
Theses and Dissertations

2013

Politics of natural disaster : how governments maintain legitimacy in the wake of major disasters, 1990-2010

Zahidul Arefin Choudhury
University of Iowa

Copyright Jan 1 2013 Zahid Choudhury

This dissertation is available at Iowa Research Online: <http://ir.uiowa.edu/etd/1566>

Recommended Citation

Choudhury, Zahidul Arefin. "Politics of natural disaster : how governments maintain legitimacy in the wake of major disasters, 1990-2010." PhD (Doctor of Philosophy) thesis, University of Iowa, 2013.
<http://ir.uiowa.edu/etd/1566>.

Follow this and additional works at: <http://ir.uiowa.edu/etd>



Part of the [Political Science Commons](#)

POLITICS OF NATURAL DISASTER:
HOW GOVERNMENTS MAINTAIN LEGITIMACY IN THE WAKE OF MAJOR
DISASTERS, 1990 - 2010

by

Md Zahidul Arefin Choudhury

An Abstract

Of a thesis submitted in partial fulfillment of the
requirements for the Doctor of Philosophy
degree in Department of Political Science
in the Graduate College of
The University of Iowa

May 2013

Thesis Supervisors: Professor Vicki L J Hesli and Professor Sara B. Mitchell

ABSTRACT

This dissertation is about major natural disasters, and how they contribute to legitimacy crises of governments. Three major factors explain the emergence of a legitimacy crisis in a post-disaster context: the frequency of disaster occurrence, the quality of the government response to disasters, and the type of regime within which the government operates. Employing a large-N statistical analysis of data on major natural disasters and anti-government domestic political activities for the years between 1990-2010, I show that higher counts of disasters, as a rule, increase the risks of anti-government demonstrations, revolutions, riots, guerrilla warfare, and intrastate conflict. The disaster-political opposition relationship is conditional upon the characteristics of political regimes. No regime is entirely free from the political dangers of disasters. Consolidated autocracies and well established democracies are less likely than mixed regimes to observe political crises in the context of a higher frequency of natural disasters.

To evaluate the quality of government response and how it mediates the disaster-legitimacy relationship, I conduct a qualitative analysis of news reports on four major disaster events in South Asia – cyclone Sidr of 2007 and cyclone Aila of 2009 in Bangladesh and cyclone Aila and the Kashmir earthquake of 2005 in India. The case studies reveal that poor preparedness, and inadequate immediate and long-term response of a government invite public criticism of the incumbent, anti-government protest movements, and anti-incumbent voting in elections. When opposition parties translate this public frustration into broader political mobilization, the

moral claim of the incumbent to remain in power diminishes substantially, sometimes causing a legitimacy crisis. As opposed to common expectations, democracy may not provide the best political environment for effective disaster response. The quality of government response is influenced rather by a regime's security concerns, the level of administrative efficacy and corruption, the military's role in the disaster response process, socio-economic conditions of the affected people, and leadership competition over the disaster management process.

This study has broader implications for understanding the kinds of political strains that disasters create in a society and how governments function in Bangladesh and India. Much of these governments' energy is devoted to managing disasters, which diminishes their capacity to govern. Political elites in Bangladesh and India use disaster events as opportunities to strengthen clientelism and exclude political opposition in the affected areas.

Abstract Approved: _____

Professor Vicki L J Hesli

Department of Political Science

Date

Professor Sara B. Mitchell

Department of Political Science

Date

POLITICS OF NATURAL DISASTER:
HOW GOVERNMENTS MAINTAIN LEGITIMACY IN THE WAKE OF MAJOR
DISASTERS, 1990 - 2010

by

Md Zahidul Arefin Choudhury

A thesis submitted in partial fulfillment of the
requirements for the Doctor of Philosophy
degree in Department of Political Science
in the Graduate College of
The University of Iowa

May 2013

Thesis Supervisors: Professor Vicki L J Hesli and Professor Sara B. Mitchell

Copyright by
MD ZAHIDUL AREFIN CHOUDHURY
2013
All Rights Reserved

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Md Zahidul Arefin Choudhury

has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Department of Political Science at the May 2013 graduation.

Thesis committee: _____

Vicki L J Hesli, Thesis Supervisor

Sara B. Mitchell, Thesis Supervisor

Cary Covington

Douglas Dion

Paul R. Greenough

Dedicated to my wife Amina, son Arnob, and my parents Asad and Mina.

ACKNOWLEDGEMENTS

There are many people whose help, advice, and support made this dissertation possible. I owe a tremendous debt to my mentors and chairs of my dissertation committee, Vicki Hesli and Sara Mitchell. They were both engaged in my work and patient with my progress. Vicki was a superb advisor: She let me alone when I needed to think, she gave me intense attention at important moments, and she supported me personally throughout the entire dissertation process. She was a serious critic of my work, and the first person to cheer every moment of my successes. Sara made extraordinary contribution in shaping my theoretical understanding of domestic conflicts and by supporting me in applying complicated empirical strategies to study them. I owe much of what is clear and precise in my presentation to Vicki's and Sara's incisive comments and criticisms.

I would also like to thank other members of my dissertation committee. Douglas Dion was very patient and proactive in teaching me political methodology. He always had time to listen to me. Cary Covington allowed me to explore issues of the politics of natural disaster in his seminar on the American Presidency. I thank Paul Greenough for his comments on the preliminary design of this dissertation project that pushed me to think more contextually and clearly.

I would like to thank my family for supporting me through some pretty difficult times. I want to thank my wife, Amina, for her support and encouragement and for helping out as much as she could in order to give me the time I needed to write.

My mother always encouraged me to venture out into the ‘unknown’, which both inspired and gave me confidence to study such a complex theme as political crisis in Bangladesh and India. I would like to thank Caro Henauw, Atonu Rabbani, and Urmee Khan for being unbelievably good friends with me and for believing in me.

ABSTRACT

This dissertation is about major natural disasters, and how they contribute to legitimacy crises of governments. Three major factors explain the emergence of a legitimacy crisis in a post-disaster context: the frequency of disaster occurrence, the quality of the government response to disasters, and the type of regime within which the government operates. Employing a large-N statistical analysis of data on major natural disasters and anti-government domestic political activities for the years between 1990-2010, I show that higher counts of disasters, as a rule, increase the risks of anti-government demonstrations, revolutions, riots, guerrilla warfare, and intrastate conflict. The disaster-political opposition relationship is conditional upon the characteristics of political regimes. No regime is entirely free from the political dangers of disasters. Consolidated autocracies and well established democracies are less likely than mixed regimes to observe political crises in the context of a higher frequency of natural disasters.

To evaluate the quality of government response and how it mediates the disaster-legitimacy relationship, I conduct a qualitative analysis of news reports on four major disaster events in South Asia – cyclone Sidr of 2007 and cyclone Aila of 2009 in Bangladesh and cyclone Aila and the Kashmir earthquake of 2005 in India. The case studies reveal that poor preparedness, and inadequate immediate and long-term response of a government invite public criticism of the incumbent, anti-government protest movements, and anti-incumbent voting in elections. When opposition parties translate this public frustration into broader political mobilization, the

moral claim of the incumbent to remain in power diminishes substantially, sometimes causing a legitimacy crisis. As opposed to common expectations, democracy may not provide the best political environment for effective disaster response. The quality of government response is influenced rather by a regime's security concerns, the level of administrative efficacy and corruption, the military's role in the disaster response process, socio-economic conditions of the affected people, and leadership competition over the disaster management process.

This study has broader implications for understanding the kinds of political strains that disasters create in a society and how governments function in Bangladesh and India. Much of these governments' energy is devoted to managing disasters, which diminishes their capacity to govern. Political elites in Bangladesh and India use disaster events as opportunities to strengthen clientelism and exclude political opposition in the affected areas.

TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER	
1 INTRODUCTION	1
Why Study Natural Disasters?	2
Chapter Overview	10
2 THEORY AND CONCEPTS	16
Theoretical Framework	16
Major Concepts	24
Natural Disaster	24
Legitimacy	26
Government Response Quality	29
3 EFFECTS OF DISASTERS ON GOVERNMENT LEGITIMACY: AN AGGREGATE LEVEL ANALYSIS	31
Introduction	31
Empirical Approach	37
Dependent Variables and Estimation Techniques	38
Explanatory Variables: Natural Disasters	42
Control Variables	43
Results	46
Effects of Disasters as a General Case	48
Effects of Disaster Types	54
Effects of Disasters in Various Regimes	57
Robustness Check	58
Conclusion	59
4 METHODOLOGY FOR CASE STUDIES	104
Introduction	104
Case Selection	105
Operationalization	109
Government Response Quality	109

Preparedness	111
Immediate Response	112
Long-term Response	117
Political Crisis	119
Data Collection Method	121
Data Sources	122
Coding Scheme	126
Conclusion	129
5 CASE STUDY: BANGLADESH	132
Introduction	132
Challenges of Socio-economic and Political Development	134
Challenges of Socio-economic Development	136
Challenges of Political Development	139
Institutional Capacity for Disaster Response	146
Tropical Cyclone Sidr, 2007	148
Preparedness	151
Early Warning, Evacuation, Protective Measures	151
Immediate Response	154
Leadership: Visit, Address, Directives, and Assessment	154
Assistance: Rescue, Relief, and Equity	158
Long-term Response	161
Planning, Learning, Recovery	161
Accountability: Immediate and Long-term Response	165
Major Responding Actors	165
Information and Corruption	167
Political Reactions	169
Discussion	172
Tropical Cyclone: Aila, 2009	175
Preparedness	176
Early Warning, Evacuation, Protective Measures	176
Immediate Response	180
Leadership: Visit, Address, Directives, and Assessment	180
Assistance: Rescue, Relief, and Equity	182
Long-term Response	184
Planning, Learning, Recovery	184
Accountability: Immediate and Long-term Response	188
Major Responding Actors	188
Information and Corruption	191
Political Reactions	193
Discussion	195
Conclusion	204

6	CASE STUDY: INDIA	214
	Introduction	214
	Disaster Vulnerability and Challenges of Socio-economic Development	216
	Vulnerability to Natural Disasters	216
	Challenges of Socio-economic Development	220
	Challenges of Political Development	224
	Institutional Arrangement for Disaster Response	228
	Tropical Cyclone Aila, 2009 (West Bengal, India)	231
	Preparedness (West Bengal)	238
	Early Warning, Evacuation, Protective Measures	238
	Immediate Response (West Bengal)	241
	Leadership: Visit, Address, Directives, and Assessment	241
	Assistance: Rescue, Relief, and Equity	248
	Long-term Response (West Bengal)	253
	Planning, Learning, Recovery	253
	Accountability: Immediate and Long-term Response (West Bengal)	257
	Major Responding Actors	257
	Information and Corruption	259
	Political Reactions (West Bengal)	260
	Discussion (West Bengal)	262
	Kashmir Earthquake, 2005 (Jammu and Kashmir, India)	268
	Preparedness (Jammu and Kashmir)	271
	Early Warning, Evacuation, Protective Measures	271
	Immediate Response (Jammu and Kashmir)	273
	Leadership: Visit, Address, Directives, and Assessment	273
	Assistance: Rescue, Relief, and Equity	278
	Long-term Response (Jammu and Kashmir)	283
	Planning, Learning, Recovery	283
	Accountability: Immediate and Long-term Response (Jammu and	
	Kashmir)	286
	Major Responding Actors	286
	Information and Corruption	287
	Political Reactions (Jammu and Kashmir)	288
	Discussion (Jammu and Kashmir)	294
	Conclusion	296
7	CONCLUSION	303
	The Large-N Study	304
	Case Studies	308
	Content Analysis of News Reports on Natural Disaster	310
	Major Conclusions of the Case Studies	318
	Policy Implications	330

APPENDIX	334
A CODEBOOK: QUALITY OF GOVERNMENT'S RESPONSE TO DIS- ASTERS	334
REFERENCES	356

LIST OF TABLES

Table	
3.1	Average Calculated for Major Variables for Each Country Over the Time Period 1990-2010 66
3.2	Variable Descriptions 69
3.3	Summary Statistics 71
3.4	Counts of Disaster Events Per-Year, 1990-2010 73
3.5	Bivariate Correlations 74
3.6	Summary statistics of the rescaled variables. 75
3.7	Bivariate Correlations. 75
3.8	Decile based grouping of disaster related variables. 76
3.9	Degree of Collinearity: R-squared from OLS regression of each of the disaster variables on others 76
3.10	ZINB Results: Effects of Disasters on Anti-Government Domestic Activities 77
3.11	ZINB-IRR Results: Effects of Disasters on Anti-Government Domestic Activities 78
3.12	ZINB Results: Effects of Disaster Types on Anti-Government Domestic Activities 79
3.13	ZINB-IRR Results: Effects of Disaster Types on Anti-Government Domestic Activities 80
3.14	ZINB Results: Effects of Disasters and Regime Characteristics on Anti-Government Domestic Activities (with Squared Polity2 Term.) 81
3.15	ZINB-IRR Results: Effects of Disasters and Regime Characteristics on Anti-Government Domestic Activities 82

3.16	ZINB Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities (with Squared Polity2 Term). . . .	83
3.17	ZINB-IRR Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities	84
3.18	ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Autocracies	85
3.19	ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Anocracies	86
3.20	ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Democracies	87
3.21	ZINB-IRR Results: Effects of the Summary Measure of Disasters on Anti-Government Domestic Activities (Killed, Affected, Damage variables Dropped from the Equations)	88
3.22	ZINB-IRR Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities (Killed, Affected, Damage variables Dropped from the Equations)	89
3.23	ZINB Results: Effects of Disasters on the Aggregate Measure of Domestic Political Crisis	90
3.24	ZINB Results: Effects of Disasters on Anti-Government Demonstrations .	91
3.25	ZINB Results: Effects of Disasters on Revolutions	92
3.26	ZINB Results: Effects of Disasters on Riots	93
3.27	ZINB Results: Effects of Disasters on Guerrilla Warfare	94
3.28	ZINB Results: Effects of Disasters on Assassinations	95
3.29	ZINB Results: Effects of Disasters on Intrastate Conflicts	96
3.30	ZINB Results: Effects of Disasters on the Aggregate Measure of Domestic Crisis	97
3.31	ZINB Results: Effects of Disasters on Anti-Government Demonstrations .	98
3.32	ZINB Results: Effects of Disasters on Guerrilla Warfare	99

3.33	ZINB Results: Effects of Disasters on Revolutions	100
3.34	ZINB Results: Effects of Disasters on Riots	101
3.35	ZINB Results: Effects of Disasters on Intrastate Conflicts	102
3.36	ZINB Results: Effects of Disasters on Assassinations	103
4.1	Seven Major Disasters with Highest Number of Killed or Affected in Bangladesh and India, 2005-2010, (Sorted by Killed & Affected)	107
4.2	Selected Sources of News in Bangladesh, India	125
4.3	Word-sets by sub-dimensions of government response quality	128
5.1	Summary of International Donor Assistance for Aila Survivors	186
5.2	Summary of Government of Bangladesh Assistance for Aila Survivors	186
5.3	Summary of Government Responses to Sidr and Aila	209
6.1	Number of Parliamentary (Lok Sabha) Seats and Percentage of Popular Votes, National Elections 2004 and 2009	234
6.2	Zilla Parishad (District Council) election (2008) results for selected parties in West Bengal and three districts most affected by Aila	245
6.3	District distribution of Panchayats (the lowest tier) won by major parties, Panchayat election, West Bengal, 2008	246
6.4	Relief and Efforts in four districts of West Bengal as of June 1, 2009 (Govt. Of West Bengal Report)	249
6.5	Electoral Strength of Parties at the Village Panchayts in Gosaba and Basanti Blocks (2008 panchayat election)	259
6.6	West Bengal Assembly Elections 2006 and 2011 (selected parties)	268

LIST OF FIGURES

Figure	
1.1 World Natural Disaster Events per-Year (1900-2010).	4
1.2 Summary of Natural Disaster Losses per-Year (1900-2010).	5
1.3 Number of People Killed by Natural Disasters per-Year (1900-2010).	6
1.4 Estimated Damage in U.S. Dollar Caused by Reported Natural Disasters per-Year (1900-2010).	7
1.5 Social Science Articles Published on Natural Disasters, 1951-2010.	8
2.1 Government response to natural disasters and legitimacy.	17
3.1 Frequency of Natural Disasters, 1990 - 2010	62
3.2 Histogram of Anti-government Domestic Activities	63
3.3 Projected Count of Anti-government Activities for Various Counts of Dis- asters	64
3.4 Projected Count of Anti-government Activities for Various Counts of Dis- asters by Regime Types	65
4.1 Dimensions and Measurement of the Quality of Government Response to Disasters	110
4.2 Dimensions and Measurement of Disaster Related Political Reaction	120
4.3 Word Tree of the Main Key Word ‘Warning’ in its Textual Context (Cre- ated in NVivo 9)	130
5.1 Affected Areas of Cyclone Sidr (November 2007)	150
5.2 Affected Areas of Cyclone Aila (May 2009)	177
6.1 Government Structure in West Bengal (as of 2009)	238

6.2	Major responding actors (Aila, West Bengal, 2009)	264
7.1	Weighted frequency distribution sub-dimensions of government response quality and political reactions	312
7.2	Weighted frequency distribution sub-dimensions of government response quality and political reactions	315

CHAPTER 1 INTRODUCTION

Natural disasters such as earthquakes, tsunamis, floods, volcanic eruptions, and hurricanes are one type of crisis that governments encounter. While most natural disasters are unavoidable and apolitical in origin, they may have serious political consequences for governments. They may threaten to undermine popular support of a government as well as the legitimacy of the political system in general. A legitimacy crisis, when it ensues, is not a direct result of the act of Mother Nature, rather, it is a consequence of people's perceptions of the government's preparedness, emergency response, and recovery efforts. People may not blame their government for bad luck and may not expect perfect prevention of damage and fatalities caused by disasters, yet, they will likely expect their government to respond to disasters in an effective and accountable manner. The quality of government response to a disaster, thus, becomes an influential variable affecting the political environment in which the post-crisis political system is embedded.

A well-prepared government that is able to respond effectively and accountably will likely maintain (or even improve) support of the people. A prominent example of successful political maneuvering of disaster events is the 2002 Elbe flash flood in Germany where Gerhard Schroder's timely and liberal relief and rehabilitation efforts helped earn him a win in the national election the same year (Bytzek 2008). Government disaster response can also facilitate national integration: in 2004, the Indonesian government utilized an Indian Ocean tsunami to expedite an ongoing peace agreement in Aceh, which eventually achieved loyalty of the Aceh rebels to the Indonesian state and its government (Breardsley & McQuinn 2009).

The history of the politics of natural disasters is also fraught with examples where governments lost legitimacy leading to regime change, and even disintegration

of a state. The political aftermath of 1970 cyclone in Pakistan includes a secessionist war of independence that gave birth to Bangladesh in 1971 (Albala-Bertrand 1993). The 1985 ‘twin’ earthquakes that hit Mexico seriously threatened the legitimacy of fifty-year long rule of the Partido Revolucionario Institucional (Drury & Olson 1998). In 2004, the Indian Ocean tsunami re-ignited the ethnic war between the Sri Lankan government and the Liberation Tigers of Tamil Eelam (Breardsley & McQuinn 2009). In 2010, following a flash flood, the newly elected government of Pakistan dramatically lost public support allegedly due to its inattentiveness to the crisis (Wade 2010).

In this dissertation, I study how major natural disasters contribute to legitimacy crises of governments. Natural disaster events kill thousands and affect even more people, destroy millions of dollars of wealth, and create shocks to economic growth. While governments are not responsible for these events and may not have the know-how to perfectly prevent the damages and fatalities caused by the disasters, they often face the challenge of maintaining legitimacy in the post-disaster context.

Given that the disaster-legitimacy relationship must translate through government’s disaster responsiveness, how does the quality of government response to a given disaster event affect the government’s legitimacy in the post-disaster context? Particularly, why, and in what contexts, are some governments able to translate crises events to their political benefit, while others treat crises in ways that undermine their political legitimacy? How does the geographic location within the country where the disaster hits matter to the quality of the government response in the country? How does the regime type within which the government operates matter to its quality of response?

Why Study Natural Disasters?

Addressing these questions systematically is important for several reasons. One reason is that disaster events appear to be occurring more frequently than ever

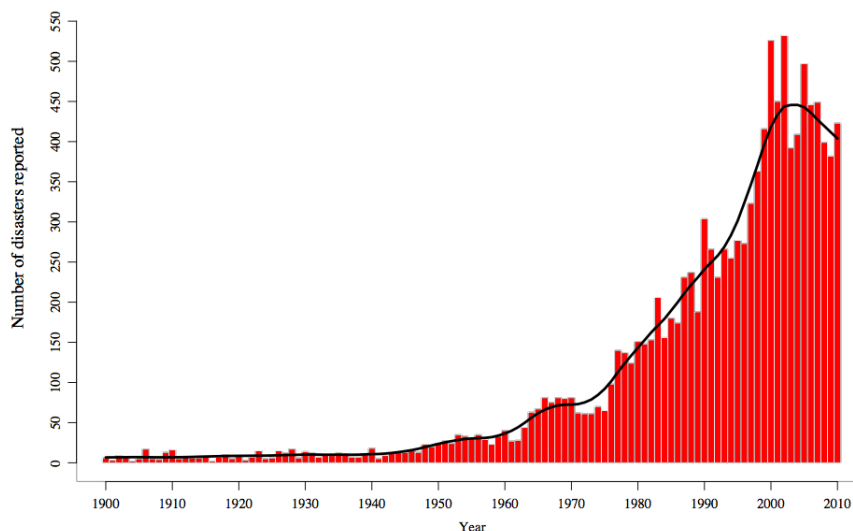
before. Empirical work across disciplines has converged to the conclusion that extreme weather-related disastrous events were more common during the last third of the twentieth century and in the early twenty first century than at any other time in recent history (Zakey, Giorgi & Pal 2008). The Emergency Event Database (EM-DAT) of the World Health Organization Collaborating Center for the Epidemiology of Disasters (CRED) has recorded all disaster events since the year 1900 for almost all countries.¹ Figure-1.1 plots the frequency of all these events (except drought and insect infestations) revealing a clear upward trend in the frequency of occurrence between 1900 and 2003.² By 2003 the number of events reached about 550 per year. Global ecosystem experts indicate that the observed trend may continue in the current century leading to increased occurrence and severity of climate-related disasters (Scholze et al. 2006, Zakey, Giorgi & Pal 2008). This is particularly so for certain disaster types. For example, according to Elsner, Kossin & Jagger (2008), the warming temperatures allow for already strong storms to become even more powerful, indicating that there will be more frequent strong storms in future.

Natural disasters killed an enormous number of people in the last century. The Office of Foreign Disaster Assistance (OFDA) of the US Agency for International Development (USAID) and the WHO Collaborating Centre for Research on the Epidemiology of Disasters (CRED) reported that natural disasters have killed more than sixty-two million people worldwide since 1900 (OFDA/CRED 2011). According to Cohen & Werker (2008), this is “approximately the same number as all those killed

¹CRED defines a disaster as a natural event which overwhelms local capacity, necessitating a request for external (including governments and/or international communities) assistance (CRED 2007). These disasters can be hydro-meteorological disasters including floods, wave surges, storms, droughts, landslides and avalanches; geophysical disasters—earthquakes, tsunamis and volcanic eruptions; and biological disasters covering epidemics and insects infestations.

²Although there is a downward trend of disaster occurrence since 2003, it is still substantially higher than in decades prior to 2000.

Figure 1.1: World Natural Disaster Events per-Year (1900-2010).



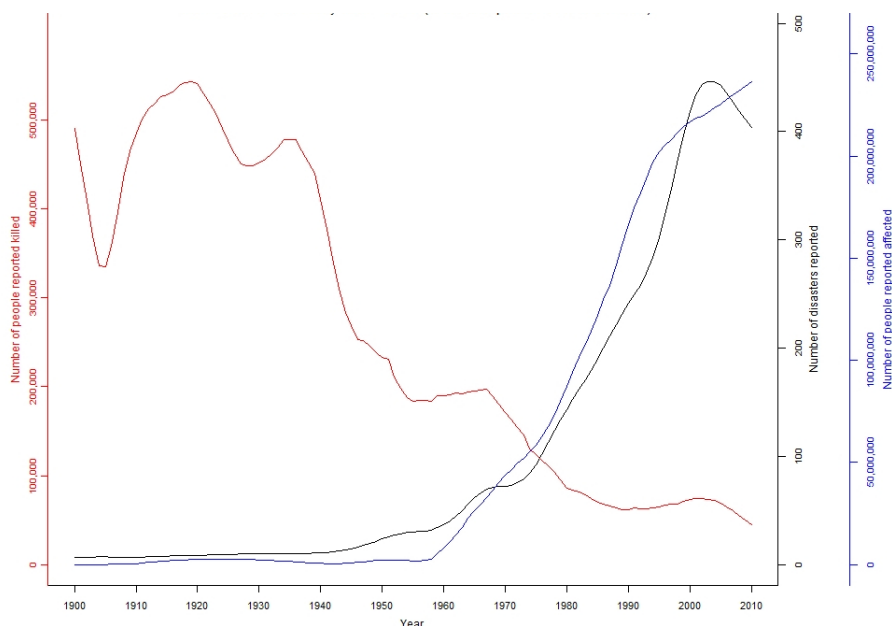
Source: EM-DAT: The OFDA/CRED International Disaster Database—<http://www.em-dat.net>—Université Catholique de Louvain, Brussels, Belgium.

in both World Wars” (796). In the 1990s only, “an estimated 188 million people per year were affected by natural disasters, six times more than the 31 million annually affected by armed conflict” (Purvis & Busby 2004, 68).

The large number of climate-related deaths is due to exponential growth of population and rapid urbanization during the last century (UN-HABITAT 2007*b*, Homer-Dixon 1999, Nell & Righarts 2008). Overtime, however, the rate of disaster-related death has declined. In fact, as shown in figure 1.2 (see the red line in the figure), it reached its historic lowest point in the year 2010. Many have speculated that the decline is due to increased resources from global humanitarian communities (Cohen & Werker 2008, 796).

The overwhelming majority of people affected and killed by natural disasters reside in developing counties, especially in the Asia and Pacific region, the most populous region of the world (Cavallo & Noy 2010). In figure-1.3, the width of a

Figure 1.2: Summary of Natural Disaster Losses per-Year (1900-2010).



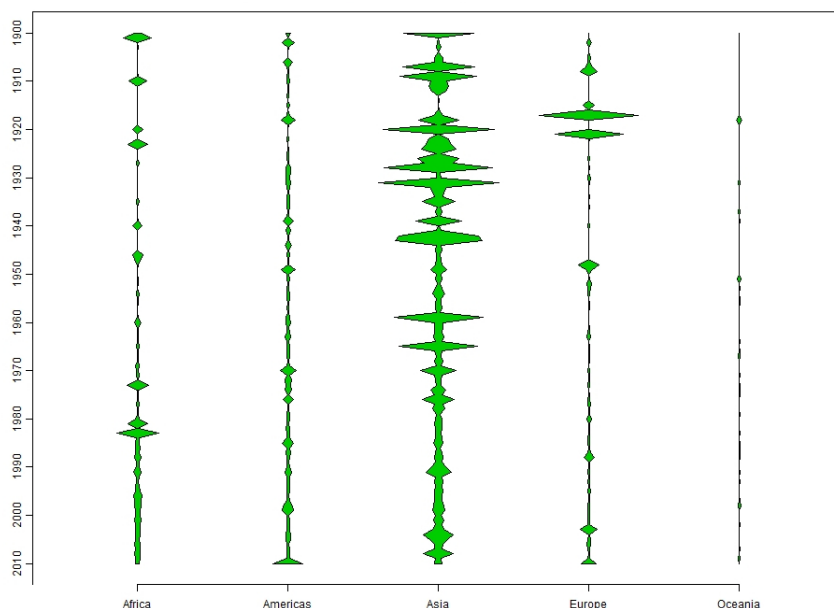
Source: EM-DAT: The OFDA/CRED International Disaster Database—<http://www.em-dat.net>—Universite Catholique de Louvain, Brussels, Belgium.

green band is proportional to the number of data points (deaths) observed in the corresponding years on the vertical time axis. The figure shows that the rate of reported number of people killed in the Asia region is much higher than other regions.³ Particularly for Asia, natural disasters are among the greatest of human security threats (Chakrabarti 2011).

Besides loss of life and insecurity, global economic loss due to natural disasters also increased dramatically in the second half of the last century. Natural disasters negatively impact the macro-economy and the overall process of economic development of a country, especially by destroying capital stock and hindering economic

³The plot is similar to a violin plot that combines the features of a box-and-whisker plot and a kernel density plot (Hintze & R 1998).

Figure 1.3: Number of People Killed by Natural Disasters per-Year (1900-2010).

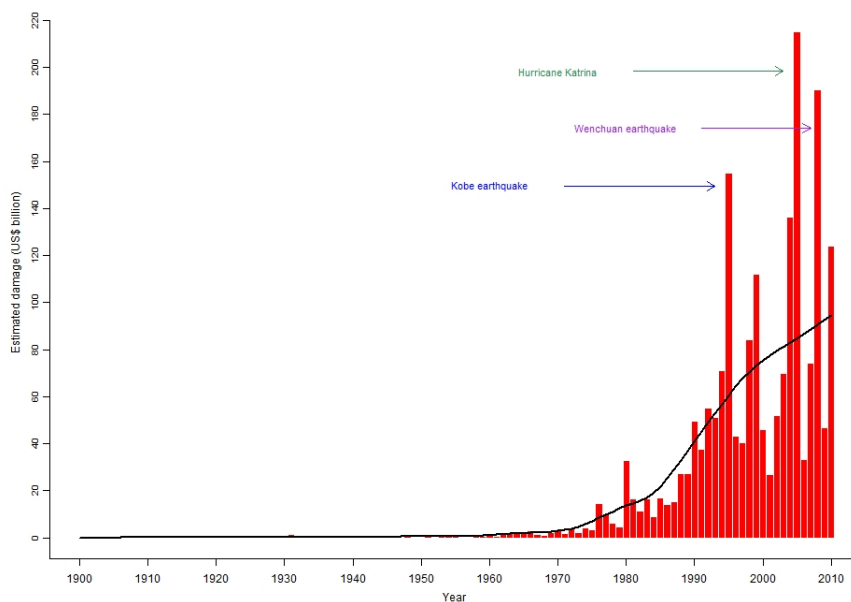


Source: EM-DAT: The OFDA/CRED International Disaster Database—<http://www.em-dat.net>—Universite Catholique de Louvain, Brussels, Belgium. *Note:* The graph is based on the square-root of the raw data.

growth and production (for review of this literature, see McEntire 2004, Noy 2009, Cavallo & Noy 2010). Figure-1.4 shows the dramatic increase in estimated damage (in \$U.S.) during the second half of the last century, especially since 1970s. Data from the insurance industry indicated that global economic losses increased by a factor of ten between the the 1950s and early 2000s (IPCC 2007).

The damaging effect of disasters is not limited to the economic health of a society measured in terms of Gross Domestic Product (GDP) or growth rate. It includes adverse effects on the environment, health, and human settlement (Albala-Bertrand 1993). Cuny (1983) reports that disasters halt the “momentum of development” for many countries, not only by inflicting the above adverse effects, but also by truncating the administrative capacity of the government required to provide ba-

Figure 1.4: Estimated Damage in U.S. Dollar Caused by Reported Natural Disasters per-Year (1900-2010).



Source: EM-DAT: The OFDA/CRED International Disaster Database—<http://www.em-dat.net>—Universite Catholique de Louvain, Brussels, Belgium.

sic services and protect people from those damaging effects (1-61). Overcoming the scarcity of critical resources becomes a tough challenge for the government (Homer-Dixon 1999, IPCC 2007, Nell & Righarts 2008), when a significant portion of resources and energy are diverted to disaster management. The “ability to respond quickly, sensibly, and responsibly to a wide range of major acute emergencies is now a ‘must have’ for government leaders” (t’Hart, Tindall & Brown 2009, 473). This preoccupation with disaster management may disturb the efficiency of the overall process of governance.

The effects of disasters, as indicated above, have not gone unnoticed in global policy forums. Policymakers and academicians alike have come to recognize that

disasters are increasingly shaping the parameters that determine the relationship that the government and the national leadership have with the people. A number of United Nations bodies, such as United Nations Human Settlement Program (UN-HABITAT), and international forums, such as Intergovernmental Panel on Climate Change (IPCC), have, accordingly, called for a greater understanding of how disasters impact political systems (IPCC 2007, UN-HABITAT 2007*a*).

Social scientists also started investigating what disasters mean for social and political systems, elites, and citizens. A simple key-word search (“Natural Disaster”) in the Social Science Citation Index (Web of Science by Thomson Reuters) reveals that social scientists published about 2,000 articles⁴ between 1951 and 2010, a majority of which were written since mid 1990s. Figure 1.5 captures this trend in disaster studies by social scientists⁵.

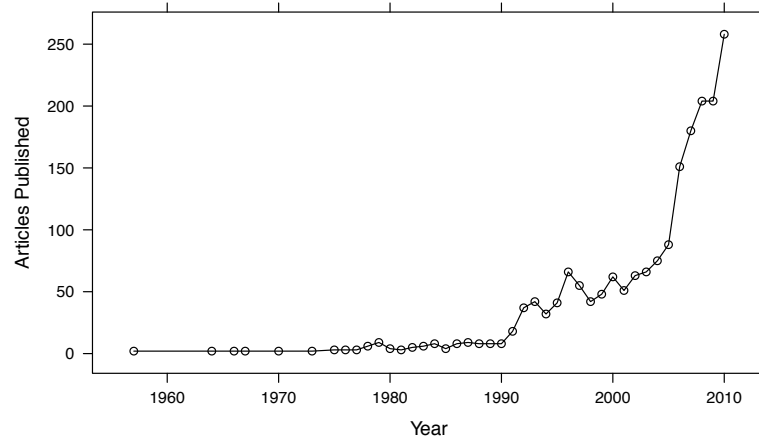
Political scientists, however, published only about 24 articles (1.2%), as cited in the Social Science Citation Index, during 1951-2010 period. Of these, the classic work of Abney & Hill (1966), published in the *American Political Science Review*, explicitly investigated the relationship between natural disasters and politics.⁶ According to this account, New Orleans’s incumbent Mayor Victor Schiro managed to win the 1965 Mayoral election by “capitalizing upon the disaster” (975) created by Hurricane Betsy. Abney & Hill (1966) conclude that the Mayor’s political ingenuity and skill

⁴Total number of articles is 3,575 if all science and arts citation indices are included in the search. Besides Science Citation Index Expanded (SCI-EXPANDED) (1899-present), other indices are Social Sciences Citation Index (SSCI) (1898-present), and Arts & Humanities Citation Index (A&HCI)(1975-present)

⁵This, of course, does not indicate books and other important pieces available on the topic. In my search, I have excluded book reviews and proceedings in order to avoid duplication—many authors and journals may print review of the same book and proceedings that are not always research based.

⁶The earliest article on natural disaster and politics in the *American Political Science Review* (APSR) is perhaps by Barnhart (1925).

Figure 1.5: Social Science Articles Published on Natural Disasters, 1951-2010.



Source: Created by the author using keyword Search (“Natural Disaster”) in Social Science Citation Index, Web of Science by Thomson Reuters. Accessed: June 11, 2011.

in administering large rescue and relief operations outwitted the thriving opposition campaign of James Fitzmorris.

In the face of increasing vulnerability and loss from natural disasters, as documented above, more recent work investigates how natural disasters may create strains on a political system. Researchers have investigated the relationships between natural disasters and voting and electoral returns (Achen & Bartels 2004, Bytzek 2008, Bechtel & Hainmueller 2011), macroeconomic stability (Cavallo & Noy 2010), change in social policy, ‘decomposition’ and breakdown of regimes (Albala-Bertrand 1993, 182-201), political and social unrest, political repression (Drury & Olson 1998), regional, ethnic and class inequality (Pelling & Dill 2010), violent civil conflict (Nell & Righarts 2008), intrastate conflict (Brancati 2007), and diplomatic relationships between countries (Kelman & Koukis 2000). No doubt, this work has improved our understanding of the political relevance of natural disasters. Yet, some of the core issues of disaster politics have remained understudied: why and how governments

respond to the disaster events the way they do, and how such responses affect the political legitimacy of the system.

Disaster events provide a unique opportunity for challenging and advancing existing theories (Stallings 2002) of government behavior and political legitimacy. A disaster event is a “natural laboratory” (Dynes & Drabek 1994, Fritz 1961, Stallings 2002) that allows us to investigate various factors – including political institutions, regime type and level of political support prior to a disaster that make governments more or less able to maintain legitimacy in a time of crisis. Disasters provide us with the opportunity to study why some leaders (e.g. the Bengali leader Sheikh Mujibur Rahman in 1970, German Chancellor Gerhard Schroder in 2002) are more or less able to translate uncertainty and threat into political capital. Studying disasters, therefore, not only contributes to the knowledge base from which governments and policy makers have to draw as they work to solve the problems posed by the increasing number of disaster events throughout the world. Such studies also shed new light on concepts such as legitimacy, effectiveness, and responsiveness of governments.

Chapter Overview

To answer the questions that I raised in the beginning of this introductory chapter, I proceed in this dissertation as follows: In Chapter two I develop a theoretical framework, which provides a basis for generating a number of hypotheses for empirical testing. In the framework, changes in post-disaster support and legitimacy of a government are conceived primarily as a function of the quality of the government’s response to the disaster. Of course, a number of other factors such as the frequency and location of the disaster event and the political regime type in which the government operates will also have their share of contribution to the explanation of legitimacy crises.

The above theoretical claim is both general and contextual. In Chapter 3, in order to test the claim of generality, I subject the theory to a series of statistical tests, tapping on the availability of quantitative measures of natural disasters, regime characteristics and a series of anti-government domestic political activities. The dataset used for this statistical analysis includes 3329 disaster events – including earthquakes, epidemics, extreme temperatures, floods, storms, volcanic eruptions – that occurred in 157 countries over the time period between 1990 and 2010. Primarily, I conclude in this chapter that higher counts of disasters, as a rule, adversely affect the overall legitimacy of governments. While frequent occurrences of most types of disasters may threaten legitimacy, higher frequency of some disaster types such as earthquakes and landslides are more likely to be associated with legitimacy crisis than that of other types. The likelihood of legitimacy crisis is higher in democracies than mixed-regimes and autocracies.

In Chapter 4, I develop a research design to be used to investigate the contextual factors (including spatial, institutional, and event specific factors) and causal mechanisms (George & Bennett 2005, Buthe 2002) involved in the response-legitimacy relationship. From the design, I derive four cases from South Asia for in-depth qualitative study, two disaster cases from Bangladesh and two from India. The two disasters from Bangladesh are the tropical cyclone Sidr of 2007 and the tropical cyclone Aila of 2009. Cyclone Aila simultaneously hit parts of Bangladesh and parts of the Indian state of West Bengal and, thus, comprises the first case study from India. The second disaster from India is the earthquake, known as the Kashmir earthquake, that hit the Indian state of Jammu and Kashmir in October 2005.

In Chapter 4, I also provided a description of how I measure government response quality and political reactions to governmental reaction to disasters. Government response quality is measured along the dimensions of preparedness, immediate, and long-term response. The disaster-related political reaction is measured on oppo-

sition parties' challenges to the government, anti-government public protests, and the level of repression by the government of the opposition and the protesters. These political reactions shed light on the legitimacy of the government. I use these measures to conduct a content analysis of news reports of major English-language national newspapers published in Bangladesh (the *Daily Star*) and India (the *Times of India*). When possible, I complemented these major news sources with transcripts of the BBC world news in vernacular languages – e.g. BBC-Bangla that targeted the citizens of Bangladesh and Indian state of West Bengal – as well as local and regional newspapers. The focus of the analysis is to systematically parse the news reports for qualitative contextual analysis presented in the subsequent two chapters.

In Chapter 5, I focus on the cyclones Sidr and Aila in Bangladesh. For each of these events, I use the content analysis of media-reports as my data to evaluate the Bangladesh government's response in terms of the measurement categories developed in the previous chapter. Sidr was responded to by the military-backed government of Fakhruddin Ahmed (2007-2008), while Aila was responded to by the democratically elected government of Sheikh Hasina (2009-2013) that replaced the Fakhruddin government. In this chapter, thus, I examine the differential effects of these two types of regimes on government response quality and political reactions.

In Chapter 6, I continue my examination of cyclone Aila, but this time focussing on the Indian state of West Bengal. The West Bengal case leverages a comparative analysis of governments' responses to the same disaster event in two different countries that are similar in terms of geography, history, and culture, but different in their institutional arrangements of government. While Bangladesh is a unitary system, India is a federal system of government with substantial autonomy of the state governments, especially in the areas of disaster management.

The second case study in Chapter 6 is about the Kashmir earthquake. This case leverages two types of analyses: first, it allows me to compare how the democrat-

ically elected state government of Jammu and Kashmir responded to the quake with that of the state government of West Bengal. Second, it allows me to examine the differential response of the Indian central government to Aila versus the earthquake.

Primarily, in the case studies I show that a stronger government response increases public support of the incumbents, while a weaker government response diminishes the support. The relationship between a government's response to disasters and its legitimacy to the public is not direct, but it exists. In all four cases, poor government response is followed by public criticism of the incumbent, anti-government protest movements, and anti-incumbent voting in elections. When oppositional political parties shift this public grievance to the broader political level, the moral claim of the incumbent to remain in power diminishes substantially, sometimes causing a government (cabinet) change, as in the case of Jammu and Kashmir, and in other cases causing a regime change, as in the case of the Left-Front (LF) government in West Bengal and the authoritarian government of Fakhruddin in Bangladesh.

In addition, I find that democracy does not necessarily produce higher quality government response to disasters than other types of regime. The central government of India was faster and more effective in responding to the earthquake in Jammu and Kashmir than in the case of cyclone Aila in West Bengal not because of regime type, but primarily because of the security vulnerability of India in that region due to the activities of Pakistan-based militant groups.

Furthermore, regardless of the regime types, governments tend to respond better in urban areas than in rural, remote areas. This is despite the fact that the rural communities take the brunt of the disasters because of their proximity to the coastal and mountainous regions. Lack of adequate communication infrastructure, more corrupt civil administration (than in urban areas), and patron-client relationships run by the party functionaries are some of the reasons why rural communities get limited benefits from governmental response initiatives.

Another related conclusion of the case studies is that the military is the better vehicle of government response than both the civil administration as well as political party-networks. This seems to be the case regardless of the regime type. The poor response of both the Hasina government of Bangladesh and the Bhattacharjee government of West Bengal were rooted in their hesitation to use the military in its full capacity in the disaster response process. In contrast, the prompt response of the Indian central government in Jammu and Kashmir and Fakhruddin government in Bangladesh were possible due to their reliance on the military as the primary response actor.

The case studies are based on qualitative content analysis of news reports on the respective cases. In Chapter 7, the concluding chapter of my dissertation, I draw together the themes of Chapters 5 and 6 to consider a quantitative content analysis of the news reports to provide further background to the conclusions of the case studies. The analysis is based on the frequency of selected sets of words that are systematically derived to represent various sub-dimensions of government response quality.

The quantitative content analysis shows that the media focus on some sub-dimensions of government response more frequently and explicitly than others. For example, the media tend to highlight the activities of the government as a response actor more than the activities of civil society groups and international actors. On the preparedness dimension, 'protection', while in the long-term dimension 'recovery' are the more focused issues in the media. Regarding political reaction to government's response, 'repression' by government forces and 'cooperation' of the opposition parties were more discussed than other issues. The results of this analysis have clear implications for the public support of the government. Ultimately, the media is the major guide of public sentiment towards the government (Iyengar & Kinder 1987, Boyckoff 2011).

I began this introduction to my dissertation by emphasizing the need to study the politics of natural disasters. Disaster events are occurring more frequently than before. Politicians, policymakers, and governments must equip themselves to tackle disaster-related political strains effectively, for their actions in post-disaster contexts are politically consequential. Political scientists must also begin to systematically understand the complexities that natural disasters frequently bring to social life, for disasters are increasingly shaping the very domain of social life that they study – politics. In this dissertation, I take exactly this challenge of understanding the politics of natural disasters. In the next chapter, I approach the subject by establishing a theoretical framework for understanding how and why natural disasters contribute to legitimacy crises of governments. The rest of the dissertation will be devoted to providing empirically grounded answers to these questions.

CHAPTER 2 THEORY AND CONCEPTS

In this chapter I develop a theoretical framework to help explain how natural disasters contribute to legitimacy crisis of government. The quality of a government's response to a disaster plays a key role in explaining why, and in what context, some governments are able to translate disaster events to their political advantage, while others lose public support as a result of their disaster response. The framework underscores the importance of the frequency of natural disasters and regime characteristics as contextual factors in the disaster-response-legitimacy relationship.

The chapter is organized in three sections: theoretical framework, concepts and measures, and research design. In the theoretical framework, based on relevant literature, I develop four hypotheses which will be tested in a series of Large-N statistical analyses and in four qualitative cases studies, presented in the Chapters 5 and 6. In the concepts and measurement section I discuss theoretical definitions of various concepts and operationalize them into their measures. In the research design section, I describe the issues of case selection and strategies of analyses.

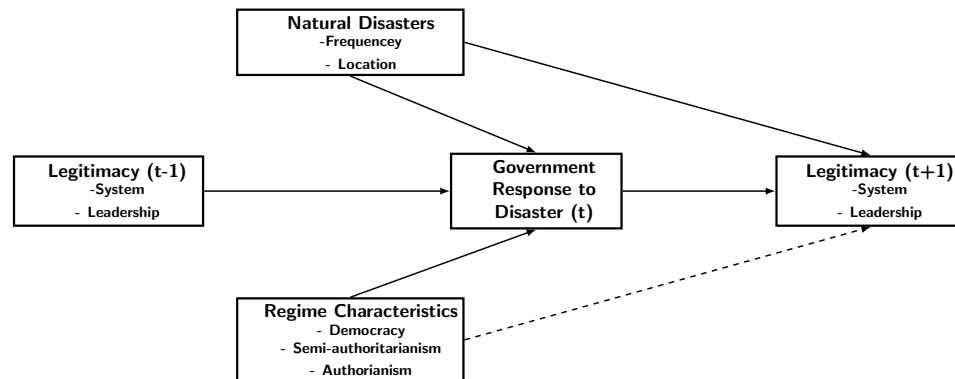
Theoretical Framework

The theoretical framework consists of four major variables: frequency and location of natural disasters, characteristics of political regimes, quality of government response to the disasters, and legitimacy gained (or lost) as a result of such actions of the government. Figure-2.1 is a stylized version of the theoretical framework, presented as a systems diagram¹. In the diagram, beginning and ending points of the

¹Social scientists use systems diagrams to parsimoniously demonstrate the causal direction in the relationship between two or more variables. Plus signs mean positive correlation and minus signs mean negative correlation (Homer-Dixon 1999, 45-46). In Figure-2.1, I have followed this tradition. The figure, however, contains only those variables that are

arrows correspond to the starting and finishing points of causality. In what follows, I will describe the theoretical foundation of each of these causal relationships, and draw a series of hypotheses which will be subjected to empirical test in the dissertation.

Figure 2.1: Government response to natural disasters and legitimacy.



In the earliest work on disasters, Barnhart (1925), in a pioneering study of drought and the rise of the Populist Party in Nebraska (USA), made the connection between natural disasters and the notion of government responsibility. He wrote:

“[T]he drouth in Nebraska made a bad set of agricultural conditions worse and that the politicians were held responsible for some of the conditions. Perhaps some held them responsible for most of them.” (540)

Malhotra & Kuo (2008) show that in the wake of hurricane Katrina “citizens of all levels of political sophistication utilize[d] content-rich, relevant information to mitigate partisan bias in determining who [was] responsible when government actors fail[ed] to perform their duties competently” (Malhotra & Kuo 2008, 131).

of primary interest to this project, control variables are excluded from the diagram for simplicity’s sake.

A striking example of the idea that a government's response to a disaster event affects political legitimacy is the break-up of Pakistan in 1971 following the November 1970 cyclone. The cyclone devastated the southern part of East Pakistan adjacent to the Bay of Bengal.² Immediately after the cyclone, leading political figures and newspapers of East Pakistan accused Pakistan's central government of gross neglect in handling the crisis (O'Donnel 1984, Heitzman & Worden 1989, van Schendel 2009*a*). The cyclone event became a salient issue in the critical election of December 1970. The election was won by the the Awami League that had its main based of support in East Pakistan. The central government, located in West Pakistan, refused to accept the results of the 1970 national parliamentary election. The central government's refusal to accept the election eventually delegitimized the Pakistani system of government, especially to the Bengalis (Jahan 1972, Sobhan 1993). A full scale war of independence followed suit the next year (1971), which eventually gave birth to a sovereign state of Bangladesh (Cuny 1983, O'Donnel 1984, Thorp 1987, Albala-Bertrand 1993).

As indicated earlier, disasters do not deterministically undermine the support of political systems. While a poor quality response may hamper support, a better quality response can improve the situation of the government. As mentioned in the introduction, the case of Elbe flash flood of 2002 in Germany highlights this point. After the national election of 1998 in Germany, the popularity of the incumbent coalition government of the Social Democrats and the Green Party had declined. But, the popularity of the coalition government improved following the flood in Eastern Germany. This rising popularity was translated by Chancellor Schroder into an electoral win

²The cyclone, that hit East Pakistan on November 12, 1970, ravaged an area of almost 8,000 square kilometers (Heitzman & Worden 1989) and killed about 500,000 people. According to Drury & Olson (1998) the number ranges approximately between 300,000 and 400,000. They also note that "no one will ever know the exact number" (154). According to Olson & Gawronski (2010) it is about 500,000. A host of authors on the history of Bangladesh accept a number very close to the above numbers (see for example O'Donnel 1984, van Schendel 2009*a*)

(Bytzek 2008). Bytzek (2008) argues that the Schroder administration attacked the flood from two dimensions: operational dimension—deployment of resources, coordination efforts, planning and accomplishing evacuations—and psychological dimension—invoking a feeling in people’s mind that “the situation is serious, but the government can bring it under control” (Bytzek 2008, 90). She argues that a “crisis can have a positive impact on the government’s popularity if its crisis management performance strikes a systematic chord with voters” (90). Voters may perceive the crisis management action of their government as a symbolic action, and the speed of government response to crises increases the value of the symbolic action (Bytzek 2008). Studying the same event, Bechtel & Hainmueller (2011) report that voters remembered, for a number of years, the benefit that they received from the government in the wake of a disaster. For the German case, they estimate that “the flood response increased vote shares for the incumbent party by 7 percentage points in affected areas in the 2002 election [the flood occurred only about one month prior to the election]. Twenty-five percent of this short term reward carried over to the 2005 election before the gains vanished in the 2009 election” (Bechtel & Hainmueller 2011, 852).

In the above example, the government’s response to natural disasters played a critical role in citizen’s evaluation of their leaders. A well-managed response to a crisis might help an incumbent consolidate his or her popular support and reinvigorate the legitimacy of the system. But, by the same token, a weak response might weaken the government by imputing a disproportionate amount of blame on the government. I, therefore, hypothesize:

Hypothesis 1 *The lower the quality of government response to natural disasters the higher the risk of system legitimacy loss.*

The quality of government response may depend on the geographic location of the disaster, and the economic and political importance of the affected region to the government. The location of the disaster captures two factors that explain government response quality: First, if the location of the disaster is far from the center or the capital city of the government, the quality of government response might be lower. Many countries do not have the physical infrastructure that allows their governments to reach out to the people living in remote areas. Second, some locations of a country are politically more important to its government than other locations. For example, capital cities are politically sensitive for governments. Smith & Flores (2010 (July 15)) argue that it is particularly sensitive for autocrats. They observe that disasters in capital cities “may threaten autocrats, but high-casualty events elsewhere do not” (Smith & Flores 2010 (July 15), 1). It is reasonable to test if this is also true for democracies. In addition, there may be regions in a country that are affected by such incidents as insurgent movements, militancy, or rebellion. These incidents threaten domestic as well as national security of a country. Responding to a disaster that hits such a region is likely to be a top priority of a government. I, thus, formulate the following hypothesize:

Hypothesis 2 *The less the political and economic importance of the region (in terms of remoteness, level of socio-economic development, and national security value of the region), the lower will be the quality of government response.*

The third causal relationship considered in the framework indicates that the quality of government response depends on the characteristics of the political regime. A number of scholars have argued that democracies are far better than autocracies in preventing high casualties from disasters (Kahn 2005, Smith & Flores 2010 (July 15)). Pointing to earthquakes in Peru, Mexico, and Pakistan, Smith & Flores (2010 (July

15)) show that earthquakes often produce far higher casualties in non-democracies than in democratic political system. They argue that “lack of political will to confront disasters plagues non-democratic regimes, which, unlike democratic regimes, do not rely on popular support” (2). They observe that “democratically elected leaders are highly sensitive to casualties from natural disasters, but non-democratic leaders are not. And, indeed, the latter do a poor job of protecting their citizens from Mother Nature” (2). Based on these arguments, I offer the following hypothesis.

Hypothesis 3 *The overall government response quality will be higher in democracies than in autocracies, and higher in autocracies than in anocracies.*

The fourth causal relationship considered in the framework is between natural disaster and legitimacy. I conceptualize a natural disaster as a purely exogenous shock to the political system. Thus, in the framework, it is depicted as an exogenous variable that has a direct effect both on the quality of government response to the shock and on the legitimacy of the political system.

The hypothesized relationship between a disaster and legitimacy is motivated by the voting theory of blind retrospection, recently reinvigorated by Achen & Bartels (2004). They argue that voters “regularly punish governments for acts of God, including droughts, floods, and shark attacks. As long as responsibility for the event itself ... can somehow be attributed to the government in a story persuasive within the folk culture, the electorate will take out its frustration on the incumbents and vote for out-parties” (Achen & Bartels 2004, ii). They argue “in most cases, incumbents will pay at the polls for bad times, even in situations where objective observers can find little rational basis to suppose that those incumbents have had any part in producing the voters’ pain” (7). In an in-depth study of Woodrow Wilson’s vote loss in New Jersey in the election of 1916, they conclude that voters punished him because

a number of swimmers were killed by sharks in the bay, which they characterized as “natural disasters in the purest sense of the term” (18) . They find that “the actual vote change turns out to be a drop of 8.2 percentage points in the beach area, compared to a tiny 0.2 percentage point gain in the near beach” (18).

Therefore, whether due to blind retrospection or availability of a rare opportunity to wither autocrats, a natural disaster is expected to have a direct and negative impact on the legitimacy of the political system. However, this disaster-legitimacy relationship is contingent on the type of political regime. The literature that discusses the relationship between macro-economic and political crises argues that severe economic turmoil may prompt intense political aftershock in a country, but democratic countries can more effectively diffuse that shock than the non-democracies (Remmer 1996, Pei & Adesnik 2000). It is primarily because, in democracies, people can change an ineffective government during election time; they do not have to resort to more costly option of popular uprising, violent coups, or revolutions that are more common in the process of political change in non-democracies.

However, this literature emphasizes, the process of political change – in the context of poor performance of the government in managing economic crises – in democracies and authoritarian regimes do not follow similar logic. Pei & Adesnik (2000) suggest that authoritarian regimes may withstand economic crisis, even in the face of popular dissatisfaction with the performance of the incumbents, unless the regime is politically fragmented from within due to “popular resistance, intra-regime division, and strategic mistakes made by top leaders” (149).

Historical examples from China indicate that the direct effect of disasters on legitimacy can also be observed in autocracies. Historians of China (e.g. Mote 1999, Finer 1999, Perry 2002) highlight the critical role that disasters play in bringing down dynasties in Imperial China. Since the beginning of Zhou Dynasty (1046-256 BC), natural disasters have been interpreted as both portents of change and tests of the

government's 'Mandate of Heaven' – a sign of heaven's disfavor with whomever is in charge (Mote 1999).³ Observing this phenomena, Max Weber noted:

In China the charismatic quality of the monarch, which was transmitted unchanged by heredity, was upheld so rigidly that any misfortune whatever, not only defeats in war, but drought, floods, or astronomical phenomena which were considered unlucky, forced him to do public penance and might even force his abdication. If such things occurred, it was a sign that he did not possess the requisite charismatic virtue and was thus not a legitimate "Son of Heaven" (Weber [1954] 1978, 243).

This implies that in the absence of an institutional means to replace an unpopular government, disasters provided opportunities for the people and aspirant power elites to challenge the legitimacy of the incumbent rulers, who could not be overthrown otherwise. Many peasant revolts that occurred in Chinese history attest to this observation. The peasant revolt of 1368 that eventually overthrew the Mongol rule (Yuan Dynasty) followed by a series of disaster events that crippled the agriculture sector of the Empire. The peasants – who were already unhappy about the relationship they had with the Mongol rulers – took the chance provided by the disasters to question the validity of the rulers' mandate and were able to toppled them (Mote 1999).

In Figure-2.1, thus, this disaster-legitimacy relationship is conditional upon political regime types. I express this relationship as the following hypothesis:

³The 'Mandate of Heaven' doctrine was often invoked by philosophers and scholars in ancient China as a way to curtail the abuse of power by the ruler, in a system that otherwise offered no other check to this power. The Mandate of Heaven postulates that heaven (Tian) would bless the authority of a just ruler, as defined by the Five Confucian Relationships, but would be displeased with a despotic ruler and would withdraw its mandate, leading to the overthrow of that ruler. The Mandate of Heaven would then transfer to those who would rule best. The mere fact of a leader having been overthrown is itself indication that he has lost the Mandate of Heaven. See Mote (1999), Finer (1999), and Perry (2002) for details about 'mandate of heaven' and its connection to government or dynastic legitimacy and natural disasters

Hypothesis 4 *Natural disasters will negatively affect legitimacy of the political system, conditional upon the effects of political regimes.*

The above theoretical framework uses three major concepts. They are: natural disasters, legitimacy, and quality of government response. In the next section, I discuss definitions and measures of these concepts in turn.

Major Concepts

In the current section, based on relevant literatures, I first conceptualize the major terms used in the theoretical framework. I then discuss how I operationalize each of these concepts for empirical investigations of the disaster-legitimacy relationship to be done in Chapters 3 through 6.

Natural Disaster

I will use the term ‘natural disaster’ to indicate such hydro-meteorological events as a hurricane, typhoon, tornado, strong storm, extreme weather (cold or heat wave) event, flood and draught, and such geological events as an earthquake, tsunami, mudflow, landslide, and volcano. As a consequence of such a shock, a country suffers in terms of loss of life and property, and in many cases involuntary displacement occurs. If the shock is a minor one, the local authorities are able to cope with it by means of their local communal support system; they may not seek help from external sources such as their (central) government or international communities. For my purpose, however, to be considered a “disaster”, the magnitude of these shocks has to be such that local authorities, using their local organizations and knowledge, cannot manage by themselves. They must call for outside assistance.

The above conceptualization of a disaster is starkly different from a previous strand of scholarship that defines a disaster as endogenous to the society, not as an

exogenous shock. For example, looking at disasters from a vulnerability and development perspective, Kenneth Hewitt (1983) argues that poverty is a major causal explanation of disasters. Thus, restructuring of social, political, and economic relations to reduce the conditions of poverty will reduce disasters. From a cultural perspective, Dennis Mileti (1999) argues that culture is the major determinant of disaster. In order to reduce disasters, thus, for Mileti, beliefs and behavior must be altered to increase rationalization and bureaucratization of social interactions.

According to Cohen & Werker (2008), “disasters involve a stochastic negative shock, the severity of which can be affected through a process of prevention and relief” (796). Then they distinguish between shocks and disasters: “shock refers to the natural act itself—the volcanic eruption, earthquake, drought, and so on—and disaster refers to the net impact of the shock on the population” (796). In the discussion to follow, I denote these “shocks” as natural disasters (briefly, disasters), and purposefully leave the impacts to be observed empirically.

Empirically, I will use the operational definition of a disaster provided by the Centre for Research on the Epidemiology of Disasters (CRED). According to this definition, an event is a disaster event if one or more of the following criteria are met: (1) Ten or more people reported killed, (2) one hundred people reported affected, (3) it leads to the declaration of a state emergency, and/or (4) it leads to call for international assistance (CRED 2007). The number of people killed includes “persons confirmed as dead and persons missing and presumed dead”; people affected are those “requiring immediate assistance during a period of emergency i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance” (CRED 2007, website).⁴

⁴For a similar classification, see Gad-el-Hak (2008)

Based on the above criteria, CRED has collected an extensive dataset of natural and technological disasters that occurred throughout the world from 1900 to 2010. This data is maintained as Emergency Event Database (EM-DAT), and is available for public use at the website: www.emdat.be. The natural disaster part of the dataset consists of extensive information regarding country, types of disasters (geophysical, meteorological, hydrological, and climatological), start and end date of the disaster, number of people killed, injured, homeless, affected, estimated economic damage (measured in \$US). For some of the events such detailed information as latitude, longitude, and location of the disaster, status of international assistance, and estimates of different sectors affected is also provided (Below & GUHA-SAPIR 2009, appendix). The natural disaster related figures that I presented in the Introduction Chapter are based on these data. The CRED collected these information from such sources as UN agencies, US Government agencies, official government sources, International Federation of Red Cross and Red Crescent Societies (IFRC), research centers, Lloyd's, Reinsurance sources, press, and private sources. I will use this dataset in Chapter 3.

Legitimacy

The idea of legitimacy has long preoccupied political theorists. Modern political theorists, from Machiavelli (1903) to Weber ([1946] 1958, [1954] 1978) to Rawls (1993), have presented several competing, as well as complementary, ways of envisioning what makes a political system legitimate.

Max Weber is probably the first to have approached legitimacy from an empirical perspective. Weber ([1946] 1958, [1954] 1978) put legitimacy at the center of his analysis of social institutions and authority, particularly the state. He defines a state “as a human community that (successfully) claims the monopoly of the legitimate use of physical force within a given territory. ... the state is a relation of men dominating men, a relation supported by means of legitimate (i.e. considered legitimate) violence.

If the state is to exist, the dominated must obey the authority claimed by the powers that be” (Weber [1946] 1958, 78). The population living within the territory must develop a belief in such monopolistic claim over physical force or violence in order for the ‘human community’ (or the state) to be legitimate. According to Weber, there might be three reasons why the population would develop such a belief (of “three inner justifications” of domination): people obey as a matter of habit (“traditional domination”), as a matter of absolute belief in the “personal gift of grace” of the leader of the state (“charismatic domination”), and as a matter of the “belief in the validity of the legal statute and functional competence based on rationally created rule” (Weber [1946] 1958, 78-79).

Weber recognizes that popular belief in the authority is not automatic. The dominant authority makes a conscious effort at creating such a belief. He argues that “every system of authority attempts to establish and to cultivate the belief in its legitimacy” (Weber [1954] 1978, 213). And, this ‘belief’ can be established through effective performance in providing ‘material welfare’ to the governed. He argues: a ruler “will usually attempt to support his regime by an organization of officials which functions promptly and efficiently. He will attempt to consolidate the loyalty of those he governs either by winning glory and honor in war or by promoting their material welfare, or under certain circumstances, by attempting to combine both” (Weber [1954] 1978, 267). In Weber’s analysis, legitimacy and performance are two distinct, but highly related concepts.

Lipset’s (1957) conceptualization of legitimacy and effectiveness echoes this connection between legitimacy and performance. For him “legitimacy involves the capacity of the system to engender and maintain the belief that the existing political institutions are the most appropriate ones for the society” (p. 64), and “effectiveness means actual performance, the extent to which the system satisfies the basic functions of government as most of the population and such powerful groups within it as big

business or the armed forces see them” (p. 64). Countries with high legitimacy and high effectiveness are the most stable political systems. Stability breaks down when the system fails to perform effectively and satisfactorily over a long period of time. On the other hand, when a system consistently does better in the effectiveness dimension over a number of generations, it automatically earns the legitimacy required to be stable.

Pye (1971) defines “a legitimacy crisis as a breakdown in the constitutional structure and performance of government that arises out of differences over the proper nature of authority for the system. Basic to a legitimacy crisis is a change in the way in which governmental authority is conceived or itself acts” (Pye 1971, 136). He notes that “a legitimacy crisis is not associated with the disappearance of one form of authority and the establishment of another, but rather with a change in the mixture of institutional legitimacy and the personal legitimacy of rulers” (p. 149).

It is apparent in the above review that although legitimacy (belief in authority) and performance of the authority are related ideas, conceptually legitimacy stands alone. I identify the following elements of legitimacy in the above review of definitions: existence of formal authority that is exercised by a group of elites (call it government), belief of the masses about the exercise of the authority by the government, and demonstration of loyalty to the authority by the masses based on their belief.⁵

⁵Legitimacy, like many social science concepts, cannot be measured directly. Bollen & Lennox (1991) call such concepts ‘latent concept’. According to them, there are two approaches to measurement of a latent concept: first, constitutive variable approach, where one uses lower order constitutive variables to define the higher order concept. In the present case, one would measure each of the elements of legitimacy identified above as variables. The idea here is that change in these lower order variables causes the change in the higher order variable, legitimacy. The second approach is called substitutive approach, where one chooses variables that conceptually correlates with the latent variable. In the present case, the variables such as political instability and protest movements are examples of substitutive approaches. For the quantitative part of my research, I will measure legitimacy using the substitutive approach, particularly because data for constitutive variables of legitimacy is not available.

If the people believe that the authority of the government is no longer legitimate, they may attempt to replace the leadership. In democracies, people get an opportunity to replace incumbents through elections. Removal of autocratic leadership occurs by such methods as assassination, coup d'état, or forcing the leader into exile. In anocracies, where there exists a complex mix of the features of a democracy and an autocracy (Fearon & Laitin 2003, 81), lack of legitimacy might express itself either in terms of electoral defeat of the leadership, or assassination, forced abdication, or exile.⁶ Whether it is a peaceful procedural turnover of the democratic government or violent overthrow of the dictator, the end result is government instability. The lower the legitimacy of the government, the higher the instability of the system.

Lack of legitimacy can also be identified by observing protest movements. These protest movements can range between high violence and non-violence. According to Gurr (1971, 185), political violence is “strongly and inversely correlated with the intensity and scope of regime legitimacy”. The level of violence, however, will also depend on the characteristics of the regime. According to Jackman (1993) levels of political violence are positively correlated with a regime’s repressiveness. “The more that the state has successfully incorporated a pluralistic society into the political process, the less that protest or other political actions should involve violence” (Gilley 2009*b*, 9).

⁶According to Fearon & Laitin (2003, 81) anocracy is a “regime that mixes democratic with autocratic features”. It is a type of regime that “permits some means of participation through opposition group behavior but that has incomplete development of the mechanisms to redress grievances” (Regan & Bell 2010, 3). Generally, anocracies are operationally defined as those regimes that fall between - 5 and + 5 (inclusive) on the POLITY IV scale (the “polity2” variable) (Marshall & Gurr 2003, Fearon & Laitin 2003, Marshall, Gurr & Jagers 2010).

Government Response Quality

Differentiating phases or dimensions of disaster response has been one of the most controversial topics in the broader disaster management literature.⁷ Despite the controversy, scholars tend to agree on at least three major phases of disaster response: preparedness, immediate response, and long-term response (e.g. Britton 2006, McEntire 2006, Porfiriev 2006, Tierney 2006, Boin, Hart, Stern & Sundelius 2005, Tierney 1985, Dynes 1970).⁸ These are time-ordered phases of a disaster response (Elkholy & Gad-el-Hak 2008). Preparedness includes such activities as early warning, evacuation, and protective measures. Immediate response refers to the time period when responders undertake such activities as rescue and relief operations. And, long-term response indicates a time period after the immediate response is terminated and distant from the date of the event occurrence, when responders take recovery and rehabilitation initiatives to help victims settle back into their communities. I return to these in Chapter 4.

In the rest of the dissertation, I use the above conceptualization of the theoretical terms in developing empirical approaches to test the disaster-response-legitimacy relationships as depicted in the theoretical framework. I begin with hypothesis 4 that expects a general and direct relationship between natural disasters and government legitimacy. In Chapter 3, I test this general hypothesis within a large-N, statistical setup.

⁷For a review of this controversy, see Neal (1997), the special issue on the topic in *The International Journal of Mass Emergencies and Disaster* (1995), an edited version of which is available in a book form by Quarantelli (1998)

⁸In the literature, Russell Dynes (1970) is commonly referred to for such a temporal categorization of disaster periods. For him, disaster periods are – before a disaster strikes, while a disaster strikes, and after a disaster strikes.

CHAPTER 3

EFFECTS OF DISASTERS ON GOVERNMENT LEGITIMACY: AN AGGREGATE LEVEL ANALYSIS

Introduction

Do natural disasters such as earthquakes, epidemics, droughts, floods, hurricanes, extreme temperature, and volcanic eruptions increase the short-run risk of a legitimacy crisis of a government? The question is derived from the theoretical framework presented in chapter 2, where I conceptualized disasters as purely exogenous natural shocks that, as presented in Hypothesis 4, increase the risk of anti-government domestic political events. In the current chapter, I address the question at the aggregate level by submitting the hypothesis to a series of statistical tests using information about disasters and anti-government activities occurring from 1990 to 2010 in 157 countries.

Consider the Syrian uprising of 2011 as an illustrative example of the causal claim that natural disasters adversely affect a government's legitimacy. From 2007 to 2011, Syria suffered a prolonged spell of drought that severely affected the eastern and southern parts of the country. According to a United Nations (UN) based humanitarian news agency¹, the drought encompassed up to sixty percent of Syria's agricultural land causing severe crop failure and water scarcity that affected 1.3 million people (of a population of 22 million). The disaster stripped over 800,000 people

¹Integrated Regional Information Networks (IRIN), Humanitarian news and analysis, a service of the United Nations Office for the Coordination of Humanitarian Affairs. See the IRIN report "SYRIA: Drought driving farmers to the cities" at <http://www.irinnews.org/Report/85963/SYRIA-Drought-driving-farmers-to-the-cities>, accessed May 1, 2012. Also see Erian, Katlan & Babha (2011) for an in depth analysis of the direct impacts of the drought.

of their entire livelihood and forced more than 60,000 people to migrate from the affected rural region to the urban areas.²

The drought posed dual challenges to the Bashar al-Assad regime. First, the sudden migration created serious social problems in urban areas around Damascus and Aleppo including, but not limited to, rising levels of poverty, increased crime, higher prices of everyday commodities, and shortages of drinking water and food. The already corrupt and failing administration struggled to manage these increased pressures in the urban areas (Worth 2010). Second, as the drought affected the rural population, who were aggrieved due to the government's inattentiveness of their situation, they became increasingly restive.

At least for a time, the repressive Syrian regime was able to successfully keep the cities clean of protesters, but it could not subdue the countryside (Al-Tamimi & Svadkovsky 2012). In January of 2011, villages and towns of the eastern and southern periphery of the country, particularly in Deraa province, started erupting into protests and violence against government establishments in demand of an end to the Al-Assad regime (Al-Tamimi & Svadkovsky 2012). The regime was overstretched and struggling to contain such a widely geographically distributed and increasingly militarized unrest. More critically for the regime, the challenge of defending the country's energy infrastructure over vast expanses of such a big country seems to have overwhelmed the Syrian army as protesters' attacks on oil and gas pipelines escalated (Al-Tamimi & Svadkovsky 2012). Through 2012, the protests against President Bashar al-Assad continued, despite the violent crackdown by the government that, as of November 30, 2012, killed more than 60,000 people, according to a United Nations estimate.³

²The IRIN report "SYRIA: Drought driving farmers to the cities"

³See "Data suggests Syria death toll could be more than 60,000, says UN human rights office", United Nations News Centre <http://www.un.org/apps/news/story.asp?NewsID=43866#.UV5I7HAXhzo>

Internationally, there has been widespread condemnation and calls for Assad to step down.⁴

Uprisings in response to a government's poor handling of a disaster are by no means unique to Syria. Past research and journalistic accounts of disasters have documented ample anecdotal evidence about the occurrence of such political events as anti-government demonstrations, political assassinations, *coup d'état*, revolutions, riots, and internal armed conflicts in a post-disaster context. For example, the 1976 earthquakes in Guatemala and Nicaragua jeopardized the survival of the governments in these counties largely due to popular discontent over the way that disaster response was organized (Ferris 2011). In Chapters 2 and 3, I mentioned more contemporary examples of disaster cases that were followed by anti-government political activities.

Despite these historical and contemporary cases, there are surprisingly few studies that systematically explore how natural disasters affect the legitimacy of governments. Traditional literature on disaster management tends to focus on pre- and post-disaster mitigation, characteristics of vulnerability present in a society and their sources, administrative challenges involved in responding to disaster events, disaster management, and efficiency in disaster aid and relief distribution (e.g. Rodriguez, Quarantelli & Dynes 2007, Cutter 2006, Brooks & Adger 2003). The question about the various political stresses that disasters might inflict on governments has received inadequate attention in the disaster literature. This question has received remarkably little attention in political science too. As I have highlighted in chapter 2, the literature on crisis and political breakdown (e.g. Linz & Stepan 1978, Binder et al. 1971, Pei & Adesnik 2000), political instability and regime change (e.g. O'Donnell 1973, Linz & Stepan 1978, Gasiorowski 1995, Haggard & Kaufman 1995, Przeworski et al. 2000,

⁴See Voice of America news titled "Syrian Violence Kills 36; Arab Leaders Back Peace Plan" at <http://www.voanews.com/english/news/Baghdad-Summit-Weighs-Syria-as-Violence-Continues-144921495.html>

Dunning 2005), legitimacy (e.g. Gilley 2009*a*, Beetham 1991, Lipset & Schneider 1983, Pye 1971, Lipset 1959), and government survival (e.g. Remmer 1996, de Mesquita et al. 2003) have been generally oblivious to systematic examinations of whether distress inflicted by natural disasters increases the likelihood of popular resistance to political regimes, whether the rate of natural disasters in a society positively or negatively affects the way people evaluate their governments, and whether such evaluations cause violent political events which may lead to breakdown of a regime.

Among the very few scholars who do consider the relationship between natural disasters and political and social unrest, Drury & Olson (1998) provided one of the first statistical treatments of the disaster-political unrest relationship. They found statistically significant results that validate the “direct and positive linkage between disaster severity and ensuing levels of political unrest” (Drury & Olson 1998, 153). However, they used a small sample size of only 12 countries covering 14 years, which may raise questions about the generalizability of the the disaster-political unrest relationship (Nell & Righarts 2008). Furthermore, their aggregate measure of natural disaster does not differentiate between various types of disasters such as flood, drought, earthquake, volcanic eruption, hurricane, extreme temperature, and epidemic. They combined demonstrations, riots, armed attacks, and strikes into an aggregate measure of political unrest, which did not allow them to show what kind of political unrest is more likely to occur given a particular kind of natural disaster. More specifically, Drury & Olson’s (1998) results do not tell us, given a flood, if a society is more likely to observe riots or demonstrations.

As another example of research in this tradition, Brancati (2007) focuses on the risk of anti-regime rebellion and civil war caused by earthquakes using a large dataset that covered the period between 1975 and 2002. Her study, however, is limited to earthquakes and violent-intrastate conflict. Nell & Righarts (2008) examined if natural disasters increase the risk of violent civil conflict by extending the research

design of Brancati (2007) to include all natural disasters occurring between 1950 and 2000. They differentiate between geological and climate related natural disasters, but do not narrow the categorization of disasters down to specific types such as floods, hurricanes, or earthquakes. Their research cannot respond to the question of whether a society is at risk of observing a civil conflict given a specific disaster event, for example, a flood, or whether earthquakes are more or less likely to increase the risk of civil conflict compared to other disaster types such as volcanic eruptions.

In general, these studies indicate that disasters heighten public dissatisfaction with government and inflict stress on a political system, especially in the form of violent civil conflicts. Other outcomes considered in this chapter are revolutions (forced overthrow of top government elites), riots (large-scale violent demonstrations), guerrilla warfare (armed activity targeted at overthrowing the present regime), and assassinations of government officials or politicians.⁵ More peaceful ‘anti-government demonstrations’ are also considered here as political stress outcome. For example, after the 2008 earthquake in China that killed more than 10,000 children, mass protests broke out over building code violations and poor construction of public school buildings (Wong 2008). Adequate understanding of the relationship between disasters and legitimacy crisis, thus, requires knowledge about how disasters affect the risk of occurring various forms of anti-government activities, both violent and nonviolent. In this chapter, I aim at meeting this need by putting Hypothesis 4 (re-asserted below) to a series of statistical tests embedded within regression analyses.

H 4. Holding all else constant: An increase in the number of disasters increases the risk of government legitimacy crisis by increasing the risks of anti-government domestic political activities.

⁵The definitions of these events are adopted from Arthur Banks’ Cross National Time Series Data Archive (see Banks 2011).

In order to test the effects of disasters on legitimacy crises I rely on a set of measures of the anti-government activities mentioned above as proxies for legitimacy crisis. I decompose the hypothesis into several working hypotheses. The first working hypothesis is about the effect of disasters on a summary measure of domestic political crisis, call it ‘domestic crisis’, that aggregates measures of five of the anti-government activities mentioned above – anti-government demonstration, revolutions, riots, guerrilla warfares, and assassinations. The subsequent hypotheses postulate the effects of disasters on each of these anti-government activities separately. The final hypothesis is about the effects of disasters on intrastate conflicts, a measure of the extreme form of domestic anti-government activities. While evaluating each of these seven working hypotheses, I consider both a summary measure of disasters that aggregates eight different types of disasters events – earthquakes, epidemics, extreme temperature events, floods, storms, volcanic eruptions, landslides, and other types – as well as separate measures of each of these disasters types.

H 4.1. [The general case] An increase in the number of disasters increases the risk of a domestic political crisis.

H 4.2. An increase in the number of disasters increases the risk of anti-government demonstrations.

H 4.3. An increase in the number of disasters increases the risk of riots.

H 4.4. An increase in the number of disasters increases the risk of revolutions.

H 4.5. An increase in the number of disasters increases the risk of assassinations.

H 4.6. An increase in the number of disasters increases the risk of guerrilla warfares.

H 4.7. An increase in the number of disasters increases the risk of intrastate conflict.

The objective of the current exercise is to find a general pattern in the relationships between disasters and various types of anti-government domestic political

activities that either represent or lead to a government legitimacy crisis in the context of the natural disaster. The results of a series of zero-inflated negative binomial regressions provide support for of the above working hypotheses, except for H 4.5 regarding political assassinations: Disasters, in general, increase the risk of government legitimacy crisis measured in terms of anti-government domestic activities. Although the coefficients of the regressions are small, the tests show a systematic relationship consistent with my predictions. The estimated substantive effects of disaster counts on domestic anti-government activities (except assassinations) are non-negligible. The results remain robust in alternative specifications of the regression equations.

The current chapter proceeds as follows: I present a zero-inflated negative binomial regression model as an appropriate empirical approach for the analysis of discrete and rare political crisis events. I then describe the dependent, explanatory, and control variables; the measurements and data used; and provide a discussion on the results of the empirical exercise in two steps – effects of natural disasters as a general case, and effects of specific disaster types. A discussion about robustness of the model specification and the results follows. The chapter concludes with a summary of the major findings and a general discussion on the results. I present all of the relevant tables and figures under ‘Appendix for Chapter 3’, at the end of the current chapter.

Empirical Approach

I test the above hypotheses using a large N pooled cross-sectional research design with country-year as the unit of analysis. The analysis includes all independent states under the current international system from 1990 to 2010 inclusive, for which data on both the dependent and the independent variables are available. This yields

observations about 157 countries.⁶ A list of these countries is presented in Table 3.1 found at the end of this chapter. This section provides operational definitions of the major concepts of interest, identifies indicator variables, and describes the data and estimation models to be used in the analysis.

< Enter Table 3.1 (see page 66)>

Dependent Variables and Estimation Techniques

Dependent Variables: The central phenomena of interest here is the occurrence and severity of a government legitimacy crisis. In chapter 2 (under concept and measurement section), I emphasized that ‘demonstration of loyalty to the authorities (read government) by the masses is a critical element of the legitimacy of a government. Given a sudden crisis event, such as a natural disaster, political authority may react in a variety of ways.⁷ If the government is perceived by people to have failed to react to the event as expected, and the people believe that the authority of the government is no longer legitimate, they show their contempt by mobilizing collective protest against the government. In the process, the level of violence may rise to the extent of domestic armed struggle with the government. In other words, people’s reaction to a perceived illegitimate government may range from simple protest movements

⁶I started with 217 countries, but missing data found especially in the *polity2* measure (Marshall, Gurr & Jaggers 2010) and the per capita GDP (World Bank 2012, Heston, Summers & Aten 2011) reduced the dataset to 157 countries.

⁷Political reaction of government may range from inaction (ignoring the event) to overreaction (declaring state of emergency and suspending all civil rights), from politically prudent decision to treat all affected groups equally to biased treatment in favor of a group at the cost of another, from keeping the management of the disaster strictly within the central authority to initiating a quick devolution of disaster management (immediate response, relief operations, rehabilitation, and reconstruction) to the local, non-governmental, and international authorities.

expressing common frustrations and grievances to a violent civil war with the goal of overthrowing the government and replacing the political system in general.⁸

In order to capture this gradient nature of anti-government domestic mass political action, I rely on a set of anti-government domestic political activity measures as proxies of a legitimacy crisis, the dependent variable of this study. I use six such measures: ‘anti-government demonstrations’, ‘revolutions’, ‘riots’, ‘guerrilla warfare’, ‘assassinations’, and intrastate civil conflict.⁹ Operational definitions of these variables are presented in Table 3.2 (see page 69). The first five variables are derived from Arthur Banks’ Cross National Time Series Data Archive (CNTS)¹⁰ where they are listed as part of the ‘Domestic Conflict Event Data’. The ‘intrastate civil conflict’ indicator comes from the Armed Conflict project hosted jointly at Uppsala University, Sweden and the International Peace Research Institute, Oslo (UCDP/PRIO 2011, Gleditsch et al. 2002, Themnér & Wallensteen 2011).¹¹ These

⁸In democratic countries, at least where regular elections take place as means of government change, people’s reaction may also include simply voting the incumbents out of office. However, in this chapter, I do not look at electoral outcome change facilitated by disasters, although I take into account the effects of regime type by using data from the Polity IV project (Marshall, Gurr & Jaggers 2010) in the regression models.

⁹Here I do not consider *coup d’etat* because coups are qualitatively different phenomena than the other five indicators. In most cases, coups indicate military (direct or indirect) takeover of the government, where civilians rarely play any active role.

¹⁰Note that in the user’s manual Banks (2011) acknowledges the limitation of the data collection procedure and emphasizes the appropriateness of macro-analysis of the data: “because these data are based on newspaper reports [mostly *New York Times*], they are somewhat biased geographically and limited in comprehensiveness. Other distortions are attributable to venues not deemed clearly domestic, such as the Israel Palestinian conflict. For these and other reasons, the contents of this segment should be used with extreme caution and, in general, only for macroanalytic purposes” (11).

¹¹Iqbal & Zorn (2008) argue that, as a group, ‘revolutions’, [‘crises’], ‘coups’ and ‘guerrilla warfare’ are more violent and intense anti-government domestic civilian activities than the group consisting of ‘strikes’, ‘riots’, and ‘demonstrations’, whereas ‘intrastate conflict’, a component measure of civil war, is the most extreme form of anti-government or anti-systemic domestic political activity.

six indicators are treated as separate dependent variables. In addition, I combine the first five indicators (anti-government demonstrations, revolutions, riots, guerrilla warfare, assassinations) from the Banks's dataset to create the seventh variable that measures 'domestic crisis' in general terms. I leave out intrastate armed conflict from this calculation, since some of the incidents captured in Banks's indicators may overlap with those of the UCDP/PRIO's intrastate armed conflict.

< Enter Table 3.2 (See page 69) & Table 3.3 (see page 71)>

Each of these dependent variables counts the number of times anti-government domestic political events occur in a country in a given year. For example, as shown in Table 3.3, on average a country, within the sample considered in this study, observed about one (1.14) domestic crisis events per year. While about 65% of the country-years in the sample did not observe any crisis event (0 is the minimum), Indonesia observed the highest count of crises in 1998 alone, a total of 36 domestic crises of which 24 were anti-government demonstrations. In terms of observing the highest counts of crisis events, Cambodia, Mexico, and Turkey observed 9 revolutions in 1995, Russia observed 19 riots in 1990, Iraq observed 4 guerrilla warfares in 2005, Colombia observed 26 assassinations of political figures in 2004, and India observed 8 intrastate conflicts in 1997.

Estimation Technique: The variables described above are neither continuous nor normally distributed. Thus, imposing a linear regression model on them may result in inefficient, inconsistent, and biased estimates (Long 1997). The usual model choice under such circumstances comes from a class of non-linear models that are based on such distributions as poisson, negative binomial, gamma, or a mixture thereof. Table 3.3 demonstrates that these variables also have variances that are greater than their

respective means, a situation known as over-dispersion, which in combination with concerns about heterogeneity (due to country based clustering) favors negative binomial models over simple poisson models (Long 1997, Greene 2011, Hilbe 2011). Since nations experience these events rarely, these variables capture what King & Zeng (2001) call ‘rare events’ data where we observe more non-occurrence of events than occurrence. The event counts range from zero to an integer, where zeros represent non-occurrence of events. Figure 3.2 demonstrates that these variables, as measured by Banks (2011), contain a disproportionate number of zeros. For example, ‘anti-government demonstration’ has zeros in 76.8 percent of the total 3345 observations, ‘revolutions’ has 82.7 percent zeros, ‘riots’ has 86.4 percent, ‘guerrilla warfare’ has 90.6 percent, and ‘assassination’ has 89.4 percent zeros. Greene (1994, 1) warns that these excess zeros “masquerade as over-dispersion”. Thus a regression model must account for the occurrences of these zeros. A simple negative binomial model, however, is incapable of achieving this goal. The appropriate model for such data is the Zero Inflated Negative Binomial (ZINB) model that provides a way of modeling the excess zeros in addition to allowing for over-dispersion (Long 1997, Greene 2011, Hilbe 2011).

< Enter Figure 3.2 (See page 63)>

In this chapter, I utilize a version of ZINB that uses a ‘negative binomial two’ (known as NB2) process for the count outcome variables mentioned above, and a logit link function for predicting zeros (Hilbe 2011, chapter 11.3). For each observation, there are two possible data generation processes; the result of a Bernoulli trial determines which process is used. For observation i , process 1 is chosen with probability ψ_i and process 2 with probability $1 - \psi_i$. Process 1, the *inflation* part, generates only zero counts, whereas process 2 generates counts from a count distribution, in this case the negative binomial distribution. Given $g_1(\cdot)$ the density of the binary

process (logit equation) and $g_2(\cdot)$ the count density (NB2), if $g_1(0)$ is the probability of the binary process taking value 0, then $y = 0$. If $1 - g_1(0)$ is the probability of the binary process taking value 1, then $y \geq 1$ that follows the density $g_2(\cdot)$. Then, the probability density function¹² is

$$f(y) = \begin{cases} g_1(0) + [1 - g_1(0)] | g_2(0) & \text{if } y = 0, \\ [1 - g_1(0)]g_2(y) & \text{if } y \geq 1 \end{cases}$$

In order to estimate the dependent variable using this specification it is necessary to identify the variables that affect the binary process of (non) occurrence of anti-government domestic political events, and also, the variables that affect the counts of anti-government domestic political events. The equations, thus, are as follows:

$$\begin{aligned} \text{Logit (inflation equation)} : & \quad g_1(\cdot)_i = \mathbf{z}\beta_1 + \epsilon_i \\ \text{Negative binomial (count equation)} : & \quad g_2(\cdot)_i = \mathbf{x}\beta + v_i \end{aligned}$$

where \mathbf{z} and \mathbf{x} are predictors, β_1 signifies the binary component of the linear predictor and β signifies the count component, and ϵ_i and v_i are model specific error terms.

