostly in high-risk areas, and humanitarian organizations are used to sustain them. These committees were formed in 2004, but when we went to help some of them we found that they were no longer functioning. They operate on a voluntary basis. As a result, we have to ask how do we ensure that they remain active?" In addition, "They [committees] get some resources from the government, but most comes from NGOs. INGC has representatives at the district level and they work with the heads of districts. The committees are part of the government structure. NGOs are not expected to work with them forever. They try to bring local government officials into committee leadership, but the INGC representatives don't necessarily engage with committees regularly." School-based programs, given the direct role of NGOs in implementation, seem more likely to remain relevant moving forward, assuming continued support from above in the government.

These activities have paid off in subsequent rainy periods. Subsequent to the 2001 floods, "there have been low to no losses during floods and the response of government has been good." During floods "[in] 2007 the results of the policies were seen as there were fewer losses of life and the people were better prepared. The DRM committees were key in terms of preparation and they knew what was happening." Similarly, another interviewee noted that, "In 2009 and 2010 there were floods similar to the magnitude in 2000 and 2007, but there was no need for rescues or emergency operations." Unfortunately, during the rainy season that was in progress at the time of this interview, approximately 44 deaths occurred due to flooding and tropical storms.[506]

A number of basic institutional problems remain that limit the overall institutional capacity of the country. First, the government in general is "still lacking in human capacity. There are low public wages and so

people get trained and then they move into the private sector or into the UN system rather staying in the government because they think they will make more money."

Work also remains to be done in terms of improving infrastructure to reduce damage from storms. During the period of this research, an observer noted that, "we had Dando, which turned out only to be a tropical depression, but it still did serious damage in schools. This shows that the schools are still not ready for storms like this. People are aware of what they need to do when a disaster hits, but they are not ready in terms of buildings, etc."

Some of these difficulties arise from the combination of institutional power struggles and resource constraints. "The INGC is not supposed to be an implementing agency; they are supposed to provide support to other ministries. But there is the trouble of fighting over who gets the money. Ministries don't have resources, so if donors offer resources to them of course they are going to take it." This conflict between internal agencies, if unresolved, can limit the ability of the government to fully implement its disaster management plans.

Progress on the Hyogo Framework Priorities in Mozambique

This discussion of Mozambique's basic structures and programs for disaster risk management provides the backdrop for an examination of the country's progress against international standards for disaster preparedness and DRR. The Hyogo Framework provides a helpful guide for evaluating the degree to which the country has pursued a broad range of efforts not only to prepare for and respond to natural disasters, but also to reduce the risk of these disasters occurring in the first place. Mozambique is a signatory to the Hyogo Framework for Action and as such has been following procedures to develop their policies and practices in line with the five Priorities for Action, as well as documenting these activities.[507] In this sub-section, each priority is presented and then considered against Mozambique's progress to date.

Priority 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Overall, while disaster preparedness and response are clearly governmental priorities, at least at the most basic level, there has been only a limited shift toward disaster risk reduction in the government's policies. The creation of the INGC in 1999 and subsequent political support for the organization represent the priority placed on these issues at the highest levels of the political administration. At the same time, certain limitations on the institutional power of the INGC, as well as its capacity, have constrained the full development of DRR as a priority at all levels of government.

The policy environment is structured such that there are a small number of disaster-specific policies and a larger number of policies that have partial relevance to DRM. The key disaster policy is the Master Plan for Disaster Prevention and Mitigation (MPPMND), which was approved in 2006. This policy is designed as a complement to the Action Program for the Reduction of Absolute Poverty, the government's main anti-poverty policy, passed in the same year, and the government's overall five-year plan.[508] In terms of the national platform for DRR, the INGC is the clear nodal body for managing disaster preparedness and response, but this institutional clarity blurs when the question of disaster risk reduction is raised. Currently, climate change adaptation is housed with the Ministry of Planning, but both the Ministry of Environment (MICOA) and INGC claim rights to responsibility over these issues due to their connections to environmental concerns and natural hazards, respectively. As a result, no comprehensive strategy for dealing with climate change, or for related disaster risk reduction efforts, has been developed at the national level. In addition, there have been attempts to incorporate the INGC into decision-making of other government bodies, but existing governmental institutions have resisted the influence of other actors in their practices.

Lack of capacity in the INGC at local levels also creates problems for response in the moment of disasters. Constraints on communications infrastructure for decentralized communications between provinces and the central INGC administration entail that rapid relay of information is not always possible. As a result,

details on the extent and character of natural shocks in remote parts of the country often do not travel as quickly to central INGC command as would be hoped for efficient disaster response. It is not clear what efforts are being made to improve central-local communications within the INGC.

The budget allocated to DRR and DRM does provide evidence of the government's attention to these issues. In particular, the existence of a yearly contingency plan highlights the government's awareness of persistent threats from natural shocks. Yet, this money is intended more for disaster response activities than for ongoing management or risk reduction. It is perhaps not surprising, then, that there is a general perception that there is not sufficient money available for all of the proposed DRR programs.[509]

One area where financial limitations may be observed is in the application of risk assessment data to policy planning (discussed in more detail under Priority 2). This is still generally in its infancy within the Mozambique administration. "Risk assessment is done implicitly within the design, conception and implementation of major undertakings. Thus disaster risk has been treated marginally, which does not permit understanding of relevant alternatives of the consequences (potential losses) of different management undertakings."[510] This is in contrast to the formal attention given to environmental impact assessments, which are legislated through a number of laws.[511]

Overall, while disaster response and preparedness have clearly become priorities for the government and the institutions to facilitate these activities are generally supported, there is more that could be done to bolster institutional capacity within both of these areas. Additionally, disaster risk reduction is still in its early stages and may require more substantial institutional decisions and negotiations to be fully implemented within the Mozambique state.

Priority 2. Identify, assess and monitor disaster risks and enhance early warning.

The Mozambique government has been developing risk analysis data and tools, but the general impression is that these efforts are not comprehensive or coordinated in a way that would allow for the types of sophisticated and predictive analyses that would offer the best preparedness for natural shocks typical to Mozambique.

The MPPMND acknowledges that risk assessment and early warning have been hampered by disparate systems and lack of sufficient communication infrastructure, particularly in rural areas.[512] As such, the policy proposes development of a data processing center as well as procedures for the dissemination of information, both to the district level as well as to villages. This type of infrastructure should also facilitate transmission of information from local areas to the center regarding the effects of shocks when they are occurring, though this purpose is not specified explicitly in the policy. To date, however, the government has made only minimal progress toward acting on these intentions.[513] As one NGO representative noted, the government in general does not seem to have embraced the potential of having high quality data on natural hazards and vulnerabilities. As a result, while the necessary technology is available, databases are not regularly updated or utilized by staff within the INGC.

Mozambique is also a pilot country for the UNDP-coordinated Global Risk Identification Platform (GRIP), a multi-stakeholder initiative "that seeks for [sic] improving information on disaster risks and losses and facilitating the incorporation of that information into decision-making."[514] Activities in GRIP and related programs include "the establishment of a National Risk Information System and production of a National Risk Atlas," as well as "the institution of a National Disaster Loss Observatory…[and] the development of an Earthquake Risk Assessment and the start of Pre-Disaster Shelter Planning for Maputo City."[515] In order to initiate the GRIP program, an initial Systematic Inventory and Evaluation of Risk Assessments (SIERA) project was conducted in order to evaluate the extent of pre-existing risk assessment capacities in the country.[516] To date, however, the GRIP database is not recognized as a national database and so is not yet well known and accessible to all those actors who might benefit from access.

There are a large number of organizations, identified by the SIERA investigation, that produce "data relevant for assessment of risk associated with any of the relevant hazards for Mozambique."[517] The

organizations include government bodies such as the National Directorate of Water, the Mozambique Institute of Agrarian Research, the National Institute of Meteorology, the National Institute of Statistics, the National Center of Cartography and Remote Sensing, the National Directorate of Geological Survey, the National Institute of Hydrography and Navigation, the Technical Secretariat for Food Security and Nutrition (SETSAN), and the INGC. In addition, international and domestic non-state actors, such as FEWS NET, the Mozambican Red Cross, the World Food Program, and domestic universities also have the potential to provide information for needs assessment.[518]

In terms of domestic skills for risk assessment, the SIENA evaluation noted that there has been general advancement in hazard mapping, with the "technical capacity to use GIS tools including a combination of data layers to produce new information…widespread."[519] At the same time, "[i]n most institutions, the building of databases is in its infancy."[520] Thus, while base maps are becoming more widely available, the compilation and use of a wide range of relevant data is still somewhat limited. Overall, "Mozambique's situation in terms of expertise and skills in risk assessments is such that professionals of risk assessment are few."[521] In addition, documents and reports produced by one agency are not always easily available in other parts of the government. "In consequence, there are situations of people working on DRA [disaster risk assessment] without knowing the work of others on the same field or concern. Information and experience sharing is limited or non-existent, leading to unnecessary overlap, repeating efforts and little progress."[522]

Despite the lack of a generalized risk assessment framework in the country, "there are tools used for timely warning and for monitoring the situation of human and environmental systems, permitting preparedness and response."[523] These include the Cyclone and Flood Early Warning Systems, FEWS NET Mozambique, the Food Insecurity Warning System, the Sanitary and Nutritional Vigilance System, and the program for seismic risk monitoring.

The GRIP SIENA evaluation team recommended that memoranda of understanding be developed to establish clear relationships between INGC and all other "institutions and organizations related to risk assessment [which] can help in supporting institutional commitment for an active collaboration with the NRA [national risk assessment] program."[524] According to the evaluation, the country would also benefit from collaborations between all relevant organizations, to increase communication and facilitate capacity building for future risk assessment.

In sum, there is great potential within Mozambique for high quality risk assessment and dissemination of this information to the various individuals and organizations involved in DRR and DRM. There is also established institutional support within the government for developing these capacities. At the moment, however, these efforts are limited by the lack of skilled individuals who recognize the potential of the available data and who are empowered to use this data within government institutions.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

Some of Mozambique's most important government-sponsored preparedness activities are in the area of public awareness. The community and school committees, as well as incorporation of DRM information into school curriculum, all play a role in establishing a foundation of knowledge within communities. The emphasis on children, in particular, is expected to increase pressure on adults to adopt DRM practices and engage in disaster risk reduction within their home and local communities. However, as previously noted, there is a risk that these committees are falling into disuse.

One other potential source of awareness for building a culture of resilience is the domestic media. Though controlled to an extent by the government, the media, in particular television, has been used to communicate information on current storms. However, this information is typically limited. One NGO representative noted, "The media only gives news about what is happening and the types of people who are being removed from the areas where they live. They could do more than this." As this individual postulated, the government could utilize public media to convey more detailed information on what to

expect from upcoming storms and to verify or denounce information being spread by other sources. For example, during the 2012 tropical storms, individuals "received SMS messages and emails about the winds and the likely cyclone, but the INGC did not confirm these. The media could explain to people what a cyclone is, how you can identify it, and help people to understand better what is happening."

Outside of the typical season for natural hazards, the media has also recently been used to inform the public more generally about past events and the efforts that have been made in response to natural threats. "There are many good documentaries that are on TV, such as documenting flooding in the Zambezi basin, and newspapers also provide descriptions of the government response and the pluses and minuses of what is being done."

In general, while efforts exist to increase public awareness of natural hazards and strategies for risk management, it seems there is room to ensure that current efforts are well-supported by both government and non-governmental actors. In addition, other channels for knowledge dissemination, such as television, radio, and newspapers could be more fully utilized, and in more innovative ways, for channeling information to the public, both during and between threats from natural hazards.

Priority 4. Reduce the underlying risk factors.

Compared to government preparedness programs (considered under Priority 5), there is less evidence of actions to reduce the overall risk to the general public of natural shocks. However, there are emerging efforts, typically supported by organizations such as the UNDP, that promote more sustainable livelihoods for individuals living in areas at risk of natural shocks, in particular drought. In addition, general government efforts to reduce poverty can be seen as attempts to improve the overall resilience of the population. Specifically with regard to natural hazards, the MPPMND includes planning for the construction of water storage and supply facilities, such as multi-purpose dams, wells, and tanks, to help alleviate the geographical inequality in access to water and to help reduce the likelihood and effects of drought in drier areas of the country.[525] With regard to flooding, the policy proposes formulation of water basin management plans, ditch and dam construction on major rivers, resettlement and irrigation programs to encourage settlement outside high-risk areas near rivers, improved risk analysis and early warning systems, and the promotion of District Risk Management Committees in partnership with communities. All of these activities, if implemented well, should promote reduction of underlying risk factors.

Similarly, the MPPMND promotes vulnerability reduction through efforts to improve food security, including development of food and seed reserves, changes to agricultural practices such as introduction of drought-tolerant crops and newly domesticated wild crops, and introduction of new economic opportunities in areas with poor agricultural potential.[526] SETSAN (Technical Secretariat for Food Security and Nutrition) is an important actor in these efforts and "conducts regular surveys on hunger and nutrition and there has been significant investment in drought resistant crops and alternative livelihoods in the dry lands."[527] However, not all proposed programs have been implemented, limiting their benefits to date.

Resettlement is also a strategy that has been used to reduce vulnerability. "The implementation since 2007 of systematic and broader post-disasters resettlement programmes with improved houses and social facilities for all affected people plays a critical role as a mechanism to avoid losses of life and people returning to flooding risky areas."[528]

The particular role of disaster-related anti-poverty and social welfare efforts is highlighted in the text of the MPPMND:

> PARPA II main objective is to reduce the poverty's incidence in 45% by 2009. The achievement of this target depends highly (but not only) on the reduction of vulnerability of people mostly exposed to natural disasters and on the mitigation of their devastating effects. Thus, MPPMND shall be considered as a complement of PARPA II that focuses on risk management in the process of reduction of extreme poverty in the country. The MPPMND specifies the tools that materialise the PARPA II pillar concerned with the human capital as the main ingredient

> in the fight against poverty…Similarly, the MPPMND helps to materialize the PARPA II pillar concerned with economic development by incorporating the need to seek ways and means of rehabilitation of production factors in areas most affected by recurrent calamities.[529]

Beyond these disaster-specific activities, the government has a number of programs that seek to meet the PARPA goals in the area of social welfare. The Ministry of Women and Social Welfare typically leads these programs, with some additional efforts from the Ministry of Finance.[530] These efforts are largely managed in partnership with funding agencies and international NGOs. For example, "food subsidy and food for work programmes also exist, targeting the most vulnerable parts of the population including the disabled, older people, malnourished children and orphans, and vulnerable children. There is also an income generation and development programme which targets women, and in particular, women-headed households."[531]

Overall, while Mozambique has legislated and begun to implement a number of programs to support risk reduction and increased resilience, the further implementation of these efforts is necessary to realize their full potential. In addition, due to high levels of overall poverty, more general social welfare programs must be further implemented and expanded in order to comprehensively reduce risks associated with low incomes, poor health, and minimal education levels.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

This Hyogo priority is directly relevant to all of the preparedness programs described above, which will not be recounted here. Mozambique has made significant efforts to build preparedness activities not only into the regular activities of the INGC but also through community and school disaster committees. Of the five priorities, the country has made the most progress on this front. While there is a need to ensure that programs are reinforced and improved, particularly at local levels, Mozambique remains a model for preparedness efforts in Africa.

HYPOTHESES

Malawi

Moral Hazard

This hypothesis seeks to determine if GoM will spend less on preparedness if it anticipates that IOs and other agencies working in disaster management will assume this responsibility. While Malawi certainly does anticipate that development organizations will provide increased funding for disaster preparedness based on the Hyogo treaty and an increased awareness of climate-related impacts, natural hazards have been intricately embedded in the national psyche for many decades. The 1991 Disaster Preparedness and Relief Act is evidence that Malawi has and will invest in their own capacity to deal with natural hazards and the Farmer Input Subsidy Program, which failed to receive the support of many IOs initially, is another example. Both of these programs were government-led initiatives that only later gained support or attention of development organizations. However, as disaster planning becomes a higher priority for the international community, Malawi may become less inclined to use their own budget to support training activities at the districts and communities – especially when donors seem willing and eager to support such projects. Donor organizations are enthusiastically mainstreaming DRR into ongoing development planning and integrating these strategies into the overall development framework.

In looking at a World Bank report on the activities and funded projects associated with DRR over the next 5 to 10 years, the majority of the projects and programs are funded through the commitments of donors such as the World Bank, GFDRR, DFID, GEF, and other IOs and NGOs.[532] The one project funded solely by the GoM is the Integrated Water and Rural Agricultural Credit project, a greenbelt initiative to improve irrigation schemes in the southern portion of the country. With over 50 separate projects listed in the report totaling in the hundreds of millions of dollars, the GoM's contribution appears minimal.

However, this hypothesis is difficult to assess in an aid dependent country like Malawi where international aid is complexly integrated into the functionality of the government. Therefore it is important for this hypothesis to assess the motivations of the government in light of this increased international financial support. While Malawi's funding may be small, it is not likely that Malawi is spending less than it would be otherwise. It is most likely that Malawi has reengaged DRR and other planning activities with renewed commitment and determination as a result of external impetus. The government is seizing donor interest (and funding) to address the central and district level contingency planning and to establish well-trained civil protection committees.

The recent efforts of many IOs that have made DRR a priority highlight the fact that Malawi does lack organic institutional capacity to deal with many of the disasters affecting the population. However, donors' strengthening of government capacity is in part to protect existing and future development efforts and in part to strengthen their own role in shaping the future policy. Two separate multilateral development organizations conveyed their desire to be the lead adviser to the government relative to climate change and disaster management. Therefore, Malawi's government has benefited financially from this competition.

While Malawi has experienced very little internal conflict or attacks on foreigners in recent decades, the relationship between former President Mutharika and donors in the past two years rapidly deteriorated with severe name-calling and threats on both sides.[533] A sub-hypothesis seeks to determine whether Malawi is investing more in preparedness to improve its security situation and encourage external aid. Because many of Malawi's existing programs are highly contingent upon donor participation and funding, it is unlikely that tensions between the government and IOs will continue under the new president, Joyce Banda, and that Malawi will seek to improve internal social tensions to improve the country's marketability to donors.

The involvement of IOs in disaster planning is perhaps a leading explanation for why Malawi has recently made DRR a national priority. Malawi's government has been given the luxury to spend less money on DRR based on generous international support. Additionally, increased international aid has likely lead to an increased political commitment and institutional resolve within the government towards DRR. However, the government has demonstrated a commitment to invest in DRR without donor funding and related food security initiatives without donor support. Therefore, Malawi's situation does not support this hypothesis.

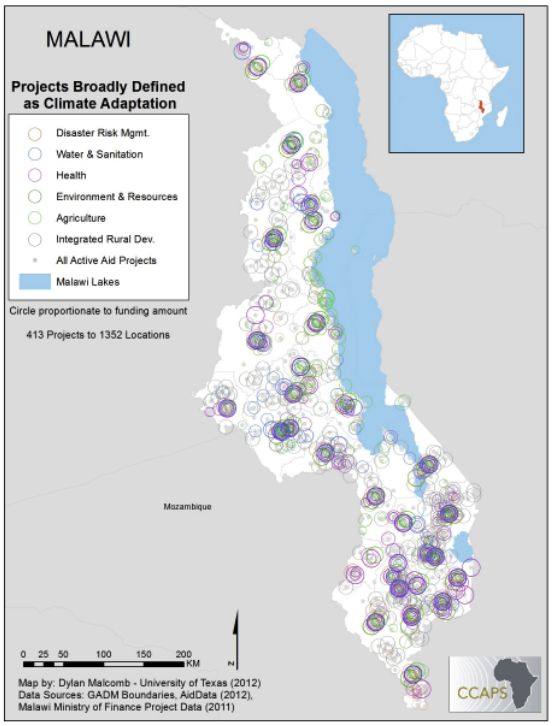
Perceived Risk

This hypothesis seeks to determine if governments will invest more in preparedness if they perceive that the risk of a natural hazard is high. As such, Malawi's perceived risk of future natural hazards is very high. In a vulnerability study during the period of 1991 and 2000, Malawi has had the greatest number of people affected or killed due to natural hazards worldwide.[534] Maplecroft, a global risk assessment agency, has declared Malawi to be the ninth most vulnerable country to future climatic change in the world and its southern neighbor, Mozambique, as the fifth most vulnerable. Therefore sub-hypotheses in this category evaluating investment as a result of past experience with disasters and predictive modeling of future disasters are applicable to Malawi where development organizations and governmental agencies are responding with greater urgency to an increased perceived risk.[535]

Based on this consensus, the national government and donor organizations have sought to address these issues through a myriad of strategies that include agricultural intensification, crop diversity, irrigation schemes, conservation agriculture, enhancement of rural livelihoods, natural resource conservation and even artisanal fisheries. These strategies are in an effort to target the most at-risk individuals in the populations, which have a noticeable concentration on the northern and southern borders of the country. A sub-hypothesis states that if vulnerable populations are concentrated in smaller areas, then less money will be required and less money invested in preparedness of these areas. The greatest at-risk populations according to most interviews with international development and government officials are in the Lower Shire River Valley in the districts of Chikwawa and Nsanje. Additionally, these populations, especially in the

south, tend to be the poorest and least represented population in Malawi's government. However, Figure 19 (based on recent analysis for this project) reveals that while areas of vulnerability are concentrated, the activities related to disaster reduction and climate adaptation strategies are wide-spread throughout the country.

Figure 19. Broad Adaptation Projects in Malawi



Note: This map depicts projects in Malawi that included identified adaptation activities based on the CCAPS climate-coding methodology. There were 47 projects to 368 discreet locations between 2005 and 2011.

Another sub-hypothesis seeks to determine if the at-risk population is wealthier and more productive if national support to these areas is greater. The majority of planned and anticipated projects from the national government, civil society groups, NGOs, and donors are distributed across Malawi's landscape, but there was near unanimous agreement in interviews that the Lower Shire River areas need the most future support. At the time of the interview, there were 250,000 people that were food insecure in the southern portion of the country. MVAC reported that this would require 4.8 thousand metric tons of food aid to provide relief. Extensive interviews in these districts reveal that the people in this area are not the wealthiest or most productive in Malawi - and many asserted that the exact opposite was true. Therefore, this evidence does not support either sub-hypothesis related to concentration of at-risk individuals or wealth and productivity as a measure of investment.

While there is tremendous consensus that the southern districts will continue to experience environmental shocks, food insecurity, and diminished adaptive capacity, Karonga, a district on Malawi's northern border with Tanzania, has continually experienced flooding. A recent event in April 2011 affected over 3,000 people and washed away 120 homes.[536] The risk to hazards in Malawi is widespread and the government, with the help of donors, is addressing the institutional shortcomings to proactively respond to each risk. Therefore, a final sub-hypothesis stating that he government is more likely to invest in preparing for hazards that are easier to secure people against is not likely in the case of Malawi based on the range of hazards and vulnerable areas.

