

## ABSTRACT

Title of Document:

### **DID I SAY THIS LAND IS YOUR LAND? PATTERNS OF CONTENTION IN INDONESIAN ENVIRONMENTAL DISPUTES**

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Environmental disputes occur frequently, particularly in contexts of poor natural resource management and vague law, but while some of these disputes end quickly without fatalities, some escalate to violence or become persistent contentious juggernauts that are increasingly hard to end. What makes a sequence of contentious events more likely to escalate to violence or persistent contention? This dissertation argues that strategic interactions in the form of violence, government behavior, and scarcity type signal the likelihood that the government will support claimant demands, and thus determine whether desperate claimants must escalate to maintain access to environmental goods and services necessary for survival. I also argue that there are material constraints from current repression and violence, and that timing matters. I test these propositions in two sets of logistic regressions, using new sub-national data from Indonesia and an in-depth case study. I find empirical support for the claims that prior violence, structural scarcity, and past government repression

increase the likelihood of continued contention. The same variables except for past government repression also increase the likelihood of violence. Current government repression reduced the likelihood of both violence and continued contention, but as time passed it exerted a more pernicious effect on violence and resolution. In other words, timing mattered, although dense events were surprisingly less likely to yield violence or continued contention. This project indicated that there are significant opportunities for reducing the likelihood of violence and persistent contention through policy changes, potentially reducing the suffering of individuals, the destruction of natural environments, and drains on the capability of the state.

DID I SAY THIS LAND IS YOUR LAND?  
PATTERNS OF CONTENTION IN INDONESIAN ENVIRONMENTAL  
DISPUTES

By

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## Dedication

For the cats, who have sacrificed so many belly rubs, thrown balls, and scratched ears  
for this dissertation,

and

For Jen, who did not know that supporting my graduate school ambitions also meant  
putting up with cocktail hours full of people who wanted to talk primarily about  
Nazis, but has borne it all admirably.

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When I started graduate school a corps of mentors warned me that a dissertation is a lonely pursuit—most days are spent solitary, reading, writing, or swearing at your computer. What they didn't mention was that a dissertation, like a child, is also the product of a village. My village has asked and answered crucial questions, applauded me when I succeeded, bullied me into writing when I didn't want to, and helped me learn all the appropriate methods for my analysis, not least of which was how to ask for help. I would particularly like to thank all my committee members: Virginia Haufler, Ken Conca, Paul Huth, John McCauley, and John Steinbruner. Nor would I have completed the dissertation without Jen, whose unwavering confidence in me inspired me to be worthy of that faith. I would also like to thank Ernesto Calvo for his help crunching numbers, Sidney Jones for filling in blanks on the Mesuji case, Sana Jaffrey, Patrick Barron, and everyone who poured years of their lives into the NVMS data, Thomas Hilde for his guidance on Indonesian environmental politics, Susan Sample for early feedback on my prospectus, Katie Kruger for her statistical note-taking skills, Molly Inman for being a shining example of industrious dissertating, and Alyssa Prorok for fielding some of my random dissertation questions. Lastly, I would like to thank all of my professors, colleagues, and classmates whose lively debate, caustic wit, and impassioned arguments inspired, challenged, and motivated me.

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# Chapter 1: The Global Problem of Local Environmental Violence

## I. Introduction

On January 12, 2012 a large protest jammed the streets of Jakarta. Protesters demanded that the government return land to traditional farmers that had been granted to large corporations, and rewrite land policy so that these conflicts would not continue in the future. About 4,500 protesters blocked traffic and vandalized buildings at locations around the city. This protest in Jakarta followed a series of violent events in Bima, Mesuji, and Tulang Bawang, where disputes between farmers and corporations backed by the police had recently turned fatal.<sup>1</sup>

The profusion of land-related conflicts in Indonesia have arisen from a combination of contradictory land laws, natural resource extraction and an increase in plantations, decentralizing policy, police corruption and violence, and demographic stresses. But the key factor in this contention is inadequate and often counter-productive actions by the state in its dealings with local farmers. As the government sells land-use rights to corporations for plantations – many of which are palm oil plantations – farmers who have worked this land for generations are pushed into a situation of desperation. They rely on this land to make a living and feed themselves, and thus resist attempts to repurpose it. This resistance comes in a wide variety of forms, and differs in the degree of violence and contention.

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<sup>1</sup> “Land Protests Jam Jakarta | The Jakarta Post,” January 13, 2012, <http://www.thejakartapost.com/news/2012/01/13/land-protests-jam-jakarta0.html>.

In Bima at the end of 2011, police killed three civilians in a clash over territory claimed by a gold mine. “Thousands of protesters rioted on Thursday in Bima ... where they set fire to the district head's office to demand an end to the gold exploration plan, which they said would damage their land and livelihoods.”<sup>2</sup>

Protests, politically motivated arson attacks, and assaults on security forces, corporate figures, or politicians arising from environmental issues, particularly land disputes, are common across Indonesia.