Explanatory Variables: Natural Disasters

Center for Research on the Epidemiology of Disasters (CRED) reports various characteristic information of every natural disaster identifying their origin and end time, types, country location, and immediate consequences in terms of number of

¹²The log likelihood function can be give as follows (based on Hilbe (2011, 372)):
if $(y = 0) : \sum_{i=1}^n \left\{ \ln \left(\frac{1}{1 + \exp(-x'_i \beta_1)} \right) + \frac{1}{1 + \exp(x'_i \beta_1)} \left(\frac{1}{1 + \alpha \exp(x'_i \beta)} \right)^{\frac{1}{\alpha}} \right\}$;
if $(y > 0) : \sum_{i=1}^n \left\{ \ln \left(\frac{1}{1 + \exp(-x'_i \beta_1)} \right) + \ln \Gamma \left(\frac{1}{\alpha} + y_i \right) - \ln \Gamma(y_i + 1) - \ln \Gamma \left(\frac{1}{\alpha} \right) + \left(\frac{1}{\alpha} \right) \ln \left(\frac{1}{1 + \exp(x'_i \beta)} \right) + y_i \ln \left[1 - \left(\frac{1}{1 + \alpha \exp(x'_i \beta)} \right)^{\frac{1}{\alpha}} \right] \right\}$,
where β_1 signifies the binary component linear predictor, and β signifies the count component.

people killed, affected, and total amount of property damaged.¹³ In this study, I am interested in four disaster related variables – I aggregate the number of natural disasters (disasters (count)), number of people killed (killed), number of people affected (affected), and total economic damage inflicted by disasters measured in US million dollars (damage) at the country-year level for the time period of the study, from 1990 to 2010. I also decompose disasters into eight variables each representing a type of disaster as classified in the EM-DAT database. These disaster types are earthquake, epidemic, extreme temperature, flood, storm, landslides, volcano, and others. All other types are collapsed into the ‘other’ category, particularly due to their extremely low occurrence rate in the dataset. One such disaster type is drought that occurred only 2 times in the entire dataset consisting of 4570 observations.¹⁴

Like the dependent variables, the disasters (count) and disaster types variables count the number of disaster events that occur in a country per year between 1990 and 2010. As shown in Table 3.3, on average a country observes more than one (1.35) disaster event per year. While a country in a given year may have no disasters, some countries, among the ones considered here, observed a dramatic number of disaster events in a year. For example, China observed 36 disasters in 2006, of which 20 were floods. The country observed 11 earthquakes in 2003 and 8 landslides in 2010. Nigeria observed 7 epidemics in 2006, the USA observed 26 storms in 1992. These are maximum counts in the respective categories in the sample, as shown in Table

¹³CRED collected these information from such sources as UN agencies, US Government agencies, official government sources, International Federation of Red Cross and Red Crescent Societies (IFRC), research centers, Lloyd’s, Reinsurance sources, press, and private sources. I will use this dataset for the purpose of my dissertation (CRED 2007, website).

¹⁴When considered in regression setup, this number reduces to 3240 due to missing data in the ‘polity2’ variable. It further reduces in the vicinities 3040 depending on the dependent variables considered.

3.3. From these disasters, a typical country observed about 325 people killed, 685071 affected, and 347 million US dollar in economic damage per year.

Control Variables

For the count part of the model, I use two control variables (\mathbf{x}_i): per-capita Gross Domestic Product (GDP) and regime characteristics (PolityIV). See Table 3.3 for summary statistics of these variables. The per capita GDP is measured every year in international constant US dollars of 2000.¹⁵ This measure of GDP is retrieved from the World Bank's World Development Indicator (WDI) database (World Bank 2012).¹⁶ From 1990 to 2010, the average per capita GDP for the 157 countries that are included in this study is \$7023.24 (with standard deviation 11562), ranging from \$57.84 (Liberia, 1995) to \$74901.42 (Qatar, 2010).

Inclusion of per capita GDP into the model is motivated by the development-conflict literature (Fearon 2008, Collier & Hoeffler 2004, Collier 2007) that suggests that countries with high per capita GDP, a standard proxy for economic well-being, are less likely to participate in ethnic and civil wars. In their prediction of civil war onset, Collier & Hoeffler (2004), for example, find that per capital GDP has a negative relationship with civil war onset, in both the opportunity as well as the combined opportunity and grievance models (see also Collier, Hoeffler & Sambanis 2005, Table 1.5).¹⁷ Fearon & Laitin (2003) also find a negative relationship between per capita

¹⁵As I mentioned in a previous footnote, to reduce the amount of data loss due to list wise deletion, I use the Penn World Table income data. The Penn data is measured in constant US dollar of 2005.

¹⁶The WDI does not provide complete GDP data for all the countries and years considered here. As a result, list wise deletion reduces the number of observation (country-year) to an extent that is non-negligible. Thus, following Fearon (2010), I have used the Penn World Table (Heston, Summers & Aten 2011) to complement the WDI data.

¹⁷They have use both per capita GDP growth rate and natural log of per capital GDP. Fearon & Laitin (2003), however, use non-logged GDP per capital. In the natural disaster

income and onset of ethnic war and civil war. Following this literature, I expect that countries with higher per capital GDP are less likely to observe anti-government domestic political activities.

The second control variable in the count part of the model is the political regime characteristics. I use the Polity IV (Marshall, Gurr & Jaggers 2010) dataset to characterize regimes. The dataset contains regime information about all nations for the time period under study.¹⁸ I employ the ‘polity2’ variable in the dataset. This variable is scaled between -10 to +10. Countries that fall within the range between +10 and +5 are characterized as democracies, countries between +5 and -5 are characterized as anocracies, and countries between -5 and -10 are characterized as autocracies. For clarity of interpretation, I transform the variable by adding 10 so that it has 0 as the lowest value and 20 as the highest value. The transformed variable has mean 12.84 and standard deviation 6.74.

In the civil war literature, regime characteristic is found to have nonlinear effects on anti-government activities, especially. Hegre et al. (2001) for example, argue that the relationship between civil wars and regime characteristics is like an inverted-U, where the likelihood of civil wars is the highest for anocracies, and lowest for democracies as well as autocracies. In other words, considering the polity2 (non-transformed) Polity score, civil war is most likely where Polity is 0, and becomes less and less likely as one moves away from zero in either direction, towards +10 or -10 (Vreeland 2008). I expect a similar inverted-U shaped relationship between regime type and anti-government domestic activities. While repression from a dictator reduces the probability of anti-government activities in autocracies, in democracies

literature, scholars have used per capital GDP in constant US dollar. Brancati (2007), for example, uses GDP per capita in constant 2000 US dollars.

¹⁸See www.systemicpeace.org/polity/polity4.htm for publicly available data on regime characteristics.

the probability of such activities becomes lower due to availability of institutionalized means of expressing grievances (i.e. parliamentary debates, media) and the belief the government would be less discriminatory (Fearon & Laitin 2003) in executing disaster mitigation policies. To test for this nonlinear effects of regime characteristics, I add a square term of the Polity variable as a predictor (\mathbf{x}) in the count part of the model.

For the inflate part of the model, I use two predictors (\mathbf{z}_i). First, per capita GDP is included, the same variable used in the negative binomial part. Inclusion of GDP as predictor of zero counts of anti-government political events follows the same logic of the development-conflict relationship, as mentioned above (see 'control variable' subsection). I expect that countries with higher per capita GDP are more likely to observe more zero counts than countries with lower per capita GDP.

The second predictor in the inflate part is the countries' total population. Since distribution of population of countries is skewed, I include in the model, following standard practice, a natural log of the population variable. According to Homer-Dixon (1999, 1994) increased pressure of population aggravates resource scarcity which creates frustration and grievances among people, which in turn increases political instability and the risk of civil conflict. Based on this population-conflict thesis, I expect that there will be less zeros (non-occurrence of anti-government domestic events) as population increases. This is also consistent with the development-conflict literature. For example, both Fearon & Laitin (2003) and Collier & Hoeffler (2004) find a positive and statistically significant relationship between population (natural logged) of a country and onset of civil war and ethnic war in that country. This means, in the context of the present model, that increased population lowers the chance of observing a zero in the inflate part of the model.

Results

I begin with a set of bivariate correlation analyses between the disaster related variables and the dependent variables. Table 3.5 reports these correlations. The results show that disasters (count) have statistically significant (at least .01 level) correlations with each of the five variables that make up the aggregate measure of domestic crisis as well as the aggregate measure itself. Disasters (count) also have a significant correlation with the intrastate conflict variable. These results support the general argument of this project that anti-government domestic activities occur where the number of disasters is most pronounced. These correlations, despite their small sizes provide an indication that the relationships are worth considering in a regression environment that allows for more rigorous test of the hypotheses.

Tables 3.10 through 3.22 report the results achieved by ZINB regression analyses. Each of these tables presents regression results for all seven dependent variables – Domestic Crisis, Demonstrations, Revolutions, Riots, Guerrilla Warfares, Assassinations, and Intrastate Conflicts – as columns. Since the coefficients (β) of nonlinear models such as these are not readily interpretable, I translate all coefficients into Instantaneous Rate Ratio (IRR) by taking $(\exp \beta)$. Each coefficient table is followed by its IRR table.

In addition, I examine the effects of regime characteristic in three different ways: first, I include PolityIV (transformed ‘Polity2’ variable) in the models; second, I add a square term of the PolityIV variable to test the nonlinear effects of regime characteristics. Third, I divide the sample into autocracies ($-10 \leq Polity2 \leq -6$), anocracies ($-5 \leq Polity2 \leq +5$), and democracies ($+6 \leq Polity2 \leq +10$) to see how disaster related variables fare in each of these political setups, and run separate models for each of the subsamples.

As I discuss in the next section, the disaster-related variables are correlated with each other, posing a possible problem of multicollinearity in the regression models. I, therefore, present analyses where I include one of the four disaster-related variables – disaster (count), killed, affected, damage – at a time. Since disaster (count) is theoretically important for my dissertation, I present the models for the variable in a separate table (table 3.24).

Translating the results into real life events will require a separate analysis of substantive effects of discrete counts of disasters on the projected counts in the dependent variables. I provide such an analysis on the full models only. To reduce redundancy, substantive effect analyses for the models with disaster (count) are reported, and those with disaster types are omitted. These analyses are presented graphically in Figures 3.3 and 3.4, and discussed after the interpretations of the model coefficients.

< Enter Figure 3.3 and Figure 3.4 >

Given the large number of tables, I describe the organization of these tables before interpreting the results of the regression models. Table 3.10 presents coefficient results of seven basic models where the dependent variables – domestic crisis, demonstrations, revolutions, riots, guerrilla warfare, assassinations, and intra-state conflicts – are predicted by four disaster-related variables (disaster (count), killed, affected, damage), a GDP (per capita), and a regime type (PolityIV) variable. Table 3.11 translates these results into instantaneous rate ratio (IRR) for better interpretation of the results. Tables 3.12 and 3.13 (IRR results) present the same models, except in these cases the disaster (count) variable is disaggregated to various disaster types to show the independent effects of each of the disaster types.

Tables 3.14 and 3.15 (IRR) repeat the models by adding the squared term of the regime variable, polity IV, which are repeated for disaster types in tables 3.16 and

3.17 (IRR). In tables 3.18 to 3.20, I drop the regime type variable, and present the basic models separately for autocracies, anocracies (mixed regime), and democracies. In table 3.21, I drop three disaster-related variables – Killed, Affected, and Damaged, and present the results of the basic models with disaster (count) as the only disaster variable. In table 3.22, I repeat the model with disaster types as the independent variables. Tables 3.23 - 3.36 show various step-wise specification models, the results of which are combined in tables 3.10 through 3.22.

Effects of Disasters as a General Case

In the first set of analyses presented in Table 3.10, I test the effects on the number of crisis events, anti-government demonstrations, revolutions, riots, guerrilla warfares, assassinations, and intrastate conflicts of the annual number of disasters per country. The results are reported in coefficient (β) form for immediate understanding of the direction of the relationships between the explanatory variables and the dependent variables. Table 3.11 presents the same set of results in terms of Instantaneous Rate Ratio (IRR), or exponentiated coefficients ($\exp \beta$), that allows for interpretation in terms of risk percentages (Hilbe 2011).

Several general findings are immediately apparent. An increased number of natural disasters, as a rule, increases the risk of domestic crisis (Hypothesis 4.1), anti-government demonstrations (Hypothesis 4.2), revolutions (Hypothesis 4.4), riots (Hypothesis 4.3), guerrilla warfare (Hypothesis 4.6), and intrastate conflict (Hypothesis 4.7). The Vuong test is statistically significant (indicating better fit for the ZINB model than a standard negative binomial model (Hilbe 2011)) for all these models, except revolutions. When tested in a standard negative binomial regression (NBREG) setup, the revolution model, however, is not much different from its ZINB counterpart in terms of directions and magnitudes of the coefficients of the disasters as well as the other control variables. Still, NBREG may not be a better choice for the revolution

model due to the excessive number of zeros (82.7 %) present in the revolution data. The model selection debate aside, it is nevertheless safe to conclude that disasters (count) has systematic effects on revolutions. In the current ZINB setup, the coefficient of disasters (count) in the assassinations model is not statistically different from zero, which is in contravention of Hypothesis 4.7.¹⁹

Focusing on the IRR estimates in Table 3.10, increases in total number of disasters made [$\exp(.059) = 1.060$] about six percent more risk of domestic crisis in general, when the effects of all other variables are held constant. Similarly, it creates about five percent more risk of anti-government demonstrations, about seven percent more risk of revolutions, about six percent more risk of riots, and about five percent more risk of guerrilla warfare. The effect of disaster (count) is the highest when it comes to intrastate conflicts, it increased the risk of intrastate conflict by [$\exp(.118) = 1.125$] more than twelve percent, when the effects of all other variables are held constant.

The effects of polityIV and GDP per-capita are consistent across a number of dependent variables, and are in the expected direction. The table shows that democracies (increase in the PolityIV score) increase the risk of domestic crisis, anti-government demonstration, assassinations, and intrastate conflict to a degree that is statistically significant. The more a country receives a higher polity score (towards democracy) the more the country observes these anti-government activities. However,

¹⁹However, disasters' effect on assassination is statistically significant when tested using a standard negative binomial regression (NBREG). In the NBREG setup, the coefficient is .09663 which is significant at .01 level. The log likelihood ratio test of the model is ($\alpha = 0$) is significant ($Pr \geq \bar{\chi}^2 = .000$). Note that the coefficient is much higher than the one derived from the ZINB setup, which indicates that the NBREG models inflates the coefficient. Furthermore, excessive zeros in the assassinations data (89.4 %) and the Vuong test in the ZINB model that is statistically significant indicates better fit of the ZINB model than of the NBREG model. The upshot is: the relationship between disasters and assassination is uncertain.

the polityIV variable is not statistically significant for revolutions, riots, and guerrilla warfare.

Per capita GDP is included in the count part of the model as a control variable, while it is also included in the inflate part as a predictor of excessive zeros in the dataset. In the count part of the model, per capita GDP has a negative coefficient and in the inflate part it has a positive coefficient. The signs are according to my expectations that when all other variables are held constant, increased per capita GDP should decrease the risk of anti-government domestic activities, while it should decrease the number of zeros i.e. observed non-occurrence of these activities. In the count part, per capita GDP made $[\exp(-.00002) = .9997]$ about less than one percent less anti-government demonstration. Similarly, it accounted for $[\exp(.00002) = .000017]$.002 percent increase in the number of excessive zero counts.

The population variable (Ln Population) is included only in the inflate part of the model as a predictor of excessive zeros. This variable also shows expected results. In the log scale, one unit increases in population increases the zero count by $[\exp(-.57006) = .56.54]$ about 56 percent. In other words, countries with higher population observe lower number of anti-government demonstrations.

In the above models, besides disasters (count), no other disaster related variables seem to have recognizable effects. The small size of their coefficients and statistical insignificance remain, even when the four disaster-related variables are included in the models one at a time, as shown in tables 3.23 though 3.29. The smaller size of the coefficients are likely to be the artifacts of the different types of scales on which each of these variables are measured. In the EM-DAT database, the four major variables – the number of disaster (count), killed, affected, and damage – have different ranges. As I show in table 3.3. the Disaster (count) variable ranges between 1 and 35, while Killed ranges between zero and 228233 people, and Affected ranges between

zero and 254900724 people. Similarly, the Damage variable ranges between zero and about 159060 US dollars.

Considering the above problem, I have recoded the variables using their respective deciles. Each of these variables is divided into ten segments based on their respective decile cut-points, and the segments are coded 1 through 10. Note that the data are organized at the country-year level, and many country-years have zero observations. For example, the killed variable has 64.17% zeros, the affected variable has 61.49 % zeros, and the damage variable has 78.21% zeros. When calculating the decile cut-points, I ignored the zero observations, but later coded the zeros as part of the lowest decile. Table 3.8 shows how I have re-coded these variables.

Table 3.6 presents the descriptive statistics of these rescaled variables. For the Killed and Affected variables, a typical (average) country-year fell between the deciles 2 and 3 on this scale. For the Damage variable, a typical (average) country-year fell a little below the decile 2.

As tables 3.30 to 3.36 reveal, when included in the regression models one at a time, these rescaled disaster-related variables show larger size coefficients than those produced by the raw scale. These coefficients of the rescaled variables are statistically significant with expected signs. The size of these coefficients are similar to each other, too. For example, considering ‘domestic crisis’ as the dependent variable, as shown in table 3.30, the $exp(\beta)$ (exponentiated coefficient or IRR) for Disaster (count) is 1.06, for Killed 1.08, for Affected 1.07, and for Damage 1.08. This indicates presence of collinearity when all four of the variables are included in a single regression model.²⁰

²⁰Table 3.7 presents the bivariate correlations among Disasters and the three rescaled variables – Killed (decile), Affected (decile), and Damage (rescaled). The correlations for all bivariate relationships appear to be high; particularly the correlation between Affected (decile) and Killed (decile) – about .80 – is noteworthy. Such high correlations indicate that a regression model containing all four of the disaster related variables simultaneously might face a threat of high degree of collinearity. In that case the point estimates of these independent variables would be imprecise.

To avoid the collinearity, I reanalyze the full models using disaster (count) as the only disaster-related variable. The overall results, as I have discussed earlier, holds: the higher the number of natural disasters the higher the risk of domestic crises measured in terms of anti-government demonstrations, revolutions, riots, guerrilla warfare, and intrastate conflict. Once again, there does not seem to be a statistically certain relationship between disaster (count) and assassinations.

The ZINB model is inherently nonlinear, so interpretation of relative effects is not straightforward. To get a better sense of the effects disasters (count) have on projected anti-government activities, I executed a series of simulation based analyses afforded by STATA-12's 'margins' command, the results of which are reported in the Figures 3.3 and 3.4. I considered nine different counts of disasters – 0, 1, 5, 10, 15, 20, 25, 30, and 35.²¹ This setup allows me to use the complete data on the disasters (count) variable while identifying how projected counts in the dependent variables change from one discrete point to another in the disasters variable. I added 95% confidence bands for each discrete point to show if the estimated projected counts in the dependent variables at a particular point is statistically significant.

The panels in Figures 3.3 and 3.4 demonstrate an upward curvilinear pattern in the relationship between disaster counts and projected event counts in all of the dependent variables, except assassinations. In the analysis above, I already concluded that the null hypothesis against Hypothesis 4.5 regarding assassinations could not be rejected as the coefficients for disasters (count) for assassination was not statistically significant. The almost non-changing marginal graph in the assassination panel in Figures 3.3 attests to the conclusion one more time. However, marginal graphs of all other variables that I used to create the domestic crisis variable and the domestic crisis

²¹There is no theoretical reason to find projected values of the dependent variables against a particular count of disaster.

variable itself as well as the intrastate conflict variable show interesting substantive results.

For all these variables, while there is no recognizable difference between disaster count ‘zero’ and ‘one’, the difference from various count of disasters becomes pronounced as the number of disasters increases. For example, while 20 disasters in a county produces less than five projected domestic crisis events, 35 disasters increase the projected count by more than twice as much. Considering anti-government demonstrations, while 15 disasters projects about one demonstration event, 35 disasters projects about three demonstration events. Similarly, while 15 disasters creates about half of a revolutionary event, 35 disasters increases the projected number by three times. Projection of riots and guerrilla warfare cannot be done with 95% confidence level beyond 25 disasters. For these two variables discrete changes do not appear to be much. While 15 disasters accounts for little more than half of a projected riot event, 25 disasters can project little more than one such event. The projected guerrilla warfare events ranges between 0 and .5, thus, changes between discrete disaster events do not make much substantive sense. But, projected intrastate conflict shows substantive variation along various disaster counts. While 20 disasters account for about two projected events of intrastate conflict, 30 disasters accounts for five such events, and 35 disasters accounts for about nine such events.

Effects of Disaster Types

I test the same seven hypotheses asserted in the introduction section of this chapter and discussed in the previous subsection, but this time I test the effects of various disaster types (i.e. earthquake, epidemic, extreme temperature, flood, storm, volcanic irruptions, landslides, and all other types). Other disaster related variables (killed, affected, and damage), control variables (per capita GDP and polityIV), and inflate variables (per capita GDP and Ln Population) are included again as predictors

in the ZINB models. Each dependent variable is studied in three steps; first, with disaster types only, second, with other disaster related variables added to the first step, and third, the full models, with the control variables added to the second step. Zero inflation is predicted by ln-population and per capita GDP in all three steps. These regression results are reported in Tables 3.12, 3.13, 3.16, 3.17, and 3.25. Table 3.12 reports the full models only. In my interpretation of the results shown in these tables, I will focus on the variables representing disaster type only, and leave out interpretation of the other disaster variables and control variables, particularly because they show effects that are similar to the ones already discussed.

Table 3.12 shows that earthquakes have significant results across all dependent variables except guerrilla warfare and intrastate conflict; epidemic is only significant for anti-government demonstrations, assassinations, and intrastate conflict; extreme temperature for guerrilla warfare; flood for intrastate conflict; storm for revolutions and assassinations; volcano for all but riots, assassinations, and intrastate conflict; landslides for all but riots; and all other type of disasters (the ‘other’ category) is significant only for riots. According to the full models reported in this table, when all other variables are held constant, an one unit increase in the total number of earthquakes increases the risk of domestic crisis events by $[\exp(.17625) = 1.192]$ about nineteen percent, anti-government demonstration by about sixteen percent (significant at .01 level), revolution by about eighteen percent (significant at .01 level), riots about twenty-seven percent, and assassinations by about twenty-nine percent. While epidemic increases the risk of intrastate crisis by about twenty-five percent, it decreases the risks of anti-government demonstrations by about twenty-one percent and assassinations by about forty-four percent. Extreme temperature appears to be significant (at level .05) only for guerrilla warfare – increases in the number of extreme temperature increases the risk of guerrilla warfare by about forty-eight percent. Floods have a significant impact only on intrastate conflict, the risk of which is in-

creased by about sixteen percent due to floods. Storm increases the risk of revolution by about seven percent, but it decreases the risk of assassinations by about eleven percent. In both cases, the effects of storm are significant at .05 level. Volcano has strong effects on many of the dependent variables. It increases the risk of domestic crisis by about thirty-eight percent (significant at .01 level), risk of anti-government demonstrations by about forty-seven percent (significant at .01 level), risk of revolutions by about fifty-nine percent (significant at .001 level), and risk of guerrilla warfare by about seventy percent. Landslides also have significant effects on all dependent variables, except riots. Besides volcano, these effects are consistently strong across dependent variables – landslides increase the risk of domestic crisis by about twenty-eight percent, risk of anti-government demonstrations by about twenty-one percent, risk of revolution by about thirty-two percent, risk of guerrilla warfare by about twenty-four percent, risk of assassinations by about forty-five percent, and the risk of intrastate conflict by about thirty-six percent.

Considering the issues of multicollinearity in the presence of all disaster-related variables, I repeat the above analyses for disaster types while excluding the Killed, Affected, and Damage variables from the models. As shown in Table 3.22, earthquakes predict with statistical significance domestic crisis, anti-government demonstrations, revolutions, riots variables. Epidemics predicts negative relationships with anti-government demonstrations and assassinations, but a positive relationship with intrastate conflict; in both cases the results are statistically significant. Floods and storms predict with statistical significance intrastate conflict and revolutions respectively. Volcanic eruptions predict revolutions and guerrilla warfare, while landslides predict the overall measure of domestic crisis, anti-government demonstrations, revolutions, and intrastate conflicts.

While, in general, these results complement the findings of the previous subsection (Table 3.10) and support the global claim made in this chapter that an increase

in natural disasters increases the risk of anti-government domestic activities, two sets of results in Table 3.12 produce some exceptions. First, the effect of epidemics on anti-government demonstrations and assassinations is negative. In Table 3.22 (disaster (count) only models), while epidemics have a positive relationship with intrastate conflict, the variable shows negative relationships with anti-government demonstrations and assassinations. One explanation of these inconsistent results might be that epidemic, although a natural disaster, is not like other hydor-meteorological and geological disasters. This result may have direct bearing on the findings of Nell & Righarts (2008), who considered epidemic as part of the ‘other’ category and dropped from reporting because it did not show any significant effect in their models. Besides epidemic, they included other sub-categories such as insect infestation into the other category. I suspect that, in their model, the effect of epidemic could not show up probably because these other sub-categories had pulled the effect of epidemic down.

Second, disaster types (except epidemics) do not consistently explain assassinations. While earthquake increases the risk of assassinations, epidemic and storm decreases the risk of assassinations. The disasters (count) only models in Table 3.22 also demonstrate similar results for assassinations. This opposing outcome of assassinations with regard to different disaster types explains why the aggregate measure of disasters (count) may not have significant and substantive effects on the variable, but it is not readily clear why storm has negative and earthquake has positive impact on assassinations.²² In other words, why would politically motivated murders (of high ranked officials and politicians from both the government and opposition parties) increase in the context of an increasing number of earthquakes and decrease in the context of increasing number of storms? Existing literature does not shed much light on the differing behavior of disaster types when it comes to predicting political

²²Once again, I suspect that the negative sign of the epidemic coefficient is probably due to its heterogeneous nature as a disaster type.

outcomes. I speculate below one reason why an increase in the frequency of storms decreases the risk of assassinations.

Governments are likely to be more experienced in responding to storms than earthquakes because they have to respond to storms more frequently than earthquakes (see Table 3.4 for frequencies of various types of disasters). Storms are relatively slower onset events than earthquakes. Governments get relatively longer time to mitigate the effects of storms through such mechanisms as early warning, evacuation, and temporary shelters. In case of an earthquake, none of these can easily be done. As a result, people observe more systematic response from governments to storms than to earthquakes. The level of anger of the affected people against government officials or other elites in the positions of responding to disasters, therefore, are probably lower in cases of storms than in cases of earthquakes. If assassinations of elites are expressions of this public anger, then frequent events of storms should decrease the risk of assassinations.

Effects of Disasters in Various Regimes

Within the regression framework presented above, I have considered predicting the effects of disaster (count) on the dependent variables for autocracies, anocracies, and democracies separately, as shown in tables 3.18 - 3.20. In autocracies, disaster (count) predicted (with statistical significance) the overall measure of domestic crisis and anti-government demonstrations (Table 3.18).²³ In anocracies or mixed-regimes, disaster (count) predicted (with statistical significance) the overall measure of domestic crisis, anti-government demonstrations, and intra-state conflicts (Table 3.19). In democracies, disaster (count) predicted (with statistical significance) the overall measure of domestic crisis, anti-government demonstrations, revolutions, guerrilla

²³The models for intra-state conflict did not converge.

warfares, and intra-state conflicts (Table 3.20). Across regimes, the effects of disaster (count) on the measures of anti-government political activities are positive (higher risk of crisis), as expected.

Robustness Check

Besides ZINB, I executed poisson and simple negative binomial models on the data described above using similar model specifications, and found results in terms of statistical significance and size of the coefficients similar to the ones reported above. Within the ZINB setup, I used ‘Vuong’ test, as implemented in STATA, to see if the models reported above do better than simple negative binomial models applied to the same set of variables. The test uses standard normal distribution to assess comparative worth of a model (Long 1997). At a 95% confidence level, values of the test larger than +1.96 favor the zero-inflated model and values lower than -1.96 favor the nonzero-inflated version (negative binomial in this case). Values close to zero in absolute value favor neither model. As Table 3.10 reports, the Vuong statistics for all seven models pass the positive cut point of 1.96 implying that the results are robust in ZINB setups compared to simple negative binomial setups. The ZIP tests provide the same information in comparing the ZINB models with zero inflated poisson (ZIP) models as do the Vuong test in comparing ZINB models with negative binomial models. The ZIP statistics in Table 3.10 also demonstrate that ZINB performs better than ZIP across all seven models.

Considering the structure of the data used in this chapter, estimations are done on a panel data framework where observations are gathered for countries over time. It is often argued that in most practical situations, clustering is an indispensable characteristic of data that are collected over time, across units (countries), or both. Due to clustering, data are not independent. Experts, thus, suggest “robust variance adjustment of some variety must be applied to the data” (Hilbe 2011, 169). I, therefore,

re-ran the models reported above using robust standard errors to calculate z -statistics and p -values. ZINB once again fare better than poisson and negative binomial model: log-likelihood tests came out clearly in favor of ZINB specifications.²⁴ Comparing the results with the standard ZINB models, I found that robust standard errors improve the size and statistical significance of most variables, but not too much. In terms of substantive effects, both sets of results are very similar.

In addition, I repeated the above analyses for lagged dependent variables with time $(t - 1)$. The results were similar to the ones presented above for time t . Thus the overall conclusion remains solid – an increase in the number of disasters increases the risk of anti-government domestic political activities.

Conclusion

Based on the aggregate level analyses using a Zero Inflated Negative Binomial setup presented in this chapter I make the following conclusions: first, *ceteris paribus*, increases in the total count of disasters increases the risk of domestic crisis (H-4.1), anti-government demonstrations (H-4.2), revolutions (H-4.4), riots (H-4.3), guerrilla warfare (H-4.6), and intrastate conflict (H-4.7). Frequency of disasters does not predict assassinations. These effects are consistent across models (ZINB, ZIP, NB2) to the degree that they are statistically significant, and confirm my theoretical expectations. Disaster counts, therefore, as a rule, adversely affect the overall legitimacy of governments. Second, landslides predicted with statistical significance six out of the seven dependent variables studied here; earthquakes did five, and volcanos did four.

²⁴Estimation procedures using robust standard error use ‘log pseudolikelihood’ in stead of log likelihood. Standard tests such as ‘Vuong’ cannot be used for log pseudolikelihoods to test if ZINB is doing better than ZIP. An LR test, however, can be used in this setup, too (Hilbe 2011). The usual LR test is: $LR = -2(\mathcal{L}_{Pois} - \mathcal{L}_{NB})$. A χ^2 test with one degree of freedom and with the test statistic divided by 2 can be used to provide significance level of the LR test.

As a result, these disaster types are better than floods, extreme temperatures, and storms as predictors of legitimacy crisis.

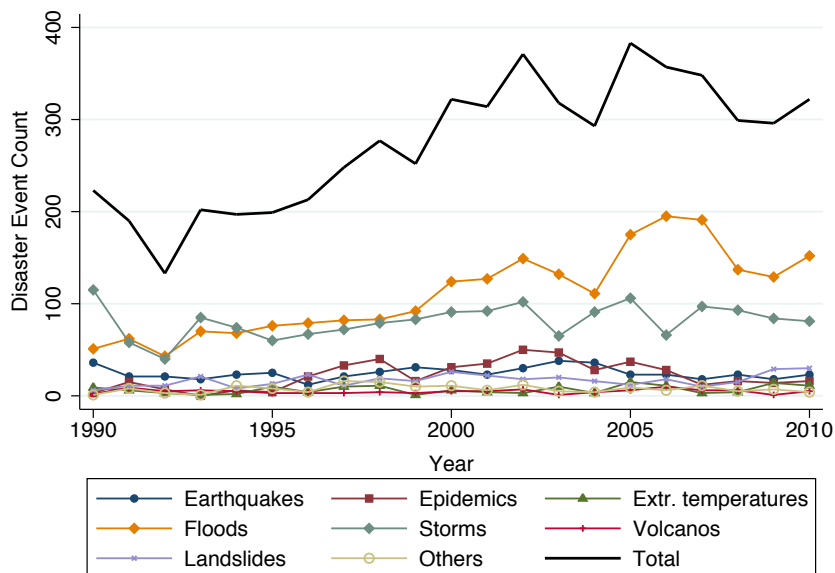
Third, epidemic plays an ambiguous role in these models. Contrary to my expectation, epidemic decreases the risk of anti-government demonstrations and the risk of assassinations, and in predicting the risk of intrastate conflict it shows positive effect. It does not predict the risk of other dependent variables well. I, therefore, suggest that epidemic should be given special care in further analyses of social and political effects of natural disasters, especially because the nature of the disaster might be qualitatively different from all other hydro-meteorological and geological disaster events. This qualitative difference would be concealed if epidemic were lumped into a general disaster category, often named as ‘other’ type of disasters.

A fourth conclusion of the chapter is that disaster-related variables – disaster (count), Killed, Affected, and Damage – are similar to each other in terms of their effects on the measures of political crises. Including all four of them in a single regression models causes the problem of multicollinearity. I have focused on the disaster (count) variable as the major disaster-related predictor due to theoretical reasons, but any of the other three can be equally relevant, and can be used in other theoretical arguments. However, across these regime types, disaster frequency predicts higher risks of domestic crisis, in general.

Finally, the effects of disaster frequency on political crises depends on regime types. Not all types of crises are predictable across democracies, anocracies, and autocracies. In democracy, higher frequency of disasters increases the risks of anti-government demonstrations, revolutions, guerrilla warfares, and intra-state conflicts. In anocracies, higher frequency of disasters increases the risks of anti-government demonstrations, and intra-state conflicts, while in autocracies, higher frequency of disasters increases the risks of anti-government demonstrations only.

I consider these aggregate level analyses as a way of identifying general patterns that may exist among the variables of my theoretical interest. I will investigate these general patterns in four case studies, which will work as further robustness checks of the findings of this chapter. In these case studies, I will focus on the ‘quality of government response’ to disasters, a variable that, I argue, mediates the disaster-legitimacy relationship. The objective of these case studies will be finding the contextual factors that connect natural disasters and governments’ responses with anti-government political activities in particular, and the legitimacy of governments in general.

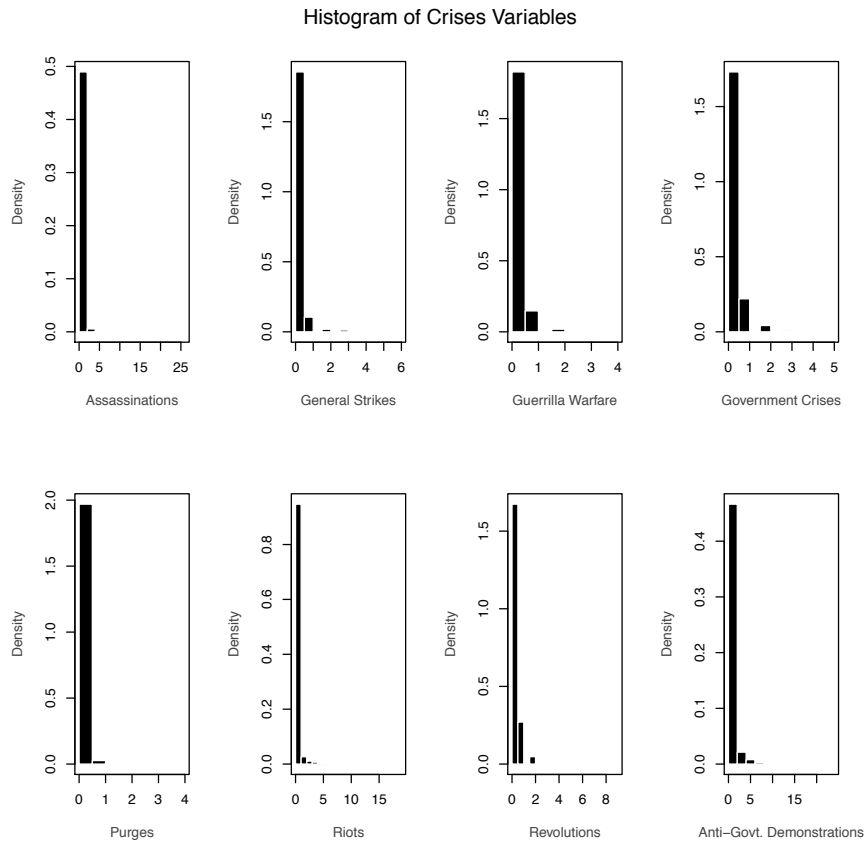
Figure 3.1: Frequency of Natural Disasters, 1990 - 2010



Note: The graph is based on the data use in the analysis of this chapter. Also see Table 3.4.

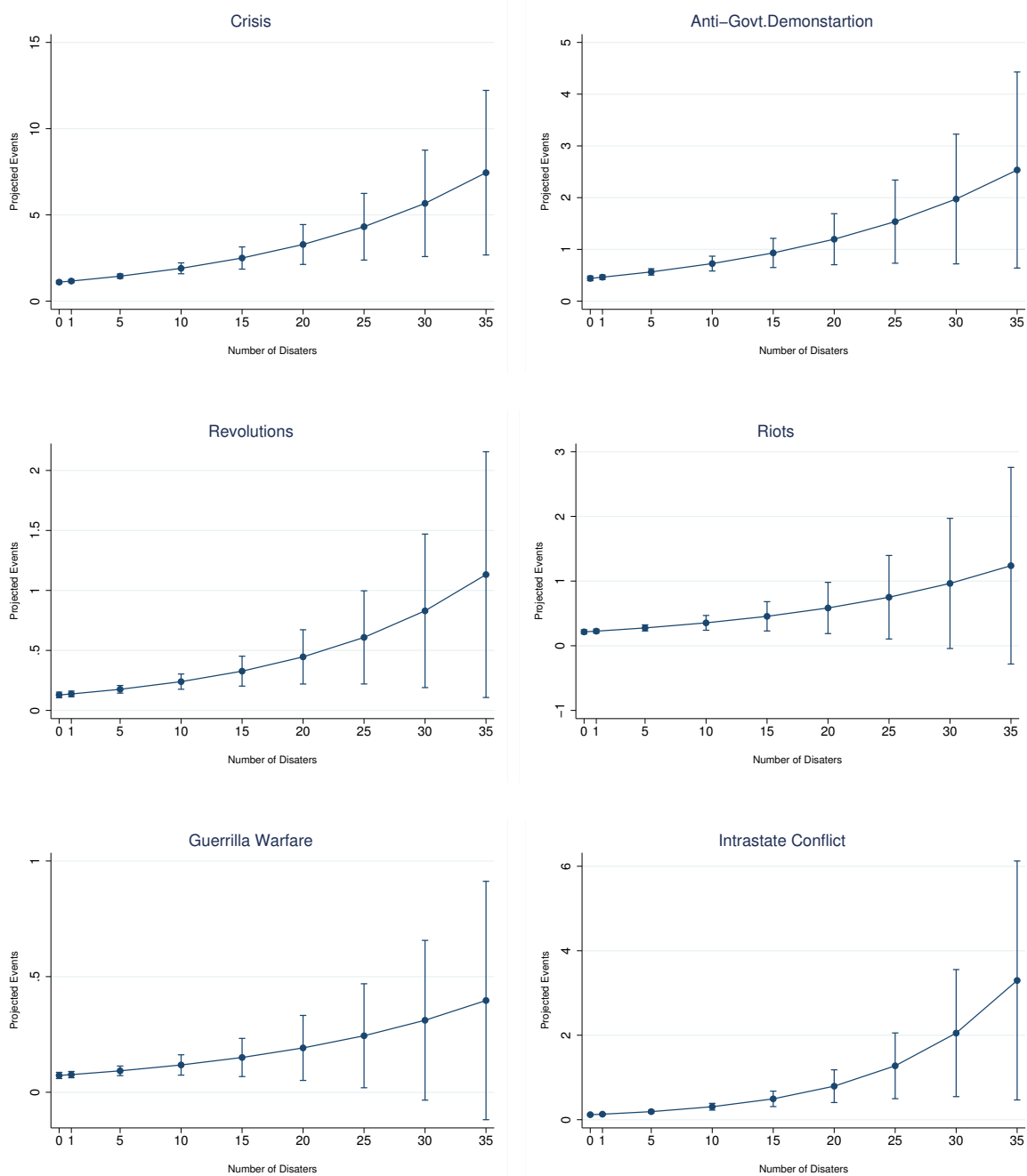
Data Source: EM-DAT: The OFDA/CRED International Disaster Database – <http://www.em-dat.net> – Universite Catholique de Louvain, Brussels, Belgium.

Figure 3.2: Histogram of Anti-government Domestic Activities



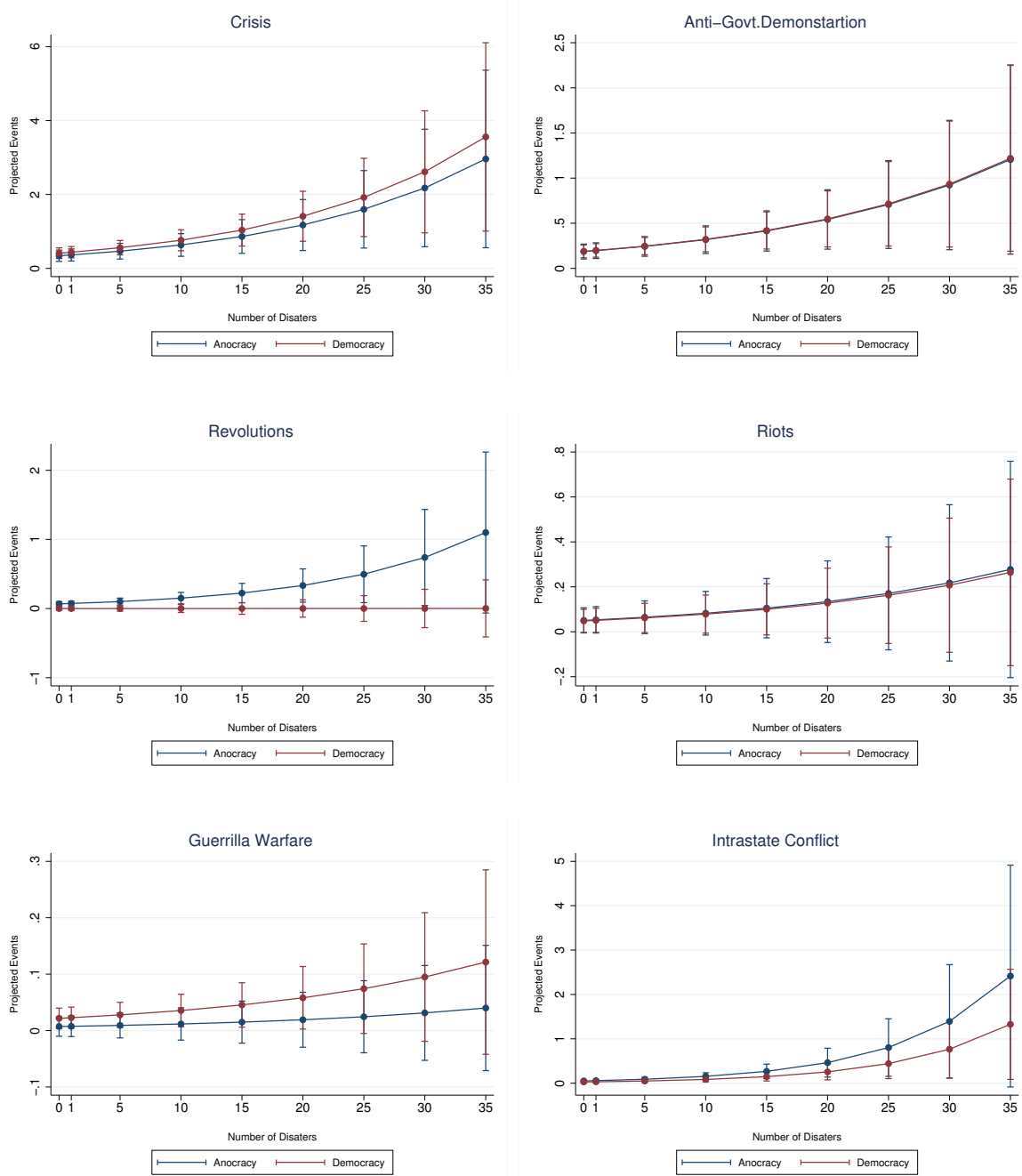
Data Source: Banks, Arthur S. 2011. Cross-National Time-Series Data Archive. Databanks International. Jerusalem, Israel; see <http://www.databanksinternational.com>

Figure 3.3: Projected Count of Anti-government Activities for Various Counts of Disasters



Note: Vertical lines over discrete points are confidence bands.

Figure 3.4: Projected Count of Anti-government Activities for Various Counts of Disasters by Regime Types



Note: Vertical lines over discrete points are confidence bands.

Baseline category is Autocracy.

Table 3.1: Average Calculated for Major Variables for Each Country Over the Time Period 1990-2010

Country	Crisis	Disasters	Killed	Affected	Damage	GDP	Polity	Log (Pop.)
Albania	2.75	.65	1.35	32519.2	1.23365	1190.996	15.65	8.041333
Algeria	3.05	2.2	197.55	22488.35	288.1423	1875.201	8	10.30503
Angola	1	1.4	202.9	45553.1	.5	793.1714	7.65	9.242587
Argentina	2.8	2	12.9	64921.6	210.4105	7695.061	17.55	10.51175
Armenia	.78	.21	.26	1165.473684	2.181737	795.5375	14.16	8.029863
Australia	.1	4.4	35.3	171545.15	640.9607	21147.8	20	9.850911
Austria	.35	1.45	5.1	3585.8	267.0885	23094.23	20	8.996695
Azerbaijan	1.22	.47	2.578947	130672.3158	5.852632	1005.296	4.21	8.961372
Bahrain	.5	0	0	0	0	12696.66	1.7	6.559291
Bangladesh	3.3	7.5	7726.8	7439542.6	658.09	373.3142	14.2	11.78401
Belarus	.44	.26	.37	3368.157895	7.756842	1505.328	6.31	9.211334
Belgium	.4	1.3	60.55	252.85	85.6493	21892.48	19.7	9.233554
Benin	.1	.6	39.65	13828.8	0	336.1047	15.9	8.778147
Bhutan	.3	.2	12.25	80.6	0	780.1649	1.9	6.425731
Bolivia	3.2	1.35	37.4	85301.3	75.85	1010.738	18.6	8.997344
Bosnia-	1	0	0	0	0	387.8699	10	8.238796
Herz.								
Botswana	.1	.25	1.1	733.2	0	3185.536	17.65	7.394628
Brazil	1.95	4	89	256197.9	149.9085	3752.197	18	12.06908
Bulgaria	1.15	1.05	4.25	1017.85	23.78	1797.488	18.45	8.975277
Burkina	.4	.65	274.85	17907.75	7.5	212.4949	7.4	9.349903
Faso								
Burundi	2.25	.9	6.75	4157.05	0	122.434	10.5	8.844643
Cambodia	1.47	.95	62.45	485632.4	16.4055	320.7891	11.2	9.392417
Cameroon	.4	.9	62.7	1486.05	.085	652.5107	5.6	9.62324
Canada	.6	2.6	7.4	4842.75	244.705	22565.2	20	10.33531
Cape.Verde	0	.1	.45	1007.35	0	1208.308	18.4	6.042443
Cent.	.4	.65	21.85	5049.75	0	246.1806	11.2	8.264263
African.Rep.								
Chad	.45	1.1	79.55	28761.55	.05	214.134	7.2	8.965428
Chile	1.05	1.95	23.9	53744.4	47.698	4802.942	18.7	9.612761
China	4.3	20.7	6043.9	97846737.9	13633.29	1055.13	3	14.03848
Colombia	8.55	3.85	166.25	296513.4	99.38345	2644.129	17.45	10.55862
Comoros	1.5	.4	.85	14424.9	0	368.7523	14.25	6.344175
Congo	.95	3.25	164.15	30123.5	.80295	1085.73	7.75	8.01934
Costa Rica	.6	1.85	11.85	74609.35	49.8945	4044.592	20	8.232572
Croatia	.33	.47	.89	201.3684211	1.052632	5055.177	12.84	8.4066
Cuba	.25	1.9	6.4	577671.55	538.8779	3014.294	3	9.303183
Cyprus	.25	.3	2.7	114.25	.717	13019.57	20	6.809922
Czech.Rep	0	.76	4.94	18879.05882	281.6471	5948.437	19.52	9.236968
D.R.Congo	2.75	0	0	0	0	112.6324	10.6	10.8584
Denmark	.25	.35	.65	0	209.7469	28661.14	20	8.579704
Djibouti	.85	.2	10.3	12011.95	.10595	867.6863	8	6.412191
Dominican.R.	1.4	1.55	68.2	66234.7	126.9416	2689.292	17.3	9.029747
E.Timor	1	.25	3.125	117	0	313.7852	16.5	6.955688
Ecuador	2.4	1.5	58.6	63901.75	85.33875	1421.664	17.35	9.415328
Egypt	1.85	.85	71.05	12959.25	67.1	1446.344	4.75	11.08316
El.Salvador	1.45	1.45	122.7	96810.2	176.6405	2149.584	17	8.646244
Equ.Guinea	.2	.05	.75	47.3	0	3519.618	4.7	6.183566
Eritrea	.35	.17	.18	1334.588235	.3038235	173.8867	3.47	8.38081
Estonia	.11	.05	0	5.263157895	6.842105	4584.62	17.63	7.239412
Ethiopia	1.3	2	120.05	102421.45	.805	188.8987	10.45	11.06211
Fiji	.5	1.1	6.45	11231.85	13.53995	2080.228	13.4	6.685995
Finland	.05	.15	0	20	.5	22777.34	20	8.546693
France	2.9	3.75	1067.55	179421.6	1423.11	21105.41	19	11.0206
Gabon	.45	.15	2.25	935.75	0	4325.498	6.25	7.094076
Gambia	.1	.4	6.3	1107.45	0	318.8682	7.35	7.178665
Georgia	2.27	.63	1.26	1800.105263	20.20295	828.9326	15.26	8.487686
Germany	1.55	2.75	14.65	28473.65	1685.407	22451.14	20	11.31139
Ghana	.15	.5	14.7	166938.9	.625	266.0615	13.05	9.875635
Greece	.9	2	15.95	8765.25	418.303	11698.13	20	9.261657
Guatemala	3.52	1.75	119.35	38896.25	86.9025	1675.416	16.5	9.300819
Guinea	.9	.6	32.1	14728	0	374.5274	7.9	9.00046
Guinea-	.75	.25	30	1898.2	0	173.2447	12	7.133617
Bissau								
Guyana	.6	.2	2.2	20488.7	31.705	930.5753	14.7	6.645329
Haiti	6.35	2.1	398.35	135155.55	16.631	401.178	11.9	9.01438
Honduras	2.6	1.5	762.7	147361.95	219.974	1189.479	16.55	8.735356
Hungary	.3	.65	1.05	8990.9	22.57	4674.009	20	9.226693
India	5.8	11.95	4751.25	21987532.15	1850.575	458.5705	18.75	13.80811

Continued on next page

Table 3.1 – continued from previous page

Country	Crisis	Disasters	Killed	Affected	Damage	GDP	Polity	Log (Pop.)
Indonesia	5.4	9.95	9235.65	691328.5	681.8545	824.2641	10.85	12.25958
Iran	2.6	5.05	3641.2	213463.75	765.1248	1651.005	7.1	11.12253
Iraq	.66	.16	0	30.83333333	0	952.828	1	10.0144
Ireland	.3	.8	.95	268.75	12.6525	23056.46	20	8.264494
Israel	4.85	.3	1.15	82.5	31.8875	18658.77	19.55	8.682787
Italy	.9	2.35	1042.85	10083.6	1734.143	18621.06	20	10.96923
Iv.Coast	2.5	.35	12.95	741.55	0	611.3751	7.45	9.708574
Jamaica	1.25	.95	4.3	49310.1	70.86075	3587.003	19.15	7.85783
Japan	.35	5.35	341.75	136440.1	10275.2	36819.2	20	11.74548
Jordan	.2	.3	2.05	911.25	20.05	1890.755	7.65	8.446491
Kazakhstan	.55	.47	9.5211	6151.947368	9.326	1541.91	5.37	9.649513
Kenya	2.55	2.25	63.95	63389.8	5.0269	424.5295	10.7	10.31859
Kuwait	.21	.11	.11	10.57894737	0	21499.68	2.89	7.536936
Kyrgyzstan	.77	.95	22	11816.26316	10.75053	307.5024	8.53	8.488326
Laos	0	.4	37.65	101497.7	5.1825	337.0838	3	8.565532
Latvia	.22	.21	.32	5.368421053	17.13158	3769.452	18	7.78091
Lebanon	3.4	.2	.2	3	0	5582.991	17	8.282495
Lesotho	.6	.25	2.5	154.2	0	380.6155	14.75	7.533818
Liberia	1.55	.4	4.8	2319.8	0	139.5786	11.65	7.822785
Libya	.1	0	0	0	0	6905.687	3	8.537344
Lithuania	.22	.26	2.11	41052.63158	1.847368	3851.499	20	8.19932
Macedonia	.38	.32	.11	5715.789474	.1894737	1802.819	17.26	7.598995
Madagascar	1.15	1.75	105.6	267923.9	38.89405	250.0127	16.3	9.648876
Malawi	.15	1.2	90.4	56954.75	1.20445	149.6427	12.8	9.373773
Malaysia	.55	2.25	34.85	24876.3	92.8	3917.668	13.55	10.0272
Mali	.4	.75	9.6	6780.25	0	220.7464	15.7	9.241044
Mauritania	.25	.75	7.85	6867.25	0	514.1828	4.9	7.812681
Mauritius	.05	.3	.5	592.5	9.27	3700.004	20	7.068726
Mexico	5.63	5.95	184.35	451237.6	971.3705	5546.259	15.5	11.49739
Moldova	.66	.42	3.95	140265.1053	20.70274	473.6562	17.26	8.38594
Mongolia	.4	.6	8.85	15193.55	86.1582	524.7684	19	7.872951
Montenegro	0	.43	.28	5712.8571143	0	4766.159	17.28	6.539805
Morocco	.75	1	87	8467.6	33.3125	1367.698	3.5	10.23155
Mozambique	.55	1.9	97.15	467991.4	30.3075	250.1388	12.75	9.757863
Namibia	.05	.4	8.35	23217.5	.4245	2157.12	16	7.509028
Nepal	3.55	1.55	298.65	160697	14.53	218.5174	13.15	10.08578
Netherlands	.15	1.15	100.65	13266.05	224.635	22986.45	20	9.671484
New Zealand	.15	1.15	.5	550.8	23.05	13290.82	20	8.244365
Nicaragua	2.05	1.9	196.95	96043.95	55.3536	762.8725	17.65	8.461413
Niger	.6	.95	238.8	14890.8	0	173.5431	13	9.284648
Nigeria	3.4	2.55	617.3	71215.05	3.9461	398.4784	9.8	11.70466
Norway	.05	.45	.05	310	28.15	35862.24	20	8.403482
Oman	0	.15	5.65	1004.15	197.55	8739.799	1.35	7.766205
Pakistan	4.25	4.6	4156.7	1821800.2	432.5407	531.9097	11.95	11.91035
Panama	1.25	1.25	11.3	7125.7	1.7275	4015.484	18.8	7.957933
Pap.N.	1.4	2.15	162.65	33152.25	8.1114	677.1441	14	8.485084
Paraguay	1.5	.5	4.4	10315.35	.291	1405.897	16.8	8.577807
Peru	3.75	2.75	608.15	245329.75	47.5525	2139.87	15.3	10.1417
Philippines	2.9	12.1	1174.15	3981412.4	262.0061	1081.42	18	11.29172
Poland	.4	1.15	46.75	12334.6	225.5575	4351.938	19	10.55925
Portugal	.1	.5	3.35	205.1	84.4	10663.74	20	9.239344
Qatar	.05	0	0	0	0	25053.36	0	6.429996
Romania	1.3	2.75	33.55	18729.4	96.2345	1950.239	17.4	10.01938
Russia	4.55	4.94	209.94	133794.2778	194.0751	2081.774	14.44	11.88731
Rwanda	1.15	.8	20.85	2727.5	.00045	243.3087	5.15	9.008155
Saudi.Arab	.1	.45	18.55	1197.5	45	9260.124	0	9.95861
Senegal	.25	.65	45.95	27659.25	2.04895	496.9916	13.35	9.165201
Sier.Leone	1	.55	25.75	11215.05	0	214.5171	10.55	8.36267
Singapore	0	.05	1.65	10.25	0	23275.86	8	8.270373
Slovenia	0	.26	.36	123.9473684	21.42105	10118.25	20	7.60463
Sol.Islands	.79	.26	4.05	5210.210526	0	1156.727	16.74	6.091384
S.Africa	2.8	2.95	56.05	20880.6	74.28825	3182.968	18.4	10.69981
S.Korea	2.5	3.55	165.5	618594.3	1867.871	11284.46	17.2	10.74252
Spain	2.2	1.9	771.75	1471.2	385.5594	13843.82	20	10.63327
S.Lanka	2.7	1.7	1801.65	386787.85	81.634	846.1339	15.3	9.859055
Sudan	2.4	2.2	334.15	144846.1	26.31	368.0105	3.9	10.42226
Swaziland	.15	.2	1.75	531.7	0	1512.623	.85	7.017132
Sweden	.15	.35	.55	17.5	148.5	27173.5	20	9.093698
Switzerland	0	1.35	4	369.6	368.913	34371.38	20	8.891411
Syria	.05	.2	5.9	18.75	0	1243.464	2	9.695705
Taiwan	1.05	2.6	183.15	175499.1	939.1695	13490.39	17.85	9.992308
Tajikistan	1.55	2.16	108.68	47339.89474	36.58547	197.3348	6.68	8.73895
Tanzania	.45	2.25	280.5	30097.1	.1895	331.4324	7.9	10.40001

Continued on next page

Table 3.1 – continued from previous page

Country	Crisis	Disasters	Killed	Affected	Damage	GDP	Polity	Log (Pop.)
Thailand	1.5	3.75	498.1	1035034	188.1659	2042.175	16.5	11.02042
Togo	1.35	.4	26.45	12076.3	0	275.2166	7.05	8.491643
Trin/Tobago	.25	.45	.4	159.35	1.30635	6998.85	19.65	7.130956
Tunisia	0	.25	4.1	9200.4	12.14	2258.733	6.3	9.148142
Turkey	2.95	3.65	1011.9	302883.1	1248.615	4208.238	17.5	11.10459
Turkmenistan	.05	.05	.57	0	0	971.3909	1.05	8.377617
Uganda	.95	1.7	50	55524.1	3.55355	261.1559	6.3	10.07398
Ukraine	1.16	1.26	52.42	142943.7895	86.14284	858.3307	16.47	10.79872
UAE	0	0	0	0	0	32689.29	2	8.029752
UK	2.2	2.65	15.15	33748.2	1405.077	24231.06	20	10.99026
USA	2	19.85	336.65	974725.3	18990.87	33547.43	20	10.82019
Uruguay	.55	.7	1.3	8505.6	3.75	6669.833	20	8.071904
Uzbekistan	.72	.21	3.84	2718.315789	0	621.0395	1	10.11441
Venezuela	3.25	1.1	1523.15	34483	164.975	5069.816	16.5	10.05471
Vietnam	.05	5.9	546.95	1257929.4	337.8215	418.272	3	11.26653
Yemen	.45	1.4	46.8	17982.8	80.575	529.0925	7.6	9.744697
Zambia	.55	.75	19.3	186673.95	1.035	350.094	13.75	9.229916
Zimbabwe	.95	.7	306	44612	13.705	465.884	5.45	9.336655

Note: The numbers presented above are arithmetic mean calculated for the time period between 1990 and 2010.

Description of variables:

‘Crisis’ is a summary measure that aggregates five types of anti-government activities as identified by Banks (2011): anti-government demonstration, revolutions, riots, guerrilla warfares, and assassinations.

‘Disasters’ is a summary measure of eight different types of natural disasters events – earthquakes, epidemics, extreme temperature events, floods, storms, volcanic eruptions, landslides, and other types – as identified by CRED (2007), retrieved January 2012.

‘Killed’ is total number of people killed and ‘Affected’ total number of people affected by disasters occurred between 1990-2010.

‘Damage’ is total economic damage incurred by natural disasters measured in US \$ million (CRED 2007), retrieved January 2012.

‘GDP’ is Per Capita GDP per country-year measured per country-year in constant US \$ by the World Bank’s World Development Indicators, missing data are imputed with data from Penn World Table (Heston, Summers & Aten 2011), retrieved May 2012.

‘Log(Population)’ indicates natural log of the total populations per country-year calculated by Penn World Table (Heston, Summers & Aten 2011), retrieved May 2012.

‘Polity’ calculated by adding 10 to the ‘polity2’ variables as calculated by Marshall, Gurr & Jaggers (2010). In the transformed measure, 0 indicates most autocratic country and ‘20’ indicates most democratic country.

Table 3.2: Variable Descriptions

Variable	Source	Description
<i>Anti-Government Domestic Activities</i>		
Domestic Crises	Banks 2011 (domestic8,7,6,3,1)	Sum of ‘Anti-Govt. Demonstrations’, ‘Revolutions’, ‘Riots’, ‘Guerrilla Warfare’, and ‘Assassinations’
Demonstrations	Banks 2011 (domestic8)	“Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature” (11).
Revolutions	Banks 2011 (domestic7)	“Any illegal or forced change in the top government elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government” (11).
Riots	Banks 2011 (domestic6)	“Any violent demonstration or clash of more than 100 citizens involving the use of physical force” (11).
Guerrilla Warfare	Banks 2011 (domestic3)	“Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime” (11).
Assassinations	Banks 2011 (domestic1)	“Any politically motivated murder or attempted murder of a high government official or politician” (11).
Intrastate Conflict	UCDP/PRIO 2011 (Int [minor])	Presence and severity of “conflict between the government of a state and internal opposition groups, without intervention from other states” (7).
<i>Disaster Related Variables[†]</i>		
Disasters (count)		Sum of Earthquakes, Epidemics, Extreme Temperatures, Floods, Storms, Volcanic Eruptions, Landslides, and Other Types of Disaster Events.
Earthquake	CRED 2011 (EM-DAT Glossary)	“An earthquake is the result of a sudden release of stored energy in the Earth’s crust that creates seismic waves. They can be of tectonic or volcanic origin. At the Earth’s surface they are felt as a shaking or displacement of the ground.”
Epidemic	CRED 2011 (EM-DAT Glossary)	“Either an unusual increase in the number of cases of an infectious disease, which already exists in the region or population concerned; or the appearance of an infection previously absent from a region.”
Extreme Temperature	CRED 2011 (EM-DAT Glossary)	Damage caused by extreme temperature related events such as snow fall, ice formation or heat wave.

Continued on next page

Table 3.2 – continued from previous page

Variable	Source	Description
Flood	CRED 2011 (EM-DAT Glossary)	“Significant rise of water level in a stream, lake, reservoir or coastal region”. “A general flood is caused when a body of water (river, lake) overflows its normal confines due to rising water levels”. Flood also includes flash flood – “Rapid inland floods due to intense rainfall A flash flood describes sudden flooding with short duration. In sloped terrain the water flows rapidly with a high destruction potential. In flat terrain the rainwater cannot infiltrate into the ground or run off (due to small slope) as quickly as it falls.” Flood may also occur in the form of tsunami – “a series of waves caused by a rapid displacement of a body of water (ocean, lake)”
Storm	CRED 2011 (EM-DAT Glossary)	Storm indicates winter storm, hail storm, local wind/sandstorm, Blizzard/Snowstorm, severe storm, tornado, cyclone, typhoon, and hurricane.
Volcano	CRED 2011 (EM-DAT Glossary)	“Volcanic activity describes both the transport of magma and/or gases to the Earth’s surface, which can be accompanied by tremors and eruptions, and the interaction of magma and water (e.g. groundwater, crater lakes) underneath the Earth’s surface, which can result in phreatic eruptions. Depending on the composition of the magma eruptions can be explosive and effusive and result in variations of rock fall, ash fall, lava streams, pyroclastic flows, emission of gases etc.”
Landslides	CRED 2011 (EM-DAT Glossary)	“A landslide is the movement of soil or rock controlled by gravity and the speed of the movement usually ranges between slow and rapid, but not very slow. It can be superficial or deep, but the materials have to make up a mass that is a portion of the slope or the slope itself. The movement has to be downward and outward with a free face.”
Other Disasters	CRED 2011 (EM-DAT Glossary)	Other disasters includes droughts, various forms of wild fires, lightening.

† Source: EM-DAT database website at <http://www.emdat.be/glossary>.

Table 3.3: Summary Statistics

Variable	Mean	(Std. Dev.)	Max.†	Cases with Maximum Counts	N
<i>Anti-Government Domestic Activities</i>					
Domestic Crises	1.138	(2.527)	36	Indonesia (1998)	3990
Demonstrations	0.456	(1.253)	24	Indonesia 1998	3992
Revolutions	0.181	(0.523)	9	Cambodia (1994,1995), Mexico (1995), Turkey (1995)	3992
Riots	0.227	(0.906)	19	Russia (1990)	3992
Guerrilla Warfare	0.096	(0.351)	4	Iraq (2005)	3993
Assassinations	0.181	(0.934)	26	Colombia (2004)	3993
Intrastate Conflict	0.156	(0.554)	8	India (1997)	4570
<i>Disaster Related Variables</i>					
Disaster (count)	1.346	(2.996)	35	China (2006)	4570
Earthquake	0.124	(0.553)	11	China (2003)	4570
Epidemic	0.107	(0.419)	7	Nigeria (2002)	4570
Extreme Temperature	0.032	(0.199)	2	Bangladesh (1990), Belgium (2005), China (2008), France (2005, 2009), Germany (2006), India (1998), Mexico (1997), Netherlands (2005), Romania (1998, 2009), Russia (1995, 2000, 2010), Spain (1995), UK (2005), USA (1990,1995,2006)	4570
Flood	0.537	(1.264)	20	China (2006)	4570
Storm	0.406	(1.439)	26	USA (1992)	4570
Volcano	0.023	(0.182)	4	Indonesia (2004)	4570
Landslides	0.081	(0.396)	8	China (2010)	4570
Other Disasters	0.036	(0.239)	4	USA (1998,2000, 2002)	4570
Killed	326.585	(5520.241)	228233	Haiti (2010)	4570
Affected	685071.422	(8864488.749)	254900724	China (1998)	4570
Damage (\$ mil)	347.587	(3827.07)	159060.33	USA (2005)	4570

Continued on next page

Table 3.3 – continued from previous page
Cases with Maximum Counts

Variable	Mean	(Std. Dev.)	Max.†	N
<i>Political and Economic Characteristics of Countries</i>				
GDP (Per Capita)	7023.24	(11562.431)	74901.42 ^a	3964
PolityIV	12.836	(6.739)	20	3329
Log (population)	8.582	(2.024)	14.096 ^b	3671

† Min. is 0, if not mentioned otherwise. ^a Min. = 57.784. ^b Min. = 2.721.

Qatar (2010) [Compare: USA (2007) = 38743.82, Liberia (1995) = 57.78]
 653 country-year fall into the max. category that includes such country-year as Denmark (2010), Italy (2010), UK (2002)
 China (2009)

Table 3.4: Counts of Disaster Events Per-Year, 1990-2010

Year	Earthquakes	Epidemics	Extr. Temp.	Floods	Storms	Volcanos	Landslides	Others	Total (Disasters)
1990	36	3	9	51	115	2	6	1	223
1991	21	15	6	62	58	9	11	8	190
1992	21	7	3	43	40	5	11	3	133
1993	18	0	1	70	85	6	21	1	202
1994	23	6	2	68	74	5	8	11	197
1995	25	4	10	76	60	3	13	8	199
1996	12	21	4	79	67	3	23	4	213
1997	21	33	10	82	72	3	11	16	248
1998	26	40	11	83	79	4	19	15	277
1999	31	16	1	92	83	3	16	10	252
2000	28	31	6	124	91	5	26	11	322
2001	23	35	4	127	92	5	22	6	314
2002	30	50	3	149	102	7	18	12	371
2003	38	47	10	132	65	1	20	5	318
2004	36	28	3	111	91	4	16	4	293
2005	23	37	15	175	106	6	12	9	383
2006	23	28	11	195	66	10	18	6	357
2007	18	12	3	191	97	6	10	11	348
2008	23	16	4	137	93	6	15	5	299
2009	18	14	14	129	84	1	29	7	296
2010	23	16	11	152	81	5	30	4	322
Total	517	459	141	2328	1701	99	355	157	5757
(%)	(8.98)	(7.97)	(2.44)	(40.43)	(29.54)	(1.71)	(6.16)	(2.72)	(100)

Note: The numbers are raw counts. Column percentages of the total are in parenthesis in the last row. See also Figure 3.1.

Data Source: EM-DAT: The OFDA/CRED International Disaster Database – <http://www.em-dat.net> – Universite Catholique de Louvain, Brussels, Belgium

Table 3.5: Bivariate Correlations

	Disasters	Killed	Affected	Dmst.crisis	AGD	Rev	Riots	GW	Assn
Killed	0.158***								
Affected	0.399***	0.0990***							
Dmst.crisis	0.197***	0.0342*	0.0873***						
AGD	0.196***	0.0313	0.133***	0.798***					
Rev	0.0977***	0.0212	0.0129	0.465***	0.154***				
Riots	0.126***	0.0406*	0.0478**	0.706***	0.583***	0.100***			
GW	0.120***	0.00614	0.0197	0.425***	0.0920***	0.484***	0.0983***		
Assn	0.0493**	-0.00268	-0.00349	0.547***	0.134***	0.230***	0.0703***	0.297***	
Intrastate	0.233***	0.0820***	0.0960***	0.275***	0.109***	0.337***	0.175***	0.362***	0.111***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Variable 'Damage' is not reported for space limitation. It is significantly correlated with AGD (.109, $p < .001$) and Affected (.223, $p < .001$) only. In this table, Disasters = disaster count, Killed = # people killed, Dmst.crisis = Combined domestic crisis indicator, AGD = Anti-government demonstrations, Rev = Revolutions, GW = Guerrilla Warfare, Assn = Assassinations, and Intrastate = Intrastate conflict.

Table 3.6: Summary statistics of the rescaled variables.

Variable	Obs.	Mean	Std. Dev.
Killed (decile)	4557	2.643406	2.754657
Affected (decile)	4551	2.782685	2.785207
Damage (decile)	4556	1.98266	2.289269

Table 3.7: Bivariate Correlations.

	Disasters	Killed (decile)	Affected (decile)
Killed (decile)	0.6598	—	—
Affected (decile)	0.6371	0.7813	—
Damage (decile)	0.5981	0.5425	0.5614

Table 3.8: Decile based grouping of disaster related variables.

Deciles (codes)	Killed [Decile Range]	Affected [Decile Range]	Damage (\$ mil) [Decile Range]
1	0 < 2	0 < 16	0 < 1.20
2	2 < 5	16 < 600	1.2 < 5.00
3	5 < 11	600 < 2102	5 < 19.30
4	11 < 19	2102 < 5957	19.3 < 45.00
5	19 < 30	5957 < 14835	45 < 100.00
6	30 < 50	14835 < 33189	100 < 187.41
7	50 < 94	33189 < 94800	187.41 < 370.00
8	94 < 208	94800 < 224725	370 < 842.90
9	208 < 564	224725 < 736000	842.9 < 2514.00
10	> 564 --	> 736000 --	2514 --

Table 3.9: Degree of Collinearity: R-squared from OLS regression of each of the disaster variables on others

Variables Considered in the OLS models	Dependent Variables in the OLS Models			
	Disasters	Killed (decile)	Affected (decile)	Damage (decile)
Disasters, Killed (decile), Affected (decile), Damage (decile)	0.53	0.65	0.64	0.41
Disasters, Killed (decile), Affected (decile), Damage (decile), PolityIV, popula- tion (log), GDP (per capita)	0.54	0.64	0.64	0.48

Table 3.10: ZINB Results: Effects of Disasters on Anti-Government Domestic Activities

	Domestic Crisis		Demonstrations		Revolutions		Riots		Guerrilla Warfare		Assass- inations		Intrastate Conflict	
	β		β		β		β		β		β		β	
<u>Negative Binomial</u>														
Disaster (count)	.05459*** (.0099)	.05003*** (.0116)	.06205*** (.0140)	.05005** (.0189)	.04848* (.0196)	.00794 (.0269)	.09492*** (.0130)							
Killed	-.00001 (.0000)	-.00001 (.0000)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00005 (.0000)	.00001 (.0000)							
Affected	.00000 (.0000)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	.00000 (.0000)							
Damage (USD million)	.00000 (.0000)	.00001 (.0000)	-.00001 (.0000)	.00000 (.0000)	-.00007 (.0001)	.00001 (.0000)	-.00011* (.0000)							
GDP (Per Capita)	-.00003*** (.0000)	-.00003*** (.0000)	-.00011*** (.0000)	-.00001 (.0000)	-.00004 (.0000)	-.00008*** (.0000)	-.00012*** (.0000)							
polityIV	.03355*** (.0061)	.03871*** (.0080)	.00112 (.0079)	.01857 (.0107)	.02379* (.0117)	.08110*** (.0139)	.03014*** (.0091)							
Inflate	-.65923***	-.54112***	-.69221***	-.55735***	-.60666***	-.76119***	-							
Log (population)														
GDP (Per Capita)	(.0588)	(.0652)	(.1768)	(.0781)	(.1218)	(.1473)	(.1742)							
	.00004*** (.0000)	-.00002 (.0000)	.00011** (.0000)	.00004** (.0000)	.00007 (.0000)	.00005 (.0000)	-.00002 (.0000)							
N	3028	3030	3030	3030	3031	3031	3051							
Zeros	1809	2308	2528	2620	2778	2729	2603							
Vuong	6.512	5.317	1.675† [p=.047]	4.609	2.914	4.089	5.759							
ZIP	1148	225.9	34.08	165.8	1.609	297.7	32.63							

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \bar{\chi}^2 = 0.0000$, true for all models except revolutions (†), which has a $\Pr > z = .0473$. The model, however, appears to have similar results in the context of NBREG.

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations.

Table 3.11: ZINB-IRR Results: Effects of Disasters on Anti-Government Domestic Activities

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assassinations Exp(β)	Intrastate Conflict Exp(β)
Negative_Binomial							
Disaster (count)	1.05611*** (.0105)	1.05131*** (.0122)	1.06402*** (.0149)	1.05133*** (.0199)	1.04968* (.0206)	1.00797 (.0271)	1.09957*** (.0143)
Killed	.99999 (.0000)	.99999 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	.99995 (.0000)	1.00001 (.0000)
Affected	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)
Damage (USD million)	1.00000 (.0000)	1.00001 (.0000)	.99999 (.0000)	1.00000 (.0000)	.99993 (.0001)	1.00001 (.0000)	.99989* (.0000)
GDP (Per Capita)	.99997*** (.0000)	.99997*** (.0000)	.99989*** (.0000)	.99999 (.0000)	.99996 (.0000)	.99992*** (.0000)	.99988*** (.0000)
polityIV	1.03411*** (.0063)	1.03947*** (.0083)	1.00112 (.0079)	1.01875 (.0109)	1.02408* (.0120)	1.08448*** (.0150)	1.03060*** (.0094)
Inflate	.51725*** (.0304)	.58210*** (.0379)	.50047*** (.0885)	.57273*** (.0447)	.54517*** (.0664)	.46711*** (.0688)	.26475*** (.0461)
Log (population)	1.00004*** (.0000)	.99998 (.0000)	1.00011** (.0000)	1.00004** (.0000)	1.00007 (.0000)	1.00005 (.0000)	.99998 (.0000)
GDP (Per Capita)	3028	3030	3030	3030	3031	3031	3051
Zeros	1809	2308	2528	2620	2778	2729	2603
Vuong	6.512	5.317	1.675 [†] [p=.04]	4.609	2.914	4.089	5.759
ZIP	1148	225.9	34.08	165.8	1.609	297.7	32.63

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are Transformed into Incidence-Rate Ratio (IRR).

Standard Errors in parenthesis. Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$, true for all models except revolutions. ([†]), which has a $\Pr > z = .0473$. The model, however, appears to have similar results in the context of NBREG. Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations.

Table 3.12: ZINB Results: Effects of Disaster Types on Anti-Government Domestic Activities

	Domestic Crisis	Demonstrations	Revolutions	Riots	Guerrilla Warfare	Assassinations	Intrastate Conflict
	β	β	β	β	β	β	β
<u>Negative_Binomial</u>							
Earthquake	.20282*** (.0497)	.17553** (.0596)	.19381** (.0636)	.20996* (.0944)	.08406 (.0876)	.27527* (.1152)	-.02500 (.0640)
Epidemic	-.05088 (.0562)	-.18049* (.0867)	.12880 (.0689)	.05275 (.0971)	.09120 (.1023)	-.51588** (.1741)	.19269** (.0656)
Extreme Temperature	.19435 (.1270)	.05661 (.1549)	.24488 (.1834)	.26200 (.2187)	.32263 (.1983)	.34834 (.2793)	.24353 (.1548)
Flood	.02105 (.0237)	.01579 (.0292)	-.06758 (.0367)	.04248 (.0396)	-.05605 (.0462)	-.01167 (.0552)	.13519*** (.0241)
Storm	.01879 (.0210)	.03011 (.0268)	.07733* (.0308)	.01749 (.0362)	.04251 (.0383)	-.08355 (.0561)	.00417 (.0276)
Volcano	.24088 (.1269)	.24995 (.1730)	.49719*** (.1467)	-.14538 (.2680)	.63249*** (.1710)	.34331 (.2997)	.04292 (.1568)
Landslides	.21747** (.0674)	.15953* (.0791)	.19237* (.0822)	.07912 (.1080)	.14920 (.1055)	.31263 (.1649)	.26958*** (.0651)
Other Disasters	.06043 (.1145)	.15719 (.1343)	-.07768 (.2429)	-.29941 (.2377)	.39466 (.2296)	.00407 (.2891)	-.35225 (.2461)
Killed	-.00002* (.0000)	-.00002* (.0000)	-.00001 (.0000)	-.00000 (.0000)	.00002 (.0000)	-.00005 (.0000)	.00001 (.0000)
Affected	-.00000 (.0000)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	.00000 (.0000)	-.00000 (.0000)	.00000 (.0000)
Damage (USD million)	.00001 (.0000)	.00001 (.0000)	-.00001 (.0000)	.00000 (.0000)	-.00007 (.0001)	.00001 (.0000)	-.00008 (.0001)
GDP (Per Capita)	-.00003*** (.0000)	-.00003*** (.0000)	-.00011*** (.0000)	-.00001 (.0000)	-.00006 (.0000)	-.00007*** (.0000)	-.00011*** (.0000)
polityIV	.03214*** (.0061)	.03926*** (.0081)	.00117 (.0080)	.02078 (.0110)	.02181 (.0116)	.07713*** (.0139)	.02691** (.0090)
<u>Inflate</u>							
Log (population)	-.66625*** (.0595)	-.55318*** (.0677)	-.71072*** (.1720)	-.56493*** (.0795)	-.50778*** (.1101)	-.81850*** (.1735)	-1.28992*** (.1701)
GDP (Per Capita)	.00005*** (.0000)	-.00001 (.0000)	.00011* (.0000)	.00004** (.0000)	.00003 (.0001)	.00006 (.0000)	-.00002 (.0000)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis. Test results are similar to the previous table. Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Landslides indicates Rockfall, Avalanche, Landslide, or Subsidence.

Table 3.13: ZINB-IRR Results: Effects of Disaster Types on Anti-Government Domestic Activities

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assassinations Exp(β)	Intrastate Conflict Exp(β)
<u>Negative Binomial</u>							
Earthquake	1.22485*** (.0608)	1.19187** (.0711)	1.21386** (.0772)	1.23363* (.1164)	1.08770 (.0953)	1.31689* (.1518)	.97531 (.0625)
Epidemic	.95039 (.0534)	.83486* (.0723)	1.13746 (.0784)	1.05417 (.1024)	1.09549 (.1121)	.59698** (.1039)	1.21251** (.0795)
Extreme Temperature	1.21452 (.1543)	1.05824 (.1640)	1.27747 (.2343)	1.29953 (.2841)	1.38076 (.2737)	1.41671 (.3957)	1.27575 (.1975)
Flood	1.02127 (.0242)	1.01592 (.0296)	.93465 (.0343)	1.04340 (.0413)	.94549 (.0437)	.98840 (.0545)	1.14475*** (.0276)
Storm	1.01897 (.0214)	1.03057 (.0277)	1.08040* (.0333)	1.01764 (.0369)	1.04343 (.0400)	.91985 (.0516)	1.00418 (.0277)
Volcano	1.27236 (.1615)	1.28396 (.2221)	1.64409*** (.2412)	.86469 (.2317)	1.88230*** (.3218)	1.40961 (.4225)	1.04385 (.1637)
Landslides	1.24292** (.0838)	1.17296* (.0927)	1.21211* (.0996)	1.08234 (.1169)	1.16091 (.1225)	1.36702 (.2254)	1.30942*** (.0852)
Killed	.99998* (.0000)	.99998* (.0000)	.99999 (.0000)	1.00000 (.0000)	1.00002 (.0000)	.99995 (.0000)	1.00001 (.0000)
Affected	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)
Damage (USD million)	1.00001 (.0000)	1.00001 (.0000)	.99999 (.0000)	1.00000 (.0000)	.99993 (.0001)	1.00001 (.0000)	.99992 (.0001)
GDP (Per Capita)	.99997*** (.0000)	.99997*** (.0000)	.99989*** (.0000)	.99999 (.0000)	.99994 (.0000)	.99993*** (.0000)	.99989*** (.0000)
polityIV	1.03266*** (.0063)	1.04004*** (.0084)	1.00117 (.0080)	1.02100 (.0112)	1.02205 (.0119)	1.08018*** (.0151)	1.02727** (.0093)
Inflate	.51363*** (.0306)	.57512*** (.0389)	.49129*** (.0845)	.56840*** (.0452)	.60183*** (.0663)	.44109*** (.0765)	.27529*** (.0468)
GDP (Per Capita)	1.00005*** (.0000)	.99999 (.0000)	1.00011* (.0000)	1.00004** (.0000)	1.00003 (.0001)	1.00006 (.0000)	.99998 (.0000)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are Transformed into Incidence-Rate Ratio (IRR). Standard Errors in parenthesis. Test results are similar to the previous table. Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Landslides indicates Rockfall, Avalanche, Landslide, or Subsidence.

Table 3.14: ZINB Results: Effects of Disasters and Regime Characteristics on Anti-Government Domestic Activities (with Squared Polity2 Term.)

	Domestic Crisis	Demonstrations	Revolutions	Riots	Guerrilla Warfare	Assass- inations	Intrastate Conflict
	β	β	β	β	β	β	β
Negative Binomial							
Disaster (count)	.05800*** (.0100)	.04973*** (.0112)	.08045*** (.0138)	.05530** (.0193)	.05616** (.0201)	.00999 (.0266)	.10843*** (.0136)
Killed	-.00001 (.0000)	-.00001 (.0000)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00004 (.0000)	.00001 (.0000)
Affected	.00000 (.0000)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	.00000 (.0000)	-.00000 (.0000)	.00000 (.0000)
Damage (USD million)	.00000 (.0000)	.00001 (.0000)	-.00002 (.0000)	.00000 (.0000)	-.00007 (.0001)	.00001 (.0000)	-.00012* (.0001)
GDP (Per Capita)	-.00001 (.0000)	-.00002 (.0000)	-.00006* (.0000)	.00000 (.0000)	-.00002 (.0000)	-.00006* (.0000)	-.00010*** (.0000)
polityIV	.04404*** (.0061)	.05287*** (.0084)	.02295* (.0091)	.02573* (.0111)	.03205* (.0128)	.09524*** (.0149)	.04214*** (.0101)
PolityIV (square)	-.00856*** (.0014)	-.00924*** (.0018)	-.01660*** (.0020)	-.00570* (.0026)	-.00571* (.0028)	-.00891** (.0034)	-.00773*** (.0021)
Inflate							
Log (population)	-.65736*** (.0604)	-.51685*** (.0611)	-.66812** (.2350)	-.54686*** (.0779)	-.58842*** (.1221)	-.74328*** (.1483)	-1.36202*** (.1846)
GDP (Per Capita)	.00005*** (.0000)	-.00002 (.0000)	.00014** (.0000)	.00004** (.0000)	.00008 (.0001)	.00005 (.0000)	-.00003 (.0000)
N	3028	3030	3030	3030	3031	3031	3051
Zeros	1809	2308	2528	2620	2778	2729	2603
Vuong	6.148	5.2	1.204	4.475	2.794	3.933	5.119
ZIP	1139	207.7	32.25	167.3	1.7	295.6	39.49

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Coefficients with standard errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \bar{\chi}^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations.

Table 3.15: ZINB-IRR Results: Effects of Disasters and Regime Characteristics on Anti-Government Domestic Activities

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assass- inations Exp(β)	Intrastate Conflict Exp(β)
Negative_Binomial							
Disaster (count)	1.05972*** (.0106)	1.05099*** (.0118)	1.08378*** (.0149)	1.05686** (.0204)	1.05777** (.0213)	1.01004 (.0269)	1.11453*** (.0151)
Killed	.99999 (.0000)	.99999 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	.99996 (.0000)	1.00001 (.0000)
Affected	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)	1.00000 (.0000)
Damage (USD million)	1.00000 (.0000)	1.00001 (.0000)	.99998 (.0000)	1.00000 (.0000)	.99993 (.0001)	1.00001 (.0000)	.99988* (.0001)
GDP (Per Capita)	.99999 (.0000)	.99998 (.0000)	.99994* (.0000)	1.00000 (.0000)	.99998 (.0000)	.99994* (.0000)	.99990*** (.0000)
polityIV	1.04502*** (.0064)	1.05429*** (.0089)	1.02322* (.0093)	1.02607* (.0114)	1.03257* (.0132)	1.09992*** (.0164)	1.04304*** (.0105)
PolityIV (square)	.99148*** (.0014)	.99081*** (.0018)	.98354*** (.0020)	.99432* (.0026)	.99430* (.0028)	.99113** (.0034)	.99230*** (.0021)
Inflate							
Log (population)	.51822*** (.0313)	.59639*** (.0364)	.51267** (.1205)	.57877*** (.0451)	.55520*** (.0678)	.47555*** (.0705)	.25614*** (.0473)
GDP (Per Capita)	1.00005*** (.0000)	.99998 (.0000)	1.00014** (.0000)	1.00004** (.0000)	1.00008 (.0001)	1.00005 (.0000)	.99997 (.0000)
N	3028	3030	3030	3030	3031	3031	3051
Zeros	1809	2308	2528	2620	2778	2729	2603
Vuong	6.148	5.2	1.204	4.475	2.794	3.933	5.119
ZIP	1139	207.7	32.25	167.3	1.7	295.6	39.49

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Coefficients are Incidence-Rate Ratio (IRR). Standard Errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Demonstrations indicates Anti-Government Demonstrations.

Table 3.16: ZINB Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities (with Squared Polity2 Term).