Electoral Incentives and Democracy

This hypothesis seeks to determine if Malawi's more advanced democracy or electoral benefits lead it to invest more in preparedness. Despite decades of profound peace, stability within Malawi as recently as March 2012 appeared to be unraveling. In July of 2011, thousands of Malawians took to the streets in the major urban centers in an act of peaceful solidarity against the disagreeable policies of their President Bingu Mutharika and his Democratic People's Party (DPP). Groups organized by CSOs challenged the president's recent actions that sought to limit free press, challenge academic freedom, criminalize homosexuality, and persecute those that opposed his policies. Headlines in the local newspapers (both U.K. free press and state-controlled) evidenced a gradual decline in social contentment citing increased signs of corruption, political disenfranchisement, and a reversal of the favorable support that Mutharika once garnered among constituents. Evidence surfaced in early 2010 that he had spent over US $200 million on a new French-made private jet.[537] Additional money was spent on an armored convoy for his presidential procession and cabinet ministers were furnished with Mercedes SUVs. All of these expenditures seemed unjustifiable in a country where 75 percent of the population survives on less than $1 per day. New taxes were introduced on staples of salt, flour, cooking oil, bread, and milk that added to the burden of the nation's poor. Shortages of gasoline contributed to prices over $10 per gallon and a pervasive black market trade. Mutharika began firing and arresting members of parliament (MPs) that opposed him, he relieved his vice president of all of her duties in the end of 2010, and he dissolved his cabinet in 2011, assuming all cabinet duties for himself.[538] He expelled the British High Commissioner after correspondence surfaced that the Englishman thought the Malawi president was becoming increasingly autocratic and intolerant of criticism. Universities in Malawi closed in protest of limitations on what was taught in the classrooms.

Fallout from the government's heavy-handed response to the protests, resulting in 18 people shot, was extensive. The United Nations Human Rights Commission, U.K. Foreign Office, U.S. State Department, Amnesty International, and even Madonna were all quick to condemn the violence and actions to thwart the peaceful assembly of Malawians.[539] The Millennium Challenge Corporation, a major U.S. bilateral aid agency, suspended a US $350 million project to expand and renew the country's ailing electrical grid.[540] The U.K. Department for Foreign Investment and Development (DFID) and the German government retracted direct budget support to the Malawi government costing the country an additional US $400 million.[541] Malawi would go from being a donor-darling on the verge of an agricultural green revolution and achieving enduring food security to becoming the next Zimbabwe under a Mugabe-like leader with a similar and dangerous disregard of local and global opinions. Then, on April 5, 2012, President Bingu Wa Mutharika died suddenly of a heart attack, and after some tenuous days of political uncertainty, Vice President Joyce Banda, whom he had previously fired, assumed office as Malawi's fourth president and the second female president in Africa's history.[542] This singular event would have tremendous positive effect on Malawi's image as a stable democracy. It demonstrated the maturity of Malawi's constitution and offered new hope for Malawi's future. This event is also likely to repair relations with many IOs that are content to continue their work in Malawi.

In the context of the protests in July 2011, interviews conducted in July and August of 2011 made this a difficult hypothesis to assess. Each interviewee was prone to set the question of government capacity, electoral incentive, and citizen opinions in the context of the ongoing and recent events of the government under President Mutharika and his Democratic People's Party. Democracy and Electoral Incentives is certainly an important and relevant hypothesis to the overall situation in Malawi, yet it may still be premature to determine the effect that political and social events will have on investments in DRR.

A sub-hypothesis states that if the frequency of elections is rare, then governments will not invest in preparedness, because efforts will be hard to measure and thus electoral benefits will be limited. One issue stemming from President Mutharika's term is that Malawi last voted in local government elections in 2000 – a process that should occur every five years. After taking over as president in 2004, Mutharika postponed local elections in 2005 citing corruption. He then again postponed the local government elections in 2010 until 2014 without giving any reason. One news source indicated, "financial problems

and Mutharika's disinterest in the local elections might have contributed to this decision."[543] Unfortunately, this autocratic behavior has been more of a bad memory than a recent phenomenon in the political history of Malawi. The protests revealed that the electoral process and advanced democracy achieved following the Banda-era was waning and that there was a disregard for the electoral base. However, this had little impact on the distribution of funds and resources to politically disenfranchised individuals because most support at the subnational level comes from development organizations and civil society groups.

A sub-hypothesis states that if a government has differing support across the country, then it will invest more in preparedness in areas dominated by its supporters. The support for President Mutharika and his DPP party stemmed from a fragmented and dispersed base with no clear ethnic or geopolitical ties. Such tensions are not likely to continue under the leadership of President Joyce Banda.

Another sub-hypothesis states that if citizens respond more to disaster response than to preparedness, then the government will spend less on preparedness and will spend more on response. Certainly disaster preparedness improved under President Mutharika's supervision. He has made food security a major priority through implementation of the FISP and has recently put climate change and DRR on the list of national priorities. Malawians were most interested in food security initiatives through food subsidies, which were popular with the people and less with donors. Therefore, there is evidence sufficient evidence to reject this hypothesis.

A final sub-hypothesis states that if the media gives more attention to preparedness activities, then governments will invest more in preparedness. This is certainly valid for Malawi where the free newspapers within the country have given increased attention to issues related to natural hazards, climate change, and the environment. Offering a mix of opinions from CSOs, donors, and the government, press coverage has put increased pressure on each level of government and society to invest more in preparedness.

Unfortunately, the recent breakdown of competitive elections in Malawi and the erratic behavior of the former president created the potential to decrease or disrupt the donor support that is critical to the numerous ongoing DRR programs and projects. This tension added tremendous uncertainty to the programs and strategies that have just recently been established. This was coupled with a growing disregard for much of the constituency as well as international opinion. Mutharika's death represents a new chapter in Malawi that firmly demonstrated Malawi's democratic maturity where a vice president, stripped of all of her power by an autocratic leader, became Malawi's first female president through adherence to the constitution. Therefore, there is sufficient evidence to reject the hypothesis that future investment will be tied to electoral incentives, but Malawi's tested democracy could prove key to increased support from the international community as demonstrated by the African Development Bank, which recently gave millions of dollars to President Banda's government.

Political Development

This hypothesis seeks to determine if the quality of politicians and bureaucrats in Malawi leads to increased investment in DRR activities. This is measured through political and bureaucratic corruption and independence. Once again, this hypothesis was difficult to assess at the time of interviews where perceptions of both were high corruption and low independence, but there is sufficient evidence to support this hypothesis.

The opinion of most interviewees was that corruption at the bureaucratic level in Malawi has been vastly improved over many other African countries. That said, nearly every major donor in Malawi cited the government's lack of capacity as a major issue in the implementation of effective preparedness strategy. Much of the recent efforts by donors have been concentrated on building capacity of Malawi's government to better respond to natural disasters, climate change, and other risk factors. Therefore this evidence supports an alternate sub-hypothesis that if the country is perceived to have corruption, then IOs will be less likely to invest in preparedness. Mutharika's establishment of the Anti-corruption Bureau at the height of his popularity with Malawians and donors in 2005 solidified the resolve of many donors to make Malawi a donor-darling, or favored recipient of aid.

A sub-hypothesis in this category states that if a country's politicians are more corrupt and if international aid flows are more easily diverted into rents than preparedness funds, then the government will be less likely to invest in DRR. In this regard, the situation in Malawi is characterized with periods of progress and setback, but in recent years there have been few exposed incidents of diverted aid flows into rents. Donor organizations have limited the amount of money to direct budget support – money that goes directly into the government's accounts – which is perhaps a leading explanation for this reduced concern. Budget support is sometimes a problematic process. Last year the government budgeted a certain amount for the health sector based partly on aid that was supposed to come through the Global Fund. This money never came and thus the government missed some of its IMF targets. A government official stated that the government now waits for donor funds to come through to begin implementation instead of "pulling out its credit card" while waiting for donor funds to come through. This delayed funding created problems for project implementation since projects cannot be implemented until the funding is received. It becomes a slower process of implementation but is an important step in the eyes of GoM to decrease aid dependency.

Other issues can also disrupt government funding. Last year, DFID and Germany gave less aid when the president of Malawi bought himself a private jet.[544] One government official explained how this was not effective because other donors actually increased their aid that year and Malawi ended up receiving more aid than it had expected. This outcome was in part based on the lag between development organizations headquarters in home-nations responding to information in time to affect funding. Often this process takes a while and highlights the fact that the donors rarely work in unison. Therefore, decreasing aid is rarely effective in terms of bringing about governance changes.

In terms of bureaucratic freedom and quality leading to greater investment, former President Mutharika had placed some political pressures on MPs and cabinet members to conform to his policies. Despite this, most government organizations appeared to be working with select donor organizations in an effective and cooperative manner that benefits vulnerable populations and results in increased investment. One donor stated that Malawi has a lot of expertise on disaster management, but it is not yet institutionalized; it rests with individuals rather than organizations. If talented and eager government officials continue to work cooperatively with development organizations under new presidential leadership, then this will likely result in increased investment.

Civil Society

Malawi's collection of CSOs is large and they are becoming increasingly connected and more influential in the stakeholder process on disaster planning. CSOs are represented on the advisory committee to the 1991 Disaster Preparedness and Relief Act, the technical assistance committee of the National Program on Climate Change established in 2008 and the technical committees of the National Disaster Risk Reduction Framework. These organizations also play a crucial role in the planning and preparations for disasters as part of the frontlines of development and vulnerability reduction activities. With intricate ties to communities, often through faith-based organizations, a vested interest in national policies on environmental stewardship, and a record of involvement in post-disaster response, CSOs appear to be a commanding impetus for a grassroots approach to disaster planning and management. This supports the sub-hypothesis that if civil society actors pressure the government to invest in preparedness, then they will invest more.

One such powerhouse is the Civil Society Network on Climate Change, which is an association of 24 member organizations. Members consist of faith-based organizations – such as Norwegian Church Aid, Church Action in Relief and Development, and the Catholic Development Commission in Malawi – environmental advocacy groups – such as Total Land Care, Action Aid, and the Farmer's Union of Malawi – and general development organizations – such as Development Fund Malawi, Oxfam, and Concern Universal. Each operating under separate agendas with separate funding sources and in exclusive cultural settings, these organizations represent a conventional and fragmented development aid approach where communication and coordination are lacking. However, as one harmonized network, these organizations

now have increasing power and voice in shaping public policy and influencing the direction of national strategy. Each organization is engaged in its own preparedness activities and reports and shares progress and lessons learned at quarterly meetings.

While there is a sense that coordination is improving and that organizations are properly refocusing mandates and strategy, one of the largest hurdles is securing financial resources to be able to apply the needed interventions at the community level. CSOs are in an excellent position to assist the national, district, and tribal governments in this process since they operate as multilevel organizations, but much like the national government, these NGO groups rely heavily on the international community and donors for much of their funding. With limited funds, the activities in place to plan for and respond to disasters are reportedly effective, but to up-scale these pilot projects into full programs and out-scale them to encompass more villages are contingent on financial resources. The limitation of financial resources was echoed by many local government officials interviewed in Chikwawa, Blantyre, and Mulanje who stated that development interventions are generally occurring in 10 percent of the villages at any given time. Such sparse coverage will continue to hinder the effectiveness of any national strategy.

External Actors

This hypothesis seeks to determine if Malawi's exposure to disaster preparedness information and training have incentivized more investment in preparedness. While CSOs and the government are beholden to international donors for much of their financial resources, Malawi is not a top recipient of official development assistance (or aid) in Africa. With a dense and growing population of 14 million people – a figure that is expected to double by 2018 – Malawi predictably receives less aid annually than Mozambique – a much larger country with 24 million. However, when a CCAPS team in 2011 analyzed the aid that these countries received directed toward climate change adaptation (and disaster preparedness indirectly), Malawi and Mozambique were nearly tied at 23 and 25 million respectively.[545] There is a sense that these countries are linked through their historical experiences with disasters and that this region of southern Africa will continue to need assistance with disasters. However, there was little indication in interviews with national ministries or IOs that the preparedness of Mozambique or other neighbors was in anyway affecting the level of preparedness in Malawi.

In an alternate sub-hypothesis, Malawi's exposure to IOs that promote preparedness has made it more likely to invest non-financial resources in preparedness. Malawi has been proactive (i.e. the squeaky wheel) with the international community to receive funds for adaptation and DRR. Organizations such as the UNDP have been instrumental in guiding Malawi through the many administrative obstacles required to receive such funds. The UNDP assisted the government in production of the NAPA, whereby Malawi accessed finances through the Least Developed Country Fund. UNDP is now playing a critical role in the post-Hyogo implementation of the framework strategies with much of the funding coming from Malawi's top donors.

In addition, Malawi's regional cooperation with FEWS NET and the Southern African Development Community Drought Monitoring Center in Botswana supports the hypothesis that increased exposure to regional actors involved in disaster planning will lead to increased investment in preparedness.

Economic Strength

This hypothesis states that if a country has resources to spend on disaster preparedness, then it will be more likely to spend in this area. Like many developing countries, Malawi lacks sufficient resources to adequately respond to its internal issues. Malawi has a low GDP and this directly contributes to its inability to invest in preparedness. However, 40 percent of the budget of GoM is comprised of international aid and this very likely allows Malawi to invest more than other comparable countries in DRR. Unfortunately, Malawi does not have a vibrant market economy and there is no evidence to support the sub-hypotheses in this category related to vibrant market pressures, market actors, or protection of private investments. Many organizations stated that unfavorable tax policies and lack of infrastructure were detractors from an increase in private investment in Malawi. Therefore, much of Malawi's economy is susceptible to the

temperament and strategies of IOs. This dependency has become a major source of contention in recent years in Malawi.

Donors expressed skepticism of Malawi's capacity to cope without international financial assistance, and many donors were reluctant to give increased funding to the government for projects like DRR because they may not effectively absorb and use these international funds. Donor contributions through direct budget support – an issue that was controversial in Malawi during the period of these interviews – is also under scrutiny worldwide. There are many positive aspects to direct budget support, such as increased country ownership and better channeling of financial resources to prevent donors from overlapping agendas and projects. However, donors are turning away from budget support based on accountability issues. Is the government acting on behalf of the people? Is the government's agenda set towards development principles? Will the money get diluted through corruption? This is the unique perspective expressed by donors that want to help vulnerable people, support the government, and build capacity but face a myriad of challenges in the process. In terms of disaster preparedness, Malawi will be beholden to donor support and funding for the foreseeable future. Therefore, majority of Malawi's preparedness activities will be contingent on these external economic resources and this evidence serves to reject this hypothesis.

Mozambique

Moral Hazard

On its face, Mozambique seems like a prime case for the moral hazard hypothesis. Despite the largely internal origins of disaster management capacity in the late 1990s, the substantial international response to the 2000 floods could well have altered the attitude of the government toward the benefits of investing its own resources in disaster preparedness and response, resulting in a situation in which the government invested fewer of its own resources in expectation of external support in the face of a disaster. The dramatic support of aid agencies implied at least a temporary commitment to the country that was not paralleled in other disaster-ridden parts of the world at the same moment in time.[546] Yet, government support for the INGC only increased after the 2000 floods and, overall, Mozambique presents substantial evidence against the risks of moral hazard related to natural shocks. To see why this is the case, it is helpful to consider the institutional dynamics of the 2000 floods in greater detail.

The flooding of 2000 was the first real test of the INGC. The organization was young and had not yet faced a significant rainy season when the record-breaking floods that year took hold. As Christie and Hanlon document,[547] the initial international response was somewhat limited. While multiple international and bilateral agencies participated in response efforts in the early weeks of February, a sense of urgency was often lacking and rescue efforts were threatened by lack of resources.[548]

The nature of response changed dramatically after new flooding at the end of February and beginning of March, which received dramatic international news coverage, including images of a woman and her child, born while sheltering from the storm in a tree, being rescued by helicopter.[549] At this point, "[t]he floods were the main item on news broadcasts around the world, and prompted an outpouring of help."[550] Not only money and supplies, but also individuals wanting to provide assistance began arriving in the country.

This mass influx of resources implied serious demands for coordination, and the INGC was the government body with institutional authority to manage the effort. An important factor that made this feasible in practice was the use of the INGC office to house the UN Disaster Assessment and Coordination (UNDAC) teams.[551] This was an unusual move for many of these agencies "and it had the effect of giving the government more control over the process, and making it slightly less UN- and donor-led."[552] Most importantly, it facilitated making the INGC the point of coordination for all international aid activities.

While centralization of many relief and response activities in the INGC helped to facilitate management of resources from a wide rage of donors, it also helped to expose weaknesses in the new organization's

structure and capacity. This was particularly evident outside Maputo, where subnational arms of the organization were less prepared and where "roles of the INGC, governors, ministers and local government were not well defined."[553] When it came to distribution of relief aid, "[m]ost people assumed this was the role of INGC, but the INGC in Inhambane[554] seems to have been amazed that it was called on by NGOs and sections of the provincial government to play such a role."[555] This resulted in situations where "many aid organizations are bringing in goods that are absolutely desperately needed, then you transport them to locations where there is no distribution set-up."[556]

Thus, the Mozambique government's own disaster management institutions played a fundamental role in the relief effort during the 2000 floods, but they also exhibited important weaknesses in the structure and capacity of the organization. The potential effects of moral hazard, then, can be evaluated in terms of reaction to natural hazards in the post-2000 period.

Flooding in 2001 presents the first opportunity to gauge the government's response to the outpouring of international aid in 2000. Similar to 2000, the flooding that occurred in 2001 was due both to heavy rains and water flow from inland countries as well as a cyclone. The overall damage, however, was less significant and the storms did not produce the same type of rapid flooding as in the prior year.[557]

Nonetheless, there was response from both internal and external organizations and the coordination of this response seems to have improved due to the experiences and relationships built in the previous year. "The government, the UN system, and the major agencies, such as the Mozambique Red Cross, had all undertaken lessons learned exercises and developed contingency plans, which resulted in significant improvements in responses,"[558] In addition, "[p]reparedness measures had been taken, including the pre-placement of food, boats, and other relief materials."[559] All of these activities resulted in a more coordinated and successful effort and one again led by the INGC.

Subsequent years have demonstrated similar dynamics. While Mozambique is a recipient of considerable international aid, it continues to invest its own resources in disaster management. In addition, the INGC plays the role of determining how to allocate both state and non-state resources for preparedness activities. Thus, a system has developed in which it is the national government that is shaping and overseeing these processes, while at the same time attempting to reduce its overall dependence on external aid, despite the fact that there is substantial past evidence that they could rely on external actors for support in the case of a natural shock.

Perceived Risk

Perceived risk plays a predominant role in the response of the Mozambique government to natural hazards, both in terms of previous experience with natural disasters and with expectations of hazards to be faced in the future. Concern for specific at-risk populations seems to be less of a factor in shaping overall disaster preparedness policies. The majority of interviewees noted that the cyclones and related flooding in 2000 were a turning point for the government in terms of their attention toward the risk of natural hazards. As one NGO representative noted, "There were the major floods in 2000, and the government response was a complete disaster. INGOs were not very coordinated either. DRR has developed incredibly since then. 2000 versus today is like night and day. In 2007/8, there were floods that could have led to deaths and displacement. Yet essentially no one died."

What has changed since 2000 to improve this response? The same interviewee posited that, "Mainly, there has been government investment in DRR and better coordination among groups. This is largely due to some personalities in government. It hasn't been at the behest of donors, but rather by the government itself." In promoting these changes, the government also attracted the support of external actors. As a representative of an international financial institution noted, "After this [the 2000 floods] the INGC became more powerful and received more outside support."

The flooding in 2000 also highlighted the need for improved monitoring techniques in order to plan for future events. One observer put it this way: "Things changed after 2000 because the floods happened so

unexpectedly, but they could have been better predicted." This has resulted in a more sincere effort to collect information that will allow for improved prediction of future events, such as better mapping. "The government has mapped the areas that are high risk. Most of the policies now were made after the floods in 2000, so they have been looking at the Limpopo basin and the central rivers…The legislation that has come out of this is largely to mitigate the risks of future disasters." The expectation, in general, is that Mozambique will continue to face threats from storms off the ocean and due to the downstream effects of rains in neighboring countries, thus the priority given to disaster risk reduction is not going to go away.

Electoral Incentives and Democracy

The evidence also supports hypotheses related to electoral incentives and democracy, though in a more limited way than for some of the other hypotheses. While Mozambique is a functioning democracy, it is largely a one party state. FRELIMO continues to dominate electoral politics and has not to date been removed from national office. However, the threat of a competitive opposition does seem to underlie some of the government's behavior in responding to natural hazards since 2000.

While the 2000 floods did not result in any significant electoral costs for FRELIMO, there is the general expectation that a similar failure to deal with a massive natural threat in the future could place the party at electoral risk. Perhaps the most obvious evidence of this is the increased presence of the INGC in the public domain. "People didn't know about the INGC before until there were floods. Now, the district government selects people to be on the disaster risk mitigation committees and the INGC is now well known in the communities." In a sense, disaster preparedness activities have simply become one of the many services provided by the state. The "government does a lot of things and DRR activities are used as a part of the whole package. When people ask who does these things, they are able to say that it was the government. At the same time, providing these kinds of services means more to people here than it might in other places, especially in the vulnerable areas."

Even outside of the most vulnerable areas, efforts are made to ensure the general public is aware of the government's efforts in the face of natural hazards. The media plays a role in this, such that "if a particular disaster hits, you will see in the paper that the INGC went to that place to deal with it." This point was emphasized by at least two other interviewees, who noted that both television and newspapers played a role in communicating the nature of evolving hazards and the role of the INGC or other government actors in response.

Another way in which the government's awareness of public response to major disasters may be facilitating preparedness is that it can increase the benefits to the state of investing in preparedness activities, over pure response. This contrasts with the hypothesis that governments will spend less on preparedness if the public places a greater value on response. Here, because preparedness spending reduces the risk of natural hazards evolving into major disasters, the government's spending has in important ways emphasized preparations for these threats.

At the same time, the focus on preparedness has perhaps limited the degree to which the Mozambican government has been able to shift its focus to disaster risk reduction. A representative of an IO posited that, "people still seem to equate DRR with emergency preparedness. It's often that people start talking about DRR but in the end what they are really talking about is emergency preparedness." The government's ability to rely on NGOs for support in the realm of DRR is also limited by the attention paid to preparedness and response. One NGO manager stated that, an "issue that is of concern for us as an NGO is that it is difficult to get money for DRR funding. This has a low media profile and even though DRR costs a quarter of the amount of response for the same result, donors are more interested in response. This makes it hard for NGOs to engage in DRR." While the focus on preparedness should still be more effective overall than an emphasis on response, it is as yet unclear what the relationship between electoral conditions and risk reduction will be moving forward. In contrast to the general hypotheses regarding electoral conditions, some of the more specific hypotheses regarding electoral incentives in Mozambique do not receive support. Due to the broad nature of threats across many parts of the country,

regional differences in support for the ruling government do not seem to be a primary factor in shaping disaster risk management. One interviewee noted generally that, "All of the country is prone to disasters in some ways and so the government is trying to make all of the country strong." More specifically, a representative of an IO compared the response in Mozambique to other countries where ethnic politics seem to have played a more predominant role in government strategies, "One major difference here is that ethnicity doesn't play a big role…There may be other social rings that matter, but ethnicity is not really one of them."

Political Development

In general, the political development hypotheses posit that states with more corrupt officials, both elected and appointed, and more politicized state bureaucracies will be less likely to invest in preparedness for natural hazards. Overall, Mozambique provides evidence against these arguments, due both to levels of corruption and politicization of the bureaucracy.

Relative to other countries in our study, Mozambique is one of the most corrupt, according to Transparency International's Corruption Perceptions Index – only Togo, Kenya, and Zimbabwe exhibit higher levels of corruption.[560] Local observers also note problems related to corruption, with one observer commenting that Mozambique "has a relatively corrupt government. Evidence of this is that there has been 6 to 7 percent growth over the last ten years, but poverty remains the same."