“The early months of 2012 have seen several violent land disputes in Indonesia. The latest ones — in Bima, West Nusa Tenggara, and in Mesuji, Lampung— both involve a mix of local residents, private companies and the government, and they both have roots in land seizures. They also resemble most present-day conflicts, in that they are the direct consequence of unjust policy choices, widening socioeconomic gaps and increasing competition over scarce resources.”<sup>3</sup>

In some cases violent resistance by local populations has been a successful political strategy. In Bima in 2012, activists succeeded in getting the government to revoke permits for a local gold mine through a series of protests in which several civilians were shot and buildings burned.<sup>4</sup> However, there are also clear negative repercussions of this contention—not only are the deaths due to these interactions with the state tragic, but this contention also damages state capability and legitimacy.

“These conflicts have potential to erode state capacity in various ways, although only the community-level conflicts have the realistic likelihood of turning violent -- some already have. Even short of violence, local forest conflicts are poisoning relationships between

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<sup>2</sup> Kate Hodal, “Indonesian Protests Force Government to Revoke Gold Mining Permits,” *The Guardian*, January 27, 2012, <http://www.guardian.co.uk/world/2012/jan/27/indonesian-government-mining-permits-protests>.

<sup>3</sup> Ingrid Galuh Mustikawati, “Turning the Tide in Indonesia’s Chronic Land Conflicts | The Jakarta Globe,” February 27, 2012, <http://www.thejakartaglobe.com/opinion/turning-the-tide-in-indonesias-chronic-land-conflicts/500697>.

<sup>4</sup> Kate Hodal, “Indonesian Protests Force Government to Revoke Gold Mining Permits.”

local communities and government agencies and increasing local resistance to both forest production and conservation efforts. And conflicts within the elite over the distribution of forest resource rents threaten to weaken the coherence of power centers within the New Order constellation. As these conflicts grow, they are compounded by increasing absolute scarcity of forest resources and intensifying population pressures on the forest frontier.”<sup>5</sup>

While violence has erupted in places like Bima, only ten percent of environmental disputes in Indonesia ever move from nonviolent strategies of contention to violence. What accounts for this variation in whether or not sequences of events eventually turn violent? Furthermore, some sequences of contention over the environment in Indonesia persist over long periods of time with many protests, riots, clashes, and other types of interaction between claimants and the state while others are single, isolated events that do not continue or recur. How can we explain this second dimension of variation in patterns of contention in Indonesian environmental disputes?

## **II. A Global Problem**

Environmental disputes generally, and land conflicts specifically, have become a global problem. Environmental change on a global level has opened the door for a variety of new environmental disputes, and land conflicts in a broad spectrum of developing countries, including Malaysia, Vietnam, Sudan, Liberia, and Sierra Leone, have increasingly made international news.<sup>6</sup>

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<sup>5</sup> Charles Victor Barber, “Case Study of Indonesia, Summary,” accessed July 6, 2012, <http://www.homerdixon.com/projects/state/indon/indonsum.htm>.

<sup>6</sup> “Global Land Grab Could Trigger Conflict, Report Says,” *The Guardian*, February 2, 2012, <http://www.guardian.co.uk/global-development/2012/feb/02/global-land-grab-trigger-conflict-report>.

Land-grabbing in particular poses a variety of problems for food security, international investment, and as we will see – security. According to Oxfam, 230,000,000 hectares of farmland (approximately 575 million acres) -- roughly the size of western Europe -- have been ‘grabbed’ between 2001 and 2012, predominantly in the developing world.<sup>7</sup> These land deals have already sparked a fair deal of controversy and unrest, and given the rate at which they are occurring, will likely continue to do so.

“Makunike writes of protestors in Sierra Leone blocking access to a Belgian investment site. In Kenya’s Tana Delta, locals speak of being forcibly evicted in order to accommodate investor plans for a sugar plantation, and vow to fight back “with guns and sticks... It will be war. The day is coming.” In Uganda people have already retaliated. In April 2011, a mob killed an Indian man while protesting an Indian investment firm’s decision to chop down a rainforest to make more space for sugarcane production.”<sup>8</sup>

Although the factors that have created a legal gray-area in Indonesia that facilitates land grabs are particular to the country, the dynamics of interaction between civilians and the government are not unique. The situation in Cambodia paints a very similar picture to that of Indonesia and many other land disputes;

“Cambodian land laws are a problem because it is hard to prove who has lived on a plot of land long enough to claim the land legally. This leads to controversies between the government and the people who live on the land. The major issue is that the government sometimes leases land to private companies that people have been living on or farming for generations. Many Cambodians are not well educated enough that they can use their education to generate income, so they depend on natural resources such as water for fishing, land for

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<sup>7</sup> “‘The Global Farms Race’: Comprehensive Study of Large-Scale Land Acquisitions Launches at Wilson Center,” *New Security Beat*, accessed December 1, 2013, <http://www.newsecuritybeat.org/2012/11/the-global-farms-race-comprehensive-study-large-scale-land-acquisitions-launches-wilson-center/>.