	Domestic Crisis	Demonstrations	Revolutions	Riots	Guerrilla Warfare	Assass- inations	Intrastate Conflict
	β	β	β	β	β	β	β
<u>Negative Binomial</u>							
Earthquake	.20887*** (.0503)	.17294** (.0588)	.18054** (.0628)	.21803* (.0957)	.08048 (.0874)	.26521* (.1162)	-.02350 (.0649)
Epidemic	-.07473 (.0561)	-.20669* (.0857)	.08550 (.0687)	.03047 (.0972)	.09825 (.1016)	-.53766** (.1740)	.18644** (.0664)
Flood	.03447 (.0236)	.02485 (.0284)	-.04474 (.0364)	.04975 (.0396)	-.03540 (.0464)	.01091 (.0560)	.14956*** (.0248)
Storm	.01610 (.0208)	.02602 (.0260)	.10186*** (.0301)	.01920 (.0364)	.04557 (.0392)	-.08926 (.0561)	.01794 (.0281)
Volcano	.26701* (.1281)	.26616 (.1703)	.52943*** (.1432)	-.10682 (.2712)	.60755*** (.1762)	.34749 (.3031)	.05574 (.1589)
Landslides	.24045*** (.0678)	.16954* (.0771)	.22603** (.0808)	.08908 (.1088)	.17537 (.1047)	.35190* (.1665)	.30052*** (.0671)
Killed	-.00002* (.0000)	-.00002* (.0000)	-.00001 (.0000)	-.00001 (.0000)	-.00001 (.0000)	-.00005 (.0000)	.00001 (.0000)
GDP (Per Capita)	-.00001 (.0000)	-.00001 (.0000)	-.00006* (.0000)	.00001 (.0000)	-.00004 (.0000)	-.00005 (.0000)	-.00009*** (.0000)
polityIV	.04309*** (.0062)	.05401*** (.0085)	.02198* (.0091)	.02877* (.0114)	.02962* (.0128)	.09138*** (.0149)	.03893*** (.0100)
PolityIV (square)	-.00925*** (.0014)	-.00974*** (.0018)	-.01656*** (.0020)	-.00641* (.0027)	-.00546* (.0027)	-.00953** (.0034)	-.00792*** (.0021)
<u>Inflate</u>							
Log (population)	-.66568*** (.0615)	-.52460*** (.0637)	-.70039** (.2279)	-.55362*** (.0795)	-.59287*** (.1247)	-.81441*** (.1840)	-.132588*** (.1808)
GDP (Per Capita)	.00005*** (.0000)	-.00001 (.0000)	.00013** (.0000)	.00004** (.0000)	.00006 (.0001)	.00007 (.0000)	-.00003 (.0000)
N	3028	3030	3030	3030	3031	3031	3051
Zeros	1809	2308	2528	2620	2778	2729	2603
Vuong	6.179	5.04	2.117	4.398	2.654	3.668	5.043
ZIP	1097	201.7	27.58	163.1	1.206	274.1	25.27

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.
 Vuong: $\text{Pr} > z = 0.0000$. ZIP ($H_0: \alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$. 'Affected', 'Damage (USD million)', and 'Extreme Temperature' are not significant across models, and not reported here due to space limitation.

Table 3.17: ZINB-IRR Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assass- inations Exp(β)	Intrastate Conflict Exp(β)
<u>Negative Binomial</u>							
Earthquake	1.23228*** (.0620)	1.18879** (.0699)	1.19786** (.0752)	1.24362* (.1190)	1.08381 (.0947)	1.30370* (.1515)	.97677 (.0634)
Epidemic	.92800 (.0520)	.81327* (.0697)	1.08926 (.0748)	1.03094 (.1002)	1.10324 (.1121)	.58411** (.1016)	1.20495** (.0800)
Flood	1.03507 (.0245)	1.02516 (.0291)	.95624 (.0348)	1.05101 (.0416)	.96522 (.0448)	1.01097 (.0566)	1.16132*** (.0288)
Storm	1.01623 (.0211)	1.02636 (.0267)	1.10723*** (.0333)	1.01938 (.0371)	1.04662 (.0410)	.91461 (.0513)	1.01810 (.0286)
Volcano	1.30605* (.1673)	1.30494 (.2222)	1.69797*** (.2432)	.89868 (.2437)	1.83592*** (.3234)	1.41552 (.4291)	1.05733 (.1680)
Landslides	1.27182*** (.0862)	1.18476* (.0914)	1.25361** (.1014)	1.09317 (.1190)	1.19169 (.1248)	1.42176* (.2368)	1.35056*** (.0906)
Killed	.99998* (.0000)	.99998* (.0000)	.99999 (.0000)	.99999 (.0000)	.99999 (.0000)	.99995 (.0000)	1.00001 (.0000)
GDP (Per Capita)	.99999 (.0000)	.99999 (.0000)	.99994* (.0000)	1.00001 (.0000)	.99996 (.0000)	.99995 (.0000)	.99991*** (.0000)
polityIV	1.04403*** (.0064)	1.05549*** (.0090)	1.02222* (.0093)	1.02919* (.0117)	1.03007* (.0132)	1.09569*** (.0163)	1.03970*** (.0104)
PolityIV (square)	.99079*** (.0014)	.99030*** (.0018)	.98357*** (.0020)	.99361* (.0026)	.99456* (.0027)	.99051** (.0034)	.99211*** (.0021)
Inflate							
Log (population)	.51392*** (.0316)	.59179*** (.0377)	.49639** (.1131)	.57487*** (.0457)	.55274*** (.0689)	.44290*** (.0815)	.26557*** (.0480)
GDP (Per Capita)	1.00005*** (.0000)	.99999 (.0000)	1.00013** (.0000)	1.00004** (.0000)	1.00006 (.0001)	1.00007 (.0000)	.99997 (.0000)
N	3028	3030	3030	3030	3031	3031	3051
Zeros	1809	2308	2528	2620	2778	2729	2603
Vuong	6.179	5.04	2.117	4.398	2.654	3.668	5.043
ZIP	1097	201.7	27.58	163.1	1.206	274.1	25.27

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are Incidence-Rate Ratio (IRR). Standard Errors in parenthesis. Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \bar{\chi}^2 = 0.0000$. 'Affected', 'Damage (USD million)' and 'Extreme Temperature' are not significant across models, and not reported here due to space limitation.

Table 3.18: ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Autocracies

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Assassinations Exp(β)
Negative_Binomial					
Disaster (count)	1.05883*** (.0140)	1.08138*** (.0194)	.99206 (.0300)	1.03998 (.0217)	.87003 (.0750)
GDP (Per Capita)	.99992 (.0000)	.99996 (.0001)	.99839*** (.0003)	.99978*** (.0001)	1.00044 (.0005)
Inflate					
Log (population)	.74870*** (.0644)	.70701*** (.0695)	.14164 (.2133)	.60806** (.1083)	.49940* (.1627)
GDP (Per Capita)	1.00009 (.0001)	1.00003 (.0001)		.99976 (.0002)	1.00047* (.0002)
GDP (per capita)			.99555 (.0033)		
N	588	588	561	588	588
Zeros	397	491	470	521	556
Vuong	1.922	1.566	.	2.059	.7817
ZIP	96.93	38.93	0	6.042	21.7

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Coefficients are Transformed into Incidence-Rate Ratio (IRR). Standard Errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Demonstrations indicates Anti-Government Demonstrations.

Table 3.19: ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Anocracies

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assass- inations Exp(β)	Intrastate Conflict Exp(β)
Negative_Binomial							
Disaster (count)	1.102802*** (.0320)	1.142034** (.0498)	1.056364 (.0362)	1.103373 (.0571)	.9870174 (.0563)	.9954863 (.0602)	1.091967* (.0389)
GDP (Per Capita)	1.000119* (.0001)	1.000153 (.0001)	.9998657* (.0001)	1.000232 (.0001)	1.000172 (.0001)	1.000563** (.0002)	1.000287** (.0001)
Inflate							
Log (population)	.5682634*** (.0668)	.5926574*** (.0655)	167797.5 (4.0891e+08)	.5399113*** (.0726)	.4195982** (.1206)	.3344126** (.1245)	.1233657*** (.0516)
GDP (Per Capita)	1.000295*** (.0001)	1.000127* (.0001)	1.0163 (3.3894)	1.00036* (.0002)	1.000497 (.0003)	1.00076* (.0003)	
GDP (per capita)							1.001953*** (.0004)
N	863	864	864	865	865	865	848
Zeros	456	668	624	735	771	771	664
Vuong	2.837	2.475	.7987	2.797			
ZIP	416.5	119.6	22.58	56.11	0	56.21	0

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Coefficients are Transformed into Incidence-Rate Ratio (IRR). Standard Errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP ($H_0: \alpha = 0$): $\Pr \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Demonstrations indicates Anti-Government Demonstrations.

Table 3.20: ZINB Results: Effects of Disasters on Anti-Government Domestic Activities in Democracies

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assass- inations Exp(β)	Intrastate Conflict Exp(β)
Negative Binomial							
Disaster (count)	1.050953*** (.0120)	1.02695* (.0121)	1.091617*** (.0200)	1.035958 (.0267)	1.051207* (.0235)	.9957875 (.0317)	1.107807*** (.0168)
GDP (Per Capita)	.9999722*** (.0000)	.9999912 (.0000)	.9999557 (.0000)	.9999963 (.0000)	.9998992*** (.0000)	.9999223*** (.0000)	.9998777*** (.0000)
Inflate							
Log (population)	.5305587*** (.0249)	.5980983*** (.0322)	.494265*** (.0494)	.5390809*** (.0510)	.3872538*** (.0663)	.3785743*** (.0660)	.1925847*** (.0449)
GDP (Per Capita)	1.000039*** (.0000)	1.000023* (.0000)	1.000129** (.0000)	1.000051* (.0000)	.9999228 (.0001)	1.000052 (.0000)	.9997858*** (.0000)
N	2090	2091	2091	2090	2091	2091	2132
Zeros	1406	1621	1899	1862	1960	1896	1966
Vuong	8.455	6.546	4.882	5.177	5.122	7.44	8.214
ZIP	735.5	72.44	5.387	153	3.48	223.8	32.4

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Coefficients are Transformed into Incidence-Rate Ratio (IRR). Standard Errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Demonstrations indicates Anti-Government Demonstrations.

Table 3.21: ZINB-IRR Results: Effects of the Summary Measure of Disasters on Anti-Government Domestic Activities (Killed, Affected, Damage variables Dropped from the Equations)

	Domestic Crisis exp(β)	Demonstrations exp(β)	Revolutions exp(β)	Riots exp(β)	Guerrilla Warfare exp(β)	Assass- inations exp(β)	Intrastate Conflict exp(β)
<u>Negative Binomial</u>							
Disaster (count)	1.024909*** (.0030)	1.024724*** (.0037)	1.02675*** (.0046)	1.022501*** (.0057)	1.024636*** (.0069)	1.008854 (.0082)	1.041644*** (.0045)
GDP (Per Capita)	.9999903 (.0000)	.9999877 (.0000)	.9999358** (.0000)	1.000007 (.0000)	.999985 (.0000)	.9999529* (.0000)	.9998988*** (.0000)
polityIV	1.040317*** (.0063)	1.04591*** (.0086)	1.022736* (.0092)	1.023655* (.0113)	1.031585* (.0132)	1.098152*** (.0163)	1.04152*** (.0102)
PolityIV (square)	.991653*** (.0014)	.9917709*** (.0018)	.9835375*** (.0019)	.9942192* (.0026)	.9938363* (.0028)	.990385** (.0033)	.9923313*** (.0021)
<u>Inflate</u>							
Log (population)	.5268654*** (.0323)	.6162622*** (.0366)	.5245049* (.1494)	.5842235*** (.0478)	.5803684*** (.0781)	.4588345*** (.0781)	.2758302*** (.0518)
GDP (Per Capita)	1.000055*** (.0000)	.9999926 (.0000)	1.000131* (.0001)	1.000047** (.0000)	1.000087 (.0001)	1.000064 (.0000)	.9999648 (.0000)
N	3011	3013	3013	3013	3014	3014	3034
Zeros	1801	2299	2513	2608	2761	2712	2588
Vuong	6.039	4.799	.8822	4.138	2.228	3.595	4.524
ZIP	1099	204.8	33.28	165	2.142	301.9	33.04

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Instantaneous Rate Ratio (IRR) with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$, except Revolutions: $p = 0.188$. ZIP ($H_0: \alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, and assassinations. Disaster Shock is a summary measure of disasters, killed (decile), affected (decile), damage (decile).

Table 3.22: ZINB-IRR Results: Effects of Disaster Types and Regime Characteristics on Anti-Government Domestic Activities (Killed, Affected, Damage variables Dropped from the Equations)

	Domestic Crisis Exp(β)	Demonstrations Exp(β)	Revolutions Exp(β)	Riots Exp(β)	Guerrilla Warfare Exp(β)	Assass- inations Exp(β)	Intrastate Conflict Exp(β)
<u>Negative Binomial</u>							
Earthquake	1.20784*** (.0565)	1.19597*** (.0643)	1.12214* (.0651)	1.18485* (.1024)	1.03157 (.0809)	1.23088 (.1354)	.94398 (.0552)
Epidemic	.92121 (.0514)	.81628* (.0691)	1.07892 (.0745)	1.02310 (.0995)	1.10204 (.1117)	.56251*** (.0983)	1.22467** (.0813)
Extreme Temperature	1.21309 (.1541)	1.05549 (.1586)	1.24893 (.2279)	1.35347 (.2952)	1.38116 (.2709)	1.37453 (.3818)	1.30109 (.2001)
Flood	1.03387 (.0242)	1.02743 (.0290)	.96152 (.0343)	1.04432 (.0409)	.95723 (.0443)	1.00350 (.0558)	1.15502*** (.0283)
Storm	1.01913 (.0207)	1.04169 (.0270)	1.09456** (.0324)	1.01043 (.0345)	1.02868 (.0374)	.90804 (.0508)	1.00713 (.0274)
Volcano	1.27860 (.1643)	1.29701 (.2320)	1.63212*** (.2272)	.92556 (.2298)	1.95529*** (.3462)	1.38438 (.4157)	1.14989 (.1676)
Landslides	1.24430*** (.0819)	1.18547* (.0889)	1.22030* (.0994)	1.06261 (.1121)	1.18617 (.1237)	1.33604 (.2137)	1.35835*** (.0908)
GDP (Per Capita)	.99999 (.0000)	.99999 (.0000)	.99994* (.0000)	1.00001 (.0000)	.99995 (.0000)	.99996 (.0000)	.99991*** (.0000)
polityIV	1.04394*** (.0064)	1.05355*** (.0089)	1.02429** (.0093)	1.03056** (.0117)	1.03276* (.0131)	1.09640*** (.0163)	1.04172*** (.0103)
PolityIV (square)	.99080*** (.0014)	.99062*** (.0018)	.98329*** (.0020)	.99350* (.0026)	.99463* (.0027)	.98991** (.0034)	.99238*** (.0021)
<u>Inflate</u>							
Log (population)	.50403*** (.0320)	.59630*** (.0375)	.49308** (.1108)	.56169*** (.0463)	.58018*** (.0675)	.43630*** (.0809)	.26853*** (.0478)
GDP (Per Capita)	1.00006*** (.0000)	1.00000 (.0000)	1.00014** (.0000)	1.00005** (.0000)	1.00003 (.0001)	1.00008* (.0000)	.99997 (.0000)
N	3017	3019	3019	3019	3020	3020	3040
Zeros	1804	2303	2517	2611	2767	2718	2593
Vuong	6.331	5.081	1.237	4.456	2.697	3.684	5.057
ZIP	1101	199.4	30.84	171.4	.5534	276.4	27.17

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients are Incidence-Rate Ratio (IRR). Standard Errors in parenthesis.

Vuong: Pr > z = 0.0000. ZIP (H0: $\alpha = 0$): Pr $\geq \chi^2 = 0.0000$.

Table 3.23: ZINB Results: Effects of Disasters on the Aggregate Measure of Domestic Political Crisis

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative Binomial							
Disaster (count)	.06027*** (.0085)				.05459*** (.0099)	.05800*** (.0100)	
Killed		.00001 (.0000)			-.00001 (.0000)	-.00001 (.0000)	
Affected			.00000*** (.0000)		.00000 (.0000)	.00000 (.0000)	
Damage (USD million)				.00002** (.0000)	.00000 (.0000)	.00000 (.0000)	
GDP (Per Capita)	-.00001 (.0000)	-.00001 (.0000)	-.00001 (.0000)	-.00001* (.0000)	-.00003*** (.0000)	-.00001 (.0000)	
polityIV	.04342*** (.0061)	.04125*** (.0061)	.04554*** (.0061)	.04345*** (.0061)	.03355*** (.0061)	.04404*** (.0061)	
PolityIV (square)	-.00852*** (.0014)	-.00746*** (.0014)	-.00825*** (.0015)	-.00733*** (.0014)		-.00856*** (.0014)	
Inflate							
Log (population)	-.65660*** (.0605)	-.66424*** (.0554)	-.66781*** (.0565)	-.66552*** (.0556)	-.65923*** (.0588)	-.65736*** (.0604)	
GDP (Per Capita)	.00005*** (.0000)	.00005*** (.0000)	.00005*** (.0000)	.00005*** (.0000)	.00004*** (.0000)	.00005*** (.0000)	
N	3028	3028	3028	3028	3028	3028	
Zeros	1809	1809	1809	1809	1809	1809	
Vuong	6.178	7.412	7.328	7.18	6.512	6.148	
ZIP	1147	1187	1162	1179	1148	1139	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.24: ZINB Results: Effects of Disasters on Anti-Government Demonstrations

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative Binomial							
Disaster (count)	.06193*** (.0094)				.05003*** (.0116)	.04973*** (.0112)	
Killed		.00002 (.0000)			-.00001 (.0000)	-.00001 (.0000)	
Affected			.00000*** (.0000)		.00000 (.0000)	.00000 (.0000)	
Damage (USD million)				.00002*** (.0000)	.00001 (.0000)	.00001 (.0000)	
GDP (Per Capita)	-.00001 (.0000)	-.00000 (.0000)	.00000 (.0000)	-.00001 (.0000)	-.00003*** (.0000)	-.00002 (.0000)	
polityIV	.05025*** (.0083)	.03894*** (.0082)	.04902*** (.0084)	.04302*** (.0083)	.03871*** (.0080)	.05287*** (.0084)	
PolityIV (square)	-.00899*** (.0018)	-.00819*** (.0018)	-.00949*** (.0018)	-.00804*** (.0018)		-.00924*** (.0018)	
Inflate							
Log (population)	-.50375*** (.0606)	-.53337*** (.0532)	-.54775*** (.0578)	-.54963*** (.0557)	-.54112*** (.0652)	-.51685*** (.0611)	
GDP (Per Capita)	-.00002 (.0000)	.00000 (.0000)	.00000 (.0000)	-.00001 (.0000)	-.00002 (.0000)	-.00002 (.0000)	
N	3030	3030	3030	3030	3030	3030	
Zeros	2308	2308	2308	2308	2308	2308	
Vuong	5.165	6.099	5.916	5.961	5.317	5.2	
ZIP	210.9	216.4	220.6	227.2	225.9	207.7	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.25: ZINB Results: Effects of Disasters on Revolutions

	Reduced Forms					Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 5 β
Negative_Binomial						
Disaster (count)	.06917*** (.0119)				.06205*** (.0140)	.08045*** (.0138)
Killed		.00001 (.0000)				.00000 (.0000)
Affected			.00000 (.0000)			-.00000 (.0000)
Damage (USD million)				.00001 (.0000)		-.00002 (.0000)
GDP (Per Capita)	-.00006* (.0000)	-.00004 (.0000)	-.00004 (.0000)	-.00005 (.0000)	-.00011*** (.0000)	-.00006* (.0000)
polityIV	.02577** (.0090)	.02739** (.0090)	.02855** (.0090)	.02798** (.0090)	.00112 (.0079)	.02295* (.0091)
PolityIV (square)	-.01674*** (.0020)	-.01479*** (.0019)	-.01496*** (.0020)	-.01477*** (.0019)		-.01660*** (.0020)
Inflate						
Log (population)	-.66867** (.2292)	-.59859*** (.1343)	-.60192*** (.1357)	-.59656*** (.1331)	-.69221*** (.1768)	-.66812** (.2350)
GDP (Per Capita)	.00014** (.0000)	.00013*** (.0000)	.00013*** (.0000)	.00013*** (.0000)	.00011** (.0000)	.00014** (.0000)
N	3030	3030	3030	3030	3030	3030
Zeros	2528	2528	2528	2528	2528	2528
Vuong	1.22	2.052	2.033	2.054	1.675	1.204
ZIP	32.6	25.88	26.01	25.73	34.08	32.25

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.
 Vuong: $\text{Pr} > z = 0.0000$. ZIP ($H_0: \alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Table 3.26: ZINB Results: Effects of Disasters on Riots

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative Binomial							
Disaster (count)	.04902** (.0159)				.05005** (.0189)	.05530** (.0193)	
Killed		.00001 (.0000)			-.00000 (.0000)	-.00000 (.0000)	
Affected			.00000 (.0000)		-.00000 (.0000)	-.00000 (.0000)	
Damage (USD million)				.00001 (.0000)	.00000 (.0000)	.00000 (.0000)	
GDP (Per Capita)	.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00000 (.0000)	-.00001 (.0000)	.00000 (.0000)	
polityIV	.02686* (.0110)	.02455* (.0110)	.02668* (.0112)	.02613* (.0110)	.01857 (.0107)	.02573* (.0111)	
PolityIV (square)	-.00579* (.0026)	-.00441 (.0026)	-.00476 (.0026)	-.00454 (.0026)		-.00570* (.0026)	
Inflate							
Log (population)	-.55541*** (.0783)	-.57853*** (.0699)	-.58244*** (.0724)	-.57246*** (.0692)	-.55735*** (.0781)	-.54686*** (.0779)	
GDP (Per Capita)	.00004** (.0000)	.00003* (.0000)	.00004* (.0000)	.00004* (.0000)	.00004** (.0000)	.00004** (.0000)	
N	3030	3030	3030	3030	3030	3030	
Zeros	2620	2620	2620	2620	2620	2620	
Vuong	4.497	5.181	5.088	5.19	4.609	4.475	
ZIP	170.5	171.7	172.4	169.8	165.8	167.3	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.27: ZINB Results: Effects of Disasters on Guerrilla Warfare

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative_Binomial							
Disaster (count)	.03900* (.0172)				.04848* (.0196)	.05616** (.0201)	
Killed		-.00000 (.0000)			-.00000 (.0000)	-.00000 (.0000)	
Affected			.00000 (.0000)		-.00000 (.0000)	.00000 (.0000)	
Damage (USD million)				-.00002 (.0000)	-.00007 (.0001)	-.00007 (.0001)	
GDP (Per Capita)	-.00003 (.0000)	-.00004 (.0000)	-.00004 (.0000)	-.00004 (.0000)	-.00004 (.0000)	-.00002 (.0000)	
polityIV	.03598** (.0126)	.03844** (.0125)	.03850** (.0126)	.03766** (.0125)	.02379* (.0117)	.03205* (.0128)	
PolityIV (square)	-.00559* (.0028)	-.00417 (.0027)	-.00423 (.0027)	-.00407 (.0027)		-.00571* (.0028)	
Inflate							
Log (population)	-.58937*** (.1210)	-.58784*** (.1045)	-.58833*** (.1053)	-.58738*** (.1030)	-.60666*** (.1218)	-.58842*** (.1221)	
GDP (Per Capita)	.00007 (.0001)	.00005 (.0001)	.00005 (.0001)	.00005 (.0000)	.00007 (.0000)	.00008 (.0001)	
N	3031	3031	3031	3031	3031	3031	
Zeros	2778	2778	2778	2778	2778	2778	
Vuong	2.785	3.674	3.611	3.705	2.914	2.794	
ZIP	1.742	.455	.4836	.3742	1.609	1.7	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.
Vuong: $\text{Pr} > z = 0.0000$. ZIP ($H_0: \alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Table 3.28: ZINB Results: Effects of Disasters on Assassinations

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative Binomial							
Disaster (count)	-.00048 (.0248)						.00999 (.0266)
Killed		-.00005 (.0000)					-.00004 (.0000)
Affected			-.00000 (.0000)				-.00000 (.0000)
Damage (USD million)				.00000 (.0000)			.00001 (.0000)
GDP (Per Capita)	-.00005* (.0000)	-.00005* (.0000)	-.00005* (.0000)	-.00005* (.0000)	-.00008*** (.0000)		-.00006* (.0000)
polityIV	.09566*** (.0148)	.09593*** (.0147)	.09496*** (.0147)	.09576*** (.0147)	.08110*** (.0139)		.09524*** (.0149)
PolityIV (square)	-.00943** (.0034)	-.00919** (.0034)	-.00911** (.0034)	-.00941** (.0034)			-.00891** (.0034)
Inflate							
Log (population)	-.75871*** (.1525)	-.74516*** (.1427)	-.74406*** (.1456)	-.75982*** (.1510)	-.76119*** (.1473)		-.74328*** (.1488)
GDP (Per Capita)	.00006 (.0000)	.00006 (.0000)	.00006 (.0000)	.00006 (.0000)	.00005 (.0000)		.00005 (.0000)
N	3031	3031	3031	3031	3031		3031
Zeros	2729	2729	2729	2729	2729		2729
Vuong	3.938	4.339	4.307	4.246	4.089		3.933
ZIP	299.8	296.9	297.6	300.9	297.7		295.6

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.29: ZINB Results: Effects of Disasters on Intrastate Conflicts

	Reduced Forms						Full Model
	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β	Model 6 β	
Negative Binomial							
Disaster (count)	.09388*** (.0115)				.09492*** (.0130)	.10843*** (.0136)	
Killed		.00001 (.0000)			.00001 (.0000)	.00001 (.0000)	
Affected			.00000** (.0000)		.00000 (.0000)	.00000 (.0000)	
Damage (USD million)				.00001 (.0000)	-.00011* (.0000)	-.00012* (.0001)	
GDP (Per Capita)	-.00011*** (.0000)	-.00014*** (.0000)	-.00013*** (.0000)	-.00014*** (.0000)	-.00012*** (.0000)	-.00010*** (.0000)	
polityIV	.04739*** (.0099)	.05714*** (.0097)	.06026*** (.0098)	.05845*** (.0098)	.03014*** (.0091)	.04214*** (.0101)	
PolityIV (square)	-.00731*** (.0021)	-.00173 (.0021)	-.00264 (.0021)	-.00150 (.0021)		-.00773*** (.0021)	
Inflate							
Log (population)	-1.34671*** (.1781)	-1.17367*** (.1266)	-1.18206*** (.1294)	-1.15984*** (.1245)	-1.32895*** (.1742)	-1.36202*** (.1846)	
GDP (Per Capita)	-.00003 (.0000)	-.00003 (.0000)	-.00003 (.0000)	-.00003 (.0000)	-.00002 (.0000)	-.00003 (.0000)	
N	3051	3051	3051	3051	3051	3051	
Zeros	2603	2603	2603	2603	2603	2603	
Vuong	5.294	6.809	6.95	7.297	5.759	5.119	
ZIP	39.25	32.41	30.67	30.69	32.63	39.49	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Coefficients with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$); $\text{Pr} \geq \chi^2 = 0.0000$

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.30: ZINB Results: Effects of Disasters on the Aggregate Measure of Domestic Crisis

	Reduced Forms					Full Model
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)	Model 6 exp(β)
<u>Negative Binomial</u>						
Disaster (count)	1.06406*** (.0092)				1.025032* (.0116)	1.029889** (.0117)
Killed (decile)		1.089227*** (.0108)			1.063693*** (.0177)	1.060551*** (.0176)
Affected (decile)			1.074407*** (.0109)		.9960994 (.0163)	.9952154 (.0163)
Damage (decile)				1.082261*** (.0132)	1.005399 (.0167)	1.009577 (.0168)
GDP (Per Capita)	.9999869 (.0000)	.9999943 (.0000)	.999997 (.0000)	.999813** (.0000)	.9999714*** (.0000)	.9999899 (.0000)
polityIV	1.044337*** (.0063)	1.038839*** (.0062)	1.036889*** (.0063)	1.041919*** (.0063)	1.03117*** (.0063)	1.041532*** (.0064)
PolityIV (square)	.9915522*** (.0014)	.9922543*** (.0014)	.9922131*** (.0014)	.9918718*** (.0014)		.9917616*** (.0014)
<u>Inflate</u>						
Log (population)	.5108336*** (.0316)	.5340349*** (.0315)	.5250582*** (.0308)	.5231121*** (.0303)	.5262701*** (.0317)	.5270982*** (.0327)
GDP (Per Capita)	1.000055*** (.0000)	1.000054*** (.0000)	1.000056*** (.0000)	1.000052*** (.0000)	1.00005*** (.0000)	1.000054*** (.0000)
N	3017	3017	3012	3016	3011	3011
Zeros	1804	1804	1801	1804	1801	1801
Vuong	6.325	6.37	6.582	6.63	6.363	6.047
ZIP	1145	1081	1125	1128	1086	1082

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$

Disasters indicate number of disasters per country-year.

Domestic Crisis is a summary measure of demonstrations, revolutions, riots, guerrilla warfare, & assassinations

Table 3.31: ZINB Results: Effects of Disasters on Anti-Government Demonstrations

	Reduced Forms					Full Model Model 6 exp(β)
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)	
<u>Negative Binomial</u>						
Disaster (count)	1.066144*** (.0102)				1.04527*** (.0136)	1.050223*** (.0134)
Killed (decile)		1.083331*** (.0142)			1.044582* (.0228)	1.036678 (.0224)
Affected (decile)			1.071168*** (.0142)		.9898553 (.0217)	.9865941 (.0215)
Damage (decile)				1.086101*** (.0164)	1.007989 (.0211)	1.014304 (.0209)
GDP (Per Capita)	.9999816* (.0000)	.9999942 (.0000)	.9999977 (.0000)	.9999852 (.0000)	.9999677*** (.0000)	.9999815* (.0000)
polityIV	1.051935*** (.0088)	1.040568*** (.0085)	1.038046*** (.0085)	1.043302*** (.0086)	1.037465*** (.0084)	1.050829*** (.0089)
PolityIV (square)	.9912406*** (.0018)	.9925598*** (.0018)	.992349*** (.0018)	.9916016*** (.0018)		.9914953*** (.0018)
<u>Inflate</u>						
Log (population)	.6045392*** (.0364)	.613798*** (.0354)	.6043437*** (.0347)	.5949487*** (.0349)	.602555*** (.0388)	.6141677*** (.0370)
GDP (Per Capita)	.999986 (.0000)	.9999986 (.0000)	1.000002 (.0000)	.9999988 (.0000)	.9999877 (.0000)	.9999852 (.0000)
N	3019	3019	3014	3018	3013	3013
Zeros	2303	2303	2300	2302	2299	2299
Vuong	5.211	4.957	5.14	5.242	4.839	4.795
ZIP	207.2	207.9	214.9	221	215.6	201.2

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.

Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$

Disasters indicate number of disasters per country-year.

Demonstrations indicate Anti-Government Demonstrations

Table 3.32: ZINB Results: Effects of Disasters on Guerrilla Warfare

	Reduced Forms			Full Model Model 6 exp(β)
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	
Negative_Binomial				
Disaster (count)	1.040198* (.0178)			1.000998 (.0230)
Killed (decile)		1.102203*** (.0241)		1.089555** (.0337)
Affected (decile)			1.091381*** (.0246)	1.052522 (.0338)
Damage (decile)				.941935 (.0299)
GDP (Per Capita)	.9999744 (.0000)	.9999835 (.0000)	1 (.0000)	.999992 (.0000)
polityIV	1.036502** (.0131)	1.030597* (.0131)	1.027502* (.0132)	1.019545 (.0121)
PolityIV (square)	.9943346* (.0028)	.9947625 (.0027)	.9946339* (.0027)	1.026428* (.0133)
Inflate				.995199 (.0028)
Log (population)	.553604*** (.0670)	.6134563*** (.0869)	.5964404*** (.0759)	.6088428*** (.0884)
GDP (Per Capita)	1.000074 (.0001)	1.000075 (.0001)	1.000093 (.0000)	1.000087 (.0001)
N	3020	3020	3015	3014
Zeros	2767	2767	2762	2761
Vuong	2.769	2.331	2.555	2.315
ZIP	1.755	.9588	1.286	.6965

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.
 Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \bar{\chi}^2 = 0.0000$
 Disasters indicate number of disasters per country-year.

Table 3.33: ZINB Results: Effects of Disasters on Revolutions

	Reduced Forms					Full Model Model 5 exp(β)
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)	
<u>Negative Binomial</u>						
Disaster (count)	1.071626*** (.0128)				1.025157 (.0173)	1.045188** (.0173)
Killed (decile)		1.07809*** (.0156)			1.060941** (.0237)	1.043972 (.0230)
Affected (decile)			1.063705*** (.0158)		.9893763 (.0233)	.991073 (.0230)
Damage (decile)				1.086185*** (.0207)	1.00025 (.0253)	1.022545 (.0258)
GDP (Per Capita)	.999943* (.0000)	.9999427* (.0000)	.9999475* (.0000)	.9999297** (.0000)	.9998854*** (.0000)	.9999347** (.0000)
polityIV	1.026043** (.0092)	1.024054** (.0092)	1.022145* (.0092)	1.02608** (.0092)	1.00219 (.0079)	1.024653** (.0093)
PolityIV (square)	.9833637*** (.0020)	.9848614*** (.0019)	.9846077*** (.0019)	.9839133*** (.0019)		.9834039*** (.0020)
<u>Inflate</u>						
Log (population)	.5113737** (.1170)	.5551305** (.1213)	.5532073** (.1049)	.5470293** (.1012)	.5016193*** (.1048)	.5133068* (.1488)
GDP (Per Capita)	1.000138** (.0000)	1.000126** (.0000)	1.000126** (.0000)	1.000115* (.0000)	1.000105* (.0000)	1.000134* (.0001)
N	3019	3019	3014	3018	3013	3013
Zeros	2517	2517	2513	2517	2513	2513
Vuong	1.212	1.127	1.291	1.371	1.286	.8955
ZIP	32.52	30.34	30.08	29.12	35.89	33.38

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.

ZIP (H0: $\alpha = 0$): $\Pr \geq \bar{\chi}^2 = 0.0000$

Disasters indicate number of disasters per country-year.

Table 3.34: ZINB Results: Effects of Disasters on Riots

	Reduced Forms						Full Model Model 6 exp(β)
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)		
<u>Negative Binomial</u>							
Disaster (count)	1.051474** (.0171)					1.005887 (.0198)	1.011845 (.0204)
Killed (decile)		1.081623*** (.0204)				1.076774* (.0342)	1.070327* (.0341)
Affected (decile)			1.056778** (.0203)			.9647145 (.0305)	.9662175 (.0306)
Damage (decile)				1.086185*** (.0231)		1.045874 (.0302)	1.048764 (.0304)
GDP (Per Capita)	1.000005 (.0000)	1.00001 (.0000)	1.000008 (.0000)	.999893 (.0000)	.9999861 (.0000)	.9999999 (.0000)	.9999999 (.0000)
polityIV	1.02704* (.0113)	1.021875* (.0112)	1.020629 (.0113)	1.026136* (.0112)	1.01896 (.0110)	1.025967* (.0115)	1.025967* (.0115)
PolityIV (square)	.9941516* (.0026)	.9952576 (.0026)	.995021 (.0026)	.9943898* (.0026)		.994545* (.0026)	.994545* (.0026)
<u>Inflate</u>							
Log (population)	.5691049*** (.0456)	.5904979*** (.0454)	.5785637*** (.0430)	.5787087*** (.0451)	.5840759*** (.0474)	.5884475*** (.0475)	.5884475*** (.0475)
GDP (Per Capita)	1.000047** (.0000)	1.000047** (.0000)	1.000044** (.0000)	1.000038* (.0000)	1.000041* (.0000)	1.000044** (.0000)	1.000044** (.0000)
N	3019	3019	3014	3018	3013	3013	3013
Zeros	2611	2611	2608	2611	2608	2608	2608
Vuong	4.536	4.272	4.509	4.364	4.219	4.109	4.109
ZIP	172.2	161.8	167.2	161.1	154.1	155.8	155.8

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.
 Vuong: $\text{Pr} > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\text{Pr} \geq \chi^2 = 0.0000$
 Disasters indicate number of disasters per country-year.

Table 3.35: ZINB Results: Effects of Disasters on Intrastate Conflicts

	Reduced Forms						Full Model
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)	Model 6 exp(β)	
Negative_Binomial							
Disaster (count)	1.099334*** (.0128)				1.045926** (.0148)	1.055667*** (.0152)	
Killed (decile)		1.13615*** (.0176)			1.066148** (.0249)	1.062834** (.0248)	
Affected (decile)			1.126945*** (.0178)		1.032391 (.0249)	1.03025 (.0249)	
Damage (decile)				1.116898*** (.0194)	.9944021 (.0225)	1.0073 (.0231)	
GDP (Per Capita)	.9998922*** (.0000)	.9998928*** (.0000)	.9998948*** (.0000)	.9998663*** (.0000)	.9998871*** (.0000)	.9999035*** (.0000)	
polityIV	1.048146*** (.0104)	1.044579*** (.0102)	1.040064*** (.0102)	1.051966*** (.0102)	1.028338** (.0092)	1.041172*** (.0104)	
PolityIV (square)	.9926979*** (.0021)	.9954177* (.0021)	.9956137* (.0021)	.9942732** (.0021)		.9925591*** (.0021)	
Inflate							
Log (population)	.2593344*** (.0467)	.3074709*** (.0504)	.3077145*** (.0483)	.3082112*** (.0449)	.2740977*** (.0514)	.2694298*** (.0524)	
GDP (Per Capita)	.9999679 (.0000)	.9999645 (.0000)	.999967 (.0000)	.9999628 (.0000)	.9999717 (.0000)	.9999666 (.0000)	
N	3040	3040	3035	3039	3034	3034	
Zeros	2593	2593	2588	2593	2588	2588	
Vuong	5.253	5.082	5.298	6.179	4.819	4.417	
ZIP	39.81	32.3	32.96	25.05	29.5	34.61	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.

Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$

Table 3.36: ZINB Results: Effects of Disasters on Assassinations

	Reduced Forms						Full Model
	Model 1 exp(β)	Model 2 exp(β)	Model 3 exp(β)	Model 4 exp(β)	Model 5 exp(β)	Model 6 exp(β)	
Negative Binomial							
Disaster (count)	1.00016 (.0250)				.9547775 (.0334)	.9579817 (.0332)	
Killed (decile)		1.059099* (.0265)			1.089057* (.0396)	1.098079* (.0400)	
Affected (decile)			1.031499 (.0258)		1.017454 (.0365)	1.010236 (.0364)	
Damage (decile)				.9887755 (.0296)	.955326 (.0363)	.9557679 (.0361)	
GDP (Per Capita)	.9999526* (.0000)	.9999577 (.0000)	.9999571 (.0000)	.9999545* (.0000)	.9999476* (.0000)	.9999704 (.0000)	
polityIV	1.100135*** (.0163)	1.097832*** (.0163)	1.096916*** (.0164)	1.100516*** (.0162)	1.081815*** (.0150)	1.099609*** (.0165)	
PolityIV (square)	.9905214** (.0033)	.9899389** (.0033)	.9904977** (.0033)	.9906312** (.0033)		.9901316** (.0033)	
Inflate							
Log (population)	.468185*** (.0712)	.4563964*** (.0844)	.462075*** (.0766)	.471711*** (.0685)	.4730665*** (.0744)	.4851367*** (.0772)	
GDP (Per Capita)	1.00006 (.0000)	1.000068 (.0000)	1.000066 (.0000)	1.00006 (.0000)	1.000066* (.0000)	1.000067* (.0000)	
N	3020	3020	3015	3019	3014	3014	
Zeros	2718	2718	2713	2717	2712	2712	
Vuong	3.916	3.456	3.73	4.025	3.768	3.628	
ZIP	299.7	303.4	302.3	290.8	282.8	279.5	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Instantaneous Rate Ratio with standard errors in parenthesis.
 Vuong: $\Pr > z = 0.0000$. ZIP (H0: $\alpha = 0$): $\Pr \geq \chi^2 = 0.0000$
 Disasters indicate number of disasters per country-year.

CHAPTER 4 METHODOLOGY FOR CASE STUDIES

Introduction

The major aim of this dissertation project is to address two questions: *do natural disasters contribute to legitimacy crisis? If yes, how?* Based on the statistical analyses of Chapter 3, I conclude that natural disasters, as a rule, increase the overall risk of a political crisis. The analysis also shows that anocracies (or mixed-regimes) such as Bangladesh (in the 2000s) are more at risk of a crisis than are democracies or autocracies. The concern of the second part of the question above is to unpack how causation exists in the relationship between disasters and political crisis. The aim of this and the two subsequent case study chapters is exactly that: to provide a fine-grained analysis of contextual conditions and the causal mechanisms that allow disasters to affect legitimacy.

The case study chapters focus on a critical factor that mediates between the disaster-legitimacy link. This factor, as presented in the theoretical framework in Chapter 2, is ‘quality of government response to disasters’. Following a disaster, as I argued in Chapter 2, a government gains popular support if people perceive positively the way their government reacts to the emergent disaster, otherwise, people may withdraw their support and express anger in ways that may range from voting against the government and non-violent protests to violent anti-government movements and riots. How the government reacts to the disaster is expected to be symbiotically related to the characteristics of the political regime. Besides their independent contribution to legitimacy the interaction of response and regime characteristics may also play an important role in the disasters–legitimacy relationship.

To the best of my knowledge, no quantitative measure of the ‘quality of government response’ to disasters is readily available for use for a comparative study.

Measures of legitimacy crisis are also hard to find. Despite various laudable attempts made recently (e.g. Gilley 2009*a*, Gilley 2012, Power & Cyr 2009, Seligson & Booth 2009), a standard measure of legitimacy (crisis) is not available for most countries and most years. The situation appears to be a classic one where comparative qualitative cases studies become useful.

The current chapter provides a research design to be used for the qualitative comparative case studies conducted in the next two chapters. The case studies will use a content analytic method to collect data on the ‘quality of government response’ and ‘legitimacy crisis’ from news reports on two major disaster events in two countries of South Asia – Bangladesh and India. This chapter proceeds as follows: first, I describe my case selection strategies, which will be followed by a description of data collection methodology and sources of data. Then I turn to the measurement of response quality and legitimacy crisis, where I develop a series of indicators to categorize (measure) textual information on these variables. Once the indicators are developed, I describe the scheme utilized to code the textual materials against the indicators.

Case Selection

For the comparative cases studies, I focus on two countries of South Asia – Bangladesh and India, and study four of the most devastating disasters that occurred in these countries between 2005 and 2010 inclusive. These countries share many contextual (structural) features such as their proneness to natural disasters, geographic proximity, and their common (British) colonial heritage, which make them amenable for a comparative case study.

Asia has the highest frequency of reported disasters compared to any other region in the world.¹ According to one assessment (Guha-Sapir et al. 2011), the region

¹See the annual statistical reports published by EM-DAT, available online at <http://www.emdat.be>

accounted for about 40% of all disasters, about 90% of all disaster victims, and about 38% of the total disaster related economic damage in the world, during the 2001 - 2011 decade. Bangladesh and India tend to persistently rank among the top five most disaster damaged (in terms of disaster mortality and economic loss) countries in the world, according to the EM-DAT surveys on major disasters of the world published every year.² According to another assessment, “Economic vulnerability analysis shows that India and Bangladesh exhibit the largest losses, which is due to large exposure at risk and the high level of hazards” (Gupta & Muralikrishna 2008, 3).

Besides their proneness to disasters, Bangladesh and India share a common border. They are both under the climatic influence of the Himalayan Mountains, and they share major rivers originating from this mountain range.³ Climatically, these countries are influenced by monsoon phenomena causing not only frequent disasters, but also similar kinds of disasters, namely: cyclones, flood, earthquakes, landslides, and drought (Gupta & Muralikrishna 2008).

The Indian subcontinent – now divided into India, Bangladesh, and Pakistan – were under the British colonial rule before India and Pakistan became independent in 1947. Bangladesh won independence from Pakistan in 1971. Despite emerging as sovereign countries, they show remarkable resemblance in their administrative and political institutions thanks to the constitutional and legal framework created during the late nineteenth and early twentieth centuries under the British raj (Bose & Jalal 2004, Jalal 2002). These overall similarities in terms of disaster proneness,

²See the previous footnote

³For example, the Ganges River, which flows across northern India and into Bangladesh and the Brahmaputra River that flows across India and Bangladesh (Gupta & Muralikrishna 2008).

geography, and history allow me to study Bangladesh and India within the general framework of most similar systems design (Przeworski & Teune 1970).

Once the countries are selected, the challenge is to find out specific disaster events to be studied. In order to select events that could potentially cause a legitimacy crisis, I first identify the five deadliest as well as the five disasters that affected the most people in each of the selected countries. This could generate ten disasters per country. But, as shown in Table 4.1, some of the disaster events rank high in both criteria. Bangladesh observed three events that ranked within the top five disasters both in terms of the number of people killed as well as in terms of the number of people affected. India also observed three such events. Counting events that rank within the top five in terms of either or both of these criteria, I have found 14 events, as listed in Table 4.1.

Table 4.1: Seven Major Disasters with Highest Number of Killed or Affected in Bangladesh and India, 2005-2010, (Sorted by Killed & Affected)

Country	Year	Event Type	# Killed	# Affected	Sorted by
Bangladesh	2007	General flood	120	80060	Killed
	2009	Cold wave	135	50000	Killed
	2009	Tropical cyclone**	190	3935341	Killed & Affected
	2007	General flood	1110	13771380	Killed & Affected
	2007	Tropical cyclone	4234	8978541	Killed & Affected
	2008	General Flood	12	615638	Affected
	2005	General flood	23	1000000	Affected
India	2006	General flood	350	4000065	Killed
	2008	Flash Flood	1063	7900000	Killed & Affected
	2007	General flood	1103	18700000	Killed & Affected
	2005	General flood	1200	20000055	Killed & Affected
	2005	Earthquake ^{††}	1309	156622	Killed
	2009	Tropical cyclone**	96	5100000	Affected
2007	surge/coastal flood	96	11100000	Affected	

Data Source: EM-DAT: The OFDA/CRED International Disaster Database

– Catholique de Louvain, Brussels, Belgium. See: <http://www.em-dat.net>

** Cyclone ‘Aila’ affected the southern districts of Bangladesh and West Bengal, India.

— The underlined cases are selected for case studies.

From this set, I need to select two major events per country for in-depth analyses. The events, as underlined in Table 4.1, are: the tropical cyclones ‘Sidr’ of 2007 and ‘Aila’ of 2009 in Bangladesh, the ‘Kashmir’ earthquake of 2005 and the tropical cyclone ‘Aila’ of 2009 in India. I use two different criteria to select these cases: number of people killed, and simultaneous impacts of a single disaster across national borders.

The deadliest disasters in each country were: the tropical cyclone ‘Sidr’ of 2007 in Bangladesh, and the ‘Kashmir’ earthquake in India. Sidr killed 4234 people in Bangladesh, the highest number killed in any event between 2005 and 2010, inclusive. The earthquake killed 1309 people in the ‘Jammu and Kashmir’ regions of India. These numbers of killed rank the highest in both countries in recent times, especially between 2005 and 2010, inclusive.

The second event selected for the case study is the tropical cyclone ‘Aila’ of 2009 that affected both India and Bangladesh simultaneously.⁴ The cyclone hit the eastern part of (West Bengal) India killing 96 people and affecting 5100000 people, and the southern districts of Bangladesh killing 190 and affecting 3935341 people. What makes the cyclone interesting for a comparative case study is the fact that it was simultaneously responded to by two different governments in the two countries. According to the Polity IV measures of regimes (Marshall, Gurr & Jaggers 2010), Bangladesh was between a democracy and an autocracy (referred to as anocracy or mixed-regime in my dissertation) in 2009. On the other hand, India had a parliamentary democracy according to Polity IV. Note that selection of Aila also allows me to study how India responded to two different types of disasters – the first one being the

⁴‘Aila’ is another instance of a disaster that has been counted twice in such global disaster databases as the EM-DAT database due to its simultaneous occurrence in two independent nation states, in this case Bangladesh and India.

earthquake of 2005 – under the same government of Manmohan Singh, who was the prime minister of India both in 2005 and in 2009.

I organize the analyses of these cases around two concepts that, as I have hypothesized in the introduction of the current chapter (see Chapter 2 for details about this hypotheses), are causally related: the quality of government response to disasters and legitimacy crisis. In the following section, I operationalize these two concepts.

Operationalization

Government Response Quality

Differentiating phases or dimensions of disaster response has been one of the most controversial topics in the broader disaster management literature.⁵ Based on my review of the scholarly literature on disaster management in Chapter 2, I have conceptualized ‘quality of government response’ (‘government response’ in short) in terms of preparedness, immediate response, and long-term response. These are time-ordered phases of a disaster response (Elkholly & Gad-el-Hak 2008). Preparedness includes such activities as early warning, evacuation, and protective measures (Mileti 1999, McEntire & Myers 2004). Immediate response refers to the time period when responders undertake such activities as rescue and relief operations. And, long-term response indicates a time period after the immediate response is terminated and distant from the date of the event occurrence, when responders take recovery and rehabilitation initiatives to help victims settle back into their communities (Mileti 1999, 209-240).

⁵Despite the controversy, scholars tend to agree on at least three major phases of disasters – pre-disaster, immediately post-disaster, and recovery period. See the ‘Government Response’ section in Chapter 2 for a brief review of this literature. For a detailed review, see Neal (1997), the special issue on the topic in *The International Journal of Mass Emergencies and Disaster* (1995), an edited version of which is available in a book form by Quarantelli (1998)

In the following subsections, I provide operational definitions and indicators of these dimensions. Later in this chapter, I explain how the indicators can be used to assist a content analysis of news reports to generate government-response-quality scores.

Preparedness

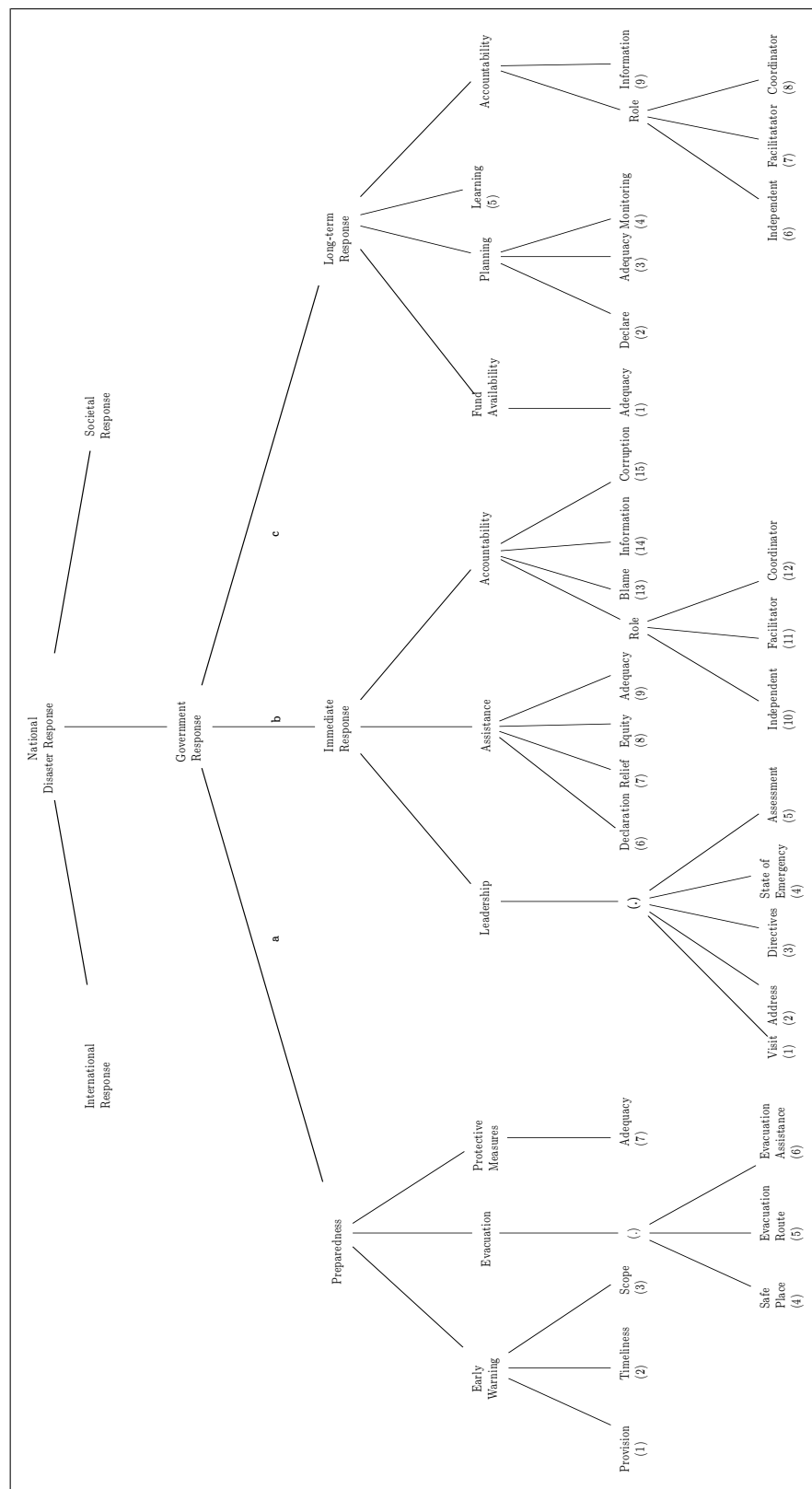
As stated above, preparedness indicates three governmental tasks: early warning, evacuation, and protective measures. See link ‘a’ in Figure 4.1. *Early warning*, in the disaster management literature, is considered a critical step of an effective response (Zschau & Küppers 2002, Basher 2006).⁶ In the terminology of the United Nations International Strategy for Disaster Reduction Secretariat (UNISDR), early warning is “the provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response” (UNISDR-PPEW 2012). The ‘identified institution’ mentioned in the definition – generally a government bureau or ministry – is expected to provide standardized information (i.e. cyclones in terms of storm category, earthquakes in terms of Richter scale) about an impending disaster to its potential victims.⁷

The quality of a government’s early warning initiatives can be assessed by three indicators: whether the government actually issues an early warning (provision),

⁶Lack of effective early warning is often the reason why a disaster event inflicts so much damage in the affected areas (UNISDR 2012). Adger et al. (2005, 1037) compare Hurricane Andrew of 1992, a powerful category 5 storm that killed 23 people in Florida (and caused devastation valued at \$26.5 billion), and the 1991 Cyclone Gorky, a category 4 storm that killed about 140,000 people in Bangladesh. They conclude that Florida did better than Bangladesh in saving lives due to its strong institution of early warning (Adger et al. 2005).

⁷For example, the early warning providing institutions in Bangladesh and India are the Bangladesh Meteorological Department and the Indian Meteorological Department. As these institutions operate they dispense the responsibility of the national governments (of Bangladesh and India respectively) to mitigate a potential disaster event.

Figure 4.1: Dimensions and Measurement of the Quality of Government Response to Disasters



Note: Numbers within parentheses indicate identification numbers of the indicators. Given limited space, the dots within parenthesis (.) are used to vertically extend the links between nodes; they do not indicate conceptual hierarchy.

whether the early warning was timely (timeliness), and whether it reached people at risk within the national boundary of the country. The first three questions of the preparedness section in Appendix A represent these indicators.

Evacuation is the second measure of how well the government prepared for a disaster. Preparedness requires, according to Mileti (1999), a vulnerability analysis to determine how to evacuate threatened population. As the disaster approaches, major evacuation tasks of the responding agencies include identifying safe places (i.e. evacuation zone or facility) for the victims, making them aware of the safety facilities available and how to get there (evacuation routes), and helping them reach a safe place (e.g. by emergency bus or train services) as they leave their regular habitat. Assessing how adequately the government performs each of these tasks provides a measure of the quality of evacuation initiatives of the government. The coding questions associated with these indicators are listed as questions 4, 5, and 6 under the preparedness section in Appendix A.

A government's *protective measures*, the third indicator of preparedness, are part of what the UNISDR (2012) calls "structural measures" of a response that are designed to reduce risk. "Common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters" (UNISDR 2012, entry: Structural and non-structural measures).⁸ These measures are also considered as part of the broader process called "mitigation" (Haddow & Bullock 2006). In the current project, however, I measure protective measures simply by asking whether the government's initiatives such as building or

⁸UNISDR (2012) distinguishes between "structural" and "non-structural" measures of disaster mitigation. While the "structural measures" has to do more with physical measures such as the ones mention above, the "non-structural measures" include "building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programs" (UNISDR 2012, Entry: Structural and non-structural measures).

repairing levees and embankments, evacuation routs and facilities are characterized as adequate. Question 5 in the Appendix A represents this indicator.

Immediate Response

As explained in Chapter 2, I conceptualize the quality of a government's immediate response in terms of leadership, assistance, and accountability. See link 'b' in Figure 4.1. The *leadership* criteria evaluates how the office of the government leader (especially the head of the government, e.g. the prime minister of Bangladesh and India or the chief ministers of the India states) reacts to the disaster event. I use five indicators to measure how well the leader responds to the emergency situation.

The first indicator is whether or not the leader physically *visits* the affected area. His or her (Bangladesh's prime minister was a female) physical presence on the site of the event does not change the material aspect of response, however, it plays an important role of boosting the morale not only of the victims, but also of the responders (Ciulla 2010, Boin, t'Hart, Stern & Sundelius 2005). Second, the timing of the leader's visit is also important. The earlier the leader visits the affected areas, the better. The leader's timely visit to the affected sites, thus, boosts the quality of the overall response initiatives.

The third indicator is whether or not the leader *addresses* the public in general, and the victims in particular. In the address, broadcasted through radio and television channels, she acknowledges the severity of the disaster and assures the public that despite the devastation inflicted by the disaster, the government is still in charge. Using the speech, she informs people about how the government is helping the affected people. Fourth, like a visit, the timing of her address determines whether the address is effective.

The fourth indicator is whether the government leader issues a specific *directive*, assurance, or order regarding her government's response to the disaster. This

indicator differentiates between formal and informal orders, and emphasizes on identifying formal directives or orders.

The fifth indicator identifies if the government declared a *state of emergency*, particularly in the disaster affected areas. Some leaders choose to declare state of emergency when s/he perceives a threat to the political order or radical deterioration in the law and order situation, especially in the affected areas. Declaration of a state of emergency generally indicates suspension of basic political rights of the citizen including freedoms of movement, assembly, and association (Ferejohn & Pasquino 2004, Elster 2004).

The last indicator is about assessing the damage incurred by the disaster. This indicator asks whether or not the government was able to clearly assess the magnitude of the damage. The *assessment* of the damage informs the government about what needs to be done to mitigate the disaster. Indicator questions 1-5 under the subsection “leadership” in Appendix A represent these aspects of the government’s response quality. In cases where timing of the leader is a qualifier of the indicator, the indicator question is followed by an option that records when did the leader perform the task specified in the indicator question.

The *Assistance* criteria assesses the government’s performance in terms of distributing relief and rehabilitation (money or material). I use four different indicators. The first is whether or not the government formally declares funding for immediate release for the purpose of relief and rehabilitation. A government’s formal *declaration* usually contains such information as the amount of funding available and its distribution mechanism. Once formally declared, governmental funding becomes part of the public knowledge. This allows the government to show how much it has committed in supporting the people and it provides a basis for a public accounting of the fund.

The second indicator of assistance involves whether the government actually sends the assistance (*Relief*), regardless of whether they have formally declared to

provide such a funding or not. This indicator is different from the first one in that sometimes a government does not formally declare how much it has allocated for distribution, but still provides assistance, maybe on an *ad hoc* basis. The third and fourth indicators capture the nature of distribution of funds. These indicators ask whether the distribution was *equitable* or not, and whether or not the funds provided are perceived as *adequate*.

Accountability, the third criteria of the quality of immediate government response, is about identifying actors and assessing how well they have managed to fulfill their duties (Boin, t'Hart, Stern & Sundelius 2005, Boin, McConnell & T'Hart 2004b, Holmberg & Rothstein 2012). It is about the government's ability to answer the post-disaster quintessential questions of 'what have you done', 'why' and 'how'? In other words, in a post-disaster situation, government leaders are compelled to make a series of decisions, which may imply both 'action' as well as 'inaction' on their part (Boin, t'Hart, Stern & Sundelius 2005). Once made, they are expected to own these decisions and accept the necessary consequences. Evading responsibility, blaming others, concealing and manipulating information, and engaging in corruption are some of the characteristics of an unaccountable government. I discuss these aspects of government accountability in turn below, and list the associated indicator questions in Appendix A (see question number 10-15 under section "immediate response").

The burden of accountability is often shouldered by the national government. A large-scale disaster frequently outstrips the capacity of the local governments and involves the national government. How the national government deals with the disaster often attracts the attention of the people in general, beyond those affected directly by the disaster. While the affected people evaluate the performance of the government by observing how the latter has served them, those who are not directly affected evaluate if they would trust the same government had the disaster affected them. Any large-scale disaster becomes a national disaster mainly due to the role

the media plays. In modern times, according to Bessette (2001), “governments are open to the scrutiny of the media, of interest groups, and of the broader public. The tendency throughout has been to view and pursue accountability as an end in itself, as an unmitigated good” (40-41).

In the context of disaster response, accountability can be thought in terms of four factors. The first is the *role* the government plays as it involves itself in the response process. Given a large-scale disaster, a government can assume three different roles: as an *independent* actor of the response process, as the *coordinator* of the response activities where a host of other actors – private actors, businesses, non-government organizations (NGOs), international donors – are also involved, and as a *facilitator* of the response initiatives taken by the other actors. The government may work simultaneously in all three capacities, or in only one of the capacities. These three aspects of government performance can be observed during the preparedness, the immediate response, and the long-term response phase.

The second element is *blame*. In many post-disaster cases, blame games consume the accountability process (Brändström, Kuipers & Dalèus 2008). According to Boin, t’Hart, Stern & Sundelius (2005) “crises have winners and losers. The political dynamics of the accountability process determine which crisis actors end up where” (92). According to Brändström, Kuipers & Dalèus (2008), government actors handle criticism (blame) by employing three strategies: admit the shortcomings of their response action, avoid the blame (the “everything works fine” strategy), and deny any failure on the part of the government leadership and make some other actor (within or outside of the government) responsible for whatever damage occurred due to the disaster.

Information sharing is the third element of an accountability process. Grant & Keohane (2005) argue that control over information should “not be limited to power-wielders and the entities that originally authorized their actions. On the contrary, the

system should be open to new groups, seeking to provide information relevant to the question of whether power-wielders are meeting appropriate standards of behavior and to make that information widely available” (41). In the context of disaster response, accountability in terms of information availability means that all actors would provide adequate information regarding its response activities and the resources. They would inform the people about the amount of resources (internal resources and external aid) they have at their disposal to respond to the crisis, the scope of their activities (how much ground and how many people it can cover), and plans they have prepared for the long-term, recovery phase.

The fourth factor of an accountability process is *corruption*. Corruption of disaster relief and rehabilitation resources by government authorities engaged in response activities is a phenomenon well-documented in the disaster response literature.⁹ Conceptually, corruption by government authorities is a major threat to the accountability process. Even in conditions where public participation in political decisionmaking is limited, establishing a baseline standard of accountability substantially reduces corruption (Grant & Keohane 2005). In the context of government response to disasters, when corruption of relief and rehabilitation funds attract media attention, it becomes a basis for the public to scrutinize the financial probity of the government, especially when the governmental response is perceived inadequate.

Long-term Response

Defining “long-term” response can be a contested issue. For some, it may mean initiatives to rebuild the affected community by addressing the long-term in-

⁹See Leeson & Sobel (2008) and Shugart II (2006) for analytic discussions on the relationship between disaster relief and corruption by government authorities. These studies focus on hurricane Katrina that affected the state of Louisiana, USA. Case studies of disasters in Bangladesh (Paul 2006) and India (Thomalla & Schmuck 2004) reports presence of widespread corruption of disaster relief by government authorities, and how corruption comes a major problem in disaster mitigation process.

frastructural and economic problems of the affected community, and the society in general (see e.g. Anderson & Woodrow 1989, Cuny 1983). Land reform, creation of employment opportunities, building new permanent infrastructure are some of such long term initiatives (Haddow & Bullock 2006, 131). Others view it in terms of a process that enhances community participation in decisionmaking related to reconstruction and development (reviewed in Mileti 1999, 229-230). This literature conceives of the long-term response as part of the country's overall process of economic development. A disaster is seen as an opportunity that a government seizes upon to carry forward the developmental projects that could not be executed in normal times. For this literature, while the long-term response helps the society recover from the current damages, its ultimate goal is to make it better prepared for a future disaster. Such conceptualization, however, makes the concept of long-term response too broad, especially because long-term developmental projects often take a very long time, sometimes spanning over multiple government tenures, making it difficult to observe what the current government has done to help people recover from the current disaster event.

In this project, I define a long-term response as those activities of the government that help the affected people get back to their homes (Mileti 1999, Haddow & Bullock 2006). This means such activities as repairing the infrastructure (roads or river ports) so that the evacuated people may return home, ensuring that secondary damages (e.g. flooding due to un-repaired breaches in levees or embankments) do not occur, establishing temporary medical facilities to prevent epidemics to occur, and increasing security to prevent crimes and riots. I call these activities "long-term response" to recognize that all these initiatives have "long-lasting effects and usually high costs" (Haddow & Bullock 2006, 131). The responding government has to make informed decisions, and mobilize materials and human resources, maybe by re-

structuring the current year's budget. These have clear socio-economic and political implications beyond the immediate post-disaster time.

The quality of the long-term response is defined here in terms of four components: fund availability, planning, learning, and accountability. See link 'c' in Figure 4.1 (page 110). Fund availability identifies whether the government could manage the funds required to implement the programs planned. The *planning* component identifies whether the government declares a plan for long-term rehabilitation and reconstruction, whether the plan, if prepared at all, is perceived adequate, and whether it has an inbuilt monitoring body to ensure the plan is executed properly (Boin, t'Hart, Stern & Sundelius 2005). The third component, *learning*, identifies whether the long-term initiatives are based on lessons learnt from previous experiences or they are carried out haphazardly reflecting lack of organization, wastage and pilferage of public funds, or resource allocation based on political patronage or clientelism (Boin, t'Hart, Stern & Sundelius 2005). *Accountability* also plays an important role in defining whether the long-term response of the government is perceived as high or low quality (Boin, t'Hart, Stern & Sundelius 2005, Boin, McConnell & T'Hart 2004b, Holmberg & Rothstein 2012). The accountability component consists of three elements: *roles*, *blame*, *information*, and *corruption*. The operationalization of these elements is similar to their operationalization for immediate response quality above. These accountability elements are different from those of the immediate response in terms of timing and focus: in immediate response phase, they focus on the immediate response activities, whereas in the long-term response they focus on the long-term activities of the government.

Political Crisis

In the theoretical framework presented in Chapter 2, I expected that negative public reactions to government actions (political crisis) may lead to a legitimacy crisis

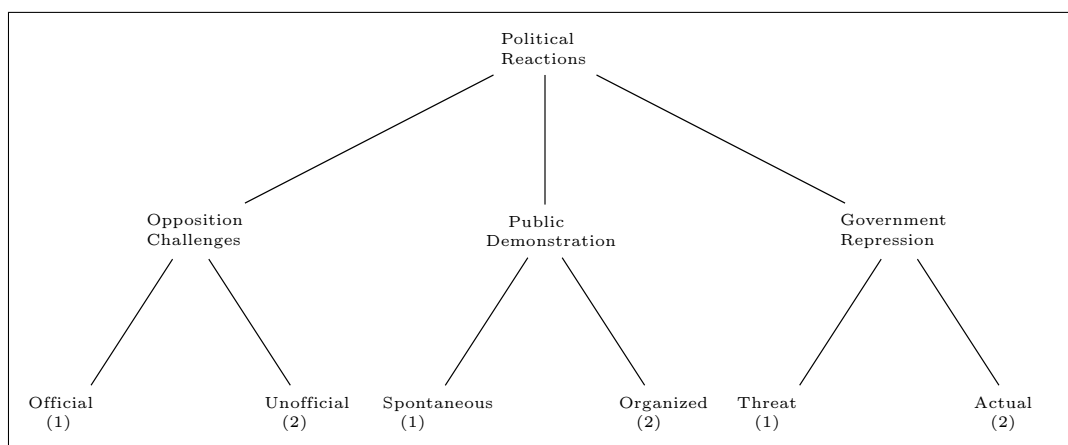
in a post-disaster political context. The present section provides a measure of such a political crisis by coding people's reactions to how the government has responded to a disaster.

People are likely to react positively to a government that is well-prepared to respond to disasters, provides adequate assistance to victims, shows urgency and positive leadership in the immediate post-disaster period, plans a systematic recovery process for victims, and remains accountable to the people throughout the response phases. Negative political reactions of people may come in the form of criticism and anti-government demonstrations organized by the opposition groups, or in the form of spontaneous protests by the disaster-affected people who did not receive satisfactory treatment from the government. Public criticism with an element of anti-government demonstration or protest is an indication of popular dissatisfaction with the performance of the government. Some governments, in a bid to restore political stability, choose to use repressive techniques such as issuing state of emergency, barring political gatherings, or barring opposition groups' involvement in the relief and rehabilitation initiatives. Evidence of such repressive choices are further indications of attenuated legitimacy of the incumbent.

I use three indicators to capture these issues, as presented in Figure 4.2 and listed in the 'political crisis' section of Appendix A. First, did the government face criticism and challenges from the opposition groups? If yes, how strong were the criticisms and challenges? Were the challenges or criticisms official in nature, or are they a matter of casual commenting of the opposition groups? Second, did the government encounter protests and demonstrations, particularly in response to unsatisfactory response performance of the government? If there was protest, how strong was it? Were the protests organized or unorganized? And, third, did the government engage in any act of political repression? If there was repression, was it just a threat, or did

the government actually employ repressive mechanisms to limit the criticisms of the opposition or protests of the public? How extreme was the repression?

Figure 4.2: Dimensions and Measurement of Disaster Related Political Reaction



Note: Numbers within parentheses indicate identification numbers of the indicators.

Data Collection Method

The primary data collection methodology to be employed is content analysis. Content analysis is used to collect data from textual materials, such as newspapers, legal statutes, and open-ended survey questions. It allows researchers to analyze the characteristics of the communication, message, or the text itself. According to Weber (1990), content analysis is a “research method that uses a set of procedures to make valid inferences from text. These inferences are about the sender(s) of the message, the message itself, or the audience of the message” (9). The basic goal of this method is to “take a verbal, non-quantitative document and transform it into quantitative

data” (Bailey 1994, 304). In other words, while doing content analysis scholars reduce textual material by classifying it into “much fewer content categories” (Weber 1990, 15), which can then be analyzed using standard statistical methods.

For example, Segal et al. (1995) used content analysis to measure ideological values of US supreme-court judges. They used newspaper editors’ assessments of the justices’ ideological values, ranging from - 1 (unanimously conservative) to (moderate) to +1 (unanimously liberal). The authors gathered their data from four newspapers, “two with liberal stances (the Washington Post and the New York Times) and two with conservative ones (the Los Angeles Times and the Chicago Tribune)” (Segal et al. 1995, 813). Laver, Benoit & Garry (2003) also used content analysis to build measures of political ideology. They differentiated between ‘reference texts’ – political texts that have a known ideological position (for example, liberal) – and ‘virgin texts’ – that have ideological positions unknown to the researchers. They then compared the words of the virgin text with “the words [they] ... observed in reference texts with “known” policy positions” (313). Using a Bayesian estimation strategy, they provide estimates of ideological positions of the virgin text relative to the reference texts. They tested this content analytic strategy in a comparative set-up on public policies of various countries written in their domestic languages.

In another example, from comparative political institutions, Huber & Shipan (2002) measure the amount of discretion that legislatures delegate to the executive branch by measuring the length (in terms of word count) of the pertinent legislations. Before measuring the length of the statutes, the authors separated the policy language from the procedural language. “For the policy language, [they] coded whether it was general or specific and for the procedural language [they] coded the type of procedure” (68). Justifying their measurement strategy, Huber & Shipan (2002) argue, “with two statutes that address the same issue, the longer one typically places greater limits on the actions of other actors, because it is filled with policy-specific details that constrain

what these other actors can do . . . [thus] length of legislation provides a good proxy for the legislative majority's efforts to control policy implementation" (45).

The above examples show the wide range of applications of content analysis in political science. In my study of the quality of government response to natural disasters, I summarize the content of journalistic reports of government responses to disaster events. In the following section, I describe the sources of news reports that will be analyzed for the comparative case studies.

Data Sources

Selecting sources of news reports is a critical step in a content analysis process. Some sources are more representative of the people and the issues concerned than others, some sources are more informative than others, and still some sources are more accurate than others (Neuendorf 2002). Inappropriately selected documents are more likely to generate biased analysis. Thus, when the analyses is done on news reports, "both the newspapers to be used as sources and the articles to be coded would have to be chosen on the basis of rigorous criteria" (Franzosi 1987*a*, 556). In such analyses, whether to use local, national, or international reports, and whether to use print (e.g. daily newspaper or weekly magazines) or electronic (television, radio, or internet) media become matters of important methodological choice (Franzosi 1987*a*, Oliver & Maney. 2000).

On the matters of spatial selection of news reports, scholars of political communication have found that news organizations "cover a higher proportion of the events that occur close" to them, a phenomena known as "proximity effects" (Oliver & Maney. 2000, 495). In the context of natural disaster related news, proximity effects may indicate that local newspapers should be favored over national as well as

international sources.¹⁰ Local papers are close to the disaster event, and may function as the voice of the affected community. When people are not satisfied with the response from the national government, it is the local news reporters who get the first impression of the public grievances.

But, gaining access to community level media is methodologically problematic. Most publicly available newspaper archives (including LexisNexis Academic or Access World News) do not include the local newspapers of most countries. Furthermore, many local newspapers are in local languages, which may differ from the national languages. For example, *Badweep Barta* (Delta News) is a local newspaper in South 24-Pargans district in West Bengal published in Bengali (one of the ethnic languages of the province), which is radically different from Urdu, the state language of the Indian state of Jammu and Kashmir.

Second, since these local newspapers do not have a wide base of readership, they lack the revenue needed to operate independently. Often these newspapers rely on the reporters of a well-established national newspaper or broadcast media. Furthermore, in many cases local news outlets are state controlled or subject to state censorship or ban. In the context of natural disasters, Gaddy & Tanjong (1986) and Singer, Endreny & Glassman (1991) find that locally focused newspapers have the tendency to dramatize and over-report disaster events with large death-tolls. This tendency may reflect local citizens' urges to the national government and international relief agencies to react to the event more rapidly and adequately.

¹⁰Campbell (1999), for instance, argues that local media help politically disinterested, socially atomistic citizens together engage in public life. Janowitz (1991*a*) argues that where stable primary groups exist in a local community, local media operate as extensions of "real social contacts", and where contacts are absent, as substitutes for contacts (115). Besides operating as glue of public life, local newspapers may also draw people into political action. Moy et al. (2004), for example, shows that regardless of their trustworthiness, local newspapers tend to drive people into active political participation.

Given these methodological problems, I chose to use the national level newspapers. As shown in Table 4.2, the selected newspapers are: the *Daily Star* from Bangladesh and the *Times of India* from India. One advantage of using national level newspapers is that it ensures “a broader range of coverage, which is likely both to capture more events (addressing selection bias) and to provide multiple accounts of each event (addressing description bias)” (Earl, Martin, McCarthy, & Soule 2004, 74). Furthermore, since I am interested in the coding of response behavior of both the national government and the state government, coding news stories from the national newspapers is appropriate.

In addition to local and national newspapers, I also include as a source the radio broadcasts from the British Broadcasting Center (BBC) – one of the most common international sources of news in South Asia. Besides English, BBC radio broadcasts in 27 languages including Bengali, Hindi, and Urdu, the major languages of Bangladesh and India respectively (BBC 2012).

I provide a description of these selected sources of news reports in Table 4.2. Columns 2 through 4 report per-capita access to radio, television, and newspapers respectively, as they are reported in Banks’ Cross National Time Series Data Archive (CNTSDA). Column 5 of the table reports circulation (and readership) information of the largest daily newspapers. The final column of the table presents information regarding the BBC broadcasts; this information is collected from their own websites.

Coding Scheme

The newspapers listed in Table 4.2 have their own online archives where past news reports are organized on a daily basis. I use these archives to retrieve disaster related reports for coding. As operationalized in the previous section, government response quality is observed from the early warning phase through the long-term phase. By design, early warning comes as the disaster event approaches a community.

Table 4.2: Selected Sources of News in Bangladesh, India

Country	Radio (per-capita) ¹	Television (per-capita) ¹	Daily Newspaper Circulation (per-capita) ¹	Largest National paper (estimated circulation)	International Radio Broadcasts
Bangladesh	.05 (1999)	.008 (2003)	.01 (1999)	Daily Star: 40,000 ² (2011)	BBC: Bengali 1941 - present
India	.12 (1999)	.09 (2003)	.07 (1999)	Times of India: 13,447,000 readership ³ (2011)	BBC: Hindi 1940 - present

Note: Year of the datapoint in parenthesis.

¹ Banks, Arthur S. 2011. "Cross-National Time-Series Data Archive". Databanks International. Jerusalem, Israel

² Minister of Information, Bangladesh presented this information to the Parliament on Feb. 23, 2011.

See *The Daily Prothom Alo* (in Bengali), Feb. 24, 2011.

³ See Indian Readership Survey 2011 at http://mruc.net/irs2011q4_20toplines.pdf, Accessed March 5, 2012. Note that readership is different from circulation, which is usually lower than readership.

My sample of news reports, thus, covers a time range that starts three days before and ends two months after the disaster start date. I selected this time range based on my readings of a sub-sample of news reports on disasters that occurred in the countries selected for my case studies. In these reports, I observed that by the second month of a disaster event governments have usually begun their long-term recovery activities and media coverage drops off precipitously after two months. While sometimes disaster reporting continues after two months, in many cases years, disaster reporting becomes occasional as other issues gain importance roughly after the second month. I found the two-months-and-three-days time range reasonable, it allows me to code all three phases of disaster response, as identified above.

Once collected, I organize these reports electronically into an archive where each report is given a unique identification number. Each of these reports becomes a text source that I code against the indicator questions of government response quality and political crisis, as described above. The indicator questions with detailed description of how to code them is available in codebook at the end of this chapter, in Appendix A. To accomplish this task, I use a content analysis technique called ‘keyword-in-context’ (Fielding & Lee 1998) that deconstructs an indicator question into key words, uses these key words to search the source text to identify relevant pieces of text (e.g. a paragraph), and then interprets the meaning of the words in the context where they are used.

For example, according to my operationalization in the previous section, an early warning related question is: *did the government issue any early warning?* Notice that the question has a *main key word*, “warning”, and *associated key words* “government” and “issue”. The main key word and the associated key words are re-organized in the following fashion to represent the above indicator question: an actor (the government) does (issues) an act (early warning). For each of these key and associated words, I identify a *word-set* that consists of the synonyms of the word

concerned. In Table 4.3, I list the word-sets for the key words. Examples of the words included in the word-set for “government” (see item 11 in Table 4.3) are: “government”, “authority”, “administration”, “regime”, “management”, “official”, and “ministry”. The word-set for “issue” include “issue”, “provide”, and “announce”. Examples of words included in the word-set for “warning”, as shown in Table 4.3 are “warning”, “advice”, “signal”, and “caution”.

For the qualitative case studies, first I select all instances where the main key word (“warning” or its synonyms) is used in the text; second, from these selected texts, I further select instances where the associated key words (the word-set for government and the one for “issue”) are mentioned around the main key word “warning”; third, I code according to the following rules: *Yes* (or 1), if there is explicit reference to an early warning issued by a formal authority of the government; *No* (or 3),¹¹ if there is explicit reference to an absence of early warning issued by a formal authority of the government; and *Do no know*, if there is explicit reference to early warning, but there is no way to say whether an early warning was issued for the disaster concerned or not.

The above series of tasks can be expedited by using professional content analyses software such as the QSR International’s NVivo (2011). Once the archived news reports are fed into NVivo, its ‘text query’ utility allows me to sort the sources as well as identify text-segments that have used the main key word of interest, “warning”, to continue the above example. NVivo’s ‘text query’ searches documents using the word ‘warning’ and its synonyms that can be added automatically from the thesaurus inbuilt in NVivo 9. The software then compiles in one place all the news reports that contain the main keyword and its synonyms. It also summarizes the search result by a utility called ‘word tree’ that graphically put the key word (and its synonyms) in

¹¹For questions that have a middle category have an option “could be better” or 2. For the particular question considered here, the middle option is irrelevant.

Table 4.3: Word-sets by sub-dimensions of government response quality

#	Sub-dimensions	Word-set
<i>Preparedness</i>		
1	early warning	advice, advised, danger, caution, cautionary, signal, warn, warning, alert
2	evacuation	empty, emptying, evacuate, evacuation, evacuating
3	protection	protection, protective, protected, protect, building, shelter, centre, embankment, road, repair
<i>Imm. Response: Leadership</i>		
4	visit	trip, see, visit
5	address	address, addressed, assure, assured, speech, spoke, press, conference, briefing
6	directives	asked, direct, directed, directive, ensure, ensure, declare, declared, pronounce, pronounced, commit, committed, commitment
7	assessment	assess, assessment, determine, determined, estimate, estimated
<i>Imm. Response: Assistance</i>		
8	rescue	rescue, rescue, deliver, deliver, save, saved
9	relief	assistance, relief, help, money, support, succor, succour, ministrations, funds
10	equity	equity, unequal, fair, fairness, unfair, just, unjust, adequate, inadequate, right, enough, even
<i>Imm. Response: Actors</i>		
11	government	government, authorities, regime, administration, officials, chief, management, authorities, minister, azad, leaders, singh, police, hasina, ministry, commissioner, upa, coalition, agencies
12	military	navy, army, coastguard, forces, bsf, bdr, military
13	ngo	ngo, foreign, volunteer, voluntary
<i>Long-term Response</i>		
14	recovery	restore, return, reconstruction, rehabilitation
15	learning	learn, learning, learned, study, future, past
16	plan	plan, programme, design, law, project, policy
<i>Accountability</i>		
17	information	report, reported, inform, informed, information, share, shared, announce, announced, announcement, data, state, stated
18	corruption	corruption, honesty, integrity, bribe, bribery, graft, pilferage, steal, stealing, hoard, hoarding, rip
<i>Political Reactions</i>		
19	opposition	opposition, oppose, opposed, opponent, resistance, resist, resisted, challenge, challenged, confront, confronted, confrontation, criticism, criticized, critical, charge, charged, blame, blamed, deny, denied
20	cooperation	coordinate, coordinated, coordination, cooperate, cooperated, cooperating, cooperation, joint,
21	protest	protest, protested, protestation, agitate, agitation, block, blocked, demonstration, demonstrate, demonstrated, march
22	repression	repressed, repression, repress, control, controlled, emergency

its textual contexts. Figure 4.3 on page 130 shows an example of such a word tree. The utility gathers the sentences and the paragraphs where the main key word (or its synonyms) appeared at least once. Once identified, I peruse the paragraphs (or branches of the graphical word-tree) to answer the indicator questions, using the coding rules mentioned above, to produce a score for the government's "early warning" performance.

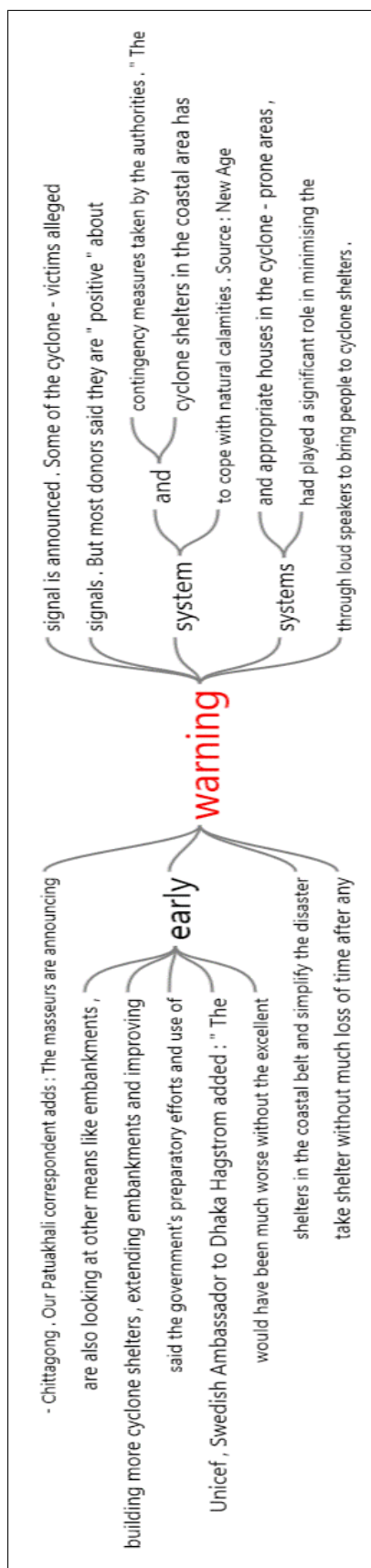
As described above, the goal of the content analysis is to systematically parse the news-reports for qualitative contextual analysis of governmental response. In Chapter 7, as part of the overall conclusion of this dissertation, I extend this analysis to provide a quantitative interpretation of relative media coverage on the dimensions of government response. The quantitative analysis uses as its data the weighted frequency of the key words as listed in Table 4.3. The analysis reveals that some dimensions of the response are highlighted more in the media than are other dimensions. Analysis of this differential media-emphasis on response-dimensions sheds new light on the conclusions of the case studies.

Conclusion

In the present chapter, I developed a procedure to select four disaster events occurring in Bangladesh and India for the in-depth qualitative case studies, presented in the two subsequent chapters. The next chapter is a case study of Bangladesh, which is followed by a similar chapter on India. The case studies investigate the mechanisms connecting natural disasters, government response quality, regime characteristics, and legitimacy crises.

In addition, in this chapter, I operationalized three pivotal concepts – government response quality, legitimacy crisis, and regime characteristics – especially for the purpose of the case studies. The qualitative data for these studies come from computer assisted content analyses of systematically selected news reports on the selected

Figure 4.3: Word Tree of the Main Key Word 'Warning' in its Textual Context (Created in NVivo 9)



Note: The figure is created by using the 'word tree' function of NVivo: A Qualitative Data Analysis Software, QSR International Pty Ltd., Version 9, 2011. The search words used is 'warning'.

disaster events. As discussed in this chapter, the news reports come from national daily newspapers in each of the selected countries and English translated transcripts of BBC radio news broadcasted in local languages of these countries. The last section provided a coding scheme to be used to retrieve qualitative data from these reports. The indicators of the operationalized concepts and a detailed codebook for data collection are presented in Appendix A. After all of the case studies have been presented in the next two chapters, I will present, in Chapter 7, a quantitative analysis of the relative media focus on the dimensions of government's response to disasters.

CHAPTER 5 CASE STUDY: BANGLADESH

Introduction

In a post-disaster context, I argued in the theoretical framework in Chapter 2, a government's ability to maintain popular support depends to a large extent on how well it responds to a disaster. Preparedness, prompt and adequate immediate response, and careful planning for the long-term recovery may be a boon to the government, while halfhearted efforts in these areas may cost it legitimacy. Government response quality is expected to vary due to the characteristics of the regime within which it operates. We will see in this chapter that some governments do better in some dimensions of response, while other governments do better in other dimensions. For example, as one of the cases studied in this chapter shows, the military-backed authoritarian government of Bangladesh in 2007 responded well in the dimensions of preparedness and long-term planning.