Despite these problems with corruption, Mozambique exhibits the relatively high levels of preparedness discussed above, with one of the most comprehensive DRM programs of the countries in the study. What this seems to suggest, is that the disaster management programs prosper despite corruption in other sectors of government. In none of our interviews did anyone mention corruption as a barrier to disaster-related programs. Similarly, the politicization of the bureaucracy in general does not seem to have as negative of effects on disaster policy development and implementation as we might expect. The bureaucrats of the INGC are empowered to pursue their roles and are given support both institutionally and financially, to the extent that funds are available. However, the lack of trained bureaucrats in local areas does seem to limit preparedness and response in ways not directly related to politics. One observer noted that, "There are local level capacity gaps, but these are capacity gaps, not gaps in political will. DRR is still a relatively new field and there is not a lot of technical expertise available in DRR and DM. Even in the departments like Health or Education, there is not enough staff, let alone in a specialized area like this." Thus, it is the lack of a deep, highly trained bureaucracy that may be limiting further disaster management and risk reduction activities, rather than the explicit intervention of politicians. This said, the incorporation of more non-party members into the bureaucracy could also potentially ease these existing human resources constraints.

Where political development may be placing limitations on the development of further disaster management and risk reduction programs is in conflicts over responsibility between government agencies. In particular, the determination of how to integrate climate change adaptation activities and disaster risk reduction continues to be unresolved within the government. "The INGC does a good job of coordinating efforts [regarding CCA], including recently producing a report that makes predictions about what will happen here in the next 50 years. But the INGC is under the Ministry of Planning and Development (MPD) while climate change falls under the Ministry of the Environment." At the same time, the MPD does oversee some climate change activities, because they have the power to direct other ministries, unlike Environment. As a result, the "discussion [over CCA] is not yet finalized and there continues to be a back and forth between Environment and Planning." This indecision means that departments other than the INGC and Environment are less likely to be incorporating climate change adaptations, which might also imply disaster risk reduction benefits, into their policies and planning.

Civil Society

Mozambique does not provide strong support for hypotheses emphasizing the role of civil society in driving disaster preparedness activities. The primary civil society hypothesis is that if there is a strong

civil society in a country, then non-state actors will pursue their own disaster preparedness activities. In contrast, while Mozambique exhibits a relatively large NGO sector, dominated by international NGOs, these actors' activities within the country are directed primarily by the national government.

The government incorporates NGOs in many ways, including by making them a part of regular disaster management meetings. One NGO representative noted that, "we have representatives from the disaster management department who go to the meetings that happen with the INGC, especially in times like now when they are worried about potential disasters and there are daily meetings, and they come back and then we have a meeting to decide on what to do…We work closely with the government in general." This inclusion of NGOs in government operations is seen to make disaster preparedness and response much better. "NGOs have to be a part of the CTGC [the disaster management technical council] because the INGC is the coordinating body for all of the things that go on related to disasters and they need to know who is putting supplies where. They [the government] know all of the organizations acting in this area. In disasters, organizations can't act on their own. This makes the response much stronger. It is not like 2000 anymore, when it was really just chaos."

The government also selects NGOs to participate in government programs and directs them in implementation. "When an NGO starts working in Mozambique, they go to the government and tell them that they want to do work here and then the government helps allocate the NGO to areas of need. This is done through the Ministry of Foreign Affairs—they check with other ministries and look at the needs of the country and the skills of the NGO and then tell them where they can be of most use." One NGO director stated that while they have a good working relationship with the government, they also only work in areas that have been approved where the government wants things done. "The government would certainly look on us less favorably if we started doing things the government didn't want us to do."

For the village disaster preparedness committees, NGOs have been assigned particular areas of the country where they are in charge of working with local actors to train and implement committees. This is in part because neither the government nor any individual NGO has sufficient capacity to work in all regions of the country. But these organizations are also able to draw on their unique skills to facilitate development in capacity-constrained local environments.

With regard to disaster management in general, one interviewee noted that, "There are also resource barriers in terms of human resources knowledge, finances. Budgeting to build a resilient school is different than budgeting for a regular school. It's good that there are different institutions other than government also working on this, such as CARE, Plan, [and] Save the Children."

In these ways, the Mozambican government maintains overall control over the activities of NGOs, using them to fill in capacity gaps and implement state programs, particularly in rural areas. These actors also play an important role when the threat of natural hazards is high, by facilitating communication between Maputo and their representatives in local areas, as well as through drawing on pre-positioned supplies that they control and maintain. Thus, civil society actors play an important role in disaster risk management, but not in the autonomous ways emphasized by existing hypotheses.

External Actors

The influence of external actors in Mozambican disaster preparedness is due primarily to the activities of IOs and donor agencies, rather than neighboring states. While nearby states such as South Africa have strong disaster management policies in place, there was little indication by interviewees that the actions of this and other neighbors played into the strategies of the Mozambican state. Rather, IOs are actively pressing the government to maintain and improve preparedness activities, as well as to push further in the area of disaster risk reduction.

IOs such as the United Nations have multiple sub-organizations actively involved in Mozambican disaster preparedness and risk reduction. The United Nations Development Program (UNDP) and UNICEF, in particular, have been actively involved in activities related to their individual program domains. The

UNDP led the GRIP program to identify and map hazards of all types across the country, including floods, droughts, cyclones, coastal erosion, and earthquakes. According to an agency representative, "This information can then be disseminated to the relevant agencies." UNICEF has been incorporating disaster management activities into its broader work on children's issues throughout the country. This includes presenting natural hazard and disaster risk training in the activities of local child protection committees in villages as well as in after school activities run by the organization. UNICEF is also working with the Ministry of Public Works to develop hazard-resilient schools in cyclone-prone areas.

International finance and donor organizations have also been pressing the government to move forward on disaster risk reduction policies, as well as related climate change adaptation initiatives. The World Bank, in particular, participates in these activities as a member of the Global Fund for Disaster Risk Reduction and through projects on climate resilience, of which other organizations, such as the African Development Bank, are also partners.

These financial organizations have somewhat more leeway to shape program activities, because they largely provide the capital for the initiatives, but they also work closely with government to ensure project feasibility and the likelihood of both implementation and maintenance. One observer noted that, "Now there is a discussion about how to link DRR and CCA, because the government realizes there is money in the latter. But, there's some sense that more money would come if the government was able to put some of its own money into CCA as well." The UNDP retains an employee full time to sit within the Government of Mozambique while other organizations work in close negotiation and collaboration with their government counterparts. In this way, IOs are able to effect changes in government policies, though not typically in a rapid manner.

Economic Strength

The final set of hypotheses to consider are those related to economic conditions within Mozambique. The evidence supports those arguments that emphasize the importance of economic conditions to investment in disaster preparedness, but only when foreign aid is taken into consideration.

Mozambique is a poor country and foreign aid is the source for a significant portion of the national budget. Thus, the basic argument that higher levels of economic performance should be associated with improved disaster preparedness does not hold for the Mozambican case. However, once foreign aid, in the form of both loans and grants, is taken into consideration, the country's performance with regard to preparedness activities is much more inline with hypothesized expectations. The previous sub-section's discussion of external actors highlighted the role of these organizations in pressing government to pursue disaster management initiatives, but they also facilitate these efforts through funding that makes the programs significantly more feasible. As a result, we should not expect that Mozambique's efforts in this domain would be as comprehensive without the financial support of these external agencies.

The domestic private sector, in contrast, does not play a dominant role in disaster preparedness. While there is some movement in the area of climate change resilience, such as in the areas of carbon trading and weather index-based insurance, these are particularly specialized activities that do not necessarily benefit the broader population. Thus, while Mozambique provides evidence for the economic hypothesis related to foreign aid, the support for other economic hypotheses is quite limited.

CONCLUSION

Malawi and Mozambique share both similarities and differences in the realm of institutional capacity for natural disasters. Both exhibit a history of severe natural disasters and face the likelihood of continued natural threats into the future. Both have also displayed reasonably comprehensive efforts to build disaster management capacity. Yet, they also diverge in important ways, particularly when considering the role of international actors in shaping the contours of disaster management planning and implementation, providing mixed support for the broad set of hypotheses considered in this project.

Malawi

Malawi in recent years has experienced a visible and sizeable increase in disaster planning and DRR-related activities that support many of the hypotheses established in this research. The experience of natural disasters in the recent past coupled with reports and models predicting an increase in disasters in the future have motivated actors at every level in Malawi to increase their attention to preparing and responding to natural hazards. While Malawi demonstrated initiative in disaster preparedness through the 1991 Disaster Preparedness and Relief Act that set the country on the right path, without adequate fiscal resources the legislation had little impact. This is why the hypotheses of Moral Hazard and Economics are uniquely important to Malawi, an aid dependent country that has up until recent years been considered a 'donor darling' for its cooperative approach to the international community. Malawi's increased focus on preparedness stems from the relative importance placed on DRR strategies being mainstreamed and funded by international development organizations.

Until the Hyogo Framework, most disaster management activities in Malawi were reactive rather than proactive. The DRR program has sought to change this, but there are still several challenges to fully realizing progress under a new framework. The UNDP appears solely dedicated to DoDMA's capacity to respond to disasters through a proactive strengthening of technical and institutional approaches. Meanwhile, other development organizations are mainstreaming DRR into existing programs and strategies, but their efforts lack appropriate coordination at regional and subnational levels. Inadequate funding and lack of coordination have been consistent and multi-sectoral themes to the national government's slow progress on a number of programs that include DRR. Organizations do not inform DoDMA of disaster-related activities like they are supposed to, and this has led to redundancy and lack of transparency among organizations active in DRR. These are issues where IOs can have an immediate and positive effect while the government overcomes capacity issues to become the clear manager of disaster-related planning and response.

Malawi is in a state of transition following the strained relationship between former President Mutharika, the electoral base, and the international community. Malawi's fiscal relationship with the international community is critical to future programs and strategies of development. Political fallout following the protests in 2011 provides stark evidence that Malawi's political image can negatively impact future aid. Based on perceived human rights abuses, the Millennium Challenge Corporation suspended a US $350 million project to expand and renew the country's ailing electrical grid. The U.K. and German governments retracted direct budget support to the Malawi government costing the country an additional US $400 million.[561] In March, 2012 former President Mutharika gave a speech where he stated, "If donors say this is not democracy, to hell with you...yes, I'm using that word. Tell them to go to hell."[562] The peaceful transfer of power to President Joyce Banda, following Mutharika's death, is a momentous and important development in Malawi's political history that will undoubtedly repair the critical relationships between the country and the international community that is paramount to Malawi's disaster response strategy.

Mozambique

As a whole, Mozambique displays a considerable level of institutional capacity for disaster management, which implies mixed support for the hypotheses resented in this analysis. On one hand, high levels of perceived risk seem to play a considerable role in encouraging the state to invest in policies and programs. In addition, while the state itself has limited economic resources, it continues to grow economically and has considerable support from external actors to support these programs. Electoral considerations also seem to be a factor in influencing the government to maintain support for preparedness programs.

On the other hand, potentially compelling arguments about the risk of moral hazard in cases of natural disasters do not seem to hold within Mozambique. The presence of significant international response during the flooding of 2000 led not to increased reliance on international actors, but rather to new efforts by the government to invest their own resources in disaster management. These trends were magnified in the mid-2000s, when the government made a second major push to build its capacity, in part to lessen its reliance on other actors. In line with this, there is similarly little support for hypotheses emphasizing the independent actions of civil society. Instead, the Mozambican state, while collaborating significantly with non-state actors, directly leads the actions of these actors in disaster preparation and response, ensuring its overall control over these activities. The ability of the state to take on this role highlights the limitations of the political development hypotheses in Mozambique as well. Though, overall, the bureaucracy is politicized and the government highly corrupt (by international standards), actors within the INGC have been able to develop institutional capacity as well as oversee other organizations.

Overall, Mozambique is a positive case of institutional capacity to prepare for and respond to natural disasters. The country continues to struggle with implementing more comprehensive programs across government departments that will also incorporate disaster risk reduction, but the potential exists for these outcomes to be realized. The combination of perceived risk and electoral concerns, which increase government incentives to invest in preparedness, along with collaboration with international and non-governmental organizations that provide funding support and are willing to be guided by the state, creates a feasible environment for pushing these goals forward, hopefully without any further significant disasters.

CHAPTER 5. Diversity of National Response: Zimbabwe and Zambia

By Justin Baker, Matthew Guevara, Christian Peratsakis, and Milad Pournik

This chapter explores the background of natural hazards and institutional capacity to respond to those hazards in Zimbabwe and Zambia.[563] Moreover, a socio-economic background for each country is presented for each country. Seven different broad hypotheses are analyzed, including sub-hypotheses.

While Zambia is almost twice as big as Zimbabwe and has a GDP of four times as large, the countries share much in common (see Table 25).[564]

Table 25. Comparisons between Zimbabwe and Zambia

Measure	Zimbabwe	Zambia
Geographic		
Area (sq km)	390,757	752,618
Provinces	8 provinces	9 provinces
Demographic		
Population (2011)	12,084,304	13,881,336
Rural Population (2009)	62%	64%
Economic		
GDP (2010)	$5.46 billion	$20.04 billion
Per Capita	$500	$1,500
By sector		
Agriculture:	19.8%	21.5%
Industry:	24.4%	34.5%
Services:	55.7%	44.1%
Human Development		
2011 HDI Rank	169/169	150/169
Life expectancy	47 years	47.3 years

Both countries were a part of the British colony called Rhodesia and have English as an official language. They share a long border, the Zambezi River, Victoria Falls, and the impressive Kariba Dam. They also face similar natural hazards – mainly floods and droughts. Despite the many similarities, in terms of political structures and DRM mechanisms, Zimbabwe and Zambia are more different than they are similar. Zambia has adopted the Hyogo Framework for Action and subsequently developed a National Adaptation Plan for Action (NAPA). Zimbabwe has not done likewise, though it has based some of its DRM policy on Hyogo priorities. In Zambia, the main body in charge of governmental response to disasters is situated in the Office of the President, whereas the corresponding body in Zimbabwe is housed within the Ministry of Local Government. While each country has its strengths and weaknesses, the overall capacities to respond to natural hazards are not the same across the two countries.

Zimbabwe and Zambia are typically spared from colossal natural hazards. While they both face droughts and floods – more frequent now than a few decades ago – the scale of these hazards is relatively limited. Instead, it is the socio-economic conditions of these countries, influenced by government policies, which have a strong effect on the vulnerability of local populations. This suggests that a context of strong institutional capacity can make a significant difference as these countries respond to the natural shocks

that threaten them. High vulnerability in both countries means that even the slightest hazard can pose a significant risk to local livelihoods. Yet, it is for this very reason that DRR and DRM are especially important. This does not imply that mitigation is a futile effort; in both countries many actors work to protect the environment against unnecessary damage. Nevertheless, neither of these countries is threatened by natural hazards to a degree that will cause systemic failure of response mechanisms. Thus, the greatest effects can be achieved by focusing on reducing vulnerabilities through increased resilience. USAID Administrator Rajiv Shah and U.K. Secretary of State for International Development Andrew Mitchell affirmed this when they claimed that, "while we can't prevent drought, we can prevent food crises."[565] Herein lies the tragedy and hope - both countries are highly vulnerable but there is much scope to reduce this vulnerability.

Both Zambia and Zimbabwe have pressing development needs that result in precious few tangible resources being dedicated to DRR or DRM on their own behalf. Comparatively though, Zambia's economic prosperity, when compared to Zimbabwe, is one key reason that it has devoted relatively more resources towards DRR and DRM. Political underdevelopment in Zimbabwe is a serious cause for underinvestment in preparedness spending and lack of embrace of DRR as a national priority. This is in stark contrast to Zambia where DRR is largely a top-down initiative. Finally, in Zimbabwe there are more efforts to promote a culture of safety and resilience given that it is seen as a cost-effective way of strengthening capacity to prepare for and respond to natural hazards.

Based on this analysis, external actors should work with the government of Zimbabwe especially to complement rather than substitute for its work on DRR and DRM. Additionally, governments and external actors should harness the energy and intellect of civil society to cement a culture of climate change awareness throughout both countries. Finally, by decentralizing power and resources both countries can advance the coverage and efficacy of DRR and DRM spending.

ZIMBABWE

Background on Natural Hazards

Interviews highlighted that flooding and drought are the two most important types of hazards in Zimbabwe. For this reason, this analysis focuses exclusively on these natural hazards in the country.

Flooding

In 2000, cyclone Eline swept across the Indian Ocean, over Madagascar, and on to Mozambique and then eastern Zimbabwe. The floods were some of the worst in recent history and the situation was declared a national disaster. Dams and bridges were destroyed and 250,000 people were left homeless. According to the Civil Protection Unit, a total of 2.7 million people were affected in the eastern and southern portions of the country.[566] While cyclone Eline was an anomalous event, it illustrates the scope of rainfall-induced disasters in the country, and "highlighted the significance of disaster management at community level."[567] Without effective DRR strategies, Zimbabwe will remain unready for another cyclone of this magnitude.

Cyclone Eline exemplifies one of the types of flooding disasters faced by Zimbabwe; the other is seasonal, localized heavy rainfall that causes flash floods and can cause rivers to overflow.[568] Seasonal flooding is the more common natural hazard, though the frequency of cyclones has increased in recent years.

The general pattern of rain in Zimbabwe has traditionally been two distinct seasons: rains in October and November, a drier period in December, and rains again in January and February. However, this pattern is changing, making for more unpredictability and causing more erratic flooding patterns. The increasingly variable nature of the seasonal floods is perhaps the most important issue for understanding Zimbabwe's natural hazards. The country is currently struggling with 'climate variability' in a marked way. This inconsistency is bringing rain at irregular intervals, and in parts of the country this includes flooding.

Beyond flooding, this rainfall variability also has critical effects on national food security, as the country has traditionally relied on domestically produced maize. Large-scale commercial farmers reinforced this view, citing unpredictable rainy seasons, which can leave crops flooded in one year and too dry the next, noting that the variability has increased markedly in recent years.

The parts of the country most vulnerable to flooding are Mashonaland Central and Mashonaland North provinces, particularly within the Zambezi river basin, which forms the nation's northern border with Zambia. Parts of the valley, which houses the large Zambezi River and prominent Kariba dam, flood nearly every year with varying effect.[569] The regulation of this massive dam is also important in any discussion of flooding in the Zambezi Basin. In the far northeast, the Muzarabani District is particularly vulnerable to seasonal flooding. This region has been flooded on several occasions during the previous decade. The frequency of these floods, rather than their magnitude, makes recovery and long-term preparedness challenging. Furthermore, as a consequence of powerful storm systems that move across the country during the rainy season, flash flooding around the country can lead to local damage and loss of lives and property.

On a comparative basis, Zimbabwe does not feature in terms of deaths or numbers affected (see Table 26). Only approximately 5,000 people are exposed to flooding on a continual basis, ranking 108 out of 162 countries.[570] However, when this exposure is considered in context of the general vulnerability of the country, particularly in the Zambezi Valley, the impact of flooding becomes much more severe.

Drought

Droughts are not new to Zimbabwe, but they have become more numerous and intense in recent years. A leader of the Coping with Drought Project funded by the Environmental Management Authority (EMA) sees the problem as one of frequency rather than magnitude. He argues that the frequency of droughts does not give people a chance to fully recover before occurrence of the next one. This phenomenon of relatively small magnitude but high frequency hazards is echoed by an OCHA official who elaborates that:

> We must take note here that small, but recurrent, disasters often cause more destruction cumulatively than some of the large scale disasters that tend to draw the attention of the international media. Due to the compounded nature of risks in the region, any small scale disaster is likely to cause high levels of damage—since vulnerability is so exacerbated by the recurrent nature of disasters, which give communities little to no time to recover in between shocks.[571]

Drought has its greatest impact on water supplies. The importance of agriculture in Zimbabwe is hard to overstate and it is imperative to have in mind when thinking about drought as a hazard. This is especially significant given the reliance of Zimbabwean farmers on rain-fed agriculture.

PreventionWeb cites six of the ten worst disasters in Zimbabwe in terms of affected people between 1980 and 2010 to be droughts.[572] As shown in Table 26, three of the six occurred after the turn of the century.

Droughts in particular and erratic rainfall in general make farming difficult. Without accurate, timely, and reliable information, farmers are confused and uncertain whether to plant or defer planting. Reports by the UN, IMF, and U.S. Department of Agriculture have argued that Zimbabwe's devastating food shortages since 2000 are largely attributable to "severe drought" – a line that President Mugabe and other government officials have only been too happy to parrot. However, the reports in question relied either on unreliable, secondhand information or on data from a small sample of rainfall stations.[573]

Spatially, the regions in the southwest are the most prone to drought although it occurs in most outer areas of Zimbabwe. The central region is known as the 'breadbasket' and is not typically threatened by drought.

Craig Richardson highlights the importance of rainfall to the Zimbabwean economy.[574] The correlation between rainfall and GDP growth is striking. Remarkably though, this relationship became sharply

disconnected in the late 1990s. For example, despite above average rainfall in 2000, the country experienced negative growth. This highlights the importance of institutional capacity in determining the overall risks posed by droughts.

Table 26. Recent History of Major Natural Disasters in Zimbabwe

Year	Type[575]	Location	Affected
1982	Drought	Regional	700,000
1991	Drought	Regional	5,000,000
1996	Epidemic	Regional	500,000
1998	Drought	Regional	55,000
2000	Flood	Northeast, Zambezi Valley	266,000
2001	Drought	Regional	6,000,000
2001	Flood	Northeast, Muzarabani District	30,000
2007	Drought	Regional	2,100,000
2008	Epidemic	Nationwide, concentrations in Harare and Bulawayo	98,349
2010	Drought	Regional	1,680,000

Source: EM-DAT

Background on Political and Socioeconomic Conditions

Zimbabwe is a nation of contradictions; some of its own design, some thrust upon it. The country places last or close to last in many rankings, including the United Nations Human Development Index,[576] Legatum Prosperity Index,[577] and Freedom House ratings.[578] In the past, however, Zimbabwe was seen as a beacon of hope for a continent at best experiencing growing pains, at worst in chaos. To understand these contrasts, especially in light of disaster preparedness and management, one must look at Zimbabwe in its entirety: its geography, history, and people, as well as its leadership and their political motives.

Geography

Zimbabwe, as a whole, has arguably one of the most productive and temperate climates in Africa. It holds vast tracts of productive agricultural land, which has traditionally supported a very successful commercial farming industry focused on maize, soya, and tobacco.[579] Agriculture has been at the heart of the economy, and Zimbabwe has long relied on this sector to not only drive GDP but also to employ and feed a majority of its population. The Ministry of Foreign Affairs reports that, "although agriculture contributes only 11 to 14 percent of GDP, the sector provides employment for some 70 percent of the population, and about 60 percent of all raw materials for the industry. About 45 percent of the country's exports are of agricultural origin."[580] The country also holds vast mineral reserves, predominantly gold and chrome, though very sizeable platinum and diamond reserves have also been found in recent years.[581] It is a landlocked nation, but Zimbabwe has long-established export routes through Beira in Mozambique and South Africa's many ports.

Historical Context

Zimbabwe has played a unique role within Southern African history. Unlike most other nations in the region, which gained their independence in the 1960s and shifted to black majority rule, Rhodesia became white-minority ruled country after declaring unilateral independence from the United Kingdom in 1965 and remained so until 1980. Never officially recognized externally, the Government of Rhodesia was quickly sanctioned by the international community, after which it relied on South Africa and (Portuguese) Mozambique for economic support. At the same time, nationalist leaders (Robert Mugabe, supported by the Chinese, and Joshua Nkomo, supported by the Russians)[582] scaled up a 'bush' war (begun in 1964)

against the minority government, seeing no alternative to fighting. This war involved mainly guerrilla tactics, with nationalists launching attacks on farms and infrastructure from bases in Zambia and, after 1975, Mozambique.[583] Finally, in 1980 the Rhodesian government capitulated to international and internal pressures and Robert Mugabe,[584] leader of a political wing of the nationalists, the Zimbabwe African National Union (ZANU), took control of the country. President Mugabe and his party, the ZANU Political Front (ZANU-PF), have led the country since.