In the current chapter, I analyze two disaster cases in Bangladesh: the tropical cyclones Sidr of 2007 and Aila of 2009. Sidr was responded to by a military-backed civilian dictatorship of Fakhruddin Ahmed (2007-2008), while Aila was responded to by a mixed-regime of the popularly elected government of Sheikh Hasina that came into power in 2009, following the withdrawal of the dictatorship. The content analysis of media reports presented in the current chapter suggests that government response played a critical role in the the disaster-legitimacy relationship. Disaster response was largely entangled with broader issues of political reform and macro-economic management. How a government maneuvered its disaster response through these broader issues influenced its legitimacy in the post-disaster context. The Fakhruddin government fared well in the preparedness and long-term response, while the Hasina government handled the immediate response better. The initial agenda of the regime,

its openness (or repressiveness), and its ability to mobilize political channels in disaster response are some of the critical factors that explain the differences between the two governments in terms of disaster response performance as well as legitimacy.

The case studies are done on the basis of a content analysis of a sample of media reports on the two events, as explained in the previous chapter. In both cases, the most media attention fell into the preparedness dimension of the government's response, particularly its pre-disaster protective measures. The next most frequent issue discussed in the media was the government's long-term planning, especially its recovery initiatives. I will say more about the quantitative analyses of the media reports after all of the case studies have been presented.

The choice of Sidr and Aila, as discussed in the last chapter, allows for two types of comparison: first, I can compare the effects of a disaster (Sidr) in an authoritarian government with the effect of a similar disaster (Aila), in an elected government. The current chapter provides a basis for such an analysis. Second, the choice of the cyclone Aila allows for a between country comparison. Originating in the Bay of Bengal, Aila travelled through parts of Bangladesh and the Indian state of West Bengal before it weakened in northeast India and Bhutan.¹ The Indian cases are presented in the next chapter.

In the current chapter, I focus on Bangladesh. The chapter proceeds as follows: In the next section, I describe the general contextual factors of Bangladesh including its geographic and physical vulnerability, challenges of socio-economic and political development, and the country's institutional capacity for disaster response. Then, I take on the cases of Sidr and Aila in turn. Using content analysis of news

¹Cyclone Aila "had a disastrous impact in Bhutan, impacting power and water supplies and damaging roads, bridges and other infrastructure" (see the statement of H.E. Mr. Lyonpo Ugyen Tshering, Minister for Foreign Affairs of Bhutan in the General Debate of the 64th Session (2009) of the General Assembly of the United Nation at <http://www.un.org/en/ga/64/generaldebate/BT.shtml>)

reports, in each case, I describe how well the governments facing these cyclones responded in terms of preparedness, immediate response, and long-term response, how the people and the out-of-power political parties reacted to these response activities of the government, and how government response is causally linked to legitimacy. I conclude with a summary of the findings presented in the chapter.

Challenges of Socio-economic and Political Development

Geographically, Bangladesh is a fluvial delta positioned in the intersection of rivers from the Himalayas and Tibet. An observer of South Asia aptly describes, “Bangladesh *is* the Himalayas, flattened out” (van Schendel 2009*b*, 3, emphasis original). The melting snow of the Himalayas gave birth to two of the major rivers in South Asia – the Ganges (or Padma) and the Brahmaputra (or Jammuna). Joined by the Meghna, another mighty river originating in Tibet, they rush down to the plains carrying silts that accumulate near the sea, as the rivers slow down, forming Bangladesh, one of the largest deltas on earth (Steckler, Akter & Seeber 2008, 367).² The country occupies the top of the arch formed by the Bay of Bengal, and flanked by India to the west, north, and northeast and Myanmar to the southeast. Territorially, Bangladesh is roughly equivalent to the size of the state of Iowa (USA) or one-twentieth of India.³

These geographic characteristics make the country vulnerable to a host of disasters including floods, storms (cyclones), earthquakes, landslides, and draughts. All together, the country had an average of 6.5 disasters per year between 2005 and

²The delta is known as the Ganges-Brahmaputra Delta. Also known as the “Bengal Delta”, it is spread across the greater Bengal, which was split between India and Pakistan in 1947 when the countries became independent from the British raj. Bangladesh became independent from Pakistan in 1971 through a bloody civil war.

³The territorial size of territorial size of Bangladesh is 56,980 square miles, Iowa is 56,270 square miles, and England is 50,350 square miles. India =1,269,000 sq miles, and Myanmar = 261,200 sq miles. See CIA factbook at <https://www.cia.gov/>.

2010, which made it the 9th highest in this period (jointly with Pakistan and Mexico) in the world.⁴ These disasters killed, on average, about 1083 and affected 5093112 people per year, and caused economic loss of 447.3 million in US dollars per year.⁵ According to World Bank's estimate, an average of 4.6 percent of Bangladeshis were affected by disasters between 1990 and 2009 (WDI, World Bank 2012).

The most common types of disasters in Bangladesh are floods and tropical cyclones. In an average year, 40% of the country's total land area is flooded (Hagerty 2008, 182).⁶ According to an estimate by the Center for Research on the Epidemiology of Disaster (CRED), as presented in their Emergency Event Database (EM-DAT), between 2005 and 2010, the country experienced 13 floods killing at least 1244, affecting at least 16923855 people and damaging about 114 million in US dollars (CRED 2012). Among these, the most notable one is the 2007 flood that affected 13771380 people, the highest in Bangladesh between 2005 and 2010, and killed 1110, the second highest in the country during the same period (CRED 2012).

⁴Countries before Bangladesh are: China (159), USA (118), India (105), the Philippines (97), Indonesia (80), Vietnam (50), Congo (45), and Afghanistan (40). The ranking is based on the data from EM-DAT dataset discussed in detail in Chapter 3.

⁵Based on the EM-DAT dataset discussed in detail in Chapter 3.

⁶According to van Schendel (2009b, 6), "three forms of water – river, rain and sea – give Bangladesh a natural Janus face. In Winter, the rivers shrink in their beds, the skies are quietly blue and saline water gently trickles in. Nature appears to be benign and nurturing. In summer, however, nature is out of control and Bangladesh turns into an amphibious land. Rivers widen, rains pour down and storms at sea may hamper the discharge of all this water. The result is flooding." Generally summer flooding is considered a blessing, especially for the agricultural boost brought about by alluvial silts carried by the flooding water. But, some floods can be devastating. Unusually long enduring floods and storm surge induced flash floods have caused severe damage to the country in a number of occasions. For example, the 1998 flood, dubbed the flood of the century, covered about two thirds of the country for a few months causing severe damage costing more than the year's development budget and directly threatening the food security of millions of people by destroying the year's yet-to-be-harvested food crops (Ninno & Dorosh 2003).

Tropical cyclones, originating from a low-pressure system in the Bay of Bengal or in the Indian Ocean, cross Bangladesh at least once in every three years (Government of Bangladesh 2008).⁷ According to an estimate, only about 6 percent of all cyclones that form globally per year occur in the Bay of Bengal, but they account for more than 80 percent of the cyclone-induced global losses in terms of lives and property (Paul 2009, 290).⁸ Between 2005 and 2010 the country encountered 21 cyclones killing overall 4856 and affecting 13244631 people (CRED 2012).⁹

Challenges of Socio-economic Development

Added to the frequency of floods and cyclones is a host of other challenges that Bangladesh faces including population overcrowding, poverty, wealth inequality, illiteracy, and a low standard of health and living. According to an estimate by the United Nations Department of Economic and Social Affairs (UNDES), in 2007, Bangladesh had a population of about 144 million, which grew to about 147 million in 2009.¹⁰ By 2010, Bangladesh was the world's eighth most populous country with an estimated population of about 150 million, which was more than that of either Russia or Japan (UNDES 2011).¹¹ According to the UNDES source, in Bangladesh,

⁷A typical tropical cyclone has wind speed greater than 73.9 mph or 118.24 kmph (Paul 2009, 290).

⁸According to the government of Bangladesh, fifty-three percent of all cyclones that killed at least 5,000 lives in the time period between 1584 and 1991 took place in Bangladesh (Government of Bangladesh 2008, 3, Table-4).

⁹A combined amount of damage is unknown.

¹⁰The population data used in this dissertation are from UNDES dataset available in spreadsheet format from the website titled the United Nations Department of Social and Economic Affairs, Population Division, Population Estimates and Projection Sections, <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>

¹¹As of 2010, the top ten populous nations in the world are China, India, USA, Indonesia, Brazil, Pakistan, Nigeria, Bangladesh, Russia, and Japan. See: Population Division of the Department of Economic & Social Affairs of the UN Secretariat, World Population

an estimated 1033 people live per square kilometer, which is almost three times as much as its largest neighbor, India (373/sq.km) and more than eight times the world's most populated country, China (136/sq.km).

Economically, according to the World Bank estimates, the per capita Gross Domestic Product (GDP) in US dollars of Bangladesh in 2007 was about 1291, which grew to about 1419 in 2009 and 1488 in 2010.¹² To picture Bangladesh's economic status relative to other countries, I use the 2010 estimates of the World Bank. In 2010, Bangladesh was among the 'low income' category that also includes such countries as Kenya and Ghana.¹³ Bangladesh was the poorest in South Asia, except for Nepal (USD 1,079, in 2010). The source of obvious comparisons are the regional giants, India and Pakistan, whose per capita GDP in 2010 were USD 3,038 and USD 2,411 respectively. All South Asian countries, however, do poorly when compared to the world's economically well-to-do nations such as Singapore (USD 52,169), the United States (USD 42,079), and Germany (USD 33,414) (WDI, World Bank 2012).

In addition to its low income status, the country is also marked by extreme poverty and income inequality.¹⁴ In 2010, about 31.5 percent of the population lived

Prospects: The 2010 Revision, online spreadsheet display at <http://esa.un.org/unpd/wpp/Sorting-Tables/tab-sorting-population.htm>

¹²The presented figures are rounded to the nearest digit, and they are purchasing power parity (PPP) adjusted, 2005 constant international dollars. World Bank estimates are taken from the World Development Indicators dataset available at <http://data.worldbank.org/data-catalog/world-development-indicators>

¹³In 2010, Kenya's GDP was USD 1,481, and Ghana's USD 1,478

¹⁴In the World Development Indicator of World Bank, Proportion of people living under extreme poverty is measured by proportion of people living behind national poverty line (Poverty headcount ratio at national poverty line (percent of population) and income inequality is measured by percentage of national income held by the top and the bottom 20 percent of the population. The indicator scores for Bangladesh, however, is available only for the years 2005 and 2010.

below the national poverty line,¹⁵ which is similar to India (29.8 percent), but much worse than Sri Lanka (8.9 percent), another South Asian country (WDI, World Bank 2012). Using another measure of poverty, about 43 percent of the population in Bangladesh lived with 1.25 US dollars or less a day in 2010 (WDI, World Bank 2012).¹⁶ In terms of distribution of national income among the population, in 2010, 41.41 percent of Bangladesh's income was shared by its top 20 percent population, while only about 8.8 percent was held by the lowest 20 percent of the population (WDI, World Bank 2012).

Besides poverty and inequality, the country struggles in some of the key development indices including health and education. According to the Human Development Report (2011) of the United Nations Development Program (UNDP),¹⁷ the average life expectancy at birth – a measure of the overall health condition of a country – in Bangladesh was about 68.63 years. This is about a year lower than the global mean (69.67 years), and more than three years higher than the South Asian mean (65.28) as well as that of India (65.13 years) and Pakistan (65.19 years). While Bangladesh does better than other South Asian countries in terms of average life expectancy at birth, it is far behind some of the economically advanced countries such as Japan (82.9 years), Australia (81.6 years) or France (81.3 years) (Human Development Report 2011*a*).

¹⁵This is an improvement from 2005, when 40 percent of the population lived below the national poverty line (World Bank 2012). Data for years 2006 through 2009 are not available in the WDI index.

¹⁶In 2005 about 50.47 percent of the population in Bangladesh lived with 1.25 US dollars or less a day. Considering the 2010 estimates, among the South Asian countries, Nepal (24.82%) and India (23.67 %) have done better than Bangladesh in 2010 (WDI, World Bank 2012).

¹⁷See the UNDP's country specific Human Development reports at <http://hdr.undp.org/en/countries/>.

The level of education is another important area where the country struggles. For example, in 2010, the mean year of schooling of adults (people aged 15 and above) in Bangladesh was 4.8 years (Human Development Report 2011*b*), which compares with Pakistan or Haiti (4.9 years) (Human Development Report 2011*a*). Compared to the countries with high scores in the Human Development Index (HDI) such as Germany (12.2 years), the United States (12.4 years) or Japan (11.6 years), Bangladesh is far behind in adult education, but within South Asia, it is slightly above the curve (the average of the South Asian region is 4.6 years) (Human Development Report 2011*a*).

Due to inadequate performances in the above key areas of socio-economic development, Bangladesh is mapped as one of the least developed countries in the world. For example, the Human Development Index value of Bangladesh in 2010 was .496 (the HDI value ranges between 0, the lowest, and 1, the highest),¹⁸ which put the country into the rank of 146 amongst 187 countries (UNDP 2011). In 2005, the HDI value was .462. Although over the five years between 2005 and 2010 the country improved in the HDI value, it remained a low human development country.

It is not only in the areas of socio-economic development where the country lagged behind most countries in the world, it also fell short in the areas of democratic political development, especially in the 2005-2010 time period. Political instability due to violent confrontations among major political parties, politicization of the caretaker governments, and civilian/military coups have stalled the country's democratic progress. I now turn to a discussion of some contemporary challenges for the country regarding political development.

¹⁸The Human Development Index, in addition to life expectancy and mean adult education, uses gross national income (GNI) as a measure of living standard to create human development score for a country. In 2011 Bangladesh's GNI was \$1,529 (constant 2005 PPP adjusted) (UNDP 2011).

Challenges of Political Development

A number of trends in Bangladeshi society provide a deeper context for understanding the country's politics. After its independence in 1971, the country was subject to a series of military coups, the last one being the 1982 coup that installed Lieutenant General Ershad as the dictator president of the country; he ruled the country until he was overthrown by a mass uprising in 1990, and was succeeded by an elected government of Begum Khaleda Zia, the chief of the Bangladesh Nationalist Party (BNP). Since then, Bangladesh has been plagued by confrontational interaction between two major political parties – the Awame League (AL) and the BNP. These two political parties, either independently or through pre-electoral coalition building, have rotated control of government since 1991. Competition between the two has been fierce as electoral winning, as a senior U.S. State Department official remarked in 2008, “vanquished the losers, and the opposition’s sole focus was on bringing down the government at any cost.”¹⁹

An example of the confrontational politics can be drawn from November 2012 encounter between the prime minister Sheikh Hasina Wazed of the AL (hereafter Sheikh Hasina) and Begum Khaleda Zia (hereafter Khaleda Zia), the BNP chief.²⁰

¹⁹Hearing before the Subcommittee on the Middle East and South Asia of the Committee on Foreign Affairs, House of Representatives, One Hundred Tenth Congress, First Session August 1, 2007 (Serial No. 110-132). “Political Crises in South Asia: Pakistan, Bangladesh, Sri Lanka and Nepal”, Statement of Mr. John A. Gastright, Jr., Deputy Assitant Secratary, Bureau of South and Central Asian Affairs, U.S. Department of State. U.S. Government Printing Office, Washington, 2008: p. 21.

²⁰The AL led “grand alliance” claimed a landslide victory in the general election of 2008 winning 266 of 300 seats in the national parliament, and BNP won only 33 seats. For election results, see the Election Commission of Bangladesh website at <http://123.49.39.5/result/report4.php?lang=en>, accessed October 16, 2012. The election was “generally deemed to have been fair” (Momen 2010, 158). The results of the election partly reflects popular anger towards the BNP leadership that ruled the country from 2001 to 2006. Virtually led by Tariq Zia, the son of the party chief Begum Khaleda Zia, BNP government became a symbol of kleptocratic government, and was alleged of extreme corruption, rent seeking of the government resources, and politicization of the

While conducting an anti-government rally, the BNP chief accused the AL-led “grand alliance” government of being “desperate to remain in power at any cost, ... [even at the cost of promulgating] emergency”.²¹ From the rally, Khaleda Zia announced various anti-government programs including a countrywide road blockade to press home its demand on the reinstatement of the caretaker government.²² In reply, the prime minister severely criticizing the BNP chief for the comment, and raised the question of whether the BNP wanted itself to create a state of emergency by announcing violent programs.²³ Sheikh Hasina urged the BNP, who had been boycotting most sessions of the parliament, to join the parliament to discuss their demand and warned, “Do not push the country towards destruction.”²⁴

When in opposition (e.g. between 2001 - 2006) the Awame League played a similar role to that being played by BNP, as highlighted above. On various occasions, “the AL repeatedly called for the [BNP-led] government’s resignation, citing misrule, corruption, oppression, and human rights violations; it threatened street movements to oust the government (Jahan 2004, 58). On the other hand, “BNP leaders [then in

bureaucracy (see The *Daily Star* report “Tarique symbol of violent politics” at <http://www.thedailystar.net/newDesign/news-details.php?nid=201716>, accessed November 29, 2012). As it has been the way for the last two decades, with diluted popularity of BNP and its alliance parties, AL remained the only alternative for the voter in the December 2008 election.

²¹Staff Correspondent. 2012. “It’s for saving war criminals: PM flays Khaleda for Dec.9 road blockade; says no question of declaring emergency”, the *Daily Star* (November 30): Front Page. <http://www.thedailystar.net/newDesign/news-details.php?nid=259342> (accessed November 30, 2012).

²²See footnote 21. In 2011, the AL-led parliament passed the 15th amendment of the constitution that abolished Caretaker Government (CTG). In Bangladesh, a caretaker government indicated a non-partisan interim government that was primarily responsible for governing the country for 90 days within which national parliamentary elections were held.

²³See footnote 21.

²⁴See footnote 21.

power] repeatedly charged that the AL was creating anarchy and ruining the image of the country abroad” (Jahan 2004, 58).

The second trend in Bangladesh politics is related to massive corruption in all sectors of society. From 2001 to 2005, Bangladesh was rated as the world’s most corrupt country in Transparency International’s (TI) Corruption Perception Index (CPI).²⁵ In 2005, for example, Bangladesh shared with Chad the number one corrupt country status (out of 158 countries surveyed) in the CPI index.²⁶ The situation has improved since then. In 2007, the country was ranked 162 out of 179 countries, and in 2009 it was placed at 139 out of 180 countries. In 2011, Bangladesh made further improvements to share the 120th place (in a list of 182 countries surveyed) with seven other countries including Ecuador, Ethiopia, Guatemala, Iran, Kazakhstan, Mongolia, Mozambique, and Solomon Island. The improvement, however, may not look impressive within South Asia, where India scores 95, Lanka 86, and Bhutan 38 in the 2011 CPI.²⁷

While the CPI index reflects the perceived level of corruption in the public sector of a country,²⁸ the Global Corruption Barometer, a global public opinion survey on corruption issues, allowed the TI to focus at the institutional level. According to the survey, the top five institutions perceived by Bangladeshis to be the most corrupt

²⁵According to the Transparency International’s CPI website, “The Corruption Perceptions Index (CPI) ranks countries and territories based on how corrupt their public sector is perceived to be. It is a composite index – a combination of polls – drawing on corruption-related data collected by a variety of reputable institutions. The CPI reflects the views of observers from around the world, including experts living and working in the countries and territories evaluated.” See: http://cpi.transparency.org/cpi2012/in_detail/.

²⁶See the historical CPI indices at the TI’s website <http://www.transparency.org/research/cpi/overview>.

²⁷See footnote 26

²⁸The description of the index is provided in footnote 25

include police, public officials and public service, political parties, and judiciary.²⁹ A recent report published by the Bangladesh chapter of TI focused on popular perceptions about the members of the national parliament in Bangladesh. It concludes that 97 percent of the members of parliament are involved in some kind of “negative activities” including corruption.³⁰

As the cases studies of the current chapter will reveal, the public’s perception of corruption, especially by politicians, public officials and civil servants, becomes a critical issue in the post-disaster context. Both the government of Fakhruddin Ahmed and Sheikh Hasina were criticized due to rampant corruption of relief and rehabilitation funds by local politicians and civil servants placed in the disaster affected areas. I provide details about how corruption plays a mediating role in the relationship between disaster response and legitimacy of the government in Bangladesh in the case studies of the current chapter.

The third influential trend shaping Bangladesh politics is the level of political repression. The country’s 2007 Freedom House “Freedom in the World” ranking in civil liberties was 4 and in political rights 4, both out of 7, making it a “partly free” country along with the likes of Colombia, Kenya, Malaysia, Nigeria, Morocco, Sri Lanka, and Turkey.³¹ In the face of widespread corruption, criminality, terrorist threats from Islamist groups, and political polarization in anticipation of elections

²⁹See http://www.transparency.org/country#BGD_PublicOpinion. The survey captured the extent to which major state institutions are perceived to be corrupt, where 5 being the most corrupt and 1 being the least corrupt. The institutions are: police (4.4), public officials and civil service (4), political parties (3.8), judiciary (3.5), parliament and legislature (3.1), education (2.6), business and public sector (2.4), media (2.3), NGO (2.3), military (1.9), and religious bodies (1.8).

³⁰See: Nabi, Waheed. 2012. “Opinion poll and methodology”, the *Daily Star* (November 22) at <http://www.thedailystar.net/newDesign/news-details.php?nid=258382> (accessed November 30, 2012).

³¹See <http://www.freedomhouse.org/report-types/freedom-world>

scheduled for January 2007 the government took repressive steps that resulted in arrests of thousands of individuals. The partly free status of Bangladesh continued thorough 2012 as human rights abuses, corruption, and political polarization remained pervasive in the public life.³² A constant source of political repression in Bangladesh is extra-judicial killing by government forces, most notably by the Rapid Action Battalion (RAB). Founded as an anti-crime elite force in March 2004 under the BNP-led government, the RAB continued in 2010 to be responsible for the death of alleged criminals in ‘armed encounters’, “an euphemism for extrajudicial killing” (Momen 2010, 162). “Reports by international human rights groups claimed that the RAB was responsible for extra-judicial killings of more than 600 people since it started operations” (D’Costa 2012, 152).

The fourth factor that often influences the course of politics in Bangladesh is political Islam, particularly the growing militancy. “Rampant corruption and institutional decay have in recent years created a widening sociopolitical vacuum into which Islamists have nimbly stepped” (Hagerty 2007, 108). Riaz (2010, 253) contends that “the militant groups [such as Hakat-ul Jihad-al-Islami Bangladesh (Hu-JIB)] in Bangladesh did not grow as a local response to local problems; instead, since their inception, they have drawn inspiration and received support from outside.” Whether grown out of domestic conditions or external influence, extremist Islam has been identified by many as one of the major security challenges to Bangladesh today (Riaz 2010, Hagerty 2008, Ganguly 2006)

The above trends – confrontational politics, corruption, political repression, and political Islam – have largely shaped the political landscape of Bangladesh. In this context, a military-backed-civilian-coup, also known as the ‘good governance’ coup, occurred in January 11, 2007 that installed the Fakhruddin Ahmed led care-taker

³²See the Freedom House country reports for Bangladesh for the years 2007 through 2012 at <http://www.freedomhouse.org/report/freedom-world>.

government (CG)³³ in power, postponed the national election that was due on January 22 of the year, and declared a state of emergency halting all fundamental rights of citizens and political organizations (Hagerty 2008, Robinson & Sattar 2012).³⁴ Following the coup, the Fakhruddin CG vowed to organize a “free and fair” election, and clean the country of corrupt politicians, personality-based politics of the two major political parties – Awami League (AL) and Bangladesh Nationalist Party (BNP), electoral malpractice, and Islamic fundamentalism (Hagerty 2008, Momen 2009). Initially the government received widespread support from the public, but “with the passage of time, concerns grew about the army’s long-term political intentions and the sincerity of its pledges to restore Bangladesh’s democracy” (Hagerty 2008, 178).

Within a year of the coup, the Fakhruddin administration tackled two large scale disasters, a summer flood and the cyclone Sidr, the later being the most dramatic

³³The Non-Partisan Care Taker Government (CG) was installed for the first time in the country’s history in 1991, when major political parties committed to a fair election, after the fall of the military dictator Hussain Mohammed Ershad following a mass uprising in 1990. The CG served as a means to resolve mutual distrust among the political parties, especially AL and BNP. The elected parliament, under the prime ministership of Begum Khaleda Zia of BNP, later institutionalized CG by the 13th amendment to the constitution in 1996. The elections of 1991, 1996, and 2001 were conducted under three different CGs. However, over time, the recruitment process of the CG was politicized, and the CG became an instrument of the incumbents to manipulate elections (Hagerty 2008). By 2007, it was widely believed that the upcoming election to be held the same year would be rigged by the then CG which was allegedly serving the interests of the immediately past incumbent (2001 – 2006), the BNP-led four party alliance (Hagerty 2008). It is in this context the January 2007 coup occurred.

³⁴The constitution of Bangladesh guarantees six fundamental rights of citizens: the rights of freedom of movement, freedom of assembly, freedom of association, freedom of thought and conscience, freedom of profession, and the right to property (Article 36-40 and 42 of the Constitution of Bangladesh). The state of emergency, that was issued on January 11, 2007 and withdrawn on December 17, 2008, halted all of these rights (Hoque 2009, 184). Since the country’s independence in 1971, rulers invoked the states of emergency power four times, including the latest one by the Fakhruddin government. The other three state of emergencies were: (1) December 28, 1974, which was declared on the ground of managing internal disturbance; (2) May 30, 1981, which was declared (with a marshal law) following the assassination of President Zia; and (3) November 27, 1987, which was declared to control popular uprising against the military dictator Ershad (Hoque 2009, 186)

and devastating one.³⁵ Inevitably, these disasters became an additional burden to the regime that was primarily focused on bringing in political reforms (Hagerty 2008, 178-179). The Fakhruddin government's response to Sidr is the subject of the first of the two cases studied in the current chapter (see section 5.4 below), where I detail the political ramifications of Sidr for the government. Here it is suffice to mention that natural disasters, particularly cyclone Sidr, played a crucial role in limiting the government's tenure. Within two years of the coup, the government transferred power through a national election held on December 29, 2008 to Sheikh Hasina of the Awami League led 'grand alliance'³⁶ that won the election with more than a three-fourths majority in the parliament (Momen 2010, 158).

Within six months of coming to power, the Hasina government faced the tropical cyclone Aila, that hit the country on May 26, 2009. As discussed in detail in the second case study of the current chapter, the Hasina government was criticized for its inadequate, indecisive, and disinterested response to Aila. Disaster response was sidelined by a number of agenda items that the government was determined to pursue.

Within these constraints of a host of socio-economic and political challenges, Bangladesh has prepared and responded to natural disasters, and planned for long-term rehabilitation of the victims. In doing so, it has taken a number of policy steps that have shaped the institutional framework of disaster response today. In the following section, I highlight some of the most important aspects of the disaster management institutional framework of the government of Bangladesh, particularly those that were instrumental when Sidr and Aila hit the country.

³⁵In 2007 (July -September), Bangladesh experienced a flood that killed at least 1110 and affected more than 13 million people (See Table 1, Chapter 4, p.5)

³⁶The 'grand alliance' was composed of Bangladesh Awami League, Jatiya Party, Jatiyo Samajtantrik Dal, Workers Party and nine other parties.

Institutional Capacity for Disaster Response

The country started its disaster management policy and institutional arrangement in the mid-1990s. The Standing Orders on Disaster (SOD) were issued in 1997 under the first Sheikh Hasina government, and revised in 2010 by the second Sheikh Hasina Government. Meanwhile, a Disaster Management Act was drafted in 2008 by the Ministry of Food and Disaster Management under the CG of Fakhruddin Ahmed. The finalized act was passed by the Sheikh Hasina government in 2012 as the ‘Disaster Management Act 2012’.

In 2007 and 2009, when cyclones Sidr and Aila respectively hit, disaster management activities in Bangladesh were run under the broader framework of the SOD of 1997. The Standing Orders instructs:

All Ministries, Divisions/Departments and Agencies shall prepare their own Action Plans in respect of their responsibilities under the Standing Orders for efficient implementation. The National Disaster Management Council (NDMC) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) will ensure coordination of disaster related activities at the National level. Coordination at district, Thana and union levels will be done by the respective District, Thana and Union Disaster Management Committees. The Disaster Management Bureau will render all assistance to them by facilitating the process.

At the national policy level, the Standing Orders make three different Councils/Committees responsible for policy formulation and coordination of disaster management. At the top of the policy hierarchy is the National Disaster Management Council (NDMC) that meets at least twice in a year under the leadership of the prime minister to formulate and approve disaster related policies. The second major institution is the Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) that is responsible for the implementation of the policies by coordinating efforts of various government departments in the three different phases of a disaster: prevention/mitigation, emergency/warning situation right before the disaster,

and after the event, disaster stage. The Ministry of Food and Disaster Management (MoF&DM), that replaced the older Ministry of Relief and Rehabilitation and the Ministry of Disaster Management and Relief in 2003, leads the IMDMCC meeting.

The third policy level institution is the National Disaster Management Advisory Committee (NDMAC), which is chaired by an expert nominated by the prime minister, and consists of members of the parliament, chair persons and directors of various government bodies, the director of the armed forces division, academics from the major national universities, the country director of the World Bank, experts of various areas of disasters (e.g. water resource, physical infrastructure), and chair persons of banks and insurance companies. The NDMAC, however, is not a visible actor in the government's response mechanisms. Its role is to advise the NDMC and provide long-term policy recommendations. It is hard to know how the NDMAC's advice and recommendations find their place in the actual policy formulation and implementation processes.

At the operation level various ministries and government departments collaborate with the Disaster Management Bureau (DMB) to run their operation through the district, subdistrict, and union level administrations. Foreign multilateral donors, including the UN bodies, work through their own response teams and various non-governmental organizations (NGOs). The Standing Order is not clear about the role that the military may play in various response stages. The military (Army, NAVY, Air Force, and Coastguards), however, as I will show later in the case studies of this chapter, plays the most important role especially in the area of rescue, relief distribution, and rehabilitation.

Within the above institutional framework, the military-backed caretaker government of Fakhruddin Ahmed responded to cyclone Sidr in 2007 and the Awami League led "grand alliance" government responded to cyclone Aila in 2009. In the

next section, I take on the analysis of Sidr. The analysis of the case of Aila will then follow suit.

Tropical Cyclone Sidr, 2007

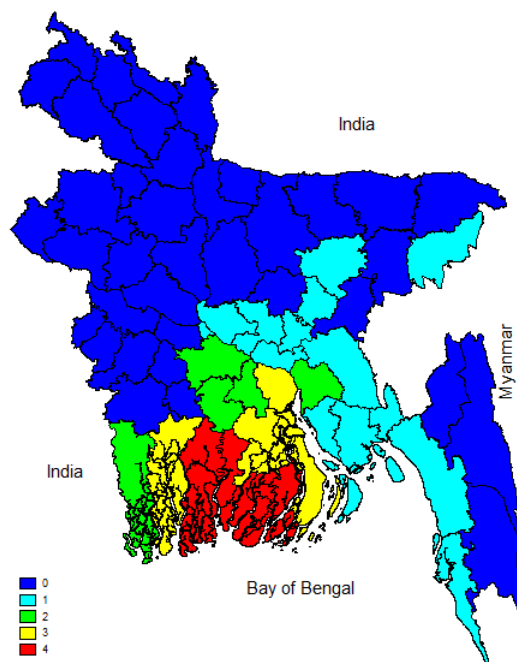
Tropical cyclone Sidr, a category-IV storm originating in the Bay of Bengal, hit the southern and the central parts of Bangladesh with winds up to 240 km/h (150 mp/h) on November 15, 2007 (Government of Bangladesh 2008, xvi). The cyclone created tidal surges of 15-20 feet and raised the sea water up to twenty feet (DS111607d).³⁷ Many parts of the protective embankments were flooded by the sea water that inundated acres of land. Sidr killed more than four thousand people – the highest number of people killed by any disaster in recent times – and affected about nine million people (See Chapter 4, Table 1, p. 5). According to a World Bank assessment, the cyclone damaged more than one billion USD worth of physical assets and wealth (cited in Government of Bangladesh 2008, xvi). As illustrated in Figure 5.1, the cyclone affected 29 of 64 districts of Bangladesh; among the affected, the twelve southern most districts were most severely affected.³⁸ Generally, private

³⁷The citation –DS111607d – indicates a news-report that is archived and is part of a systematic content analysis for this dissertation project. I use this format of citation for the archived news reports throughout the dissertation. In the citation DS111607d, the DS part indicates the *Daily Star*. For the *Time of India*, it would be TI. The third and fourth digits together indicate the month of the publication of the news-report (here, 11 indicates November), the fifth and sixth digits together indicate the day of the month (in this case, 16 indicates 16th), and the final two digits indicate the year of report’s publication (in this case, 07 indicates the year 2007). The letter ‘d’ at the end of the citation indicates the fourth article stored in my archive that was published on the same day.

³⁸According to Government of Bangladesh (2008), Bagerhat, Barguna, Patuakhalki and Piroipur were categorized as the worst affected, and Khulna, Madaripur, Shariatpur, Barishal, Bhola, Satkhira, Jhalakthi, and Gopalgani were categorized as moderately affected districts. Other districts that were also affected were Jessore, Narail, Rajbari, Manikganj, Dhaka, Narayanganj, Munshiganj, Comilla, Laxmipur, Noakhali, Feni, Chitagong, Cox’s Bazar, Narshingdi, Kishoreganj, and Moulvibazar.

sector housing and agriculture, and public sector infrastructure bore the most loss from Sidr (Government of Bangladesh 2008, xvii).

Figure 5.1: Affected Areas of Cyclone Sidr (November 2007)



NOTE: The deep blue part of the map was not severely affected by Sidr. The red colored area was the most affected region, the yellow colored region is the second, green colored region is the third, and light blue colored region is the least severely affected areas.

While the year 2007 ended with the devastating storm Sidr, the year started with a remarkable political event. After the military-backed-civilian-coup that year, on January 11, the government of Fakhruddin Ahmed declared a state of emergency halting all fundamental rights of citizens and political organizations (Hagerty 2008,

Robinson & Sattar 2012).³⁹ How well the Fakhruddin government responded to the cyclone is the subject matter of the current section. Here I discuss how the government performed various tasks associated with each of the three disaster response dimensions identified in Chapter 4: preparedness, immediate response, and long-term response. Following the guidelines established in Chapter 4, information regarding government responses to Sidr are retrieved from the news reports published on the event in the *Daily Star*, the newspaper with highest circulation in Bangladesh, and transcripts of the *BBC World News* (Bangla).

Preparedness

Early Warning, Evacuation, Protective Measures

According to the measurement criteria developed in Chapter 4, preparedness is the first phase of government response to a disaster. I conceptualized preparedness of a government in terms of its functioning in early warning, evacuation, and protective measures. While considering the quality of the Fakhruddin government's preparedness for Sidr, I take on each of these functions in turn.

My analysis of news reports on Sidr finds that the meteorological department (Met office) of the Bangladesh government began its early warning calls at least three

³⁹The constitution of Bangladesh guarantees six fundamental rights of citizens: the rights of freedom of movement, freedom of assembly, freedom of association, freedom of thought and conscience, freedom of profession, and the right to property (Article 36-40 and 42 of the Constitution of Bangladesh). The state of emergency, that was issued on January 11, 2007 and withdrawn on December 17, 2008, halted all of these rights (Hoque 2009, 184). Since the country's independence in 1971, rulers invoked the states of emergency power four times, including the latest one by the Fakhruddin government. The other three state of emergencies were: (1) December 28, 1974, which was declared on the ground of managing internal disturbance; (2) May 30, 1981, which was declared (with a marshal law) following the assassination of President Zia; and (3) November 27, 1987, which was declared to control popular uprising against the military dictator Ershad (Hoque 2009, 186)

days before the cyclone hit the country.⁴⁰ On November 12 (2007), the government issued a warning signal of II⁴¹ advising particularly the maritime ports (Chittagong, Cox's Bazar, and Mongla), the people in the low-lying areas, and the fishing trawlers working in the bay to take precautionary safety measures. The next day, the government held an emergency preparedness meeting that increased the warning from II to IV (DS111407b, DS112407b). About 27 hours before the cyclone hit, the signal was raised to X, the highest signal of danger (DS112407b)

The early warnings allowed a substantial number of people to evacuate from vulnerable areas prior to the cyclone. In the two days before the cyclone hit, as many as 3,200,000 people in the coastal areas were evacuated to the cyclone shelters and other safe places such as high buildings, highlands, embankments, and stronger public and private houses (DS112107j, DS111607d).⁴² The local administrations of the government, with the help of NGO networks and volunteers, led the evacuation process. The activities of the evacuators included informing the people about the severity of the approaching cyclone, the government orders of evacuation, and the whereabouts of the available shelters.

⁴⁰The government claimed that they “started providing early warning five days before and also hoisted the highest danger signal almost 27 hours before Sidr hit” (DS112407b). However, in my review of news-reports, I found that the first report on ‘warning’ was published in the *Daily Star* on November 13. The report mentioned about a warning that was issued on the previous day (November 12), three days before the cyclone hit the land.

⁴¹The signals ranges from I through X: the higher the signal the higher the level of danger expected.

⁴²According to Bangladesh authorities, the country has 3,000 cyclone shelters, most of them are in the coastal areas. See the UN's Office for Disaster Risk Reduction (UNISDR) report on the national seminar for the 2012 Bangladesh National Disaster Preparedness Day where the UN Secretary-General's Special Representative for Disaster Risk Reduction, Margareta Wahlström and the Bangladesh government led by Abdur Razzaque, Minister of Food and Disaster Management of the Bangladesh government discussed about Bangladesh's need for more cyclone shelters. The minister emphasized that the country needs at least 5,000 cyclone shelters, <http://www.unisdr.org/archive/26009>, accessed December 17, 2012.

Besides radio and television broadcasts, the government recruited volunteers who warned people at the village level by using loud-speakers (or megaphones).⁴³ The loud-speaker measure was effective in many places such as in small islands (*char*) where either radio/TV signals were weak or people do not have ready access to radio or TV. The measure was hailed by the international community as the most successful element of the warning process of the Bangladesh government. For example, the World Meteorological Organization in Geneva “lauded the early warning system of Bangladesh that used local volunteers shouting through megaphones to warn people” (DS112407k).

Journalists, donors, and academics alike passed positive evaluations of the government’s warning and evacuation initiatives. It is widely held that the death toll and the magnitude of damage incurred by Sidr was much lower than that of Gorky of 1991 – a cyclone of similar magnitude (a Category IV storm), which killed an estimated 140,000 people – precisely because of the timely and well coordinated preparedness efforts of the Fakhruddin government (Paul 2009, 289). A *Daily Star* editorial opined: “Maybe for the first time in many years we have witnessed a timely and better coordination among civilian administration, military administration, media and the people on the ground to synchronize the entire preventive effort” (DS111707m). Affected people and local NGO workers expressed their appreciation of the prompt warning and evacuation efforts of the government (DS112107j). The international donors, in-

⁴³Public and private radio and television channels transmit early warnings. The main broadcasters – Bangladesh Betar (Radio) (BB) and Bangladesh Television (BTV) – are state-owned and government-friendly. According to the World Press Trend (2010), there were 10 private satellite television stations and three private radio stations in operation. The BTV is the sole terrestrial TV channel. There were two foreign-based, licensed satellite television stations that maintained domestic news operations. Popular satellite and cable channels are ATN, Channel i, NTV, RTV, Channel One, BanglaVision and Boishakhi. However, only 40 per cent of the population have access to private satellite channels (World Press Trend 2010, 96). The BB covers almost the entire country. The BBC World Service broadcasts in English and Bengali through FM channels (World Press Trend 2010, 96).

cluding UN agencies, international NGOs, observers and aid agencies of various donor countries also had a high opinion of the overall early warning and evacuation system of Bangladesh. For example, the Swedish Ambassador to Dhaka observed “the early warning system and cyclone shelters in the coastal area has worked well” to minimize the destructive effects of Sidr (DS112207j).

Although thousands of lives were saved thanks to the government’s timely warning and evacuation initiatives, more than four thousand people (4234) still died. The primary cause of these many deaths was the lack of an adequate number of usable cyclone shelters. As conceptualized in the Chapter 4 (and Figure 1), making cyclone centers available for shelter seeking people is part of a government’s protective measures, and in this criterion, the Fakhruddin government seems to have failed. According to a *Daily Star* report, only 60% of the total cyclone shelters (2,400 out of 3, 976 shelters) were available for use, the rest were damaged due to lack of proper maintenance and misuse (DS111607a).⁴⁴ In some places, the usable ones were occupied by government offices, such as Local Government Engineering Department, or schools, which were kept off limits for shelter-seeking people (DS111607a). As Sidr approached, the government did not make sure that all of the cyclone centers were used to protect the people. In other places, especially in *char* (small islands), there was no cyclone center at all. Neither did the thousands of people from these *char* areas get any assistance from the government to move to the mainland to take shelter before the cyclone hit (DS111607a).

⁴⁴According to this *Daily Star* report “A large number of the people living in the coastal belt of the country, around 1.6 crore [16,000,000], are not covered by cyclone shelters as only 19.2 lakh [1,920,000] people can be housed in the 2,400 shelters now available for them in usable conditions. Even though a typical cyclone shelter can accommodate around 800 people and a minimum of 20,000 shelters are required in the region, only 3,976 cyclone shelters were built till the mid nineties [1990s]. Out of which, 1,576 were damaged by river erosion or were abandoned due to their dilapidated conditions” (DS111607a)

Immediate Response

Leadership: Visit, Address, Directives, and Assessment

The evaluation of the post-disaster, immediate response begins with four criteria regarding how the leaders (e.g. the prime minister or the chief of the care taker government) of the responding government acts in response to a disaster. The criteria are whether the leader visits the affected area, whether s/he issues any directive to begin or expedite response activities, whether s/he gives a special TV or radio speech focussing on the disaster, and whether s/he is able to assess accurately the needs of the situation. I call all four criteria the leadership dimension of government response. In this section I consider each of these criteria in turn, starting with the visit of the leadership of the Fakhruddin government.

Fakhruddin Ahmed, the civilian leader⁴⁵ of the military-backed government, flew to Khulna on November 17, within two days of the disaster, to make his first visit to some of the hardest hit areas (DS112707f). He made his second visit to other parts of the affected area on November 20, the fifth day of the disaster (DS112007b).⁴⁶ In his visits, Fakhruddin observed the relief and rehabilitation efforts of the military and government employees deployed in the region, asked the local authorities concerned to take urgent steps to meet the needs of the affected people, announced allocations of money to specific areas, participated in distributing relief materials among the affected people, and met with local people to assure them of continuing governmental support (DS112707f, DS112007b).

Fakhruddin cancelled his visit to Uganda to participate in the Commonwealth Head of Government Meeting scheduled for November 23-25 (DS112107b). Highlighting the importance of his personal presence during the post-disaster exigencies

⁴⁵He was officially designated as the Chief Adviser (CA) of the Caretaker Government.

⁴⁶In this trip, he visited Barguna, Bagerhat, and Patuakhali (DS112007b)

in Bangladesh, he said, leaving the country with such a disaster, even if for a short period of time, would not be a “wise” decision (DS112107b). Referring to the cyclone, he said, “such moments of tribulation are a test for the nation’s resilience to pick up threads and forge ahead” (DS112207b).

Besides Fakhruddin’s visits to the affected areas, visits by military officials, especially by General Moeen U Ahmed, the Chief of Army Staff, was also highlighted in the news media.⁴⁷ General Moeen not only accompanied Fakhruddin in his visits to the affected areas, he made separate trips to various affected areas to inspect relief and rescue operations of the military and participate in relief distribution occasions.⁴⁸ He assured the affected people of “all possible help from the government side,” and announced funds for the families who lost their relatives in the disaster (DS112107i).⁴⁹ He also assured that “the government would take steps for the funerals of the dead” (DS112107i).

As he visited various affected areas, Fakhruddin gave directives to authorities at all levels to take urgent steps to meet the needs of the people in the cyclone-hit areas (DS111707f). He asked all concerned authorities to prioritize the worst affected areas in providing rescue, relief, and rehabilitation services (DS111707f). General Moeen also issued a number of special directives to open control rooms in the affected areas, to coordinate efforts by all government and non-government response actors, and to provide specific types of assistance such as water treatment plants to the worst hit areas, especially those that he visited (DS112207b). Besides the directives coming

⁴⁷President Iajuddin Ahmed visited the a high school Khepupara and distributed rice, cash, and clothes to the victim of the cyclone (DS111907b).

⁴⁸Other military high officials including Air Marshal SM Ziaur Rahman, the Chief of Air Staff, and the Jessore are General Officer in Command (GOC) also visited affected places with the Chief Adviser Fakhruddin Ahmed and Chief of Military Staff Moeen U Ahamed.

⁴⁹General Moeen pledged that “each of the families of those killed in the cyclone would be given Tk 10,000.00 (\$125.00 apx.)”

from the office of Fakhruddin and the Chief of Army chief, the *Daily Star* highlighted the directive of the Bangladesh Bank, the central bank of Bangladesh. Within five days of the disaster, the Bank issued a five-point directive asking banks particularly in the cyclone-hit districts to relax the condition of down payments in loan rescheduling and to disburse fresh loans especially to the affected farmers as soon as possible (DS112007c). The directive also ordered all banks to have strict loan monitoring systems that would report back to the central bank on fortnightly basis (DS112007c).

Fakhruddin addressed the nation twice in less than two months of the cyclone through Bangladesh Radio and Bangladesh Television. In his first address on November 21, 2007, the sixth day after the cyclone, he called for national unity and courage in the face of the disaster. In the speech, he emphasized “the need for making concerted and determined efforts to cope with the critical situation” (DS112207d) and asked all regardless of party affiliations to stand beside the distressed humanity (DS112107b). He addressed the nation for the second time on January 13, 2008 to celebrate his government’s one year in power, but the speech was focused on how the nation suffered due to Sidr and what his government did to help the nation fight back.

In both speeches he provided initial government assessments of the damage incurred by the cyclone, and listed the money amounts the government allocated to various sectors, particularly the agricultural sector, for the rescue and rehabilitation purposes.⁵⁰ He acknowledged that his government alone could not do all, and ap-

⁵⁰He informed in his first speech that “about 40 lakh [4,000,000] people were affected in the hurricane, of which the number of casualties runs into thousands while the number of injured is much greater. Nearly 9 lakh [9,000,000] houses were ruined totally or partially, innumerable livestock perished, hundreds of kilometer of roads damaged, massive damage was done to crops, mainly aman and *rabi* crops, and telecommunications” (DS112107b). He also mentioned that his government has already allocated TK 35 crore [350,000,000 or \$ 4,375,000 in 2012 US dollars] in rebuilding the damaged houses, another TK 15 crore [150,000,000 or \$ 1,875,000 in 2012 US dollars] from the Chief Adviser’s Relief Funds to meet the urgent needs of the victims (DS112107b)

pealed, particularly, to business people, banks, micro-credit institutions and the well-to-do people to support the survivors of the storm. He emphasized that the national disaster management committee (NDMC), operating under his supervision, was prepared to face the disaster before the cyclone struck; as a result, the damaging effects of a cyclone of unprecedented magnitude were minimized (DS011308c). Following the cyclone, he mentioned, that the government was trying to “deal with ... the situation with its own resources”, and mobilize international assistance (DS112107b). In his second speech, Fakhruddin highlighted the economic challenges that his government faced in the wake of Sidr, and listed a series of medium and long-term solutions that his government was considering to face the challenges. I will summarize his statement of economic challenges later, in the long-term response section below.

The government was quick to mobilize international support to assess the magnitude of the damage inflicted by Sidr to provide a basis for its appeal to the international community for disaster and development aid. Resource mobilization for immediate relief operation was the government’s top priority. Within three days of the disaster, the UN Coordination of Humanitarian Affairs (OCHA) Regional Office for Asia-Pacific responded to the government’s calls by setting up a task force to help the government assess the damage inflicted by Sidr. Other development agencies including Asian Development Bank (ADB), various UN agencies, and the World Bank (WB) joined in later. Tapan Chowdhury, the adviser in charge of disaster management, told the BBC that “his administration had received offers of \$140m (£70m) worth of international emergency aid”⁵¹ within four days of the disaster.⁵²

⁵¹(See the BBC news “Aid battle for Bangladesh victims” at http://news.bbc.co.uk/2/hi/south_asia/7100957.stm, accessed January 12, 2013).

⁵²An assessment report jointly prepared by the Government of Bangladesh and its international development partners –the Joint Damage, Loss, and Needs Assessment (JDNLA) – estimated the total damage and losses caused by the cyclone to be \$ 1.7 billion (Government of Bangladesh 2008, xvii). The report estimated that Bangladesh would need \$1,313 mil-

Assistance: Rescue, Relief, and Equity

The second major dimension of immediate response codes various initiatives that a government takes to assist the affected people. As discussed in Chapter 4, (also see Figure 1 on page xx), the most important of these are rescue and relief operations. These operations are distributional in nature, thus, their quality can be assessed by finding whether the resources spent for rescue and relief operations are equitable: does everyone who is affected by the disaster have an equal and adequate chance of getting these resources? The current section evaluates the information that allows me to answer this questions.

Immediately following the cyclone, the government expressed commitments to equitable, timely, and professional distribution of relief and rescue operations. In his first national speech, Fakhruddin endorsed Genral Moyeen who avowed that “nobody will be allowed to die from starvation or lack of medical care” (DS112207d). This, Fakhruddin said, gave him “confidence in the good work being done” by the military in the area of preliminary rescue, relief, and rehabilitation. The sentiment was repeated by General Moeen who commented on the joint efforts of the Bangladesh military and the US military from the Pacific bases that came to take part in the the rapid rescue and relief distribution efforts: together this work was done professionally without wasting any time.⁵³ The US military provided aircraft, helicopters, and

lion for recovery and reconstruction purposes. (Note that this amount does not include the amount used towards disaster relief. Based on its own early assessment, the government estimated that \$ 2.1 billion would be necessary for relief, recovery and medium to long-term restoration and rehabilitation work in the cyclone-affected area (DS011608b)). Such an assessment provided the basis for the government to appeal to the international community for disaster aid and post-disaster development assistance. According to the report, the housing (50 percent of the total), productive (30 percent), and public infrastructure (14 percent) sectors received the most damaging effects of Sidr (Government of Bangladesh 2008, xvii).

⁵³See “U.S. forces provide relief after Cyclone Sidr strikes Bangladesh: 3rd MEB personnel deliver supplies to victims” *Okinowa Marine*, III Marine Expeditionary Force and

medical teams who worked in coordination with the Bangladesh military especially in some remote and worst-hit areas.

Despite the government's claim of professional rescue operations and coordinated and equitable distribution of relief, unhappiness about the government's performance was widespread. People from severely affected areas – such as villages of Borguna, Pirojpur, and Bagerhat – reported lack of coordination and irregularities on the part of the government, particularly in relief distribution (BBC112807). Many parts of these affected areas were not visited by any rescue or relief team, even eleven days after the disaster (BBC112607). People from these areas complained that the government rescue and relief operations were run only in places that were easily accessible, while remote areas were left helpless for a longer time (BBC112507). People, even members of the *unions parishad* (lowest tier of the local government) in some areas where the relief and rehabilitation teams did reach quickly, reported that the amount of relief distributed there were much less than than the bare minimum needed (BBC112607). They also reported widespread corruption and pilferage of relief goods, which caused hundreds of people in Boguna and Patuakhali to break the state of emergency and organize anti-government demonstrations protesting irregularities and corruption in relief distribution (BBC112807,BBC112907). I will discuss the topics of corruption and demonstration in later sections of the current chapter. These issues are raised here to highlight why and the extent to which the affected part of the population were dissatisfied with the government's immediate rescue and relief operations.

When informed about the lack of coordination, irregularities and corruption in relief distributions at the field level, the Relief and Disaster Management adviser (the minister) of the government discounted them as isolated mistakes, and promised

Marine Corps Bases Japan, November 30, 2007 <http://www.militaryspot.com/publications/okinawamarine113007.pdf>, accessed January 14, 2013

better performance in the future. Reflecting on the performance of his government in the immediate post-disaster context, Fakhruddin, in his second national speech summarized in the previous section, acknowledged that “the post Sidr rehabilitation work was slow in the initial days as the roads and ferries were destroyed. But within a short time, relief could be sent through helicopters and river routes” (DS011308c). He assured that “there had been no corruption in relief activities” (DS011308c). He said that the combined efforts of the people, military and civil administration, and the NGOs made it possible to stop the outbreak of disease in the post-disaster context (DS011308c). However, as pointed out in the current section, such views of the government were not shared by all of the affected people.

Long-term Response

Planning, Learning, Recovery

According to the measurement criteria developed in Chapter 4, the dimension of long-term response captures whether the government lays out a plan as to how to approach the issues of recovery and reconstruction in the long-run, whether the plan reflects learning from past experiences and best practices of long-term responses, and how the government begins some of the recovery work. The Fakhruddin government concentrated on three challenges in medium and long-term rehabilitation and reconstruction planning: availability of food for the affected people, especially in the southern part of the country, for at least four months, reconstruction of the rural infrastructure and shelters, and macro-economic recovery, especially stabilizing the price of consumer goods. In what follows, I discuss each of these challenges in turn.

Providing food security to the people of the southern coastal districts, the poorer part of the country, was the primary challenge to the government in the wake of Sidr. As I mentioned before, General Moeen popularized the slogan that his team would not allow anybody to die from starvation or lack of medical care (DS112207d).

To this end, he said “I requested the chief adviser to bring all the affected people under the VGF [Vulnerable Group Feeding] program for the next four months and he agreed” (DS113007d). The VGF is one of Bangladesh’s social safety-net programs for the poor. The government placed about three million families – less than one third of the total people affected by Sidr – under the VGF program.⁵⁴ Everyone who was included in the program received a VGF card by which government assistance was provided. The government planned to provide 15 kilograms rice per card holder per month, from December to March 2008 (DS112307a). The government persuaded the donor agencies and countries to pour more assistance into the VGF program, which Fakhruddin claimed as a success in his second speech to the nation in January 2008. However, as I show in the next section on accountability, the program was abused as an instrument of rent-seeking and nepotism at the implementation level.

The government considered a long-term plan for repairing and constructing rural infrastructure. Fakhruddin observed that such plans “would cause budgetary pressure, which may be managed from three sources – foreign assistance, lump allocation in the budget and, if necessary, by cutting ADP (annual development programme) expenditure” (DS112607e). In a Council of Advisers (alternatively, the cabinet) meeting chaired by Fakhruddin, the government also declared a special test relief and food-for-work program in the cyclone-hit area. The food-for-work program could be used to supply the labor needed for the rural infrastructure building. But, this meant that the government required more food grains, which would need to be imported from foreign sources as the domestic sources were affected by the flood and Sidr that occurred one after another in 2007. The overall health of the macroeconomy

⁵⁴Some of the most prominent social safety net programs of the Government of Bangladesh include Vulnerable Group Feeding (VGF), Open Market Sales (OMS), Cash for Work (CFW), Food for Work (FFW) Vulnerable Group Development (VGD) and Gratuitous Relief (GR).

and the amount of foreign disaster aid available were major determinants of having the plan implemented.

The only recourse that appeared to be available to the government to finance these plans was to ask the foreign donors, who were also the staunchest supporters of the government's anti-corruption and political reform agenda.⁵⁵ During the month of the disaster, the Fakhruddin government came up with a long-term plan, as requested by the donor nations and multilateral agencies. The plan emphasized three areas as national priorities: first, the coastal belt's transformation required infrastructural improvements, such as building and upgrading roads and bridges in southern Bangladesh. Fakhruddin estimated that it would take \$300 million for this purpose. Such infrastructure development would also create jobs in the region in the long-term, spurring economic activities in the impoverished south, added Fakhruddin (DS120407a). Second, demanding another \$250 million, he noted a need for an extension of embankment networks, which besides protecting the coastline could serve as highways and evacuation routes. Third, Fakhruddin demanded about \$150 million to restore the *Sundarbans* which not only protect the coastline from direct hits by cyclones, but also preserve the bio-diversity of South Asia. Fakhruddin emphasized that the plan was based on lessons learned from previous experiences of the nation in responding to disasters.

According to a report of the UN Office for the Coordination of Humanitarian Affairs (UNPCHA), foreign countries and donor agencies responded to these demands by contributing \$215,214,297 as of January 2013.⁵⁶ Saudi Arabia gave one

⁵⁵See Robinson & Sattar (2012) for an analysis of international or "Western" governments' and donor agencies' support of the Fakhruddin government's anti-corruption and political reform agenda

⁵⁶See "BANGLADESH - Cyclone Sidr - November 2007", Table A: List of all commitments/contributions and pledges, as of 18 January 2013. <http://fts.unocha.org> (Table ref: R10). The donors responded to the requests positively, but the donors expressed concerned

hundred million USD and the United States (USAID) gave ten million USD, the highest amounts among the donor countries. The United Nations World Food Program (UN-WFP) contributed about seven million USD, the highest among all UN and multilateral donor agencies. This aid money arrived in Bangladesh over a five year period, meaning that the Fakhruddin government fell before being able to use the funds towards mitigating the challenges he faced in the wake of Sidr.

Macro-economic stability is the third important challenge of the government in the wake of the disaster. In his second address, Fakhruddin acknowledged that one of the challenging tasks of the government in the post-Sidr context was to stabilize the price of daily consumption commodities, particularly rice, which steeply rose due to consecutive hit by 2007 flood and the cyclone Sidr. The cyclone destroyed agricultural crops as well as the infrastructure required for commercial transportation of the crops across the country, thus reducing the availability, especially of rice, and drastically increasing its price.⁵⁷ However, Fakhruddin emphasized, the government took a series of steps to keep the price of rice under control including ‘open market sale’ (the government opened stores throughout the country to sell essential goods at a controlled price), strengthening market monitoring, subsidizing fertilizers to enhance further production of agricultural crops, and importing rice from foreign countries to maintain an adequate supply.

While these steps were hailed by international donors as effective in responding to Sidr, whether they actually turned the economy around are questions that require separate analyses of their own. The current analysis reveals that the overall

about the short tenure of the government (officially it was supposed to offer an election shorty to hand over power to the popularly elected government) given the massive plan proposed by the government.

⁵⁷According to a primary assessment of the agriculture ministry, around 10 lakh [1,000,000] tons of Amon rice production may be lost due to Sidr along with other standing crops in an area of eight lakh [8,000,000] hectares of land (DS112107a).

performance of the post-Sidr economy was not entirely satisfactory. In a review of the government's performance in the public finance and monetary sectors in the first six months of the 2007-08 budget year, the Center for Policy Dialogue, a Dhaka based policy think-tank organization reported that mobilizing enough revenue to finance various development and rehabilitation programs was one of the primary challenges of the government (DS101908). According to the review, although commendable success was achieved in mobilizing foreign resources,⁵⁸ government borrowing from domestic sources, such as banks, increased by 33.3 percent due to the increased expenditure for post-Sidr rehabilitation. The review said that the value of taka (the national currency) depreciated against Euro and Indian Rupees, which affected the government's ability to import food for the Sidr affected people. More importantly, according to the review, repairing the agriculture sector, especially coastal fisheries and shrimp farms, were a serious challenge to the government. The government was in need of more funds for agricultural credit that would prepare the sector for the next productive season. According to the review, Sidr also reduced production in the domestic market, which along with rising prices in the international markets triggered a high inflationary trend (DS101908).

Accountability: Immediate and Long-term Response

Major Responding Actors

The current section identifies the major actors, who were involved in the response activities during preparedness, immediate, and long-term response to Sidr. Particularly, it highlights how those actors were evaluated by the media reports sampled here in terms of accountability: performance of the actors, availability of infor-

⁵⁸“Net foreign financing amounted to Tk. 1,642.74 crore [164,274,000,000 or \$2,737,900,000] during July-October of FY08, against Tk. 163.51 crore [16,351,000,000 or \$ 272,516,666.66] during the same period of FY07” (DS101908).

mation regarding vital resources and plans, and level of integrity or these actors of their acts of corruption in the implementation processes.

When Sidr hit, the country was already in a state of emergency under the indirect control of the military through its civilian face, the government of Fakhruddin Ahmed. As a result, the Bangladesh military – the Army, the Navy, the Air Force, and the Coastguard – became the primary actor in the post-Sidr rescue, relief, rehabilitation, and recovery activities. The military was willing to take the charge of disaster response. General Moeen asserted that “we have experience and we will be able to do it” (DS112407e). As mentioned above, the Army chief personally visited many affected areas, pledged specific relief and rehabilitation support, participated in ceremonial relief distribution activities, and most importantly, made comments in public on behalf of the government. The Navy chief and other important military personnel, including the regional General Officer in Command (GOC), frequented the affected sites. The military opened control centers in various parts of the affected south from where they coordinated immediate response activities of the government’s civil administrations, NGOs, international donors, a team of US military force, and private donors and volunteers.

The government, in many instances, insisted that the NGOs and micro-credit organizations take an active role in the relief and rehabilitation programs. He especially urged that micro-credit programs should be lenient on the affected people in terms of debt collection and interest on loans. Many prominent micro-credit organizations including the Grameen Bank and Brac responded to the government’s call by exempting loans of cyclone affected members, suspending installment collection for certain period, providing interest-free loan as well as essential medicines and other necessities (DS1231507e). These organizations ran programs in agricultural rehabilitation, emergency food supply, medical and healthcare, and education assistance (DS1231507e).

Many parts of the affected area, however, reported micro-credit activities that were contrary to what the government expected. Some micro-credit organizations in these areas remained ruthless in debt collection and high interest rate on micro-credits or they suspended their activities altogether. Some of these organizations were disbursing loans in the name of relief while few others were creating pressures on their affected clients for loan re-payments (DS121907a). In areas where the local micro-credit organizations suspended their regular activities, independent local money lenders charged 15 to 20 percent in monthly interests to the affected entrepreneurs who desperately needed the loan to revive their business damaged by Sidr. In the post-cyclone condition, such harsh behavior of the local micro-credit organizations and money lenders added to the misery of the affected people (DS121707a).

Information and Corruption

Establishing transparency of public services through availability of information was a major objective of the Fakhruddin government that promulgated the Right to Information Act of Bangladesh in 2008.⁵⁹ As discussed in the sections before, the government carried this objective over into its disaster response strategy as well. Following the cyclone, Fakhruddin Ahemd made multiple public appearances where he informed the public about the government's assessment of the damages made by Sidr, the strategies it took regarding relief distribution, rehabilitation and macro-economic stability, the amount of resources it received from the donors, and the amount it further needed. The government also updated the media about the progress of some of its programs such relief distribution and cash transfers through the VGF program, assistance to the agricultural sectors, and market stabilizing mechanisms

⁵⁹Some argued that Fakhruddin government enacted the Right to Information Act to appease the foreign donors that supported his government (Robinson & Sattar 2012, 775, footnote 209). Eventually, the act was approved in Parliament in October 29, 2009 under the Sheikh Hasina government.

such as the ‘open market market sale’. In a public meeting in December 5, 2007, Fakhruddin argued that providing information about public services to the poor was a key element in poverty alleviation and the government’s fight against corruption.

Nonetheless, as previously mentioned, the incidence of irregularities, corruption, lack of coordination, and inequitable distribution in relief and rehabilitation operations undermined the integrity of the government’s response to Sidr. A report titled “Integrity in Humanitarian Assistance: Issues and Benchmarks” by Transparency International Bangladesh (TIB) highlighted three interrelated issues of irregularities in the government’s relief and rehabilitation operations: patronage, corruption, and abuse of power and vested political interests.

According to the report, patronage by members of local government bodies and local politicians was highly prevalent. “Some affected families were over-supplied [with relief and rehabilitation services] due to nepotism and lack of coordination and monitoring, while others received none” (DS121907a). “Patronage of influential individuals including public representatives and institutions within or outside the government is often a pre-requisite for becoming eligible for receiving relief” (DS121907a). Members of the local government bodies who were connected with the government high-ups manipulated the list of people who received the government announced VGF (Vulnerable Group Feeding) cards. The VGF cards were the bases for the government to distribute rehabilitation services in the affected areas in the medium to long term. As a result of this list manipulation, some families received multiple VGF cards, thereby more relief and rehabilitation goods, while hundreds of others received none (DS121907a).

The second, but a related element of irregularity in the government’s operations was corruption. According to the TIB report mentioned above, corruption in the distribution process includes relief distribution among political supporters, delivery of less than actual entitlement, misappropriation by fake outfits, and distribution of

outdated and inappropriate relief materials (DS121907a). The report highlighted that relief materials were regularly diverted to the black market by government officials and local politicians for profit making. Particularly, relief medicines were sold to the local drug-stores from where the affected people, who were desperate to treat a post-disaster symptom such as diarrhea were, forced to buy the medicines (DS121907a).

The third element of irregularity was vested political interests and abuse of power. The TIB report found that the selection of the affected areas as well as the recipient of relief and rehabilitation materials was often guided by vested political interests. Selection of NGOs who would become parts of the coordinated rehabilitation efforts was also politically manipulated. Government officials at the local level collaborated with such vested interests for bribes, while members of local government bodies (*Union Parishad*) did it for “political mileage in the next election” (DS121907a). The report observed that lists of relief recipients were “manipulated as vote banks by the politicians (DS121907a).

Political Reactions

As noted earlier, people particularly from Borguna, Pirojpur, Patuakhali, and Bagerhat expressed dissatisfaction with the government’s relief and rehabilitation performance. In the present section, I review some of the instances where such popular dissatisfaction translated into anti-government public demonstrations and protest movements. As I will discuss later, these public demonstrations and protests, although spontaneous in their origin and occurring in rural areas miles away from the major urban centers, are important indicators of the government’s performance and its acceptance among the people in the wake of a disaster like Sidr.

In Barguna, for example, hundreds of people staged demonstrations (November 28, 29, 2007) for two consecutive days in front of the local government offices and the press clubs protesting against the inadequate and inequitable distribution of relief

and rehabilitation services, and lack of coordination, corruption and pilferage of the relief goods by government officials and local politicians (BBC112807, BBC112907). In Patuakhali, more than three hundred people staged demonstrations (November 29, 2007) protesting purposeful neglect of the “true” cyclone affected people by the chairman and members of the *union parishad* (the local government body) who gave away the relief materials to their relatives and political supporters (DS113007e).

In some cases the government pacified the protesters by providing relief goods on an *ad hoc* bases (DS113007e), in other cases the politicians and the bureaucrats involved in corrupt acts “threatened the affected people [with] consequences if they protested against corruption in distribution of relief materials” (DS121907a). Still in other cases the government applied force to stop the protesters who intended to march to the district commissioner’s office to complain against corruption (BBC112907). When, in Patuakhali, more than five hundred people who never received any form of aid in fifteen days after the disaster, began a procession (on December 2, 2007) demanding more and equitable distribution of relief, local police arrested twelve people “on the grounds of violating emergency rules” (DS120307c). The rest of the protesters later held a “sit-in on the road” and began an indefinite hunger strike demanding release of the arrestees. The protesters called off the demonstration after navy personnel assured them of release of the arrestees and distributed rice to each of them (DS120307c).

The national level government already maintained a repressive regime that prevented local grievances from translating into a regional or national ones. Under the state of emergency, the government had barred all political activities. As of late November 2007, nearly 100 prominent political leaders and business personalities associated with both the Bangladesh Awami League (AL) and the Bangladesh Nationalist Party (BNP) had been arrested for corruption and extortion charges, and an unknown number of people were detained without charges (DS112807f). The

top leaders of these parties – Sheikh Hasina of AL and Khaleda Zia of BNP – were detained for corruption charges.⁶⁰ Their political fate was uncertain (DS111807i). Under the scheme known as the “minus-two” theory, the government designed to exclude these two leaders from national politics by putting them in exile.⁶¹ As the state of emergency continued in the end of November 2007, it remained a mystery whether a national election, which the Fakhruddin government pledged to hold, would happen at all and whether Sheikh Hasina and Khaleda Zia would be allowed to take part in the election (DS112807f).

In the wake of Sidr, the political party networks were not allowed run disaster response operations. This was detrimental to the overall relief efforts of the country. A *Daily Star* editorial emphasized that restrictions on political parties should be lifted so that they could be involved in the humanitarian work. The editorial explained:

“the political parties, which have a wide network of public contacts, with the major ones having organizational links to the grassroots, are naturally capable of reaching out to the people in their hours of distress. ... the challenge of getting timely succor to the afflicted ... boils down to the local administration, the Union Parishad and members of the local units of political parties to join hands at the ground level to make a difference in the situation. The authorities have to make sure that even unwittingly no impediment is placed in the humanitarian work of the political parties” (DS112207d)

The government, initially ruled out the possibility of talks with the political parties to discuss relief operations (DS112107h). Later, however, it urged politicians

⁶⁰Sheikh Hasina was arrested on July 16, 2007 and Khaleda Zia was arrested on September 3, 2007. Both of them were accused of corruption.

⁶¹See “Bangladesh: The Minus-Two Solution”, *Economist*, September 8, 2007: 66, and International Crisis Group. “Restoring Democracy in Bangladesh”, Asia Report No. 151, 2008: 20 at [http://www.crisisgroup.org/~media/Files/asia/south-asia/bangladesh/151_restoring_democracy_in_bangladesh.pdf](http://www.crisisgroup.org/~/media/Files/asia/south-asia/bangladesh/151_restoring_democracy_in_bangladesh.pdf) Accessed January 20, 2012. The “minus-two theory” was not successful. The government, eventually, was unable to send Sheikh Hasina and Khaleda Zia to a foreign land (Robinson & Sattar 2012).

to join post-Sidr relief activities “without pushing their political agenda” (DS112207g). The government emphasized that the state of emergency would be partially relaxed if political leaders and their organizations wanted to engage in disaster response activities (DS112207g, DS112207g).⁶²

In general, large scale activities of any of the political parties were hardly noticeable in the post-Sidr context. Though small sections of the politicians from both parties, who were not incarcerated already under the anti-corruption drive of the government, organized to hand out relief to the affected people. For example, the former finance minister Saifur Rahman of BNP led a thirteen member relief team to work in three of the worst hit districts (DS112207n). A section of AL provided agricultural assistance such as fertilizers, seeds, and materials for poultry farming worth of eighteen thousand USD (12.48 lakh) to farmers in some of the worst hit areas.

Discussion

The above analysis of the Fakhruddin government’s response to cyclone Sidr in the areas of preparedness, immediate, and long-term response reveals a sequence of events: disaster → mixed level of government performance → anti-government protests → regime repression → political crisis of the government. The emergent sequence generally confirms the theoretical expectation I laid out in Chapter 2. I expected that if a government responds poorly to a disaster, it is likely to face public

⁶²One would argue that it was a contradiction on the part of the government to ask political parties to act as organizations in the disaster response process while enforcing a state of emergency that suspended rights of citizens to political assembly and association. When asked to comment on this contradiction, the law Adviser (equivalent to the Law Minister) argued that ‘Emergency [would not] bar [political parties from contributing] to relief operations’ (DS112207g). He said that the government just did not want the political leaders, when engaging in relief distribution and rehabilitation programs, to take the disaster as an opportunity to mobilize anti-government public sentiments and political activities (DS112207g).

protest especially in the affected areas causing political instability in the country. While responding to the disaster, if the government becomes oppressive (a characteristic of an (semi) authoritarian regime), either as a response strategy or in reaction to the public protests, the government's relationship with the public may deteriorate. As a result, the government may face a legitimacy crisis, which may even question the survival of the government. As my analysis of news reports on Sidr presented above reveals, Sidr and the Fakhruddin government's response to it generated a sequence of events that are similar to but more nuanced than the expected causal sequence above. In the current section, I provide a discussion on two questions that are implicit in the causal sequence: why was the Fakhruddin government short of providing an adequate response to Sidr? and how did such performance translate into a change in the government?

I begin with the first question. I argue that there are at least four factors that may explain why the government that was praised for its preparedness to Sidr ultimately failed to live up to the task of post-disaster response. The factors are: the government was composed of advisers with technocratic backgrounds, who (1) had no political experience, (2) overly relied upon the military, (3) lacked support of any political party with grassroots network, and (4) was under increasing popular pressure of shifting priorities back to its original agenda of political reform. I discuss each of these factors below.

First, the Fakhruddin government, that vowed to bring reform to the political system of Bangladesh, was composed of strictly non-political but prominent civil society personalities. The eleven member cabinet or the board of advisers of the government was composed of such personalities as an eminent businessman, a former head of the national security agency, a former civil servant, a retired army officer, and an eminent economist. The chief adviser, Dr. Fakhruddin Ahmed himself was a former World Bank official who once headed Bangladesh's central bank. Adviser

Tapan Chowdhury, who was in charge of the Ministry of Food and Disaster Management was one of the top business personalities in the country. In addition, the Chief of Army Staff, General Moeen U Ahmed also figured in the national political scene as someone who was able to make decisions on behalf of the government. In the previous sections, I have cited instances where General Moeen spoke and acted on behalf of the government while responding to Sidr.

All of these individuals in the national leadership rose to prominence not through political careers but through bureaucratic careers in large public and private organizations, including international agencies. As the theory of “bureaucratic authoritarianism” would expect, decision-making styles of these leaders were technocratic, and their means of achieving political reform were accompanied by intense repression (O’Donnell 1973, O’Donnell, Schmitter & Whitehead 1986).⁶³ As I have reported in the previous sections, this technocratic orientation was prominent in the way the Fakhruddin government handled Sidr. They managed the more technical operations of early warning and evacuation processes efficiently, but the level of efficiency was lower in the post-disaster relief and rehabilitation work, which were politically messier than any other phases of the disaster response. Again, they were able to prepare a convincing long-term rehabilitation and recovery plan, but failed in actually managing the post-disaster macro-economy of the country which required political experience and prudence. It is in the areas of post-disaster relief and rehabilitation and macro-economic management where the government was mostly criticized and protested by the public.

⁶³Bureaucratic authoritarianism is generally understood as a form of bureaucratic and technocratic military rule that seeks to curtail popular mobilization and is built on a political coalition and a policy orientation that entails strong ties to international economic actors. According to the theory, bureaucratic authoritarianism eventually suffers a legitimacy crisis when the government fails to manage an economic crisis. Furthermore, domestic and international protest against human rights abuses increase the public’s greater appreciation of electoral democracy (O’Donnell 1973, O’Donnell, Schmitter & Whitehead 1986).

Second, the government heavily relied upon the military, especially in the immediate response phase. The military were the driving force especially in rescue operations, relief distributions, and rehabilitation works. As I have reported in the previous sections, these are also areas where people complained about lack of adequate government response, nepotism, corruption, and other irregularities. Despite the military's "professional" commitment to the post-disaster response work, one reason why the government performance was criticized and protested at the grassroots level may be the lack of cooperation of the local civilian administration, who were already alienated by the military-backed government's anti-corruption drive. Right after the declaration of the state of emergency, the military-led administration threatened the civil administration with corruption charges unless they cooperated with the government, and in many cases they replaced the local government officials with people loyal to the military (Robinson & Sattar 2012). I argue that when it came to disaster response, these people in the local civil administrations did not have the incentive to cooperate with the military in rescue, relief, and rehabilitation operations.

Third, due to the anti-corruption spree of the government, the government failed to get the support of the political parties that had grassroots networks. All prominent political leaders of both the AL and BNP were arrested, and the top two leaders of these parties, Sheikh Hasina and Khaleda Zia, were detained due to corruption charges. Immediately after declaring the state of emergency, the military-backed corruption and criminal hunt operations of the government arrested nearly 2000 supporters and workers of political parties throughout the nation; within the first year, the number rose to between 100,000 and 200,000 individuals (Robinson & Sattar 2012, 252-253). In response to such acts of the government, the central leadership of the major political parties directed their activists at the local level to go to hiding or avert arrest (DS012007). As asserted by the editor of the *Daily Star*, quoted in the previous section, without the support of the grassroots networks of the

political parties the relief and rehabilitation work of the government could not be sustainable.

Within a year of the cyclone, a national election was held on December 29, 2008. Sheikh Hasina of the Awami League-led ‘grand alliance’ won the election with more than a three-fourths majority in the parliament (Momen 2010, 158). The new government faced yet another severe cyclone (Aila) within six months of its coming to power. How the new government of Hasina responded to the cyclone is the subject matter of the next case study.

Tropical Cyclone: Aila, 2009

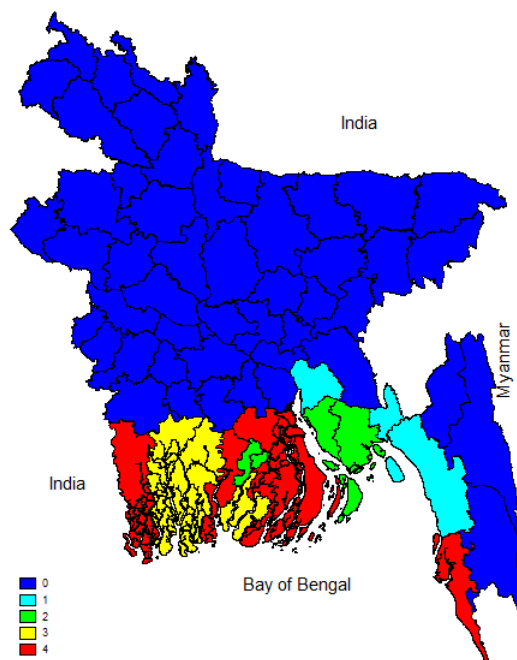
Tropical cyclone Aila hit parts of both Bangladesh and India on 25 May 2009. With wind speeds of about 65-75 mph, the cyclone crossed Bangladesh beginning around 2.00 am and lasting over a period of 5 hours (DS052609, Disaster Management Information Center of Bangladesh government, DMIC 2009). Aila was a category 1 cyclone, which on its path to the state of West Bengal of India (see Chapter 6), devastated 11 districts, in the southwestern coastal region of the country, as shown in Figure 5.2 (see next page).⁶⁴ It affected about four million people, and inflicted an estimated economic loss of 270 million US dollars (CRED 2012). This created a considerable burden to Bangladesh as the country was still recovering from the effects of Sidr that occurred in November 2007, less than 18 months before Aila made its landfall.

How well did the Bangladesh government respond to Aila? In the following section, I answer this question by discussing how the government performed various

⁶⁴Districts, called *Zila* in Bengali, are the second level administrative unit in Bangladesh. The country is divided into 64 such districts that are supervised by 7 divisions, the first level administrative unit. Aila affected 11 districts of three divisions, Khulna, Barishal, and Chittagong. The districts are Khulna, Satkhira, Patuakhali, Bagerhat, Barisal, Barguna, Pirojpur, Jhalakhathi, Laxmipur, Jessor, and Bhola. In other parts of the country, including Dhaka, the cyclone brought strong winds and heavy rain (DS052609).

tasks associated with each of the three disaster response dimensions, as identified in Chapter 4.

Figure 5.2: Affected Areas of Cyclone Aila (May 2009)



NOTE: The deep blue part of the map was not severely affected by Aila. The red colored area was the most affected region, the yellow colored region is the second, green colored region is the third, and light blue colored region is the least severely affected areas.

Preparedness

Early Warning, Evacuation, Protective Measures

Preparedness is the first criteria of government response quality. As discussed earlier in this chapter, preparedness of a government can be characterized by observing

its functioning in three areas – early warning, evacuation, and protective measures. Considering the case of Aila, my analysis of news reports shows that Sheikh Hasina’s government, that replaced the military-backed civilian government of Fakhruddin in December 2008, was weaker in early warning than other aspects of preparedness. Aila was underestimated by those in the government “who should have been able to gauge its capacity to cause damage in good time” (DS053009). Only in the evening of the 24th did the Meteorological department of the government ask “all seaports to hoist cautionary signal four” (DS052509). The timing and the message of the warning was not accurate. The signal number “was suddenly raised from III to VII”, and the people were given accurate time of the cyclone’s arrival. It even failed to warn the people about the 10 to 12 feet high tidal surge” drawn by Aila (DS060909).

The confusion about the arrival of the cyclone delayed the early warning process, it also left the responding actors, particularly the government, and the victims largely unprepared. A journalist alleged that “local administration, concerned lawmakers, and NGOs were all ill-prepared and did not show enough agility” (DS060609). The lack of readiness of the responders may explain why a large number of people did not evacuate to safe places, especially to public cyclone shelters, schools and colleges. According to a Red Crescent Society report published two days after the cyclone struck, “3,300,000 people in eight districts were affected by the cyclone. Around 100,000 were taken to safe shelters under an evacuation campaign by volunteers and law enforcement agencies” (DS052609). In a press briefing, however, the Food Minister Razzaq, eschewing the issues about warning and readiness of the government responders explained, “there are only five cyclone shelters in a union where 37,000 people live. As a result, even though there are warnings on cyclone, all people cannot take shelter in the cyclone centers” (DS062409).

Just as the government’s ineffective early warning process was well documented and criticized in the news reports, the pre-disaster protection initiatives of the gov-

ernment were also high frequency issues discussed in press reports. Much of the protection issue discussed in the news reports after the cyclone focussed on a 284 kilometer long flood-protection embankment (DS052609), which had not been repaired after it was severely hit 18 months earlier (November 2007) by Cyclone Sidr. According to a June 1 editorial in the *Daily Star*, “not much repair work was done on the embankments and indeed hardly any new ones were built as a precaution against subsequent natural disasters” (DS060109). Already crying out for thorough repairing, the embankment was once again hit by Aila and was breached in at least in 5 spots (DS052609, DS060109).

Emphasizing the importance of repairing the embankment, Aktaruzzaman Mukul, a share holder of shrimp farms affected by the cyclone, complained to a *Daily Star* reporter “Natural disasters wreak havoc in the district almost every year [and] the damaged embankment needs to be repaired immediately to protect it from widespread destruction.” (DS060109) The *Daily Star* editorial mentioned above reads:

The most important lesson which can be drawn from Cyclone Aila . . . is that a comprehensive programme regarding the construction and maintenance of embankments needs to be put in place. It is an issue about which the inhabitants of cyclone-prone areas are actually aware, for they themselves have been demanding that more than anything else it is strong embankments they need (DS060109).

Protecting the embankment is a crucial issue. Besides protecting the area from floods, it serves two important purposes: it stops saline water from the oceanic rivers from contaminating the clean water sources that are used for drinking purposes and also for agricultural and homestead usage. Second, since the embankment is the only place not likely to be submerged by the cyclone drawn water, it can serve as the shelter for hundreds of people.

Since the embankment was not properly maintained and repaired, the local people feared that if the embankment gave away they would have no place to keep dry.

A local Union Parishad (council of the lowest unit of local government) member said “the helpless villagers were trying to repair the smaller cracks on the embankment but repairing the larger ones was beyond them – they have no option but to wait for the government to come to their rescue” (DS060109). The government’s help in repairing or rebuilding the embankment, however, was not forthcoming.

The stability of the embankment remained uncertain, and people continued to evacuate days after the cyclone passed, fearing a much larger flooding of the area in case the embankment failed to hold the pressure of the sea water. A *Daily Star* report mentioned on July 13, seventeen days after the event, that more than “200,000 residents took refuge in shelters”. The number of shelter seekers grew, as explained later (see the long-term response section), because people did not feel ready to go back home with insecurity and inadequate rehabilitation services available to them.

Immediate Response

Leadership: Visit, Address, Directives, and Assessment

As I have mentioned before, the leadership dimension of government response has four criteria: whether the leader issues any directive to begin or expedite response activities, whether the leader visits the affected area, whether s/he gives a special TV or radio speech focussing on the disaster, and whether s/he is able to assess accurately the needs of the situation. In this section, I use these four criteria to evaluate the quality of leadership of the Sheikh Hasina government in responding to Aila.

Following the disasters, a number of government dignitaries visited the affected cites. The Food and Disaster Management minister visited various parts of the affected area the day after the cyclone hit and, on a number of occasions, took part in distributing relief to the affected people. Other authority figures including the Health minister, the LGRD minister, the chief of the Army Staff, the chief of Navy, and the military commander for the affected area followed suit. The President

of Bangladesh (head of the state) also visited the affected areas, although his visit occurred more than 6 months after the cyclone hit.

The first government press-meeting was called by the Food and Disaster Management minister Abdur Razzak at his ministry office. In the hurriedly called meeting, he shared with the press the prime minister's concerns about the cyclone, but could not provide much information about the magnitude of destruction. While most parts of the affected areas within the mainland were covered by the military rescue and relief operations, the minister acknowledged that "Bangladesh Navy and Coastguard ships could not go to the offshore islands from Chittagong due to the turbulent sea" (DS052609).

The prime minister did not personally visit the affected area immediately after the cyclone. Neither did the prime minister appear, immediately after the cyclone, especially to express her sympathy to the affected people or to explain to the public her government's plan of action. About a month after the cyclone crossed the country, the people of Dakope upazila (subdistrict) of Khulna, still not recovered from the effects of Aila, formed a "human chain" too seek the prime minister's "urgent intervention" to redress the suffering of the people. Within a year, the human chain evolved into an organized social movement. The prime minister visited the affected area (Khulna and Shatkhira) for the first time on July 23 2010, about a year after the disaster.⁶⁵

Though she did not make major public appearances to reassure the people after Aila, the Prime minister was prompt to issue special directives to begin the process of post-disaster response activities. The very next day after the cyclone hit, the prime minister, in a general call, instructed her ministers to take necessary steps to respond. At a cabinet meeting, she ordered members of the armed forces to join the relief and

⁶⁵See "PM to visit Aila-affected areas in Khulna Friday" Banglanews24.com (July 22, 2010) and "PM holds out hope: Aila victims wont remain in misery" Banglanews24.com (July 23, 2010).

rescue operations. Her government also asked the deputy commissioners (DCs, the chief civil servants of a *Zila* or district) and upazila nirbahi officers (UNOs, the chief civil servants of an *upazila* or subdistrict) in the coastal areas to “make necessary arrangements to shield life and property from the cyclone” (DS052509). Following these orders, disaster control rooms were opened in Khulna and Bagerhat districts where volunteers, NGO workers, and officials of Relief and Rehabilitation Department of the government were ready to deploy for the response activities (DS052609). In an emergency meeting of her party presidium the next day, she directed ministers to take all out measures, and directed the finance minister to “clear necessary funds, which would be needed for the rehabilitation of Aila victims” (DS062809). In the same meeting, she also urged party leaders to help the Aila victims (DS062809).

In a cabinet meeting (held on June 1, 2009), the prime minister decided that the government could tackle the situation on its own with domestic resources and would not make an appeal to the international community for aid for rehabilitation purposes. The government would seek foreign assistance in construction of embankments and shelter centers in the disaster-prone coastal districts for a permanent solution to the problem (Bhattacharjee 2009). A former senior civil servant of Bangladesh interpreted this position of the government as an attempt to handle the crisis with “dignity and courage” (Zahur 2009).

Although prompt in instructing relevant authorities to take action to minimize the cost of Aila, the Hasina government carefully avoided declaring a state of emergency that would suspend political rights of the citizens and empower the military. It seems that, for Hasina, declaring a state of emergency would be tantamount to giving political power back to the military from which the nation escaped in the last election of 2008 that elected her government.

Assistance: Rescue, Relief, and Equity

The second major dimension of immediate response codes various initiatives that a government takes to assist the affected people. The most important of these are rescue and relief operations. These operations are distributional in nature, thus, their quality can be assessed by finding whether the resources spent for rescue and relief operations were equitable – does everyone who affected by the disaster have an equal and adequate chance of getting these resources.

The government repeatedly asserted that relief was being distributed throughout the affected areas. Two days after the storm, the Food and Disaster Management Minister said “the government volunteers [were] distributing food and other essentials throughout the coastal districts. Helicopters [were] being used to send relief materials to faraway places” (DS052809). The minister said that the government had been distributing drinking water along with food and medicine. The night before, the prime minister ordered the related ministries to step up measures to help the affected people, and “take immediate steps to repair the embankments and other infrastructure left battered by the cyclone” (DS052809).

Despite these assertions, the people from the affected area reported to BBC Bangla (BBC 052609) and the *Daily Star* that they either received no or inadequate relief assistance from the government. A person from a village of Patuakhali district is quoted as saying, “almost all people in union have been affected by the cyclone, but we have yet to see any relief materials” (DS052809). Thousands of people in Shatkhira district were reported to have remained marooned in various places in the district, over 100,000 of them did not have any food and drinking water. A chairman of a union council said to the *Daily Star* “relief distribution operations were not being carried out properly” (DS052809). After more than a week of the storm, hundreds were waiting homeless, on the embankment for the government to

salvage them (DS060209). More than a month later, people of a subdistrict in Khulna district made a peaceful demonstration demanding adequate relief for Aila victims and a better embankment. They sought the prime minister's urgent intervention in the rehabilitation process, and appealed to the government for allocation of funds needed to re-construct a 40-kilometer long embankment that might give away anytime (DS063009).

Following the cyclone, the security situation worsened. Robbers looted the unprotected houses, and crime escalated on the embankments where hundreds of families took shelter. A 16 year old girl said to a *Daily Star* reporter that she could not sleep for days due to fear of the robbers. She said "the fear sets in as soon as the sun goes down . . . where can we go?" (DS060109). Young men took turns to guard the embankments as no government law enforcement agency protected the stranded people, who said to a reporter "we would be grateful if the law enforcing agencies patrol the river at night" (DS060109) .

Long-term Response

Planning, Learning, Recovery

Three interlocking issues recurred in the news reports on long-term recovery and rehabilitation of the Aila affected areas. They were: repair and reconstruction of the infrastructure damaged by Aila, rehabilitation in the agricultural sector, and repairing of social and religious institutions such as as Mosques and schools. These issues are subject to long-term programs. Did the government come up with a plan on how to address these issues? While preparing the plan or implementing any long-term rehabilitation program on these issues, did the government consider past mistakes or learn from similar programs being executed in the past? In its long-term programs, did the government focus on recovery of the affected people, in terms of these three

issues? The current section draws on the content analysis of news reports to answer these questions.

The first issue was repair and reconstruction of the infrastructure, especially the flood-protection embankments, that were damaged by Aila. The Water Development Board (WDB) demanded TK 51 crore (\$ 7,285,714.28) from the government to repair the 284 kilometers long flood control embankment, of which about 48 kilometers were severely damaged. The government, however, was able to commit less than 8 percent of the amount demanded (Tk 4 crore or \$ 571,428.57) (DS060109). Despite the meagre contribution from the government, thousands of local people volunteered to repair the Aila damaged embankment which, however, failed to sustain pressure of high tide in the rivers. In late June 2009, a fifty-six kilometer ring embankment, which was repaired by the local people in the Dakope upazila (subdistrict) of Khulna district, collapsed due to high tide in the local river, marooning, once again, 50,000 people of the area (DS062809).

Concerned about the deteriorating condition of the affected areas, the resident representative of United Nations Development Programme (UNDP) proactively suggested, in late June (2009), that Bangladesh should seek assistance from international donors for long-term rehabilitation like re-constructing embankments and houses damaged by the cyclone. The Food and Disaster Management Minister agreed that building strong embankments and more cyclone shelters in the coastal districts was “imperative” for the country (DS062409). In the subsequent months, a host of foreign donors did make contributions towards recovery and long-term rehabilitation of the Aila victims.

Table 5.1 shows the distribution of the donor contributions to the various response activities following Aila. As indicated in the table, external aid was significant. The number in row 1 shows nearly 12 million US dollars in food and health assistance from the European Commission’s Humanitarian Aid and Civil Protection

department. As seen in row 6, another 18.5 million US dollars in food assistance came from the United Nations World Food Program.

Table 5.1: Summary of International Donor Assistance for Aila Survivors

Donor	Amount (\$ mil)	Sector(s)/Activities
ECHO ¹	11.93	Food Assistance, Health, and WASH
EU ²	6.63	Shelters
DFID ³	1.58	NFIs, Settlement Support (through IOM)
SDC ⁴	1.31	Livelihoods and WASH
Govt. of Spain	.66	Food and Assistance (through WFP)
WFP ⁵	18.5	Food Assistance
UNICEF ⁶	1.5, .54, .75	WASH, Education, Health, Nutrition
FAO ⁷	.5	Agriculture
UNDP ⁸	.25	Livelihoods
WHO ⁹	.10	Emergency Medicines and WASH ¹⁰
Total	44.25	

Source: UN (2010, 5)

¹Humanitarian Aid and Civil Protection department of the European Commission (ECHO), formerly known as the European Community Humanitarian Aid Office; ²European Union; ³United Kingdom Department of International Development; ⁴The Swiss Agency for Development and Cooperation; ⁵the United Nations World Food Program; ⁶the United Nations Children's Fund, originally known as the United Nations International Children's Emergency Fund; ⁷Food and Agriculture Organization of the United Nations; ⁸the United Nations Development Program; ⁹the World Health Organization. ¹⁰Water, Sanitation and Hygiene sector.

In addition, as shown in rows 3 and 4 of Table 5.2, the government of Bangladesh provided nearly 11 million US dollars in food assistance under its Vulnerable Group Feeding (VGF) program, and more than four million US dollars in cash transfer as shelter grants.

Notwithstanding international contributions, the water development board (WDB)-led embankment repair work remained slow in pace. In January 2010, as late

Table 5.2: Summary of Government of Bangladesh Assistance for Aila Survivors

Item	Amount
Gratuitous Rice	35,500 Metric Tonnes
Cash Grants	1,288 Lakh (\$ 1.84 million)
Shelter Grants (Cash)	3,002 Lakh (\$ 4.28 million)
Food Assistance (VGF)	7,649.6 Lakh (\$ 10.9 million)
Agricultural Support (Crop)	3,497 Households

Source: UN (2010, 5)

as eight months after the strike of Aila, new areas in the worst affected subdistricts of Dacope, Koyra, Ashashuni, and Shyamnagar subdistricts were being submerged daily. In March 2010, the prime minister ordered the deployment of the army to those areas not only to speed up the reconstruction of the embankments, but also to include other areas of rehabilitation work under the direct supervision of the military.

The overall approach of the government – towards repairing the embankments – was criticized by many for showing no sign of learning. An NGO leader, complained that ever since the embankment was created in 1962, millions of dollars have been spent for repairs and maintenance (DS070109). Because a substantial amount of “repair” expenditures were wasted, reportedly due to corruption, the overall depreciation of the embankment had been ignored. As a result, overtime, the embankments have become so feeble that they could not withstand the cyclone Aila which was substantially weaker in force than Sidr (DS052909).

The second issue was rehabilitation in the agricultural sector, especially dealing with salinity and crop production, which in effect is related to the first issue regarding reconstruction of the embankments. The government committed to the provision of seeds and fertilizer worth Tk 1,016 (\$ 14.51) each to over 300,000 farmers. In order to ensure transparency in the process, local lawmakers, representatives of subdistrict and union councils, and subdistrict agriculture officers were allowed to supervise

the program. To ensure fair distribution and reduce redundancy, the government also prepared a list of all affected farmers with photo-identification papers. The Agriculture Minister Matia Chowdhury, in justifying the approach, told a *Daily Star* reporter “we want to restore the confidence of the farmers by providing them with seeds and fertilizers. We also want to prove that the government has responsibility for the affected people” (DS070309). The minister also directed the lawmakers of the affected areas to complete distribution of the seeds and fertilizers within a week.

This move by the government was, however, criticized by the public as ineffective. Since the damaged embankments were not fixed, most of the arable lands in the coastal area remained saline waterlogged months after Aila hit. The cyclone already damaged crops (mainly Aus, a type of rice) on about 3.23 lakh acres of land, and due to saline waterlogging the local farmers were not able to produce the aman, the main rice crop of the coastal region. A local agricultural officer said, “if the dams are not repaired and brackish water flows during high tides, farmers cannot grow aman crops” (DS070109).

The third issue was repairing social institutions such as schools and religious institutions. In the six hardest hit districts – Khulna, Bagerhat, Satkhira, Barguna, Bhola and Patukhali – a total of 354 schools were destroyed and 2,534 were partially damaged.⁶⁶ The partially damaged or a very few intact school buildings were used as shelters for people and livestock who could not leave the buildings for months due to continued saline water-logging of the area. The school system in the area was virtually shutdown for more than a year. A very few establishments used for religious purposes (mosque) shared the same fate (Joint International Assessment 2009).

⁶⁶UNICEF Bangladesh, see http://www.unicef.org/infobycountry/bangladesh_49916.html

Accountability: Immediate and Long-term Response

Major Responding Actors

On the part of the government, the major actor in the response field was the Bangladesh military, including the Army, the Navy, the coastguard, and the Air Force. With a direct order from the prime minister, within three days after the cyclone hit, the Bangladesh Army opened a control cell in Ptauakhali to coordinate the relief and rescue operations locally with the local administration and non-governmental actors. Two brigades from the Jessor cantonment (military station responsible for the southwest region of Bangladesh) with 20 fast moving rescue craft were immediately deployed. Army medical teams provided medical assistance including providing medicine and treating the affected people. A 33-member Navy team deployed to conduct the rescue operations throughout the coastal region, where the weather condition still remained “difficult” for the rescue operations. Bangladesh Air Force helicopters transported relief goods and materials and water purification plants to the affected areas (DS052609).

Army officials of various ranks personally visited part of the affected area. Within seven days of the storm hit, the Army Chief of Staff General Moeen took part in relief distribution, exchanged views with the affected people, observed the activities of the mobile treatment camps run by army personnel, and visited the damaged parts of the embankments (DS052809). He was preceded by the chief of the Jessor Army headquarter (the General Officer Commanding, GOC) who monitored the initial rescue and rehabilitation efforts of the military. The Navy chief visited the area to personally monitor the activities of the naval contingent and medical camps run by the Navy personnel, and met with the local elites to discuss the situation on the ground.

The army also coordinated rescue, relief and rehabilitation work done by the local civilian administrations led by the district commissioners (DC), subdistrict executive officers (upazila nirbahi officer, UNO), chairmen of the subdistrict councils, and chairmen of the union councils. Government recruited volunteers were the major workhorse of the local administration, especially in the early warning and evacuation phases and in distributing relief and rehabilitation materials.⁶⁷ On various occasions, the government asserted that they were relying on the military in managing the disaster. The Food and Disaster Management minister said, “the government has decided to repair the large breaches [in the embankments] with the help of the army” (DS060209).

From the non-governmental sector, the Bangladesh Red Crescent society and the Bangladesh rural advancement committee (BRAC) were the main non-governmental actors involved in the relief distribution and rehabilitation activities. They used their own funds and manpower to deliver relief materials. They especially focused on bringing water purifying tablets and drinking water to the affected areas.

International actors did not come to the scene immediately after the disaster due to the government’s initial ‘self-reliance’ strategy as I reported earlier. The government did not want international involvement at the immediate response phase. The Bangladesh foreign minister insisted “the government has adequate food and money to rehabilitate the cyclone victims” (DS062809). However, eventually the Bangladesh government did accept foreign funds for the purpose of relief. The foreign minister accepted an offer of Tk 13.65 lakh to the Prime Minister’s Relief and Welfare Fund for the victims of cyclone Aila from Thailand (DS060509). Talking to *The Daily*

⁶⁷From my knowledge about how the local politics is run in Bangladesh, I think these volunteers are workers from the ruling party Awame League (AL) who do not only use the opportunity to demonstrate the people that they are the ones who helped them in times of need, but they also have the access to the relief materials before the public. They are probably involved in pilfering the relief and nepotism in its distribution.

Star, the Food and Disaster Management Minister said “many countries and donor agencies including USA, World Bank, UNDP and the European Union have offered assistance for the cyclone victims”.

The prime minister did appeal to international donors to fund long-term recovery and reconstruction projects such as assessing the damage done by Aila, raising the embankments, fixing damaged houses, and building strong cyclone shelters. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) said that agencies, including the World Food Program (WFP) and the World Health Organization (WHO), were helping the government assess the affected areas (DS052509). On June 19, 2009 the government made a US\$1,149 million appeal to the international community for reconstruction work and rehabilitation in the affected districts (Emergency Capacity Building Project Bangladesh Consortium 2010, 5). While the international community could not fully meet the demand, they provided assistance to a number of intergovernmental, governmental and non-governmental organizations working in the most affected areas well before the formal appeal of Bangladesh government (UN 2010, 5). On January 26, 2010 the government signed a contract with WHO for funding rehabilitation processes, especially in the agricultural sector.

Information and Corruption

Throughout the immediate response phase, the Food and Disaster Management ministry was upfront in providing, on behalf of the government, information regarding the number of people dead, acknowledging the extent of damage, declaring resources available for relief, rehabilitation, and reconstruction purposes, and providing information on the resources that it received from foreign donors. However, given hundreds of people homeless and living on the embankments more than a month after the cyclone struck, one observer wondered where the millions of dollars that the government allocated for relief, rehabilitation, and reconstruction had gone. He alleged

“A big chunk either falls prey to corruption or is wasted. It should be noted that little of the centrally spent amount normally leaves the cities, depriving the rural areas of much of their benefit” (DS070109). According to the news, the amount that does go to the districts or subdistrict levels also gets captured by local bureaucracies.

For example, following Aila, the government initially assigned to the Water Development Board (WDB) about 68 million US dollar (TK 410,000,000) and 25,000 metric tonnes of goods to repair the damaged embankments.⁶⁸ However, locals complained that the embankments were not repaired because the WDB officials grafted much of the funds (DS060509). An eminent NGO executive noted “the lack of a mechanism for ensuring the accountability of the government functionaries at the local level and the lack of people’s awareness allowed them to get away with such corruption.” (DS070109)

Due to the WDB official’s record of corruption, the affected people insisted that the reconstruction of the embankments be done under the direct supervision of the army, the only organization the locals would trust (DS060509). The army joined the WDB later to repair the embankments.

Following repeated complaints from the affected people and media about the misuse of relief and rehabilitation funds, especially by the WDB, the parliamentary standing committee on food and disaster management and the standing committee on water resource management formed a probing committee to identify major loopholes in the response process and negligence on the part of the WDB. Another parliamentary committee expressed dissatisfaction over corruption and nepotism in distributing rehabilitation funds for domestic animals and livestock affected by the cyclone. “The committee received serious allegations in distributing money for buying animal feed

⁶⁸WDB is a government department under the Ministry of Water and is the only legal entity which executes construction and reconstruction on embankments that covers the area more than 1,000 hectare.

in the Aila-affected southern region” said the chief of the parliamentary Standing Committee on Fisheries and Livestock, who is also a member of parliament from the opposition party BNP. The committee identified corruption and irregularities in the tender process. He said a “bidder loyal to a particular party [mostly this is how the incumbent party is identified] were given the contract orders [to implement rehabilitation projects].” (DS070809) He said “We have asked the minister to take stern actions against the involved people after an investigation” (DS070809). According to an NGO report, although some members of these committees visited the affected area, their reports never come out to the public (humanitywatch 2012).

To briefly summarize Hasina government’s performance, it was at best mixed. Due to this mixed performance, the people of the affected area became frustrated and politically reactive. The following section discusses the nature of this popular political reaction. In the subsequent section, I discuss what these reactions meant to the government – how the government tamed a national level political uprising and how the prime minister Sheikh Hasina managed to survive a legitimacy crisis following a mixed performance in the disaster response.

Political Reactions

Sheikh Hasina government’s response to Aila is distinct from that of most other governments in that, as I have discussed earlier, it did not recourse to the “state of emergency” approach. Although the government relied heavily on the military, it eventually allowed other actors including the government bureaucracy at all levels, volunteers, domestic and international NGOs, political parties, and international donor agencies to participate in relief and rehabilitation activities. However, the government allowed limited or no participation from the opposition political parties in deliberation and decisionmaking on issues regarding their response to Aila. The Bangladesh Nationalist Party (BNP), the major opposition in the parliament,

was not given opportunities in the parliament to discuss government response to Aila in general, and the reported irregularities in the response activities in particular. For example, the speaker of the parliament turned down all notices from the BNP that demanded discussions on issues like scarcity of relief materials in Aila-affected areas. The speaker refused to accept any of the notices because the treasury bench did not agree to discuss the issues related to its response to Aila (DS061109).

The cyclone, however, was not the BNP's priority either. In her public speeches, the leader of BNP and the former prime minister of Bangladesh, Khaleda Zia "demanded construction of an embankment in the Cyclone Aila-affected areas and rehabilitation of the affected people there", and asked "the government to immediately address the water-logging problem in Satkhira district."⁶⁹ But, her demand to the government regarding Aila victims was tangential. The primary foci of her speeches were on such issues as Bangladesh's relationship with India, under-development under the Awami League led government, continuation of the caretaker government, and politicization of the administration under the Hasina government.

Although the major opposition party did not powerfully raise its voice at the national level on the Aila-affected people's behalf, the people in the affected areas of southeastern Bangladesh did raise their voice against the inadequate response performance of the government, especially the local government. They formed human chains and demonstrated against the government's meagre and unfair relief distribution, and slow progress in reconstruction of the embankments. Particularly, they

⁶⁹Pryo News, Monday November 28, 2011, see <http://news.priyo.com/politics/2011/11/28/no-army-deployment-no-polls-kh-43373.html>, accessed October 20, 2010. A summary of the speech is also available in BNP's official website, where her comments on the cyclone Aila is not included. The the summary of speech can be accessed at <http://www.bangladeshnationalistparty-bnp.org/content.aspx?tablename=webitem1&id=248&parent=null&parentid=News>, accessed October 20, 2010.

wanted to draw the prime minister's attention and direct intervention to improve the pace and quality of the rehabilitation process (DS063009).

As the post-cyclone condition continued, people of the affected region developed a social movement under two separate organizational banners: Aila-Durgoto Sanghati Mancho (Aila-Victims Solidarity Platform) and Aila-biddhosto Upokulyo Beribandh Nirman Gonosongram Committee (Peoples Movement Committee for Reconstruction of Aila-damaged Coastal Embankments). On January 5, 2010, the former organization launched a sit-in program⁷⁰ to raise the voices of affected peoples of Dacope, Koyra, Shyamnagar and Assasuni – four of the most severely affected subdistricts of the region.⁷¹ In a joint press conference on September 6, 2010, they “presented a five-points demand including emergency Eid [main religious festival of Muslims] support; reconstruction of breached embankments; publishing of a report of Parliamentary Probing Committee formed in March 2010; investigation of corruption in relief, construction and rehabilitation work; and protection and agricultural subsidiary for small and marginal farmers.”⁷²

Discussion

My theoretical framework, expected that the quality of government response to a disaster would affect the legitimacy of the government. If a government responds poorly to a disaster, it is likely to face public protest causing political instability in the affected area in particular, and the country in general. While responding to the

⁷⁰Besides the general public, major participants of these programs included local lawyers, college teachers, student organizations, trade-union leaders, and leaders and workers of the left wing political parties

⁷¹See Aila related news published by HumanityWatch, a Khulna district based non-profit organization at <http://humanitybd.blogspot.com/2010/01/sit-in-program-of-aila-durgoto-sanghati.html>, accessed October 20, 2010.

⁷²see <http://humanitybd.blogspot.com/2010/09/civil-society-platform-on-rights-of.html>, accessed October 20, 2010.

disaster, if the government becomes oppressive (a characteristic of an authoritarian regime), either as a response strategy or in reaction to the public protests, the government's relationship with the public may deteriorate. As a result, the government may face a legitimacy crisis, which may question the survival of the government. The case of Aila confirms these theoretical expectations in general terms.

After cyclone Aila hit in 2009, the *Asian Survey*, a prominent area study journal focusing on Asia, published three articles reviewing the broader socio-economic, political, and environmental conditions of Bangladesh (Momen 2010, D'Costa 2011, D'Costa 2012). While all of them highlight the economic shocks that the cyclone brought to the country, they fail to discuss the political challenge it threw to Hasina government. Reports by major donor agencies such as the United Nations (UN 2010) also ignore the potential threat that cyclone Aila posed to the government.

In the previous sections, my analyses of news reports revealed that the quality of government response to Aila was mixed: the government's response was slow, and the national leadership was *ad hoc*, indecisive, and disinterested in improving the post-Aila conditions of the affected areas. In other words, the government did not have a full commitment to its role as the major responder to the cyclone. Why was it so?

One answer to the question is that the government was preoccupied with other politically more weighty issues. The government was preoccupied with three major political issues of the time. First, within two months of coming into power, Sheikh Hasina government's first challenge was to keep the army under control. On February 25 and 26, 2009, the Bangladesh Rifles (BDR), the paramilitary force with the primary duty to oversee the country's physical borders, captured the BDR headquarter in the Pilkhana of Dhaka, in a mutiny that took hostage and killed several high ranking military officials who were assigned to BDR (Momen 2010, 158). The government was able to put an end to the mutiny, but faced criticism for its action from within

and outside of the military (Economist 2009, 46). The second challenge that the government faced in 2009 was to maintain its relationship with India. Despite a friendly relationship with India's ruling Congress Party, Sheikh Hasina's government was engaged in a squabble over territory and had to deal with the repeated Indian claim that anti-Indian terrorists were hosted in Bangladesh (Economist 2009, 46).

The third challenge was to push forward the agenda, also an electoral promise of the government, of trying the war criminals of the liberation war of 1971. The current leadership of Jamaat – who in 1971 assisted the Pakistani military in mass killings and rapes of women in East Pakistan that subsequently became Bangladesh – were the major defendants in the trials. In independent Bangladesh, Jamaat consolidated its power in the late 1970s through 1990 under the aegis of the military rulers, and as a strategic electoral ally of the BNP since 1991. Although it was a long-term agenda of the AL to bring the war criminals to justice, the party found it timely to make the issue an electoral promise in 2008. With a more than two-thirds majority in the parliament, the Hasina government established the International Crimes Tribunal in March 2010, and subsequently arrested major suspects of war crimes (D'Costa 2011, 139). In the process, the tribunals became controversial, and a major source of political instability as both the Jamaat and the BNP accused the Hasina government of influencing the trials.⁷³ The trial of the war criminals has been a weighty issue for Hasina since her coming to power, and I argue that it was part of the reason why her government failed to adequately focus on the issue of disaster response.

An alternative answer to the question of why the government's response to Aila was poor may be that the government was not politically interested to the affected

⁷³See: "Trying war crimes in Bangladesh: The trial of the birth of a nation", *The Economist*, December 15, 2012, www.economist.com/news/briefing/21568349-week-chairman-bangladeshs-international-crimes-tribunal-resigned-we-explain, accessed January 30, 2013

region. According to Lönnqvist et al. (2010, 18), “the region’s political representation in central [national] government [was] weak: the region [was] traditionally underrepresented in budgetary allocations and in influence.” These authors also argue that the very few ministers in the Sheikh Hasina government who were elected from the Khulna region were ineffective in highlighting the interests of the region in public policies (Lönnqvist et al. 2010, 18).

The inadequate response of the government was likely due to both its preoccupation with other issues and its lack of political interest in the Aila affected areas. The government failed to perform as was expected, and was criticized by the public for its poor performance. Local people organized to protest the government’s inadequate performance and developed a social movement – that would continue for years – demanding rehabilitation of the affected people. The protests and social movement, however, remained local; they did not immediately find a political channel that would affect political stability at the national level. The Bangladesh Nationalist Party (BNP) and its major ally Jamaat did not capitalize on the issue, despite explicit appeals by environmental groups to the BNP chairperson Khaleda Zia.⁷⁴

Although the direct political effect of Aila was not immediately felt at the national level as much as it was felt at the local level, national politics did start to feel the vibration within a year. Two broader factors helped to translate the local grievances into a national-level effect: the disruption of agricultural productivity and food security in the southwestern part of the country, and second, increased population pressure in the major urban centers, especially in Dhaka, the capital of

⁷⁴See the *Daily Star* report “Hasina, Khaleda urged to visit Aila-hit areas” (April 13, 2010). According to the report, two civil society organizations, Nagorik Sanghati and Campaign for Sustainable Rural Livelihoods, “called upon the prime minister and the opposition leader to visit the cyclone Aila-hit southwestern region of the country to see sufferings and hardships the victims enduring for the last 11 months.”

Bangladesh. In what follows, I discuss the contributions of these two factors to the disaster–legitimacy relationship.

The agricultural sector, especially of the southwester part of the country, became the primary victim of cyclone Aila (UN 2010, Lönnqvist et al. 2010). Rice cultivation is central to food security, but most rice growing farmers in southern Bangladesh did not have an opportunity to cultivate lands for five years (2007 to 2012) due to the saline waterlogging of the arable land induced by cyclones Sidr and Aila. This contributed to the estimated decline in rice production in Bangladesh as a result of the broader phenomena of climate change by about 3.9% each year (D’Costa 2011, 140). The disruption in agricultural productivity made more than 40 million people in the region vulnerable to basic food insecurity, which, with the steady increase of population, is expected to grow further over time. The disruption in agricultural productivity damaged the national food market as well, by increasing the price of the food needed for regular consumption.

The second broader factor that translated local problems of the southwestern region of Bangladesh into a national problem was the internal migration induced population pressure in the major cities. The politics of disaster and climate change literature has found this factor as a general effect of a disaster (see e.g. Reuveny 2007, Homer-Dixon 1999). Following Cyclone Aila (in addition the continuing effect of cyclone Sidr), a number of factors pushed the people of southwestern Bangladesh to migrate to slums around the major cities such as Khulna and Dhaka. The factors include destruction of the means of livelihood (farms, poultry, agricultural lands), inadequate housing, shelters, jobs, insecurity, and uncertainty of returning to normal life.⁷⁵ A number of pull factors draws them to the urban slums, including the increased

⁷⁵See Kartiki (2011). Also see the report published by *humanitywatch*, a local NGO, “Climate Induced Displacement: Case Study of Cyclone Aila in the Southwest Coastal Region of Bangladesh” written by its chief executive Hasan Mehdi, published in 2010, avail-

economic liberalization in cities, especially in the readymade garments and service sectors, that gives the migrants quick access to jobs that pay better than those they had in their villages.

Increased population movement from the affected areas created an acute shortage of electricity and water, higher prices for food grains, and pressure for housing in the urban cities, especially in Dhaka, Khulna and Chittagong. Wealthy people and those who were closer to politicians and influential public servants were able to insure better service through private arrangements, political pressure, and bribes. As result, these cities developed what Rehman Sobhan, a Bangladeshi economist, called “two-societies” – those who get all facilities of an urban life and those who live in the cities without these facilities (*From Two Economies to Two Societies: Honouring Bangladesh’s Social Contract* 1998).

These broader factors – the decline in agricultural productivity, food insecurity and the increased pressure on urban cities – stretched the capacity of the government to provide basic services. The government struggled to provide basic services such as electricity, water, transportation, security, and maintain stable price of consumer goods and services. Political parties in opposition could then capitalize the government’s failure in these areas to challenge the government’s “moral authority” to govern, and withdraw their support from the government.⁷⁶ This is exactly what happened in Bangladesh, following Aila. On June 27, 2010, about one year after Aila occurred, BNP – the major opposition party – called a day-long *hartal* (general strike with an element of violence and vandalism or threat thereof) to protest a number of

able online at <http://www.scribd.com/doc/62101355/Climate-Induced-Displacement-Case-Study-of-Cyclone-Aila-in-the-Southwest-Coastal-Region-of-Bangladesh> (accessed December 1, 2012).

⁷⁶The foundation of legitimacy is the government’s strength of moral authority, i.e. “the extent to which the populace obey its commands out of a sense of allegiance and duty, rather than as a result of coercion or economic incentive” (Homer-Dixon 1999, 100)

issues including the acute shortage of basic utilities such as water, gas, and electricity.⁷⁷ In a November 2011 road-march through the southeastern districts, the party used the same grounds to mobilize support against the Hasina government.

As a result of the above conditions, two major political developments occurred in the post-Aila period: first, the opposition political parties, especially the BNP, gained political momentum as the disenchanted supporters of the current government turned to the party as a future alternative.

In the 2008 election, which occurred before Aila, the BNP-led four party alliance, won only 33 out of 300 seats in the national parliament, and therefore, lost to the AL-led grand alliance that won 263 seats, of which 230 seats is bagged by the AL alone.⁷⁸ This was a massive loss for the BNP-led four party alliance that received a sweeping victory in the 2001 election by commanding 213 seats in the parliament with the AL receiving only 62 seats. The BNP's loss in the 2008 election debilitated the morale of its workers as well as the organizational voice of the party leadership. During the first two years after the 2008 election, BNP did not have visible political programs.⁷⁹

⁷⁷Begum Khaleda Zia, the president of BNP and the former prime minister of Bangladesh, announced that there would be many sit-ins and rallies nationwide leading up to the *hartal*. The BNP was expressing its unhappiness at government corruption, extortion, salary hikes, oppression of opposition leaders, government control of media, ruling party land grabs, and harassment of females in the education system. They demanded a solution to the water, gas, and electricity crises, the resignation of the Election Commission, cancellation of the most recent peace treaties with India, and sooner elections. This rally was the first of many such protests. The rally stopped communications between the capital and northern parts of the country and backed up traffic on two highways. See Global Nonviolent Action Database at <http://nvdatabase.swarthmore.edu/content/bangladesh-nationalist-party-stages-hartals-opposition-government-2010>

⁷⁸Bangladesh Election Commission at <http://www.ecs.gov.bd/English/Elec.Par.php>, accessed January 30, 2013

⁷⁹The next election is scheduled in early 2014

However, during the subsequent two years (2011 and 2012), as the support of the government attenuated due to the factors mentioned above, the BNP gained the audience it needed to run a fresh campaign against the government. For example, more than one hundred thousand people gathered in support of the BNP's anti-government rally in March 2012 that demanded restoration of the caretaker system.⁸⁰ The anti-government protests on the issue of caretaker system reached a new height on December 13, 2012 as a coalition of 18 opposition parties implemented a nation-wide strike marked by bomb blasts, torched vehicles, and street fights with police in major cities, especially in Dhaka.⁸¹ Jamaat participated in the strike with an additional cause of freeing its leaders who were being tried in the war crimes tribunals.⁸²

With the new momentum, the BNP became more credible in its threat to boycott the national election, scheduled for January 2014, under the current government, accusing the government of the ill intentions of rigging the elections. A report by the International Crisis Group predicted that if the difference between the BNP and the AL over the issue of reinstating the caretaker government is not reconciled, the BNP would not participate in the 2014 national parliamentary election creating a political impasse that could invite another military coup, this time with an enduring military dictatorship.⁸³

⁸⁰ "Bangladesh: Back to the Future", International Crisis Group, <http://www.crisisgroup.org/en/regions/asia/south-asia/bangladesh/226-bangladesh-back-to-the-future.aspx> (accessed December 5, 2012)

⁸¹ The abolition of the caretaker system by the governing coalition gave the opposition parties a national cause to mobilize supporters. They claimed that without an interim caretaker government the Awami League would rig the 2014 election.

⁸² "Clashes marked Bangladesh opposition protest", *The Hindu*, December 13, 2012 <http://www.thehindu.com/news/international/clashes-mark-bangladesh-opposition-protest/article4195136.ece>, accessed February 2, 2013.

⁸³ "Bangladesh: Back to the Future", International Crisis Group, <http://www.crisisgroup.org/en/regions/asia/south-asia/bangladesh/226-bangladesh-back-to-the-future.aspx> (accessed December 5, 2012)

Second, in the electoral arena, the Awami League experienced major setbacks. For example, the Narayangaj city corporation election held on October 30, 2011 chose an independent candidate over an Awami League supported candidate who was a former member of parliament and known as a strongman of the party. In another example, the November 18 2012 bi-election – to fill a seat in the national parliament that was vacant due to death of a lawmaker from the ruling Awami League – resulted in a victory for an independent candidate over the ruling party supported candidate.⁸⁴ The BNP, however, boycotted all these elections to press home their demand for the reinstatement of the caretaker government.⁸⁵

In sum, the case study of the tropical cyclone Aila, presented in this chapter, illustrates two paths whereby the quality of government response to natural disasters is connected to the legitimacy of the government: a direct and an indirect path. Unsatisfactory response from the government was directly criticized by the affected people by organizing public protests and social movements. In the case of Aila, however, these local movements were not translated into national movements, especially due to the lack of a viable political channel that could raise the voice of the Aila affected people at the national level. The major opposition party, the BNP had suffered a massive loss in the previous election, and was organizationally weak in the years 2009 through 2010.

The indirect connection between government response quality and legitimacy was made by two broader factors arising because of the cyclone Aila. They were the decline in agricultural productivity as well as food security and increased pres-

⁸⁴“AL rebel wins Tangail by-polls”, *The Daily Star*, November 18, 2012, http://www.thedailystar.net/newDesign/latest_news.php?nid=42534 (accessed December 4, 2012)

⁸⁵“CEC sees BNPs election boycott as its ‘political stand’”, *The New Age*, October 24, 2012 <http://www.newagebd.com/detail.php?date=2012-10-24&nid=28103>, accessed February 2, 2013.

sure in the urban areas. These factors overwhelmed the capacity of the government that eventually struggled governing not only the rural peripheries but also the urban centers. As a result, the overall popularity of the government declined. One manifestation of such a decline was the major local and bi-elections, where the government supported candidates were convincingly defeated by independents (no party affiliation) candidates (the BNP-led alliance boycotted the elections on the plea of potential rigging of the elections by the government). Meanwhile, the BNP regained support from the people aggrieved by the government's poor performance in various areas of governance, including disaster management, price control of essential goods, and maintaining basic service provisions in the cities. Many predicted that the government was unlikely to survive in the election of January 2014.

Conclusion

In the current chapter, I studied two cases from Bangladesh – the tropical cyclone Sidr of 2007 that was responded to by the military-backed civilian government of Fakhruddin Ahmed, and the tropical cyclone Aila of 2009, which was responded to by the democratically elected government of Sheikh Hasina. The case studies are based on a qualitative content analysis of a sample of media reports on the two events by the national English daily newspaper *The Daily Star* and translated transcripts of the *BBC Bangla* radio. I have summarized the findings of the case studies in Table 5.3 at the end of the current section (pp. 69-72). The table is organized along the dimensions and sub-dimensions of government response identified and discussed in the previous chapter. In the table, specific evaluations of government responses against each of these dimensions are identified as STRONG, MIXED or WEAK.

On the positive side, the Fakhruddin government was appreciated by the public and the international donors for its timely and effective early warning system and well-developed long-term plan for rehabilitation, recovery, and reconstruction programs.

The Hasina government was evaluated strong by the media for promptly issuing directives that activated the major disaster response actors, including the military, major ministries, party workers, and NGO networks. The prime minister's decision to avoid declaring a state of emergency following Aila was also evaluated positively by many.

In both cases, the public criticisms concentrated on inadequate protection due to broken embankments that were not repaired before the cyclone, lack of coordination in rescue, relief and rehabilitation initiatives taken immediately after the disasters, and inadequate and *ad-hoc* medium-to-long term planning. On the accountability dimensions, the public criticized the governments for rampant corruption of relief and rehabilitation services by the public servants, local government representatives, and politicians. These criticisms translated into anti-government protest movements. In case of Aila, the protest movements developed into multiple social movements that lasted for months until prime minister Hasina payed attention to the demands of the protesting people.

The negative government reactions to the protest movements, in both cases, further aggravated the negative public perception for the governments. In case of Sidr, the Fakhruddin administration used the state of emergency to threaten people who protested against government irregularities. Although the Hasina government avoided declaring a state of emergency following Aila, her government systematically excluded the opposition political parties from participating in public discussions, especially in the parliament, on the irregularities that occurred during the government response to the disaster. These retaliatory reactions from the government increased the negative perception of the pubic about the governments' overall ability to manage the political and economic crises that occurred in the post-disaster contexts.

The above (government) response-protest dynamic created a condition at the national level that had deeper implications for both the governments. In both cases,

the governments' capacity to maintain the governance of the country was stretched, particularly due to the effects of the disasters, especially in the macro-economic management and urban public services. As a result of these effects, the political opposition to the government and the public in general, as reported in the media, questioned the moral right of the incumbents to run the government. In the case of the Fakhruddin government, in addition to the domestic public, the international community that supported the military-backed regime in its initial months, increased their pressure on the government to hold a national democratic election sooner. In the case of the Hasina government, the public started expressing their disenchantment with the government by denying votes to the government-supported candidates in local and bi-elections. In addition, by 2012, the increased incidence of violent anti-government protests and demonstrations increased manifold the level of political instability in the country.

On top of the disasters, of course, the governments were grappling with other politically weighty issues that contributed to the political crises they faced. The Fakhruddin government, for example, was unsuccessful in some of its major political reform programs, including the reforms of the political parties by excluding the top two political leaders of the country, Hasina and Khaleda. The validity of its anti-corruption drives were challenged by the High Court division of the Bangladesh Supreme Court. It also received increased pressure both from inside the country as well as the international communities to expedite its electoral reform programs. For Hasina, the challenges included the Bangladesh Rifles (BDR) mutiny that killed a number of high-ranking military officials, getting rid of the caretaker government system through constitutional amendment (the 15th amendment), trying the war criminals of the 1971 liberation war. Furthermore, the World Bank charging the government with corruption cancelled a major funding for building the Padma bridge.

The cancellation of the funds turned out to be an important political issue for the election of 2014.

On balance, the above qualitative evaluation of the government responses to the cyclones Sidr and Aila in the areas of preparedness, immediate, and long-term response confirms the theoretical expectation I laid out in Chapter 2. I expected that if a government responds poorly to a disaster, it is likely to face public protest especially in the affected areas causing political instability in the country. While responding to the disaster, if the government becomes oppressive (a characteristic of an (semi) authoritarian regime), either as a response strategy or in reaction to the public protests, the government's relationship with the public may deteriorate. As a result, the government may face a legitimacy crisis, which may even question the survival of the government.

In 2009, Bangladesh was characterized as less than free and a semi-democracy (or an anocracy, to use David Laitin's expression) in both Freedom House and Polity-IV indices. Within this environment of semi-democracy, as expected in my theoretical framework, the Hasina government performed poorly in almost all areas of its response to cyclone Aila. Despite having the examples of previous governments' successful preparedness strategies, the Hasina government failed in all aspects of preparedness and leadership, except issuing prompt directives to activate major response actors. In terms of providing assistance, it showed at best a weak-to-mixed performance. In the areas of long-term planning it performed poorly, too. Overall, its responses were less than accountable, fraught with public accusation of corruption and irregularities, especially in the areas of repairing and reconstructing embankments.

As opposed to the democracies, the authoritarian regime of Bangladesh in 2007 provided an environment for the Fakhruddin government to respond to cyclone Sidr effectively. Although operating within a state of emergency, following Sidr, the government effectively coordinated the military, civil administration, NGOs and

international responders. In addition to radio and television channels, which in many remote parts of the country were not as much accessible to the people as they were in towns and cities, the government used a large battery of volunteers who used megaphones to provide cyclone warning in the remote villages. A rapid evacuation process followed suit. In the post-disaster context, the government also performed strongly in the areas of leadership by repeatedly visiting the affected areas to have better assessment of the situation, updating the nation about the post-disaster situation and the progress of the government's response initiatives.

However, the Fakhruddin government temporarily suspended activities of political parties, which negatively affected its ability to effectively run the relief distribution process. Had the government the chance to use the grassroots level networks of the political parties for relief distribution and rehabilitation works, one may speculate, the government might have done better in the areas of assistance, too. The government's publicly announced intention to stay in the power as an interim government – for the purpose of reforming the country's democratic institutions before allowing the next election to take place – also limited its capacity to explicitly plan and execute programs for the long-term recovery and rehabilitation of the affected people.

One further conclusion of the case studies is that, regardless of the regime type, the military played an important role in the response process. Cyclone Sidr was responded by a military-backed authoritarian regime. As a result, the military was the major responding actor. However, with the regime change the importance of the military as a major responding actor did not diminish. In responding to Aila, the elected government of Hasina deployed the military in its rescue, relief, and reconstruction operations. The Bangladesh military seems to enjoy a better reputation as a disaster responder than the civil administration. The case study on

Aila reveals that corruption of the civil bureaucracies and politicians is one of the reasons why the military enjoys wide acceptance among the common people.

In the next chapter, I repeat the exercise of the current chapter for two cases from India – the Kashmir earthquake of 2005 that also affected Pakistan, and the tropical cyclone Aila of 2009, the effect of which for Bangladesh is studied above. I have reserved Chapter 8 for a comparative analysis of all the cases studied for this dissertation project.

Table 5.3: Summary of Government Responses to Sidr and Aila

	Cyclone Sidr, 2007		Cyclone Aila, 2009	
Preparedness	Early Warning	STRONG: Timely and effective early warning.	WEAK: delayed and inaccurate early warning	
	Evacuation	STRONG: effective evacuation saved thousands lives.	WEAK: delayed early warning cause all responding actors and the people to react slowly to the cyclone; people could not evacuate timely.	
	Protection	MIXED: Not all cyclone shelters were available, thousands of people remained without shelters.	WEAK: embankments were not repaired, as a result people were not protected from surging sea waves and saline water; unexpected level of damage occurred.	
Leadership	Visit	STRONG: Repeated visit by Fakhruddin Ahmed, and military officials including the Chief of Army Staff; visit by the President.	WEAK: prime minister Hasina did not visit the affected area immediately after the cyclone hit. Although other government figures including the food and disaster management minister and the Chief of Army Staff visited the affected area, the PM's non-visit was interpreted by the affected people as if they were neglected.	
	Address	STRONG: Multiple Radio and TV addresses by Fakhruddin.	WEAK: the PM did not publicly address the issues of disaster response, did not publicly show empathy to the affected people.	

Continued on next page

Table 5.3 – continued from previous page

	Cyclone Sidr, 2007	Cyclone Aila, 2009
Directives	STRONG: directed the concerned authorities, especially the military to respond quickly and incoordination with other actors.	STRONG: promptly ordered ministries, party workers, and the military to start the rescue, relief, and rehabilitation works.
Assessment	STRONG: rapid assessment by the government, and by a joint body of the government and international donors.	WEAK: Proper assessment of the post-disaster need was not done initially; PM avoided inviting the international community in the initial phases of the disaster response, which affected its ability to assess the needs of the affected people.
Assistance	Rescue	MIXED: Rapid rescue efforts by the military in easily accessible areas, but remote and offshore areas were not responded for weeks.
Relief	WEAK: Lack of coordination in relief distribution;; corruption and pilferage of relief and rehabilitation materials by people closer to public servants and local government.	WEAK: Lack of coordination in relief distribution;; corruption and pilferage of relief and rehabilitation materials by people closer to public servants and local government.
Equity	WEAK: Many parts of the affected area received inadequate or no relief; distribution is biased by nepotism.	WEAK: Many parts of the affected area received inadequate or no relief; distribution is biased by nepotism.

Continued on next page

Table 5.3 – continued from previous page

	Cyclone Sidr, 2007	Cyclone Aila, 2009
Long-term Planning	MIXED: Well laid out plan, especially in the area of rehabilitation through VGF program; series of steps taken to stabilize macro-economy, especially stabilizing food prices; effects of these plans were not seen in the medium term that attracted widespread criticism. Not known: The government mentioned that its long term plans, especially that were submitted to the donors are based on previous best-practices and experiences, but details of these learning were not mentioned in the media reports studied for this research.	WEAK: criticized for slow and ad-hoc approach; lack of proper assessment affected the government's ability to lay out a detailed plan of action.
Learning		WEAK: government ignored previous failures, particularly in the area of reconstruction of the embankments.
Recovery	MIXED: well laid out plans for recovery, but initial implementation of the recovery programs, such as in VGF, were not well received by the affected people who found irregularities and malpractices in the programs.	WEAK: ad-hoc approach to recovery; recovery initiatives were slow and criticized as inappropriate for the condition, e.g. providing agricultural subsidy to farmers whose land was not usable due to saline waterlogging.
Accountability	WEAK: Over-dependence on the military; other non-governmental domestic actors were reported not coordinating with the government, especially in the post-disaster context.	STRONG: military, civil servants, local government, party workers, NGOS, and International NGOs operating in Bangladesh.

Continued on next page

Table 5.3 – continued from previous page

	Cyclone Sidr, 2007	Cyclone Aila, 2009
Information	STRONG: provided adequate information about its strategies, steps, and fundings.	WEAK the information government provided about its response strategies and funding were doubted by the public. Discussion on the government's response initiatives in the parliament was denied by the government and the speaker of the parliament.
Corruption	WEAK: presence of patronage, corruption, abuse of power, and protection of vested interest in rehabilitation, recovery, and reconstruction projects. WEAK: affected people demonstrated and organized sit-ins in protest of irregularities in disaster response.	WEAK: widespread corruption by the civil servants, local politicians,
Political Re- actions	Protests & Demonstrations Openness to Opposition	WEAK: initial protest against the government response developed into two regional social movements.
		WEAK: opposition political parties were denied to discuss various irregularities reported about the government's response activities.
Governmental Repression	WEAK: government used state of emergency and special forces to intimidate people who protested against the malpractices of public servants involved in disaster response.	Mixed: no state of emergency, but political repression in other forms – special force (RAB), police, and party musclemen – was present.

Continued on next page

Table 5.3 – continued from previous page

	Cyclone Sidr, 2007	Cyclone Aila, 2009
Legitimacy	WEAK: declining popularity and a fear of continued military rule precipitated the end of the Fakhruddin regime; resignations of four advisers from the government; High Court challenged validity of government's anti corruption initiatives.	WEAK: government's capacity was stretched due to loss of agricultural productivity, rise of price of the consumer goods. These factors increased the support of opposition's claim that the government did not have the moral right to govern, and allowed the opposition parties to regain their political momentum. Series of nation wide strikes and violent protest movements shows the declining popular support of the government.
Intervening factors	Lack of political experience, over-reliance on military and alienation of the civil administration and the NGOs, lack of support from political parties's local networks, external pressure to shift focus from disaster response to the agendas of political reform.	Government was pre-engaged in other politically weighty issues such as the BDR mutiny, relationship with India, and trying war crimes. Disruption of agricultural productivity and regional level food security; affected areas-to-urban city migration.

CHAPTER 6 CASE STUDY: INDIA

Introduction

In the previous chapter, I studied Bangladesh government's response to cyclone Aila (2009). The cyclone originated in the Bay of Bengal, and crossed over Bangladesh before hitting the Indian state of West Bengal. In the current chapter, I continue my analysis of government response to Aila, but this time focusing on West Bengal. The choice of the Indian case of Aila, thus, allows a cross-national analysis of how two different countries responded to the same disaster. The second case I study in this chapter is the earthquake of 2005 in the Indian state of Jammu and Kashmir. Originating in the Pakistan controlled region of Kashmir, known as the Azad Jammu and Kashmir, the quake affected the broader area of Kashmir including the Indian state of Jammu and Kashmir. The choice of the Kashmir quake allows a sub-national examination of how the same Indian central government responded to two different kinds of disasters.

In a post-disaster context, I argued in the theoretical framework in Chapter 2, a government's ability to maintain popular support depends to a large extent on how well it has responded to the disaster. Preparedness, prompt and adequate immediate response, and careful planning for the long-term recovery maybe boon to the government, while halfhearted efforts in these areas may cost it legitimacy. In light of this theoretical framework, in the current chapter, I analyze how the state governments of West Bengal and Jammu and Kashmir as well as the Indian central government responded to cyclone Aila and Kashmir earthquake respectively, and how these responses affected their legitimacy.

The chapter proceeds as follows: First, I describe the general contextual factors of India, the state of West Bengal and the state of Jammu and Kashmir. In the

description I focus on the states' geographic and physical vulnerability, challenges of socio-economic and political development, and the states' institutional capacity for disaster response. Then, I take on the case of Aila and Kashmir earthquake in turn. I begin with the Indian case of Aila as a matter of continuation from the last chapter where I studied the same cyclone in the context of Bangladesh. I conclude the current chapter with a summary of the findings presented in the chapter.

In West Bengal, cyclone Aila (2009) was responded to by the elected government of Chief Minister Buddhadeb Bhattacharjee of the Left-Front (LF), an alliance of left ideological parties, which was in power between 1977 and 2011. In Jammu and Kashmir, the earthquake (2005) was responded to by the elected government of Chief Minister Mufti Sayeed of the People's Democratic Party (PDP). In the middle of the response to the quake, Jammu and Kashmir had a change in its state government. Sayeed's government was based on a coalition between the PDP and the Indian National Congress (INC), which selected Sayeed as the chief minister for the period between October 2002 and November 2005. He then was replaced by INC's Ghulam Azad, who was the chief minister until July 2008. While Sayeed handled the immediate phase of the disaster, Azad dealt with the immediate-to-long-term response phases. Both the West Bengal government and Jammu and Kashmir government received support from the Indian central government, which was led by the United Progressive Alliance (UPA), an alliance of center-left political parties, with Manmohan Singh of INC as the prime minister.

In the current chapter, I study how well these state governments and the central government of India responded to the disasters. The baseline conclusions of these case studies suggest that the quality of government response to the disasters mattered, especially for the state government's post-disaster popularity and survival. These case studies, however, also suggest that democracies, contrary to what is expected in the general literature on political crisis and in my theoretical framework,

may not provide the best political environment for effective governmental response to disasters. Another conclusion of the case study indicates that the quality of the governments' responses was better in cities and towns compared to that in the rural and remote areas.

Disaster Vulnerability and Challenges of Socio-economic Development

Vulnerability to Natural Disasters

Geographically, India, with a territorial size of about 1.3 million square miles,¹ is situated between the Himalayas to the north and two sections of the Indian Ocean – the Arabian Sea and the Bay of Bengal – to the west and east, respectively.² The Himalayas are the source of major rivers and seismic activities in India, and the Indian Ocean is one of the six major tropical storm-prone regions in the world.³ The combination of these factors makes India (and the broader subcontinent) a unique place for multiple types and a high frequency of disasters. Between 2004 and 2012, the country faced 14 major disasters per year that killed overall 3323 and affected about 15.4 million people per year, and damaged about 2.2 billion US dollars per year (CRED 2013).

The most notable kinds of disasters in India are cyclones, floods, droughts, and earthquakes. The eastern part of India's 5,560 kilometer long coastline is particularly

¹ India's territorial size is 1,269,000 sq. miles. The countries before India, as ordered from largest to smallest, are Russia, Canada, United States, China, Brazil, and Australia (CIA World Fact Book, <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>, accessed February 20, 2013).

² It is situated to the south of Tibet, Nepal, and Bhutan, to the southwest of Pakistan, and to the southeast of Myanmar and Bangladesh.

³ For a brief description of India's geographic location and its disaster proneness, see the *Tenth Five Year Plan (2002-2017)*. 2002. New Delhi: Planning Commission, Government of India. The *Eleventh Five Year Plan (2007-2012)* refers to the disaster and climate-related data presented in the tenth plan as the basis of its analysis and programs.

prone to cyclone and storm-surges; about 80 percent of total cyclones generated in the Bay of Bengal hit the land.⁴ Besides storms, the country is also vulnerable to a high frequency of floods. A number of rivers that originate in the mountains of the Himalayas and Tibet pass through India before falling into the ocean, making about 400 thousand square kilometers – about 8 percent of the country’s land – highly vulnerable to floods.⁵ Most of these floods occur during the monsoon (June-September) season because of the high concentration of rainfall during this time.⁶ In the last ten years, there were 89 events of major flooding in India that killed overall at least 11339 and affected 145 million people, and damaged about 19 billion US dollars (CRED 2013).

The rainfall, however, has spatial and temporal variation causing floods in some parts of the country and droughts in others.⁷ Sixteen percent of the country’s total area and about 60 percent of the net area sown in India is drought-prone, with droughts concentrated in arid, semi-arid, and less-moisture areas in 16 Indian states.⁸ Annually, these droughts affect about 50 million people, particularly in the Indian

⁴ See footnote 3 (p. 874). According to the *em-dat* database (CRED 2013), in the last ten years (2004-2012), the country in general experienced at least 24 storms (small and large, local storms and tropical cyclones) that killed overall at least 1012 and affected about 6 million people, and damaged overall at least 675.5 million US dollars.

⁵ See footnote 3 (p. 874).

⁶ About 76 percent of the total rainfall in the country occurs in during the monsoon period. See footnote 3 (872).

⁷ Drought indicates a soil condition with less than adequate moisture that intensify scarcity of water particularly for drinking and irrigation, making the affected areas agriculturally and industrially unproductive. The CRED (2013) reports one drought occurring in the last ten years, but the database does not have information regarding the number of people killed and affected, and the mount of money lost due to the event.

⁸ See footnote 3 (p.584). Also see Chakrabarti (2011, 11).

states of Rajasthan, Orissa, Madhya Pradesh, and Gujarat. In some of these states, very severe droughts occur, on average, every eight to nine years.⁹

Seismic activities, including earthquakes and tsunamis, are common in the part of India that is closer to the Himalayas (including the Andaman and Nicobar islands). About 59 percent of the country is vulnerable to seismic activities, and on average, the country faces earthquakes of magnitudes greater than seven in every three and half years (Chakrabarti 2011, 11). In the last ten years, according to the CRED (2013), there were three significant earthquakes in India – including the 2004 Indian Ocean tsunami and the 2005 Kashmir earthquake – that overall killed 16389 and affected 654,512 people, and damaged about one billion US dollars.

As mentioned before, in the current chapter, I focus on two of 28 states of India – West Bengal and Jammu and Kashmir.¹⁰ Geographically, the state of West Bengal is unique in the sense that it stretches from the Himalayas to its north to the Bay of Bengal to its south. West Bengal is part of the greater Bengal Delta created jointly by the rivers Ganges and Brahmaputra, which flow respectively from the Himalayas and Tibet through the state and Bangladesh. The state borders with three international countries – Bhutan and Nepal to the north, and Bangladesh to the east. On its west lies the Indian state of Bihar.

Flood and cyclones are the major disasters that West Bengal experiences frequently. Forty two percent of the geographic area of the state and 69 percent of its net cropped area are flood-prone.¹¹ About 78 percent of the floods occur due to

⁹ See footnote 8.

¹⁰ The Kashmir region is divided between India, Pakistan, and China. India controls the central and southern portion, known as Jammu and Kashmir. Pakistan controls the northwest portion identified as Northern Areas and Azad Kashmir, and China controls the northeastern portion known as Aksai Chin and the Trans-Karakoram Tract.

¹¹ See: *Disaster Management Plan: West Bengal* (2009, 58)

heavy rainfall during the monsoon season. The last major flood (due to rainfall and depression in the Bay of Bengal) was recorded in 2007 that killed 51 and affected 3.2 million people in the state.¹² Cyclones originating in the Bay of Bengal often hit West Bengal. The last major cyclone was Aila of 2009.

The second state under focus in the current chapter is Jammu and Kashmir. Geographically, Jammu and Kashmir is the northern most state of India that is situated at the footstep of the Himalayas, and bounded by Pakistan, Afghanistan and China from the West to the East. It shares borders with the Indian states Himachal Pradesh to the south and Punjab to the southwest. The major disasters that usually hit Jammu and Kashmir are earthquakes, flash floods, and landslides.¹³ An example of a flash flood (due to cloud burst) is the 2010 (August 4th-6th) flood in the Leh district of the state, where the incident killed about 300 and affected 9 thousand people, and damaged about 15 million US dollars in properties and agricultural crops.¹⁴ The Kashmir earthquake of 2005 (October 8) is the most damaging disaster that occurred in the state of Jammu and Kashmir.¹⁵ According to the *em-dat* database, the earthquake affected the Kashmir regions of both India and Pakistan killing overall

¹² See: “Disaster Management Plan: West Bengal 2009-10”, book-1: p. 58.

¹³ “Jammu and Kashmir State Disaster Management Policy-Draft”. (Date not known). Government of Jammu and Kashmir, available at http://www.ifrc.org/docs/IDRL/DM_POLICY0_J&K_IMPA.pdf , accessed February 23, 2013.

¹⁴ “Disaster Management Plan: Leh District”. May 2011. District Commissioner’s Office, Leh, Jammu & Kashmir, India: p. 23. <http://leh.nic.in/DisesterManagementLeh.pdf>, accessed February 23, 2013.

¹⁵The 2005 earthquake is considered as the strongest in the last 120 years in the region. The earthquake affected the Kashmir regions of both India and Pakistan. See: “Jammu and Kashmir State Disaster Management Policy-Draft”: p. 3.

74,647 and affected about 5.3 million people, and damaged 6.2 billion US dollars (CRED 2013).¹⁶

Challenges of Socio-economic Development

The principal challenges that stand in the way of Indian efforts to cope with disaster vulnerability lies in the country's weakness in managing its socio-economic development. Major challenges of India's socio-economic development include population overcrowding, uneven economic growth and distribution, corruption, and lack of transparency. These factors come into play when India's governments respond to a natural disaster.

According to the estimates of the World Bank (2012 (December 12)), India had about 1.14 billion people in 2005. With an 1.4 percent annual growth rate, the population grew to about 1.24 billion in 2011, maintaining the status of the second most populated country in the world, after China and before the United States (World Development Indicator 2013).¹⁷ According to the World Bank, in 2009, an estimated 406.21 people lived per square kilometer in India, which is almost three times as much as its largest neighbor, China (142.74/sq.km), but one third as much as in Bangladesh (1,129.52/sq.km).

Economically, according to the World Bank estimates, the size of India's Gross Domestic Product (GDP) in 2011 was 1.8 trillion US dollars, which was fourth in the world after the United States, China, and Japan. In 2005, India's per capita GDP (2000 constant) was about 577 US dollars, which growing at a rate of about 7.5

¹⁶ The earthquake killed at least 10 people in other parts of north India and 4 in Afghanistan (See: "Jammu and Kashmir State Disaster Management Policy-Draft": p. 4).

¹⁷ Another standard source of population data is the United Nations Department of Economic and Social Affairs (UNDES). The World Bank's estimates and those of the UNDES are similar (<http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)

percent per year became 735 dollars in 2009. By 2011, India's per capital GDP increased to 837 dollars, although its GDP growth rate slowed down to 5.4 percent in 2011. Between 2005 and 2011, India's economy grew fast, although it was significantly slower than its strongest neighbor China, which grew at a rate of at least 8.5 percent per year. In 2011, the growth rate was similar to its South Asian neighbor Bangladesh (5.4 percent), and much better than some of the stronger economies in the world such as the USA (.97), Germany (3), Japan (-.98), and South Korea (2.9).

Despite noticeable economic growth, poverty and income inequality are major issues for India. The benefits of economic growth evade a large portion of the population. About 76 percent of its population survived on under 2.00 US dollars per day in 2005, which by 2010 had reduced to 69 percent. The 2010 statistic (percent of population under 2 US dollars) is worse than Pakistan (60 percent), but better than Bangladesh (77 percent) (World Development Indicator 2013).

India also ranks low in the overall human development of its population. In the United Nations Development Program's (UNDP) Human Development Index (HDI) – a summary measure consisting of three dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living – India ranks 134 out of 187 countries surveyed in 2011 with a HDI value of .547, which was about the same as the South Asian average (.548).¹⁸ Within the region, India's human development performance is slightly better than that of Bangladesh (.500) or Pakistan (.504), but lower than that of Sri Lanka (.691).¹⁹

¹⁸ See UNDP's country specific human development reports at <http://hdr.undp.org/en/countries/>, accessed February 22, 2013.

¹⁹All these countries are considered in the medium human development' category. Examples of some of the high human development' category countries are Uruguay (rank 48), Ukraine (rank 76), and Iran (rank 88). The very high human development' category includes countries like Norway (rank 1), France (rank 20), and Chile (rank 44). See the UNDP ranking at <http://hdr.undp.org/en/statistics/>, accessed February 22, 2013.

In addition to uneven economic growth and wealth distribution, corruption and lack of transparency are major challenges of socio-economic development in India. Between 2005 and 2012, India's situation in public sector corruption deteriorated. Transparency International's Corruption Perception Index (CPI) ranked India 88 (out of 159 countries) in 2005, 84 (out of 180 countries) in 2009, and 94 (out of 176 countries) in 2012.²⁰ According to DeLong (2001) this high level of corruption is a result of the License Raj system – a regime of government regulations that required private business to obtain permits and licenses to operate. Throughout the 1990s, India took a series of steps (including economic liberalization policies) that put to an end of the License Raj, though the culture of corruption remains.

In 2005, India passed the Right to Information Act (RTIA). The act required transparency in public activities as the center of the accountability system in India. This allowed citizens the right to have access to information held by public authorities.²¹ Within two years of the enactment of the law, Indians filed about two million requests for information under the act (Roberts 2010, 925). Despite this popular enthusiasm, enforcement of the law at the ground level is weak. The authorities often respond to citizens' requests with hostility. Many officials, especially in the rural areas, construe the act as an assault on the power relationship that they have enjoyed for a long time (Roberts 2010).

The socio-economic hurdles that India faces at the national level are reflected at the state level, particularly in West Bengal and Jammu and Kashmir, the states under focus in the current chapter. West Bengal is the fourth most populated state

²⁰ See the CPI indices at the TIB's website <http://www.transparency.org/cpi2012/results>, accessed February 22, 2013.

²¹ As of 2012, India is one of 69 countries that have a legal instrument guaranteeing freedom of information for their citizens. A list of countries having an RTIA as of 2012 can be found at <http://www.right2info.org/>, accessed February 23, 2013.

in India. According to the 2011 census, about 91 million people lived within West Bengal. Its territorial size of 88,742 square kilometers is close to the size of Jordan (92,300 sq.km) or Portugal (88,941 sq.km).²² With about 1,029 people living per square kilometer, West Bengal was one of the most densely population states in India in 2011.²³ On the other hand, Jammu and Kashmir with a territorial size of 101,387 square kilometers has a mountainous area and a history of political instability, so the state is not as populated as West Bengal. According to the 2011 census, the state had about 13 million people with a density of 56 persons per square kilometer.²⁴

In the 2009-10 period, the Net State Domestic Product (NSDP) of West Bengal was about 73 billion US dollars, which was about 45 percent of the India's richest state Maharashtra (163 billion US dollar).²⁵ Between 2001 and 2011, on average, West Bengal's economy grew at a rate of 6.61 percent, which was similar to the Indian national growth rate (6.71 percent) of the period.²⁶ Between 2001 and 2011, West Bengal had a 77 percent literacy rate compared to the national rate of 74 percent. The public health system of the state was rated much higher than that of the national

²²Office of the Registrar and Census Commissioner, Ministry of Home Affairs, Government of India, <http://www.censusindia.gov.in/2011-common/CensusDataSummary.html>, accessed February 22, 2013. For a brief state-level summary of population see <http://www.indiaonlinepages.com/population/india-current-population.html>, accessed February 22, 2013.

²³See footnote 30.

²⁴ See footnote 30.

²⁵ Reserve Bank of India (India's central bank) at <http://www.rbi.org.in/scripts/PublicationsView.aspx?id=13592>, accessed February 22, 2013.

²⁶ See http://www.cpim.org/site1/documents/2011-wb.economy_tmc.rebuttal.pdf, accessed February 22, 2013. This is a campaign document of the Left Front government of West Bengal prepared for the 2011 state legislative assembly election. This is the most recent assessment of the state I could gather. The data presented in this document for the years between 1993 and 2005 matches with the West Bengal Development Report (2010). The data presented in the West Bengal Development Report (2010) ends in 2004-05.

average. About 73 percent of all patients in West Bengal received treatment from the public health system, whereas as the national average was 40 percent during the period between 2001 and 2011. The state's infant mortality rate (per 1,000 birth) was also lower (33 percent) than the national average (50 percent).²⁷

On the other hand, Jammu and Kashmir has a much smaller economy than West Bengal. Tourism was one of the state's most profitable industries until 1989, when a violent insurgency movement erupted against Indian rule in Jammu and Kashmir (Prakash 2000).²⁸ Rapid escalation in the violent insurgency movements in the 1990s pushed thousands of people to out-migrate from the region, causing a major damage to the industry (Ganguly 1996, 76). As conflict declined during the late 2000s, tourism re-emerged as a profitable industry of the state.²⁹ The state, however, performed significantly poorly in other economic sectors, such as manufacturing industries (Prakash 2000). In the 2009-10 periods its NSDP was about 7 billion US dollars, which made it one of the smaller economies in India.³⁰ Considering the human development aspects of the state, a report published in a local newspaper in Jammu and Kashmir remarked that the quantified human development figures were indeterminate for the state because of loss of lives due to violence from the insurrection and the extremely high rate of death of young children.³¹ According to the

²⁷ Unless mentioned otherwise, the statistics presented here about the state of West Bengal are from the LF government source mentioned in footnote 33.

²⁸For an analysis of the 1989 insurgency movement in Jammu and Kashmir, see Ganguly (1996).

²⁹"Tourists Flock Back to Kashmir", BBC News, June 24, 2008.

³⁰The smallest economy in India in 2011 was the Sikkim with about 590 million US dollars. Reserve Bank of India (India's central bank) at <http://www.rbi.org.in/scripts/PublicationsView.aspx?id=13592>, accessed February 22, 2013.

³¹For a brief discussion on Jammu and Kashmir's state of human development, see <http://jammu.greaterkashmir.com/news/2012/Nov/9/human-development-and-kashmir-9.asp>

report, the human development index for the state would be much lower than that of the national index for India.

Challenges of Political Development

Indian politics can be characterized by a number of security threats, internal and international, and political deadlocks created by fragmented politics at the federal and state level. The internal security threats come from the insurgent movements in Kashmir and Assam, Naxalite (also known as Maoist) rebellion especially in West Bengal and Bihar, communal riots, and terrorism. Although interrelated with these internal issues, India's external security threats are mainly focused in its rivalry with Pakistan and China, particularly over territorial issues (Hagerty & Hagerty 2005, Kronstandt et al. 2010). Given the focus of the current chapter on disaster response in West Bengal and Jammu and Kashmir, I briefly discuss the Kashmir and Naxalite movements.³²

The state of Jammu and Kashmir has remained one of India's major conflict zones since the country received its independence in 1947 from British colonialism. By the mid-1990s the level of conflict in Jammu and Kashmir was high, which peaked in 2001, and declined gradually through 2009 (Kronstandt et al. 2010, 39). During the period between 1989 and 2006, an average of five or six people were killed per day in the region due to bomb blasts and gun battles between the Indian security (paramilitary and military) forces and insurgent groups who demanded independence from India to create an autonomous or sovereign Kashmir.³³ In 2010, a large scale vio-

³² For an overview of India's domestic, regional, and international security challenges see: Mukherjee & Malone (2011), Malone & Mukherjee (2010), and Kronstandt et al. (2010).

³³ "India Says Kashmir Toll Over 41,000, Others Differ," *Reuters*, December 7, 2006. Sometimes the insurgent groups also involved in violent clashes. Some insurgent groups such as the Jammu and Kashmir Liberation Front (JKLF) demanded independent or autonomous Kashmir, while other such as the militant Hizbul Mujahideen (HuM) sought unification with Pakistan. The people of the region is also divided in terms of their demand for autonomy

lent protest became a “full-blown separatist uprising” putting unprecedented pressure on the central government (Kronstandt et al 2010, 39). Following this uprising, the central government revitalized its military presence in the region, and India’s Prime Minister Monmohan Sing negotiated with the opposition-parties to send an all-party delegate to tackle the situation.³⁴

The Naxalite rebellion, which started as movement of the landless and tribal laborers in West Bengal in 1967, continued in the first decade of the twenty first century as one of the major security concerns of the Indian government. The aim of the rebellion is to establish a Maoist style communism in India. The Naxalites commonly use a technique known as *bandh*, which implement stoppages of work especially in factories and industries in the targeted region with an implied threat of violence. Generally they attack the railways and destroy roads so that government forces can not reach them.³⁵ As a result many parts of West Bengal, Orissa, and Chhattisgarh states where the Naxalites are dominant remain underdeveloped (Kronstandt et al 2010, 41). Any attempt from the government or the public to stop them ensue violence. The Indian Prime Minister Singh, according to a Reuters report, considered the movement as the “single biggest internal security challenge since independence”

(but within India) and sovereignty. A 2007 public opinion poll conducted by The Indian Express, Dawn News and CNN-IBN and designed by CSDS reported that about 90 percent of the people surveyed in Srinagar, Kashmir’s most populous and Muslim-majority city wanted a sovereign Kashmir (independence from both India and Pakistan), while 95 percent of the respondents in the Hindu-majority Jammu area desired to remain as part of India. See: “For 8 of 10 people in valley, ‘conditions have improved”’ *India Express* (August 13, 2007)

³⁴ Happymon Jacob. (September 22, 2010). “Kashmir needs a political package”, <http://www.thehindu.com/opinion/lead/article777311.ece?homepage=true>, accessed February 28, 2013.

³⁵ Stratfor Global Intelligence, “A closer look at India’s Naxalite threat”, http://www.stratfor.com/weekly/20100707_closer_look_indias_naxalite_threat, accessed February 28, 2013.

(Majumdar 2009). According to the Reuters report, between 1990 and 2010, the Naxalites were involved in violent incidents that killed about 7,000 people, including 1,000 deaths reported in 2009 alone (Majumdar 2009). In the past decades, the central government attempted to quell the rebellion by boosting development funding in the affected states, but in 2008, the government planned to create a specialized armed force to confront the Naxalites. In 2010, the central government also announced to help the affected states fight the Naxalites by providing logistics (helicopters, police stations, arms), manpower, and funding (Kronstandt et al 2010, 42).

Besides these security threats, the Indian polity is weakened by political fragmentation where identity and ideology based local politics as well as administrative decentralization cripple the central government's ability to provide effective governance. Constitutionally, India is a federal system of government with a strong center.³⁶ In the recent past, India's larger political parties such as the Indian National Congress (INC), and the Bharatiya Janata Party (BJP) failed to get majorities in Lok Sabha (lower house of the India parliament) elections, which compelled them to make coalitions with identity or regionally based political parties such as the Communist Party of India-Marxist (CPM), as in the 2004 elections, or the All India Trinamool Congress (AITC), as in the 2009 elections.³⁷ These smaller political parties were large

³⁶ The central government holds greater power than state governments, and has authority to remove state governments in times of emergency (Malone & Mukherjee 2010, 149). In addition, in the federal-state fiscal relationships, the state generally is dependent on the federal government. Although the state is constitutionally enabled to tax and manage its own revenue, it is often fail to acquire enough revenue from taxing to run the government. Thus, the central government shares its revenue with the state (Bahl, Sethi & Wallace 2010).

³⁷ According to Chhibber (1999), this dependence in the formation of central government on the regional or state level parties is due to India's electoral rules of single member plurality system, which operates in the context of a social stratification based on social caste systems, tribalism, and linguistic boundaries. Larger political parties have failed to simultaneously represent all these groups, and therefore, failed to gain majorities in the national parliament (Lok Sabha). These small groups provide the foundation for regional or state level political parties, who are too small to dominate national politics, but large

enough to keep the government under constant threat of confidence in the parliament, and therefore, claimed important portfolios (ministries) in the cabinet of the federal government. For example, in the current United Progressive Alliance (UPA) government of Sing, the AITC had six ministers, including a cabinet level railway minister held by AITC's chief Mamata Banerjee.³⁸

Within this broader socio-economic and political context, the governments in India respond to disasters. While these broader socio-economic and political challenges remain, natural disasters, that are more frequently occurring in the late twentieth and early twenty-first century than before, give rise to further complications in the governance of the country. While dealing with these complications, the central government realized that India needed a institutional framework that would significantly enhance the capacity both of the central as well as the state governments in managing disaster-related crises. The Disaster Management Act of 2005 is the expression this realization of the Indian government. In the following section, I discuss India's institutional arrangements for disaster response.

Institutional Arrangement for Disaster Response

India enacted its comprehensive Disaster Management Act (DMA) in December 23, 2005. The DMA evolved out of two major national level initiatives. The first comprehensive disaster response initiative was the setting up of the High Powered Committee (HPA) in 1999 that prepared a comprehensive model plan for disaster response and management at the state and local level. The second pre-DMA initiative

enough to compel the national parties to make coalitions with them while forming the Indian national government. The current government of Monmohan Singh is the latest example of this process.

³⁸In 2012, AITC quit the UPA government in protest against the government's decision to allow foreign direct investment (FDI) in retail from the USA and the diesel price hike (toi092112).

came after the Gujarat earthquake of January 26, 2001. Following the earthquake, the government under the chairmanship of the Indian Prime Minister Atal Bihari Vajpayee created the all party National Committee on Disaster Management (NCDM) with representatives of national and regional political parties. The NCDM aimed to catalyze the preparation of a national comprehensive disaster management plan that would recommend mitigation plans both for the national and state government. Both HPA and NCDM were primarily crisis management initiatives focused on post-disaster management phases, especially relief distribution and recovery processes. After the Kashmir earthquake of 2005, the Indian government actively sought to legislate the DMA.

Unlike the previous attempts, the DMA took a comprehensive approach intending to cover from prevention, mitigation, and preparedness to rehabilitation, reconstruction and recovery. It mandated that the government mobilize and invest resources to reduce risks of a disaster, develop effective relief distribution and rehabilitation mechanism, and consider disaster management under the broader framework of national development plans (NDMA 2007). The DMA aims to provide a coordinated effort of all ministries of the federal government and the state governments to improve disaster resilience at the community level backed by statutory and financial support (NDMA 2007).

Within the framework of the DMA, four disaster management institutions developed in India that defined the post-2005 disaster response mechanism of the country. First, the National Disaster Management Authority (NDMA), the apex body of disaster management in India headed by its prime minister, formulate, coordinate, and implement policies and guidelines for statutory authorities, particularly the state governments. It assigned specific ministries and departments for specific types of disasters. For example, it assigned the Ministry of Home Affairs (MHA), the Ministry of Earth Sciences, and the Indian Meteorological Department for both

cyclones and earthquakes, whereas the MHA and the Ministry of Water Resources were assigned for flood related disasters. However, in general, the DMA requires every ministry or department of the government of India to take necessary measures to implement the disaster management plan and coordinate with other relevant authorities in responding to disasters.

NDMA's guideline provides the framework for the State Disaster Management Authority (SDMA), the second institution in the DMA framework. Headed by the chief ministers of the states, SDMA lays out the plan for the states, including disaster related financial management plans, while considering state-specific disaster conditions. The SDMA appoints a number of committees at various layers of the state governments, including district committees, and constitutes an advisory committee of experts to seek recommendations on various aspects of disaster management.

Third, the DMA created the National Institute of Disaster Management (NIDM), which is responsible for conducting research on various aspects of disaster management, and for providing evidence based guidelines to all actors involved in disaster response. It also provides training towards building a capable human resource needed to improve government response performance in all stages of the response process.

The fourth institution under the DMA framework is the National Disaster Response Force (NDRF), the most important institution considering the ground level response operations. This is a specialist response force comprised of eight battalions – two each from the Border Security Force (BSF), Central Reserve Police Force (CRPF), Central Industrial Security Force (CISF) and Indo-Tibetan Border Force (ITBP) – who are trained in post-disaster rescue, relief, and rehabilitation operations. The battalions are stationed in nine strategic positions throughout the country based on the vulnerability profile of the location to expedite their deployment process. With

a total strength of about 1,158 personnel, each battalion provides 18 self-contained search and rescue teams.³⁹

The DMA identifies the Indian central government and the state government as major actors in responding to a disaster. While responding to a disaster, the NDRF operates under the command of the central government, and the state administrations operate under the commands of various ministries of the state government. In my case studies of this chapter, I discuss how these actors interacted in responding to the Kashmir earthquake of 2005 and cyclone Aila of 2009.

Note that the DMA was enacted in December 2005, two months after the Kashmir Earthquake. Although the draft DMA was prepared months before, it could not be used by the Indian central government to respond to the earthquake. The DMA framework, however, was used in responding to cyclone Aila (2009) in West Bengal. The National Disaster Management Authority approved in 2007 a guideline for the West Bengal state government to prepare a State Disaster Management Plan for the year 2008-2009, which was then updated in 2009.

It was within the context of the DMA framework that India responded to tropical cyclone Aila. In the next section, I present a qualitative study of the governmental response to the cyclone.

Tropical Cyclone Aila, 2009 (West Bengal, India)

Aila, a category-I storm originating in the Bay of Bengal, hit the Indian state of West Bengal at 1:30pm on May 25, 2009. Maintaining intensity even after 15 hours of landfall, the cyclone had winds up to 110 km/h (about 68 mp/h) with a trail of 72 hours of heavy rain (toi052509a, toi052509b, toi060709b). According to an official report of the Government of West Bengal, Aila swept through 18 districts

³⁹“India Country Profile Update (2008)”, <http://www.adrc.asia/countryreport/IND/2008/india2008.pdf>, accessed February 28, 2013.

in West Bengal killing at least 126 people, affecting at least 6.6 million people and damaging more than 900 thousand houses.⁴⁰ The most affected districts were North and South 24-Parganas, where the number of people affected crossed over 1 million in each district.⁴¹

In West Bengal, a complex set of political and bureaucratic actors, with overlapping jurisdictions and competing political interests, responded to the cyclone. One of the central actors was the Left-Front (LF)-led state government of West Bengal with Buddhadeb Bhattacharjee of the Communist Party of India (CPM) as its chief minister. The Bhattacharjee government was elected in 2006 as part of the Left-Front, a coalition of eight left-oriented parties, that ruled West Bengal continuously from 1977 until it was defeated in the 2011 state assembly election.⁴² The political success of the LF, particularly its major partner CPM, was based on its successful implementation of a series of land reform policies and decentralization of power and finances through the panchayat system – a three tier local self-government. I discuss this system later in the current sub-section. Designed to empower poorer farmers, especially against the landed aristocracy, these policies received wide-ranging support from the rural populations. Riding on this support, the LF grew as a strong regional

⁴⁰ UNDP. 2009 (June 2) “Situation Report: Cyclone Aila” (p.3) http://www.iagwestbengal.org.in/downloads/archives/Aila_2009/Aila_UNDP3.pdf, accessed February 14, 2013. Note that according to CRED (2012), as listed in Chapter 4 (Table 1, p.5), the number of people killed by Aila in West Bengal was 96, the number of people affected was 5,100,000.

⁴¹ See UNDP. 2009 (June 2)

⁴²In the 2006 state assembly election, the LF won 233 seats out of 295 seats in the state legislative assembly. The Communist Party of India – Marxist (CPM) won 175, All India Forward Bloc (AIFB) 23, Revolutionary Socialist Party (RSP) 20, Communist Party of India (CPI) 9, West Bengal Socialist Party (WBSP) 4, Rastrya Janata Dal (RJD) 1, Democratic Socialist Party (Prabodh Chandra) DSP(P) 1 seat, and Nationalist Congress Party none. The opposition coalition led by the All India Trinomool Congress (AITC) won 30 seats with the AITC 30 and the Bharatya Janata Party and the Janada Dal-United (JD-U) none.

coalition in the Lok Sabha (lower house of the Indian national parliament) elections, which allowed them in 2004 to become a critical coalition partner of the United Progressive Alliance (UPA) – an alliance of the center-left political parties of India – government of India led by the Indian National congress (INC) party.

The LF substantially lost its long-term rural support base in 2007 following a violent protest movement against the state government’s decision to acquire about 4 square kilometers of farming land in Singur block (a conglomerate of villages) for Tata Motor’s Nano-car factory. The West Bengal government wanted to host the factory to boost the state’s industrial base and job creation.⁴³ About 2,250 people who refused to accept the compensation offered by the state government staged violent protest.⁴⁴ The state government responded to the protest by ordering the state police force to open fire and at least 14 people were killed in Nandigram (toi031707). This act of the state government further created state-wide protest and violence.

The Nandigram incident gave prominence to All India Trinomool Congress (AITC) party. As will be seen below, the AITC became a second important actor, in addition to the Bhattacharjee government, in the post Aila response. Following the 2006 election, AITC was the main opposition party in West Bengal with about ten percent (30/295) of the seats in the state legislative assembly. In the Nandigram case, the AITC strongly supported the cause of the aggrieved farmers and mobilized anti-government protests. With rising popularity since then, the AITC under the leadership of Mamata Banerjee made political strides in the state, winning 19 out of 42 Lok Sabha constituencies in West Bengal in 2009 national parliamentary election

⁴³The Tata Motors later cancelled their plan to build the Nano plant in West Bengal. See: “Nano wars: Tata threatens to make the world’s cheapest car somewhere else”, *The Economist (Business India)*, 2008 (August 28).

⁴⁴The Tata Motors later cancelled their plan to build the Nano plant in West Bengal. See: “Nano wars: Tata threatens to make the world’s cheapest car somewhere else”, *The Economist (Business India)*, 2008 (August 28).

(took place April-May, right before Aila hit the state) as opposed to only one in the 2004 election, as shown in Table 1. In this election, the LF, particularly CPM, lost Lok Sabha seats substantially.

Table 6.1: Number of Parliamentary (Lok Sabha) Seats and Percentage of Popular Votes, National Elections 2004 and 2009

	CPM	CPI	RSP	AIFB	AITC	INC
2004	26 (38.57)	3 (4.01)	3 (4.48)	3 (3.66)	1 (21.04)	6 (14.56)
2009	9 (33.10)	2 (3.60)	2 (3.56)	2 (3.04)	19 (31.17)	6 (13.45)

Source: Chakrabarty (2011, 291)

Note: Figures in parentheses show the share of votes for political parties

Political parties: Communist Party of India-Marxist (CPM), Communist Party of India (CPI), Rasthya Janata Dal (RJD), All India Forward Bloc (AIFB), All India Trinomool Congress (AITC), Indian National Congress (INC).

Meanwhile, the Communist Party of India (Marxist) (CPM) also lost its voice in the central government. The CPM was a coalition partner of the central government before July 9, 2008 when the party fell out with the prime minister Manmohan Singh over the Indo-US nuclear deal (toi052809a). Nonetheless, the UPA government managed to win a confidence vote in Lok Sabha after the withdrawal of CPM from the UPA coalition.⁴⁵

After the 2009 national election, the AITC became an important partner in the UPA coalition government with Singh, once again, as the prime minister. Ma-

⁴⁵The UPA won the confidence vote with 275 votes to the opposition's 256, (10 members abstained from the vote) to record a 19-vote victory

mata Banerjee, the chief of AITC, was chosen as the Indian railway minister.⁴⁶ A number of parliamentarians from AITC were also included in the cabinet of the central government of India. Particularly important in the context of a disaster is Sisir Adhikary of AITC, who headed the central government's rural development ministry. In parallel, the AITC continued as aspirants to the West Bengal state government, which they came to control in May 2011 after a landslide victory against the LF in the state general legislative election the same year. It is in these dual capacities – as a thriving opposition party in state politics and an important member of the UPA in the central government—that the AITC together with the LF-led state government of Bhattacharjee responded to Cyclone Aila as an important actor in the disaster response process in West Bengal.

The central government of India was the third key actor in the post-Aila disaster response process in West Bengal.⁴⁷ In the context of disaster response, the UPA-led central government of Manmohan Singh became a vital player for two reasons. First, the center was a key source of disaster management funds for the state, especially for a major disaster like Aila. For example, the central government pays to the state a mandatory amount of about 20 million US dollars (Rs. 99 crore) given a major disaster in the state (toi061309a). For Aila, the center financed West Bengal beyond this mandatory amount for relief and reconstruction projects. I discuss the politics of the central government's financing in the context of Aila in the next subsections (6.4.2 and 6.4.3).

⁴⁶Mamata sworn-in on May 26, 2009, a day after cyclone Aila hit West Bengal, as the railway minister of the central government Mamata Banerjee served twice as the railway minister in 1999-2000 and in 2009-2011.

⁴⁷The center-state relationship in India is tilted towards a strong center with extraordinary power to declare emergencies and take control over the legislative and executive authorities of the state during emergencies, power to define territorial boundaries of states, and direct control over some lucrative sources of taxation (Brass 1994, 63).

Second, some of the important political personalities in the central government were from West Bengal. For example, Pranab Mukherjee, the president of the INC's West Bengal chapter, was the finance minister of the central government (January 24, 2009 – June 26, 2012).⁴⁸ He emerged as a strong candidate for the position of the Indian president, which he was elected to hold in June 2012. Since the presidential election process in India requires votes of the members of the state legislative assemblies (Article 55 of the Constitution of India),⁴⁹ it is likely that he was interested in maintaining a smooth relationship with the West Bengal politicians in 2009.

At the operation level, there were five major actors who were pertinent in responding to Aila. They were the military, the civil administration, municipalities, wards, and the local government under the panchayat system, especially the district councils and the village panchayats. The military under the DMA framework – the Indian Army, the Navy, the Air Force, the Coast Guards, and the Border Security Force (BSF) – provides rescue and rehabilitation services under the direct order from the central government. In the context of Aila, the military, once deployed, followed the lead of the state government in conducting the rescue and relief operations.

The other four actors, however, were subject to influence both from the LF-led state government and the AITC. The civil administration was under the formal

⁴⁸Previously, Mr. Mukherjee served as the Finance Minister (January 15, 1982 – December 31, 1984), Minister of External Affairs (October 24, 2006 – May 23, 2009 and February 10, 1995 - May 16, 1996), Minister of Defense (May 22, 2004 – October 26, 2006), and Deputy Chairman of the Planning Commission of India (June 24, 1991- May 15, 1996).

⁴⁹Required by Article 55 of the constitution of India, the President of India is elected by a system of proportional representation, single transferable vote. The parity principle embedded in the constitution requires the following election process: First, every elected member of the legislative assembly of a state possesses as many votes as there are multiples of one thousand in the quotient derived by dividing the population of that state by the total number of the elected members of the Legislative Assembly. Second, an elected member of the Indian Parliament (Rajya and Lok Sabha) has as many votes as the quotient obtained by dividing the total number of votes cast by all elected members of state legislative assemblies by the total number of elected members of the Parliament.

control of the state government, but they were found, in my analysis, to be indirectly influenced by the AITC too. Municipalities (like a city government) and wards (like a town government) are urban local bodies – with elected councils (like a city council) – that are responsible for basic infrastructure and services in cities and towns.

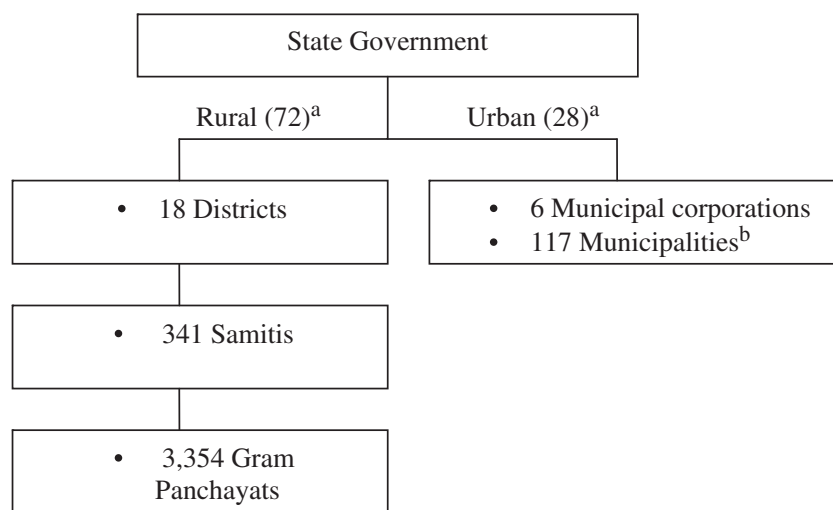
The rural government of West Bengal consists of the three tiers elected local self-government system known as the *Panchayat Raj*. As shown in Figure 1, the district (council) or *Zilla Parishad* is the district level panchayat body, the upper most tier of the panchayat raj. The block-panchayat or *samitis* are the middle tier, and the *gram* or village panchayats are the lowest body in the panchayat raj.⁵⁰ As of 2009, there were 18 district councils, 341 samitis, and 3,354 panchayats (Bahl et al. 2010, 314). These are elected bodies with limited executive, legislative, judicial, and taxing power over their own jurisdiction. In my analysis, I refer to the highest tier as district council, the middle tier as samity, and the lowest tier as panchayat.⁵¹ In the context of Aila, as I discuss in the next subsections, the district councils and the panchayats became important loci for political contestation between the LF and the AITC. In responding to Aila, both the LF and the AITC were able to influence the municipalities and wards through the councils of these local bodies, who were elected under the banners of either of the parties. In South 24-Parganas, for example, the majority of the elected councilors of the district council were from AITC, thus it wanted the relief and rehabilitation resources to be channeled through them. But, the LF dominated the panchayats (councils) in the villages of South 24-Parganas,

⁵⁰ In my analysis, I do not focus on the middle tier. A village panchayat is a village council consisting of five persons, annually elected by the adult villagers, male and female, possessing minimum prescribed qualifications. The panchayat has the executive, legislative, and judicial authority and jurisdiction over a village for a year.