Over the past decade, Zimbabwe has become infamous for its politics. In fact, it is difficult to comment on any aspect of Zimbabwean society without addressing the political turmoil that has gripped the country during the past twelve years. The transition from minority-ruled Rhodesia to newly independent majority-governed Zimbabwe was by no means a simple undertaking. The Lancaster House Agreements, which granted Zimbabwe a path to majority-rule, sought to ease the transition socially, politically, and economically.[585] These stipulations, addressed especially toward land ownership and political appointments, remained in effect until 1990.[586] Following their expiry, the ZANU-PF government moved swiftly to consolidate power, hoping to form a de jure one-party state. This move met resistance, however, and led to demonstrations and pressure against the government during the 1990s. When veterans of the liberation movement demanded compensation from the government in 1997, 17 years after independence, Mugabe and his party felt pressure to grant this request.[587] This unbudgeted $60 million expense, in combination with Zimbabwean military support of Laurent Kabila in the Democratic Republic of Congo, began a sharp period of economic decline for Zimbabwe.[588] From this period rose the Movement for Democratic Change (MDC), Zimbabwe's most prominent opposition party, led by Morgan Tsvangirai.[589]

There were many important issues which were not adequately addressed immediately by the new leaders of Zimbabwe after independence; the government was keen to show itself as reconciliatory and successful and therefore put off many important political decisions. The most obvious, and perhaps pressing, of these was the question of land redistribution. Under the Rhodesian and British colonial governments before 1980, land was unequally distributed to favor white commercial farmers across much of the nation's most fertile land. Early on, the Zimbabwean government had committed to land redistribution, but the details were unclear and action was slow and non-systematic. Then, in 2000, after the ZANU-PF government failed at an attempt to consolidate power further through a constitutional referendum, the administration allowed war veterans to launch an aggressive land-distribution campaign of their own design.[590] Beginning in February 2000, thousands of farmers and their employees were forced, often violently, off their farms, which were then resettled.[591] Observers around the world condemned this action as well as the Zimbabwean government's failure to halt these invasions. This sudden land redistribution greatly impacted Zimbabwean agriculture and industry, and, in combination with a drought at the time, the economy moved into a period of steep decline.[592]

This economic decline has greatly impacted Zimbabwean society. Once one of Africa's richest and in many ways advanced economies (the Zimbabwean dollar at independence was nearly on par with the British Pound, and stronger than the South African Rand),[593] political and economic uncertainty has erased many of the gains the country made after independence. Land redistribution created a disruption in agricultural labor, leading to pressure on urban centers and a sharp and steady increase in general unemployment (up to 80 percent in 2009 by some estimates).[594] Due to continuing economic and political pressure, millions of Zimbabweans left the country, seeking opportunity in South Africa, Botswana, or further abroad.[595] Foreign investment, in large part, dried up and sanctions were put on key figures in the Zimbabwean government to condemn human rights abuses.[596]

Capital flight, inflation, and a lack of foreign currency reserves led to a colossal devaluation of the Zimbabwean dollar (inflation was 11,250,000 percent in mid-2008)[597] and had knock-on effects throughout the economy. In turn, this spiraling decline in economic performance of nearly all sectors raised consumer prices and created nationwide shortages of goods. The government responded with harsh regulations, including price controls, and often resorted to printing money to make up for deficits.[598] Hyperinflation

led to the de facto use of the U.S. dollar for most substantial monetary transactions, and in April 2009, the country officially allowed general circulation of the U.S. dollar, South African Rand and other foreign currencies as legal tender.[599] This 'dollarization' allowed stability and a certain degree of certainty back into financial and capital markets in the country, and investment has begun to return over the past two years. However, much of this recovery is due to the consequences of the 2008 election, after which a new, inclusive government was formed.

In 2008, at the height of Zimbabwe's economic troubles, a general election was held to elect a new president and parliament. The election itself was controversial; some called it a fair expression by the Zimbabwean public while others sharply criticized it, citing irregularities in voting, counting, and political intimidation.[600] After a delay in the release of the results for over a month, Tsvangirai was announced the winner, but without the majority (50 percent) required to avoid a run-off election. Tsvangirai, however, withdrew from the second round of voting, citing an atmosphere of violence and intimidation against his supporters which he claimed was being perpetrated by Mugabe's party. The second-round election went ahead and Mugabe won another term by default. Soon thereafter, a political stalemate developed between MDC and ZANU-PF during the following four months, and under pressure from SADC and the international community, Zimbabwe formed the Government of National Unity (GNU), which incorporated both the MDC and ZANU-PF under its 'Global Political Agreement (GPA),' brokered by South African president Thabo Mbeki.[601] This inclusive government, still in power today, retains Mugabe as head of State and opposition leader Morgan Tsvangirai as Prime Minister. Though it was not a full or final solution to the political problems of Zimbabwe, the GPA returned some credibility to the government, and was a relief to many nations in the region.

Within the larger regional context, Zimbabwe has played a key role. After independence, President Mugabe became a venerated leader around the continent, well-liked for his determined and forward-looking nature. Mugabe was seen as one of the first of a new breed of African leaders, one of hope and reconciliation, something Nelson Mandela would come to embody fourteen years later.[602] The formation of the Southern African Development Coordination Conference (which became the Southern African Development Community, SADC, in 1992) coincided with Zimbabwean independence, and was motivated by a desire of the rest of Southern Africa to unite against segregated South Africa, particularly to ease their dependence on South Africa's economy.

Despite this positive regional role in the early years after a shift to majority rule, Zimbabwe's political troubles have not stayed within its borders. The region has felt its effects, especially the strong patterns of emigration (particularly to South Africa) of Zimbabweans, as well as economic damage in the form of cancelled exports and failure to pay for services. These reasons were cited for a $2.6 billion cost to the region between 2000 and 2002 alone.[603] Furthermore, the political crisis in Zimbabwe over the past decade has brought disagreement and discord within the Southern African region itself.[604]

Institutional Capacity for DRR, Preparedness, and Response

This research highlights several strands of institutional capacity, each of which separately contributes to the overall ability of Zimbabwe to prepare for, respond to, and manage disaster events. Essentially, these involve government frameworks and policy, informational capacity, and the presence or absence of resources, all of which can be categorized under the Hyogo Framework. Understanding how this capacity stands now, given Zimbabwe's unique historical, political, and socioeconomic background, will give a sense of how the nation will be able to respond to future climatic shocks.

Priority 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation

Before delving into specific disaster preparedness and response policies and actions of the government, it is important to note how national policies and frameworks have formed the basis for DRR development, particularly over the past decade. Accordingly, the Hyogo Framework's First Priority for Action calls for disaster risk reduction to become a national and local priority through a strong institutional basis.

In terms of an overarching policy environment, Zimbabwe has developed a relatively robust legislative system. Often still based on Rhodesian legislation that preceded it, the government has comprehensive legislation on a range of relevant issues. For example, the country has legislation covering Environmental Management, Water Management, Land Resources, and other sectors relevant to DRR. Furthermore, the nation has a very developed bureaucratic system, inherited from its British colonial history. Implementation of legislation by these bureaucracies, however, is a different manner. Several interviewees, both local and international, noted that an adequate policy framework exists in Zimbabwe in regard to DRR and preparedness, but that this framework does not necessarily imply good implementation of these policies.

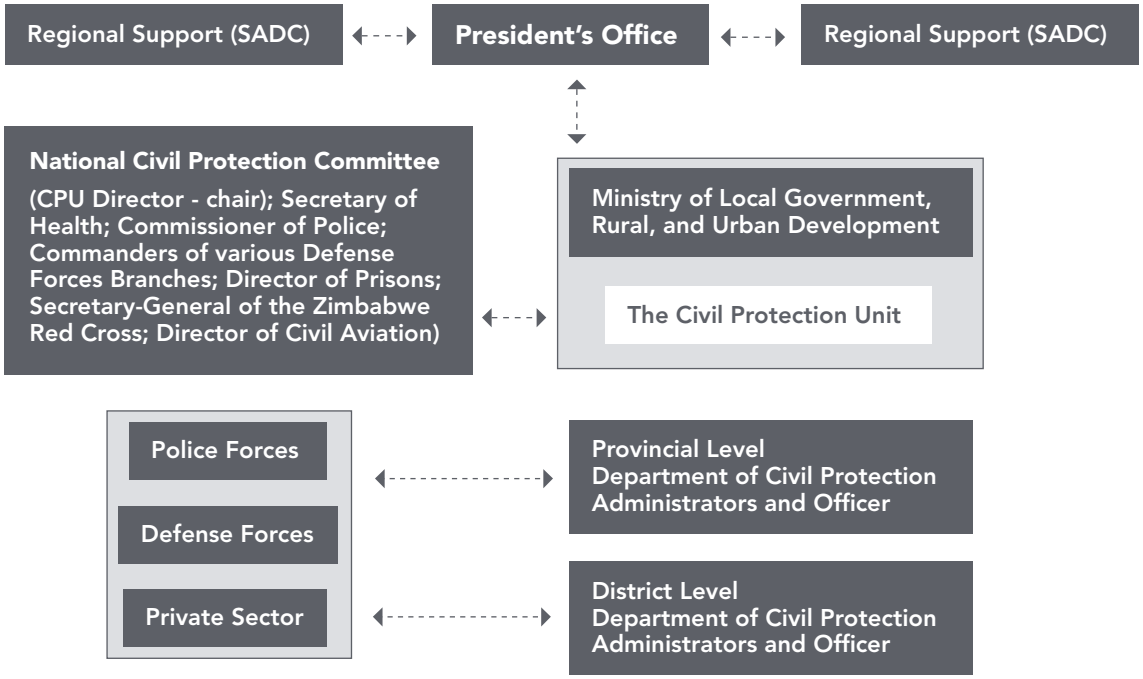
According to the Government of Zimbabwe, the "national policy for disaster management is that every citizen of the country should assist wherever possible to avert or limit the effects of disaster."[605] Under this broad declaration, Zimbabwe prepares for, responds to, and manages natural shocks and associated risks through the implementation of its Civil Protection Act (CPA) of 1989. The act was created to "establish a civil protection organization and provide for the operation of civil protection services in times of disaster; to provide for the establishment of a fund to finance civil protection; and to provide for matters connected with or incidental to the foregoing."[606] Prior to this legislation, according to a high-level government official, Zimbabwe carried out disaster-oriented activities under the Civil Defense Act of the previous Rhodesian government; however it was replaced by the CPA to change racially-based discrepancies in the older act.

Zimbabwe is not a signatory of the Hyogo Protocol, though the country was represented at the 2005 World Conference on Disaster Reduction, where the protocol originated. However, according to government officials and CPU publications, the national platform for DRR is based on this international framework.[607] The country "has engaged in a process to review its legislation since 1995 in an effort to strengthen disaster risk reduction," and there is currently legislation 'in the pipeline' to replace the 1989 CPA, however this legislation is of low priority to the government, as it has been waiting to be passed for eight years.[608]

The Central Protection Unit (CPU), mandated by the CPA, is the coordinating office for "existing Government, private, and NGO organizations whose regular activities contain elements of disaster risk prevention and community development."[609] The CPU is currently housed under the Ministry of Local Government and Urban and Rural Development, previously called the Ministry of Local Government, Public Works and National Housing.

The mandate of the CPU is a wide and inclusive one. It is responsible for preparation and response to both natural and man-made hazards, including floods, droughts, epidemics, and industrial and traffic accidents. Nearly every ministry of government is connected through the CPU, which hosts a National Civil Protection Committee, however in practice not all of these ministries are involved with the CPU on a daily or even frequent basis.[610] Accordingly, the CPU does not hold resources itself, and is only a small office consisting of a director, deputy director, and some officers. Preparedness at the lower district or ward levels is implemented by local bureaucrats who may work in several areas, one of them being DRR. Disaster preparedness and management in Zimbabwe, therefore, is a two-sided process—in terms of information gathering and implementation of policy, it is a decentralized system incorporating local governments and organizations; in terms of policy-making and power, however, it is still very much a centralized entity, with much power being held by a central committee and secretariat, as well as upper levels of government. An organizational chart showing the structure of Zimbabwe's Emergency Management system is shown in Figure 20.

Figure 20. Zimbabwe's Emergency Management System



Source: FEMA[611]

In terms of resources, the CPA creates a fund called the National Civil Protection Fund, which is expressly for the "development and promotion of civil protection."[612] This funding has been very low during the past few years, as seen in recent budget figures provided to us by the CPU. In cases of disaster response, the CPU must request emergency funding from the president's office.

The coordination of agencies in Zimbabwe is of key concern to disaster risk reduction and management, as set out by the Hyogo Framework. In this respect, the Government of Zimbabwe has well-formed institutional relationships between ministries, the CPU, and external organizations, yet its actual coordination in planning or response to disasters is often not as effective. The location of the CPU in the Ministry of Local Government is telling of the role it plays and perhaps the authority it holds within the Government of Zimbabwe. One prominent official within the CPU itself commented on this ministerial location, saying that it in fact works to the advantage of the CPU to be outside of the President's office, as it is less politicized in this current position. This officer recalled a season when the CPU was actually moved into the President's office, a move this official did not prefer.

The real power for action, therefore, still lies within the central government. For example, according to an international NGO working closely on health-related issues, the government rejected a recommendation of a formal declaration of disaster for the 2008 cholera outbreak by the CPU. This denied the CPU more funding for this outbreak, as "the [CPU] only manages to get sufficient funding for response when the president declares a state of national disaster. This inclination toward disaster response militates against comprehensive disaster risk management."[613] On the other hand, the CPU has made steps to implement less centralized mechanisms into its strategy; for example, the CPU tried to establish a specific flood plain management authority as well as one to deal specifically with drought.

The Location of the Civil Protection Unit – Freedom or Finances?

In 1998 the UNDP published a study on the Disaster Management Structure of several countries including Zimbabwe. It developed certain suggestions based on findings and two of the foremost are quoted below:[614]

Links between Policy and Operations - The system must ensure a very close working relationship between the policy formulating body, often in the hands of a national disaster committee, and the operational agency that must implement the decisions. For this reason, there are significant advantages in placing the focal point in the Prime ministers' office rather than in a line ministry.

Links from the Center to Local Government - Links are critical between national, regional, district and community levels to facilitate implementation and ensure effective vertical communication with, for example, information flowing up and resources flowing down.

While having more localized information and having direct access to resources is helpful there is sometimes an inherent tradeoff between the two. Zimbabwe's CPU offers a case in point.

Zimbabwe's Civil Protection Unit is currently housed within the Ministry of Local Government but was temporarily moved into the President's Office after a serious drought in 1992. A senior official at the CPU echoes the UN's suggestion that the shift made the job of resource mobilization much easier and thereby provided a surer link between policy developed by the CPU and operations. Yet, this shift also had distinct disadvantages, the foremost of which was that it was harder to get reliable information because now the CPU was liaising with the heads of various line ministries (rather than lower level officials), who were less willing to portray honestly the problems they faced. Thus, the link between the central and local government is much better served when the CPU is situated within the Ministry of Local Government. The impressive network that the Ministry of Local Government has throughout Zimbabwe, local councils at the village level, is an invaluable asset to the work of the CPU in gathering and disseminating timely information.

This new Act itself, the Emergency Preparedness and Disaster Management Act (EPDMA), has been in process and under consideration since 2004 with the latest submission in early 2011. The legislation is much more comprehensive and in line with current international standards, and would help to address some gaps in current DRR policies, including the establishment of an integrated early warning system for emergencies and disasters, integration of disaster risk reduction into development activities, and provision of greater funding for DRR.[615]

Overall, Zimbabwe has the framework for an effective DRR/M policy. In accordance with the Hyogo Framework, there has been a concerted effort by the government of Zimbabwe to focus on the decentralization of its DRR and DRM policy and power. For example, the government has extension officers in every village to inform farmers about new seeds that are more drought and flood resistant. The EMA is also heavily decentralized with most its employees being based at district and provincial level offices. The EMA also works with Rural District Councils to select Environmental Monitors who serve voluntarily in their respective communities to enforce environmental regulations. DRR/M decentralization, however, is a difficult process as the CPU does not have control of the purse strings, and can only receive funding from more powerful government agencies. Therefore, though Zimbabwe has a well-laid out and feasible framework for DRR, it has struggled to use this system to its full potential. This is due in part to institutional relationships within this framework, but also due to a lack of informational and resource capacities—the subjects of the next sections.

Priority 2. Identify, assess, and monitor risks and enhance early warning.

In terms of early warning capacity, Zimbabwe has a mixed record of success. Breaking early warning into four areas is useful in analyzing this capacity.

The first stage of early warning is knowledge of the risks faced. In this regard, Zimbabwean people and government alike are well aware of the risks they face. In fact, during a 2007 study, "more than 70 percent of respondents indicated that they knew that they lived in the floodplain."[616] The problem is rather that they don't know what to do to prepare for a flood. Only 27 percent indicated that they were knowledgeable, while 35 percent were somewhat knowledgeable on what steps to take to prepare for flooding.[617]

The second stage is technical monitoring and warning services, which are generally sound in Zimbabwe but could use much improvement. It was in Zimbabwe in 1998 that the Southern Africa Regional Climate Outlook Forum (SARCOF) was established by SADC. It is held annually and includes two months training and a two-day forum. SARCOF has since developed a system of classifying rainfall variability into three categories: above average, normal, and below average. This system is now so popular that it has spread with other regional organizations in East Africa and even in Latin America adopting it. However, according to a professor at the University of Zimbabwe heavily involved in regional climate forecasting, there remains room for improvement, and DRR-minded officials would like to add two more categories to the classification: well above average and well below average, in order to help better predict disasters.

Zimbabwe also has a National Early Warning Unit (NEWU) in the Ministry of Agriculture, established in July 1987. NEWU is made up of a team of meteorologists and economists to do field surveys, compile, and disseminate ten day reports. It is currently mostly funded by the FAO and there are concerns over its sustainability given lack of buy-in by the government. This unit publishes monthly bulletins on the existing food security situation and attempts to enhance the country's capability of advance crop forecasting so that timely interventions are initiated to counter inadequate food supplies.

NEWU is therefore mostly focused on food security and drought. In addition to NEWU, Zimbabwe has the Meteorological Office, FEWS NET, and the Drought Monitoring Centre (DMC) as part of its drought early warning system. For early warning with respect to flooding the main institutions are the Zimbabwe National Water Authority (ZINWA) Hydrological Section, the Meteorological Services Department, and the Civil Protection Unit. ZINWA monitors river flows in the whole country, and with the aid of MSD forecasts, predict the state of hydrology, however real time data is still largely lacking. Worryingly, this capacity has been greatly comprised in recent years. For example, a senior official working on a Coping with Drought Project explained that in 1980 there were over 2,000 stations to observe rain across the country but now there are only 200.

There is also a plethora of indigenous early warning indicators that are used for droughts. While such methods may not be scientifically complex they are at times more dependable than other available early warning systems. Given the relative lack of trust in government, the role of indigenous indicators are important in understanding Zimbabwean early warning capacity.

The third stage of early warning is to disseminate timely warnings to those at risk. The CPU is the most prominent actor in this respect. It mainly relies on radio and mobile phones to relay information to at-risk populations. The CPU is actively trying to place more radios in remote places in addition to relying on radio capacity of local police stations where they exist or even health clinics. They also make use of other stakeholders' capacities, such as the Red Cross' radios in the North East of the country. Additionally, the Zimbabwean telecommunications regulator has committed to donate satellite phones to remote areas. Where communications technology is lacking, the CUP will literally drive into the affected or soon-to-be affected area to disseminate warning. There are even communities in the North near the Zambian border and in the South near the South African border, where residents use cellular services of the neighboring country due to poor network coverage of Zimbabwean telecommunication providers. At the SADC DRR and Preparedness Planning Workshop in 2010, Zimbabwean representatives highlighted that,"transport

and communication need to be improved for timely and complete reporting of outbreaks,"[618] and to fill a serious gap in early warning systems. They particularly referenced the lack of local media resources in highly vulnerable and marginalized communities, inadequate real-time hydrological stations, and inadequate all-terrain vehicles.[619]

The fourth and final stage of early warning is public preparedness to act on that information. Mileti and Sorensen (1990) write that, "one often-overlooked aspect in disaster management is that of public reaction to the warning message."[620] One of the major challenges highlighted by locals that had been affected by cyclone-induced flooding in February 2000 was the poor accuracy of previous warnings. Given previous false alarms, people no longer trusted warning information, thus explaining why they failed to act on information provided by the MET office until reports of actual deaths from flooding in Muzarabani and Guruve were received. "In the survey carried out in all the flood prone areas of the country more than 68 percent of the villagers indicated that they were not likely to respond to early warning systems if the previous warnings did not result in a serious disaster or if they did not experience the event of considerable magnitude in the recent past."[621] Moreover, even if people trust the warnings they are reticent to make the necessary sacrifices to reduce the risk they face. In fact, "less than 15 percent of the respondents suggested measures such as resettlement in upland areas, avoiding activities close to the rivers and raising the foundations of buildings to above general flood depth."[622] A promising sign is that the Meteorological Office is increasingly respected, according to a previous employee. Now that natural hazards are increasing in frequency, people are much more attentive to Meteorological Office forecasts.

Priority 3. Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.

The Third Priority for Action of the Hyogo Framework calls on countries to use knowledge, innovation and education to build a culture of safety and resilience at all levels. This is especially important in Zimbabwe given the problems with the fourth and final stage of early warning explained above. It is also an area where the government and other involved actors in Zimbabwe place much emphasis in terms of raising community awareness regarding climate change and disaster management. The head of the regional OCHA office commented that "a few countries – such as Zimbabwe and Zambia – have introduced DRR in secondary schools, but most countries do not have DRR as part of their curricula at the secondary school level."[623] Ensuring that the public fully understands the importance of DRR is a crucial aspect of building institutional capacity to respond to complex emergencies.

The Coping with Drought Project, funded by the United Nations and GEF, is a good example of efforts to increase local participation in early warning systems. A senior official working with the project explained how it functioned: the project has established six village-level monitoring stations, with one of these located in a school. Students in that school are thus at the frontline of DRR and feel more attached to the process. The project also distributed 40 plastic rain gauges to farmers but due to the heat they only last for one year. Moreover, many new farmers do not appreciate rain stations and there are countless examples of them throwing out existing rain gauges when they gain land through the government land redistribution policies. Thus, raising awareness of the importance of climate monitoring amongst farmers in Zimbabwe is important.

The Environmental Management Agency (EMA) of the Government of Zimbabwe also organizes a national debate competition at the secondary school level with awareness raising a central pillar of their work—this also includes sending textbooks and pamphlets to public schools. EMA also runs a program to support university students to present PowerPoint presentations outlining a particular environmental problem and their proposed solutions – some of which will be implemented by EMA. NGOs like ADRA and the Red Cross are also focusing on community awareness. ADRA engages school children through community and school health clubs. They initially focused exclusively on Cholera but are now trying to move to a DRR focus in these clubs. An ADRA official reported that community and health clubs make learning fun, so it is easier to get buy-in from students. It is hard to gauge the impact of such initiatives but they reflect a serious effort to foster appreciation for the importance of DRR.

Priority 4. Reduce the underlying risk factors.