⁵¹ For a short description of the structure of the panchayat system in West Bengal, see Ghatak & Ghatak (2002)

thus, the LF-led state government focused on the panchayats in distributing the post-disaster resources.

Figure 6.1: Government Structure in West Bengal (as of 2009)



Source: Bahl, Roy et al (2010, 314)

Note: a: percent of total population. In West Bengal, the average population size of for districts is 4.4 million versus 181,000 for blocks and 14,254 for the gram panchayat. b: Not including three notified areas (urbanized areas that were yet to qualify for municipality status).

All these actors – the state government, the partners of the LF coalition, the opposition parties AITC and INC, the central government, and the operation level actors particularly the civil administrations and the panchayats – played important roles in responding to Aila. These actors had overlapping influence over the formal jurisdictions in the disaster management process and therefore influenced the

disaster response performance of the government in West Bengal. Given this politico-administrative context of overlapping influence, how did the state and central government perform – in terms of preparedness, immediate and long-term response – in responding to Aila? In the following sub-sections I address this question using a content analysis of news-reports published in the national daily newspaper *Times of India*. I complement the analysis with reports from a West Bengal daily newspaper the *Telegraph*. I begin with the preparedness dimension of the response.

Preparedness (West Bengal)

Early Warning, Evacuation, Protective Measures

According to my framework, as part of its disaster preparedness, a government is expected to run a system of early warning, facilitate an evacuation process, and take measures to protect the people from the potential disaster (Chapter 4). Focusing on these areas, the current chapter evaluates the performance of both the state government of West Bengal and the central government of India for the case of Aila. I begin with early warning.

The overall performance of the early warning system used by the Indian government before Aila hit West Bengal was less than adequate. The Indian Meteorological Department (IMD),⁵² a federal department with a regional center near Kolkata, did detect a storm as it formed in the Bay of Bengal on May 22, 2009, about three days before the storm transformed into cyclone Aila and hit West Bengal. It immediately started informing the people about the upcoming heavy rain and strong wind (toi052609, toi052709). Nonetheless, the IMD could not issue a cyclone warning until

⁵² The IMD is a federal organization with six regional Met centers located at: Mumbai, Chennai, New Delhi, Kolkata, Nagpur and Guwahati. The department is headed by a Director General based at New Delhi, and each of the regional centers are headed by a Deputy Director General.

May 24, less than twenty four hours before the cyclone hit West Bengal.⁵³ Part of the reason of this delayed and imprecise warning was that the storm itself did not intensify until a few hours before landfall (toi060709c). It also appears that the imprecision of the warning system was partly due to the failure of a weather monitoring station at Contai in East Mednapore, which was supposed to track the storm as it progressed northwards. Its power supply and sensor wires were broken before Aila was formed, but the authorities failed to detect that on time (toi060109).⁵⁴

As a result, the evacuation process did not begin on time. Two factors delayed the evacuation process: first, the state civil administration at the district level, unsure about the course of the cyclone, preferred to wait until the cyclone became a real threat. The Indian defense ministry officials blamed the civil administration for such inaction because the Indian Coast Guard had asked them to evacuate residents of remote islands in the Sundarbans at least two days before the cyclone struck (toi060709d). The defense ministry also criticized the state government for not engaging the Indian Navy and the Coast Guards enough in the disaster response process (toi060709d).

Second, people were not ready – partly because of a lack of timely warning and partly because of their casual approach to the weather, although it had been raining for hours with strong winds. When the wind suddenly picked up and rain became severe around noon on May 25 (2009) in Kolkata, people were surprised as they did not know what to expect (toi052609). In the rural coastal areas, particularly in the villages and islands of the North and the South 24- Parganas and the Sundarbans, people did not interpret the weather news provided by the local radio channels as warnings for a

⁵³ See footnote 10.

⁵⁴ The Times of India reported that “Its power supply lines had been disconnected and sensor wires apparently chewed off by dogs.” As a result, “the whole exercise of tracking the storm [was] rendered ineffective” (toi060109).

severe cyclone.⁵⁵ When Aila created strong waves in the Bay of Bengal that broke the embankments and created extensive flooding, the people in the region did not have the time to systematically evacuate to safer locations.

Immediately after the disaster, the state government was vehemently criticized for taking inadequate or no measures to protect the coastal people who were hard-hit by the cyclone. Embankments in the coastal areas that depreciated over time, and in many cases had wide cracks in them, had not been repaired before the cyclone struck. As the cyclone raged, giant waves, in some places 20 feet high, in the Ganges river and surging sea water destroyed more than 100 embankments in the state flooding the villages in the low lands (toi052609a). The cyclone ravaged the Sunderbans, the mangrove forest area of the Bengal delta, where it washed away a 400 km stretch of embankments (out of a total of 3,500 km) and damaged another 600 km (toi060309b).

Immediate Response (West Bengal)

Leadership: Visit, Address, Directives, and Assessment

An important aspect of post-disaster government response is leadership, as conceptualized in Chapter 4. In the current section, I discuss the leadership competition over the disaster response process following Aila, in terms of visits to various affected areas, public addresses, official directives, and roles in assessing the damage created by Aila and the needs of the affected people. Following Aila, the LF-led state government of Bhattacharjee and the Banerjee-led AITC competed with one another in responding to the disaster. While, according to the National Disaster Management Act (2005), the state government had the primary responsibility to respond to the disaster, Banerjee repeatedly blamed the government for inaction and wanted the central government to take the lead bypassing the state government. In this compe-

⁵⁵ People in these areas did not have access to newspapers or televisions, the only source of weather news was the radio.

tition between the state government and the AITC, Pranab Mukherjee, the Indian finance minister, played a critical role.

Bhattacharjee visited many of the affected islands in the Sundarbans on May 26 (2009), the very next day of the disaster. He also dispatched five ministers of his government to various affected areas to monitor the rescue and relief operations. During this visit, he met with the local civil administration, police officials, and the Sundarbans development authority to discuss rescue and rehabilitation plans. He addressed hundreds of villagers at a temporary camp, where he assured them of relief within two days. He informed the people that his government opened community kitchens across Sundarbans region, and he called the national army to help in rescue and relief operations.

Bhattacharjee was welcomed in villages where the majority of the people were LF supporters. More confident, Bhattacharjee listened to the villagers who complained about various irregularities in the relief and rehabilitation operations including shortages of food and drinking water, and medicine black-marketing. He reached out to the people in an effort to win their support, and in his address to the villages, he assured them that he would not leave the place without meeting the demands of food and medicine that were placed before him. He also assured them that he would persuade the central government to allocate funds to rebuild the embankments, and his government would rebuild the damaged houses of the villagers (toi061409).

By the first day of the cyclone, Bhattacharjee called the central government to send the military forces to carry out rescue operations in various parts of the Sundarbans. He reported to the media that he would seek army's help specifically "to reach assistance [rescue and relief] to Pathapratima, Gosaba and Basanti Islands" as those areas would be difficult for the civil administration to reach quickly (toi052609c). The Indian Army, BSF, and Indian Air Force started their rescue and relief operations in coordination with the local police forces.

Bhattacharjee directed the ministries and civil administrations of the state government, workers of his political party, and the coalition partners of the LF to begin their response activities. For example, under his directives, the civil administration and local government bodies opened community kitchens across Sundarbans region (toi052609c). However, the media reports indicated that while the state government issued general directives to various administrative authorities to respond, sometimes these orders were issued only after being pushed by the opposition, the public, or sometimes the ministers of his own government. For instance, in the case of broken power and water supply in Kolkata, Bhattacharjee ordered the CESC and the KMC to beef up their operations after a series of protests and roadblocks by the city dwellers. In another example, he ordered the state finance minister Asim Dasgupta to release funds immediately to the Sundarbans Affairs department after the minister of that department set an ultimatum on the government that he would leave the affected area if funds were not sent to him immediately (toi060609).

Banerjee of the opposition AITC too visited parts of the Sundarbans area (Kakdeep) on May 26 (2009), the very next day of the disaster. Banerjee was scheduled to make a trip to New Delhi to swear-in as the railway minister of the central government on May 26 (2009), but considering the exigencies of the disaster she cancelled her trip (toi052609a). She joined the office (of the railway minister) from Kolkata, and scheduled visits to the Aila affected areas and meetings with her party workers to prepare the AITC's response plan. She said: "this [was] not the time to go to Delhi. I [needed] to stay back by the side of the suffering people. I [wanted] to go and visit them" (toi052609b1).

Within three days of the disaster both the state government and the AITC made competing claims about leadership in their respective press conferences, setting the stage for the disaster politics that would be unveiled in all subsequent phases of the response process. The first press conference from Bhattacharjee's government

came on May 27 (2009), only after the press conference of Banerjee's AITC earlier the same day. As a result, the state government's press briefing turned out to be a response to the criticisms from the AITC. In its press briefing, the AITC criticized the government for not repairing power and water supply systems in many parts of the Kolkata city where people staged demonstrations and roadblocks in protest of not having the services even after three days of the cyclone (toi052909). Implicating the state government for ineffective disaster response, AITC's Banerjee indicated in the press conference that the situation would have been worse if she "hadn't got in touch with the army and the BSF" (toi052809at). She mentioned that she was going to take the matter up to the center, and threatened an agitation if things did not improve on the part of the state government (toi052809a).

In his response to the AITC's criticism, chief minister Bhattacharjee accepted the public protest as a natural consequence of the inadequate actions of the Calcutta Electric Supply Corporation (CESC) and the Kolkata Municipal Corporation (KMC). He said he had ordered these offices to beef up their operations by engaging more manpower, but he appealed to the people to cooperate with the CESC and the KMC by withdrawing the roadblocks for a speedy restoration process (toi052809a).

Filling the roles of both the Indian railway minister and the AITC leader, Banerjee criticized mobilized both the AITC party leaders and the central government. She asked the central government ministers who were also leaders of the AITC to come back from Delhi to monitor relief and rescue operations (toi052809a). As the party chief, she asked the AITC-run panchayats in North and South 24-Parganas and East Mednapore, the worst hit areas, to actively take part in helping the affected people (toi052609b1).

Note that in the South 24-Parganas and the East Mednapore districts, the AITC dominated the district councils (Zilla parishads) and a substantial number of the panchayats (toi053009). As shown in Table 6.2, although AITC won only two

out of 17 districts councils (Zilla Parishads) in 2008 district council elections, it won South 24-Parganas and East Mednapore. The left Front won the North 24-Parganas council, but together the AITC and the INC got more seats (26) than that of the LF. At the panchayat level, the AITC showed a contrasting performance in North 24-Parganas, as shown in Table 6.3, winning the highest number (47 out of total 235) of panchayats in the district. Besides North 24-Parganas, AITC also won more panchayats than any other party in East Mednapore, Bankura, Burdwan, and Hawra districts.

Table 6.2: Zilla Parishad (District Council) election (2008) results for selected parties in West Bengal and three districts most affected by Aila

Party	Districts	District Council Seats		
		South 24 Parganas	North 24 Parganas	East Mednapore
Left-Front (LF)	13	31	19	17
All India Trinomool Congress (AITC)	2	34	16	35
Indian National Congress (INC)	2	3	10	0

Source: West Bengal State Election commission.

Note: Out of 19 Zilla Parishads, 17 held the election. The districts selected here are on the basis of their relevance to my analysis.

In an effort to engage the central government of India (bi-passing the state government), on the first day of the disaster, Banerjee consulted with the prime minister Manmohan Singh, the defense minister A. K. Antony, and the finance minister Pranab Mukherjee about the post-Aila situation in West Bengal, and requested them to send the Army and the Border Security Force (BSF) in rescue and relief operations (toi052609b1). This is what Banerjee referred to, as I mentioned before, when she said in the press conference that the situation would have been worse if she “hadn’t

got in touch with the army and the BSF” (toi052809a). But, note that Bhattacharjee also claimed to have called in the army to help in the state’s rescue and relief efforts.

By the end of May, Banerjee and her ministerial colleagues in Delhi started mobilizing funds for the Aila affected state of West Bengal. With a minister of state, Sisir Adhikary, in the central government’s rural development ministry and a total of 1,143 out of 3,354 panchayats (after the 2008 panchayat election) in the state under its control, Banerjee’s AITC wanted to have at least equal (to the state government) say in the disaster management in the state, right from planning to execution level (toi053009). Banerjee demanded that the central government send funds directly to the panchayats, an approach known as the PM-to-DM approach, and avoid the state government altogether. Arguing that the AITC had little faith in the state government’s finance minister Asim Dasgupta, the rural development ministry said “we have had enough of this laid back state government ... [the PM-to-DM approach will help] proper utilization of central funds” (toi053009).

The prime minister and the finance minister not only talked to Mamata Banerjee, they also called the chief minister Bhattacharjee to assure him of help from the central government. But they were not expected to be as strong an ally of the Bhattacharjee as they were of Banerjee, particularly after the CPM’s fall out with Manmohan Singh (prime minister and the leader of INC) over the Indo-US nuclear deal (toi052809a). Furthermore, as I mentioned before, the CPM lost seats in the Lok Sabha election of 2009 (see in the introductory part of section 6.4).

Bhattacharjee sent a letter to the prime minister on May 28 (2009)⁵⁶ urging him to declare the disaster as a national calamity, and seeking about US dollars 209,000,000 (later revised to USD 250,800,000) from the Centre’s National Calamity Contingency Fund for relief, rehabilitation, and reconstruction (toi060909). The In-

⁵⁶ “CM fires letter to PM for Rs 1,000-cr Aila relief” *The Indian Express* (May 29, 2009).

Table 6.3: District distribution of Panchayats (the lowest tier) won by major parties, Panchayat election, West Bengal, 2008

District	AITC	BJP	CPM	INC	RSP	TOTAL
Bankura	41 ***	40	38	32	6	189
Burdwan	65 ***	33	55	56	4	257
Birbhum	29	14	31***	25	10	133
Hawra	35	17	30	31	3	143
Hoogly	43	20	46***	38	0	185
Jalpaiguri	24	14	30***	28	23	155
Coochbehar	28	24	20	29***	3	173
Malda	28	29	27	33***	3	188
West Mednapore	45	22	61***	49	0	201
East Mednapore	51***	34	47	46	5	211
Murshidabad	41	26	49	63***	11	313
Nadia	40	26	43***	37	13	218
Purulia	24	12	32	33***	3	155
North 24-Parganas	47***	34	45	45	2	235
South 24-Parganas	63	50	70***	62	9	314
South Dinajpur	14	12	17	17***	15	92
North Dinajpur	17	18	19	24***	3	123

Source: West Bengal State Election commission.

Note: Results of panchayats were available for 17 out of 19 districts; There were no panchayat elections in 2008 for the districts of Darjeeling and Siliguri MP.

*** Highest number in a row.

dian finance minister Mukherjee visited the state a number of times following Aila, and assured help from INC and the central government. Bhattacharjee met with him to further press his financial demands to the central government. Although Mukherjee was the president of the West Bengal chapter of INC, a coalition partner in the opposition camp in the state politics, he avoided directly taking sides with AITC, but played a somewhat balanced role in the disaster response process. The central government formed a team that would visit the Aila affected area to assess the situation on behalf of the central government (toi053009). Later, the finance minister, rising above the political divide in West Bengal, allocated US dollar 209,000,000, as initially demanded by Bhattacharjee (toi063009).

The West Bengal government made its preliminary assessment available on May 27, 2009, within two days of the cyclone, which they revised a number of times as the disaster continued and new information was collected.⁵⁷ The state government also participated in the assessment exercises of the State Inter-Agency Group–West Bengal (IAG-WB), a humanitarian forum that was joined by more than 75 organizations including governments, international-national organizations, and UN agencies.⁵⁸ Paralleling the state government and the IAG-WB, the AITC prepared its own assessment report that Banerjee sent to the disaster management wing of the Indian home ministry as a basis for further assessment by the center. Five ministers of the central government from the AITC who had visited various affected areas prepared the report for the party.⁵⁹

Assistance: Rescue, Relief, and Equity

The state government began its rescue operations as soon as the storm began to weaken. Fire brigade, police and civil defense personnel deployed for rescue operations in Kolkata and the coastal areas. Chief minister Bhattacharjee held meetings with the district administration and police officials to plan detailed rescue and relief operations in the Sundarbans areas, where the Sundarbans development authority had already started rescue operations (toi052609). Within a day of the disaster, two columns of the army, each consisting of 100 personnel, from the Eastern Command carried out

⁵⁷ I reported state government's assessment of damage incurred in West Bengal in the introductory section of the current case study. The state government's assessment reports were used in the UNDP Situation Reports available at the State Inter-Agency Group – West Bengal <http://www.iagwestbengal.org.in/archive-aila-2009.html>, accessed February 14, 2013.

⁵⁸See: <http://www.iagwestbengal.org.in/about-us.html>, accessed February 14, 2013.

⁵⁹ I could not gather the details of Banerjee's report. International agencies such as the UNDP uses the state government's reports as as one of their bases to send relief and rehabilitation assistance. See UNDP 2009 (June 2).

rescue and relief operations in Sundarbans. The civil administration could not reach the coastal districts, but the army and the Air Force dropped food packets from the air as part of their relief distribution efforts (toi052609).

As part of its rescue and relief mission, the state government opened hundreds of relief and medical camps, and gruel kitchens. As shown in Table 6.4, as of June 1 (2009), the government's rescue and relief efforts were concentrated in the North and South 24-Parganas (the Sundarbans included), Mednapore, and Darjeeling, the most severely affected districts areas in the state of West Bengal. As of June 1, these four districts together accounted for more than seventy percent of the human lives lost, and more than sixty six percent of the total population affected by Aila.⁶⁰ In terms of administrative units, more than fifty two percent of the total affected wards and municipalities are from these four districts.⁶¹ These districts were the primary focus of the state government's rescue, relief, and rehabilitation activities. As shown in rows 2, 4, and 5 of the table, among the four districts, the South 24-Parganas received a substantially higher quantity of relief and medical camps and kitchens than did the rest of the districts (as of June 1, 2009).

The response of the state government in terms of rescue and relief operations, however, was not perceived as being adequate by many, particularly the affected people, the opposition parties of the state, and the defense ministry. In cities, where the cyclone disrupted life by destroying road systems (uprooted trees blocked roads), power connections (electric poles were uprooted), and water supplies. The state government was severely criticized for the slow reactions of the CESC and the municipal corporation in Kolkata city. People staged demonstrations and blocked roads protest-

⁶⁰ The calculations are based on the tabular reports presented in: UNDP. 2009 (June 2) "Situation Report: Cyclone Aila" (p.2), http://www.iagwestbengal.org.in/downloads/archives/Aila.2009/Aila_UNDP3.pdf, accessed February 14, 2013.

⁶¹ See footnote 20.

Table 6.4: Relief and Efforts in four districts of West Bengal as of June 1, 2009
(Govt. Of West Bengal Report)

	Districts			
	Darjeeling	North 24-Parganas	South 24-Parganas	East Mednapore
Persons rescued	4,122	135,873	107,042	7,531
Relief Camps	39	204	522	—
Persons in camps/ shelters	4,000	205,964	168,020	—
Medical camps	10	6	65	3
Kitchens	39	19	341	—

Note: Information about the relief efforts in other districts were not reported.

Source: UNDP. 2009 (June 2) Situation Report: Cyclone Aila (p.3)

ing against extended periods of power outage and lack of water supplies. Although initially the protests were spontaneous, later it became a strategy of the people to attract the attention of the government. A citizen observed “wherever people [had] blocked the streets, Kolkata Municipal Corporation and CESC [sent] workers [to repair power lines]” (toi052909).

In villages, particularly in the Sunderbans, people complained about the slow and inadequate rescue and relief operations. The cyclone drawn flooding became sources of water-borne diseases such as diarrhea that affected hundreds of people in the villages. The villagers complained that the supply of medical facilities, including clinics, doctors, and medicine, were either non-existent or inadequate. For example the only makeshift hospital in Jogeshganj, a village in the Sundarbans, was inundated by flooding water, and there was only one doctor to treat 55 patients who were laying on the floor of a local school (toi061409).⁶² The villagers suspected that they were

⁶² Later five more doctors came in, but a total of six doctors was also reported as inadequate (toi061409).

not given medicine because the doctor was involved in black-marketing of the relief medicines (toi061409).

In the Sundarbans, the absence of an equitable relief distribution mechanism sparked a near-riot situation. People in advantageous positions such as along the riverbanks captured incoming relief goods barring those from inside the villages from collecting food from the relief boats. Fifteen days after the disaster, villagers living away from the riverbanks received little or no food and medicine. A villager complained “We don’t get anything here. All the relief material is grabbed by those living on the riverbanks. If we go there, they beat us up” (toi061009a). The fights for food became so intense that many feared that it might turn into large-scale violence (toi061009a). The state government was blamed for the situation. Right after the disaster, when Bhattacharjee, his ministers, and the local MLAs (of the CPM) visited these areas, people complained about the inequality in the relief distribution system. The government promised them better services, but the condition of unfairness remained, even after weeks of their visits.

The defense ministry criticized the state government for not seeking enough help from the navy for relief operations in the Sunderbans (toi060709d). The navy provided some support in the form of Gemini boats and divers, but if it had been explicitly requested by the state government, the navy could provide relief material to remote islands, which were completely cut off after the cyclone. A senior officer from the defense ministry said:

“The state government should have approached the defense ministry for a more active role by the navy and the Coast Guard in the cyclone-affected areas. The state government got in touch with the army, air force and BSF, instead. While these wings have done a wonderful job, their span of activity [was] limited as they [didn’t] have adequate equipment to launch relief operations from [the] sea. Instead of trying to push in relief from land, the navy could have been asked to station supply ships

in the Bay of Bengal (off Sunderbans) and reach the remote islands by [amphibious vessels and small boats].”⁶³ (toi060709d)

In addition, the state government initially could not assess how long they would need the support of the army and BSF. Early June, within seven days of the disaster, the state government called off the forces from the affected areas, but within a few days they found themselves mistaken. On June 6, the nervous state government called them again, but this time, they did not have a priori plans for the forces. “Medical and infantry units of the army and personnel of the BSF’s National Disaster Relief Force were seen sitting idle ... They were clearly at a loss with nobody to guide them. Not a single officer from the district administration was at hand to provide any assistance” (toi060709a). An army Major said “We were supposed to help in repairing the embankments. However, we [received] no orders from the state government ... We [did not] know where to go and start work. We could have provided a lot of help to the beleaguered villagers” (toi060709a). A BSF officer expressed his anger by saying “this [was] criminal on the part of the civil administration” (toi060709a).⁶⁴

Highlighting the above limitations of the state government, Mamata Banerjee brought the issue to the political level by threatening the state government with agitation unless the situation improved quickly. She brought back her party’s ministers (in the central government) to monitor relief and rescue operations (toi052809); apparently their monitoring operations ran independently of the state and the central

⁶³ While the larger landing ships (amphibious vessels) can be used to carry large quantities of relief material, smaller ones can get close to shore for actual distribution. The larger vessels also accommodate helicopters and can be converted into hospital ships.

⁶⁴ Nearly 225 kilometers of the total 400 kilometers of embankment were severely damaged. Without the support of the army and other military forces the villagers could not fix the embankment as they possessed neither the equipment nor the expertise to handle a job of such proportion (toi060709a).

government. AITC's Sisir Adhikary – the Indian minister of state for rural development who was at the front of the AITC's disaster operations in West Bengal (in post-Aila context) – refused to participate in the joint meetings with the state administration, particularly with the state finance minister Asim Dasgupta. He said “we have had enough of this laid back state government” (toi053009). Adhikary indicated that AITC was not interested in collaborating with the LF-led state administration particularly because the AITC's offers to collaborate with the state in the past incidents of disasters were ignored. He added that affected people of past disasters who were supporters of AITC, especially at the panchayat level, were victims of political discrimination during relief-funds distribution by the LF-government. Adhikary said, “Earlier, the Trinamool-run panchayats had to beg for funds, whether state or central, from the state finance minister Asim Dasgupta. In many cases, we were denied our due” (toi053009). He avowed, “Things ... changed these days” and discrimination against AITC supporters “[was] not likely to happen [anymore in the post-Aila context]” (toi053009).

Among the LF coalition partners, the Revolutionary Socialist Party (RSP) appreciated the government: “we have not seen the government do so much work in earlier disasters” (toi060609). But they also expressed their concern about the CPM and the state government's unfair distribution of the relief funds. A group of RSP ministers, expressing their unhappiness with the relief work, complained to Bhattacharjee that the CPM minister Kanti Ganguly, who was in charge of the Sundarbans affairs department, took a major share of the 22,400,000 US dollars worth of relief (allotted by the state government for the Sundarbans) to his constituency, leaving pittance for the RSP workers (toi060609). The RSP ministers refused to shoulder any of the blame of the government's failure given the paltry funds allotted to them. Fearing an intra-LF confrontation, they warned the state government to take steps so that the matter would not go beyond control (toi060609). To resolve the disputes

between coalition members, the LF chairman Biman Bose called a meeting of the Front members on June 9, 2009 (toi060609).

Long-term Response (West Bengal)

Planning, Learning, Recovery

In the sample media reports, discussions about the long-term planning concentrated on the overall failure of the state government in its relief and rehabilitation plans as perceived by its opposition parties and the people of the affected areas. One of the major issues that recurred in these discussions was the flood protection embankments that were destroyed by Aila inundating hundreds of villages with flood water.

Given the impending monsoon season (June - August), repairing these embankments damaged by Aila became an immediate issue for the villagers for the affected villages because remained unprotected from even the smaller tidal waves (due to full moon), which were common during the monsoon time (toi060909c). However, given the scale of destruction, it was not possible for the local administration to carry out the repairs. The villagers, who could provide the much needed manpower to help the local administration, were out-migrating en masse because of the unequal distribution of relief and rehabilitation resources by the government and the impending violent food-riots in the region (see the previous section on ‘assistance’) (toi060309b). As a result, the repair work progressed slowly. By June 6 (2009), about ten days after the cyclone hit, the local administrations, relying on small groups of village workers, started building ring-dykes as a temporary solution to the problem.⁶⁵

⁶⁵ The rink-dykes are muddy structures that are constructed in the backward line of the damaged embankments for temporary period of time before reconstructing the original embankments.

This temporary solution of the government seems to show lack of learning on the part of the Left-Front government. People of the region had been demanding the reconstruction of the embankments for quite some time as temporary dykes had repeatedly collapsed in the past. For example, in 2006 the government spent about 170 thousand US dollars in building 500 meters of embankment in the region that collapsed in fifteen days.⁶⁶ But the Left-Front government failed to improve the situation during their thirty-two years of reign in West Bengal. When Bhattacharjee and Dasgupta visited some of these villages, people reminded them of this failure (toi060309a). They disapproved of the temporary solutions of building the ring-dykes due to the Left-Front government's past practices of corruption in giving out contracts to engineering firms (Mukhopadhyay 2009). I will come back to these issues in section 6.4.4 as part of my discussion on the broader topic of corruption.

Considering a long-term solution, the state government proposed to build concrete embankments, which was welcomed by experts. But, what made the proposal controversial was that the state government demanded an excessive amount of money from the central government for the purpose. In addition to the mandatory amount of about twenty million US dollars that the center pays to any state facing a disaster, the state finance minister Dasgupta asked the central government for an additional two billion US dollars for constructing concrete embankments at Sunderbans (toi061309a). This was in addition to the 209 million US dollars that Bhattacharjee demanded earlier from the center for the relief and rehabilitation works. Experts contested the minister's figures.⁶⁷ From within the administration, the state irrigation and Sunder-

⁶⁶ “Whose responsibility was the survey? Why wasn't the height of the dyke slightly increased in thirty two years” [In vernacular Bengali: “Sammekshar Daitwa kar? Battris bachharer sasane bund samanya unchu holo na keno”], Badweep Barta. 2009. Translated by Mukhopadhyay (2009)

⁶⁷ The media reports (in my sample) that discussed expert's opinion did not provide information about the expert's political affiliations, if there were any.

bans affairs department officials argued that the amount proposed by the minister was unrealistically high and not based on a concrete plan.⁶⁸

The controversy became intense as Dasgupta, when asked by the experts from the National Flood Management Group (NFMG), could not substantiate his plans with any background study or estimation procedure. A number of studies on the matter – e.g. by the World Bank, the Asian Development Bank, and an India based organization Ganga Flood Control Commission – already existed but the government allegedly did not use them in their planning. The government did not even consult its own expert body, River Research Institute (RRI, under the Irrigation and Waterways Department) on the claim that it (RRI) did not have the expertise to make the assessment. An expert from the NFMG quizzed, “Why hasn’t the government upgraded the RRI all these years? Why is it sending a cost estimation without any regard to eco-hydrology or ecological engineering” (toi061309a)? Here, once again, the state government showed that their approach to disaster management was not based on learning, and it was less than systematic.

On their part, the central government of India appointed a task-force that conducted a survey in September 2009. The task-force with representatives from both the Central and state governments estimated that at least 1.2 billion US dollars would have to be spent over the years 2010-2013 to repair the embankments.⁶⁹ By January 2010, the central government released a total of about 1.14 billion US dol-

⁶⁸ Officers from the state irrigation and Sunderbans affairs department wondered: “What is the basis of this amount? How does the [minister] propose to spend it? Over which time?” (toi061309a) Calculating the losses inflicted by Cyclone Aila, an administrator said, “Till now, we have only managed to add up [23 million US dollar]. How will we justify a [two billion US dollars] claim?” (toi061309a)

⁶⁹ “Study to reconstruct Aila-hit Sunderbans”. October 3, 2009. *The Times of India*.

lars to West Bengal for the reconstruction and development projects.⁷⁰ The central funding came as part of the Flood Management Program, which required that the state government contribute an additional 25% of the central allocation.⁷¹ The state government applauded the Indian finance minister Pranab Mukherjee for his critical role in disbursing the disaster fund from the central government.

The reconstruction project began before the end of 2009 with the initial funding from the Ganga Flood Control Commission, a federal body chaired by the Indian Minister of Water Resources.⁷² The project, involved procuring adequate land from the villagers for the embankments, a politically high charged issue. The state government prepared a plan to buy lands directly from the villagers in the Sunderbans. The state finance minister assured that the government would not be involved in “land acquisition”, the land purchases would be made at the market prices of the time of purchasing.⁷³

Accountability: Immediate and Long-term Response (West Bengal)

Major Responding Actors

In the context of post-Aila government response, as I have discussed above, the major actors both at the policy level as well as the operation level interacted in a complex manner. The implications of the complex interrelationships among these

⁷⁰ “Centre clears Rs 5,032-cr project for Sunderbans”. (October 3, 2009). *The Times of India*, http://articles.timesofindia.indiatimes.com/2010-01-31/kolkata/28116521_1_central-team-project-irrigation, accessed February 14, 2013.

⁷¹ “Centre clears Rs 5,032-cr project for Sunderbans”. (October 3, 2009).

⁷² The commission is in charge of the flood-protection and development of eight states that are part of the Ganges basin. The states are: Himachal Pradesh, Haryana, Delhi, Rajasthan, Madhya Pradesh, Bihar, and West Bengal.

⁷³ “Centre clears Rs 5,032-cr project for Sunderbans”. (October 3, 2009). *The Times of India*, http://articles.timesofindia.indiatimes.com/2009-09-23/kolkata/28084981_1_repair-work-embankments-aila, accessed February 14, 2013.

actors were that establishing a system of accountability of the actors and the coordination among them in the disaster response system became extremely difficult. In the immediate response phase, for example, there was a sheer lack of coordination between the military and the civil bureaucracy. In the beginning, the state government could not assess what kind of military support they would need, or for how long. As I reported earlier, the state government requested support from the army and the BSF. The Indian defense ministry, however, criticized the government for not adequately engaging the navy and the coast guard, who were more equipped and efficient in reaching relief goods to places where people needed them.

Furthermore, due to the civil administration's lack of action plans and promptness, the military and the BSF soldiers were kept in waiting. There were cases where the civil administration (e.g. the district and forest officials) did not even show up to guide the soldiers to appropriate locations. The soldiers could not proactively run operations on their own because, coming from other parts of India, they had limited knowledge about the affected areas and locations of the communities in need of help, especially in the forests and islands of the Sundarbans. In some places, the communities would not allow the soldiers to enter into their territory without local officials guiding them.

In the cities, the civil administration was under pressure both from their official bosses and the AITC politicians. Following anti-government agitation and roadblocks in Kolkata in demand of power and water supply, Bhattacharjee ordered the Kolkata city municipalities and CESC to increase the number of workers to speed up the repair works throughout the city. But, AITC chief, who criticized the government for its tardiness, sent the leader of the opposition in the state assembly (Partha Chatterjee) directly to the CESC authorities to force them to respond to the demands of the people. She also threatened the authorities with more agitation if her demands were not fulfilled. Potentially due to this pressure from the AITC, the CESC and the

Kolkata Municipal Corporations reportedly quickened their service in places where people blocked roads and staged anti-government demonstrations (toi052909).

Engagement of the district councils and the village level panchayats made the accountability and coordinated response even more challenging. Traditionally the LF dominated the district councils and panchayat system, but by 2009, the AITC was able to make strong inroads into the system, in many cases marginalizing the LF, as exemplified by Tables 2 and 3 (pp. 26-27). In the 2008-panchayat elections, the AITC controlled the district council of South 24-Parganas. In this district council, the AITC had 34 and LF had 31 (CPM had 26) seats out of a total 73 seats. However, within the same district, the LF dominates the village panchayats, with CPM having 70 out of 314 panchayats. For example, as shown in Table 5, the LF had 12 (CPM 3, RSP 9) out of 13 panchayats in Basanti, and in Gosaba they had 8 out of 14 panchayat. As a result, in the South 24-Parganas district the LF parties (especially RSP) wanted to distribute resources through the village panchayats, where as the AITC wanted the funds distributed through the district councils. For example, as I mentioned before, the AITC insisted that the central government send the money directly to the district councils (the PD-DM approach), but the state government preferred the state ministries and the panchayats to handle the funds.

Table 6.5: Electoral Strength of Parties at the Village Panchayats in Gosaba and Basanti Blocks (2008 panchayat election)

Block	No. Village Panchayats	CPM	RSP	AITC	INC
Basanti	13	3	9	1	0
Gosaba	14	2	6	6	0

Source: (Mukhopadhyay 2009, 15).

Information and Corruption

Protected by the Right to Information Act 2005, Indian citizens have legal access to public information. Furthermore, in the case of Aila, information regarding government response projects, federal and state level fundings, relief, rehabilitation, and reconstruction activities were available to public, thanks to the multiplex of actors with competing interest who made information public in the process of their political diatribes on the disaster management process.

In the sample news reports, the issue of corruption is indicated by such statements as “why is that ... the dykes [were] breached every monsoon?” (toi060309a) The statement hinted not only at the failure of the LF government in providing a permanent solution during their 32 year in power, but it also hinted at corruption surrounding the process of building and rebuilding of the embankments. As I mentioned in section 6.4.3 (long-term response), people resented another round of temporary ring-dyke projects that the LF government began following Aila. In another instance, when the state finance minister Dasgupta proposed to ask the central government for an ‘unrealistic’ two billion US dollars without backing up the proposal with expert opinion, administrators and experts alike hinted that the state government might abuse the funds, if given, by making payments to the supporters of the regime (toi061609).

Political Reactions (West Bengal)

Immediately after the cyclone, the politics of West Bengal revolved around the issues of poor response from the state government. The reactions to this poor response, as I have reported in the previous sub-sections, came from two fronts: first, the affected people reacted in the form of protests, roadblocks, and riot-like movements. Second, the political opposition, especially the AITC that in its dual capacity of a coalition partner in the UPA-led central government and the major

opposition party in the state politics became involved in a leadership competition in the disaster management process with the state government. Below, I discuss each of these reactions in turn.

First, people in the Kolkata city staged demonstrations and roadblocks against the state government for the slow response of the Calcutta Electric Supply Corporation (CESC) and the Kolkata Municipal Corporation (KMC) in repairing the power and water supply systems that were damaged by cyclone Aila. In some places in the city, roadblocks became strategic reaction of the affected people who reported that blocking major city roads were ways to have their demands of quick repair of the power and water system heard by the government (toi052909). The AITC decided to up the ante in the anti-government agitations by giving moral support to the protesters. It publicly supported the protests in Kolkata, and cautioned the government of a broader agitation if the latter did not respond to the popular demands promptly and more effectively.

In the villages, particularly in the Sundarbans area, people protested against the LF-led government for its negligence in repairing the embankments, a long-standing issue for the coastal communities (toi060309). During the protest, the villagers criticized the government's past rhetorical commitments to providing them with a long-term solution to the problem (toi060309). When, as part of its response to Aila, the government decided to make ring-dykes as a temporary alternative to a more durable embankments in some areas, the government received another round of criticism from the public who indicated a profit seeking motive of the engineering firms who got the contracts to remake the ring-dykes every year during the monsoon season (toi060309a, Mukhopadhyay 2009).

There were near-riot like situations in the villages of Sundarbans, where inequitable distribution of relief goods meant people closer to the riverbanks got more of the relief distributed than the people from the in-lands. The state government was

criticized for the situation as they used boats to distribute relief goods, but did not take the extra effort to distribute relief in places distant from the rivers. In many affected villages, particularly in the North and South 24-Parganas districts, people verbally assaulted the LF political leaders of the state government, including the Chief Minister Bhattacharjee, for the government's negligence in repairing the river and sea embankments that had been damaged by previous disasters and collapsed after Aila. They indicated that the government's corrupt motifs and lack of care for the villagers led them to procrastinate in building more effective and permanent embankments.

Discussion (West Bengal)

The above description reveals a complicated picture of the West Bengal state government's performance in responding to cyclone Aila. In the areas of leadership, the authorities fared well. Bhattacharjee, along with other state ministers, visited the affected areas, informed the people about the post-cyclone situation and the progress of his initial response initiatives, and gave instructions to all relevant authorities to promptly respond to the crisis. Within a week, his government was able to produce assessment reports that provided the basis for the government to appeal to the central government and the international donors for relief and rehabilitation funding.

However, the state's response in other areas was less than adequate. The state government appeared to have inadequate preparation to handle cyclone Aila. It maintained a poor system of early warning, evacuation, and pre-disaster protection of the people. Following the disaster, the government failed to take decisive steps to expedite the rescue and relief operations. The relief and rehabilitation resources were distributed inequitably. Considering the issues of a long-term response, the state government's reconstruction plans seemed ad-hoc; they were not founded on its previous experiences of responding to similar disasters.

While the government was able to activate the civil administration, all three tiers of the panchayat system (district, block, and village panchayat councils), the military, and LF's party networks in its response process, the government failed to ensure coordination among these actors. Some of the government's response initiatives, especially in relief distributions and reconstruction of the embankments, were criticized for corruption.

Why was the LF-led state government's response less than adequate? The answer to this question has to do with two factors: first, the rural areas of West Bengal, especially in the villages and islands in Sundarbans in the North and South 24-Parganas districts, did not have adequate communication infrastructure. The lack of a roads and railway systems that would integrate the rural areas to the shelters (cyclone shelter or earthquake resistant buildings) meant that the people could not evacuate from the disaster zones quickly. This also meant that the civil administration and non-governmental organizations could not reach the rural villages to distribute relief goods and medicines in the wake of a disaster.

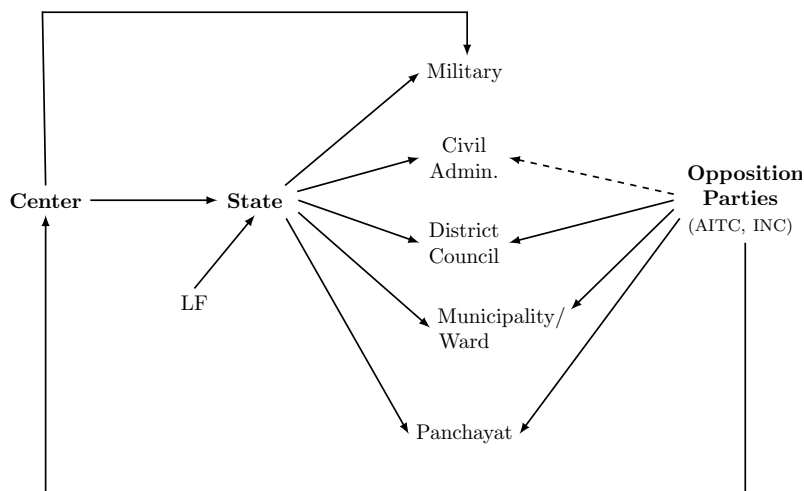
Second, political competition, particularly among the LF parties and the AITC, fragmented the disaster response process. Trinomool leader Mamata Banerjee complained that the LF-led state government's response was biased against her party's supporters. I depict this political competition between the LF and the AITC in Figure 4. In the figure, an arrow indicates the flow of influence. For example, the arrow from LF to state indicates that the state government was influenced by the LF coalition partners. As I discussed in section 6.4.2, the leaders of the RSP, a major coalition partner in the LF-led state government, confronted Bhattacharjee and other CPM ministers of the state government for larger share of relief and rehabilitation funds, which forced the LF chairman to call a general meeting of the LF that aimed at reducing the differences among the coalition partners in the disaster response process.

The arrow from the central government to the state government indicates that the former influences the state's ability to respond to Aila. This is because the major funding of the state government that was used in the relief, rehabilitation, and reconstruction of the embankment came from the central government. The local partners of the UPA-led central government, especially the West Bengal based All India Trinamool Congress (AITC) influenced the central government. In 2009, the AITC also led the major opposition coalition in the state legislative assembly. This dual capacity of the AITC, a coalition partner in the central government and the major opposition party in the state politics, allowed the AITC to claim a say in the disaster response process, as exemplified by the *Times of India* news title "Trinamool wants a say in Aila relief work" (toi053009). As I describe next, AITC in fact claimed an extraordinary importance in the state's disaster response process following Aila.

The leadership competition between LF-led state government and the AITC occurred at the operation level. As I highlighted in the media coverage of the state government response to Aila that I described earlier, there were at least five major response actors who were involved in the rescue, relief, rehabilitation, and reconstruction efforts of the government. They were the Indian military (the army, the navy, the coastguards, and the paramilitary body, the Border Security Force (BSF)), the civil administration of the state government, and the local government bodies. Among the local government bodies, the municipalities and wards in the urban areas, especially in Kolkata city, and the panchayat councils in the districts and villages were highlighted as important actors in the media.

It was apparent from the news report studied for this case that the state government wanted to keep the entire response process under the command of the state administration and the local panchayat bodies, especially the wards in the urban areas and the village panchayats in the rural areas. Chakrabarty's (2011) analysis of the local government in West Bengal may explain why this was the case. During the three

Figure 6.2: Major responding actors (Aila, West Bengal, 2009)



Source: Note: The solid lines indicate direct influence and the dotted line indicates indirect relationship.

Term Expansions: Center: The Central Government of India. INC: the Indian National Congress party. LF: Left-Front, the coalition of left parties in West Bengal. State: The State Government of West Bengal. Military: the Indian Army, Navy, Air Force, Coast Guards, Border Security Force (BSF). Civil Admin.: the state civil bureaucracy. District Council: District Councils in West Bengal. Municipality / Ward: Municipalities / Wards in West Bengal. Panchayat: village councils in West Bengal. AITC: the All India Trinamool Congress party.

decades of continuous rule of the LF in West Bengal, the LF party machinery developed a patron-client relationship between the local party leaders and the supporters of the LF. These patrons developed collusion with the civil administration to control the flow of resources from the central as well as the state government. According to Chakrabarty (2011), the people who did not support the LF were systematically excluded from the range of benefits the supporters got. Initially this patron-client system developed to protect the peasants from the oppressions of the landed aristocracy. But, as Chakrabarty (2011) observes, over time the party leaders became

corrupt and systematically excluded the poor, who could not offer bribes, from the operations of the local governments, especially the panchayats. In the context of responding to Aila, keeping the civil administration in the lead in distributing the relief, rehabilitation, and reconstruction resources meant giving the LF party functionaries access to these resources.

In the post-Aila context, this also meant that the supporters of the AITC – at the municipality, ward, district, and village panchayat levels – were excluded from accessing these resources in the past incidents of disasters. By 2009, the AITC ascended to prominence in West Bengal politics, which allowed them to compete on equal footings with the LF for the relief, rehabilitation, and reconstruction resources. This is exemplified, as I mentioned in the leadership section (6.4.2), when AITC’s rural development minister of the state government said, “Things [had] changed these days. . . . [Earlier], [AITC supporters] were denied [their] due. This [was] not likely to happen now [in the context of Aila]. The Center [his ministry would] scrutinize . . . monitor the disbursal of funds down to the grassroots” (toi 053009).

As part of this competing claims over relief and reconstruction resources, AITC demanded that the central government would use the “PM-to-panchayat minus CM” approach, which was AITC’s revision of the PM-to-DM (Prime Minister to District Magistrate) approach in disbursing central government’s funds.⁷⁴ The Trinomool Congress argued that the local bodies, especially the district councils, were able to distribute these funds without the involvement of the state administration. The PM-to-panchayat approach intended to bypass the state government, which, following Chakrabarty’s (2011) observation about patron-client system of the LF, would mean that the LF network would be avoided in the response process. In reply, Biman Bose, the LF president the state secretary of CPM said “Ours [was] a federal government

⁷⁴ “Biman returns PM-DM fire”, The Telegraph (June 1, 2009).

and central funds should be routed through the chief minister to district magistrates. The stand on PM to DM minus CM [was] untenable . . . If attempts are made to do anything bypassing the state government, we shall not accept it.” (*The Telegraph* June 1, 2009)⁷⁵

The overall LF-AITC competition, as I reported in the previous sections, was clearly reflected in the state administration’s operations, especially in the rural areas of the North and South 24-Parganas and East Mednapore where AITC and its coalition partner INC dominated the district councils, and village panchayats. Reportedly, in villages of these districts, where AITC and INC dominated the panchayats, the LF-led state government had less than adequate response following Aila.

Following the cyclone, the central government sent troops to the affected areas for rescue and relief operations, as requested by the state government. Since Aila was not declared a national emergency, the military followed the lead of various wings of the civil administration, which also simultaneously ran its own response operations on behalf of the state government. As I discussed in the earlier subsection, there was a lack of coordination between the military and the civil administration. First, the defense ministry blamed the state government for not seeking adequate support from the military, especially the Navy and the coastguard who were specially equipped to tackle disaster operations in the remote areas where civilian forces and other wings of the Indian military could not reach quickly. Part of the reason why the state government did not seek all-out support from the military was the state leadership’s indecisiveness. It failed to assess how much support it needed from the military.

The Left-Front government’s overall popularity in West Bengal was already dwindling by 2009. Its inadequate response to Aila further diminished its support base, especially in rural West Bengal. In 2011 state legislative assembly election, the

⁷⁵ “Biman returns PM-DM fire”, *The Telegraph* (June 1, 2009).

LF lost to the AITC by a substantial margin, ending its 34 years of reign in the state. In the election, as shown in Table 2, the LF won 62 out of 294 seats, with CPM 40 seats, as opposed to UPA alliance's 227 seats with AITC 184 and INC 42 seats in the West Bengal legislative assembly.

Table 6.6: West Bengal Assembly Elections
2006 and 2011 (selected parties)

Year	CPM	CPI	RSP	AIFB	AITC	INC
2006	175	9	20	23	29	21
2011	40	2	7	11	184	42

Source: Indian Elections (<http://www.indian-elections.com/index.html>)

Note: Total contested seats 294. For complete result of seat and votes shares of all participatory parties, see Indian Election (see source). The reported parties are : Communist Party of India-Marxist (CPM), Communist Party of India (CPI), Rasthya Janata Dal (RJD), All India Forward Bloc (AIFB), All India Trinomool Congress (AITC), Indian National Congress (INC).

In sum, lack of a communication infrastructure and an intense political competition between the LF and AITC, particularly over the relief and reconstruction resources contributed to the inadequate response of the West Bengal government to cyclone Aila. I turn now to the earthquake of 2005, to see what more can be learnt about the factors that influence government response and ultimately the legitimacy of the government.

Kashmir Earthquake, 2005 (Jammu and Kashmir, India)

The Kashmir earthquake hit the Indian state of Jammu and Kashmir with an intensity of 7.6 on the Richter scale at 9:25am on October 8, 2005 (toi100905b). The quake originated near Muzaffarabad, the capital of “Azad” Jammu and Kashmir of Pakistan, about 125 kilometers away from Srinagar, the capital of Jammu and Kashmir of India. Creating a series of tremors (up to 37 aftershocks), the quake shook a lengthy area across north India (toi100805, toi101005e).⁷⁶ Jammu and Kashmir bore the brunt of the quake. The most affected districts in Jammu and Kashmir were Baramulla, Uri, Poonch, Udhampur and Kupwara, Srinagar districts (toi100905a,e, toi11105a). In Jammu and Kashmir, the quake killed at least 1309 people, injured about 66 hundred, affected about 157 thousand, made homeless about 150 thousand people, and caused damage of about 1 billion US dollars (CRED 2012, USAID 2005).

The Kashmir area has long been a center of political attention of India and Pakistan, the two nuclear-armed states in South Asia. Kashmir has been one of India’s major security concerns ever since the partition of India and Pakistan in 1947. Since the time of partition, the two countries have been at war with each other four times (1947, 1965, and 1971, 1999), and a war-like situation exists along the *de facto* border known as the Line of Control (LoC) that divides the broader Kashmir region between the two countries. In 2002, recent tension escalated due to an attack on India’s parliament building by Islamic militants, which led both Pakistan and India to gather hundreds of thousands of troops along the LoC. A large segment of

⁷⁶ Beyond Jammu and Kashmir, strong tremor was felt in the Indian union territory Delhi, and states of Punjab, Himachal Pradesh, Uttaranchal, Rajasthan, and Assam (toi100805, toi101005e).

Indian troops remained in the Kashmir area thereafter. In 2005, India had 350, 000 military troops stationed in Jammu and Kashmir.⁷⁷

Besides guarding the disputed border between the two countries, the Indian military runs counter-insurgency and counter-terrorism operations, particularly to tackle the militant group Hezb-ul-Mojahadeen (HUL), one of the largest terrorist groups operating in Jammu and Kashmir with an aim of integrating Jammu and Kashmir with Pakistan.⁷⁸

Considering the domestic politics of the state of Jammu and Kashmir, the earthquake occurred in the context of lobbying by the Chief Minister Sayeed with the Indian National Congress (INC) for an extension of his three-year term (toi110305f). Sayeed was the chief minister (with a deputy chief minister from INC) between November 2002 and November 2005 as part of a post-election (state legislative assembly election 2002) power-sharing agreement between the INC and Sayeed's party the People's Democratic Party (PDP), the two major partners in the ruling coalition.⁷⁹ According to the agreement, the PDP and the INC would each take the position of the chief minister for three years in turn, although it was possible for the INC to withdraw their claim on the position and continue with Sayeed as the chief minister. Following the quake, the INC leadership – especially, Sonia Gandhi, the president of INC, and Ambika Soni, the general secretary of the party – were initially hesitant to take charge of Jammu and Kashmir given the volatile situation created by the quake.

⁷⁷ Esther Pan. 2005 (November 1). India-Pakistan: Peace After the Earthquake? (<http://www.cfr.org/india/india-pakistan-peace-after-earthquake/p9006>)

⁷⁸ See the description of Hezb-ul-Mojahadeen in the globalsecurity.org.

⁷⁹ In the 2002 state legislative assembly election, the parliamentary seat shares of the parties were as follows: National Conference 28, INC 20, PDP 16, Panther's Party 4, CPM 2, BJP 1, BSP 1, Independent 15 (total 87). INC and PDP formed a ruling coalition leaving the National Conference as the major opposition in the parliament.

In this context, Sayeed was negotiating with the INC to continue as the chief minister of the state. Without the support of the PDP in the state assembly the INC would not be able to continue the government. Without PDP's support at the administrative and local levels, it would be difficult for the incoming INC chief minister to run an effective relief and rehabilitation programs. The possibility of extension was alive until late October (2005), about three weeks after the quake hit, since the INC was still observing the post-quake situation. They were considering whether it would be tactically wise for the INC to assume power given the gargantuan task of handling the quake-ravaged economy and vulnerable security situation in the state. The INC eventually replaced Sayeed with the INC's Ghulam Nabi Azad as the chief minister of Jammu and Kashmir on November 2, 2005. He stayed in power until July 11, 2008.

In this context, both the Indian central government of Prime Minister Manmohan Singh and the Jammu and Kashmir state governments of the Chief Minister Mufti Mohammad Sayeed and Ghulam Nabi Azad responded to the 2005 earthquake. In the following section, I evaluate the quality of response from the central as well as the state government of Jammu and Kashmir (state government hereafter unless mentioned otherwise) in terms of their preparedness, immediate, and long-term response initiatives. The evaluation is primarily based on a systematic content analysis of the new-reports published in the *Times of India*, although I complement my analysis with the Jammu and Kashmir edition of the regional daily newspaper *Tribune* and situation reports from UN organizations such as the Office for the Coordination of Humanitarian Affairs (OCHA) and the United Nations Development Program (UNDP).

Preparedness (Jammu and Kashmir)

Early Warning, Evacuation, Protective Measures

A government prepares its citizens for a disaster by issuing timely early warning and facilitating the evacuation process (Chapter 4, Figure 4.1, page 110). My review of the media reports on the 2005 earthquake in Jammu and Kashmir reveals that both the Indian national government and the state government of Sayeed did not predict the coming of the quake. The quake caught by surprise the civilian and the military personnel, private and public organizations alike. The draft Disaster Management Policy of Jammu and Kashmir (DDMP-JK) 2005, which was mandated by the central government's Disaster Management Act (DMA) 2005, noted that the regional Meteorological Center at Srinagar was not equipped (e.g. lack of adequate number of observatories) to make timely earthquake warnings. The DDMP-JK acknowledges this element of surprise: "If an effective Early Warning System had been in place in the State, hundreds and thousands of lives and property would have been saved" (28). Although earthquakes are generally sudden-onset events, a general system of sirens can warn people at least minutes before an earthquake hits. Such warnings may allow people to get out of vulnerable structures, the collapse of which are generally the major cause of fatalities following a quake.

The lack of early warning explains why the immediate effects of the quake were so devastating. Almost no one could prepare for the quake and there was no pre-disaster evacuation process at work. Beside the civilians, the quake killed at least 72 army personnel, trapped at least another 63 under the debris of a shattered bridge, and injured many more. This confirms that the government was surprised, too (Arya 2005, 2, [toi101005a,h](#)).⁸⁰ The military staff quarters at Uri and at least 50

⁸⁰On October 10, 2005, an army spokesman reported that at least 90 soldiers were injured, but this was not the final count ([toi101005d](#)). The actual number of military or border security personnel died in the quake is not known as the officials in Uri remained "tightlipped

percent of the bunkers along the LoC line collapsed (toi101905a). A soldier gave his first hand account: “I saw pickets falling on the [Pakistani] sides . . . Pakistani bunkers crumbling. It was then I realized that the ground was shaking and our own picket was collapsing” (toi101005d). The civilians of the state had similar experiences. At least 90 percent (total 37607 buildings) of all buildings in the region collapsed, and the rest were either partially damaged or developed cracks (Ayra 2005, 2, toi100905e). The building’s included private houses, public offices, banks, hospitals, and police stations.

The earthquake was a combination of a series of shocks. After the initial tremor, when people came out of these buildings they had nowhere to go to take shelter from the series of aftershocks that were yet to come. There existed almost no measure of protection – such as earthquake resistant shelter centers – on the part of the government.

In the pre-quake context, the most important protective measure that the central as well as the state government could take was to enforce a building code that requires earthquake resistant buildings. Building developers in India were supposed to follow the building norms established under the Bureau of Indian Standards (BIS) Act 1986 and supervised by the BIS, a federal government body. However, like in many states of India, the BIS norms were not implemented in Jammu and Kashmir, at least until 2005 (toi101005f, toi101105b). Most buildings in the state were made using traditional materials, and were not scrutinized by structural engineers. These buildings were old and did not meet the BIS norms. The central government enacted a new National Building Code (revised 2005) less than a month before the quake, about 22 years after the original act. The new code was not yet in practice when the quake hit Jammu and Kashmir. I will come back to the issues of implementation and

about the fate of their personnel” (toi101005h). These army personnel had been stationed in Jammu and Kashmir to fight militancy and secure the LoC, especially in the Uri area.

pitfalls of this new code later while discussing the long-term planning of the central government (section 6.5.3).

Immediate Response (Jammu and Kashmir)

Leadership: Visit, Address, Directives, and Assessment

An important aspect of post-disaster government response is leadership, as conceptualized in Chapter 4. On October 9, 2005, the very next day of the quake, a host of political leaders from the central government's United Progressive Alliance (UPA), particularly those from the Indian National Congress (INC) party, visited Jammu and Kashmir, particularly Uri, Kupwara and Tangdhar, the most affected districts in the state. Sonia Gandhi, the chairperson of UPA and the leader of the INC, the defense minister Pranab Mukherjee (of INC), and INC general secretary Ambika Soni visited Jammu and Kashmir (toi100905d). The parliamentary affairs minister of the central government Ghulam Nabi Azad of INC – who would become the chief minister of the state in November 2005 – visited various hospitals on October 10, and assured the survivors all possible help from the central government in rescue, relief, and rehabilitation efforts (toi101005k). L. K. Advani, the leader of the opposition in the Lok Sabha (the lower house of the Indian parliament) and the president of the Bharatya Janata Party (BJP) visited Uri and Poonch on October 10 (2005) when he discussed the progress of rescue and relief operations with the Indian Army, the Indian Air Force, and the local civil administration officials.⁸¹

Sonia Gandhi revisited the quake-affected areas again on October 28, 2005 to monitor progress on relief and rehabilitation operations. She came with over a hundred truckloads of relief to be distributed on behalf of INC (toi102605b). As I discuss in the 'political reaction' section (6.5.5), during these visits the INC leaders

⁸¹ "Advani visits quake-hit areas", The Tribune, October 10, 2005.

were also negotiating with INC's coalition partners before changing the leadership of the state government on November 1, 2005 when INC's Azad would replace Mufti Mohammad Sayeed, the incumbent chief minister of Jammu and Kashmir of the People's Democratic Party (PDP).

The prime minister of India, Manmohan Singh of the INC visited the quake-affected areas on October 11, 2005, three days after the disaster hit. The Indian President A.P.J. Abdul Kalam visited Jammu and Kashmir on November 27-28, 2005, a month after the quake hit the state, though he had expressed condolences to the affected people a month earlier, right after the disaster (toi110805a, toi112705a). With a concern over the affected people's rehabilitation in the face of the fast approaching winter season, he met with the central and the state agencies that were responsible for relief and rehabilitation operations. He mentioned that he was "satisfied with the measures taken" by these agencies (toi112705a).

From the state government, the Governor of Jammu and Kashmir Lt. General S. K. Sinha (retired) visited several hospitals on October 10, 2005 to enquire about the condition of the wounded (toi101005k). Besides Sinha, other state political leaders – chief minister Sayeed, former chief minister Farooq Abdullah of the National Conference party (NC), the NC president Omar Abdullah, and the leader of the Communist Party of India-Marxist (CPM) Mohommad Yousuf Tarigami – expressed condolences through media October 10 (2005) to the families of the killed and injured people (toi101005k).

Besides the political leaders, the Indian Chief of Army Staff General J. J. Singh visited the affected areas of Jammu and Kashmir, especially the areas along the LoC area, at least four times in the first two months of the quake (toi100905d). In a press interview, General Singh said, his force "was proactively engaged in relief work . . . in a big way" while continuing their main task of counter-infiltration and counter-terrorism (toi101005r). A senior army officer confirmed that despite the disaster the

militants were still attempting cross-border infiltration, keeping the military busy in the LoC (toi110605b). Following the 2005 earthquake, when the Indian military engaged in rescue and relief works through “operation Imdad”, the Indian Army Chief General J.J. Singh assured that the primary focus of the army in Jammu and Kashmir would remain counter-infiltration and counter-terrorism against groups like HUL (toit0101009a).

The second dimension of leadership has to do with the leaders’ public addresses on the disasters. Prime Minister Singh addressed a public meeting after visiting the quake-ravaged areas in Tangdhar district, where he declared the earthquake as a national calamity, making the disaster a national priority issue (toi101105e). He assured that the central government would provide the state government with all possible help to make the disaster response effective. He said the entire country was with the people of Jammu and Kashmir in “this hour of sorrow and grief” (toi101105d). In a press conference Singh assured, “Money would be no constraint” in meeting all legitimate needs of the affected people. He announced relief of 100 million US dollars (toi101105c). This amount was in addition to the 20 million US dollars that was already sanctioned as part of the central government’s mandatory disaster assistance to the state (toi101105c).⁸²

In an attempt to ease the India-Pakistan border tension during the disaster response time, Singh offered Pakistan the use of Indian land to send relief and rehabilitation services to the Pakistani-occupied Kashmir (PoK). He mentioned to the press that his government would also consider developing a telephone service to enable people in Jammu and Kashmir to communicate with their relatives in the PoK (toi101105d).

⁸² In addition to this 120 million US dollars, the state government could use another about 9 million US dollars that it set aside for general emergencies (toi101105c).

The third dimension of leadership requires that the government authorities issue directives to activate relevant actors to start responding to the disaster. The central government started issuing directives and instructions to specific government bodies within about ten days of the quake. After returning from Jammu and Kashmir, prime minister Singh called a meeting with the defense ministry, home ministry, and the PMO officials in New Delhi to review relief and rehabilitation operations in Jammu and Kashmir. The meeting decided that the central government would take the control of the worst affected villages using particularly the Public Sector Undertaking (PSU) departments⁸³ and the paramilitary forces including the Border Security Forces (BSF) and Central Reserve Police Force (CRPF). The urban development ministry would take the lead role in reconstruction. The central government would immediately start distributing the first installments of 800 US dollars each to the people for rebuilding quake-hit houses (toi101605a).

In contrast to the Pakistan government, which sought assistance from the international donors to determine the magnitude of loss, the Indian government largely avoided direct involvement of international actors.⁸⁴ For example, when offered help by the US defense secretary Donald Rumsfeld, the Indian defense minister Pranab Mukherjee assured him that situation was “under control” and relief operations were being carried out with resources from within India (toi101105g). International donors including USAID and the Dutch government worked with the Indian branches of the

⁸³ The PSU is a legal entity created by the Indian government to undertake commercial activities on behalf of the government. The PSU departments include departments include all government-owned corporations, state-owned companies and entities, state enterprise, publicly owned corporations, government business enterprises, and commercial government agencies.

⁸⁴ The Pakistan government coordinated particularly with the United Nations Disaster and Assessment Coordination team to assess the damage incurred by the 2005 earthquake in Azad Jammu and Kashmir (the Pakistani occupied Kashmir) and Punjab (“UNDP India – Earthquake Situation Report 15 October 2005” <http://css.static.reliefweb.int/report/india/undp-india-earthquake-situation-report-15-oct-2005>).

International Federation of the Red Cross and Red Crescent Societies (IFRCRCS), the International Committee of the Red Cross (ICRC), and local NGOs to assess the losses incurred by the quake and channel disaster aid in Jammu and Kashmir (toi101105i, toi101905g).

The Indian government accepted the Confederation of Indian Industry's (CII) help in assessing of the quake damage. The CII formed a taskforce consisting of representatives of the state government, the Indian army, NGOs, and the industry chambers from Jammu and Kashmir (toi101105m). The assessments of various ministries of the central government (including the Public Sector Undertaking (PSU) departments) plus the recommendations of the CII provided the basis for the Indian government to release funds to the state government.

The state government was responsible for the household-level assessment on the basis of which it disbursed relief checks and rehabilitation assistance. The state government, however, took a traditional approach of relying on the *Patwari* officials – officials of the village revenue accounts run by the local governments – to assess the damages. Based on these assessments, the state administration, including the patwari officials, distributed relief to the affected people (toi101705b). But the patwari process was slow, as the officials were not trained to prepare disaster assessments. Frustrated, the affected people demanded that the Army should do both the jobs of assessment and relief distribution (toi101705b).

The Indian prime minister called the Jammu and Kashmir Chief Minister Sayeed to get further knowledge about the progress of the relief and rehabilitation works. He particularly expressed his concern about quick rehabilitation of the affected women and children. Sayeed addressed the affected people in some of the worst-hit areas on October 22 (2005), about two weeks after the quake hit. In his addresses, he declared that the state government would provide permanent support (i.e. treatment, housing, education for children) especially to the affected women, children, orphans, elderly

people, and the families whose only bread earners were lost in the quake (toi102205a).⁸⁵ Sayeed directed his ministries to coordinate with each other and with non-government organizations to ensure adequate rehabilitation of the affected people, particularly of the most vulnerable groups of people, as soon as the initial response operations were done (toi102205a).

Assistance: Rescue, Relief, and Equity

Besides the aspects of the leadership's response, the quality of the government's immediate response to a disaster is determined by whether its rescue and relief operations were adequate and equitable in nature. Immediately after the quake, the Indian Army, the Indian Air Force, and the paramilitary forces – the BSF and the CRPF – were at the forefront of the rescue and relief operations in Jammu and Kashmir given the mountainous terrains, remoteness of most of the quake affected villages, and cross-border security concerns along the LoC areas in Uri and Tangdhar. The Indian Army stationed senior officers in various points of the affected districts to monitor the joint rescue operations. The rescue teams reached most of the affected areas. The Indian Air Force (IAF) used dog squads to locate trapped people and the Army used bulldozers to make its way to the affected people. The injured people were airlifted to hospitals and safer locations. The IAF helicopters dropped relief goods especially to areas that were cut off from the Kashmir valley.

The rescue of the quake survivors and immediate relief distributions continued for about a month before the state authorities and the military began to signal the end of the operations. On November 2, 2005, during a visit to the affected areas of Kupwara area, the Governor of Jammu and Kashmir S. K Sinha mentioned to the

⁸⁵ Sayeed distributed relief checks to the affected families the same day (toi102205a).

press that the state rescue and relief operation was over, and now was the time to begin the task of rehabilitation (toi110205a).⁸⁶

According to an official source, the rescue and relief teams could not reach about two dozens villages even after 72 hours, mostly due to blockages created by quake-driven landslides and broken roads (toi101005v, toi101105p). Some of these villages were very close to the Indian LoC line, where operations by Indian rescue helicopters and military personnel might be a security issue for Pakistan.

The magnitude of damage in the Pakistani side was much higher than that in the Indian side. The Indian government offered the Pakistani government aid in terms of rescue and relief. Despite the Indian military's higher reputation (compared to their Pakistani counterparts) in tackling disaster situations, the Pakistani authorities refused all Indian proposals of help (toi101505g). Instead, Pakistan accepted military help from other countries, especially China and the UK (toi101005j). Initially, Pakistani authorities even refused any collaboration with the Indian forces in rescue operations along the LoC area (toi101005j, toi101505g).⁸⁷

Within a few days, the Pakistan military realized the importance of mutual trust when both sides were responding to the disaster. They coordinated with the Indian side so that neither side would hamper each other's work. The local sector

⁸⁶ November 2 (2005) was also the date when Ghulam Nabi Azad replaced Sayeed as the chief minister, which indicated that the Azad government would be focused mostly on rehabilitation and reconstruction operations leaving the immediate response activities to be evaluated as part of the response of the Sayeed government. I discuss the issue of the change in chief minister and its implications for disaster response in the state later, in the 'discussion' sub-section of the current case study.

⁸⁷ Magnitude of damage in the Pakistani side was much higher than that in the Indian side. The Indian government offered the Pakistani government aid in terms of rescue and relief. Despite the Indian military's higher reputation (compared to their Pakistani counterparts) in tackling disaster situations, the Pakistani authorities refused all Indian proposal of help (toi101505g). Instead, Pakistan accepted military help from other countries, especially China and the UK (toi101005j).

commanders on both sides of the LoC coordinated so that the rescue helicopters did not come under fire from the other side (toi101005r). Another example of Pakistan's cooperation with the India Army during the rescue and relief phase was that the Pakistani authorities returned an Indian soldier who had inadvertently crossed the LoC after the quake.⁸⁸

Some militant organizations disrupted rescue and relief operations. The militant organizations such as the Pakistan-based Lashkar-e-Taiba and Hizbul Mujahideen allegedly did not stop their activities during the disaster response period. According to the Indian government, after the quake hit, there were at least 400 militants from various jihadist or separatist groups who were active in the Jammu and Kashmir area, "looking for targets that suddenly [seemed] soft in the aftermath of the disaster" (toi101905a). Given the diversion of attention of the Indian security forces due to their engagement in the rescue and relief operations, the militants of the Lashkar-e-Taiba and Hizb-ul Mujahideen were constantly trying to infiltrate to India from the PoK (toi101905a). After the quake, the attention of the Indian security forces was divided between fighting along the LoC area against the infiltration attempts of the militants and spearheading the rescue and rehabilitation work.

Other militant organizations such as the Pakistan-based United Jihad Council (UJC), an organization of 14 militant groups, asked its cadres to suspend operations in the quake hit areas of Jammu and Kashmir.⁸⁹ One reason of this cease-fire proposal could be that the quake heavily hit the bases of the militants in Muzaffarabad in the Pakistani occupied Kashmir (PoK), the epicenter of the 2005 quake. According to an Indian intelligence report, many of the militant outfits of such organizations as Lashkar-e-Taiba (LeT), Jaish-e-Mujahideen (JeM) and Tehrik-e-Mujahideen had moved their

⁸⁸ "Pak troops return soldier after quake" *The Tribune*, October 10, 2005.

⁸⁹ *The Tribune*, October 10, 2005

makeshift camps to villages near Muzaffarabad not long before the quake hit the area. The Indian intelligence reported that at least 1500 cadres of these militant organizations died in the quake (toi101305h).

In general, the efforts of the Indian military (the Army, the Air Force, and the paramilitary forces) were hailed both by the Indian government and the citizens for “prompt response” and their “popularity among civilians” (toi101805a). Initially the locally stationed army units were less than organized as they were also hit by the quake. However, they quickly turned around to join forces with others in the rescue and relief operations. The army’s ability to react to the situation fast gained them trust among the affected people, who were frustrated by the bureaucratic procedures of the state departments. People demanded that the central government’s relief and rehabilitation package of 120 million US dollars be kept at the disposal of the Army for fair and quick distribution of the relief (toi101705b).

A number of civil society organizations, the Kashmir chapters of the CII and NGO workers coordinated their rescue and relief operations carried out immediately after the quake (toi101005u).⁹⁰ While the army’s efforts were appreciated for their promptness and fairness, their civilian counterparts were criticized. As the rescue and relief operations wore on, the affected people criticized the response from the civil society, particularly the NGOs, corporate bodies and religious communities, as discriminatory against the people of Kashmir (as opposed to Jammu), where 97 percent of the population were Muslims (toi102105a, toi102905a).⁹¹ They claimed that relief and rescue efforts from the civil society organizations were concentrated

⁹⁰At least 32 teams from the state administrations worked in Uri and Tangdhar, and 25 NGOs worked in different affected areas (“Earthquake situation report”, UNDP-India <http://css.static.reliefweb.int/report/india/undp-india-earthquake-situation-report-15-oct-2005>).

⁹¹ Census District Profile, 2011. Government of India, Ministry of Home Affairs, http://www.censusindia.gov.in/Tables_Published/Basic_Data_Sheet.aspx, accessed March 3, 2013.

more in the Jammu areas, where about 65 percent of the population were Hindus. The Kashmiri Muslims were generally branded as the supporters of the Islamic terrorist (toi110905a).⁹²

Similar allegations of discrimination were raised against the state authorities, particularly about the state government's negligence of the needs of the affected villagers. The cash relief program of the state government was run through a system of mobile banks that reached out to the affected people. Reportedly, the efforts of the banks concentrated in the towns, while the villages, especially in the Uri, Baramulla, Tangdhar, and Kupwara districts, were left out. The villagers of these areas told the media reporters that, in addition to the bank checks, the administration did not provide them with any food and drinking water. When approached, the administration told the villagers that the relief goods were finished in the towns. The water stream, that was a major source of drinking water in these villages, was blocked due to the quake, but the administration did not respond to their call to fix it (toi112105a, toi101005k).

In sum, within the first month of the quake, the Indian military, the state administration, and some civil society organizations participated in the rescue and relief operations. The Indian and the Pakistani militaries coordinated with each other in their rescue and relief operations along the Indian-Pakistan border in Kashmir. Members of some Pakistan-based militant organizations, who attempted to infiltrate the Indian border, disrupted Indian military's attention during the rescue and relief operations. However, the affected people hailed the efforts of the Indian military due to their promptness and fairness in the rescue and relief operations. The state

⁹² The media praised two Sikh and Muslim NGOs who went around the Uri sector providing help in reconstruction irrespective of the faith of the victims. In these areas both the mosques and Gurudwaras were destroyed by the quake, and these two organizations offered to help rebuilt both these institutions (toi102905a).

administrations and some civil society organizations were criticized by the affected people for discriminating against the rural people and the Muslims in the Kashmir region.

Following the immediate response, the authorities in Jammu and Kashmir began their long-term responses. In the following section, I describe how well the authorities managed their planning and recovery activities.

Long-term Response (Jammu and Kashmir)

Planning, Learning, Recovery

In my theoretical framework, the third dimension of the quality of government response captures the long-term response activities of the government. The long-term response dimension asks three questions: did the government prepare a well-informed plan for the long-term rehabilitation, recovery, and reconstruction of the society damaged by the disaster? Did the long-term plans reflect learning from previous experiences of responding to similar disasters in the country? How well did the authorities conduct their long-term recovery activities? In this section, I respond to these questions in turn.

The state government reported that within about a month of the quake, road links, schools, and hospitals were rebuilt in many areas (toi110205a). They received about 130 million US dollars from the central government to spend towards relief, rehabilitation, and recovery purposes.⁹³ Another about 1 million dollars in aid came

⁹³ In addition to the funding from the central government, the state government disbursed 52 million, and the former chief minister (1982-1984) of Jammu and Kashmir CM Farooq Abdulla, on behalf of his party Jammu and Kashmir National Conference, contributed 200 thousand US dollars. Note that this amount excludes that funding provided by local charities and volunteers.

from the government of Netherlands (toi101105i), and 600 thousand dollars came from the U.S. government in terms of relief and shelter supplies (USDAI 2005).⁹⁴

One of the first long-run issues that the responders faced was to provide shelters to the affected people – at least for the time being, before the destroyed houses and buildings were reconstructed – before the fast approaching winter arrived in the Kashmir Valley. As I have already mentioned, most of the houses in Jammu and Kashmir were destroyed by the quake, leaving the survivors with no home. Many civil society organizations, particularly the National Human Rights Commission (NHRC), pressed the Indian government to prioritize the issue of rebuilding the ravaged housing or providing adequate shelters to the affected people (toi101505d). Governor Sinha, who was also the president of the local Red Cross, said, “every affected family is living in tents or improvised shelter of some kind and the major task ahead was to have proper shelters for all during before severe winter sets in” (toi110205a).

The Pune-based NGO, Bharatiya Jain Sangathana (BJS), was given the lead role in providing winter shelters to the quake-hit people. A team of architects and engineers of the BJS collaborated with the NDMA and the state government (who provided the logistics and transportation services) to build 870 prefabricated structures at the cost of about 3 million US dollar in Uri and Tangdhar regions (toi111105a). The government relocated about 900 homeless families from many worst hit areas including the Tangdhar district – where building shelters would not be possible for everyone before the winter – to alternative sites across the state of Jammu and Kashmir (toi110205a).

⁹⁴ The international aid money was used mainly by international NGOs working in India, especially in the Jammu and Kashmir region. While 50 thousand US dollars went to the Indian Prime Minister’s Relief Fund, the rest of the US assistance went through the international NGOs including CARE, CRS, Save the Children, USAID (India), and World Vision (USDAI 2005). The funds from the Netherlands government were channeled through International Federation of the Red Cross and Red Crescent Societies and the International Committee of the Red Cross (toi101105i).

But, people in these areas reported that they were not happy with the quality of the reconstructed houses. They reported that they felt insecure in their villages, “the main reason being tardy reconstruction” of the ravaged houses (toi102605c). Experts criticized the Indian government’s approach to building codes on the grounds that the authorities were paying little attention to the lessons learned from previous earthquakes. The Indian state of Gujarat experienced a deadly earthquake in 2001, and many parts of India experienced the 2004 Indian Ocean tsunami. These disasters revealed that in the affected areas BIS regulations were compromised, which made the buildings in the areas vulnerable to seismic shocks. Observing the destruction done by the 2005 quake in Jammu and Kashmir, A. S. Arya, the national seismic advisor of the Indian Home Ministry’s disaster management division, observed that the overall quality of building construction in India, including the quality of construction material, deteriorated. He emphasized that “building laws must be strictly followed” to avoid damages from future disasters (toi101505c).

Related to this was the challenge of insuring that the new National Building Code (revised 2005), which was prepared by the central government’s Bureau of National Standard (BIS) and enacted by the Indian government less than a month before the quake was implemented (toi101105l). Under the new code, building projects must get approval of the structural engineers who were authorized by the central government for the purpose (toi101105b). Experts criticized the new code because it allowed state authorities discretion to use, interpret, and implement the instructions in the code (toi101005f). This could be problematic because the state authorities, especially in poorer states like the Jammu and Kashmir, may interpret the code in ways that serves the interests of some vested groups. It could also entrench corruption in the real estate and building business.

Accountability: Immediate and Long-term Response (Jammu and Kashmir)

Major Responding Actors

As I mentioned above, the major frontline responding actors in the area of rescue and relief operations were the India Army, the paramilitary forces, and the Indian Air Force. These forces, while responding to the disaster, were also engaged in securing the LoC area between India and Pakistan. They also tackled the Pakistan-based terrorist groups who vying for the emerging popularity of the relief distributing security forces in the region sometimes obstructed the rescue and relief operations of the forces. Another important actor in the response operations was the state government's civil administration. The affected people preferred the Indian military to the state and local administrations in general, particularly due to the former's efficiency, and unfair treatment of the communities, and widespread corruption in rescue and relief operations by the latter. A number of non-governmental actors such as the Kashmir chapters of the CII and NGOs coordinated their relief efforts with the military and the state government.

Information and Corruption

At this stage of analysis, a relevant question is: What explains the poorer performance of the state government? According to an observer, the state's immediate response to the earthquake was "confounded due to ... an administrative breakdown." (toi110305f) The news reports summarized above attested to this claim. For example, the state *patwari* officials' household level damage assessment, which provided the basis for relief and rehabilitation operations of the state government, were perceived by the affected people as slow, corrupt, fraudulent, and biased against the poorer and rural segments of the population.

A few members of the Sayeed cabinet were alleged to have direct involvement in corruption. For example, the deputy chief minister Mangat Ram Sharma, the

rural development minister Peerzada Mohammad Sayeed, and the consumer affairs minister Taj Mohi-ud-din – all three of them had scandalous records of corruption and nepotism (toi110405). Particularly Taj was alleged to favor people in Uri, his constituency, over people in other regions during quake relief (toi110405). Peerzada was sued twice for corruption charges, one by the state vigilance department, and another by the accountability commission (toi110405).

The incidents of corruption multiplied as Jammu and Kashmir approached the winter season. Within less than a month of the quake, the affected people complained of large-scale fraud and corruption by the state government (toi110605a). Under the aegis of the local politicians, the house surveyors and administrative officials of the state, who were responsible for making inventories of the destroyed houses for the purpose of disbursing reconstructions and relief checks, produced fraudulent reports in exchange of bribes or driven by favoritism.

For example, in many cases, the surveyors would show members of one family as living in separate accommodations so that the family received relief checks multiple times, in some cases as extreme as nine times (toi110605a). In other cases, “cowsheds” were listed as “double storied residential houses” to allow its owners receive reconstruction checks of about 2 thousand US dollars. In exchange for entering into the “corrupt list” (purposefully made incorrect lists), these families bribed administrative officials an amount equivalent to about 800 US dollars, which was about 40 percent of the total that a household could get from the state (toi110605a). In an interview with the press, the relief commissioner for Uri admitted the presence of some corrupt lists, and told the press that he would take actions against those involved. He said, “There [had been] some allegations of wrong entries on the list and the persons responsible for the wrongs [were] removed from the posts” (toi110605a).

Besides selling relief in exchange of large bribes, some state politicians and party workers were involved in hoarding relief goods. In one incident, the state police

recovered about 8 hundred blankets from the house of one local political worker of the Congress party (toi110605a). Because of such incidents, people were critical of the politicians' involvement in the relief works in general.

In response to complaints about such cases of corruptions, the state authorities allowed *Lok Adalats* (people's court) – alternative dispute resolution courts mostly chaired by retired judges or respected local elderly person – to settle the corruption charges. As of November 17, 2005, a series of Lok Adalats in Baramulla and Kupwara districts resolved at least 450 cases with the help of the officials from the State Revenue and Engineering department, in many cases convicting those involved in the making of the “corrupt list”, over- and under-estimation of monetary relief needed, and hoarding of the relief goods (toi111705b).

Political Reactions (Jammu and Kashmir)

Immediately after the quake, politics in Jammu and Kashmir revolved around the issues of poor response from the state government. Reactions to this poor response came from three fronts: the affected people of the villages who staged demonstrations and sit-ins in protest of discrimination against them, the militants who disrupted the relief efforts of the security forces, and the political parties, especially the INC that decided to take control of the post-quake governance of Jammu and Kashmir by replacing chief minister Sayeed of PDP with Azad of INC. I discuss each of these reactions in turn.

First, as I mentioned before, the state administrations concentrated most of their relief efforts in towns, leaving pittance for the villagers in Uri, Kupwara, Poonch and Baramulla districts that lie along the LoC zone of India. Desperate, these villagers staged a number of demonstrations and sit-ins. They also blocked traffic on the Uri-Srinagar highway (toi112105a). The villagers complained that the rescue and relief operations that took place there were in general slow and insensitive to the urgency of

the situation (toi101005k). The authorities had done little to address their pressing needs of rebuilding homes. Many were living under the open sky (toi101505d). The villagers informed the authorities about their plight, but the state government denied the presence of such malpractice in the relief distribution programs. For example, the Deputy Chief Minister of the state government termed the allegations as baseless. He said, “central and state governments had immediately launched relief and rescue measures and every quake-hit area was receiving due attention” (toi102105a). One reason behind such urban-rural disparity in the relief distribution programs, as I discussed before, was the corruption motif of the state officials (Peris 2006). In the towns they could exchange the relief checks and goods for bribes, which was not generally possible with the poor villagers who lacked the bribe money and connections with political high-ups.

These villagers were also deprived of the relief goods provided the NGOs, business corporations and religious communities, as I mentioned before, due to the villager’s religious identity as Muslims. A teacher in Tangdhar remarked that these “NGOs and corporate houses responded generously to the quake of Kutch [Gujarat quake 2001] and [2004 Indian Ocean] tsunami in south India” which were in complete contrast to their efforts in the Kashmir villages following the 2005 earthquake (toi110905a).

Regarding the discrimination shown by the civil society organizations, Yoginder Siank of the *Times of India* observed that this overall attitude of the civil society was reflective of the stereotype: “They [were] Muslims, so it [was] not [their] problem. They [had] supported terrorism and secession and so it [served] them right”. He observed, “Deeply-rooted prejudices, as well as the ongoing conflict in Kashmir, ... [accounted] for the fact that few Indian NGOs ... responded to the quake.”

(toi110905a)⁹⁵ Yoginder also observed that the Indian media, both local and national, also showed indifference to the plight of the villagers for the same reason. He argued that the conviction that these villagers were supporters of terrorism was factually incorrect because the villagers constituted portions of the security forces in the region that constantly fought the Jihadi terrorists (toi110905a).

Another front from which resistance came against the Indian authorities, particularly the security forces engaged in the rescue and relief operations, was the militants of the greater Kashmir. The Indian authorities were concerned that the militants might use the quake-ravaged villages as soft target of violence (toi101905a). A senior military officer noted, “What is worse is that terrorists [the PoK-based Lashkar-e-Taiba and Hizbul Mujahideen] [were] trying to obstruct relief activities being carried out by the security forces and paramilitary forces in far flung areas of the state” (toi101005s).⁹⁶ This was at least for two reasons, as highlighted in the media sources. First, the militants did not want the military to discover arms and ammunitions that they concealed in many of the villages close to the LoC line damaged by the quake. In many villages, while conducting rescue operations the security forces did recover piles of arms and ammunition (toi101005s). Second, the militants did not want to allow the Indian military forces, which were carrying relief goods to the affected areas, to become popular among the people of Kashmir. In many villages, the militants not only attacked the relief carrying military personnel, they also harmed those who helped the relief efforts (toi101005s). The militant attacks were in part to stop com-

⁹⁵After a series of bomb blasts in India’s capital New Delhi on October 29, 2005, which killed over fifty civilians, a group called Islami Inqilabi Mahaz claimed responsibility (Human Rights Watch 2006 (September 12)). Yoginder implied that these incidents were probably responsible for the new height of prejudice among the civil society against the Kashmiri people.

⁹⁶About 80 percent of the militants active in the broader Kashmir region belonged to the Lashkar-e-Taiba, the rest are from Hizb-ul Mujahideen and Jaish-e-Mohammad (toi101905).

ments by villagers such as the following: “Had it not been for the Indian Army, many more would have died” (toi101205b). The quake-ravaged villagers were targets of the militants who wanted to run a fresh campaign against the Indian regime in Kashmir.

The third front of reactions to the poor response of the state government came from within the government. Besides administrative breakdown, political reasons account for why the state government was not effective in responding to the quake. The state government was divided. The government was based on a power-sharing pact between the INC and the PDP following the state assembly election of 2002 where no single party gained a majority in the assembly. Although the chief minister of the state came from the PDP, his cabinet included ministers elected from both parties. For example, the deputy chief minister was from the INC. The INC, the dominant partner in the coalition government of Mufti Mohammed Sayeed, decided to replace Sayeed with Ghulam Nabi Azad of the INC as the chief minister of Jammu and Kashmir. As discussed earlier, Sayeed was the chief minister for the first three years (November 2002- November 2005) as part of a post-election power-sharing agreement between the INC and PDP.

According to INC, the decision to replace Sayeed was triggered by the dismal performance and corruption of the state government, particularly in its response to the earthquake. As I have highlighted in the previous subsections, the PDP government was criticized by the people for all aspects of its response to the quake – from preparedness to long-term planning. The decision of INC leadership to discontinue Sayeed as the chief minister was based on a stream of reports that reached Sonia Gandhi about corruption and inefficiency of the Sayeed government’s disaster response.

The support of the PDP government at the state legislature was also divided. The power-sharing pact was done at the party leadership level and members of the state Legislative Assembly (MLA) of the INC were against the pact from the be-

ginning (toi110305f). Following the 2002 legislative assembly elections, these MLAs demanded a chief minister of the state from the INC arguing that in the election the INC won 20 out of 57 seats in the state legislative assembly which was greater than PDP's 16 seats. As the three-year tenure of Sayeed approached to its end in October (2005), 21 MLAs of the state assembly staged a "virtual revolt" against any continuation of the PDP leadership in the government. They threatened the INC central leadership with resignation from the state legislative assembly as a group if the INC's turn to have the position of chief minister was delayed or turned down (toi110305f).⁹⁷

When the INC leadership decided to refuse Sayeed's extension request, they leveraged the decision on the latter's poor and corruption-laden performance in disaster response. Although Sayeed was shocked to learn the decision since he was given hope by the INC leadership, the PDP leadership accepted the decision on the ground that "our priority would be development and UPA chairperson Sonia Gandhi would help the state get liberal financial support" (toi110405a). The PDP general secretary Tariq Kara said "Our party [was] ready to let Congress to take over the post of chief minister as per the 2002 agreement. The delay was by the Congress" (toi110405a).