Perhaps the most challenging priority for action Zimbabwe faces is reducing the risk factors, or underlying vulnerabilities, of its citizens. This requires a mainstreaming approach, incorporating DRR into development – something that Zimbabwe struggles with given its limited financial resources. Within an internal report on Zimbabwe's "Progress towards implementing [the] Hyogo Framework of Action," priority four is left mostly blank, with an explanation that it is "partially covered under priority action 2."[624] The most important vulnerability facing Zimbabwe is that of food security, which is linked to disasters of many types. Related to reducing disaster risk factors, several interviews brought up Zimbabwean reliance on maize. This crop is the staple of the country (like most of Southern Africa) and the population is highly dependent on it for their basic nutrition. Though several attempts have been made to diversify the nation away from maize, through introducing more drought-resistant or hardy crops, progress has not been made. Diversification of agriculture could help Zimbabwe greatly in reducing risk factors to droughts and flooding.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

Though the Fifth Priority for Action calls for increased knowledge, readiness, and physical capacity to respond to disasters, a resounding theme throughout this research effort was that resources of all types are lacking in Zimbabwe. These include a lack of technical and management capacity, financial resources, and generally useful and developed skills. These resources are physical and human; 'brain drain' has become a great problem in the country over the past decade.

The Civil Protection Act provides for DRR funding in Zimbabwe, which has increased over the past few years but is still extremely low – just 0.03 percent of the national budget in 2010 (approximately US $300,000).[625] As part of revision of the CPA, the CPU is calling for a 0.05 percent contribution from the national budget provision in the new act, which has yet to be approved by the Zimbabwean legislature. According to the published CPU Annual Work Plan and Recurrent Budget 2012, obtained from a CPU official, the CPU plans to "improve disaster risk management capacity of the country from 20 to 40 percent by 2015." In any case, external support of DRR/M makes up a great majority of spending in this area in Zimbabwe; in 2011 this was approximately 47 percent of the CPU budget.[626] Throughout our interviews we heard many mentions of the lack of resource capacity of the government. The International Federation of the Red Cross was particularly adamant about the need for resources to help with disaster response in Zimbabwe. UN OCHA, who also work with the government of Zimbabwe during hydro-meteorological emergencies, keeps stockpiles in order to be able to respond to requests from the government for resource help. These requests have come fairly often in the past.

This fact is highlighted by many examples – FEWS NET is supported by USAID, a 2008 cholera outbreak response was led by NGOs, response to flooding is supported by the Red Cross and other local and international organizations. However, while the Government of Zimbabwe is highly dependent on donor funding, it is not wholly dependent on donor implementation, an important distinction.

The lack of tangible skills relevant to disaster risk reduction and mitigation is one of Zimbabwe's main challenges. One example of this lack of technical resources is the struggle faced by the Zimbabwean meteorological department. A Zimbabwean academic involved in the Meteorological department noted the department's difficulty in trying to retain employees who possess technical skills and knowledge. The government has taken some steps to mitigate this gap in technical skills in the country—by recently investing more in education as well as implementing a few DRR/M university-level education programs around the country, such as at the Bindura University of Technology, found in an area vulnerable to climatic hazards itself. Furthermore, local initiatives and organizations such as the Community Technology Development Trust (CTDT) are currently creating training programs to address these needs.

Outside of immediate resources important for DRR, such as vehicles, boats, tents, and other tangible goods, another side of Zimbabwe's lack of resources is its infrastructure. The nation used to have one of the best and extensive infrastructure systems in Africa – a legacy of British colonialism, Rhodesian investment, and early upkeep (during the 1980s), but recently infrastructure services have deteriorated,

leaving gaps to be filled during DRR and management efforts.[627] Upkeep of key infrastructures is a key element of any DRR, and the government is not able to respond to these demands without external financial help. Put simply, Zimbabwe's CPU is trying to move more spending into disaster preparedness but response still remains a higher priority.

ZAMBIA

Background on Natural Hazards

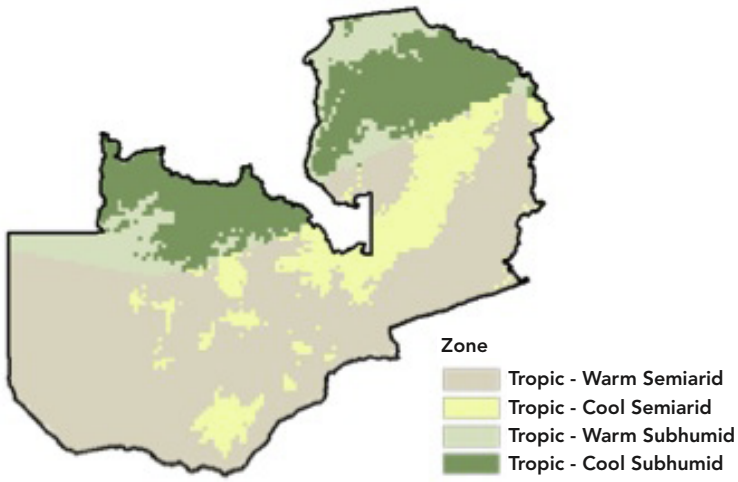
Zambia sits at the heart of Southern Africa, and its environmental wellbeing is highly sensitive to the conditions of its neighbors. According to members of Zambia's meteorological office, Zambia is affected by weather patterns moving from North to South and from South to North. In its 2008 *Report on Various Thematic Cluster of Issues*, the government highlighted that Zambia is one of the most highly impacted countries to severe weather and extreme climate events, with weather linked to over 75 percent of all disasters in the country.[628]

Table 27. Recent History of Major Natural Disasters in Zambia

Year	Type	Location	Affected
1989	Flood	Lusaka and Copperbelt Provinces	800,000
1991	Drought	Southern and Eastern Provinces	1.7 million
1995	Drought	Southern and Eastern Provinces	1.27 million
1998	Flood	Northern and Luapula Provinces	1.3 million
2001	Flood	Northern, Luapula, Central, and Western Provinces	617,000
2004	Flood	North-Western, Western, Central, and Southern Provinces	118,755
2005	Drought	Central, Southern, Lusaka, and Eastern Provinces	1.2 million
2007	Flood	Chavuma, Zambesi, Lukulu, Kalabo, Mangu, and Senanga Districts	1.4 million
2009	Flood	North-Western, Western, Central, Lusaka, and Southern Provinces	196,398

Source: EM-DAT

Figure 21. Agroecological Zones in Zambia



Source: Harvest Choice[629]

Zambia's centrality means that its environmental and economic conditions also affect other SADC members.[630] This is particularly the case given the region's heavy reliance on the Zambezi River as a source of income and livelihood. The Zambezi River basin cuts through nine countries, and greatly impacts the 32 million people living in the region who are highly dependent on the river's impact on agriculture. Therefore, Zambia's ability to cope with the negative effects of climate change, particularly climate-related disasters, becomes all the more crucial for the wellbeing of the region.

Zambia is divided into the ecological zones shown in Figure 21. Multiple interviews in Zambia yielded the same conclusions: the southern part of the country is most at risk for natural hazards, due to increased rates of illegal deforestation (Zambia has the third highest rate of deforestation in Sub-Saharan Africa), low-lying geography and highly varied rainfall levels. This region, and Zambia at large, also suffer from floods and drought, and most importantly, suffer from uncertainty.

Flooding

Seasonal flooding is one of the key challenges for the people and government of Zambia. Located on the great central African plateau, Zambia is a land-locked country bounded by seven nations. The climate can generally be described as sub-tropical due to the moderating influence of elevation. Intense tropical rains during the annual wet season, numerous large rivers and tributaries, and the diverse topography of the region combine to create areas vulnerable to flooding throughout the country. Flooding usually occurs in January on the back end of the rainy season when excess rainfall causes the Zambezi and Kafue rivers and their associated river systems to swell, inundating low-lying areas. Since 1980 Zambia has experienced 14 flood events that caused over $20 million dollars in damages,[631] but have not been particularly lethal. Thirty-one Zambians died in flash floods in 2007, making it the deadliest flood event since 1980. The UN attributed this to the unusual length and timing of the floods stating, "While the initial response with in-country resources to the floods has been exemplary, the unforeseen extent of this year's flooding as well as its duration has exhausted available resources while additional relief and recovery assistance needs remain."[632]

More than 50 percent of Zambia's population lives in urban areas surrounding the capitol city of Lusaka, and in the Copperbelt cities in north central Zambia. Nearly two thirds of that number live in "shantytowns" on the low-lying margins of urban areas that are highly susceptible to flooding due to the poor drainage infrastructure. This has two large effects; one, floods that affect urban areas tend affect unusually large portions of the population, and secondly, lingering flood waters and dense urban populations are prime conditions for cholera and malaria outbreaks. Zambians have become increasingly resilient to floods by adapting their livelihood patterns, but the second and third order effects of hydrometeorological events remain a challenge.

Drought

As Table 27 illustrates, Zambia's hazard profile is characterized by severe droughts. Drought is considered a slow-onset disaster. Slow-onset disasters are often misperceived as less threatening to a population, as it is expected that warning signs and points of intervention are more prevalent in such situations. However, slow-onset disasters result from a combination of factors; thus, making them inherently more difficult to address, as no single intervention serves as a remedy. While floods, considered a rapid-onset disaster, often receive more attention at the policy-level because of their intense destruction in a short period of time, droughts are equally as destructive to countries in Southern Africa, particularly Zambia, where over seventy percent of the population relies on rain-fed agriculture.

Just as Zambians, particularly those in Region I, are forced to prepare for the increased potential for floods, they are also faced with increased threats of drought. The SADC region is entering a period in which extended phases of lower rainfall are expected, causing additional strains on a region already under pressure.[633] Lowered rainfalls cause both drought and increased food insecurity. Despite Zambia's increasing urbanization, over forty percent of the population still relies on rain-fed agriculture as its primary means of income and daily livelihood. Zambia's National Adaptation Programme of Action (NAPA) notes

that areas suitable for staple crops, such as maize, could be reduced by up to 80 percent as a result of climate change.[634] Yet, even with 40 percent of the total water resources in the SADC region, Zambia has either failed or been unable to utilize its resources to promote agricultural irrigation and production. This leaves much for the citizens and government of Zambia, as well as its immediate neighbors and international community, to fear.

This fear is not unfounded, given Zambia's past crises with drought conditions. Rainfall levels are lowest where crop water requirements tend to be highest. For example, Region III tends not to follow the same rainfall patterns as the rest of the country; this is largely due to dense forests of the Democratic Republic of the Congo, which affect the weather patterns of that part of Zambia. Unfortunately, however, it is not in Region III where the majority of the country's agricultural sector operates. Instead, it is Regions I and II, where the country is also most vulnerable to and at risk of drought. In particular, drought-prone provinces include: Central, Eastern, Lusaka, Southern and Western.[635]

Given Zambia's placement in the middle of several weather patterns, there is a 75 to 80 percent chance in any year of drought or drought-like conditions in Regions I or II.[636] The 1991 drought, which afflicted all of Southern Africa, had a particularly strong impact on Zambia, and would set the stage for Zambia to develop a more permanent disaster risk management and response structure within the Government. The 1991 to 1992 drought was considered the strongest to hit Zambia since the mid-1980s. The maize yield following this most severe drought was 4 percent lower.[637]

Background on Political and Socioeconomic Conditions

The 1991/1992 drought was particularly damning for Zambia because of the socio-economic and political crises occurring at the time. Zambia's adaptive capacity[638] to respond to climate change and its shocks, such as flooding and drought, is highly dependent on a combination of internal and external factors relating to the country's general socio-economic development, as well as the organization of the country's disaster preparedness and response capacity.

Politics

The 1980s saw much economic and political decline within the country. This was in part due to a combination of falling export prices, particularly the weakening prices of copper – the country's leading export – and mismanagement of the country's economy by the United Independence Party (UNIP). By 1991, the UNIP, with Kenneth Kaunda, had been in power since Zambia's independence from the United Kingdom in 1964. Kaunda had been the leader of the independence movement while Zambia, then-called Northern Rhodesia, was a British colony. Kaunda and the UNIP assumed power in 1964, and ruled over a multi-party state until 1972. In 1972, a new constitution was drafted in which only the UNIP was recognized as an official political party.[639]

Kaunda maintained a grip on the country by imposing a state of emergency that lasted until 1991. By 1990, Zambia had been in a recession for almost a decade. Many saw this as a mishandling of the economy by Kaunda and the UNIP.[640] Growing opposition to Kaunda developed in the late 1980s, and culminated with the formation of the Movement for Multiparty Democracy (MMD) to challenge Kaunda in the 1991 presidential elections. MMD's Frederick Chiluba easily defeated the incumbent Kaunda. Though presidential elections were held every five years thereafter, MMD remained in power until the recent 2011 presidential elections.

Between 1991 and 2011, three MMD presidents held office. Frederick Chiluba was first elected in 1991 and won re-election in 1996. Given the term limits placed on the office, he was unable to run again in 2001. Instead, Chiluba's vice-president, Levy Mwanawasa, ran and won in 2001. He easily won again in 2006. Mwanawasa's death in 2008, however, lead to his vice-president, Rupiah Banda's assumption of the presidency.[641] Banda's presidency was plagued with claims of corruption, as had been those of his

MMD presidential predecessors. This was further complicated by Banda's close relationship with foreign direct investors, primarily from China. Zambians criticized Banda for his weak enforcement of regulations on these private companies. Thus, while Zambia's economy began to reach unprecedented economic growth under Banda, many saw it as at the expense of the people of Zambia. The economic policies of the MMD party (compounded by the previous economic policies of the UNIP) also led to further economic disparity within the country.

Zambians' growing frustration with the nearly twenty-year rule by the MMD led to Banda's defeat in 2011. Long-time politician, and often opposition leader, Michael Sata of the Patriotic Front won the election. Sata, formerly a high-ranking member of the MMD, left the party in 2001 to form the Patriotic Front. After losing in the presidential elections in 2006 and 2008, Sata emerged victorious in 2011 on a platform promising a harsher stance on corruption and dealings with foreign companies in Zambia.[642]

Sata's first few months were notable for his pushing of a government shakeup and, for current purposes, a restructuring affecting the environmental offices within the government. While the Disaster Management and Mitigation Unit, Zambia's lead coordinating disaster office, has remained largely unaffected, the shuffling within the Government has affected previous chains of communication and coordination on issues relating to climate change and DRR.

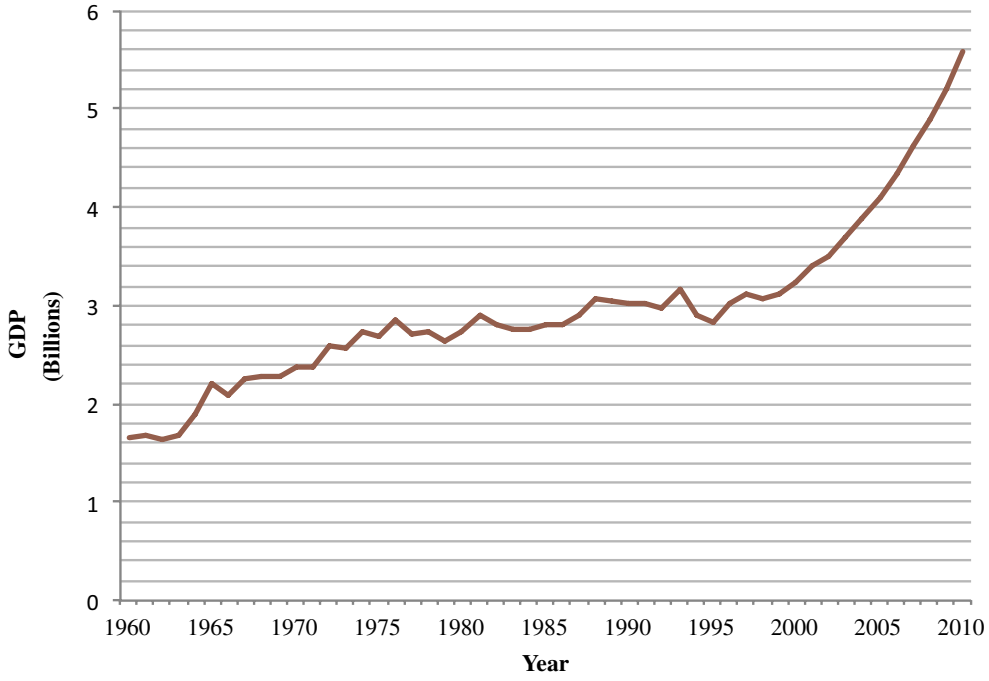
Economic Strength

In June 2011, the World Bank's Global Economic Prospects cited Zambia as one of the fastest growing economies in Sub-Saharan Africa.[643] This serves as validation of the Government's "Vision 2030" plan. "Vision 2030" is a plan put forth by the Banda Government to establish Zambia as a Middle Income Country by 2030. This plan was established under the assumption that Zambia's economy is traditionally supported by its mineral wealth, particularly copper. Recent investments in Zambia, however, from emerging economies, particularly China, have boosted Zambia's economy to a current GDP growth rate of roughly 6.8 percent annually.

In the period since its independence, Zambia's GDP has been steadily increasing. The sudden rise in Zambia's GDP since the early 2000s can be attributed to the vast increase in foreign investment from emerging economies, particularly China and India. The economic policies of Mwanawasa and his successor, Banda, opened the way for such large investments.[644]

The election of Michael Sata in September 2011 initially seemed as though it would hamper this economic growth by limiting China's access to Zambia's mineral reserves and markets. Sata's presidential platform heavily centered on criticisms of the MMD's overly close relationship with China, which he saw as exploiting Zambian people and resources. Since assuming power, Sata has relaxed his stance on foreign companies.[645] In early 2012, after only a few months as President, Sata seemed to change his stance on China. He shuffled his cabinet, moving Minister of Labor Chishimba Kambwili, a harsh critic of China's practices in Zambia, to the Ministry of Sports. Sata maintains that he has not shifted his position on China, but that the China of today is a more responsible and cooperative China than the one working with the MMD. Citizens remain hopeful that Sata (and particularly a non-MMD president) will lead to continued economic growth while reducing the economic disparity that currently exists.

Figure 22. Zambia GDP from 1960 to 2020



Source: World Bank, World Development Indicators

Institutional Capacity for DRR, Preparedness, and Response

Institutional DRR capacity is difficult to gauge because most of its components are not unique to a separate and discreet organization in the country. A common message printed on posters in almost every office of a DRR-related organization in Zambia is: "DRR is everyone's responsibility." In short, there is no gauge that allows to one to check the level of DRR preparedness in Zambia. Instead, we focus on the indicators of progress against the Hyogo Framework's Priorities for Action, which guide Zambia DRR planning efforts.

Priority 1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.

Zambia adopted the Hyogo Framework as its national platform for DRR and codified its principles into Zambian law when its government passed the Disaster Management Act no.13 of 2010. This is perhaps the most important part of Zambia's DRR efforts as it serves as a guideline for future DRR activities and makes this an enduring part of the Zambian governments' institutional memory. The Disaster Mitigation and Management Unit (DMMU) is the government organization that spearheads Zambian DRR efforts. It is the coordinator and driver of planning, organizing, and managing all DRR efforts, with roughly 100 employees and offices in all nine provinces. The DMMU itself is housed within the Office of the Vice President, who is charged with DRR oversight. The Disaster Management Act also created both provincial and district level DRR bodies that are the regional points of contact for DRR throughout the country. DMMU regional representatives participate regularly in select provincial level activities, which filter down to the districts. At the district level, serving as the DRR point of contact is usually just an additional duty for some member of the district council.

According to the DMMU's assessment for the implementation of the Hyogo Framework, there are currently 21 civil society members and 25 sectoral organizations that participate in the DRR process.[646] At the national level these stakeholders are brought together at the Disaster Management Consultative Forum (DMCF),

which is the forum for DRR planning and the integration of different actors into the national strategy. The DMCF process is fed by many inputs that assess and monitor vulnerable communities and weather patterns, including the Zambian Vulnerability Assessment Committee (ZVAC) the Zambian Meteorological Department, respectively. The ZVAC and Meteorological Department are The DMCF process produces the National Disaster Management Plan that is the working document for preparedness and response in Zambia.

The Zambian National Progress Report on the Implementation of the Hyogo Framework for Action also reports on the funding of DRR activities. According to the report, Zambia attempted to spend five percent[647] of its annual budget in fiscal year 2010 on DRM. However, according to an official at the Zambian DMMU, the five percent benchmark is a goal that is not always met, but is also sometimes exceeded depending on the nature or scope of the projects it looks to execute in the upcoming year. In addition, the DMMU is not the sole recipient of DRR funding, as some funding is diverted to line ministries like transportation and agriculture. This demonstrates the increasing mainstreaming of DRR into general development activities. For the first time in Zambia, DRR activities have been included in the forthcoming Sixth National Development Plan (SNDP).[648]

Priority 2. Identify, assess, and monitor risks and enhance early warning.

Along priority number two, Zambia assesses their efforts as having made "some progress, but without systematic policy and/or institutional commitment."[649] In terms of an early warning network, Zambia does have some capacity, which comes from both internal and external actors. The Zambian Meteorological service supervises a network of 41 weather-monitoring stations throughout the country, which help track and analyze weather patterns and feed into the larger DRR process. However, these 41 weather-monitoring stations are not created equally and some have more robust capability than others. The Zambian DMMU also operates and supervises some early warning systems. According to the Zambian National Progress Report on the implementation of the Hyogo Framework, "the DMMU has developed the Emergency Operations Center (EOC) which is supposed to be a depository of information related to vulnerability, risks and hazards among other things. The EOC is still being equipped so that it serves as a nerve center for the Early Warning System for monitoring and identifying hazards in the country."[650] In addition to this, the DMMU in conjunction with the UN has created the Zambia Emergency Preparedness and Response Information System (ZEPRIS).[651] ZEPRIS is meant to be an information system accessible to users through the DMMU's website that allows consumers "to access information that they can use for planning and response activities."[652] The idea for ZEPRIS appears to be a database to which sectoral stakeholders upload timely information that is immediately available to end users in the DRM process.

External actors also play a role in Zambia's Early Warning System. USAID's Famine Early Warning Systems Network or FEWS NET is active across Zambia monitoring areas that are vulnerable to food insecurity. According to USAID, FEWS NET "collaborates with international, regional and national partners to provide timely and rigorous early warning and vulnerability information on emerging and evolving food security issues."[653]

Zambia has made some progress in conducting vulnerability assessments at the district level in order to fully assess vulnerable areas in the event of a natural shock. As of 2011, Zambia had conducted district level vulnerability assessments in 21 of 72 districts throughout the country.[654] This reflects progress made in fully understanding where vulnerable populations and areas of Zambia are, but there are still substantial portions of the country that are unreached. Without completing a comprehensive vulnerability assessment of the country as a whole, Zambia cannot fully understand the threat it faces, and thereby effectively allocate resources.

Priority 3. Use knowledge, innovation, and education to build a culture of resilience at all levels.

Zambia displays mixed results for priority three. At higher levels Zambia has had more success in instilling a culture of resilience towards natural shocks than at its lower levels. ZEPRIS is a centrally controlled, innovative information system meant to increase information sharing throughout the country. Though this

is a good start, it has yet to be operational long enough in order to collect robust data or to be a key tool for stakeholders throughout the country.

In regards to education, again Zambia has had more success in implementing priority three at higher levels. Mulungushi University just north of Lusaka and the University of Zambia have both incorporated disaster risk management and reduction into their curricula,[655] but this precedent has yet to filter down to the lower educational levels. The DMMU's evaluation of their efforts demonstrates this when they state, "the major challenge remains to take the subject to the lower levels of school curricula at primary and secondary [levels]."[656]

Raising social awareness of disaster risk reduction also remains a very centralized effort. Once again the DMMU is at the forefront of the Zambian government's efforts to spread awareness about DRR and building a culture of resiliency at the lower levels of society. "Currently the Disaster Management and Mitigation Unit have been conducting awareness campaigns on national television and radio", but they cite "Lack of funds for comprehensive country wide public awareness" as a constraint.[657] While there certainly has been progress made along priority three, the efforts remain highly centralized and in their nascent stages, appear not to have filtered down to the lower levels of society yet.

Priority 4. Reduce the underlying risk factors.

Zambia assesses progress with regards to priority four as having, "Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/or operational capabilities."[658] The country has passed legislation that attempts to reduce underlying risk factors throughout the country, but it is unclear whether those polices have yet to effect change on the ground. Zambia has enacted a number of National Development Plans aimed at reducing underlying vulnerability by mainstreaming DRR activities into the general economic and social development of the country. In addition, they have passed a National Adaptation Plan, which "identifies priority activities that respond to Zambia's urgent and immediate needs to adapt to climate change."[659] Despite these measures there is concern that Zambia's focus has been on the central areas of the country ranging from the Copperbelt province down through Lusaka, thereby leaving marginal communities vulnerable. Even within the Copperbelt to Lusaka corridor, rapid urbanization has left the outlying areas of major cities like Lusaka and Ndola vulnerable to urban flooding and its subsequent effects. In addition, in order to insulate the DRR/DRM response from economic funds, the government of Zambia also has created a trust fund to be used in times of exigent situations;[660] however, it is unclear how much money is currently in the trust and if it is adequate to respond to a natural shock. In short, Zambia appears to have a framework in place to reduce the underlying risk throughout the country, but more progress needs to be made in actually reducing the risk and making the mechanisms effective at the lowest levels of society.

Priority 5. Strengthen disaster preparedness for effective response at all levels.

In terms of priority 5, the Government of Zambia assesses their capacity as having "Comprehensive achievement with sustained commitment and capacity at all levels."[661] Though this statement maybe an accurate characterization, the capacity at all levels is not equal. The DMMU is clearly the lead agency in Zambia's DRR/DRM activities. Its place within the Office of the Vice President gives it a significant ability to mobilize resources in times of emergency.

The Zambian Military is a resource for DRR activities, though their role tends to lend itself more towards disaster management. The legal framework for Zambian DRM mandates that the Zambian Defense Forces and the Zambian Police conduct their own plans for disaster response in accordance with the guidance of the national plan. When the President of Zambia declares a state of emergency, the National Coordinator within the DMMU has the authority to enact the appropriate contingency plan thereby activating and dispatching the appropriate asset whether it be the military, police or any other "national organ."[662] The Zambian Defense Forces also has airlift and engineering assets like bridging support that are essential for responding to disasters in marginal regions of the country.

Zambia has established a framework that clearly creates a system for DRR/DRM from the central to district levels. However, the ability to respond to national emergencies clearly remains a national level function. The DMMU has now opened offices in all provinces and appears to be a robust apparatus that is able to respond to natural disasters in all parts of the country. Managing disasters, on the one hand, is an activity that tends to lend itself to a highly centralized system that is able to mobilize assets and resources and they appear to do this well. Disaster risk reduction, on the other hand, is activity that needs central guidance, but is really implemented at the lower district level. It is unclear how well this process currently works in Zambia.

Overall, the Government of Zambia has dedicated significant resources to DRR/DRM activities in their country. The passage of numerous disaster management acts speaks to a government that is constantly trying to refine their processes and improve at all levels. The national level the government appears to have good mechanisms in place and is capable of responding to disasters. However, at the district level, where the national apparatus is not always as robust, it is unclear how well local communities are equipped to respond and prepare for disasters.

HYPOTHESES

This section examines the seven primary hypotheses and related sub-hypotheses with respect to Zambia and Zimbabwe.

Zimbabwe

Moral Hazard

The case of Zimbabwe provides evidence in support of the idea that government anticipation of spending on DRR or DRM by external actors will cause the government to spend less than it would have in the absence of such outside help. Many donors and NGOs observed that the government of Zimbabwe sees their efforts as substitutes rather than complements to the government's own activities.

Examples in several areas of Zimbabwean DRR provide additional evidence in support of this hypothesis. According to a large international NGO, the response to a cholera outbreak in Zimbabwe in 2008 was wholly implemented by NGOs. The government played an important role in coordination, but its failure to declare the outbreak a national emergency reflected its hesitance to address the matter. Similarly, in times of acute food insecurity, the CPU sends request to OCHA for help from OCHA's contingency stock.

Nevertheless, there are signs that the government is beginning to take more ownership over preparedness spending. For example, the national strategic grain reserve reached greater than 500,000 mega tons in 2011, according to a United Nations official.

Moral hazard is also evident in Zimbabwe's agricultural policies, which are closely linked with DRR strategies. Crop and livelihood diversification is a primary coping mechanism for drought, yet in Zimbabwe there is strong resistance to moving away from maize to more drought resistant crops. Interviews with various stakeholders suggested that food aid has also made it possible for farmers to grow maize when they only have a profitable crop every four to six years. In this case, international food and agricultural aid may be reducing the urgency of adapting to future hazards.

Important to the moral hazard argument is the fact that Zimbabwe is a 'pariah' state, due to its current political situation in general and its controversial Fast Track Land Reform Program in particular. Sanctions have prevented Zimbabwe from retaining the technical expertise it used to have as one of the most developed in Sub-Saharan Africa, as donors have been forced to move away from many different programs and funding they used to bring to different government ministries. An executive at a large

international NGO specifically cited the fact that his organization is no longer allowed to assist directly the Zimbabwean government due to sanctions by his agency's home government. For example, the United Kingdom used to assist in training Meteorological Office employees but is no longer allowed to do so under British sanctions of the Zimbabwean government. This relationship between the donors and the Government of Zimbabwe also highlights the complex relationship between DRR/M spending and normal development assistance. Zimbabwe's pariah status has thus decreased the amount of external aid it receives. But, this has not lead to an increase in government spending on DRR/M because external actors continue to aid Zimbabwe through NGOs and other means.

Related to Zimbabwe's pariah status, another possible argument is that the Government of Zimbabwe believes that its security situation would deter external aid (international or otherwise), causing it to invest more in preparedness. There does not seem to be any evidence to support this hypothesis currently in Zimbabwe. Despite, and perhaps because of, the fact that Zimbabwe is a pariah (or semi-pariah) state, it attracts much international attention. There are many outside actors working in the country providing for food security and general development purposes. The research team observed no signs that external aid was deterred by the security situation in the country.

Thus, despite the complications that arise with Zimbabwe's pariah status, it still attracts a relatively large amount of external aid. The Government relies heavily on donor aid for preparedness and response activities, to compensate for their own relative lack of spending. When it comes to bringing financial resources to bear, available funds are usually money from external actors – although this money is not channeled through the Government of Zimbabwe. Therefore, the case of Zimbabwe supports the moral hazard hypothesis.

Perceived Risk

Another important factor for explaining Zimbabwe's current and developing DRR capacity is the country's risk of natural hazards. The overarching insurance and perceived risk hypothesis is that if the Government of Zimbabwe perceives a high risk of natural hazards then they will invest more in preparedness activities. In exploring this argument, it is first relevant to look at how Zimbabwe views its past disasters, and whether this has any bearing on present spending.

Zimbabwe is gradually investing more in preparedness as threats from flooding and drought continue to increase, especially due to climate variability and change. However, changes in threats are difficult to judge, as the country is more vulnerable to small-scale, repeating events such as local flooding, rather than large-scale events. Interviews with Government of Zimbabwe officials and relevant external actors pointed out that the Government of Zimbabwe is willing, often with the help of external actors, to learn from past mistakes. The United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) echoed this observation, when noting how they have had success in working with the Government of Zimbabwe:

> After disasters occur, there is generally a good opportunity for advocating preparedness. OCHA should also use this as an opportunity to conduct a joint assessment. After having built trust with the Government, we can task the Government to refine existing tools. This takes a lot of work and time.[663]

There are some clear instances of learning in DRR and preparedness in the country's past, such as the handling of drought. Zimbabwe has been plagued by several major droughts during the past 30 years. Consequently, according to a top CPU official, the increased prevalence of drought in recent years is one of the main reasons the government is now taking this issue more seriously. Still, while some of the droughts of the past have been large scale they seem not yet to have pushed the government into significant action. For example, the CPU is still mainly focused on fast-onset disasters such as flooding.

Several interviewees brought up a recent shift in government response from disaster response to preparedness, citing learning from experiences and conforming to greater international standards. Yet

many others were critical of this shift, calling it mostly rhetoric and saying it focused on awareness-raising rather than putting material resources into activities focused on preparedness. Overall, then, this hypothesis does not hold for every disaster type in Zimbabwe. Whereas Zimbabwe has learned from the past during major events such as cyclone Eline, it has also failed to learn, particularly after small-scale events, and thus has repeated past mistakes.

The geographical size of the nation must also be considered. One sub-hypothesis suggests that if a country is small, then it will invest more in preparedness, given the greater threat of a hazard to the country's overall welfare. Zimbabwe is a relatively large country and is not threatened by large-scale natural hazards that could affect large areas of the country. However, though Zimbabwe's lower investment spending might be expected in a larger country, this research effort found no evidence to suggest that underinvestment in preparedness is due to any considerations of the size of the country.

Another motivating factor for DRM policy by the Zimbabwean government might be to protect its most productive areas and people. This hypothesis, therefore, posits that if the at-risk population is wealthier or more productive than the national average, more money will be spent on DRM to protect this larger economic contribution. Conversely, if they are a drain on resources, then less money will be spent. In reality, the at-risk populations in Zimbabwe are neither wealthier nor more productive than the average Zimbabwean citizen, but often are often located in poor rural areas on the margins of the country (e.g. the flood-prone Zambezi Valley or dry Southwest). Those most vulnerable to natural hazards are poor subsistence farmers. Therefore, the converse of this hypothesis may be true; because those most at risk are not more economically productive than the national average, the Government of Zimbabwe does not have to spend more on DRR, yet whether this means that the Zimbabwean government spends less is not clear. We did not find evidence to indicate that the government spends differently on areas according to their specific income levels. Therefore, this argument requires more exploration and data to confirm or deny its explanatory power.

Another, related, contributing factor to DRR spending might be the deadliness of Zimbabwe's disasters. Put simply, does the deadliness of a disaster motivate future DRM spending by the Zimbabwean government? This hypothesis posits that deadlier disasters will bring less spending due to a lower return on investment per investment dollar. It is not possible, at least at present, to accurately assess DRR spending by the Zimbabwean government by disaster type, due to a lack of clear data, yet several interviewees pointed to the fact that the government does not prioritize spending on anticipated disasters that are most likely to affect a large number of people. Flooding is very localized and particular to the rainy season each year, affecting far fewer people than droughts, yet much of Zimbabwe's DRR resources go towards these events according to the CPU. This is most likely due to the more dramatic nature of flooding, even when it is localized. Overall, food security, which is related to both droughts and floods, is perhaps the greatest concern of the Government of Zimbabwe, but when comparing direct spending on each type of hazard it seems that flooding is given disproportionate attention. Thus, this hypothesis does not hold in Zimbabwe. Furthermore, the magnitude of natural hazards (in terms of numbers affected) facing the nation must also be considered. Evidence gathered during interviews pointed to the fact that because Zimbabwe does not suffer from large natural shocks, it is less likely to invest in preparedness. Zimbabwe's major climate-related disasters are neither far-reaching nor large in magnitude, and therefore the government has in the past been content to focus on management rather than preparedness in this regard.

A related hypothesis links higher preparedness spending to anticipation of more frequent or more intense natural hazards in the future by the Government of Zimbabwe. This research effort finds evidence directly contrary to this hypothesis. Rather, by virtue of its integration into regional cooperatives and its basic infrastructure, Zimbabwe has adequate, if not above average, capacity to anticipate natural hazards. However, the country has not responded to this ability by investing more in preparedness. Several interviewees brought up the fact that Zimbabwe's priorities currently lie elsewhere, therefore both funding and will are lacking. Moreover, uncertainty over future long-term climate change or variability, an active debate currently among policymakers in Zimbabwe, makes it harder to embrace predictive modeling as a precursor for preparedness spending. Thus, while Zimbabwe does certainly anticipate more climatic

variability it is not clear that it anticipates climate change-induced natural hazards. Therefore, Zimbabwe does not support this sub-hypothesis.

Climate Change or Climate Vulnerability in Zimbabwe?

Several interviews highlighted the ongoing debate in Zimbabwe over whether the country is experiencing climate vulnerability, climate change, or some combination of the two. Evidence of this debate emerged not only between policymakers and 'climate' officials, but also within academia and among the general public in both countries (for example, a commercial farmer in Zimbabwe and an automobile mechanic in Zambia were each very informed about this debate). Newspaper and media exposure is high in a highly literate country, and this debate is certainly played out even in the media.

The in-country portion of this research effort partially coincided with the UNFCC Conference of the Parties 17, held in Durban, South Africa in December, 2011. The proximity of the conference, perhaps highlighting African viewpoints more than in previous conferences, seemed to have raised general awareness about climate change and vulnerability. In fact, a national television program on Zimbabwean national television featured a Zimbabwean climate specialist, highlighting this debate and the importance of climate change for the country in the future. In a nation that has traditionally been so reliant on its agricultural sector (for both subsistence and export earnings) weather and climate is an everyday concern.

A final explanatory hypothesis in this section is that if the at-risk population in Zimbabwe is concentrated in smaller areas, fewer resources will be required for DRM and therefore less will be spent. Zimbabwe has several areas that are drought and flood prone but this is most common in rural regions. It is the relatively marginal and smaller regions (such as the Zambezi Valley or sparsely populated Southern Matabeleland) that are at the greatest risk; several interviews pointed to the fact that many of the most natural hazard-vulnerable populations live near the borders of the country, such as Muzarabani District, far from the capital and other urban centers of the country. Many of these communities are relatively small, suggesting that fewer DRR resources may be required to offer adequate protection according to this argument. However, it is unclear that this hypothesis has explanatory power in Zimbabwe's allocation of resources. The repeated occurrence of natural 'shocks' in these areas, with limited changes in government response or preparedness, again point to the fact that this hypothesis requires further testing, but does not appear to hold in Zimbabwe.

Altogether, this research finds that the insurance and perceived risk hypothesis holds; because Zimbabwe does not perceive a high risk of natural hazards, it has been able to continue investing lower levels in DRM than it otherwise might.

Electoral Incentives and Democracy

This section will explore hypotheses related to Zimbabwe's political system. Nominally a democracy, Zimbabwe has a diverse political history. The most over-arching hypothesis examined here is if a country has a more advanced democracy, then there will be higher preparedness spending overall. The corollary, of course, is that a less democratic nation will spend less on DRM, all else equal. This argument rests at least partly on the assumption that Zimbabwean citizens will prefer higher levels of preparedness spending and will be willing to portray these preferences at polls.

The recent shift to a coalition government under the power sharing agreement contributes to the evaluation of this hypothesis. Since the power sharing agreement of 2008, the country has been governed

through a precarious system, which attempts to balance power between an entrenched ruling elite and an opposition movement that can no longer be suppressed. Although Zimbabwe still lacks truly competitive elections, this move certainly enhanced the democratic credentials of the country. Yet, to date, there are no signs that the MDC has pushed for more preparedness spending. In fact, one interviewee cited Prime Minister Tsvangirai's declaration in 2011 that no one would go hungry in Zimbabwe that season, and the fact that the latest budget did not include any money allocated to food relief, making a connection between the new, more inclusive government and the status quo before. He argued that in order to make it seem that the power sharing agreement was working the MDC had a distinct interest to portray a picture of a healthy and improving Zimbabwe. This in turn would help convince the populous and current ZANU-PF leadership that involving the MDC in government was a good idea.

The fact that the inclusion of the MDC, which could be interpreted as a move towards democracy in Zimbabwe, did not lead to noticeably higher preparedness spending adds evidence against this hypothesis. At the same time, it is hard to make any judgments about hypotheses regarding electoral incentives given the lack of popular accountability and high degree of uncertainty in the government at the moment. Within the current GPA agreement there is a stipulation to create a new constitution and hold fresh elections, but these have yet to take place nearly four years later.

Other sub-hypotheses are important in this section. The first centers on elections, positing that competitive elections in Zimbabwe will cause the Zimbabwean government to be more likely to invest in DRM, because it will be held more accountable by the Zimbabwean people. The ZANU-PF government has been in power (at least partially, under the current GPA) for 32 years to date, and preparedness spending during that time has not followed any definite political trend. However, simply because there has been a lack of free and fair elections to date in Zimbabwe correlated with low DRR spending, this alone does not necessarily mean that elections have explanatory power over government preparedness spending.

In terms of electoral incentives for the Zimbabwean government affecting DRM spending, there does not appear to be any direct link between preparedness investment and government views of electoral benefits. In a country infamous for irregular—if not rigged – elections, it would be difficult to make the claim that the government, in general, is interested in keeping voters content, possibly with more disaster spending. At the same time, however, this could certainly be the case on a smaller scale, as local politicians or Members of Parliament attempt to create or hold their space in the government. There is a certain distinction between local and national politics which is not easy to generalize; different regions and districts around the country have different political situations. We focus on national level decision-making with regard to DRM, which necessarily limits any conclusions about the incentives of local politicians to increase DRM spending. Nevertheless, given the serious centralization of resources and policy, as outlined in the section on capacity above, local politicians are not in a position to achieve much in terms of DRR spending, even if they desired to do so.

Related to the above hypothesis is an argument that a population is more likely to hold a government accountable for a drawn-out disaster such as drought, rather than an acute natural shock (flooding), meaning that a government is more likely to invest in preparedness for the former type of disaster. In fact, this sub-hypothesis is especially relevant for Zimbabwe given that drought and the subsequent ensuing food insecurity is a major issue here. Our research indicates that people in Zimbabwe are more concerned with long-term droughts and especially their implications for national food security, and a subsequent assumption might be that citizens will be more likely to hold the government accountable to such longer-term events. The CPU also mentioned that in response to what it has heard from people on the ground, it is making an effort to also address droughts. Still, the government devotes more resources toward acute shocks such as floods, rather than droughts. More data on citizen perceptions is required for further exploration, but initial findings and interviews suggest that this hypothesis does not hold in Zimbabwe.

The above hypothesis is related to the argument that if politicians perceive that citizens will respond more to disaster response as opposed to preparedness, then they will spend less on preparedness and more on response. Zimbabwe is in the midst of attempting to transition from a focus solely on response to one

more balanced with preparedness. Given that citizens appear to favor preparedness (at least in terms of drought and associated food security), it appears that this hypothesis does not hold, as response has been the focus of Zimbabwe thus far. It should be noted, however, that other causal mechanisms could help explain this relationship, such as the economic resources available to Zimbabwe as well as its other political priorities.

A related question to electoral incentives is this: what about differing support across different sectors of the population – does the Zimbabwean government spend differently on regions of the country due to their differing support of the government at the polls? Again, with limited data on regional disaster-related spending, this is a difficult question to assess at present. While there is evidence that the government has in the past rewarded certain regions of the country for electoral support, this has not specifically involved DRR. This hypothesis, therefore, remains ambiguous. The media's effects on DRR spending by the government are also undetermined. While much of the Zimbabwean media is state controlled, there exist some independent outlets, yet how much say these have on government policy is ambiguous. In sum, this over-arching hypothesis on democracy does not hold, given the evidence found in Zimbabwe at the moment.

Political Development

This section of hypotheses seeks to understand the relationship between the development of a government, in terms of bureaucrat and politician quality, and disaster investment. In general, we found that a more developed government is associated with higher quantity DRR and preparedness spending. Several sub-themes are explored here, including agency insulation, independence and location of officials (whether local or national), and corruption of officials.

Under the current power-sharing agreement, government ministries are shared between ministers and deputies of opposing parties (MDC and ZANU-PF). This divvying up of cabinet positions has led to a "government structure that is highly politicized"[664] Though this might also have been the case before the formation of the GNU, the explicitly binary nature of government ministries laid out in the agreement has led to a lessening of focus on DRM activities. Coordination between separate government ministries can also be hampered. A recent regional report claims that, "the nature of responses and their effectiveness is not informed by a clear analysis of the problem, but is largely determined by authority and power. In addition, in most cases political structures have either enabled or constrained the community's ability to deal with drought."[665] Therefore, it appears that Zimbabwe's bureaucrats and politicians, in general under its emergency management framework, are technically able to see ways to improve DRR, but the centralization and concentration of government authority hinders such improvement.

A sub-hypothesis posits that if government agencies are insulated from politics, then they will be more likely to be involved in preparedness activities in the country. In other words, politicization of government could lead to less preparedness spending. Zimbabwe has a political set-up where government agencies are largely part of the political environment rather than isolated bureaucracies. Under this hypothesis, we would thus expect less engagement with preparedness activities. For example, the CPU, in particular, is certainly not insulated from politics. A report from SADC stated that, "the main reason for a number of the 2009 Workshop Recommendations not being implemented is a lack of political will – the importance of DRR needs to be highlighted at national level."[666] Again, this statement brings focus on the will of the government, rather than a lack of resources or know-how. Given that government agencies in Zimbabwe are closely intertwined with politics, and political will to invest in DRR and DRM is limited, we see low preparedness spending. Therefore, the case of Zimbabwe supports this hypothesis.

Understanding how Zimbabwe has or has not prioritized DRM in the past helps with examining how policy might change in the future. For example, in 2002, as the Zimbabwean economy continued to unravel, the Daily News criticized the CPU's attitude:

> "Zimbabwe's emergency services are long on theory and during mock disasters, but are woefully pathetic during real disasters. Attitudes played a major role in the response of the emergency services. Some people must start explaining this gross conduct."[667]

What about local government officials – do they have autonomy and if so, does it lead to greater investment in DRM? Because our research did not target local (sub-national) regions of Zimbabwe, but rather at the country as a whole, it was not possible to gain conclusive evidence on this point. However, this hypothesis is certainly central to the decentralization debate in DRM. To date, the country has faced a tradeoff between localized knowledge and control of budgets.

There have been concerted government efforts to involve local actors and place officials within smaller localities to serve DRM functions. For example, with regard to disaster-related regulations, a senior government official directly involved in DRM related her view that blanket regulations are generally inefficient. She argued that having a planting prohibition on crops closer than 30 meters to river will not work because in one place even 10 meters may be safe and in another even 50 may not be safe. Currently, such blanket regulations are more the norm than the exception although the CPU is attempting to institute more nuanced regulations. It has the appropriate structure in place to solicit local information, yet the central office still dominates DRM policy. Therefore, local officials are not in control of budgets and projects. It is perhaps in great part because of this centralization that more resources are not devoted to preparedness, especially at a local level. Hence, in Zimbabwe the corollary of this hypothesis is confirmed, as local officials do not have great autonomy, and DRM spending appears to suffer because of this.

Related to the quality of politicians and bureaucrats in Zimbabwe is the level of corruption in government that the country faces. Again, it is difficult to put concrete figures on corruption in any country, and particularly for Zimbabwe. This research did not find evidence of corruption as a major problem in terms of international aid flows to Zimbabwe. This could be in part due to the fact that direct aid to the Zimbabwean government was largely halted under international sanctions, though some of these have been eased under the continuing GPA. Interviews with international NGOs, local NGOs, and several and multilateral and bilateral aid agencies did not bring up any links between corruption and spending on disaster preparedness or management, but the lack of concrete evidence for or against this hypothesis means that we cannot come to a definitive conclusion for this sub-hypothesis.

Civil Society

Government and state-based organizations, such as bilateral aid agencies, are certainly not the only entities working on DRM in Zimbabwe. This section considers the role of civil society, which is made up of local NGOs and community organizations (outside of the government), in disaster risk management. The primary hypothesis is that if there is a strong civil society, then there will be greater investment in preparedness.