To rescue the image of the INC-PDP coalition government, Gandhi chose Azad to "keep a close watch on measures to improve governance with an immediate emphasis on providing sustained and speedy relief to [to the quake] victims" (toi111005a). The Indian National Congress, being a national party, traditionally was concerned with national security when it came to the state of Jammu and Kashmir, whereas the PDP, being a Jammu and Kashmir based party, focused on popular demands of the local people, including corruption and human rights abuse. With the 2005 quake and the way it was responded to by the state government, the INC's focus on the issues of

⁹⁷ There was no anti-defection law in Jammu and Kashmir.

sustained (long-term) disaster management and anti-corruption measures were seen by the media as a major shift in the party's priorities in Jammu and Kashmir (toi1111005a).

The Indian National Congress's rupture with the PDP in the politics of Jammu and Kashmir continued beyond the time of the quake. Following the 2008 state legislative assembly election, the INC broke its coalition with the PDP, and formed a new ruling coalition with the National Conference (NC) with NC's Omar Abdullah as the chief minister.⁹⁸ In the 2008 election, NC won 28 seats, PDP won 21 and INC won 17 seats.⁹⁹ In spite of the PDP's offer of the INC of the chief minister position if the INC formed a coalition with them, the latter decided to go with the NC.¹⁰⁰

Discussion (Jammu and Kashmir)

In the theoretical framework the dissertation, I predicted that the quality of government response to a disaster would affect the legitimacy of the government. If a government responds poorly to a disaster, it is likely to face public protest causing political instability in the affected area in particular, and the country in general. While responding to a disaster, if the government becomes oppressive (a characteristic of an authoritarian regime), either as a response strategy or in reaction to the public protests, the government's relationship with the public may deteriorate. As a result,

⁹⁸ The previous state government of Ghulam Nabi Azad (November 2, 2005 – July 11, 2008) ended prematurely as the state of Jammu and Kashmir was taken under the president's direct rule following the Amarnath Land row ("Congress tight-lipped over alliance with NC in 2014 elections" *The Tribune* (Online Edition), December 9, 2012).

⁹⁹ The rest of the 87 seats in the state legislative assembly were divided between BJP 11, Panther's party 3, CMP 1, People's Democratic Front 1, Democratic Party Nationalist 1, and Independent 4 (Election Commission of India, http://search.eci.gov.in/ae_2008e/pollupd/ac/states/S09/a_index.htm).

¹⁰⁰ "Congress tight-lipped over alliance with NC in 2014 elections" *The Tribune* (Online Edition), 2012 (December 9).

the government may face a legitimacy crisis, which may question the survival of the government.

Considering the response of the state government of Jammu and Kashmir, as my analysis of news reports revealed in the previous sections, the case of the 2005 earthquake reveals that the quality of response of the state government in terms of preparedness, immediate and long-term response was not up to the people's expectation. People in general evaluated the performance of the state government negatively. In all phases of its response, the state government was perceived as slow, corrupt, fraudulent, and biased against the poorer and rural segments of the population. The people, especially in the villages, staged demonstrations, sit-ins, and road blockages in protest of the state's ineffective and inequitable responses. The political instability that ensued from the protest movements led to a change in state-level leadership, but no use of oppression. The grievances of the people were addressed at the political level, when the government's coalition partner, the Indian National Congress (INC), reacted to the state's unsatisfactory response by replacing its incumbent Sayeed with INC's Azad as the chief minister of Jammu and Kashmir. This was tantamount to replacing the People's Democratic Party (PDP)-led government with a new INC-led government.

However, the change in chief ministers of the state did not put an end to the syndromes of administrative breakdown and divided government. While forming his cabinet, Azad did not ignore PDP. In essence, he allowed the previous regime to continue. People were particularly unhappy about the new government because some of the ministers from Sayeed's cabinet, who were "tainted" by corruption charges especially in the disaster response programs, were reintroduced in the Azad government. They were Mangat Ram Sharma, Peerzada Mohammad Sayeed and Taj Mohi-ud-din. As I mentioned before, all three of them had been formally charged with corruption and nepotism. Court decisions about these charges were still pending as they re-

entered the cabinet of the Azad government (toi110405). The Azad government, thus, was expected to follow a path similar to that of its predecessor in implementing the rehabilitation, recovery, and reconstruction plans.

Indeed, the Azad regime prematurely ended in July 2008 as the state of Jammu and Kashmir was taken under the president's direct rule following the Amarnath Land row.¹⁰¹ Although the Amarnath shrine issue was not connected directly to the 2005 quake, it exposed the fragile character of the INC-PDP coalition, and this time the PDP withdrew its support from the coalition government. The nature of the Amarnath crisis prevented any possibility of elections in 2008. The state came under the direct rule of the Indian president, which lasted until January 5, 2009 when Omar Abdullah of NC, the opposition party to the Sayeed and Azad governments, came into power with a majority in the state legislative assembly.

In the previous sections, in my analysis of the news-reports, I observed that the affected people appreciated the central government's response to the quake, particularly by the Indian military. Especially in the areas of rescue efforts and relief distribution, the affected people in fact demanded that the military should be trusted with all the resources from the central government for disbursement.

¹⁰¹ On 26 May 2008, the government of India and state government of Jammu and Kashmir reached an agreement to transfer .40 square kilometers of forest land to the Shri Amarnathji Shrine Board (SASB) in the Kashmir valley for building facilities for Hindu pilgrims who would visit the Shrine for religious purposes. The people of Kashmir took issues with the decision and staged demonstrations against the land transfer. The people of Jammu, the Hindu majority region in the state, staged a counter-protest in support of the land acquisition agreement. In Kashmir the demonstration rally grew quickly making it the largest demonstration (500,000 protesters) at a single rally in the history of the valley (Jyoti Thottam. 2008 (Sept. 4). "Valley of Tears" *The Time Magazine*, <http://www.time.com/time/magazine/article/0,9171,1838586,00.html>). As the Kashmiri protests rapidly grew more violent, the PDP threatened to withdraw support from the Azad government if the INC-led central government did not revoke the land transfer agreement. The central government did revoke the agreement, but only after the PDP had withdrawn its support from the government.

Conclusion

In the current chapter I studied two cases from India: the tropical cyclone Aila of 2009 in the Indian state of West Bengal and the earthquake of 2005 in the Indian state of Jammu and Kashmir. In West Bengal, cyclone Aila was responded to by the elected government of chief Buddhadeb Bhattacharjee of the Left-Front (LF), an alliance of left ideological parties, which were in power between 1977 and 2011. The Bhattacharjee government was supported by the central government of India led by the United Progressive Alliance (UPA), an alliance of center-left political parties, with Manmohan Singh as the prime minister. In 2005, the UPA-led Singh government supported the state government of Jammu and Kashmir during its initial response to the Kashmir earthquake. In the middle of the response to the quake in 2005, however, Jammu and Kashmir had a change in its state government. Mufti Sayeed of the coalition People's Democratic Party (PDP) and the Indian National Congress (INC) party, was replaced in November 2005 by Ghulam Azad, who had the position of the chief minister until 2008. While Sayeed handled the immediate phase of the disaster, Azad dealt with the immediate-to-long-term response phases.

The West Bengal state government's performance in responding to cyclone Aila was mixed. In the areas of leadership, the authorities fared well. Bhattacharjee, along with other state ministers, visited the affected areas, informed the people about the post-cyclone situation and the progress of his initial response initiatives, and gave instructions to all relevant authorities to promptly respond to the crisis. Within a week, his government was able to produce assessment reports that provided the basis for the government to appeal to the central government and the international donors for relief and rehabilitation funding.

However, the state's responses in other areas were less than adequate. The state government appeared to have inadequate preparation to handle cyclone Aila. It

maintained a poor system of early warning, evacuation, and pre-disaster protection of the people. Following the disaster, the government failed to take decisive steps to expedite the rescue and relief operations. The relief and rehabilitation resources were distributed inequitably. Considering the issues of a long-term response, the state government's reconstruction plans seemed ad-hoc; they were not founded on its previous experiences of responding to similar disasters.

While the government was able to activate the civil administration, all three tiers of the panchayat system (district, block, and village panchayat councils), the military, and LF's party networks in its response process, the government failed to ensure coordination among these actors. Some of the government's response initiatives, especially in relief distributions and reconstruction of the embankments, were criticized for corruption.

The West Bengal state government's response was not adequate because of two factors: first, the rural areas of West Bengal, especially in the villages and islands in Sundarbans in the North and South 24-Parganas districts, did not have adequate communication infrastructure. The lack of a roads and railway systems that would integrate the rural areas to the shelters (cyclone shelter or earthquake resistant buildings) meant that the people could not evacuate from the disaster zones quickly. This also meant that the civil administration and non-governmental organizations could not reach the rural villages to distribute relief goods and medicines in the wake of a disaster.

Second, political competition, particularly among the LF parties and the AITC, fragmented the disaster response process. From within the LF, the leaders of the RSP, a major coalition partner in the LF-led state government, confronted Bhattacharjee and other CPM ministers of the state government for a larger share of relief and rehabilitation funds, which forced the LF chairman to call a general meet-

ing of LF that aimed at reducing the differences among the coalition partners in the disaster response process.

The West Bengal based All India Trinomool Congress (AITC) influenced the central government in two capacities. At the time of the disaster, the AITC was an important partner of the United Progressive Front (UPA)-led central government of India. In 2009, the AITC also led the major opposition coalition in the state legislative assembly. This dual capacity allowed the AITC to claim a say in the disaster response process. The AITC tried to influence the central government to bypass the state government in distributing the relief funds, and insisted that the resources be directed directly to the local government bodies.

The Bhattacharjee government wanted to keep the entire response process under the command of the state administration and the local panchayat bodies, especially the wards in the urban areas and the village panchayats in the rural areas. This decision of the LF-led state government meant allowing the LF's party functionaries that maintained a patron-client relationship in the local government to control the disaster funds from the central government. These party functionaries were corrupt, and systematically excluded supporters of their opponents, especially the AITC. Reportedly, in villages of these districts, where the AITC and the INC dominated the panchayats, the LF-led state government had less than adequate response following Aila.

The Left-Front government's overall popularity in West Bengal was already dwindling by 2009. Its inadequate response to Aila further diminished its support base, especially in rural West Bengal. In 2011 state legislative assembly election, LF lost to AITC with substantial margin.

In Jammu and Kashmir, the quality of response of the state government in terms of preparedness, immediate and long-term response was not up to the people's expectation. People in general evaluated the performance of the state government

negatively. In all phases of its response, the state government was perceived as slow, corrupt, fraudulent, and biased against the poorer and rural segments of the population. The people, especially in the villages, staged demonstrations, sit-ins, and road blockages in protest of the state's ineffective and inequitable responses.

One explanation of this dismal performance was the administrative breakdown of the state government. The administration's household level damage assessment, which provided the basis for relief and rehabilitation operations of the state government, were perceived by the affected people as slow, corrupt, fraudulent, and biased against the poorer and rural segments of the population. A few members of the Sayeed cabinet were allegedly involved in the corruption.

The political instability that ensued from protest movements, however, did not aggravate the situation further since the government did not employ oppression. The state government's coalition partner, the Indian National Congress (INC), reacted to the state's unsatisfactory response by replacing its incumbent Sayeed of People's Democratic Party (PDP) with INC's Azad as the chief minister of Jammu and Kashmir. This was tantamount to replacing the PDP-led government with a new INC-led government.

In contrast, the affected people appreciated the central government's response to the quake, particularly by the Indian military. Especially in the areas of rescue efforts and relief distribution, the affected people in fact demanded that the military should be trusted with all the resources from the central government for disbursement.

One may ask: when the state government struggled in these response areas, what explained the efficient response from the central government? The answer to the question lies in the fact that due to international security reasons the most affected areas of the state – the districts along the LoC line – were already inhabited by a large body of Indian military and security forces. When the earthquake hit,

they become the first responder by dint of their presence on the scene. The central government did not have to bring in soldiers from a distant location. Unlike disasters in other states, such as in West Bengal, the soldiers knew the geography and the communities of the region more thoroughly than even the civil administration of the state. This made the military rescue and relief operations faster and more effective.

In addition to the comparative advantage of response forces in Jammu and Kashmir, the Indian central government was proactive in responding to the crisis created by the quake. This was due to the states' vulnerability in terms of the ongoing separatist movements in the region, particularly by the Pakistan-based militants. It was a challenge for the central government to prevent the militant groups from using the disaster as an opportunity to increase infiltration and gain more popular support.

The base line conclusions of the case studies show that, first, the quality of government response to a given disaster matters for the government's post-disaster popular support. A stronger government response increases the public support of the incumbents, while a weaker government response diminishes the support. The cases show that poor government responses were followed by public criticism of the incumbent, anti-government protest movements, and anti-incumbent voting in elections. When this anger and frustration were translated at the broader political level, the moral claim of the incumbent to remain in power diminished substantially, sometimes causing a government (cabinet) change, as in the case of the Sayeed's PDP cabinet in Jammu and Kashmir, in other time causing a regime change, as in the case of the Left-Front (LF) government in the Indian state of West Bengal.

The second baseline conclusion is that the nature of the regime within which the government functioned in the post-disaster context mattered for the quality of government response to the disaster. But the cases do not necessarily support, as expected in my theoretical framework, the claim that the government response quality would be higher in democracies than in other types of regimes. Rather the find-

ing is that fragmentation and political competition undermine the efficiency of the government response.

The third baseline conclusion of the study is that the rural areas, that are generally located distant from the Capital city of the state, not only take the brunt of the disasters because of their proximity to the coastal and mountainous regions, they are also less likely to be responded to effectively by the government. The case studies reveal two major factors that explain this behavior of the government. First, the lack of adequate communication infrastructure – including roads and highways, radio and television, and cell phones – did not allow the administration to quickly reach the rural areas, including villages in the Sundarbans forest in West Bengal and the rugged mountainous regions of Kashmir in Jammu and Kashmir. This lack of communication infrastructure affects all dimensions of the government's response process, from preparedness to long-term response.

Second, bureaucracies in the rural areas were also more prone to political influence and corruption, which meant that the disaster reliefs and reconstruction funds were not equitably distributed. For example, following in the West Bengal case, people criticized the administration for embezzlement of the embankment reconstruction funds that the local administrative officials syphoned to their own political bosses by illegally employing contractors loyal to the incumbent party. Similarly in Jammu and Kashmir, the state administrative officials, particularly the house surveyors, manipulated the list of relief check recipients in exchange of large sums of bribes. Following these observations, the affected people, particularly in Jammu and Kashmir, demanded that the disaster management process be run under direct supervision of the military, which was perceived by the people as fair and prompt.

While, in the disaster management process, the public preferred the military to civil administration for fairness, the government preferred the military for its efficiency. The military were better equipped with their trained soldiers, helicopters

and specialized boats to run rescue, relief, and rehabilitation operations in the remote areas where the civil administration could barely reach. In the case of the Kashmir earthquake the Indian central government decided to rely on their military in all phases of the disaster response process. In this case, the governments' choice to use military extensively was driven not only by the governments' willingness to run the response operations more effectively, but most importantly by their security concerns in the affected regions.

CHAPTER 7 CONCLUSION

This dissertation is about major natural disasters, and how they contribute to legitimacy crisis of governments. Natural disaster events marked by such phenomena as cyclones, floods, draughts, earthquakes, tsunamis, extreme temperatures and volcanic eruptions are occurring more frequently than ever before. These disasters kill thousands and affect even more people, destroying millions of dollars of wealth, and creating shocks to economic growth, particularly in developing countries. While governments are not responsible for these events and may not have the know-how to prevent the damages and fatalities caused by the disasters, they often face the challenge of maintaining legitimacy in the post-disaster context.

The theoretical framework developed in Chapter 2 drew on a small but emerging literature on disaster politics and a diverse literature of crisis management, regime behavior, civil conflicts, and political support of governments and regimes. In the theoretical framework, I identified three major factors that explained legitimacy crisis of a government in a post-disaster context: the number and type of disasters that have occurred, the ‘quality of the government response’ to the disasters, and the type of regime within which the government operated.

Following the theoretical framework, I hypothesized, first, that ‘the lower the quality of government response to natural disasters the higher the risk of legitimacy crisis’. Second, ‘the overall government response quality will be higher in democracies than in autocracies, and higher in autocracies than in anocracies’. Third, ‘an increase in the number of disasters increases the risk of government legitimacy crisis by increasing the risks of anti-government domestic political activities’. Testing these hypotheses in a large-N statistical setup and in qualitative case studies produced results that are illuminating of the fascinating world of disaster politics.

In Chapter 3, I tested the third hypothesis in a large-N quantitative setup, tapping the availability of quantitative measures of the number of natural disasters, regime characteristics and a series of anti-government domestic political activities. The dataset used for this statistical analysis includes 3329 disaster events – earthquake, epidemic, extreme temperature, floods, storms, volcanic eruptions – that occurred in 157 countries over the time period between 1990 and 2010.

In Chapters 5 and 6, I examined two disaster events from Bangladesh and two from India. The two disasters from Bangladesh were the tropical cyclone Sidr of November 2007 and the tropical cyclone Aila of May 2009. Cyclone Aila simultaneously hit parts of Bangladesh and parts of the Indian state of West Bengal, and thus, was the first case from India. The second disaster from India was the Kashmir earthquake that hit the Indian state of Jammu and Kashmir in October 2005.

In the rest of current chapter, I, first, discuss the conclusions of the Large-N study, which then will be followed by discussions on the case studies. In the case study section, I introduce a quantitative content analysis of news reports that I used to study the cases qualitatively in chapters 5 and 6 as a way to provide further conclusions from the case studies. In the final section, I discuss some of the major contributions of this dissertation project.

The Large-N Study

The major conclusion of the large-N analysis of Chapter 3 is that, *ceteris paribus*, increases in the total number of disasters increases the risk of domestic crisis, particularly anti-government demonstrations, revolutions, riots, guerrilla warfare, and intrastate conflict. Higher counts of disasters, as a rule, adversely affect the overall legitimacy of governments.

The analysis included checks of the effects of different types of disasters on different measures of political crisis. The results reveal that more frequent earth-

quakes, landslides, volcanic eruptions, storms, and floods are significantly related to a greater likelihood of certain types of political crises. For instance, when a country is frequently hit by earthquakes, it is more likely to observe anti-government movements, both peaceful as well as violent. The country may also observe more incidents of forced change in the top government elites, sometimes eliminations of the elites by means of assassinations.

Similarly, a higher frequency of landslides renders a country vulnerable to higher risks of demonstrations and forced change in the top government elites.¹ Frequent landslides also contribute to the country's vulnerability to domestic armed conflicts, between the government and its opposition groups. The analysis also shows that frequent volcanic eruptions contribute to situations where armed rebellions target the overthrow of the regime, or at least, the top government elites.

Floods and storms contribute to revolution and intra-state conflict in turn. Higher frequency of floods increases the likelihood of domestic armed conflict between the government and its opposition groups. Similarly, frequent storms (including cyclones or hurricanes) are associated with higher potential for rebellions that attempt to change the top government elites.

The general relationship between frequency of disasters and legitimacy has implications for economic and political development of a country. Too many disasters hampers smooth political development of a country, particularly because the political energy of the leadership and economic resources of the government are invested more in disaster response than in the development of institutions that bring economic growth and political stability to the country. Repeated disasters, thus, reduce the overall quality of governance in a country.

¹Landslides indicates events of large scale rock fall, snow or debris avalanche, mudslides, or sudden or long lasting subsidence of land

Too many disasters also draws people's attention to how their government has performed in terms of disaster response. A government's failure to respond effectively to one or two disasters might be considered as bad luck, and might receive a tolerant public evaluation. When disasters recur as regular phenomena, people demand more systematic, focused and result-driven response; they demand more sustainable solutions to the recurring problem. For example, if an embankment system collapses every time it is hit by a storm, people would blame the government for not constructing a more sustainable embankment that is able to weather common storms of the affected area.

Higher frequency of disasters may, thus, stretch the capacity of the government. It weakens the financial capacity of the government by forcing the government to redistribute resources to disaster management at the cost of other socio-economic sectors such as infrastructure development. Repeated disasters, in the context of limited economic capacity of the government, may also diminish the political capacity of the government. When a government repeatedly fails to respond effectively, it cannot claim the unwavering loyalty of the people. The distance between the government (the governing elite, in general) and the people (society) increases. People are forced to seek protection and security from non-state actors. As a result, the legitimacy of the government is undermined. The dynamic that is created by lower quality governance, weak economic and political capacity of the government, and diminished support of the government – especially when the support is claimed by non-state actors – renders a country into a 'situation of fragility' (Bellina et al. 2009).

The large-N study of this dissertation highlights that the disaster-legitimacy relationship is conditional on regime types. It extends the argument that civil conflicts are more likely to take place in mixed-regimes than in consolidated autocracies and full democracies (Hegre et al. 2001, Bates 2008*b*, Bates 2008*a*). In general, consolidated

autocracies and well established democracies are less likely than mixed-regimes to observe political crises in the context of a higher frequency of natural disasters.

My analysis also emphasizes that none of these regimes are entirely free from the political dangers of disasters. In autocracies, a higher frequency of natural disasters increases the likelihood of peaceful anti-government demonstrations. In mixed-regimes, in addition to the risks of demonstrations, governments are also more likely than those in autocracies to encounter domestic violent conflicts between the government and its opposition groups.

In democracies, governments may face the risks of all types of political crises, except for riots and assassinations. In democracies, a higher frequency of disasters is associated with higher likelihood of demonstrations and rebellion aimed at overthrowing either the top elites (revolutions) or the regime (guerrilla warfare) or both. Higher frequency of disasters in democracies is also associated with higher likelihood of domestic conflicts where the governments are parties.

This conclusion about the contextual effects of regimes on the disaster-crisis relationship speaks to the broader literature on regime performance during (economic) crisis. My analysis agrees with the literature in that the logic of political change is different in different types of regimes (Pei & Adesnik 2000). However, within this literature, some argue that, in democracies, people can change an ineffective government during election time; they do not have to recourse to the more costly options of a popular uprising, violent coups, or revolutions that are more common in the process of political change in non-democracies. Contrary to this argument, my analysis in Chapter 3 shows (and the case studies of Chapter 5 and 6 corroborate) that, given an increasing number of disasters, democracies are vulnerable to a series of political crises, especially in the context of frequent natural disasters. Whether governments in these democracies – in the face of anti-government demonstrations

and civil conflicts – are more able to diffuse these political crises and maintain their legitimacy than those in autocracies and mixed regimes is a different question though.

In the next section, I review the major conclusions of the qualitative case studies. These conclusions will further develop our insight about the relevance of regime types in the context of natural disasters.

Case Studies

The case studies focus on two types of disasters – earthquake and storm – to test the first two hypotheses as mentioned in the beginning of this conclusion chapter. The purpose of these studies is to investigate how the quality of government response to a disaster mediates the relationship between the disaster and the legitimacy of the government in the post-disaster context. The selection of the cases is such that it allows me to unpack the disaster-legitimacy relationship in South Asia in the context of all three regime types (autocracy, mixed-regimes, and democracy), and the differential effects of government responses to the same disaster event that occurred simultaneously in two countries.

In Chapter 5, I focused on two major disasters in Bangladesh, the tropical cyclones Sidr and Aila. Sidr, which hit Bangladesh on November 15, 2007, was responded to by the military-backed civilian government of Fakhruddin Ahmed. This government came to power through a military coup of January 11, 2007 and ruled the country until the end of 2008 under a state of emergency that halted all constitutional rights of the citizen. The government of Sheikh Hasina replaced the Fakhruddin regime in January 2009 through a free election held in December 2008. Hasina's party, the Awami League, led a coalition of center-left parties that won more than two-thirds of the seats in the national parliament. Within six months of taking power, the Hasina government responded to Aila that hit Bangladesh on May 25, 2009.

On the same day, cyclone Aila also hit parts of the Indian state of West Bengal. In West Bengal, the disaster was responded to by the elected government of Chief Minister Buddhadeb Bhattacharjee of the Left-Front (LF), an alliance of left ideological parties, which held power between 1977 and 2011. The Bhattacharjee government was supported by the central government of India led by the United Progressive Alliance (UPA), an alliance of center-left political parties, with Manmohan Singh as the prime minister.

The other Indian case that I studied in Chapter 6 was the Kashmir earthquake of 2005. In the middle of the response to the quake, Jammu and Kashmir had a change in its state government. Chief Minister Mufti Sayeed of the coalition between People's Democratic Party (PDP) and the Indian National Congress (INC) ran the government from October 2002 to November 1, 2005; he was replaced by Ghulam Azad, who was the chief minister until July 2008.

The case studies focused on analyzing how these various governments responded to the disasters in terms of preparedness, immediate and long term response. For the preparedness dimension, I studied the early warning, evacuation, and protective measures that were taken by the governments. For the immediate response dimension, I studied the response of the leadership in terms of their visits to the affected areas, their public addresses on the disaster, the directives they issued and the quality of the assessment of the damage they reported to the people. The immediate response analysis also considered how fairly the government provided assistance to the affected people in terms of rescue operations and relief distribution. In the long-term response phase, I studied the initiatives of the government that were targeted toward the recovery of the affected region, and the improvements in the disaster management process at the national level.

In the case studies, I also investigated the initial reactions of the people to the response they received from their government, and the broader political development

that ensued following the disaster. Before I discuss more thoroughly how and why the quality of response to disasters affects the legitimacy and survival of the government, I present below a quantitative analysis of the news report associated with these four disasters. This analysis provides important insights on and further background to the conclusions of the case studies.

Content Analysis of News Reports on Natural Disaster

The case studies were based on an analysis of news reports published on the disasters in the national English newspapers of Bangladesh (the *Daily Star*) and India (the *Times of India*) respectively. The reports below are based on a systematic analysis of the news reports that covered a specific time range – three days before and two months after a disaster event. When possible, I complemented these major news sources with transcripts of the BBCworld-news in vernacular languages – e.g. BBC-Bangla that targeted the citizens of Bangladesh and Indian state of West Bengal – as well as local and regional newspapers. While the primary goal was to parse the news reports in a structured fashion for qualitative contextual analysis, basic word counts of systematically drawn lists of words reveal the frequency of themes in the discourse that emerged from the news reports on government responses and their political reactions. Below, I briefly discuss the patterns of this thematic discourse before presenting the major conclusions of the case studies.

As mentioned above, I conceptualize the quality of government response along three dimensions – preparedness, immediate, and long-term response. Each of these dimensions contains a series of sub-dimensions, a total of 22, as listed in Table 4.3 in Chapter 4 (page 128). For each sub-dimension, I identified a set of words that were representative of the underlying concept of the sub-dimension. For example, the words ‘warning’, ‘signal’ and ‘advised’ capture the sub-dimensional concept ‘early warning’, as reported in the row one of Table 4.3. I used the content analysis software NVivo

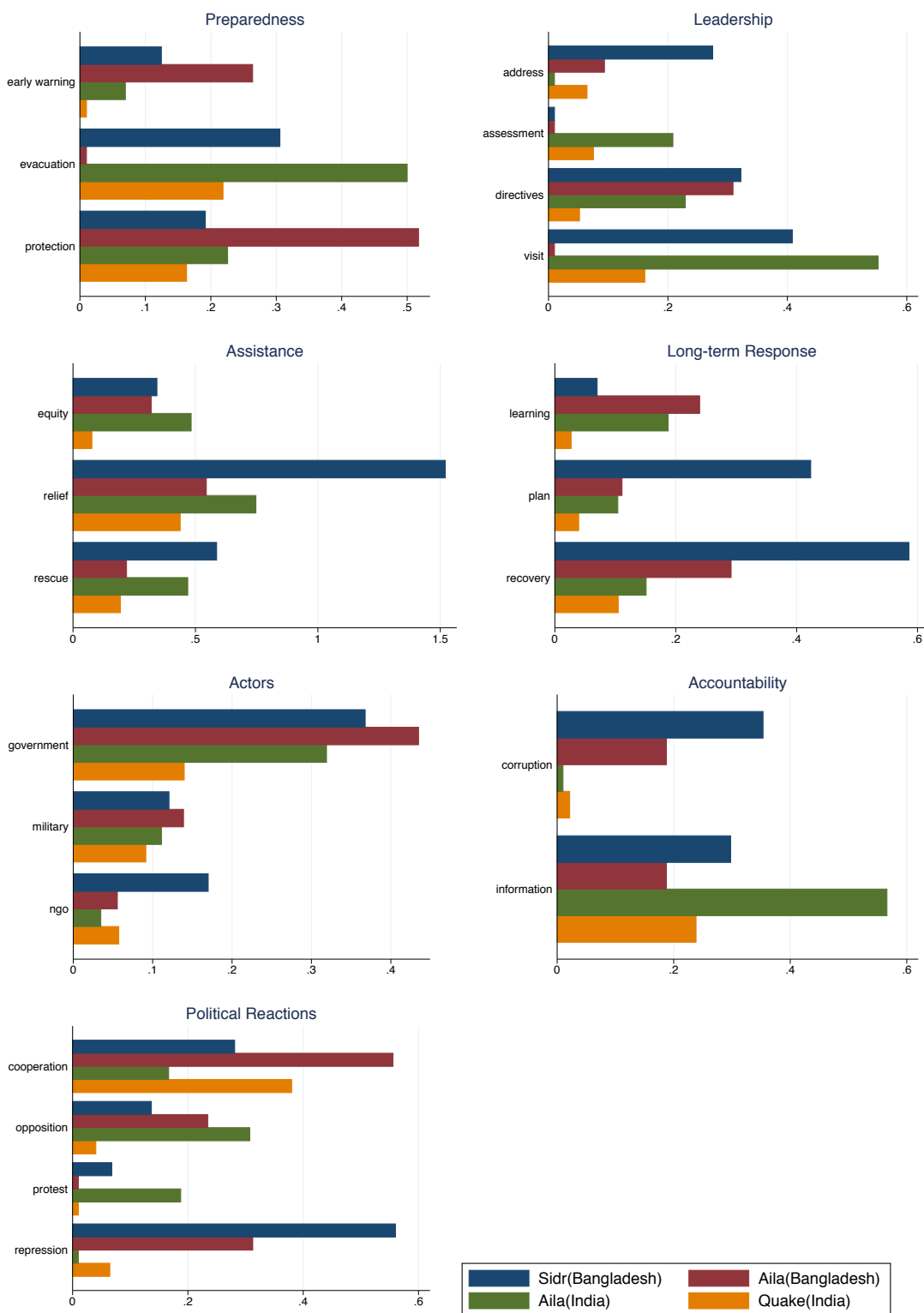
to count the number of times each of these words appeared in the news reports for a disaster, which I then aggregated at the level of the sub-dimension. For example, in the total 300 news reports on Sidr published in the *Daily Star* between November 12, 2007 (three days before the cyclone hit) and January 15, 2008 (2 months after the disaster), the word ‘warning’ appeared 57 times, ‘signal’ 55 times, and ‘advised’ 5 times. In other words, the idea of ‘early warning’ appeared a total of 117 times in the entire sample of news-report from the *Daily Star*.² In order to ensure comparability of the sub-dimensions, I weighed the frequencies to account for the size of the word-sets and the total number of news reports in the sample.³

I graphically present the weighted frequencies in Figure 7.1 where each panel represents a sub-dimension of ‘government response quality’. In the figure, each bar represents the frequency for a specific disaster event. In the ‘preparedness’ panel in Figure 7.1 the weighted frequencies of ‘evacuation’ for the Indian (West Bengal) case of Aila and ‘protection’ for the Bangladeshi case of Aila are the highest among the sub-dimensions of government preparedness to disasters. This indicates that the Indian media devoted more type print to evacuative measures, while the Bangladeshi media discussed more frequently the protective measures taken before the disaster.

²For the purpose of word counts, I used the sample of reports from the newspapers – the *Daily Star* for Bangladesh cases and the *Times of India* for the Indian cases. I excluded all other sources, such as the transcripts of the *BBCworld news* that I used for the qualitative studies of the cases.

³The weighing of the word frequencies are done using the following formula: $\lambda = \frac{\sum W}{\sum I \times \sum N}$, where λ is weighted frequency, W is raw word count, I is the number of indicator words used, and S is the number of news-articles used. For example, among the words in the ‘early warning’ word-set (item 1 in Table 4.3), three key words (warning, signal, advised) have greater than zero frequency. I use these three words to measure the ‘early warning’ sub-dimension of ‘preparedness’. These words are used in 117 occasions in the entire sample (N) of 300 new-reports on the cyclone Sidr in Bangladesh in 2005. The weighted frequency of early warning for Sidr is $\lambda_{EW} = \frac{117}{3 \times 300} \approx 0.13$, as presented in figure 7.1 .

Figure 7.1: Weighted frequency distribution sub-dimensions of government response quality and political reactions



This difference in emphasis may indicate two different processes of preparedness. The issues of evacuation are connected to early warning and effective means of evacuation such as roads and transportation services. Had the early warning about Aila been more timely and had effective transportation services been available, more people in West Bengal could have been evacuated from the coastal area to safer places in the inlands before the storm hit. Protective measures, on the other hand, are connected to maintenance and construction of embankments and cyclone shelters that save lives and livelihood of the affected people from the onslaught of the disaster. In Bangladesh, the media focused on the government's negligence in repairing the embankments that were broken by cyclone Sidr, about 18 months before Aila hit. Fully functioning embankments would have contained the impact of Aila in the coastal Bangladesh.

As shown in the leadership panel, visits of political elites to the Aila hit areas of West Bengal were highlighted more frequently (green bar) in the Indian media than any other leadership issues. In the assistance panel, the weighted frequency of 'relief' is the highest among the sub-dimensions of government assistance. Distribution of relief was the center of discourse in Bangladesh in the wake of cyclone Sidr. Similarly, in the long-term response panel of the figure, recovery in the context of Bangladesh government's response to Sidr was the most discussed long-term response issue in the media.

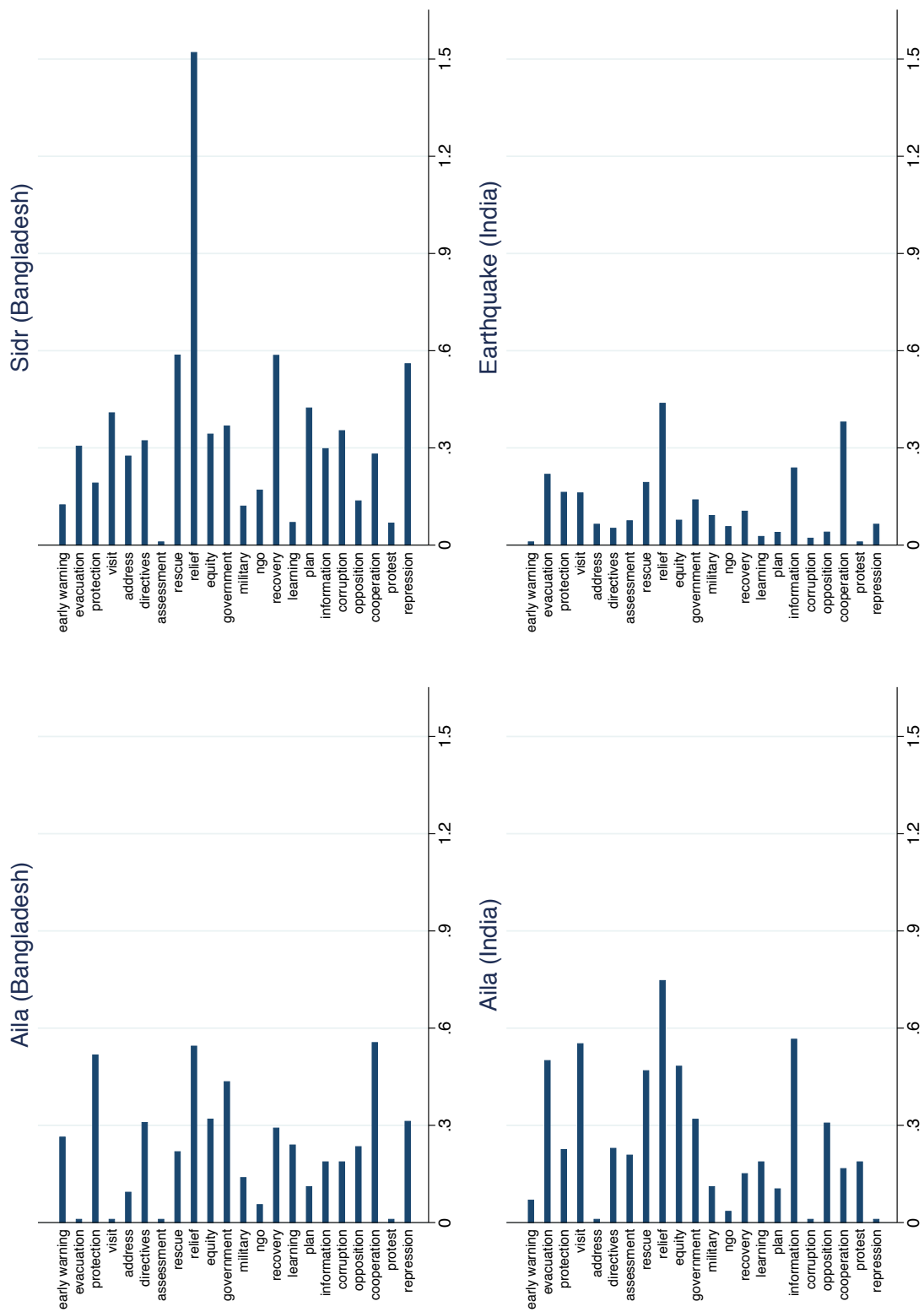
The actor panel in Figure 7.1 indicates that the 'government' (including political leaders and civil administrative officials) is discussed in both the Indian and the Bangladeshi media as the most important response actor. When it comes to the accountability of the responding actors, as shown in the 'accountability' panel in the figure, the theme of information dominated the accountability discourse in India in the wake of Aila.

The political reaction panel of Figure 7.1 highlights two sub-dimensions: cooperation in the context of Aila in Bangladesh, and repression in the context of Sidr in Bangladesh. The in-depth study of Aila in Chapter 5 revealed that the discourse of post-Aila political reaction in the *Daily Star* concentrated on how the military coordinated response efforts of various government and non-government actors. The case study of Sidr revealed that the newspaper discussed more about the repressive nature of the government that responded to the cyclone.

Figure 7.2 reorganizes the weighted frequency distributions by disasters. As shown in the Aila (Bangladesh) panel, besides relief, the two other issues that the *Daily Star* focused on were protection and cooperation. In the context of Aila, the issue of leadership was among the least mentioned in the media. In the context of Sidr (Bangladesh), the media more frequently discussed the issues of government assistance, particularly rescue operations and relief distribution. Other highlighted issues on Sidr were long-term recovery and plan, visit of the important personalities of the government, and repressive nature of the regime. For Sidr, among the least mentioned issues were government assessment of the impacts of the disaster and reflection of learning in the long-term planning.

In the Aila (India) panel of Figure 7.2, the sub-dimensions regarding government assistance (rescue, relief, equity) were more discussed in the *Times of India* than any other sub-dimensions. Other highlighted issues include pre-disaster evacuation, visits by important personalities, government as an actor, reflection of learning in the long-term plan, and information about government's activities. Opposition to government's initiatives, a measure of political reaction, was given higher attention in the newspaper.

Figure 7.2: Weighted frequency distribution sub-dimensions of government response quality and political reactions



In the Earthquake (India) panel, although media reports on Jammu and Kashmir are similar to those on West Bengal case of Aila in their relative emphasis on various sub-dimensions, the *Times of India* gave more attention on recovery than any other long-term measures. In the political reaction dimension, the newspaper also gave relatively more focus on the issues of cooperation among responding actors.

The media, thus, gave varying importance to the sub-dimensions of government response and political reactions for each of the four cases, as exemplified in the panels of Figure 7.2. Despite this variation in media's focus, a number of sub-dimensions emerged as commonly highlighted. Regardless of the regime and disaster types, the issues of relief distribution as an immediate response function, the government as a response actor, and information as a measure of accountability emerged as dominant themes in the news reports.

With the exception of Aila (Bangladesh), further similarities across cases can be found in the media's emphasis on evacuation as a preparedness measure and visit of elites as a leadership measure. Saving Aila (India), similarities across cases can be found in the media's emphasis on recovery as a long-term response and cooperation as a political reaction measure. Considering the two Bangladeshi cases, the *Daily Star* highlighted corruption of government officials and repression by government as important themes. As we have seen in Chapters 5 and 6, much of the narrative on disaster response indeed surrounded these common themes.

As the above analysis reveals, some dimensions of the response are highlighted more frequently in the media than other dimensions. This differential media-emphasis on the dimensions indicates two related issues: first, more information regarding the highlighted dimensions is available in the news reports than is information on the less discussed issues. Second, the media concentrates on those areas of response where the responding government either set an example of best practices – for example, early warning and evacuation initiatives of Bangladesh government in the case of Sidr – or

is criticized for failing to adequately respond. The more routine issues receive less attention. Case studies in Chapter 5 and 6 take these highlighted issues as the initial points of departure for in-depth qualitative assessment of government response to the four disaster cases.

There is one caveat. Sometimes, media tend to avoid some words or concepts that are controversial or politically consequential. In the above analysis, corruption is an example of such a concept. A striking feature of the Indian panels in Figure 7.2 is that the weighted frequencies of ‘corruption’ are close to zero, both for the cases of Aila in West Bengal and the earthquake in Jammu and Kashmir. Compared to its Bangladeshi counterpart, the Indian media does not use words such as ‘corruption’, ‘bribe’ or ‘graft’ that directly connote an act of corruption by the government actors (see item 18 in Table 4.3).

An absence of corruption-related words, however, does not indicate an absence of corruption in the response process. While the *Times of India*, avoided directly using these corruption words, they indeed provided contextual narratives that illustrated the acts of corruption by government actors or ruling party functionaries. As Chapter 6 showed, one of the major criticisms against the state governments of Jammu and Kashmir and West Bengal was in fact about corrupt practices of the civil administrations or the party functionaries in distributing relief, rehabilitation, and reconstruction funds.

An example of a nuanced description of the act of corruption is as follows: A news-report quoted a villager in the Aila affected area of West Bengal, “This village has only one [government] doctor. He never gives us medicine. We fear he sells them elsewhere.” (toi061409) In the news report, this quotation was part of the broader narrative of irregularities in the government-run relief distribution system. Clearly, the reporter here chose to avoid the more general but controversial words

such as ‘bribe’, ‘pilferage’, or ‘black marketing’ that would directly accuse the doctor of corruption.

My qualitative case studies follow the same dimensional structure as the above frequency analysis. As a result, even if some concepts are not directly referenced in the media, they are adequately captured from the broader context presented in the reports that accommodate nuanced understanding of the concept. The case studies provide the more nuanced interpretation that cannot be fully captured with a quantitative word count. In the following subsection, I discuss the major conclusions of the in-depth qualitative case studies presented in Chapters 5 and 6.

Major Conclusions of the Case Studies

In all four cases studied, poor government response was followed by public criticism of the incumbent, anti-government protest movements, and anti-incumbent voting in elections. When this public grievance is translated to the broader political level, the moral claim of the incumbent to remain in power diminishes substantially, sometimes causing a regime change, as in the case of the Left-Front (LF) government in the Indian state of West Bengal after cyclone Aila and the Fakhruddin government in Bangladesh after cyclone Sidr.

There are four baseline conclusions that can be drawn from the case studies. First, the quality of government response to a given disaster matters for the government’s post-disaster popular support. A stronger government response increases public support of the incumbents, while a weaker government response diminishes support. The relationship between a government’s response to disasters and its legitimacy is not direct, but it exists. A disaster reveals the weakness of the incumbent government, and the people may decide to reevaluate their loyalty to the government. A strong response from the government is appreciated, while a weak response triggers anger and frustration among the people.

Cyclone Aila further highlights that strong opposition political parties can mediate the government response-public support relationship. Strong opposition parties are able to use the frustration of the affected people to undermine popular support of the government at the national level (as in the case of Aila in West Bengal), and weak opposition parties fail to do so (as in the case of Aila in Bangladesh). Governments, in the absence of strong opposition parties, thus, can limit the adverse political effects of weak responses to disasters to the affected areas.

In the West Bengal case of Aila, the LF leadership's tardy, indecisive, and corruption-laden response allowed opposition parties, the All India Trinomool Congress (AITC) and the Indian National Congress (INC), to gain momentum in state politics. The AITC engaged in a leadership competition with the LF in the response process where the former amplified the popular anger and frustration against the later. As a result, within two years of Aila, the LF government that came to power in 1977 lost their popular support base, especially in the villages, and lost power to AITC for the first time in 34 years in a state legislative assembly election in 2011.

In contrast, following the same cyclone Aila, the Awami League (AL)-led government in Bangladesh was able to maintain its power even after a weak response to the disaster. Though the AL-led government began to lose support after the disaster – as manifested by public criticism of the incumbents, a series of anti-government protest movements, and the incumbent's loss in a number of local elections – the government was able to contain the effects of the disaster to local politics. The government's opposition alliance led by the Bangladesh Nationalist Party (BNP) could not seize the opportunity by translating the local anger and frustration into an anti-government mobilization. The BNP-led alliance, the only national level alternative political platform available to people at that time, failed to rebuild its reputation that they lost during their last term (2001-2006) in the government due to corruption and criminalization of politics.

The theme of containing popular anger and frustration within the limits of the disaster-affected region also appears in the case of the 2005 earthquake in the Indian state of Jammu and Kashmir. In this case, a strong Indian central government that was concerned about insurgency-related national security threat played a critical role in limiting the adverse effects of a weak response to the affected area. The response of Jammu and Kashmir's state government – run by the coalition of the People's Democratic Party (PDP) and the INC with Mufti Sayeed of PDP as the chief minister – was less than adequate. It was marked by political inattentiveness of and corruption charges against the PDP leaders. Relief distribution and rehabilitation processes were marked by discrimination against the rural areas of the Kashmir region, the majority population of which was Muslim. The public criticized the state administration, and staged demonstrations and roadblocks against tardy and discriminatory response operations.

The central leadership paid close attention to the disaster in fear that the crisis could be used by the insurgent groups to strengthen their hold in the region. Because the state has been one of the major foci of India's national security concerns, it was in the best interest of the Indian government to limit the crisis by effectively addressing public grievances generated by the poor performance of the state government. The Indian central government was observed to be proactive in responding to the earthquake.

The INC-led UPA leaders, particularly Sonia Gandhi, refused to extend the tenure of Sayeed of PDP as the chief minister, especially because of the poor performance of his government in responding to the quake. The UPA leaders replaced Sayeed with INC's Ghulam Azad as the chief minister of Jammu and Kashmir. Following the quake, PDP's popularity decreased substantially, but the Indian central government was appreciated for their prompt response to the post-quake situation.

Cyclone Sidr of Bangladesh reveals yet another mechanism in the relationship between disaster response and public support of the government: the management of the post-disaster economy. Compared to the responses of LF in West Bengal and AL in Bangladesh to cyclone Aila, the Fakhruddin government's response to Cyclone Sidr, that affected almost half of Bangladesh, was much better. It showed strong preparedness, leadership and planning. Due to the broader scope of the disaster, the effect of Sidr on the overall macro-economy was devastating. The government, which came to power with direct support of the military with the purpose mainly of reforming the political institutions, was caught in the business of economic management of the country. The cyclone disrupted agricultural production and caused a rapid rise in the price of food grains that quickly shook the foundation of the Bangladesh's domestic economic base. Because of its failure to manage this vulnerable economy in the post-Sidr context, the government despite having done well in multiple dimensions of the disaster response rapidly, lost its popular support.

This conclusion about the military-backed regime of Fakhruddin is in accord with Geddes's (1999*b*) observation: "The exogenous shocks that undermine authoritarian regimes are those that prevent passable economic performance, impede the distribution of benefits to supporters and allies, and destroy coercive capacity" (138). Sidr made it increasingly difficult for the Fakhruddin government to supply "passable" economic performance, which in turn, made it even more difficult for the regime to reach its declared goal of political reform. Ultimately the regime lost power in 2008, within about a year of the cyclone.

The second baseline conclusion is that the nature of the regime within which the government functions in the post-disaster context matters for the quality of government response to a disaster. The cases do not necessarily support the 'democracy is better' argument which argues that in democracies, focus is on institutional procedures, and performance failure is compensated by popular support and legitimacy

(Resler & Kanet 1993, Remmer 1996). Arguably, compared to authoritarianism, democracies should be able to weather crisis better as they are able to diffuse external shocks through the mechanisms of peaceful political change through periodic elections (Pei & Adesnik 2000). Some extend this argument to the politics of natural disasters: democratic governments ensure competent administration that protects people from disasters because leaders in democracies must maintain the confidence of people in order to stay in power (Smith & Flores 2010 (July 15)). With limited variation of regime types in my cases, it is hard to make definitive conclusions about whether governments in democracies systematically respond better, and are more insulated from performance failure than autocracies or mixed regimes. The case studies, however, provide important insights that hint a caution against the generalized ‘democracy is better’ argument.

The case of Jammu and Kashmir indicates that democracy may not provide the best political environment for effective disaster response. In all areas of response, from preparedness to long-term planning and recovery, the democratically elected state government performed less than adequately. The state’s response system was marked by an administrative breakdown and widespread corruption in the post-disaster response process. Furthermore, there was political uncertainty in the regime due to a change in the leadership of the government – based on an agreement reached by the coalition partners – within a month of the quake.

In the above case, it is not democracy *per se*, but the federal nature of the Indian government, and its concern with national security that became directly relevant. As I have mentioned before, the response deficit of the Jammu and Kashmir’s state government was quickly compensated for by the Indian central government. Concerned about the security vulnerability of the region, the central leadership virtually took over the state government in most areas of the response process. The central government had the advantage of using the large military contingent that it

had stationed permanently in Jammu and Kashmir along its borders with Pakistan. This government response outcome illustrates the crisis management principle: “the key government level [among federal, state, and local] is the one that has relevant response capacity (equipment and management) and that is close to the ground and in the midst of the emergency incident.” (Haddow & Bullock 2006, 78-79)

However, similar behavior on the part of the central government was not observed in the case of West Bengal. In this case, the state government bore the brunt of the disaster response process. The central government did send military troops to help rescue operations, provide financial assistance, and create a task-force to assess the magnitude of damage incurred by Aila in West Bengal. The central government, however, did not step in and take charge of the situation. Little concrete action on the part of the central government was observed in the Aila hit areas. Thus, the differential role of the central government is a key variable that explains why the immediate response to the earthquake in Jammu and Kashmir was better than that in West Bengal.

One may speculate a number of reasons why the central government acted passively in responding to Aila. Here I mention the two most politically relevant reasons. First, to use the insight from the Jammu and Kashmir case, the most affected areas of West Bengal – North and South 24-Parganas districts – were not characterized by immediate security threats of any nature, neither international nor domestic. Even the radical Maoist groups, the Naxalites, were not active in these districts. They were active in other parts of West Bengal.⁴ Second, in contrast to Jammu and Kashmir, the Indian National Congress (INC), the leading partner of the United Progressive Alliance (UPA)-led central government, was not a major party

⁴See “West Bengal: Districts Affected by Naxalite Activity” by South Asia Terrorism Portal and Institute for Conflict Management, http://www.satp.org/satporgtp/countries/india/images/westbengal_naxal.htm

in the West Bengal state government. Furthermore, in July 2008, less than a year before Aila hit the state, the LF withdrew its support from the UPA coalition over the Indian government's decision regarding the Indo-US nuclear deal. As a result, the central leadership did not have the motivation to actively assist the LF-led state government and engage in the disaster politics of West Bengal in the wake of Aila.

The West Bengal case also exemplifies that democracy may help in some aspects of the disaster response process, while may not help in others. On the one hand, the political response to the cyclone in West Bengal was strong along the dimension of leadership. Leaders, both from the incumbent LF parties and the opposition AITC and INC parties competed for public discourse on governance, popular support, and reputation building in the post-disaster context. This competition led to a free flow of information and an open scope for the public to criticize the government for its failures in disaster response.

On the other hand, the government response in West Bengal in the areas of preparedness and assistance were weak. The state government maintained a poor system of early warning, evacuation, and pre-disaster protection of the people. Relief goods were not distributed equitably, partly due to partisan biases and corruption. The government's performance in the long-term response areas were inadequate: its planning for the long-term rehabilitation of the affected people and the recovery of the affected areas were at best *ad hoc*, and they did not learn from previous failures.

A further complication in the West Bengal case comes from the fragmented nature of politics that is manifested at the local government level. The panchayats system is known as the foundation of democracy in West Bengal, they also have a proven history of playing positive roles in responding to disasters (Leiten & Datta 1995). However, in case of Aila, the panchayat bodies, especially at the block and village levels, were politically divided between supporters of the left-front (LF) parties and supporters of the opposition party, the All India Trinomool Congress (AITC).

The LF-led state government wanted to channel disaster response funds through the civil administration that had connections to the party functionaries who ran the panchayats through a patron-client relationship. This means that the panchayats that were supported by the AITC would be excluded from accessing disaster funds. This fragmentation of local-government substantially hampered the coordination of response activities.

This finding about fragmented local government has implications for the ‘democracy -is- better’ argument. In the context of clientelistic and fragmented local politics and competing claims over disaster funds, democracy may not provide the best environment for prompt and coordinated response to disasters. Comparing Hurricane Katrina of the United States (2005) with Tangshan earthquake of China (1976), Col (2007) observes that despite an undemocratic regime, the performance of the Quinglong Country of China was much better than the performance of the counties of New Orleans of the United States. Guided by a national disaster policy that ensured coordination between the national and the local governments, the Quinglong county prepared the citizens so well that no one died from an earthquake that damaged at least 180,000 buildings (Col 2007, 120). Thus, in the response process, a local government that effectively coordinates with the national response system is the key to a better quality response. Democracies may, or may not be able to develop such a local government that is administratively responsive in a crisis situation.

In 2009, Bangladesh was characterized as less than free and a semi-democracy – or an anocracy, to use Fearon & Laitin’s (2003) expression – in both Freedom House and Polity indices. Within this environment of semi-democracy, as expected in my theoretical framework, the Hasina government performed poorly in almost all areas of its response to cyclone Aila. Despite having the examples of previous governments’ successful preparedness strategies, the Hasina government failed in all aspects of preparedness and leadership, except issuing prompt directives to activate

major response actors. In terms of providing assistance, it showed at best a weak-to-mixed performance. In the areas of long-term planning it performed poorly, too. Overall, its response was less than accountable, fraught with public accusation of corruption and irregularities, especially in the areas of repairing and reconstructing embankments.

As opposed to the democracies, the authoritarian regime of Bangladesh in 2007 provided an environment for the Fakhruddin government to respond to cyclone Sidr effectively. Although operating within a state of emergency, following Sidr, the government effectively coordinated the military, civil administration, NGOs and international responders. In addition to radio and television channels, which in many remote parts of the country were not as much accessible to the people as they were in towns and cities, the government used a large battery of volunteers who used megaphones to provide cyclone warning in the remote villages. A rapid evacuation process followed suit. In the post-disaster context, the government also performed strongly in the areas of leadership by repeatedly visiting the affected areas to have better assessment of the situation, updating the nation about the post-disaster situation and the progress of the government's response initiatives.

However, the Fakhruddin government temporarily suspended activities of political parties, which negatively affected its ability to effectively run the relief distribution process. Had the government had the chance to use the grassroots level networks of the political parties for relief distribution and rehabilitation work, one may speculate, the government might have done better in the areas of assistance, too. The government's publicly announced intention to stay in power as an interim government – for the purpose of reforming the country's democratic institutions before allowing the next election to take place – also limited its capacity to explicitly plan and execute programs for the long-term recovery and rehabilitation of the affected people.

The third baseline conclusion of the study is that when disasters hit rural areas that are located distant from the capital city of the state, these areas are less likely to be adequately responded to by the government. Rural-urban inequality is a general characteristic of the countries in South Asia. In this part of the world, the rural areas are mostly agriculturally based, and more backward than the urban areas in terms of economic growth, literacy rate, and infrastructure development.⁵

In addition to the general condition of socio-economic backwardness of the rural areas, the case studies reveal two major factors that explain this behavior of governments. First, the lack of adequate communication infrastructure – including roads and highways, radio and television, and cell phones – does not allow the administration to quickly reach the rural areas, including villages in the Sundarbans forest, and islands in the large rivers and the Bay of Bengal. This lack of communication infrastructure affects all dimensions of the government's response process, from preparedness to long-term response.

The people in the rural areas did not have adequate access to major media outlets from where they could have reliable and rapid early warnings about an impending disaster. Radio in most cases was the only medium available to them. Although cell phones had emerged as a popular communication tool, cell phone signals were concentrated in the urban areas. Furthermore, the government had purposefully disabled the operation of cell phones because of national security reasons, in the case of Jammu and Kashmir to control the internal-communications of the insurgent groups. The lack of a roads and railway systems that would integrate the rural areas to the shelters (cyclone shelter or earthquake resistant buildings) meant that the people could not be evacuated from the disaster zones quickly, increasing the number of lives lost and affected by the disaster. This also meant that the civil administration

⁵Asian Development Bank. (August 2007). *Key Indicators for Asia and the Pacific*, Asian Development Bank: Manila, Philippines.

and non-governmental organizations could not reach the rural villages to distribute relief goods and medicines in the wake of a disaster.

Second, bureaucracies in the rural areas are also more prone to political influence and corruption, which means that disaster relief and reconstruction funds are not equitably distributed. All four case studies reveal that the civil administration was the major focus of public criticism due to corruption in the areas of relief distribution and reconstruction initiatives. For example, following Aila, both in Bangladesh and West Bengal, people criticized the administration for embezzlement of the embankment reconstruction funds. Allegedly, local administrative officials, in both cases, syphoned relief funds to their political bosses by illegally employing contractors loyal to the incumbent party. Similarly in Jammu and Kashmir, the state administrative officials, particularly the house surveyors, manipulated the list of relief check recipients in exchange of large bribes. Following these observations, the affected people, particularly in Bangladesh and Jammu and Kashmir, demanded that the disaster management process be run under direct supervision of the military, who were perceived by the people as more fair and prompt.

The above conclusions indicate a more structural reason why the relevant government actors could not adequately respond to some of the worst affected areas in South Asia. The major structural impediments to effective response to disasters in these rural areas are: socio-economic backwardness, lack of communication infrastructure, inadequate access to media outlets, and administrative corruption rooted in the patron-client nature of local politics. Given these structural impediments, one might take a cautious note before implicating a government for inadequate response to disasters. C. W. Mill's analysis of the structural cause of unemployment may highlight the point at a general level. He noted that unemployment of a single person may be a personal problem, but when there is a nation of unemployed people, then

the “very structure of opportunities has collapsed” (Mills 1959)⁶ Blaming a government for failing to protect these people from the miseries of a disaster might divert our attention from the real cause of the devastation created by the disaster. If the impediments to effective response to the rural areas are structural in nature, a long-term sustainable development of the areas might be a better approach to disaster mitigation than short-term rehabilitation and recovery programs.

A large-scale disaster, such as the ones studied above, offers a government the opportunity to initiate long-term programs targeting a sustainable development of the affected areas. The disaster, in this sense, is a ‘punctuation’ in an extended period of ‘stability’, in this case the inertia of the ruling elites in bringing about reform programs that would change the structural backwardness mentioned above. A large-scale disaster represents a ‘critical juncture’ that reveals weaknesses of the institutional capacity of a government (or a regime) in dealing with disasters, in general. The above case studies reveal that the Bangladesh governments as well as the Indian governments seem to have missed the critical opportunities offered by the Kashmir earthquake, Sidr, and Aila. Rather, the approaches these governments took in responding to the disasters, as discussed above, strengthened the status-quo – the patron-client relationship, which is maintained by local politicians in collusion with the civil administration. Corruption of relief, rehabilitation, and reconstruction funds thus dominated the discourse on disaster response, in all four cases.

The fourth major conclusion is that, in the disaster management process, the public and the government may prefer the military to the civil administration for a variety of reasons. While the public prefers the military for fairness, the government preferred the military for its efficiency. The military are better equipped with their trained soldiers, helicopters and specialized boats to run rescue, relief, and rehabilita-

⁶Cited in Passarini (2001, 52).

tion operations in the remote areas where the civil administration can barely reach. In the case of the Kashmir earthquake and the cyclone Sidr, both the Indian and the Bangladesh government respectively decided to rely on their military in all phases of the disaster response process. In these cases, the governments' choice to use military extensively was driven not only by the governments' willingness to run the response operations more effectively. Also the ready availability of manpower, the troops were already there.

In Jammu and Kashmir the Indian military simultaneously worked to protect the Indian Line of Control (LoC) from the Pakistan-based insurgent's infiltration into the Indian part of Kashmir and to run the rescue and relief operations in the villages close to the LoC. Similarly, the Fakhruddin government in Bangladesh heavily utilized the military as the coordinating authority of the rescue and relief services that were provided by the government as well as non-governmental actors. For Fakhruddin, the primary reason was to keep under control the networks of the political parties who would take the disaster as an opportunity to mobilize public sentiments against the military-backed government. However, reliance on the military may not be an option for all governments, as in the case of cyclone Aila in Bangladesh where, the Hasina government that was just elected after the withdrawal of the military from the government in 2008 (the Fakhruddin government), feared to bring the military back into the civilian domain.

These, then are the major conclusions of the case studies. I began this dissertation in an attempt to explain how major natural disasters affect political support of the responding government. These conclusions have implications for public policies. In the next section, I highlight some of the major policy implications of this dissertation.

Policy Implications

When a country consistently fails to achieve goals in one or more areas of the socio-economic welfare of the people, the government is criticized. Sometimes, popular uprisings and violent conflicts follow. International societies tend to conclude that these governments lack capacity to maintain basic governance (Bellina et al. 2009). The overall situation of these states are often characterized as ‘state fragility’ or ‘state failure’ (Goldstone et al. 2000, Bates 2008*a*, Bates 2008*b*). The international policy literature on state fragility has paid little attention to the possibility that governments in some of these states seldom get a chance to actually govern. Instead, these governments spend most of their time managing crises, not all of which can be attributed to their actions. One such crisis includes frequent natural disasters. Considering disasters as exogenous shocks, a higher frequency of such shocks puts structural constraints on a country’s ability to maintain steady economic and political development. Governments that spend a large share of their time in responding to disasters and managing the post-disaster political and economic turmoil are limited in their capacity to effectively steer their countries towards economic prosperity and participatory governance.

Despite being repeatedly faced with the challenges of responding to disasters and related politico-economic crises, policymakers in these countries have considered disasters as discrete phenomena. Since early 2000s, many countries passed legislation (Natural Disaster Management Acts) that boast ‘paradigm shift’ in disaster response – shift from relief-focused response to comprehensive disaster management. These more comprehensive approaches, however, can still be characterized as a ‘one-disaster-at-a-time’ approach.

I argue that the problem needs to be solved by bringing in reforms at the more structural or institutional level. Considering the context of frequent disasters,

policymakers of these countries must approach disaster management as part of the country's general framework of governance and development processes. For example, due to frequent disasters, some communities routinely migrate back and forth between their disaster-prone homes and urban, more disaster-protected areas. With the increase in population, the number of these communities are increasing at a geometric rate. Traditional institutions of governance would do poorly in governing these communities.

With an increased number of disasters, governments must also equip themselves, both politically, and technologically, for responding to these disasters. The quality of a government's response to a disaster, as I have shown in this dissertation, determines the level of their popular support and political survival in the post-disaster context. One of the major contributions of this dissertation includes identifying government response quality as the pivotal variable in mediating the disaster-legitimacy relationship, and then developing a systematic approach to measure government response quality. Note that the case studies were based on qualitative categories generated by the theoretical framework. These categories can be quantified. If a large number of cases were coded, one could use this scheme to discover a more general pattern of the response quality.

The idea of government response quality has major policy implications. My case studies show that governments do not perform equally in all dimensions of government response. A general policy question is 'what should be done to improve the quality of government response?' In order to answer the question, one must identify the dimensions where governments are more likely to do poorly. My case studies reveal that the following are some of the areas where the Bangladeshi and the Indian governments seemed to have faltered: preparedness (early warning, evacuation, and protection), equitable distribution of relief, leadership, and accountable and sustainable reconstruction processes. Governments, especially in Bangladesh and India, that

are interested in improving their disaster response quality may focus more on these aspects of response.

All of the response dimensions require resource-intensive activities. Availability of resources, especially in these areas, will largely determine the quality of government response to a disaster. In most developing countries, given a disaster, a substantial amount of resources comes in the form of international disaster aid. International donors, however, tend to focus more on the relief aspect of response than preparedness or long-term reconstruction efforts. See Table 5.1 for examples of such tendency. While it is extremely important to provide immediate support to the disaster affected people, investing particularly in the preparedness and the long-term reconstruction efforts are more important for sustainable solutions to the problems created by disasters.

APPENDIX A
CODEBOOK: QUALITY OF GOVERNMENT'S RESPONSE TO
DISASTERS

Preparedness

Early warning

1. *Did the government issue any early warning?*

Search: ["government" and its synonyms] + ["issue", "provide", "announce"]
+ ["warning", "signal"]

0 = Do Not Know: if there is explicit reference to early warning, but there is no way to say whether an early warning was issued for the disaster concerned or not.

1 = Yes: if there is explicit reference to an early warning issued by a formal authority of the government.

3 = No: if there is explicit reference to an absence of early warning issued by a formal authority of the government. If the document does not discuss the issue of early warning, or there is not explicit reference to early warning, do not code the document as 'No'.

2. *Was the early warning well emphasized and timely?*

Search: ["timely", "not timely", "early"] + ["warning", "signal"]

0 = Do Not Know: if there is explicit reference to early warning, but there is no way to say whether an early warning was timely issued and highlighted for the disaster concerned or not.

1 = Yes: if there is explicit reference to timeliness of the issued early warning; if there was reference to how important role did the early warning system played in saving lives and property.

2 = Could be Better: if the document mentions that the early warning system was broke initially (as in the case of 2009 Cyclone Aila in West Bengal, India), however, it was fixed later, or if the government bureau responsible for early warning was not effective enough to provide the caution message early enough.

3 = No: if the document claims that there was no early warning issued prior to the event; If the report mentions that the people as well as the government were caught in surprise when the disaster made its landfall.

3. *Did the early warning reach all potential victims?*

Search: [“reach”, “area”, “encompass”, “comprehensive”] + [“warning”, “signal”]

0 = Do Not Know: if there is explicit reference to early warning, but there is no way to say whether it reached all potential victims or not.

1 = Yes: if there is reference to all comprehensiveness of early warning.

2 = Could be Better: if most people of the affected area received early warning while some did not.

3 = No: if most people of the affected area did not receive early warning while some did.

Evacuation

4. *Did the government help potential victims identify safe places or zones before evacuating the affected location?*
5. *Did the government inform the potential victims about how to get to the safe places when needed?*
6. *Did the government assist the potential victims to evacuate the affected location?*

Search for above three questions: [“initiate”, “begin/began”, “start”] + [“evacuate”] + [“shelter”, “building”, “zone”, “routes”] + [“adequate”, “enough”]

0 = Do Not Know: if there is explicit reference to pre-disaster evacuation, but there is no way to correctly answer the above questions.

1 = Yes: if there is a positive comment about the evacuation task – informing victims about safe place, finding evacuation routes for them, and assisting them to evacuate.

2 = Could be Better: if the evacuation tasks were taken by the government, but many felt that they were not enough or adequate.

3 = No: if there is negative comment about the evacuation task – informing victims about safe place, finding evacuation routes for them, and assisting them to evacuate; if there is reference to broken evacuation system.

Protective Measures

7. *Were governments’ protective measures (e.g. build or repair levee, embankments) adequate?*

Search: [“government” and its synonyms] + [“built”, “construct”, “repair”, “fix”] + [“shelter”, “center”, “embankment”, “levee”]

0 = Do Not Know: if there is explicit reference to pre-disaster protective measures such as building new shelter or embankments or repairing breaches in the existing ones, but there is no way to say whether such measures were adequate or not.

1 = Yes: if there is positive comments about government's pre-disaster protective measures.

2 = Could be Better: if government's initiative to protect people is reported, but they were found to be short of what was needed.

3 = No: if there is explicit reference of no such initiative taken by the government.

Immediate Response

Leadership

1. *Did the government leader visit affected areas?*

Search: ["government" and its synonyms] + ["visit", "tour", "trip"]

0 = Do Not Know: when there is a discussion in the text about government leader's (presidents or prime ministers) visit to the affected areas, but there is not way to say whether s/he actually visited any part of the affected area.

1 = Yes: if the head of the government (i.e. president or prime minister) or the head of the state (i.e. king or president) has physically visited the affected areas.

3 = No: if the head of the government (i.e. president or prime minister) or the head of the state (i.e. king or president) has not physically visited the affected areas.

In the following boxes note the date (mm/dd/yyyy) of the leader's visit, and the visit number (1, 2, ... n). Add more space if needed.

Assistance

6. *Did the government formally declare a fund for immediate distribution for relief and rehab?*

Search: [“government” and its synonyms]+ [“assess”, “comprehend”, “realize”]
+ [“magnitude”, “extent”, “scale of damage”]

0 = Do Not Know: if there is a discussion about fund distribution, but it is hard to say whether the fund came from the government or business or international aid sources.

1 = Yes: if the report mentions any fund declared specifically by the government.

3 = No: if the report mentions that the government did not declare any fund yet.

7. *Did the government send relief and assistance for rehabilitation?*

Search: [“government” and its synonyms]+ [“send”] + [“funds”, “loan”, “relief”, “assistance”, and actual amount of money in local currency]

0 = Do Not Know: if there is discussion about relief, assistance, or rehabilitation, but it is hard to say whether the relief, assistance, or rehabilitation initiatives came from the government or business or international aid sources.

1 = Yes: if it is clear from the report that the relief, assistance, or rehabilitations came directly from government.

3 = No: if it is clear from the report that the relief, assistance, or rehabilitations came directly from government.

8. *Was the government distribution of relief and rehabilitation support perceived equitable?*

Search:["government" and its synonyms]+ ["help", "distribution", "relief", "assistance", "distribution"] + ["fair", "just", "equal", "equitable", "proportionate"]

0 = Do Not Know: if there is a general discussion about distribution of relief and rehabilitation support of the government, but it is hard to say whether the distribution was perceived equitable.

1 = Yes: if there is positive comments about the distribution of relief and rehabilitation supports; if all affected parts of the country receive equitable share of the governmental reliefs and rehabilitation funds or services.

2 = Could be better: if some of the affected people did not receive as much support as did others, but this maldistribution is due to government's lack of capacity to reach everyone or lack of coordination, but not because of the government's political bias towards some groups and against other.

3 = No: if there is negative comments about the distribution of relief and rehabilitation supports, particularly focussing on the government's political bias towards some groups and against other.

9. *Was the governmental distribution of relief and rehabilitation support perceived adequate?*

Search:["government" and its synonyms]+ ["help", "distribution", "relief", "assistance", "distribution"] + ["adequate", "enough"]

0 = Do Not Know: if there is a general discussion about distribution of relief and rehabilitation support of the government, but it is hard to say whether the distribution was perceived adequate.

1 = Yes: if there is positive comments about the distribution of relief and rehabilitation supports; if the government had enough to cover all affected people.

2 = Could be better: if the affected people were more or less happy with what they received from the government, but still they thought that they deserved more from the government.

3 = No: if there is negative comments about the distribution of relief and rehabilitation supports; if the government clearly did not have enough to cover all affected people.

Accountability: Role

10. *Did the government act as an independent actor (i.e. army, policy, paramilitary, bureaucracy) ?*

Search: [“government” and its synonyms] + [“NGO”, “aid donors”, “international donors”, “foreign assistance”, “volunteers”] + [“respond” and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes:if it is clear in the text that the governmental response teams operated alone, they did not just coordinate or facilitate other sources of response

3 = No: if it is clear in the text that the governmental response teams did not operated alone,they primarily relied upon other’s response initiatives and activities.

11. *Did the government act as a facilitator (i.e. when non-governmental actor intends to involve)?*

Search: [“government” and its synonyms] + [“NGO”, “aid donors”, “international donors”, “foreign assistance”, “volunteers”] + [“respond” and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes: if it is clear in the text that the governmental response teams worked primarily as facilitator of others’ activities.

3 = No: if it is clear in the text that the governmental response teams did not facilitate others, either they primarily acted alone and/or obstructed others from involving in the response activities.

12. *Did the government act as a coordinator (i.e. when non-governmental actor intends to involve)?*

Search: [“government” and its synonyms] + [“NGO”, “aid donors”, “international donors”, “foreign assistance”, “volunteers”] + [“respond” and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes: if it is clear in the text that the governmental response teams worked primarily as coordinatos of both governmental as well as non-governmental and international response efforts.

3 = No: if it is clear in the text that the governmental response teams did not operate as coordinating bodies.

Accountability: Blame

13. *Did the government accept the blame of any response failure?*

Search: [“government” and its synonyms] + [“blame”, “accuse”, “indict”, “hod responsible”]

0 = Do Not Know: if there is discussion about blaming the government for its response failure, but it is not clear whether the government accepted the blame.

1 = Yes: if the government did accept the blame.

2 = Avoid: if the government avoided the blame by somehow changing the discourse of government failure

3 = No: if the government clearly denied any failure.

Accountability: Information

14. *Did the government publicly share information about its resources to be distributed?*

Search: [“government” and its synonyms] + [“inform”, “report”, “share”, “declare”, “announce”] + [“resources”, mention of how much it is going to spend in the USD or local currency]

0 = Do Not Know: if there is discussion about how much the government is planning to spend for the purposes of its response and from where the resources are coming, but there is not mention of the exact amount of the resources being acquired or spent by the government.

1 = Yes: if the government spelled out how much (in terms of USD or in local currency or in kinds) it has acquired or is spending.

2 = Could do better: if the government’s information is not clear enough to estimate really how much it has acquired or is spending

3 = No: if the government is found to have purposefully avoiding to share information about the sources of its resources and/or how it is actually spending.

Accountability: Corruption

15. *Was the government accused of corruption (or procedural irregularity) of relief and rehabilitation funds?*

Search: [“government” and its synonyms] + [“corruption”, “embezzlement”, “theft”, “steal”, “loot”, “dacoits”, “rob”]

0 = Do Not Know: if there is discussion about misuse, mismanagement, or embezzlement of response funds or resources, but it is hard to say whether the government is involved in the acts of mismanagement or embezzlement.

3 = Yes: if the government is clearly accused of being involved in corruption or embezzlement of disaster related funds or resources.

2 = Could do better: if the government is suspected of being involved in corruption or embezzlement of response funds or resources.

1 = No: if the government is clearly accused of being involved in corruption or embezzlement of disaster related funds or resources.

Long-Term Response

Planning

1. *Did the government declare any long term plan for rehabilitation and reconstruction?*

Search:["government" and its synonyms]+ ["reconstruction", "rehabilitation"]

0 = Do Not Know: if there is a general discussion about reconstruction or rehabilitation projects, but it is hard to say whether the government has initiated any such project.

1 = Yes: if the government has declared any reconstruction or rehabilitation project to be administered in the future.

3 = No: if the government has not declared any reconstruction or rehabilitation project to be administered in the future

2. *Was the government initiative of long-term reconstruction and rehabilitation plan adequate?*

Search:["government" and its synonyms] + ["reconstruction", "rehabilitation"] + ["adequate", "enough"]

0 = Do Not Know: if there is a general discussion about long-term reconstruction and rehabilitation plan of the government, but it is hard to say whether such plan has been perceived adequate.

1 = Yes: if there is positive comments about the plan; if the government had enough to cover all affected people.

3 = No: if there is negative comments about the plan; if the plan is clearly short of what is needed.

3. *Did the plan include any oversight or monitoring body?*

Search: [“long-term”, “future”, “plan”] + [“oversight”, “monitoring”, “evaluation”]

0 = Do Not Know: if there is a general discussion about an oversight or monitoring body, but from the discussion it hard to decide whether the government in deed install such a body in its long-term response activities or in the plan.

1 = Yes: If there is a mention of an existing monitoring, evaluation, or oversight body inbuilt in the plan.

3 = No: If there is a mention of a lack of a monitoring, evaluation, or oversight body inbuilt in the plan.

Fund Availability

4. *Could the government manage adequate funding to implement long-run project?*

Search: [“long-term”, “future”, “plan”] + [“fund”, “money”, “resource”]

0 = Do Not Know: if there is a general discussion about funding or resources needed to implement the plan, but it is hard to decide from the text whether government has managed to acquire such funding for the projects mentioned in the plan.

1 = Yes: if the government has acquired funding or resources that is perceived to be adequate.

3 = No: if the government has not acquired any funding or has acquired funding that is perceived as inadequate.

Learning

5. *Does the long term plan reflect any learning from previous events?*

Search: [“learn”, “adopt”] + [“past”, “future”]

0 = Do Not Know: if there is discussion about lessons learnt from the past experiences of disaster mitigation or response, but it is hard from the text to decide whether the plan has adopted knowledge gathered from the previous disaster responses.

1 = Yes: if the strategies adopted in the plan is based on the lessons learnt from responding previous disasters.

3 = No: if the plan does not show any learning: it has decidedly rejected projects or strategies taken in the past, or it does not mention of past experiences at all.

Accountability: Role

6. *In the long-term response activities or in the long-term plan, did the government act as an independent actor (i.e. army, policy, paramilitary, bureaucracy) ?*

Search: [“government” and its synonyms] + [“NGO”, “aid donors”, “international donors”, “foreign assistance”, “volunteers”] + [“respond” and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes:if it is clear in the text that the governmental response teams operated alone, they did not just coordinate or facilitate other sources of response

3 = No: if it is clear in the text that the governmental response teams did not operated alone,they primarily relied upon other’s response initiatives and activities.

7. *In the long-term response activities or in the long-term plan ,did the government act as a facilitator (i.e. when non-governmental actor intends to involve)?*

Search: [“government” and its synonyms] + [“NGO”, “aid donors”, “international donors”, “foreign assistance”, “volunteers”] + [“respond” and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes: if it is clear in the text that the governmental response teams worked primarily as facilitator of others' activities.

3 = No: if it is clear in the text that the governmental response teams did not facilitate others, either they primarily acted alone and/or obstructed others from involving in the response activities.

8. *In the long-term response activities or in the long-term plan, did the government act as a coordinator (i.e. when non-governmental actor intends to involve)?*

Search: ["government" and its synonyms] + ["NGO", "aid donors", "international donors", "foreign assistance", "volunteers"] + ["respond" and its synonyms]

0 = Do Not Know: if there is discussions about government response, but it is not clear whether the government was responding alone or it was coordinating or facilitating response activities of both the governmental as well as non-governmental and international actors.

1 = Yes: if it is clear in the text that the governmental response teams worked primarily as coordinatos of both governmental as well as non-governmental and international response efforts.

3 = No: if it is clear in the text that the governmental response teams did not operate as coordinating bodies.

Accountability: Information

9. *Did the government publicly share information about its resources to be used as part of the long-term response process?*

Search: [“government” and its synonyms] + [“inform”, “report”, “share”, “declare”, “announce”] + [“resources”, mention of how much it is going to spend in the USD or local currency]

0 = Do Not Know: if there is discussion about how much the government is planning to spend for the purposes of its response and from where the resources are coming, but there is not mention of the exact amount of the resources being acquired or spent by the government.

1 = Yes: if the government spelled out how much (in terms of USD or in local currency or in kinds) it has acquired or is spending.

2 = Could do better: if the government’s information is not clear enough to estimate really how much it has acquired or is spending

3 = No: if the government is found to have purposefully avoiding to share information about the sources of its resources and/or how it is actually spending.

Accountability: Corruption

10. *Was the government accused of corruption (or procedural irregularity) as it implemented the long-term response programs?*

Search: [“government” and its synonyms] + [“corruption”, “embezzlement”, “theft”, “steal”, “loot”, “dacoits”, “rob”]

0 = Do Not Know: if there is discussion about misuse, mismanagement, or embezzlement of response funds or resources, but it is hard to say whether the government is involved in the acts of mismanagement or embezzlement.

3 = Yes: if the government is clearly accused of being involved in corruption or embezzlement of disaster related funds or resources.

2 = Could do better: if the government is suspected of being involved in corruption or embezzlement of response funds or resources.

1 = No: if the government is clearly accused of being involved in corruption or embezzlement of disaster related funds or resources.

Political Crisis

1. *Did the government face criticism and challenge from the opposition group or party?*

Search: [“opposition” or mention of the leader or party running the opposition political party] + [“challenge”, “criticize”, “oppose”, “obstruct”, “agitate”, “mobilize”] + [“government” and its synonyms]

0 = Do Not Know: if there is discussion about an opposition group’s or political party’s activities, but there is no clear indication of whether the opposition group or party has challenged the government in responding to the disaster.

Yes: if the report identifies a political opposition who has mobilized (even if allegedly) people and resource to challenge the authority of the government highlighting unsatisfactory disaster response from the government. Use the following scale, from 1 to 3, to identify how strong was the criticism.

1 = Yes, but Weak

2 = Yes, Somewhat Strong

3 = Yes, Very Strong.

4 = No: if the report identifies a political opposition who, however, have not criticized the government for its response activities or threatened mobilize people and resources to challenge the government .

2. *Did people protest against government due to its lack of or unsatisfactory response?*

Search: [“protest”, “demonstration”, “march”, “rally”, “organized complaint”, “agitate”, “revolt”, “riot”]

0 = Do Not Know: if there is a discussion about (perhaps potential) protest or demonstration in the wake of the disaster, but there is no clear indication of whether there was an actual protest or demonstration and whether the such demonstrations or protests were against the government.

1 = Yes: if there is clear indications of protest movements or demonstrations against the government due to its lack of or unsatisfactory response. Use the following scale, from 1 to 3, to identify how strong was the protest.

1 = Yes, but Weak

2 = Yes, Somewhat Strong

3 = Yes, Very Strong.

4 = No: if there is clear indications in the report that people did not engage in any protest movement or demonstrations as reactions to the unsatisfactory response from the government.

3. *Did the government repress the protesting people?*

Search: [“police”, “military”, “army”, “security”, “guard”, “paramilitary”] + [“repress”, “suppress”, “check”, “subjugate”, “keep back”, “beat up”]

0 = Do Not Know: if there is a discussion about protest or demonstration, but it is not clear from the report whether the government (its law enforcement agencies) repressed the protesters.

1 = Yes: if there is clear indications of governmental repression of the protesting people.

Use the following scale, from 1 to 3, to identify how strong was the repression.

1 = Yes, but Weak

2 = Yes, Somewhat Strong

3 = Yes, Very Strong.

4 = No: if there is no indications of governmental repression of the protesting people.

REFERENCES

- Abney, F. Glenn & Larry B. Hill. 1966. "Natural disasters as a political variable: The effect of a hurricane on an urban election." *American Political Science Review* 60(4):974–981.
- Achen, Christopher H. & Larry Bartels. 2004. "Blind Retrospection: Electoral Responses to Drought, Flu, and Shark Attacks." Working Paper, Princeton University.
- Ackerman, Bruce. 2004. "The Emergency Constitution." *The Yale Law Journal* 113:1029–1091.
- Ackerman, Bruce. 2006. *Before the Next Attack: Preserving Civil Liberties in an Age of Terrorism*. New Heaven, CT: Yale University Press.
- Ackerman, Eric. 2010. "Deadly Protests Erupt in Cholera-Stricken Haiti." <http://www.inrelief.org/updates/deadlyprotestseruptincholera-strickenhaiti>. Accessed November 22, 2012.
- Adams, William C. 1986. "Whose Lives Count? TV Coverage of Natural Disasters." *Journal of Communication* Spring:113–122.
- Adger, W. Neil, Terry P. Hughes, Carl Folkes, Stephen R. Carpenter & Johan Rockström. 2005. "Social-Ecological Resilience to Coastal Disasters." *Science* 309:1035–1039.
- Aguado, Edward & James E. Burt. 2013. *Understanding Weather and Climate*. 6 ed. Boston, MA: Pearson.
- Al-Tamimi, Aymenn Jawad & Oskar Svadkovsky. 2012. "Demography Is Destiny in Syria." *The American Spectator*. .
- Albala-Bertrand, J. M. 1993. *Political Economy of Large Natural Disasters: With Special Reference to Developing Countries*. Oxford: Clarendon Press.
- Albala-Bertrand, J. M. 2006. Globalization and Localization: An Economic Approach. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 147–167.
- Alexander, David. 1991. "Natural Disasters: A Framework for Research and Teaching." *Disasters* 15(3):209–226.

- Allison, Paul D. 1984. *Event History Analysis: Regression for Longitudinal Event Data*. Beverly hills: SAGE Publications.
- Allison, Paul D. 2002. "Bias in Fixed-Effects Cox Regression with Dummy Variables." www.ssc.upenn.edu/~allison. Accessed March 1, 2011.
- Allison, Paul D. 2004. Event History Analysis. In *Handbook of Data Analysis*, ed. Melissa Hardy & Alan Bryman. First ed. London and Thousand Oaks and New Delhi: SAGE Publications chapter 16, pp. 369–385.
- Almond, G. A., S. Flanagan & R. Mundt, eds. 1973. *Crisis, Choice and Change: Historical studies of political development*. Little Brown.
- Anbarci, Nejat, Monica Escaleras & Charles A. Register. 2005. "Earthquake fatalities: the interaction of nature and political economy." *Journal of Public Economics* 89:1907–1933.
- Andersen, Per Kragh, John P. Klein & Mei-Jie Zhang. 1999. "Testing For Centre Effects in Multi-Centre Survival Studies: A Monte Carlo Comparison of Fixed And Random Effects Tests." *Statistics in Medicine* 18:1489–1500.
- Anderson, Jack. 1971. "Many Pakistan flood victims died needlessly." *Lowell Sun*. .
- Anderson, M. & P. Woodrow. 1989. *Rising from the Ashes: Development Strategies in Times of Disaster*. Boulder, Colorado: West View Press.
- Ansell, C.K. 2001. Legitimacy: Political. In *International Encyclopedia of the Social and Behavioral Sciences*. Elsevier Science Ltd.
- Antilla, Liisa. 2005. "Climate of skepticism: US newspaper coverage of the science of climate change." *Global Environmental Changes* 15:338–352.
- Arceneaux, Kevin & Robert M. Stein. 2006. "Who is Held Responsible when Disaster Strikes? The Attribution of Responsibility for a Natural Disaster in an Urban Election." *Journal of Urban Affairs* 28(1):43–53.
- Arrow, Kenneth J., Leonid Hurwicz & Hirofumi Uzawa. 1961. "Constraint qualifications in maximization problems." *Naval Research Logistics Quarterly* 8:175–191.
- Arya, Anand S. 2005. *Guidelines for earthquake resistant reconstruction and new construction of masonry buildings in Jammu and Kashmir*. New Delhi: Ministry of Home Affairs, Government of India.
- Aziz, Faisal. 2010. "Pakistani president returns to criticism; Government accused of ignoring flood victims." *The Gazette (Montreal)* p. A19.

- Bahl, Rou, Geeta Sethi & Sally Wallace. 2010. "Fiscal decentralization in rural local government in India: A case study of West Bengal state." *Publius: The Journal of Federalism* 40(2):312–331.
- Bailey, K. 1994. *Methods of Social Research*. Fourth ed. New York: The Free Press.
- Banks, Arthur S. 2001. "Cross-National Time Series, 1815-1999."
URL: <http://www.databanksinternational.com/>
- Banks, Arthur S. 2011. "Cross-National Time-Series Data Archive."
URL: <http://www.databanksinternational.com>
- Barber, James David. 1985. *The Presidential Character*. New Jersey: Englewood Cliffs, Prentice-Hall.
- Barnes, Michael D., Carl L. Hansen, Len M.B. Novilla, Aaron T. Meacham, Emily McIntyre & Brittany C. Erickson. 2008. "Analysis of Media Agenda Setting During and After Hurricane Katrina: Implications for Emergency Preparedness, Disaster Response, and Disaster Policy." *American Journal of Public Health* 98(4):604–610.
- Barnett, Barry J. 1999. "US government natural disaster assistance: historical analysis and a proposal for the future." *Disasters* 23(2):139–155.
- Barnhart, John D. 1925. "Rainfall and the Populist Party in Nebraska." *American Political Science Review* 19(3):527–540.
- Basher, Reid. 2006. "Global early warning systems for natural hazards: systematic and people-centred." *Philosophical Transactions of the Royal Society of London A* 364:2167–2182.
- Bates, Robert H. 2008a. "State Failure." *Annual Review of Political Science* 11:1–12.
- Bates, Robert H. 2008b. *When Things Fell Apart: State Failure in Late-Century Africa*. Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore: Cambridge University Press.
- Bates, Robert H., Avner Greif, Margaret Levi, Jean-Laurent Rosenthal & Barry R. Weingrast. 1998. *Analytic Narratives*. Princeton University Press.
- BBC. 2009. "BBC's international news services attract record global audience of 238 million." *BBC* . http://www.bbc.co.uk/pressoffice/pressreleases/stories/2009/06_june/02/audience.shtml.

- BBC. 2012. "Languages, British Broadcasting Center (BBC) World Service." *BBC* .
www.bbc.co.uk/worldservice/languages/index.shtml.
- Bechtel, Michael M. & Jens Hainmueller. 2011. "How lasting is voter gratitude? An analysis of the short- and long-term electoral returns to beneficial policy." *American Journal of Political Science* 55(4):852–868.
- Bednar, J. 2008. *The Robust Federation: Principles of Design*. Cambridge: Cambridge University Press.
- Beetham, David. 1991. *The Legitimation of power*. Atlantic Highlands, NJ: Humanities Press International.
- Belle, Douglas A. Van & Kenneth M. Mash. 2007. *A Novel Approach to Politics: Introducing Political Science Through Books, Movies, and Popular Culture*. Washington DC: CQ Press.
- Bellina, Severine, Dominique Darbon, Stein Sundstol Eriksen & Ole Jacob Sending. 2009. "The Legitimacy of the State in Fragile Situation." . Report for the OECD DAC International Network on Conflict and Fragility.
- Below, Regina & Debarati GUHA-SAPIR. 2009. "Disaster categor classification and peril terminology for operationa purposes." (264).
- Bentham, Jeremy. 1962. Principles of the Civil Code. In *The Works of Jeremy Bentham*, ed. J. Bowring. Vol. 1 New York: Russell & Russel p. 301.
- Berdal, Mats & David A. Malone. 2000. Introduction. In *Greed and Grievance: Economic Agendas in Civil Wars*, ed. Mats Berdal & David M. Malone. A Project of the International Peace Academy Boulder and London: Lynne Rienner Publishers.
- Bern, C., J. Sniezek, G.M. Mathbor, M.S. Siddiqi, C. Ronsmans, A.M.R. Chowdhury, A.E. Choudhury, K. Islam, Bennish, E. Noji & R.I. Glass. 1993. "Risk Factos for Mortality in The Bangladesh Cyclon of 1991." *Bulletin of the World Health Organization* 71(1):73–78.
- Berry, William D. 1993. *Understanding Regression Assumptions*. Number 07-092 in "Quantitative Applications In The Social Sciences" London, New Delhi: SAGE Publicatoins.
- Besley, Timothy & Robin Burgess. 2002. "The political economy of government responsiveness: theory and evidence from India." *The Quarterly Journal of Economics* pp. 1415–1451.

- Bessette, J. M. 2001. Accountability: Political. In *International Encyclopedia of the Social and Behavioral Sciences*, ed. Neil J. Smelser & Oaul B. Baltes. Vol. 1 New York: ELSEVIER pp. 38–41.
- Bevir, Mark. 2010. *Democratic Governance*. Princeton and Oxford: Princeton University Press.
- Bhatia, Satish C., M. Ravi Kumar & Harsh K. Gupta. 1999. “A probabilistic seismic hazard map of India and adjoining regions.” *Annali Di Geofisica* 42(6):1153–1164.
- Bhattacharjee, Partha Pratim. 2009. “Govt won’t seek foreign aid for post-Aila relief, suspends realisation of agri-loans in affected areas.” *New Age* .
- Binder, Leonard, James S. Coleman, Joseph LaPalombara, Lucian W. Pye, Sidney Verba & Myron Weiner. 1971. *Crises and Sequence in Political Development*. Princeton, New Jersey: Princeton University Press.
- Birkland, Thomas & Sarah Waterman. 2008. “Is Federalism the Reason for Policy Failure in Hurricane Katrina?” *Publius: The Journal of Federalism* 38(4):692–714.
- Boin, Arjen. 2004. “Lessons From Crisis Research.” *International Studies Review* 6:165–194.
- Boin, Arjen, Allan McConnell & Paul T’Hart. 2004a. Governing After Crisis. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Arjen Boin, Allan McConnell & Paul T’Hart. Cambridge University Press chapter Introduction, pp. 3–30.
- Boin, Arjen, Allan McConnell & Paul t’Hart. 2008. Governing After Crisis. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Arjen Boin, Allan McConnell & Paul T’Hart. Cambridge University Press chapter Introduction, pp. 3–30.
- Boin, Arjen, Allan McConnell & Paul T’Hart, eds. 2004b. *Governing After Crisis: The Politics of Investigation, Accountability and Learning*. Cambridge, UK: Cambridge University Press.
- Boin, Arjen, Paul t’Hart & Allan McConnell. 2008a. Conclusions: the politics of crisis exploitation. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Arjen Boin, Allan McConnell & Paul T’Hart. Cambridge University Press.

- Boin, Arjen, Paul T'Hart & Allan McConnell. 2008b. Conclusions: the politics of crisis exploitation. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Arjen Boin, Allan McConnell & Paul T'Hart. Cambridge University Press.
- Boin, Arjen, Paul t'Hart, E. K. Stern & B. Sundelius. 2005. *The Politics of Crisis Management: Public Leadership Under Pressure*. Cambridge, UK: Cambridge University Press.
- Boin, Arjen, Paul't Hart, Eric Stern & Bengt Sundelius. 2005. *The Politics of Crisis Management*. Cambridge, UK: Cambridge University Press.
- Bolin, Bob. 2006. Race, Class, Ethnicity, and Disaster Vulberability. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 113–129.
- Bollen, Kenneth A. & Richard Lennox. 1991. "Convensional wisdom on measurement: a structural equation perspective." *Psychological Bulletin* 110(2):305–314.
- Bond, Doug, Joe Bond, Churl Oh, J. Craig Jenkins & Charles Lewis Taylor. 40. "Integrated Data for Events Analysis (IDEA): An Event Typology for Automated Events Data Development." *Journal of Peace Research* 6(733-745).
- Booth, John A. & Mitchell A. Seligson. 2003. *The Legitimacy Puzzle In Latin America: Political Support and Democracy in Eight Nations*. New York: Cambridge University Press.
- Bose, Sugata & Ayesha Jalal. 2004. *Modern South Asia: History, Culture, Political Economey*. United Kingdom: Routledge.
- Box-Steffensmeier, Janet & Bradford Jones. 2004. *Event History Modeling: A Guide for Social Scientists*. Cambridge: Cambridge University Press.
- Box-Steffensmeier, Janet & Christopher Zorn. 2001. "Duration Models and Proportional Hazards in Political Science." *American Journal of Political Science* 45(4):972–988.
- Box-Steffensmeier, Janet M. & Christopher Zorn. 2002. "Duration Models For Repeated Events." *The Journal Of Politics* 64(4):1069–1094.
- Boyckoff, Maxwell T. 2011. *Who Speaks for the Climate? Making Sense of Media reporting on Climate Change*. New York: Cambridge University Press.

- Boyckoff, Maxwell T. & Jules M. Boykoff. 2007. "Climate change and journalistic norms: A case-study of US mass-media coverage." *Geoforum* 38:1190–1204.
- Brancati, Down. 2007. "Political Aftershocks: The Impact of Earthquakes of Interstate Conflict." *Journal of Conflict Resolution* 51(5):715–743.
- Brändström, Annika, Sanneke Kuipers & Pär Dalëus. 2008. The Politics of Tsunami Responses: Comparing Patterns of Blame Management in Scandinavia. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Arjen Boin, Allan McConnell & Paul t'Hart. Cambridge, UK: Cambridge University Press.
- Brass, Paul. 1994. *The New Cambridge history of India: The politics of India since independence*. Vol. IV second ed. New York: Cambridge University Press.
- Breardsley, Kyle & McQuinn. 2009. "Rebel Groups as Predatory Organizations: The Political Effects of the 2004 Tsunami in Indoneis and Sri Lanka." *Journal of Conflict Resolution* XX(X):1–22.
- Britton, Neil R. 2006. National Planning and Response: National Systems. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 347–367.
- Brooks, Nick & W. Neil Adger. 2003. Does global environmental change cause vulnerability to disaster? In *Natural disasters and development in a global world*, ed. Mark Pelling. London and New York: Routledge.
- Brown, Courtney. 1995. *Chaos And Catastrophe Theories*. Number 07-107 in "Quantitative Applications In The Social Sciences" London, New Delhi: SAGE Publicatoins.
- Brown, Courtney. 2007. *Differential Equations: A Modeling Approach*. Number 07-150 in "Quantitative Applications In The Social Sciences" Los Angeles, London, New Delhi, Singapore: SAGE Publicatoins.
- Brownlee, Jason. 2007. *Authoritarianism in an Age of Democratization*. Cambridge: Cambridge University Press.
- Bryant, Elizabeth. 2003. "Heat wave sparks elder reform debate." *United Press International* . http://www.upi.com/Business_News/Security-Industry/2003/08/28/Heat-wave-sparks-elder-reform-debate. Accessed July 13, 2012.
- Bucher, Rue. 1957. "Blame and hostility in disaster." *The American Journal of Sociology* 62(5):467–75.

- Burby, Raymond J. 2006. "Hurricane Katrina and the Paradoxes of Government Disaster Policy: Bringing About Wise Governmental Decisions for Hazardous Areas." *Annals of the American Academy* 604:171–191.
- Buthe, Tim. 2002. "Taking Temporality Seriously: Modeling history and the use of narrative as evidence." *American Political Science Review* 96(3):481–493.
- Bytzek, Evelyn. 2008. Flood response and political survival: Gerhard Schroder and the 2002 Elbe flood in Germany. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Paul T'Hart Arjen Boin, Allan McConnell. Cambridge University Press pp. 85–113.
- Campbell, C. C. 1999. Journalism as a democratic art. In *The idea of public journalism*, ed. T.L. Glasser. New York: Guildford.
- Canes-Wrone, Brandice. 2006. *Who leads whom? Presidents, policy making and the mass public*. Chicago: University of Chicago Press.
- Carey, John M. & Mathew Soberg Shugart. 1998. *Executive Decree Authority*. Cambridge, UK: Cambridge University Press.
- Cavallo, Eduardo & Ilan Noy. 2010. The Economics of Natural Disasters: A Stuvey. IDB Working Paper Series IDB-WP 124 Inter-American Development Bank.
- Chaffee, Steve & Stacey Frank. 1996. "How Americans Get Political Information: Print versus Broadcast News." *Annals of the American Academy of Political and Social Science* 546:48–58.
- Chakrabarti, P.G. Dhar. 2011. "Challenges of Disaster Management in India: Implications for the Economic, Political, and Security Environments." *NBR Special Report* 34.
- Chakrabarty, Bidyut. 2008. *Indian Politics and Society Since Independence: Events, Processes, and Ideology*. London and New York: Routledge – Taylor and Francis Group.
- Chakrabarty, Bidyut. 2011. "The Left Front's 2009 Lok Sabha Poll Debacle in West Bengal, India." *Asian Survey* 51(2):290–310.
- Chatterjee, Tyotiprasad & Suprio Basu. 2009. "West Bengal: Mandate for Change." *Economic & Political Weekly* 44(39):152–156.

- Chen, Jowei. 2008. "Are Poor Voters Easier to Buy Off with Money? A Natural Experiment from the 2004 Florida Hurricane Season." Online. <http://www-personal.umich.edu/~jowei/>. Accessed January 12, 2009.
- Chen, Jowei. Unpublished. "When Do Government Benefits Influence Voters' Behavior? The Effect of FEMA Disaster Awards on US Presidential Votes." Online. <http://www-personal.umich.edu/~jowei/>. Accessed January 12, 2009.
- Chhibber, Pradip. 1999. *Democracy without associations: Transformation of the party system and social cleavages in India*. Ann Arbor: University of Michigan Press.
- Choudhury, Zahid A. 2010. "Politics of Natural Disasters: Modeling Presidential Response Time to Natural Disasters in the United States 1960-2005." Working Paper, Department of Political Science, University Of Iowa, USA.
- Cigler, Beverly A. 2008. "The "Big Questions" of Katrina and the 2005 Great Flood of New Orleans." *Public Administration Review* Special Issue 2008:S64–S76.
- Ciulla, Joanne B. 2010. "Being There: Why Leaders Should Not "Fiddle" While Rome Burns." *Presidential Studies Quarterly*. 40(1):38–56.
- Cleaves, Mario A., William W. Gould & Roberto G. Gutierrez. 2004. *An Introduction to Survival Analysis Using STATA*. Second ed. College Station, Texas: STATA Press.
- Cohen, Charles & Eric D. Werker. 2008. "The Political Economy of "Natural" Disasters." *Journal of Conflict Resolution* 52(6):795–819.
- Col, Jeanne-Marie. 2007. "Managing Disasters: The role of local government." *Public Administration Review* Special Issue:114–124.
- Collier, Paul. 2007. *The bottom billion : why the poorest countries are failing and what can be done about it*. Oxford and New York: Oxford University Press.
- Collier, Paul & Anke Hoeffler. 2004. "Greed and Grievance in Civil War." *Oxford Economic Papers* 56(4):563–95.
- Collier, Paul, Anke Hoeffler & Nicholas Sambanis. 2005. The Collier-Hoeffler Model of Civil War Onset and the Case Study Project Research Design. In *Understanding Civil War: Evidence and Analysis*, ed. Paul Collier & Nicholas Sambanis. Vol. 2: Europe, Central Asia, and Other Regions. Washington, DC: The World Bank chapter 1, pp. 1–33.

- Collins, Gabe & Andrew Erickson. 2011. "Keeping the Mandate of Heaven: Why China's leaders focus heavily on grain prices and security." *China SignPost* (22).
- Congleton, Roger D. 2006. "The story of Katrina: New Orleans and the political economy of catastrophe." *Public Choice* 127:5–30.
- Congleton, Roger D. & Birgitta Swedenborg. 2006. Introduction: Rational Choice Politics and Political Institutions. In *Democratic Constitutional Design and Policy: analysis and Evidence*, ed. Roger D. Congleton & Birgitta Swedenborg. The MIT Press.
- Corrales, Javier. 1997/1998. "Do Economic Crises Contribute to Economic Reform? Argentinian and Venezuela in the 1990s." *Political Science Quarterly* 112(4):617–644.
- Correspondent, Staff. 2012. "It's for saving war criminals: PM flays Khaleda for Dec.9 road blockade; says no question of declaring emergency." *The Daily Star* p. Front Page. (November 30).
- Covington, Cary R. 1987. "'Staying Private': Gaining Congressional Support for Unpublicized Presidential Preferences on Roll-Call Votes." *Journal of Politics* 49:737–55.
- Cowie, J. 1998. *Climate and human change: disaster or opportunity?* New York: Parthenon Pub. Group.
- Cox, Gary W. 2000. "On the Effects of Legislative Rules." *Legislative Studies Quarterly* XXV(2):169–192.
- Cox, Gary W. & Mathew D. Mccubbins. 2001. The Institutional Determinants of Economic Policy Outcome. In *Presidents, Parliaments, and Policy*, ed. Stephan Haggard & Mathew D. Mccubbins. Cambridge University Press pp. 21–63.
- CRED. 2007. "EM-DAT: The OFDA/CRED International Disaster Database." *University Catholique de Louvain* . Brussels, Belgium. <http://www.em-dat.net> (January 30 2012).
- CRED. 2012. "EM-DAT: The OFDA/CRED International Disaster Database." *University Catholique de Louvain* . Brussels, Belgium. <http://www.em-dat.net>, accessed January 30, 2012.
- CRED. 2013. "EM-DAT: The OFDA/CRED International Disaster Database." *University Catholique de Louvain* . Brussels, Belgium. <http://www.em-dat.net>, accessed April 3, 2013.

- Cuaresma, Crespo, Jaroslava Hlouskova & Obersteiner. 2008. "Natural Disasters As Creative Destruction? Evidence From Developing Countries." *Economic Inquiry, Western Economic Association International* 46(2):214–226.
- Cuny, Frederick C. 1983. *Disasters and Development*. New York: Oxford University Press.
- Cutter, Susan L. 2006. *Hazards, vulnerability and Environmental Justice*. London: Earthscan.
- Datta, Debabrata. 2010. "West Bengal Government Finances: A Critical Look." *Economic & Political Weekly* 45(44):99–105.
- D'Costa, Bina. 2011. "Bangladesh in 2010." *Asian Survey* 51(1):138–147.
- D'Costa, Bina. 2012. "Bangladesh in 2011: Weak Statebuilding and Diffident Foreign Policy." *Asian Survey* 52(1):147–156.
- de Mesquita, Bruce Bueno, Alastair Smith, Randolph M. Siverson & James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge: The MIT Press.
- DeGroot, Morris H. & Mark J. Schervish. 2002. *Probability and Statistics*. Third ed. Boston, San Francisco, New York: Addison Wesley.
- DeLong, Bradford J. 2001. "India Since Independence: An Analytic Growth Narrative." Online. <http://econ.ucdenver.edu/beckman/Econ6410/rodrick-DeLong-India.pdf>. Accessed February 22, 2013.
- Denzau, Arthur T. & Douglass C. North. 1994. "Shared Mental Models: Ideologies and Institutions." *KYKLOS* 47(1):3–33.
- Disaster Management Plan: West Bengal*. 2009. Center for Distributed Computing, Jadavpur, West Bengal, India: Jadavpur University. Funded by the Department of Disaster Management, Government of West Bengal.
- Dixit, Avinash. 2003. "Some Lessons From Transaction-Cost Politics for Less-Developed Countries." *Economics and Politics* 15(2):107–133.
- DMIC. 2009. *Summary of Cyclone Storm 'Aila'*. Dhaka, Bangladesh: Disaster Management Information Centre, Disaster Management Bureau, Ministry of Food and Disaster Management, the Government of Bangladesh.
- Donadio, Rachel. 2011. "Pope Speaks of Iraq and Tsunami in First TV Q and A." *The New York Times (Global Edition–Europe Section)*. <http://www.nytimes.com/2011/04/23/world/europe/23pope.html?ref=global-home>.

- Downton, Mary W. & Roger A. Pielke Jr. 2001. "Discretion without accountability: Politics, flood damage, and climate." *Natural Hazard Review* 2(4):157–166.
- Dreiter, Peter. 2006. "Katrina and Power in America." *Urban Affairs Review* 41(4):528–549.
- Druckman, James N. & Justin W. Holmes. 2004. "Does Presidential Rhetoric Matter? Priming and Presidential Approval." *Presidential Studies Quarterly* 34(4):755–778.
- Drury, A. Cooper & Richard Stuart Olson. 1998. "Disaster and Political Unrest: An Empirical Investigation." *Journal of Contingencies and Crisis Management*. 6(3):153–161.
- Dunn, Gordon. 1961. "The Tropical Cyclone Problem in East Pakistan." *Monthly Weather Review* .
- Dunning, Thad. 2005. "Resource Dependence, Economic Performance, and Political Stability." *Journal of Conflict Resolution* 49(4):451–482.
- Durbin, Tillman. 1971. "Pakistanis Crisis Virtually Halts Rehabilitation Work In Cyclone Region." *New York Times* .
- Dynes, Russell R. 1970. *Organized Behavior in Disaster*. Lexington, Massachusetts: Heath Lexington Books.
- Dynes, Russell R. & Thomas E. Drabek. 1994. "The structure of disaster research: Its policy and disciplinary implications." *International journal of Mass Emergencies and Disasters* 12:5–23.
- Earl, Jennifer, Andrew Martin, John D. McCarthy, & Sarah A. Soule. 2004. "The Use of Newspaper Data in the Study of Collective Action." *Annual Review of Sociology* 30:65–80.
- Earl, Jennifer, Andrew Martin, John D. McCarthy & Sarah A. Soule. 2004. "The Use of Newspaper Data in the Study of Collective Action." *Annual Review of Sociology* 30:65–80.
- Easton, David. 1965a. *A Framework of Political Analysis*. Englewood, New Jersey: Prentice-Hall.
- Easton, David. 1965b. *A Systems Analysis of Political Life*. New York: Wiley.
- Easton, David. 1975. "A Reassessment of the Concept of Political Support." *British Journal of Political Science* 5(4):435–57.

- Economist. 2009. "Asia: Keeping its head above water; Bangladesh's government." *Economist* 391(8635):46.
- Edward, George E. 2005-2006. "International Human Rights Law Violation Before, During, and After Hurricane Katrina: An International Law Framework of Analysis." *Thurgood Marshall Law Review*. 31(353):354–425.
- Elkholy, Jehan & Mostafa Gad-el-Hak. 2008. Large-scale disasters: Perspectives on Media Response. In *Large-Scale Disasters: Prediction, Control, and Mitigation*, ed. Mohamed Gad-el-Hak. New York: Cambridge University Press pp. 147–160.
- Elsner, J., J. Kossin & T. Jagger. 2008. "The Increasing Intensity of the Strongest Tropical Cyclones." *Nature* 455:92–95.
- Elster, John. 2004. "Comments on the paper by Ferejohn and Pasquino." *International Journal of Constitutional Law* 2(2):240–243.
- Emergency Capacity Building Project Bangladesh Consortium. 2010. "One Year On-Plight of Cyclone Aila Communities Countries." *Emergency Capacity Building Project (ECBP)*. <http://www.ecbproject.org/where/bangladesh> (November 21, 2012).
- Erian, Wadid, Bassem Katlan & Ouldbdey Babha. 2011. Drought vulnerability in Arab region: Special case study: Syria. Technical report.
- Erikson, K. 1976. *Everything in its path: Destruction of community in the Buffalo Creek flood*. New York: Simon and Schuster.
- Erikson, Robert S., Michael B. Mackuen & James A. Stimson. 2002. *The Macro Polity*. Cambridge, UK and New York, USA: Cambridge University Press.
- Europa World Year Book*. 2008. In *Europa World Year Book*, ed. Paul Kelly. Vol. 1. London and New York: Routledge–Taylor & Francis Group. chapter : India, pp. 2183–2241.
- Europa World Year Book*. 2011a. In *Europa World Year Book*, ed. Paul Kelly. Vol. 1. London and New York: Routledge–Taylor & Francis Group. chapter : India, pp. 2184–2244.
- Europa World Year Book*. 2011b. In *Europa World Year Book*, ed. Paul Kelly. Vol. 1. London and New York: Routledge–Taylor & Francis Group. chapter : Bangladesh, pp. 797–823.
- Fair, C. Christine. 2011. "Pakistan in 2010." *Asian Survey* 51(1):97–110.

- Farrell, David M. 2001. *Electoral Systems: A Comparative Introduction*. New York: Palgrave.
- Fearon, James. 2010. "Governance and Civil War Onset." *World Development Report (Background Paper)* World Development Report 2011:1–70.
- Fearon, James D. 2008. Economic development, insurgency, and civil war. In *Institutions and Economic Performance*, ed. Elhanen Helpman. Cambridge University Press.
- Fearon, James & David D. Laitin. 2010. "Sons of the Soil, Migrants, and Civil War." *World Development* 39(2):199–211.
- Fearon, James & David Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97:75–90.
- Ferejohn, John & Pasquale Pasquino. 2004. "The law of the exception: A typology of emergency powers." *International Journal of Constitutional Law* 2(2):210–239.
- Ferris, Elizabeth G. 2011. *The politics of protection: the limits of humanitarian action*. Washington, DC: Brookings Institutions Press.
- Fielding, Nigel G. & Raymond M Lee. 1998. *Computer Analysis and Qualitative Research*. New Technologies for Social Research Thousand Oaks, CA: SAGE Publications Ltd.
- Fillipov, M. 2005. "Riker and Federalism." *Constitutional Political Economy* 16:93–111.
- Finer, S. E. 1999. *The History of Government from the Earliest Times*. Vol. 1-3 USA: Oxford University Press.
- Fiorina, Morris P. 1981. *Retrospective Voting in American National Elections*. New Heaven, CT: Yale University Press.
- Flanagan, Scott C. 1973. Models and Method of Analysis. In *Crisis, Choice, and Change: Historical Studies of Political Development*, ed. Gabriel A. Almond, Flanagan Scott, C & Robert J. Mundt. Boston: Little, Brown and Company.
- Flores, Alejandro Quiroz & Alastair Smith. 2010. "Surviving Disasters." Unpublished Manuscript, Wilf Family Department of Politics, New York University, USA.
- Franzosi, Robert P. 1987a. Content Analysis. In *Handbook of Data Analysis*, ed. Melisa Hardy & Alan Bryman. Thousand Oaks: SAGE Publications pp. 5–16.

- Franzosi, Robert P. 1987b. "The Press as a Source of Socio-Historical Data: Issues in the Methodology of Data Collection from Newspapers." *Historical Methods* 20(1):5–16.
- Friedrich, C. J. 1966. "Book Review." *American Political Science Review* 60(2):403–05.
- Fritz, Charles E. 1961. Disaster. In *Contemporary Social Problems: Introduction to the Sociology of Deviant Behavior and Social Disorganization.*, ed. Robert A. Nisbet. New York: Harcourt, Brace, and World. pp. 651–694.
- From Two Economies to Two Societies: Honouring Bangladesh's Social Contract.* 1998. Paper Presented at Nazmul Karim Memorial Lecture at the University of Dhaka (August 6).
- Gad-el-Hak, Mohamed. 2008. The Art and Science of Large Scale Disasters. In *Large-Scale Disasters: Prediction, Control, and Mitigation*, ed. Mohamed Gad-el-Hak. New York: Cambridge University Press pp. 5–68.
- Gaddy, Gary D. & Enoch Tanjong. 1986. "Earthquake Coverage by the Wester Press." *Journal of Communication* Spring:105–112.
- Galvin, Daniel, Ian Shapiro & Stephen Skowronek. 2006. Introduction. In *Rethinking Political Institutions: The Art of the State*, ed. Stephen Skowronek Ian Shapiro & Daniel Galvin. New York University Press pp. 1–31.
- Ganguly, Sumit. 1996. "Explaining the Kashmir Insurgency: Political Mobilization and Institutional Decay Explaining the Kashmir Insurgency: Political Mobilization and Institutional Decay Explaining the Kashmir Insurgency: Political Mobilization and Institutional Decay." *International Security* 21(2):76–107.
- Ganguly, Sumit. 2006. "The Rise of Islamist Militancy in Bangladesh." *United States Institute of Peace, Special Report* (171).
- Garrett, T. A. & Sobel. 2003. "The Political Economy of FEMA disaster payments." *Economic Inquiry* 41(3):496–509.
- Gasiorowski, Mark. 1995. "Economic Crises and Political Regime Change: An Event History Analysis." *American Political Science Review* 89:882–897.
- Geddes, Barbara. 1999a. Comparisons in the context of game theoretic argument. In *Critical Comparisons in Politics and Culture*, ed. John R. Bowen & Roger Petersen. Cambridge, UK: Cambridge University Press chapter 10, pp. 196–229.

- Geddes, Barbara. 1999b. "What do we know about democratization after twenty years?" *Annual Review of Political Science* 2:115–44.
- Geddes, Barbara. 2006. *Paradigm and Sandcastle: Theory Building and Research Design in Comparative Politics*. Ann Arbor: University of Michigan Press.
- Gelman, Andrew & Jennifer Hill. 2008. *Data Analysis Using Regression and Multi-level/Hierarchical Models*. Analytical Methods for Social Research 5th printing ed. New York, Melbourne: Cambridge University Press.
- George, Alexander L. & Andrew Bennett. 2005. *Case Studies and Theory Development in Social Science*. Cambridge, MA: MIT Press.
- Gerring, John. 2004. "What is Case Study and What is It Good for?" *American Political Science Review* 98(2):342–354.
- Ghatak, Maitreesh & Maitreya Ghatak. 2002. "Recent Reforms in the Panchayat System in West Bengal Toward Greater Participatory Governance?" *Economic & Political Weekly* 37(1):45–47 and 49–58.
- Gilbert, Claude. 1998. Studying Disaster: Changes in the main conceptual tools. In *What is a Disaster? : Perspective on the Question*, ed. E.L. Quarantelli. London and New York: Routledge.
- Gilley, Bruce. 2009a. *The Right to Rule: How State Win and Lose Legitimacy*. New York: Columbia University Press.
- Gilley, Bruce. 2009b. "The Right to Rule: How State Win and Lose Legitimacy (online appendices)." pp. 1–50. www.web.pdx.edu/gilleyb/GilleyRighttoRuleAppendices.pdf.
- Gilley, Bruce. 2012. "State legitimacy: An updated dataset for 52 countries." *European Journal of Political Research* 51:693–699.
- Gleditsch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg & Håvard Strand. 2002. "Armed Conflict 1946-2011: A New Dataset." *Journal of Peace Research* 39(5):615–637.
- Goemans, Hein, Kristian Skrede Gleditsch & Giacomo Chiozza. 2009. "Introducing Archigos: A Dataset of Political Leaders." *Journal of Peace Research* 46(2):269–283.

- Goemans, Henk E., Skrede Gleditsch, Giacomo Chiozza & Jinhee Choung. 2005. *Archigos: A Data Base of Political Leaders. A data gathering project on all leaders 1875-2004*. Version 2.0 ed.
- Golder, Sona Nadenichek. 2006. "Pre-electoral Coalition Formation in Parliamentary Democracies." *British Journal of Political Science* 36:193–212.
- Goldstone, Jack A., Ted Robert Gurr, Barbara Harff, Marc A. Levy, Monty G. Marshall, David L. Easton, Colin H. Kahl, Pamela T. Surko, John C. Ulfelder & Alan N. Unger. 2000. "State Failure Task Force Report: Phase III Findings." <http://www.cidcm.umd.edu/publications/papers/SFTF%20Phase%20III%20Report%20Final.pdf>.
- Government of Bangladesh. 2008. *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment for Disaster Recovery and Reconstruction After Cyclone Sidr*. Dhaka, Bangladesh: Government of Bangladesh. A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, (April). http://gfdrr.org/docs/AssessmentReport_Cyclone%20Sidr_Bangladesh.2008.pdf (accessed December 3, 2012).
- Government of India. 2012. *Eleventh Five Year Plan (2007–2012): Inclusive Growth*. Vol. 1 New Delhi: Oxford University Press.
- Government of Jammu and Kashmir. N.d. "Draft Disaster Management Policy of Jammu and Kashmir (DDMP-JK)." . Forthcoming.
- Grant, Ruth W. & Robert O. Keohane. 2005. "Accountability and Abuses of Power in World Politics." *American Political Science Review* 99(1):29–43.
- Greene, William H. 1994. "Accounting for Excess Zeros and Sample Selection in Poisson and Negative Binomial Regression Models." New York University Working Paper No. EC-94-10.
- Greene, William H. 2011. *Econometric Analysis*. Seventh ed. Upper Saddle River, New Jersey, USA: Prentice Hall.
- Guha-Sapir, Debarati. 2010. "Disasters in Number 2010." http://cred.be/sites/default/files/Disaster_numbers_presentation_2010.pdf.
- Guha-Sapir, Debby, Femke Vos, Regina Below & Sylvain Ponserre. 2011. "Annual Disaster Statistical Review 2011: The numbers and trends." http://cred.be/sites/default/files/Disaster_numbers_presentation_2011.pdf.

- Gupta, Sushil & M. Muralikrishna. 2008. "South Asia Disaster Risk Management Programme: Synthesis Report on SAR Countries Disaster Risks." http://www.unisdr.org/files/18873_southasiadisasterriskassessmentstud.pdf.
- Gurr, Tedd Robert. 1971. *Why men rebel*. New Jersey: Princeton University Press.
- Habermas, Jurgen. 1973. *Legitimation Crisis*. Boston: Beacon Press.
- Haddow, George D. & Jane A. Bullock. 2006. *Introduction to Emergency Management*. Butterworth-Heinemann Homeland Security Series 2 ed. Oxford, UK: Elsevier, Butterworth-Heinemann.
- Hagerty, Devin T. 2007. "Bangladesh in 2006: Living in "Interesting Times"." *Asian Survey* 47(1):105–112.
- Hagerty, Devin T. 2008. "Bangladesh in 2007: Democracy Interrupted, Political and Environmental Challenges Ahead." *Asian Survey* 48(1):177–183.
- Hagerty, Devin T. & Herbert G. Hagerty. 2005. India's Foreign Relations. In *South Asian In World Politics*, ed. Devin T. Hagerty. Lanham: Rowman and Littlefield Publishers Inc.
- Haggard, Stephan & Mathew D. McCubbins. 2001. Introduction: Political Institutions and the Determinants of Public Policy. In *Presidents, Parliaments, and Policy*, ed. Stephan Haggard & Mathew D. McCubbins. Cambridge University Press pp. 1–17.
- Haggard, Stephan & Robert R. Kaufman. 1995. *The Political Economy of Democratic Transitions*. New Jersey: Princeton University Press.
- Hall, Peter H. & Rosemary C. R. Taylor. 1996. "Political Science and the Three New Institutionalisms." *Journal of Theoretical Politics* XLIV:936–957.
- Haque, C. Emdad & Danny Blair. 2007. "Vulnerability to Tropical Cyclones: Evidence from the April 1991 Cyclone in Coastal Bangladesh." *Disasters* 16(3):217–229.
- Hardin, Russell. 2007a. Compliance, Consent, and Legitimacy. In *The Oxford Handbook of Comparative Politics*, ed. Charles Boix & Susan C. Stokes. The Oxford Handbook of Political Science Oxford: Oxford University Press pp. 236–255.
- Hardin, Russell. 2007b. Compliance, Consent, and Legitimacy. In *The Oxford Handbook of Comparative Politics*, ed. Charles Boix & Susan C. Stokes. The Oxford Handbook of Political Science Oxford University Press.

- Harold, D. Clarke, David Sanders, Marianne C. Stewart & Paul F. Whiteley. 2009. *Performance Politics and the British Voter*. New York: Cambridge University Press.
- Haward, Tiffany O. 2010. *The Tragedy of Failure*. Santa Barbara: Praeger.
- Healy, A. J. 2008. "Do Voters Blame Politicians for Bad Luck? The Uneducated Ones Do." Working Paper, Loyola Marymount University Working Paper, Loyola Marymount University Working Paper, Loyola Marymount University Working Paper, Loyola Marymount University Working Paper, Loyola Marymount University Working Paper, Loyola Marymount University.
- Healy, Andrew J. & Neil Malhotra. 2008. "Mass and elite preferences for disaster relief and prevention spending: retrospective voting failures in electoral accountability." Online. <http://www.stanford.edu/~neilm/disasters.pdf>. Accessed November 6, 2008.
- Hegre, Havard, Tanja Ellingsen, Scott Gates & Nils Peter Gleditsch. 2001. "Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816-1992." *American Political Science Review* 95(1):33-48.
- Heitzman, James & Robert Worden. 1989. *Bangladesh: A Country Study*. Washington DC: GPO for the Library of Congress. <http://countrystudies.us/bangladesh/16.htm>. Accessed May 4, 2011.
- Henry, Nicholas. 2001. *Public Administration and Public Affairs*. Eighth edition ed. New Jersey: Prentice Hall.
- Heston, Alan, Robert Summers & Bettina Aten. 2011. "Penn World Table Version 7.0." Online. <http://pwt.econ.upenn.edu/aboutpwt.html>. Accessed June 12, 2011.
- Hewitt, Kenneth. 1983. *Interpretation of calamity: from the viewpoint of human ecology*. Boston, MA: Allen and Unwin.
- Hilbe, Joseph M. 2011. *Negative Binomial Regression*. Second ed. Cambridge, UK: Cambridge University Press.
- Hintze, J. L. & D. Nelson R. 1998. "Violin plots: A box plot-density trace synergism." *The American Statistician* 52:181-184.
- Hogg, Robert V., Joseph W. McKean & Allen T. Craig. 2005. *Introduction to Mathematical Statistics*. Sixth ed. New Jersey: Pearson: Prentice Hall.

- Holmberg, Sören & Bo Rothstein. 2012. *Good Government*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Homer-Dixon., Thomas F. 1994. "Environmental Scarcities and Violent Conflict: Evidence from Cases." *international Security* 19(1):5–40.
- Homer-Dixon, Thomas F. 1999. *Environment, scarcity, and violence*. Princeton, New Jersey: Princeton University Press.
- Hoque, Ridwanul. 2009. "The Recent Emergency and the Politics of the Judiciary in Bangladesh." *NUJS Law Review* 184(2):183–203.
- Hosmer, David W., Stanley Lemeshow & Susanne May. 2008. *Applied Survival Analysis: Regression Modeling of Time-to-Even Data*. New Jersey: John Wiley and Sons, Inc.
- Hougaard, Philip. 1999. "Fundamentals of Survival Data." *Biometrics* 55(1):13–22.
- Hsiao, Cheng. 1986. *Analysis Of Panel Data*. New York, Melbourne: Cambridge University Press.
- Huber, John D. 1996. "The Vote of Confidence in Parliamentary Democracies." *American Political Science Review* 90(2):269–282.
- Huber, John D. & Charles R. Shipan. 2002. *Deliberate Discretion? The Institutional Foundations of Bureaucratic Autonomy*. Cambridge: Cambridge University Press.
- Human Development Report. 2011a. "Country Profiles and International Human Development Indicators." *United Nations Development Programme* . <http://hdr.undp.org/en/countries/> (November 30, 2012).
- Human Development Report. 2011b. "Explanatory note on 2011 HDR composite indices: Bangladesh (Sustainability and Equality: A Better Future for All)." *United Nations Development Programme* . <http://hdrstats.undp.org/images/explanations/BGD.pdf> (November 30, 2012).
- Human Rights Watch. 2006 (September 12). "Everyone Lives in Fear: Patterns of Impunity in Jammu and Kashmir." C1811. <http://www.unhcr.org/refworld/docid/4517c9ca4.html>. Accessed March 8, 2013.
- humanitywatch. 2012. *Struggle for Home: Campaign for Reconstruction of Cyclone Aila Damaged Embankments in the Southwest Coastal Region of Bangladesh*. Dhaka, Bangladesh: humanitywatch, Progothi, and CSrI.

- India Meteorological Department. 1970. Annual Summary -Storms & Depressions. Technical report.
- IPCC. 2001. IPCC Third Assessment Report. Assessment report. Intergoernmental Panel of Climate Change (IPCC). Geneva, Switzerland: .
- IPCC. 2007. "Fourth Assesment Report , Working Group II: Climate Change Impacts, Adaptation and Vulnerability." <http://www.ipcc.ch/ipccreports/ar4-wg2.htm>.
- Iqbal, Zaryab & Christopher Zorn. 2006. "Sic Semper Tyrannis? Power, Repression, and Assassination Since the Second World War." *The Journal of Politics* *Journal of politics* 68(3):489–501.
- Iqbal, Zaryab & Christopher Zorn. 2008. "The Political Consequences of Assassination." *Journal of Conflict Resolution* 52(3):385–400.
- Iyengar, Shato & Donald Kinder. 1987. *News That Matters: Television and American Opinion*. Chicago: University of Chicago Press.
- Jackman, R. W. 1993. *Power without force: the political capacity of nation states*. Ann Arbor: University of Michigan Press.
- Jahan, Rounaq. 1972. *Pakistan: Failure of National Integration*. New York and London: Columbia University Press.
- Jahan, Rounaq. 2004. "Bangladesh in 2003: Vibrant Democracy or Destructive Politics?" *Asian Survey* 44(1):56–61.
- Jalal, Ayesha. 2002. *Democracy and Authoritarianism in South Asia: A Comparative and Historical Perspective*. Cambridge: Cambridge University Press.
- Janowitz, Morris. 1991a. *On Social Organization and Social Control*. Chicago: University of Chicago Press.
- Janowitz, Morris. 1991b. *On social organization and social control*. Chicago: University of Chicago Press.
- Johnson, Chalmers. 1966. *Revolutionary Change*. Boston: Little Brown.
- Johnson, Janet Buttolph, Richard A. Joslyn & H.T. Reynold. 2001. *Political Science Research Methods*. 4th ed. Washington DC: CQ Press.
- Johnson, Jannet Buttolph, Richard A. Joslyn, & H. T. Reynolds. 2001. *Political Science Research Method*. Washington DC: CQ Press.

- Johnston, Michael. 2005. *Syndromes of Corruption: Wealth, Power, and Democracy*. Cambridge, MA: Cambridge University Press.
- Joint International Assessment. 2009. *In-Depth Recovery Need Assessment of Cyclone Aila Affected Areas*. Action Aid, Concern WorldWide, Dan Church Aid, Muslim Aid, Islamic Relief, Oxfam-GB and Save the Children-UK.
- Kahn, Matthew E. 2005. "The death toll from natural disasters: the role of income, geography, and institutions." *The Review of Economics and Statistics* 87(2):271–284.
- Kalyvas, Stathis N. 2007. Civil Wars. In *The Oxford Handbook of Comparative Politics*, ed. Charles Boix & Susan C. Stokes. The Oxford Handbook of Political Science New York: Oxford University Press chapter 18, pp. 416–434.
- Kartiki, Katha. 2011. "Climate Change and Migration: A case Study from Rural Bangladesh." *Gender and Development* 19(1):23–38.
- Keeler, John T.S. 1993. "Opening the Window fo Reform: Mandates, Crises, and Extraordinary Policy-Making." *Comparative Political Studies* 25(4):433–486.
- Kelman, I. & T. Koukis. 2000. "Disaster Diplomacy." *Cambridge Review of International Affairs* XIV:214–94.
- Kernell, Samuel. 1997. *Going public: New strategies of presidential leadership*. Washington DC: CQ Press.
- Key, V.O. 1966. *The Responsible Electorate*. New York: Vintage.
- Khan, Mizan R. & M. Ashiqur Rahman. 2007. "Partnership Approach to disaster Management in BangladeshL A Critical Policy Assessment." *Natural Hazards* 41:359–378.
- King, Gary. 1997. *A Solution To The Ecological Inference Problem*. New Jersey: Princeton University Press.
- King, Gary & Langche Zeng. 2001. "Explaining Rare Events in International Relations." *International Organization* 55(3):693–715.
- King, Gary, Robert O. Keohane & Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, New Jersey: Princeton University Press.
- Kingdon, John W. 1984. *Agendas, Alternatives, and Public Policies*. Boston: Little Brown.

- Klein, John P. & Melvin L. Moeschberger. 1997. *Survival Analysis: Techniques For Censored And Truncated Data*. New York: Springer.
- Klinenberg, Eric. 2005. "When Chicago Baked: Unheeded Lessons from Another Great Catastrophe." *Slate* .
- Kmenta, Jan. 1986. *Elements Of Economics*. Second ed. New York, London: Macmillan Publishing Company And Collier Macmillan Publishers.
- Krep, Gary A. 1998. Disaster as a systemic event and social catalyst. In *What is a Disaster? : Perspective on the Question*, ed. E. L. Quarantelli. Routledge chapter 4, pp. 31–55.
- Kronstadt, K. Alan, Pervaze A. Sheikh & Bruce Vaughn. 2010. Flooding in Pakistan: Overview and Issues for Congress. Crs report for congress Congressional Research Service Washington, DC: .
- Kronstandt, Alan K., Paul K. Kerr, Michael F. Martin & Bruce Vaughn. 2010. India-US Relations. Technical report Congressional Research Service, United States Congress. Congressional Research Service Report for Congress (Prepared for Members and Committees of Congress).
- Krueger, A. B. 2005. "At FEMA, disasters and politics go hand in hand."
- Kumar, Uthpal, Mohammed Abdul Baten, Abdullah Al Masud, Khandakar Showkat Osman & j. Mizanur Rahman. 2010. *Cyclone Aila: One Year On : Natural Disaster to Human Sufferings*. Dhaka, Bangladesh: Unnayan Onneshan-the Innovators: Centre for Research and Development.
- Lal, Padma Narsey, Tom Michell, Paulina Aldunce, Heather Auld, Reinhard Mechler, Alimulla Miyan, Luis Ernesto Romano & Salmah Zakaria. N.d. National Systems for Managing the Risks from Climate Extremes and Disasters. In *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, ed. Christopher B. Field, Vicente Barros, Thomas F. Stocker, Qin Dahe, David Jon Dokken, Kristie L. Ebi, Michael D. Mastrandrea, Katherine J. March, Gian-Kasper Plattner, Simon K. Allen, Melinda Tignor & Paulin M. Midgley. Vol. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC) Cambridge, UK and New York, NY, USA: Cambridge University Press pp. 339–392.
- Landy, Marc. 2008. "Mega-Disaster and Federalism." *Public Administration Review* Special Issue:S186–S189.

- Language Services, VOA History, Voice Of America.* 2012. <http://www.insidevoa.com/about/history/history-languages-111987754.html>.
- LaPalombara, Joseph. 1971. Penetration: A Crisis of Government Capacity. In *Crisis and Sequences in Political Development*. Studies in Political Development Princeton, New Jersey: Princeton University Press. chapter 6, pp. 205–282.
- Laver, Michael & Kenneth A. Shepsle. 1996. *Making and Breaking Governments: Cabinets and Legislatures in Parliamentary Democracies*. Cambridge: Cambridge University Press.
- Laver, Michael, Kenneth Benoit & John Garry. 2003. “Extracting Policy Positions from Political Texts Using Words as Data.” *American Political Science Review* 97(2):311–331.
- Laver, Michael & Norman Schofield. 1998. *Multiparty Government: The Politics of Coalition in Europe*. Ann Arbor: University of Michigan Press.
- Leeson, Peter T. & Russell S. Sobel. 2008. “Weathering Corruption.” *Journal of Law and Economics* 51:667–681.
- Leiten, G. K. & Prabhat Datta. 1995. “Panchayats in Dealing with Natural Disasters: 1993 Floods in Jalpaiguri.” *Economic and Political Weekly* pp. 828–832.
- Lester, W. & D. Krejci. 2008. “Business “Not” as Usual: The National Incident Management System, Federalism, and Leadership.” *Public Administration Review* Special Issue:S84–S93.
- Levi, Margaret. 1999. Producing an analytic narrative. In *Critical Comparisons in Politics and Culture*, ed. John r. Bowen & Roger Petersen. Cambridge, UK: Cambridge University Press chapter 8, pp. 152–172.
- Levin, Irwin P. 1999. *Relating Statistics And Experimental Design: An Introduction*. Number 07-125 in “Quantitative Applications In The Social Sciences” London, New Delhi: SAGE Publicatoins.
- Lewis-Bech, Michael S. 1995. *Data Analysis: An Introduction*. Number 07-103 in “Quantitative Applications In The Social Sciences” London, New Delhi: SAGE Publicatoins.
- Liberman, Evan. 2005. “Nested Analysis as a Mixed-Method Strategy for Comparative Research.” *American Political Science Review* 99(3):435–452.

- Lin, D. Y. 1994. "Cox Regression Analysis Of Multivariate Failure time Data: The Marginal Approach." *Statistics in Medicine* 13:2233–2247.
- Lin, D. Y. & L. J. Wei. 1989. "The Robust Inference For The Cox Proportional Hazards Model." *Journal of the American Statistical Association* 84(408).
- Lin, D. Y., L. J. Wei & Zhiliang Ying. 1998. "Accelerated Failure Time Models For Counting Processes." *Biometrika* 85(3):605–618.
- Linz, Juan & Alfred Stepan, eds. 1978. *The Breakdown of Democratic Regimes*. Baltimore, Maryland: Johns Hopkins University Press.
- Linz, Juan J. 1978. Crisis, Breakdown, and Reequilibration. In *The Breakdown of Democratic Regimes.*, ed. Juan J. Linz & Alfred Stepan. Baltimore, Maryland: Johns Hopkins University Press.
- Linz, Juan J. 1990. "The perils of presidentialism." *Journal of Democracy* 1(1):51–69.
- Linz, Juan J. 1994. Presidential or Parliamentary Democracy: Does it Make a Difference? In *The Failure of Presidential Democracy. Vol. 2*, ed. Juan J. Linz & Arturo Valenzuela. The Johns Hopkins University Press p. 5.
- Lipset, Seymour Martin & William Schneider. 1983. *The Confidence Gap: Business, Labor, and Government in the Public Mind*. Studies of the Modern Corporation, Graudate School of Business, Columbia University Press New York and London: The Free Press, A Division of Macmillan, Inc. and collian Macmillan Publishers.
- Lipset, Seymour Martin. 1959. *Political Man: The Social Bases of Politics*. New York: Anchor Books-Doubleday and Company Inc.
- Liu, Brooke Fisher. 2005. "President Bush's Major post-Katrina speeches: Enhancing image repair discourse theory applied to the public sector." *Public Relations Review* 33:40–48.
- Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Number 7 in "Advanced Quantitative Techniques in Social Sciences" Thousand Oaks: SAGE Publicatoin.
- Lönnqvist, Linda, Nurul Huda, Nurul Kabir, Rokeya Zevin Kaisari, Mahmuda Khandker & Subhash Saha Chandra. 2010. "Shortcut to the frontline: supporting local NGOS on climate change in Bangladesh: An INTRAC/TRIP Trust research report." *INTRAC: International NGO Training and Research Center Occasional Paper Series*(50).

- Lupia, Arthur. 2003. Delegation and its Peril. In *Delegation and Accountability in Parliamentary Democracies*. Oxford University Press pp. 33–54.
- Machiavelli, Niccolo. 1903. *The Prince*. London: Grant Richards.
- Majumdar, Bappa. 2010. “Q and A: How big is the Maoist threat in India?” *Reuters*. <http://www.reuters.com/article/2010/04/06/us-india-maoists-qa-idUSTRE63517A20100406>, Accessed February 28, 2013.
- Malhotra, Neil & Alexander G. Kuo. 2008. “Attributing Blame: The Public’s Response to Hurricane Katrina.” *The Journal of Politics* 70(1):120–135.
- Malone, David & Rohan Mukherjee. 2010. Polity, Security, and Foreign Policy in Contemporary India. In *South Asia’s Weak States: Understanding the Regional Insecurity Predicaments*, ed. T. V. Paul. Stanford University Studies Stanford University Press pp. 147–169.
- Marshall, Monty G., Tedd Robert Gurr & Keith Jagers. 2010. “Polity IV Project: Political Regime Characteristics, 1800-2009 [2010].”. www.systemicpeace.org/polity/polity4.htm.
- Marshall, Monty & Ted Robert Gurr. 2003. *Peace and conflict 2003: a global survey of armed conflicts, self-determination movements, and democracy*. University of Maryland: Center for International Development and Conflict Management.
- Maskin, Eric S. 1985. The theory of implementation in Nash equilibrium: a survey. In *Social Goals and Social Organization*, ed. Leonid Hurwicz, David Schmeidler & Hugo Sonnenschein. Cambridge University Press pp. 173–204.
- Maskin, Eric S. 1999. The theory of implementation in Nash equilibrium: a survey. In *Social Goals and Social Organization*, ed. Leonid Hurwicz, David Schmeidler & Hugo Sonnenschein. Cambridge University Press pp. 173–204.
- McAdam, Doug. 1982. *Political process and the development of black insurgency*. Chicago: University of Chicago Press.
- McAdam, Doug, Robert J. Sampson, Simon Weffer & Heather MacIndoe. 2005. ““There will be fighting in the streets”: the distorting lens of social movement theory.” *Mobilization: An International Journal* 10(1):1–18.
- McChesney, Robert W. 2000. *Rich Media, Poor Democracy: Communication Politics in Dubious Times*. New York: The New Press.

- McCubbins, Mathew D., Roger G. Noll & Barry R. Weingast. 1987. "Administrative Procedures as Instruments of Political Control." *Journal of Law, Economics, and Organization* 3(2):243–277.
- McCubbins, Mathew D. & Thomas Schwartz. 1984. "Congressional Oversight Overlooked: Police Patrols versus Fire Alarms." *American Journal of Political Science* 28(1):165–179.
- McEntire, David A. 2004. "Development, disasters and vulnerability: a discussion of divergent theories and the need of their integration." *Disaster Prevention and Management* 13(3):193–198.
- McEntire, David A. 2006. Local Emergency Management Organization. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer chapter 10, pp. 168–182.
- McEntire, David A. & Amy Myers. 2004. "Preparing communities for disasters: Issues and processes for government readiness." *Disaster Prevention and Management* 13(2):140–152.
- McGilchrist, C. A. 1993. "REML Estimation For Survival Models With Frailty." *Biometrics* 49:221–225.
- Mehdi, Hasan. 2010. *Climate Induced Displacement: Case Study of Cyclone Aila in the Southwest Coastal Region of Bangladesh*. Khulna, Bangladesh: humanity-watch.
- Menard, Scott. 2002. *Applied Logistic Regression Analysis*. Number 07-106 in "Quantitative Applications In The Social Sciences" second ed. London, New Delhi: SAGE Publicatoin.
- Merolla, Jennifer L. & Elizabeth J. Zechmeister. 2009. *Democracy at Risk: How Terrorist Threats Affect the Public*. Cambridge: The University of Chicago Press.
- Merriam-Webster's Collegiate Dictionary*. 1993. Tenth ed. USA: Merriam-Webster Inc.
- Meunier, Sophie. 2003. "Trade Policy and Political Legitimacy in the European Union." *Comparative European Politics* 1:67–90.
- Migdal, Joel S. 2001. *State in Society: Studying How States and Societies Transform and Constitute One Another*. Cambridge: Cambridge University Press.

- Mileti, Dennis S. 1999. *Disasters by design: A reassessment of natural hazards in the United States*. Washington DC: Joseph Henry Press.
- Miller, Irwin & Marylees Miller. 2004. *Freund's Mathematical Statistics with Application*. Seventh ed. Upper Saddle River, New Jersey: Pearson: Prentice Hall.
- Mills, C. W. 1959. *The Sociological Imagination*. New York: Grove.
- Moe, Terry M. 2006. Power and Political Institutions. In *Rethinking Political Institutions: The Art of the State*, ed. Stephen Skowronek Ian Shapiro & Daniel Galvin. New York University Press pp. 32–71.
- Momen, Mehnaz. 2009. “Bangladesh in 2008: D’ej’a Vu Again or Return to Democracy.” *Asian Survey* 49(1):66–73.
- Momen, Mehnaz. 2010. “Bangladesh in 2009: The Peril Within.” *Asian Survey* 50(1):157–163.
- Mooney, Christopher Z. & Robert D. Duval. 1993. *Bootstrapping: A Nonparametric Approach To Statistical Inference*. Number 07-095 in “Quantitative Applications In The Social Sciences” London, New Delhi: SAGE Publicatoins.
- Mote, Frederick. W. 1999. *Imperial China: 900–1800*. Cambridge: Harvard University Press.
- Moy, Patricia, Michael R. McCluskey, Kelley McCoy & Margaret A. Spratt. 2004. “Political correlates of local media use.” *Journal of Communication* 54(3):532–546.
- MSNBC. 2006. “Katrina: The Long Road Back.” <http://www.msnbc.msn.com/id/11281267>.
- Mueller, Carol McClurg. 1997. “International press coverage of East German protest events, 1989.” *American Sociological Review* 62:820–32.
- Mukherjee, Rohan & David Malone. 2011. “Indian Foreign Policy and Contemporary Security Challenges.” *International Affairs* 87(1):87–104.
- Mukherjee, Sanjeeb. 2007. “The Use and Abuse of Democracy in West Bengal.” *Economic & Political Weekly* 42(44):101–108.
- Mukhopadhyay, Amites. 2009. *Cyclone Aila and the Sundarbans: An Enquiry into the Disaster and Politics of Aid and Relief*. Planning Commission, Government of India: Manhanirban Calcutta Research Group.

- Muller, Edward N., Thomas O. Jukam & Mitchell A. Seligson. 1982. "Diffuse Political Support and Antisystem Political Behavior: A Comparative Analysis." *American Journal of Political Science* 26 (2):240–265.
- Mustafa, Danish. 2003. "Reinforcing vulnerability? Disaster relief, recovery, and response to the 2001 flood in Rawalpindi, Pakistan." *Environmental Hazards* 5(3-4):71–82.
- Nadeau, Richard & Michael S. Lewis-Beck. 2001. National Economic Voting in U.S. Presidential Elections. In *Controversies in Voting Behavior*, ed. Richard G. Neimi & Herbert F. Weisberg. Fourth ed. Washington, DC: CQ Press pp. 200–220.
- National Governor's Association. 1979. Comprehensive Emergency Management: A Governor's Guide. Technical report Comprehensive Emergency Management: A Governor's Guide Washington DC: .
- NDMA. 2007. *National Disaster Management Guidelines: Preparation for State Disaster Management Plans*. New Delhi: National Disaster Management Authority, Government of India.
- Neal, David M. 1997. "Reconsidering the Phases of Disaster." *International journal of Mass Emergencies and Disasters* 15(2):239–264.
- Nell, Philip & Marjolein Righarts. 2008. "Natural Disasters and the Risk of Violent Vicil Conflict." *International Studies Quarterly*. 52:159–185.
- Neuendorf, Kimberley A. 2002. *The Content Analysis Guidebook*. Thousand Oaks, California: SAGE Publications.
- New York Times. 1970a. "Pakistan Now Puts Official Death Toll In Storm at 150,000." *New York Times* .
- New York Times. 1970b. "East Pakistan Failed To Use Storm-Warning System." *New York Times* .
- New York Times. 1970c. "Yahya Directing Disaster Relief." *New York Times* .
- New York Times. 1970d. "East Pakistani Leaders Assail Yahya on Cyclone Relief." *New York Times* .
- New York Times. 2007. "Cyclone Warning Saved Many." . November 23.

- New York Times. 2009. "Sichuan Earthquake." http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.html. Accessed July 14, 2012.
- Newton, H. Joseph & Nicholas J. Cox, eds. 2006. *Thirty-Three Stata Tips*. Texas: A Stata Press Publication.
- Ninno, Carlo Del & Paul A. Dorosh. 2003. "Public Policy, Markets and Household Coping Strategies in Bangladesh: Avoiding a Food Security Crisis Following the 1998 Floods." *World Development* 31(7):1221–1238.
- Noll, R. G. 1996. "The complex politics of catastrophe economics." *Journal of Risk and Uncertainty* 12(2–3):141–46.
- Norris, Pippa. 1999. Institutional Explanation for Political Support. In *Critical Citizens: Global Support for Democratic Governance*. Oxford University Press.
- Norris, Pippa. 2008. *Driving Democracy: Do Power-Sharing Institutions Work?* Cambridge: Cambridge University Press.
- North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, Douglass C. 2005. *Understanding the Process of Economic Change*. New Jersey: Princeton University Press.
- Noy, Ilan. 2009. "The Macroeconomic consequences of disasters." *Journal of Development Economics* 88:221–231.
- Noy, Ilan & Aekkanush Nualsri. 2007. "What do exogenous shocks tell us about growth theories?" *SCCIE Working Paper #07-16*. <http://scie.ucsc.edu/>.
- NVivo. 2011. *NVivo: A Qualitative Data Analysis Software*. QSR International Pty Ltd. Version 9, 2011. NVivo is a computer-assisted qualitative data analysis software program.
- O'Donnel, Charles Peter. 1984. *Bangladesh: Biography of a Muslim Nation*. Boulder and London: West View Press.
- O'Donnell, Guillermo. 1973. *Modernization and Bureaucratic-Authoritarianism: Studies in South American Politics*. Politics of Modernization Series 9 University of California, Berkeley: Institute of International Studies.

- O'Donnell, Guillermo O, Phillip Schmitter & Laurence Whitehead, eds. 1986. *Transitions from Authoritarian Rule: Comparative Perspectives*. Baltimore, Maryland: Johns Hopkins University Press.
- OFDA/CRED. 2011. "EM-DAT: The OFDA/CRED International Disaster Database." [www.cred/beemdat](http://www.cred.beemdat).
- Oliver, Pamela E. & Gregory M. Maney. 2000. "Political Process and Local Newspaper Coverage of Protest Events: From Selection Bias to Triadic Interaction." *American Journal of Sociology* 106(2):463–505.
- Olmeda, Jose A. 2008. A reversal of fortune: blame games and framing contests after the 3/11 terrorist attacks in Madrid. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Paul T'Hart Arjen Boin, Allan McConnell. Cambridge University Press pp. 62–84.
- Olsen, John P. 2004. "Citizens, Public Administration and the Search for Theoretical Foundations." *PS: Political Science and Politics* pp. 69–79.
- Olson, Mancur. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge: Harvard University Press.
- Olson, Richard Stuart. 2000. "Toward a politics of disaster: Losses, agendas, and blame." *International journal of Mass Emergencies and Disasters* 18(2):256–87.
- Olson, Richard Stuart & A. Cooper Drury. 1997. "Un-Therapeutic Communities: A Cross-National Analysis of Post-Disaster Political Unrest." *International journal of Mass Emergencies and Disasters* 15:221–238.
- Olson, Richard Stuart & Vincent T. Gawronski. 2010. "From Disaster Event to Political Crisis: A "5C+A" Framework for Analysis." *International Studies Perspectives* 11(3):205–221.
- Palmer, Glenn, Tamar London & Patrick Regan. 2004. "What's stopping you? The sources of political constraints on international conflict behavior in parliamentary democracies." *International Interaction* 30(1):1–24.
- Pan, Esther. 2005. "India-Pakistan: Peace after the earthquake?". Council on Foreign Relations, <http://www.cfr.org/india/india-pakistan-peace-after-earthquake/p9006>, Accessed March 1, 2013.
- Passarini, Eve. 2001. "Who is to blame for the failure of sustainable reconstruction projects?" *Natural Hazard Reveiw* 2:45–53.

- Paul, Bimol Kanti. 1997. "Flood Research in Bangladesh in Tetrospect and Prospect: Review." *Geoforum* 28(2):121–131.
- Paul, Bimol Kanti. 2006. "Disaster relief efforts: an update." *Progress in Development Studies* 6(3):211–233.
- Paul, Bimol Kanti. 2009. "Why Relatively Fewer People Died? The Case of Bangladesh's Cyclone Sidr." *Natural Hazard* 50:289–304.
- Pei, Minxin & David Adesnik. 2000. "Why Recessions Don't Start Revolutions." *Foreign Policy* Spring:138–152.
- Pelling, Mark & Kathleen Dill. 2008. "Disaster politics: from social control to human security." www.kcl.ac.uk/schools/sspp/geography/research/epd/working.html.
- Pelling, Mark & Kathleen Dill. 2010. "Disaster politics: tipping points for change in the adaptation of sociopolitical regimes." *Progress in Human Geography* 34(1):21–37.
- Peris, Vilani. 2006. "Kashmir earthquake survivors face another freezing winter without adequate shelter." World Socialist Website <http://www.wsws.org/en/articles/2006/10/kash-o12.html>, accessed March 4, 2013.
- Perry, Elizabeth. 2002. *Challenging the Mandate of Heaven: Social Protest and State Power in China*. New York: M.E. Sharpe Inc.
- Perry, Ronald W. 2006. What is Disaster? In *Handbook of disaster research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 1–15.
- Pierson, Paul. 2000. "Increasing returns, path dependence, and the study of politics." *American Political Science Review* 94(2):251–267.
- Pierson, Paul. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton and Oxford: Princeton University Press.
- Pierson, Paul. 2006. Public Policies as Institutions. In *Rethinking Political Institutions: The Art of the State*, ed. Stephen Skowronek Ian Shapiro & Daniel Galvin. New York University Press pp. 115–131.
- Planning Commission, Government of India. 2008. *Eleventh Five Year Plan (2007–2012) Inclusive Growth*. Vol. 1 New Delhi: Oxford University Press.
- Planning Commission, Government of India. 2010a. *West Bengal Development Report*. New Delhi: Academic Foundation.

- Planning Commission, Government of India. 2010b. *West Bengal Development Report*. New Delhi: Academic Foundation.
- Platt, Rutherford. 1999. *Disasters and democracy: The politics of extreme natural events*. Washington DC: Island.
- Plunkett, John. 2011. "BBC World Service to 'cut up to 650 jobs': Unprecedented round of staff cuts expected as corporation seeks to make 50m of savings from international broadcasting operations." *The Guardian* January(Tuesday 25).
- Porfiriev, Boris N. 2006. Disaster and Crisis Management in Transitional Societies: Commonalities and Peculiarities. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 368–387.
- Power, Timothy J. & Jennifer M. Cyr. 2009. "Mapping political legitimacy in Latin America." *International Social Science Journal* 60(196):253–272.
- Prakash, Siddhartha. 2000. "The political economy of Kashmir since 1947." *Contemporary South Asia* 9(3):315–337.
- Przeworski, Adam & Henry Teune. 1970. *The Logic of Comparative Social Inquiry*. New York: John Wiley and Sons, Inc.
- Przeworski, Adam, Michael Alvarez, Jose Antonio Cheibub & Fernando Limongi. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge: Cambridge University Press.
- Purvis, Nigel & Joshua Busby. 2004. The Security Implications of Climate Change for the UN System. In *Environmental Change and Security Project Report*. Washington, D.C.: Woodrow Wilson International Center for Scholars pp. 67–73.
- Pye, Lucian W. 1971. The Legitimacy Crisis. In *Crisis and Sequences in Political Development*. Studies in Political Development Princeton, New Jersey: Princeton University Press. chapter 4.
- Quarantelli, E. L., ed. 1998. *What is a disaster? Perspectives on the question*. New York: Routledge.
- Quarantelli, E. L., Patrick Lagadec & Arjen Boin. 2006. A Heuristic Approach to Future Disasters and Crises: New, Old and In-Between Types. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 16–41.

- Ragin, Charles C. 1987. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley: University of California Press.
- Rawls, John. 1993. *Political Liberalism*. Expanded edition ed. Columbia University Press.
- Regan, Patrick M. & Sam R. Bell. 2010. "Changing lanes or struck in the middle: why are anocracies more prone to civil wars?" *Political Research Quarterly* 63(4):747–759.
- Remmer, Karen L. 1996. "The Sustainability of Political Democracy: Lessons From South America." *Comparative Political Studies* 29(6):611–634.
- Repley et al, A. 2006. "An American tragedy: four places where the system broke down." *Time* 166:34–41.
- Resler, Tamara J. & Roger E. Kanet. 1993. "Democratization: The national-subnational linkage." *In Depth* 3:5–22.
- Reuveny, Rafael. 2007. "Climate change-induced migration and violent conflict." *Political Geography* 26:656–673.
- Rhodes, R.A.W. 2002. Governance and Public Administration. In *Debating Governance*, ed. John Pierre. Oxford University Press.
- Rhodes, R.A.W. 2006. Executives in Parliamentary Government. In *The Oxford Handbook of Political Institutions*, ed. R.A.W. Rhodes, Sarah A. Binder & Bert A. Rockman. Oxford University Press pp. 115–131.
- Riaz, Ali. 2010. Bangladesh: A "Weak State" with Multiple Security Challenges. In *South Asia's Weak States: Understanding the Regional Insecurity Predicament*, ed. T. V. Paul. Stanford, California: Stanford Security Studies, Stanford University Press pp. 241–264.
- Riess, Christopher. 2011. "World Press Trend 2011." <http://www.wan-ifra.org/articles/2010/11/26/world-press-trends>.
- Risse, Thomas. 2011. Governance in Areas of Limited Statehood: Introduction and Overview. In *Governance Without A State: Policies and Politics in Areas of Limited Statehood*, ed. Thomas Risse. New York: Columbia University Press chapter 1, pp. 1–35.
- Roberts, Alasdair. 2010. "A Great and Revolutionary Law? The First Four Years of India's Right to Information Act." *Public Administration Review* 70(6):925–933.

- Robinson, Nick & Nawreen Sattar. 2012. "When Corruption is an Emergency: "Good Governance" Coups and Bangladesh." *Fordham International Law Journal* 35:737–779.
- Rodriguez, Havidan, Enrico L. Quarantelli & Russell R. Dynes, eds. 2007. *Handbook of disaster research*. New York: Springer.
- Rosenblaum, Nancy. 2009. "Responsible Congress and Political Time." *Boston University Law Review* 89:715–725.
- Rustad, Siri Camilla Aas, Halvard Buhaug, Ashild Falch & Scott Gates. 2011. "All Conflict is Local: Modeling Sub-National Variation in Civil Conflict Risk." *Conflict Management and Peace Science* 28(1):15–40.
- Salanie, Bernard. 1997. *The Economics of Contract: A Primer*. Cambridge, MA: The MIT Press.
- Sargent, Daniel J. 1998. "A General Framework For Random Effects Survival Analysis In The Cox Proportional Hazards Setting." *Biometrics* 54:1486–1497.
- Sartori, Giovannin. 1997. *Comparative constitutional engineering: an inquiry into structures, incentives, and outcomes*. Second ed. New York University Press.
- Schanberg, Sydney. 1970a. "Foreign Relief Spurred." *New York Times* .
- Schanberg, Sydney. 1970b. "Pakistan Fear Cholera's Spread." *New York Times* .
- Schanberg, Sydney. 1970c. "Yahya Concedes 'Slips' in Relief." *New York Times* .
- Scharpf, Fitz. 1999. *Governing in Europe: Effective and Democratic?* New York: Oxford University Press.
- Schneider, Sandra K. 1990. "Book review: Disaster relief: The politics of intergovernmental relations, by R. M. Stratton." *Publius: The Journal of Federalism* 20(4):170–71.
- Schneider, Saundra. 2008. "Who's to Blame? (Mis) perception of the Intergovernmental Response to Disaster." *Publius: The Journal of Federalism* 38(4):715–738.
- Scholze, Marcko, Wolfgang Knorr, Nigel W. Arnell & Colin Prentice. 2006. "A Climate Change Risk Analysis for World Ecosystems." *Proceedings of the National Academy of Sciences*. 103(35):13116–13120.
- Scott, James C. 1976. *The Moral Economy of the Peasant*. New Heaven and London: Yale University of Press.

- Segal, Jefferey A., Lee Epstein, Charles M. Cameron & Harold Spaeth. 1995. "Ideological Values and Votes of US Supreme Court Revisited." *Journal of Politics* 57(3):812–823.
- Seligson, M.A. & J. Booth. 2009. *The legitimacy puzzle: Political support and democracy in Latin America*. New York: Cambridge University Press.
- Selvin, Steve. 2008. *Survival Anallysis for Epidemiologic and Medical Research*. First ed. New York: Cambridge University Press.
- Shepsle, Kenneth A. 1989. "Studying Institutions: Some Lessons from the Rational Choice Approach." *Journal of Theoretical Politics* 1(2):137–147.
- Shepsle, Kenneth A. & Mark S. Bonchek. 1997. *Analyzing Politics: Rationality, Behavior, and Institutions*. New York: W.W. Norton and Company.
- Shils, Edward. 1975. *Center and Periphery: Essays in Macrosociology*. Chicago: The University of Chicago Press.
- Shively, Phillip W. 2011. *The Craft of Political Research*. Longman Classics in Political Science Boston: Longman.
- Shugart II, William F. 2006. "Katerinanomics: The Politics and Economics of Disaster Relief." *Public Choice* 127:31–53.
- Shugart, Mathew Soberg & Stephan Haggard. 2001. Institutions and Public Policy in Presidential System. In *Presidents, Parliaments, and Policy*, ed. Stephan Haggard & Mathew D. Mccubbins. Cambridge University Press pp. 64–102.
- Shugart, Matthew Soberg & John M. Carey. 1995. *Presidents and Assemblies: Constitutional Design and Electoral Dynamics*. Cambridge: Cambridge University Press.
- Shuggart, Matthew Soberg & Stephan Haggard. 2001. Institutions and Public Policy in Presidential System. In *Presidents, Parliaments, and Policy*, ed. Stephan Haggard & Mathew D. Mccubbins. Cambridge University Press pp. 64–102.
- Simon, Julian L. 1984. Intorduction. In *The Resourceful Earth*, ed. Julian L. Simon & Herman Kahn. New York: Basil Blackwell.
- Singer, Eleanor, Phyllis Endreny & Marc B. Glassman. 1991. "Media Coverage of Disasters: Effect of Geographic Location." *Journalism Quarterly* 68(2):48–58.
- Skocpol, Theda. 1995. "The role of theory in comparative politics." *World Politics* 48:37–46.

- Smith, Alastair & Alejandro Quiroz Flores. 2010 (July 15). "Disaster Politics: why earthquakes rock democracies less." *Foreign Affairs* .
- Sneider, Sandra K. 1992. "Governmental response to disasters: the conflict between bureaucratic procedures and emergent norms." *Public Administration Review* 52(2):135–145.
- Snijders, Tom & Roel Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. London and Thousand Oaks and New Delhi: SAGE Publications.
- Sobel, Russell S. & Peter T. Leeson. 2006. "Government's Response to Hurricane Katrina: A Public Choice Analysis." *Public Choice* 127:55–73.
- Sobhan, Rehman. 1993. *Bangladesh: Problems of Governance*. Vol. 1 of *Governing South Asia* New Delhi: Konak Publishers.
- Sobhan, Rehman. 2007. *Challenging injustice, An Odyssey of a Bangladeshi Economist*. Dhaka, Bangladesh: Center for Policy Dialogue.
- Sprout, Harold. 1931. "Political Geography as a Political Science Field." *American Political Science Review* 25(2):439–442.
- Staelraeve, Sofie & Paul T'Hart. 2008. Dutroux and Dioxin: crisis investigations, elite accountability and institutional reform in Belgium. In *Governing After Crisis: The Politics of Investigation, Accountability and Learning*, ed. Paul T'Hart Arjen Boin, Allan McConnell. Cambridge University Press pp. 148–182.
- Stallings, Robert A. 2002. "Weberian Political Sociology and Sociological Disaster Studies." *Sociological Forum* 17(2):281–305.
- Stallings, Robert A. 2006. Methodological Issues. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 55–82.
- Star Report. 2012. "Padma Bridge Project: Bangladesh must rely on WB, SAYS the Economist." *The Daily Star* .
- Steckler, Michael S., S. Humayun Akter & Leonardo Seeber. 2008. "Collision of the Ganges–Brahmaputra Delta with the Burma Arc: Implications for earthquake hazard." *Earth and Planetary Science Letters* 273:367–378.
- Strøm, Kaare. 2003a. *Delegation and Accountability in Parliamentary Democracies*. Oxford: Oxford University Press.

- Strøm, Kaare. 2003*b*. Parliamentary Democracy and Delegation. In *Delegation and Accountability in Parliamentary Democracies*. Oxford University Press pp. 55–106.
- Strøm, Kaare & Stephen M. Swindle. 2002. “Strategic Parliamentary Dissolution.” *American Political Science Review* 96(3):575–591.
- Sullivan, Walter. 1970. “Disaster: East Pakistan Cyclone May Be The Worst Catastrophe of Century.” *New York Times* p. 169.
- Svolik, Milan. 2008. “Authoritarian Reversals and Democratic Consolidation.” *American Political Science Review* 102(2):153–168.
- Telegraph. 2010. “West immune to natural disasters ’so the people can sin and be condemned to hell’.” Online. 14 May.
- t’Hart, Paul, Karen Tindall & Christer Brown. 2009. “Crisis Leadership of the Bush Presidency: Advisory Capacity and Presidential Performance in the Acute Stages of the 9/11 and Katrina Crises.” *Presidential Studies Quarterly*. 39(3):473–493.
- The Disaster Handbook. 1998. *The Disaster Handbook*. National edition ed. University of Florida: Institute of Food and Agriculture Sciences.
- Theis, Cameron. 2010. “Of rulers, rebels, and revenue: State capacity, civil war onset, and primary commodities.” *Journal of Peace Research* 47(3):321–332.
- Themnér, Lotta & Peter Wallensteen. 2011. “Armed Conflict, 1946-2011.” *Journal of Peace Research* 48(4):525–536.
- Therneau, Terry M & Patricia M. Grambsch. 2000. *Modeling Survival Data: Extending The Cox Model*. New York: Springer.
- Therneau, Terry M & Scott A Hamilton. 1997. “rhDNase As An Example Of Recurrent Event Analysis.” *Statistics in Medicine* 16:2029–2047.
- Thies, Michael F. 2001. “Keeping Tabs on Partners: The Logic of Delegation in Coalition Governments.” *American Journal of Political Science* 45(3):580–598.
- Thomalla, Frank & Hanna Schmuck. 2004. ““We All Knew That A Cyclone Was Coming”: Disaster Preparedness And The Cyclone Of 1999 In Orissa, India.” *environmental vulnerability assessment EVA Working Paper No. 8, DINAS-COAST Working Paper No. 13*:1–23.
- Thomas, E. 2005*a*. “How Bush blew it.” *Newsweek* 146:42–52.

- Thomas, E. 2005b. "The lost city." *Newsweek* 146:42–52.
- Thorp, John P. 1987. "Sheikh Mujibur Rahman, A Cyclone And The Emergence of Bangladesh." *South Asia Research* 7(2):143–167.
- Tierney, Kathleen J. 1985. "Emergency medical preparedness and response in disasters: the need for interorganizational Emergency medical preparedness and response in disasters: the need for interorganizational coordination." *Public Administration Review* 45(77).
- Tierney, Kathleen J. 2006. Recent Development in US Homeland Security Policies and Their Implications for the Management of Extreme Events. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 405–412.
- Tilly, C. & A. L. Stinchcombe. 1997. *Roads From Past to future*. Lanham: Rowman and Littlefield.
- Tilly, Charles. 1978. *From Mobilization to Revolution*. Reading, MA: Addison Wesley.
- Tilly, Charles. 2004. *Social Movements, 1768-2004*. Boulder and London: Paradigm Publisher.
- Tilly, Charles. 2005. *Trust and Rule*. Cambridge: Cambridge University Press.
- Today, US. 2003. "France heat wave death toll set at 14,802." URL:http://www.usatoday.com/weather/news/2003-09-25-france-heat_x.htm.
- Tsebelis, George. 1995. "Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism, Multipartyism." *British Journal of Political Science* 25(3):289–325.
- Tsebelis, George. 2002. *Veto Players: How Political Institutions Work*. New York and Princeton, New Jersey: Russell Sage Foundation and Princeton University Press.
- Tsebelis, George & Jeannette Money. 1997. *Bicameralism*. Cambridge: Cambridge University Press.
- UCDP/PRIO. 2011. *UCDP/PRIO Armed Conflict Dataset Codebook (Version4-2011)*. 4-2011 ed. Uppsala University and International Peace Research Institut, Oslo: Uppsala Conflict Data Program(UCDP) and Center for the Study of Civil Wars, International Peace Research Institut, Oslo (PRIO).

- UN. 2010. *Cyclone Aila: Joint UN Multi-Sector Assessment and Response Framework*. New York: United Nations.
- UN-HABITAT. 2007a. *Cities and Climate Change*. Technical report UN-HABITAT.
- UN-HABITAT. 2007b. *Global Report on Human Settlements, 2007: Enhancing Urban Safety and Security*. Technical report UN-HABITAT.
- UNDES. 2007. "World Population Prospects: The 2006 Revision. Highlights." *United Nations, Department of Economic and Social Affairs, Population Division*. http://www.un.org/esa/population/publications/wpp2006/WPP2006_Highlights_rev.pdf (January 21, 2013).
- UNDES. 2011. "World Population Prospects: The 2010 Revision. Volume 1: Comprehensive Tables." *United Nations, Department of Economic and Social Affairs, Population Division*. http://esa.un.org/unpd/wpp/JS-Charts/pop-tot_0.htm (November 21, 2012).
- UNDP. 2011. *The Human Development Report 2011. Sustainability and Equity: A Better Future for All*. New York: Palgrave Macmillan.
- UNISDR. 2012. "Terminology: basic terms of disaster risk reduction." <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm>. Accessed July 14, 2012.
- UNISDR-PPEW. 2012. "Basics of Early Warning." Online. <http://www.unisdr.org/2006/ppew/whats-ew/basics-ew.htm> Accessed July 13, 2012.
- Urdal, Henrik. 2005. "People vs Malthus: Population Pressure, Environmental Degradation, and Armed Conflict Revisited." *Journal of Peace Research* 42(4):417–434.
- USAID. 2002. "Windows of Vulnerability and Opportunity." pp. 105–112. <http://www.usaid.gov/fani/overview/index.htm>. Accessed: November 21, 2012.
- USAID. 2005. "South Asia - Earthquake." Fact Sheet #25, Fiscal Year (FY) 2006, United States Agency for International Development, Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA), and Office of Foreign Disaster Assistance (OFDA), USA.
- Vaida, Florin & Ronghui Xu. 2000. "Proportional Hazards Model With Random Effects." *Statistics in Medicine* 19:3309–3324.

- van Schendel, Willem. 2009a. *A History of Bangladesh*. Cambridge and New York: Cambridge University Press.
- van Schendel, William. 2009b. *A History of Bangladesh*. Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore: Cambridge University Press.
- Vaughn, Bruce. 2010. "Bangladesh: Political and Strategic Developments and U.S Interest." *CRS Reports for Congress (Prepared for Members and Committees of Congress)* 7-5700:1–20. www.crs.gov. Accessed April 1.
- Volden, C. 2002. "The Politics of Competitive Federalism: A Race to the Bottom in Welfare Benefits?" *American Political Science Review* 46(2):352–363.
- Vreeland, James Raymond. 2008. "The Effect of Political Regime on Civil War: Unpacking Anocracy." *Journal of Conflict Resolution* 52(3):401–425.
- Wade, Matt. 2010. "Anger over Pakistan leader's flood absence: Zardari's government 'vulnerable'." Newspaper.
- Walgrave, Stefaan, Stuart Soroka & Michiel Nuytemans. 2007. "The Mass Media's Political Agenda-Setting Power: A Longitudinal Analysis of Media, Parliament, and Government in Belgium (1993 to 2000)." *Comparative Political Studies* 45(2).
- Wall Street Journal. 2008. "How the presidents stack up." <http://online.wsj.com/public/resources/documents/info-presapp0605-31.html>.
- Walton, John & Charles Ragin. 1990. "Global and national sources of political protest: third world responses to the debt crisis." *American Sociological Review* 55:876–890.
- Waugh Jr., William L. 2006. Terrorism as Disaster. In *A Handbook of Disaster Research*, ed. Enrico L. Quarantelli Havidan Rodriguez & Russell R. Dynes. Springer pp. 388–404.
- Wax, Emily. 2007. "In Flood-Prone Bangladesh, a Future That Floats." *The Washington Post* . <http://www.washingtonpost.com/wp-dyn/content/article/2007/09/26/AR2007092602582.html>. Accessed: November 21, 2012 .
- Weaver, R. Kent & Bert A. Rockman. 1993. Assessing the Effects of Institutions. In *Do Institutions Matter?: Government Capabilities in the United States and Abroad*, ed. R. Kent Weaver & Bert A. Rockman. The Brookings Institute.
- Weber, Max. [1946] 1958. Politics as a vocation. In *From Max Weber*, ed. H. H. Gerth & C.W. Mills. A Galaxy Book.

- Weber, Max. [1954] 1978. The Type of Legitimate Domination: The Basis of Legitimacy. In *Economy and Society*, ed. Guenther Roth & Claus Wittich. Vol. 1 and 2 Berkeley: University of California Press. chapter III.
- Weber, Robert Phillip. 1990. *Basic Content Analysis*. Number 07-049 in “Quantitative Applications In The Social Sciences” Newbury Park and London and New Delhi: SAGE Publications.
- Wei, L J. 1992. “The Accelerated Failure Time Model: A Useful Alternative To The Cox Regression Model In Survival Analysis.” *Statistics in Medicine* 11:1871–1879.
- Wei, L. J. & David V. Glidden. 1997. “An Overview of Statistical Methods for Multiple Failure Time Data in Clinical Trails.” *Statistics in Medicine* 16:833–839.
- White, Stacey. 2010. “The 2010 Flooding Disaster in Pakistan: An Opportunity for Governance Reform or Another Layer of Dysfunction?”.
- WHO Emergency and Humanitarian Action. 2012. “Bangladesh: Hazard Profile and Disaster Preparedness.” *EHA in the WHO South-East Asia Region (Dhaka, Bangladesh)* . http://www.searo.who.int/LinkFiles/EHA_CP_Bangladesh.pdf (November 21, 2012).
- Wienke, Andreas. 2011. *Frailty Models in Survival Analysis*. Chapman and Hall CRC Biostatistics Series Boca Raton, USA: CRC Press: Taylor and Francis Group.
- Wilhite, Donal A. 1983. “Government Response to Drought in the United States: With Particular Reference to the Great Plains.” *Journal of Climate and Applied Meteorology* 22:40–50.
- Wolfe, R., H. Bailey & E. Clift. 2005. “Yet another Gulf War.” *Newsweek* 47.
- Wong, Edward. 2008. “How Angel of Sichuan Saved School in Quake.” *The New York Times* . <http://www.nytimes.com/2008/06/16/world/asia/16quake.html>.
- Wood, James. 1990. *History of International Broadcasting*. London: P. Peregrinus Ltd. in association with the Science Museum.
- World Bank. 2012. “World Development Indicators.” *The World Bank* . <http://data.worldbank.org/data-catalog/world-development-indicators> (November 21, 2012).

- World Bank. 2012 (December 12). "World Development Indicator." <http://databank.worldbank.org/databank/download/POP.pdf>, accessed February 23, 2013.
- World Press Trend. 2010. *World Press Trend, Asia 2010*. 1st asia edition ed. Darmstadt - Paris - Lyon - Stockholm - Madrid - Chennai - Singapore: WAN-IFRA is the World Association of Newspapers and News Publishers.
- Worth, Robert F. 2010. "Earth Is Parched Where Syrian Farms Thrived." *The New York Times* .
- Yates, Suzanne. 1998. "Attributions about the causes and consequences of cataclysmic events." *Journal of Personal and Interpersonal Loss* 3:7–24.
- Yu, Maochun. 2008. "The Rise and Rise of China's Mr. Tears." *Asia Times* .
- Zahur, A.B.M.S. 2009. "Preparedness is the Key." *The Daily Star* . June 9. <http://www.thedailystar.net/newDesign/news-details.php?nid=91734> (November 21, 2012).
- Zakey, Ashraf S., Filippo Giorgi & Jeremy Pal. 2008. Climate Change and Related Disasters. In *Large-Scale Disasters: Prediction, Control, and Mitigation*, ed. Mohamed Gad-el-Hak. Cambridge: Cambridge University Press pp. 329–362.
- Zeitlin, Arnold. 1970. "The Day The Cyclone Came To East Pakistan." *Stars and Stripes* .
- Zhang, David D., Jane Zhang, Harry F. Lee & Yuan qing He. 2007. "Does Climate Change Affect War Frequency? The Case of Eastern China." *Human Ecology* 35(4):403–414.
- Zhang, Dian, Chiyung Jim, Chusheng Lin, Yuanqing He & Fung Lee. 2005. "Climate change, social unrest and dynastic transition in ancient China." *Chinese Science Bulletin* 50(2):137–144.
- Zhang, Z. B., B. Cazelles, H. D. Tian & L. C. Stige. 2009. "Periodic temperature-associated drought/flood drives locust plagues in China." *Proceedings of the Royal Society B* 276:823 – 831.
- Zhang, Zhibin, Huidong Tian, Bernard Cazelles, Kyrre L. Kausrud, Achim Brauning, Fang Guo & Nils Chr Sternseth. 2010. "Periodic climate cooling enhanced natural disasters and wars in China during AD 10-1900." *Proceedings of the Royal Society B Online*:1–9.

Zschau, J. & A. N. Küppers, eds. 2002. *Early Warning Systems for Natural Disaster Reduction*. Berlin: Springer.