In Zimbabwe, the concept of 'civil society' is a complicated one. While the government allows CSOs to exist and work in the country, these organizations must officially operate within the framework that the government allows, political or otherwise. Accordingly, if a CSO is promoting DRM in a way that is acceptable to the government (local and national), this hypothesis might hold true. For example, a project manager from a prominent CSO working on community development and technology in Zimbabwe explained their training programs for Zimbabwean agricultural extension workers, a program welcomed by the cash-strapped government. It appears that as long as CSO spending aligns with government policy in DRR and is apolitical then additional spending is welcomed. Thus, this hypothesis holds in Zimbabwe, where the involvement of civil society has led to more investment in preparedness than otherwise.

But can civil society influence the spending of the government on DRR? This is a second and related hypothesis: if CSOs pressure the state to invest in preparedness, then the state will indeed invest more. Here, we find no evidence in support of this argument. The government may welcome spending from civil society but will not be influenced to spend more based on current civil society pressure. This was a theme in several interviews. Some interviewees cited the exact opposite of this argument, that the

government will request more spending in certain DRR areas by CSOs. For example, local officials from a hospital under threat of serious flood damage reached out to a prominent faith-based international NGO for help, rather than to central Zimbabwean government resources.

Finally, it might be expected that if there are strong local kinship networks in Zimbabwe, then local actors will invest more in preparedness. This research was not focused on gathering the type of data required to evaluate kinship networks across the nation. While this hypothesis is very possibly true, especially due to the difficult socio-economic conditions currently facing the country, without further investigation it is not possible to make a validity statement concerning it. Altogether then, internal influences on DRR investment in Zimbabwe make a difference in preparedness spending, yet this is alongside or in place of the Government of Zimbabwe, which in general is not influenced by CSO activity.

External Actors

This section will focus on the role of actors external to Zimbabwe, such as IOs, INGOs, and neighboring countries. In the same way that CSOs may influence DRM activities, it is necessary to explore how IOs and international NGOs can also influence these activities. The hypothesis is that if a state has more exposure to IOs and NGOs that promote preparedness, then it will also invest more in preparedness. Many international actors are active in Zimbabwe. Most of them are focused on pressing development needs but are cognizant of the importance of DRR and preparedness. Still, one IO representative complained that there were not enough NGOs working on disaster related initiatives. Therefore, it does not seem that there are many actors influencing the state to invest more in preparedness. Instead, most IOs and INGOs are focused on more pressing development needs such as alleviating food insecurity. There is also evidence to suggest but not confirm that the limited exposure of the Government of Zimbabwe to IOs and INGOs that promote preparedness may partially account for the government's relative underinvestment in DRR and preparedness.

A sub-hypothesis considers the role of neighbors, their own DRM activities, and what effects these might have, if any, on Zimbabwe's preparedness investment. Specifically, the hypothesis suggests that if Zimbabwe is proximate to other states investing in preparedness, then it will invest more in its own preparedness. This research did not find evidence in support of this hypothesis. The Southern African region, under the umbrella of SADC, has put in place many frameworks and institutions for cooperation within the region. This is especially true in the collaboration of meteorological departments and personnel within the region (through SARCOF and other organizations). Also, the "SADC Secretariat continues to engage Disaster Management Units of the various SADC States so as to enhance their disaster risk management capacities."[668] However, it is not clear that these institutions and connections are enhancing spending or increased preparedness capacity within Zimbabwe. Based on conversations with former MSD personnel, it is possible to note that Zimbabwe certainly has much better information, as well as greater capacity to create information, than it has in the past. This has led to better vulnerability reports but does not mean that it has increased resilience against future hazards.[669] Overall though, there is no indication that preparedness spending in neighboring countries affects how much Zimbabwe allocates for preparedness itself. Zimbabwe, therefore, does not support this hypothesis.

Economic Strength

This section of hypotheses, perhaps one of the most important for Zimbabwe presently, examines the relationship between economic activity and DRM spending in Zimbabwe. The overall hypothesis posits that is a country is wealthier, all else equal, then it will spend more on disaster preparedness activities. Therefore, the first issue to explore is whether or not Zimbabwe's GDP, a measure of economic prosperity, are related to DRM spending by the Government of Zimbabwe.

It is clear that economic conditions have lessened Zimbabwean preparedness spending as well as general capacity to prepare for and respond to disasters. Several interviewees pointed to the fact that Zimbabwe's worsening economic conditions have reduced its ability to deal with disasters. This effect is manifested in several ways. First, the country simply has less money to spend, due to a smaller budget in

general. Second, the poor economic conditions facing the nation have taken emphasis away from DRR, as priorities have shifted during a time of crisis to more crucial sectors.

Furthermore, beyond a simple economic argument, there are still several additional conclusions that can be drawn from the situation in Zimbabwe presently, as well as its recent past. As referenced previously, Zimbabwe has one of the broadest and best infrastructure systems in Africa. The British Colonial Administration, the Rhodesian government, and then the post-independence Zimbabwean government each prioritized the construction of sound infrastructure—allowing agriculture, industry, travel, and commerce to flourish. However, the recent socio-economic struggles of the country, particularly in the agricultural sector, have brought about a lack of maintenance of this infrastructure system. For example, Zimbabwe actually moved backwards concerning their drought preparedness and management in 2002, as:

> The collapse of commercial agriculture meant that, unlike ten years before, the country had no carryover maize stocks to cushion the drought's impact. With foreign exchange reserves at just $US 65 million the government's ability to import food was also extremely low, barely allowing for half a month's import. In addition, the situation was aggravated by the costs of supporting the country's military intervention in the Democratic Republic of Congo.[670]

While the infrastructural backbone of the country is still in place, the government's capacity to handle natural shocks has certainly diminished from an infrastructure point of view.

Another economic issue is the problem of 'brain drain' that Zimbabwe has faced over the past decade. Arguably the greatest cause of technical under-capacity in Zimbabwe at present is the fact that many of the most skilled, knowledgeable, and able people in the nation have moved elsewhere, due to either the political situation or better economic incentives elsewhere (or possibly a combination of both). This was also a consistent theme brought up by interviewees. Government ministries and organizations, such as the Meteorological Department or the Ministry of Agriculture, cannot do the best work, in DRM or otherwise, without the ability to retain able employees. These employees are necessary both for implementation and to keep at least a measure of 'institutional memory' within organizations. This is a crucial concept for DRM in Zimbabwe. A good example of this comes from a UNDP project funded to strengthen national capacity for disaster management in 2005, which tells of a capacity building program instituted across all provinces from 1996 to 2001, "where multi-sectoral teams were trained in 'emergency preparedness and response.' However, due to staff turnover, a lot of the trained staff have left the provinces and there is need for such training to be ongoing."[671] No matter the reason, losing technical expertise can be very harmful to good DRM in the country. The economic underdevelopment and decline in Zimbabwe has had a direct effect on the country's technical and physical capital to address disasters. Therefore, the case of Zimbabwe provides evidence to support the general economic hypothesis.

Another economic sub-hypothesis states that if a country is constrained in its spending and if preparedness is seen as a substitute to development spending, then the government will spend less on preparedness. This is an important issue in an environment with poor human development such as Zimbabwe's. Put simply, there are simply too many pressing needs to be able to adequately look forward to future hazards. Most NGOs interviewed recognized that they were not able to devote much in terms of resources to disaster preparedness or response because of their focus on other concerns. Food security in particular is a main initiative, yet is arguably part of preparedness in that it builds up resilience to future shocks. Still, DRR and DRM are not mainstreamed and thus are seen as substitutes to development spending rather than complements.

Two examples provide evidence of other issues taking priority over management of natural shocks. First, as the nation currently seeks to work out its political future, issues such as DRM have become lower priorities, exemplified by the failure of the Zimbabwean government to pass its proposed EPDMA since 2004. Yet the EPDMA is not the first policy to have been sidelined by Zimbabwe's political priorities.

Another example is when the 2000 Fast-Track Land Resettlement Programme (FTLRP) brought land reform swiftly to the fore of international attention. This development caused a delay and eventual derailment of the *National Policy on Drought Management*, an attempt to streamline and provide for more effective drought management practice in the country.[672] As the country has been focused on other, more pressing issues, disaster risk reduction has certainly taken a lower priority. Presently, as uncertainty looms around the current, fragile two-party coalition government, there is a decided lack of focus on how best to prepare for, or even manage, natural shocks. These examples offer evidence that disaster preparedness spending can suffer when it is seen as a substitute for spending in other areas.

A final sub-hypothesis posits that if there is a vibrant market economy, then there will be more investment in preparedness. Zimbabwe lacks a vibrant market economy. Given this, there are not many market actors either pressuring the state to invest in preparedness or themselves investing in preparedness. The major areas of market activity are in the capital Harare and surrounding areas, which are generally not prone to natural hazards. Thus, the reverse of the hypothesis may be true in Zimbabwe but this requires further investigation.

To summarize, economic considerations play an important role in explaining the level of Zimbabwe's investment in DRR and DRM.

Zambia

Moral Hazard

As its main function, the Zambian Disaster Mitigation and Management Unit (DMMU) is the lead agency on all disaster-related activities, which it fulfills by its role as a coordinator and manger of both human and material resources. The first hypothesis evaluated states that, if a country expects international aid in the time of a natural hazard, then it will invest less in preparedness. Since its creation in 1964, Zambia has been dependent on international donors in order to stay afloat. Years of increased aid left Zambia with a balance of payments problem by the late 1990s and in 2005 Zambia officially was declared a Highly Indebted Poor Country (HIPC), triggering significant debt relief.[673] However, over the past decade improved governance, debt relief and the increasing price of copper in world markets have started to reverse this trend. Between 2000 and 2005 foreign aid made up approximately 43 percent of the annual budget, dropping to 30 percent by 2007 and presently making up approximately 24 percent of its yearly operating cost.[674] In short, Zambia has become increasing less dependent on foreign aid while its own economy has become stronger (see Table 28).

Though this change could reflect Zambia's decreased need, it is also plausible that this change reflects the decreased availability of foreign assistance especially in the wake of the worldwide 2008 financial crisis. If recent trends continue to hold true, Zambia will expect a decreasing need for external support to fulfill its internal economic demands. In light of this, it stands to reason that the National Contingency Plans for emergency situations will also reflect the macro finance factors that are at work in the country. This change is already evident in the Disaster Management Act of 2010, which for the first time created a National Disaster Trust Fund as a way to internally fund operations in exigent situations.[675]

Table 28. Total Pledges, Population, and Aid Per Person, Zambia 1990-2010

Year	Total aid pledges (million 2000 US$)	Population (million)	Aid per person (2000 US$)
1990	971.62	7.86	123.61
1991	1392.29	8.07	172.57
1992	1364.73	8.27	164.98
1993	784.41	8.48	92.52
1994	821.46	8.69	94.5
1995	1604.35	8.91	179.88
1996	501.11	9.16	54.69
1997	584.69	9.42	62.08
1998	554.78	9.68	57.3
1999	1179.74	9.95	118.63
2000	1140.75	10.2	111.83
2001	507.16	10.45	48.53
2002	656.93	10.69	52.93
2003	1075.97	10.94	98.37
2004	1079.25	11.19	96.43
2005	2163.55	11.46	188.76
2006	1504.22	11.75	128.02
2007	475.43	12.06	39.44
2008	181.16	12.38	14.63
2009	80.27	12.72	6.31
2010	144.89	12.93	11.21

Source: World Bank, World Development Indicators; AidData

According to officials within the DMMU, its role as lead coordinator and manager of DRR efforts not only gives the DMMU ability to allocate IO and NGO resources to areas of need, but it also allows them to pay management fees to an IO or NGO in order to provide capacity to specific areas; essentially making independent IO's and NGO's agents of the Zambian Government.[676] The DMMU fulfills its coordination function through the Disaster Management Consultative Forum (DMCF), a venue that brings together all DRR stakeholders in Zambia. In this forum, the DMMU is able to have visibility into the location and activities of IOs and NGOs, which helps the DMMU access areas of vulnerability or need. Ultimately it is the DMMU that holds the power to prioritize different areas and projects according to necessity. The presence or availability of some sort of external capacity to the Zambian Government appears to play a role in the DMMU's decision making process, but is not the sole deciding factor. Given finite resources, it makes sense that if an NGO is providing support to an area, this makes available other Government or IO resources to be allocated in other areas. Likewise, if a region already has NGO assistance, but is need of additional capacity, the Government can and does supplement their efforts.

It appears that Zambia's actions are not of a country expecting foreign donors to come rushing to its aid in times of disaster. Efforts to create reliable sources of funding from within its borders, the cooptation of NGOs and the perception of increasingly effective democratic governance are all indicators that Zambia is becoming a more independent and resilient nation. Based on the evidence collected and the actions observed throughout country, it does not appear that this hypothesis hold true in Zambia.

The second hypothesis evaluated in the category is that if a country believes that its security situation would deter effective external aid, especially on the ground, then it will invest more in preparedness.

There were no observed actions in Zambia that would indicate this is a factor in DRR planning. Zambia since its inception has been a relatively stable nation experiencing very little violence.

Perceived Risk

The first two hypotheses evaluated in this category are: if a country has experienced more natural hazards/disasters in the past, then the government will invest more in preparedness, and, if a country anticipates more natural hazards in the future (based on predictive modeling, etc.), then it will invest more in preparedness. Zambia's greatest risks are slow onset disasters like floods and droughts that affect the nation's food security and, as shown in the flood and drought profiles, the country has a long history of dealing with similar and predictable disasters. Floods usually correspond with the annual rainy season and tend to affect the same low-lying areas in the Zambezi and Kafue river basins. Likewise, droughts are induced by years in which there is below average rainfall. In interviews with members of the Government of Zambia, it became apparent that DRM efforts grew out of the recurring need for the management of the near annual onset of disasters.

As time progressed and DRM efforts became more professionalized, the natural progression of development caused the government to realize the need for a more robust DRR framework. Years of observing the same patterns spurred the government to formalize DRM and DRR efforts in 1994, thanks to a cabinet decision, and then officially codified in the Disaster Management Act of 2010, which adopted the Hyogo Framework as the national platform for DRR. Since that time DRM efforts seem to have gone hand in hand with the relative development of the county. The DMMU's efforts have been mainstreamed in to broader development goals. For example, the DMMU funds infrastructure projects like roadways and bridges that help it project aid to disaster ravaged areas, but they are not in and of themselves preparedness activities as much as they are development activities. Conversely, other Zambian ministries build infrastructure that is not related to DRR funding, yet the added value that new infrastructure gives increases the overall disaster preparedness of the area. In short, DRM tends to be a positive externality of many development activities in Zambia, but not necessarily the genesis of them. With regard to the DMMU specifically, perceived risk plays a part in its decision-making processes, but does not fully explain how the DMMU allocates it resources.

A sub-hypothesis in this category states that if a country is at risk of large (but not necessarily frequent) natural shocks, then it will be more likely to invest in preparedness. Though floods and droughts tend to cover widespread areas, they are slow onset disaster and are therefore not "large" in the catastrophic sense. It doesn't appear that this hypothesis is relevant to Zambian spending on DRM activities.

The final two hypotheses evaluated in this section are connected due to the geographic nature of DRM spending in Zambia. They state that, if the at-risk population is concentrated in smaller areas, less money will be required to offer them the same level of protection, and so less will be spent, and, if the at-risk population is wealthier or more productive than the national average, more money will be spent on DRR to protect them and their contribution to the economy/tax base. In contrast, if they are a drain on resources, less will be spent. Due to the vast network of hydrology across Zambia, nearly every portion of the country experiences or can be subject to seasonal flooding. That said, the majority of the population is concentrated in the corridor between the Copperbelt Province and Lusaka, or in other words in between the main economic center of the country and the capital city.[677] In addition, the threat posed by a disaster differs depending on the type of environment the disaster effects. For example, in the low-lying areas surrounding a city like Lusaka, there is an effort to improve drainage infrastructure to aid the removal of stagnant water after a flood strikes, thereby reducing the threat of second order effects like cholera and malaria outbreaks. A massive undertaking like this is extremely expensive, needing significant engineering, grading of the land, and construction. The threat that flooding can pose to a small, marginal community in the outlying areas of the country may only be mitigated by building a road or the wholesale displacement of the population.

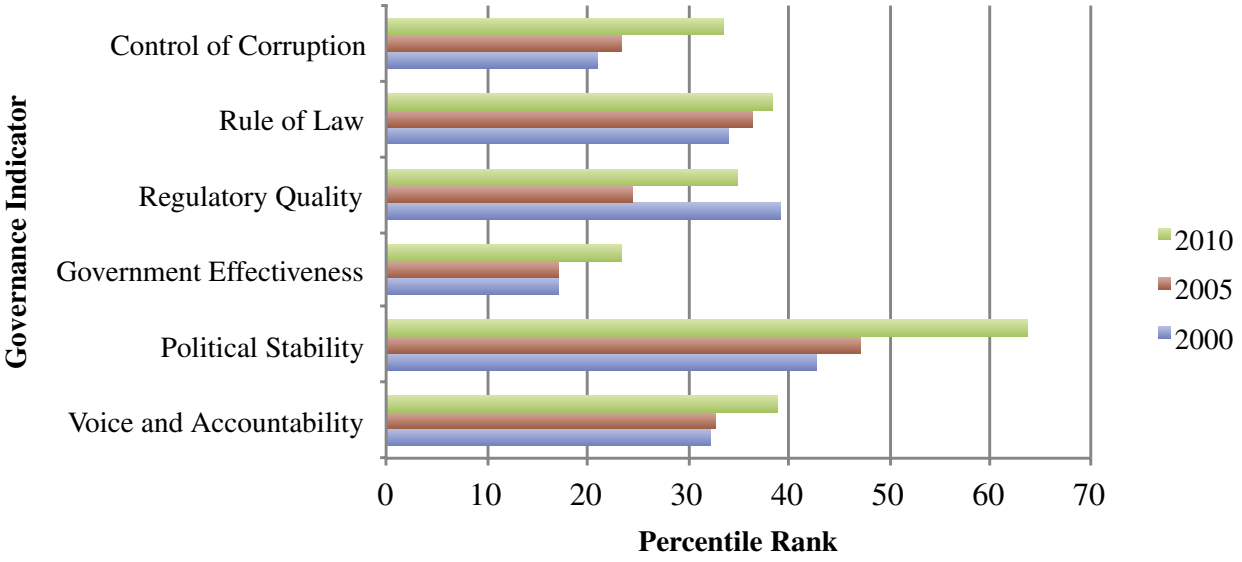
The second example is not necessarily more cost effective per capita due to the extensive nature of the efforts in the first example. In short, the types of mitigation that are needed in different areas are not always comparable and therefore are difficult to access. This seems to discount the validity of the first hypothesis. The second hypothesis appears to have some truth to it based upon the public perception of general spending throughout the country. The majority of Zambia's population occupies the Copperbelt–Lusaka corridor, and is undoubtedly the most productive region of the country. The source of the productivity comes from the copper and cobalt mines which accounted for over nine billion dollars' worth of exports in 2011.[678] The level of development and infrastructure in this corridor reflects the economic value of this region to Zambia. The mining industry requires a good amount of infrastructure to transport the large amounts of mineral from the point of extraction to the seaport of Durban, South Africa.

Once again, the development of this area naturally lends itself to DRM as the government of Zambia looks to protect its national resources and economic productivity. Whether or not preparedness spending is unevenly distributed specifically to this area is difficult to access since there is no good number reflecting the amount of DRM spending that has been committed just to this area. However, the perception that this region receives an inordinate amount of resources is certainly present in the marginal areas of the country. Recently there has been an independence movement in the Western Province of the Zambia, which encompasses the former Lozi kingdom due to the perceived neglect from the government, as the province remains one of the poorest regions in the country.[679] While there is no definitive proof, there is definitely the view in Zambia that government spending is tied to the economic production of the Copperbelt–Lusaka corridor.

Electoral Incentives and Democracy

Since its independence from the United Kingdom in 1964, Zambia has been considered a model of political stability relative to other countries in both the SADC region and Sub-Saharan Africa at large. The Worldwide Governance Indicators, as illustrated in Figure 23, support this claim.

Figure 23. Comparison of World Governance Indicators for Zambia (2000, 2005, and 2010)



Source: World Bank, World Governance Indicators

While Zambia clearly has much room for improvement, in Figure 23 (a comparison of 2000, 2005 and 2010), Zambia shows relative consistency among the six individual indicators. Zambia's stable past came during a period of rule by the Movement for Multi-Party Democracy (MMD), which controlled Zambia from independence until the most recent presidential elections in September 2011. The subsequent

peaceful and democratic transfer of power from Rupia Banda to Michael Sata – a member of the Patriotic Front and the first non-MMD president of Zambia – seems to indicate that this trend will continue. To date, Sata's presidency has been marked by many changes to the way in which Zambia is governed. The two most notable such changes are to the way in which Zambia deals with foreign investors, such as China, and how the government is structured. Despite early calls for outright expulsion of major investors like China, Sata has actually improved Zambia's position in Sino-Zambian relations – providing Zambia with more say in what activities take place.

A key sub-hypothesis, is that, if events are rare, then governments will not invest in preparedness, because efforts will be hard to measure and thus electoral benefits will be limited. The presidential election offers evidence related to this hypothesis. The MDD used two instances of government response to natural hazards to leverage the media and lash out against challenger, Sata, and his Patriotic Front.[680] The electoral showdown between the MDD and Sata was long in the making, as the 2011 elections marked Sata's fourth presidential run. In March 2010, then-President Banda toured an area of the Lusaka townships set to receive some of the 11 billion Kwacha allocated to address flooding in the area. Banda used this opportunity to attack Sata for his lack of a proposed response to the flooding in the region.

In early September 2011, the government began the rehabilitation of bridges highlighted by the DMMU as needing immediate attention in light of the growing food insecurity situation in the country. The bridges are seen as crucial pieces of infrastructure to ensuring access to markets and depots for smallholder farmers. In a speech highlighting the investment, then Vice President George Kunda criticized Sata for having no vision for the country. Only three days before, Kunda argued that the increased maize production was an indication that Zambian farmers were responding well to the MMD's agricultural policies.[681] He noted that a key part of the agricultural policies is increased access to markets with new roads and bridges. Kunda too used this opportunity to call on Zambians to not "waste their votes" on Sata.[682]

Another hypothesis posits that, if the media gives more attention to preparedness activities (thereby increasing the likelihood of an electoral benefit), then governments will invest more in preparedness. It is impossible to gauge whether or not the MMD-led government in fact invested more money in disaster preparedness efforts, as government spending is not publicly available online, especially given the sensitive nature of disaster financing. However, as the anecdotes above illustrate, the government and the opposition are equally willing to use whatever issues, such as natural disasters, will give them leverage over the competition. In Zambia, which does suffer from natural hazards, issues pertaining to DRR and DRM are highly attractive points of debate due to constituency interest and concern. As one government of Zambia official noted, it is hard to change the mindsets of the people from DRM to DRR. Disaster management is highly politicized due to the media and the high visibility of such activities. This idea was further propagated by the media itself, which greatly publicized those incidents mentioned above in which both challenger and incumbent claims of misspending and lack of direction on natural hazard-related threats.

While the 2011 presidential elections allow for evaluation of the ways in which natural disasters can be brought into political debates, the lack of attention to these issues in most speeches and press reports seems to indicate that this topic is a less pressing issue than other economic threats to the country, such as foreign direct investment. As a result, we cannot accurately assess the remaining the sub-hypotheses within this category.

Political Development

As mentioned throughout this report, Zambia has generally experienced an increase in its political development over the past two decades, except for the period of political turmoil in the mid-2000s. According to the World Bank's Governance Indicators Country Report, from the period of 1996 to 2010, Zambia appears to have experienced a positive increase in a subset of the governance indicators. While comparatively low relative to OECD standards, improvements in indicators such as "Government Effectiveness," "Political Stability," and "Control of Corruption" speak to the increasing quality of the

bureaucrats and politicians. During this period, Zambians generally saw an increase in government effectiveness and stability as demonstrated by the democratic and violence free election of President Michael Sata during the 2010 elections.

President Sata has voiced his goal to continue to improve upon these indicators. "In his inaugural speech, Zambia's new president, Michael Chilufya Sata, promised to uphold democracy and the rights of Zambia's citizens, to reduce poverty, improve public services and the work of civil servants and renew the fight against corruption."[683] President Sata's goals appear to be to continue to reduce corruption within the government, while attempting to broaden the tax base in order to capture more of the informal tax base. The first two hypotheses in this section state that, if a country's politicians are more corrupt and if international aid flows are more easily diverted into rents than preparedness funds, then the government will be less likely to invest in preparedness; and, in general, if a country has more corrupt politicians and bureaucrats, then it will invest less in preparedness. On a macro global scale, Zambia is a corrupt country that spends a nominally small amount on preparedness activities. However, in comparison to the rest of Africa, Zambia is in the middle of the pack in terms of corruption and still spends a relatively high amount as a percentage of its GDP on preparedness activities. Despite having corrupt politicians by western standards, Zambia spends a fair amount on preparedness activities and seems to be committed to the process. There were no observations during the course of this research that would indicate these hypotheses are valid in this case.

The third hypothesis states, if government agencies are largely insulated from politics, then they will be more likely to engage in preparedness activities. The DMMU appears to be a somewhat politicized organization given that it is housed within the Office of the Vice President, and it is the main driver of decision-making on how to spend DRR/DRM related funds. In an interview with a government official, he stated that the DMMU knows that in order to fully assess where it is vulnerable it needs to spend $2 million dollars in order to complete its district level vulnerability assessments. He stated that even though they know this is an area of need, it is difficult to justify spending that amount of money in order gather information when it could be spent on more visible DRR/DRM projects such as improving infrastructure. This hypothesis does appear to have some explanatory power as to what drives decisions to spend of preparedness activities within the Zambian government.

The final hypothesis in this section asserts that, if local officials, who have a more first-hand knowledge of and exposure to risks, are in control of budgets and projects, then the country as a whole will spend more on preparedness. The decision making process on funding for DRR related activities in Zambia is highly centralized. The DMMU creates the budget, which is then passed along for approval from the Zambian budgeting office. While district level officials can advocate for funding through the DMCF process, it is ultimately the DMMU that decides what level of funding to request from the central government. In short, the opposite of this hypothesis seems to be at work. A centralized decision making process in Zambia that is the locus for both knowledge and budgeting in Zambia, tends to spend a relatively high amount of money on preparedness.

Civil Society

The general hypothesis here is that, if there is a strong civil society, there will be greater investment in preparedness. An important sub-hypothesis states: if civil society actors pressure the state to invest in preparedness, then the state will invest more. In 2010, Zambia passed the NGO Act, which severely restricted the previous freedom of NGOs within the country by forcing all CSOs to comply with a new regime. Among the key aspects of this new legislation were the registering of all NGOs with the government and the requirement for government approval of the locations where NGOs work. It is difficult to ascertain the intentions of the Zambian government by passing this new legislation and whether it is trying to hijack CSOs or merely trying to harmonize and equitably distribute capacity across the country according to government preferences and perceived areas of need. It may be that they are attempting to do both. Regardless of the goal(s), it appears that CSOs have remained in Zambia and continue to be a part of Zambian society, but under significantly greater scrutiny and control.

CSOs have the Disaster Management Consultative Forum in which to air their concerns and requests in regards to Zambia's disaster preparedness efforts. CSOs are sensors in this setting reporting on areas that they assess to be vulnerable. In cases where they are the appropriate entity to respond or add capacity to an area, they can and do receive government aid to carry out their mission. As previously mentioned, CSOs not only provide support to areas from their own means, but are also paid management fees by the government to run some of its own projects throughout the country. CSOs have the ability to advocate for and receive funding; however it is not necessarily pressuring the government to spend more as much as it is advocating to be the implementer of aid to vulnerable areas with the support of government funding. In short, there does seem to be some effect of civil society on the how the government chooses to invest in preparedness, but it is likely to be ancillary and not the main driver of such decisions.

The second hypothesis states that, if there is a strong civil society, then civil society actors will engage in their own preparedness activities. According to a nongovernmental organization that measures citizen participation, the overall range of civil society performance in Zambia is between 57.11 percent and 60.79 percent, which is relatively low score.[684] The level disaster preparedness in Zambia appears to be more robust than the indicators of CSO performance would show if this hypothesis were true. In short, there appears to be no causal link between the strength of Zambian civil society and the willingness of the government of Zambia to invest.

The third sub-hypothesis evaluated in this category concerns the relationship between strong local kinship networks and investment in preparedness. There were no observations during the course of this research that would support or reject this hypothesis.

External Actors

The primary hypothesis regarding external actors is that, if a country/government has greater exposure to disaster preparedness information and training, then it will invest more in preparedness. In October 2011, members of SADC met to discuss a common DRR platform for the region. One of the major goals of this new initiative is to establish more advanced and interconnected early warning systems across the region.[685] While there are clear benefits to greater regional integration on DRR activities, there are potential drawbacks as well. Interviews with meteorologists in Zambia noted concerns over South Africa's meteorological office, which insists on using a predictive model that differs from the rest of SADC. Furthermore, South Africa, is seen to be attempting to preempt other international bodies, such as the World Meteorological Office, from working too closely with other SADC countries, as it believes that the SADC countries are in a better position to track and measure the effects of climate change on the region. In turn, this raises the question as to how strongly international actors and organizations influence Zambia's efforts to address climate-induced natural hazards.

A sub-hypothesis posits that, if a state is proximate to states that are investing in preparedness, then it will invest more in preparedness. South Africa was one of the first countries in the SADC region to establish a DRR platform, pass DRR-related legislation, and establish a DRR structure within the country. Zambia used this as a foundation in which to base its own efforts in country, but when speaking with DRR experts in the Zambian Government, they actually believe that Zambia's efforts have surpassed those of South Africa.

As discussed earlier, the impetus for Zambia's establishment of the DMMU (and its predecessor, an interim body to examine the country's response to droughts) was as the result of major droughts in Zambia in 1991 and 1992 (preceded by regular droughts and floods roughly every two years during the 1980s). Therefore, Zambia began investing in DRR activities early relative to its SADC members. Many of the SADC states, notably those along the coast, invest quite heavily in DRR activities because of the threat of climate-induced natural hazards. However, Zambia and its southern neighbor, Zimbabwe, are landlocked. This key geographic feature means that the nature of the natural hazards facing both states is inherently different, and therefore, it is difficult to evaluate Zambia's preparedness spending with those of its coastal SADC peers. It remains unclear as to what influence the spending habits of other states has on Zambia's own preparedness spending. The recent agreement by SADC members to establish a regional agenda

on DRR gives insight into the idea that these regional partners realize the necessity of better coordinating their spending on DRR and DRM activities.

A final sub-hypothesis in this section states that, if a state has more exposure to IOs and INGOs that promote preparedness, then it will invest more in preparedness. Zambia plays host to a number of SADC regional organizations (i.e. ZRA), and headquarters to a number of IOs' regional offices (i.e. World Bank). That being said, Zambia often receives less attention than its fellow SADC members because of the perception that it is relatively calm and stable. With states such as South Africa and Zimbabwe as neighbors, Zambia often does not have the same level of exposure to both IOs and international NGOs. It is difficult to gauge whether this lack of exposure affects the amount of funding the government itself spends on preparedness. What is more plausible to speculate is that for a long time, Zambia's relative lack of "major impact" natural hazards (relative to those experienced by other SADC states) meant the international community spent less to assist Zambia address natural hazards. As both local governments and IOs have come to realize, however, Zambia (and other states like Zimbabwe) face other grave climate-related threats that have devastating effects. Most notably, the international community has recognized, and in turn, invested more, in addressing issues pertaining to food insecurity in Zambia – a byproduct of climate change, increased floods, and increased droughts.

Economic Strength

Given Zambia's stable (and now growing) economic status, as discussed previously, it could be argued that spending on DRR and DRM activities should increase. However, as government expenditures were not widely accessible or our review, it is difficult to determine if the economic increase in Zambia has resulted in additional funding for preparedness-related activities. Zambia's DMMU was first established in 1994, well before the Hyogo Framework for Action was drafted. The DMMU's placement within the Office of the Vice President since its inception was a strategic move. By placing it in the OVP, the DMMU is assured certain powers, access, and resources not otherwise available to crosscutting units. Furthermore, it illustrated the government's commitment to making disaster preparedness and response a major focus of government activity. As such, it can be used as a proxy for how much the government spent on disaster preparedness and response.

The Hyogo Framework, however, stipulates that signatories should allocate a minimum of five percent of the national budget on disaster preparedness and response. Zambia's National progress report on the implementation of the Hyogo Framework for Action (2009 to 2011) reports that, as outlined in the HFA, five percent of the total national budget is allocated to DRM and DRR activities.

Though the DMMU in Zambia is the main coordinating and policymaking office of disaster preparedness and response in Zambia, additional activities are carried out in other line ministries as well. Prior to Sata's restructuring of ministries (particularly in regards to environmental activities), the Zambian national budget, in addition to the DMMU, allocated DRR activities into the Ministries of: Health; Tourism, Environment and Natural Resources; Education; and Agriculture.

A sub-hypothesis posits that, if a country is constrained in its spending and preparedness is seen as a substitute to development spending, the government will spend less on preparedness. As noted earlier, Zambia established the DMMU in 1994, in large part as a direct result from the devastating droughts in 1991 and 1992. During the 1991-92 drought, Kaunda established a drought relief task force under the direction of the Minister of Agriculture. Following the end of the drought in 1992, members of Parliament began pushing legislation to establish a disaster unit, while at the same time, the Government itself began pushing structural changes to allow for the creation of what would become the DMMU. Given the country's long struggle with droughts and floods and early adoption of the DMMU, it is somewhat surprising that the government failed to establish a robust early warning system in conjunction with the DMMU. Fast forward to 2011 when on multiple occasions, government workers and local NGOs working in DRR stepped up their calls for the establishment of stronger early warning systems.

Warning systems do not necessarily have to be solely in the form of earth and space stations that track and report weather patterns and remote sensing. As evident in the Zimbabwe case study, discussed earlier, an early warning system could be in the form of channels of gathering and reporting information from the ground to the government and back. Warning systems do exist, but they do not have a large area of coverage and are largely outdated.

The history of the Zambian Meteorological Department also sheds light on what motivated Zambian DRR-related activity spending in the past, even before DRR was a concept in the government of Zambia's lexicon. In the mid-20th century the arrival of commercial and civilian aircraft to what was then known as Northern Rhodesia spurred the creation of the first weather monitoring stations throughout Zambia. The need for up to date meteorological data for aviation caused the first monitoring stations to be co-located at airstrips and aerodromes throughout the country. The desire to participate and reap the benefits of the commercial and civilian aviation industries made it imperative for the government to invest in the prerequisite infrastructure in order to support this burgeoning industry. The second wave of Zambian weather station expansion came shortly there afterward based upon the need of the commercial farming industry for timely climate forecasts in order to allow farmer to accurately plant and harvest their crops.

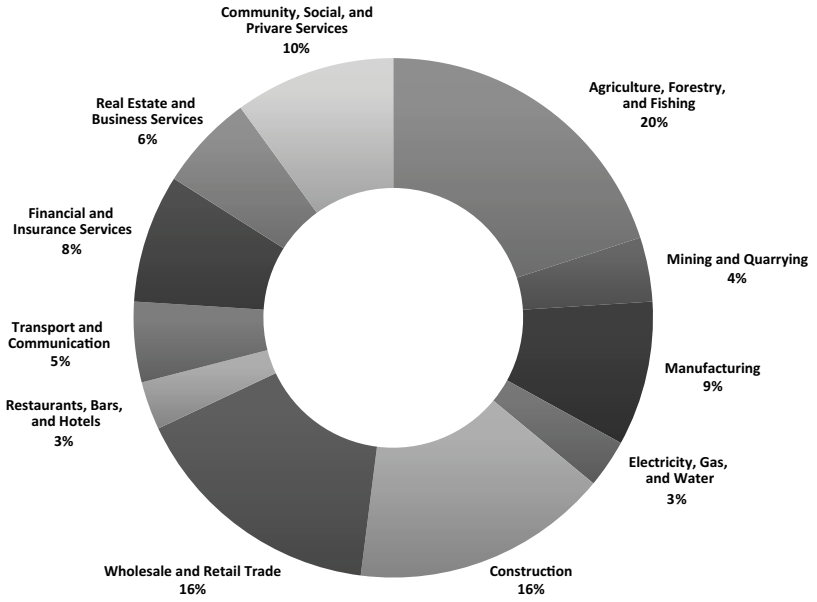
From this one can infer that the Zambian government was incentivized to spend on the creation of new weather stations in order to reap the economic and food security benefits from a more efficiently operating agricultural sector. The third wave of Zambian meteorological service expansion that began in the 1990's and has continued to this day, has been a product of the of the Zambian meteorological communities need to better understand the variability and changes in regional weather patterns. This desire to better understand the Zambian climate was in part driven by the new focus on natural hazards in the government's planning. As a participant in the DMCF, the Zambian Met Department is charged with the mission to "monitor, predict and provide reliable, timely, accurate and user-friendly weather and climate products and services for sustainable socio-economic development through collaboration with other stakeholders."[686] In the mission statement we see that the Zambian Meteorological Department understands its goal as promoting "sustainable socio-economic development," so it can be inferred that the investments made in weather monitoring stations in at least in some part to derive long-term economic benefit. In short, the story of the Zambian Meteorological Department's growth is one of investments in infrastructure in the short term in order to derive long-term economic growth by supporting key industries like aviation and agriculture.

Another sub-hypothesis argues that, if a country's economy is dominated by agriculture, then there will be more investment in preparedness. Given Zambia's heavy reliance on agriculture, particularly in the form of smallholder farms, it is no surprise that the majority of the Government's expenditure is allocated to agriculture, forestry and fishing activities. Figure 24 breaks down Zambia's sectoral expenditure for 2008.

However, according to Multidimensional Poverty Index (MPI) report on Zambia, as of 2007, 17.2 percent of Zambia's population is vulnerable to poverty. Furthermore, 34.8 percent of the population is already considered in severe poverty, and a national incidence of poverty of 64.2 percent. In a country where 100 percent of its power is hydro-electrical, only 3 percent of the rural population has access to electricity. As a result, rural populations, especially, are forced to take part in illegal deforestation activities as a source of power and heat. Today, Zambia has the third highest level of deforestation in Sub-Saharan Africa in terms of area of land deforested. It has, however, the highest deforestation rate in terms of percentage of and deforested. Between 70 and 80 percent of logging in Zambia is illegal, and largely due to smallholder farming practices, charcoal production, and small-scale sales of wood.

In 2008, agricultural and related activities represented over ten thousand billion kwacha (roughly 2.6 million USD in 2008 figures), or twenty percent of national expenditure.6[87] Given Zambia's high budgetary allocation and high vulnerability to food security, it comes as little surprise that the Ministry of Agriculture & Cooperatives (MoA&C) plays a particularly key role in DRM activities in Zambia. The MoA&C strongly advocates conservation farming as a fundamental piece of its DRR strategy. The Government first began pushing the policy in 1999 as a means to increase crop yields, decrease the reliance on food aid, and attempt to mitigate future instances of food insecurity.

Figure 24. Zambia's National Expenditure by Sector in 2008



Source: Central Statistical Office of Zambia

Since that time, the United Nation's Food and Agricultural Organization (FAO) has embraced conservation farming as a key part of its DRR focus, particularly in Southern Africa. This has translated into additional donor funding, from FAO and bilateral agencies, for conservation farming. As a result, the level of development assistance earmarked for the MoA&C has increased substantially, as the Ministry's portfolio expands beyond additional activities.

This represents a larger trend in Zambia. Traditionally within governments, the activities of ministries were seen as distinct and independent of each other. While bureaucrats were well aware of the inherently interdisciplinary nature of issues, the battle over securing funding often outweighed the issues themselves. As one international embassy employee noted, everyone is aware that climate and DRR are inherently cross-sectoral, and thus, the Government of Zambia must employ similar tactics as it did with HIV/AIDS to have all ministries working to address the concern. However, she continued, the push to secure larger proportions of the national budget and aid flows poses great hurdles that must first be overcome.

The final economic hypothesis is that, if the population of a country is more diffuse and less clustered in general, then the return per dollar of infrastructure investment is lower because each unit of infrastructure reaches fewer people. Governments and the private sector will spend less on infrastructure. A prevailing argument for both aid allocation and government spending at large is the idea that the more diffuse the population density, the less spending on infrastructure. Zambia is one of the fastest urbanization rates in Sub-Saharan Africa, which one Zambian estimated that it began around 2008. As such, much of the government spending on infrastructure is largely going to locations like Lusaka, Ndola and Kabwe, which host the largest populations in Zambia. This is exemplified by Zambia's electrification. Zambia relies on hydroelectric power for roughly 98 percent of its electricity. On a whole, roughly 22 percent of Zambians have regular access to electricity. A further breakdown of these figures, however, illustrates that rural Zambians only account for 3 percent of those with electricity.[688] Facing this grave electrification deficit, Zambia established the Rural Electricity Authority in 2008 to increase Zambia's overall electrification to 51 percent by 2030. Therefore, it is clear that Zambia recognizes this grave deficiency and the need to quickly overcome it. Whether this can be further expanded to explain Zambia's other infrastructure

investments, particularly those that would address questions of risk and uncertainty to natural hazards, cannot be stated with any great confidence. It can be stated, however, that huge gaps currently exist, and the government does seem intent on rectifying them. The question is whether they will make the necessary investments in a timely manner.

CONCLUSION

Zambia and Zimbabwe share a special relationship, due to their shared history, geographical similarities, and southern African culture. While each country has its strengths and weaknesses with regard to its institutional capacity to respond to natural hazards, we conclude that Zambia, at present, holds a more robust system of institutions and resources. Highlighting why this is the case is the overall purpose of this conclusion.

As of late, divergent political trends have caused strained relations between the two countries as Zambia is experiencing unprecedented growth while Zimbabwe struggles to emerge from a severe decade long recession. Of the seven hypotheses that were evaluated in this study, five (Moral Hazard, Electoral Incentives, Civil Society, External Actors, and Perceived Risk) all appear to offer some leverage for understanding the greater DRM narrative, but qualitatively offer little explanation for what affects government spending on preparedness. When evaluating the cases of Zimbabwe and Zambia, the two hypotheses that demonstrate the greatest differences between the two countries also appears to have a large impact on what influences DRM spending. These are the economic and political development hypotheses, explored in more detail below.

Economic Development

A great number of the differences between Zambia's and Zimbabwe's DRM investment can be explained by looking at the differences in their economic development, focusing on recent developments but also keeping in mind their past colonial histories. Certainly, both nations have struggled to implement effective DRM, and both for economic reasons, as the high levels of poverty in southern Africa worsen vulnerability to disasters."[689] This much was clear from many interviews. But the economic situation of each country is tied to its political and historical context, as well as to international relationships between these countries and others.

This report has made clear the economic decline that has faced Zimbabwe over the past decade, impacting all sectors of the economy and certainly influencing development outcomes and resistance to natural shocks. Under the influence of the current power sharing agreement, the Zimbabwean economy has begun a recovery, aided by the introduction of both the US dollar and South African Rand as currency in 2009.[690] This history of a working economy has proven to be a double-edged sword in Zimbabwe with respect to DRM, as people who became used to better government response and more spending now have to cope under a struggling economy and general economic uncertainty. On the other hand, the strong economic 'baseline' that Zimbabwe enjoyed means that the nation has been able to achieve goals in the past, and to implement successful policies. The tension between these two themes has not yet been resolved.

The contrast in economic growth between Zimbabwe and Zambia is striking, particularly over the past decade. Zambia's development trajectory has unfolded very differently, due to its different historical and political context. Though it certainly comes off of a different, and arguably lower, baseline, recent growth due to high commodity prices and renewed investment has given the government more resources, leading to greater possible spending on preparedness. The difference in resources available to the governments was apparent during our interviews, and we were even told by officials in Zambia's DMMU that Zambia has possibly the best system of DRM in the region. This degree of self-confidence was certainly lacking in Zimbabwe, where it seems that donors and officials are often attempting to 'keep up' more than they are progressing on DRR/M. This fact came up several times during interviews. However, the availability

of monetary resources cannot be reason alone to explain the variation in DRR and DRM capacity between the two countries. It is the active policy choice to invest in those activities that is of paramount important. That choice is inherently tied to political development.

Political Development

The political monopoly of power by the ZANU-PF party under Robert Mugabe in Zimbabwe historically meant that electoral incentives are virtually moot. Without popular accountability, and given the enormous scale of more pressing development needs, the government of Zimbabwe has not devoted sufficient resources towards disaster preparedness and response. Comparatively, it had devoted fewer resources to this endeavor than has Zambia. While the presence of more NGOs in Zimbabwe relative to Zambia may partially explain this, it cannot fully capture this difference. Instead, we argue that it the political system of Zambia has pushed its government to adopt the Hyogo Framework and despite some reservations about how seriously they have followed through on this, the Zambian government is more active that its counterpart in Zimbabwe with regard to disaster preparedness and response.

MOVING FORWARD

As both countries attempt to strengthen their institutional capacity there are three main recommendations that are applicable for both but especially urgent for Zimbabwe.

First, international actors should partner more closely with the governments in question to give them more of a role in the implementation of DRR and DRM policies. The risk of moral hazard is clearly present in both countries but it has not led to decreased spending in Zambia because of their need to protect vital economic assets. In Zimbabwe though, international aid has substituted for, rather than complemented, government spending on DRR and DRM. This process will need to be gradual and carefully managed. We argue that the fundamental relationship between the government of Zimbabwe, and to a lesser extent Zambia, and international actors requires rethinking.

Second, given the enormous potential in terms of human capital and understanding in both countries, there is room to increasingly involve civil society and local government in strengthening institutional capacity for DRR and DRM. There are promising signs that the governments of both countries are trying to involve their citizens as explored in the significant progress of both in Hyogo Priority Areas 2 and 3. Despite decentralization efforts in both countries, the central government should afford more local ownership in actual policy rather than important but limited work in the realm of information gathering and policy implementation. This process could facilitate a more equitable and effective use of limited resources. In Zambia, DRM investment is concentrated in the economically important areas while in Zimbabwe it is concentrated in the politically loyal areas. In both countries, marginalized at-risk populations receive far less attention than they require from the national government. Decentralization of power and resources could help address these institutional weaknesses.

Finally, while the stories of institutional capacity in Zimbabwe and Zambia leave much to be desired, both countries have the potential to make significant progress in strengthening that capacity. The potential of that improved capacity to make a big difference has already been highlighted above. Neither country is threatened by colossal natural hazards, and if they manage to increase the resilience of their peoples, they will be at relatively low risk. It is thus vital that they work on addressing the underlying risk factors, namely food insecurity, to create a resilient society that is not as vulnerable to smaller-scale shocks.

ENDNOTES

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This material is based upon work supported by the U. S. Army Research Office under grant number W911NF-09-1-0077 of the U.S Department of Defense's Minerva Initiative.