<sup>8</sup> Michael Kugelman, Susan L Levenstein, and Atkin, *The Global Farms Race Land Grabs, Agricultural Investment, and the Scramble for Food Security* (Washington, DC: Island Press, 2013), 28, <http://site.ebrary.com/id/10627185>.

farming, or wild products, particularly indigenous people. If there are shortages of these major natural resources, people will certainly face hardships.”<sup>9</sup>

Despite this growing global problem, little attention has been paid to land disputes. The experience of these disputes tends to be localized, and they do not receive the same monitoring and research as war and terrorism. One Indonesian farmer commented, “In our Indonesian villages, we don't currently talk about any particular "world crisis." We talk about the continuing daily struggle to make a living in extremely harsh conditions.”<sup>10</sup>

As Indonesia has imposed moratoriums on logging, companies seeking land are starting to “move aggressively into Africa.”<sup>11</sup> We can expect that this type of dispute will spread globally, and that unrest in Indonesia may be an unfortunate model of what we will see more of in years to come. Studying which factors differentiate violent from non-violent environmental disputes in Indonesia may help us to curtail violence not only on the archipelago but in other developing countries. A recent United Nations report on land conflict noted,

“A systematic approach to land grievances and conflicts can contribute to the following results: enhanced attention to immediate disputes as well as the underlying structural causes of conflict; improved coordination amongst diverse actors engaged in dispute resolution – traditional leaders, local governments, courts, police and security forces, and national political leaders; increased likelihood that small disputes can be brought to a conclusion before they escalate into more serious conflicts; greater contribution to good governance, rule of law

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<sup>9</sup> “Dark Forests: Interview With Bopha Phorn on Investigating Land Deals, Logging, Gender Issues in Cambodia,” *New Security Beat*, accessed December 1, 2013, <http://www.newsecuritybeat.org/2013/11/dark-forests-interview-bopha-phorn-investigating-land-deals-logging-gender-issues-cambodia/>.

<sup>10</sup> Henry Saragih, “Indonesian Farmers: Crisis as Usual - CNN.com,” *CNN*, January 23, 2012, <http://edition.cnn.com/2012/01/23/business/saragih-world-economic-forum-opinion/index.html>.

<sup>11</sup> Kugelman and Levenstein, *The Global Farms Race Land Grabs, Agricultural Investment, and the Scramble for Food Security*.

and the achievement of a wide range of social, economic and peacebuilding objectives.”<sup>12</sup>

Better understanding of how violence and persistent contention develop from environmental disputes can help us improve governance, economic development, civilian welfare, and security. It is therefore critical to improve our theories of why some disputes escalate, while others fade away.

### **III. Contradictions and Gaps in Scholarship**

Given the importance of understanding the roots of conflict, it is perhaps surprising that so little research has focused on low-level violence. The academic literature has focused primarily on larger-scale conflicts – even at their lowest-level of intensity it analyzes only those conflicts that generate at least 25 battle deaths annually.<sup>13</sup> Conflicts where only a handful of people are killed do not register in this literature, and thus while there is a thriving body of research on conflicts that achieve battle-death thresholds, there is little understanding of what drives some disputes toward fatalities while and others resolve without any deaths at all. This gap in the literature is partially explained by a dearth of broad, reliable data at such low levels, but recent datasets have begun to open up this avenue of inquiry. If we are to understand how larger conflicts develop to the point of reaching 25 battle deaths, analyzing these roots of conflict is critical.

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<sup>12</sup> United Nations, *Land and Conflict: Toolkit and Guidance for Preventing and Managing Land and Natural Resource Conflict*, 2012,

[http://www.un.org/en/events/environmentconflictday/pdf/GN\\_Land\\_Consultation.pdf](http://www.un.org/en/events/environmentconflictday/pdf/GN_Land_Consultation.pdf).

<sup>13</sup> PRIO, “Armed Conflicts Version 4-2008 - CSCW,” accessed April 15, 2009,

<http://www.prio.no/CSCW/Datasets/Armed-Conflict/UCDP-PRIO/Armed-Conflicts-Version-4-2008/>.

Furthermore, low-level violent disputes can wrack up a large number of diffuse fatalities which may actually exceed 25 deaths although they often do not take place on a battlefield, nor are they immediately recognized as belonging to the same conflict. These types of conflict may be the new face of violence, and understanding their dynamics is crucial to minimizing casualties.

“In the twenty-first century, much of the political violence that we witness looks quite different from conventional war. Collective violence no longer primarily concerns contests between the armies of major states, in which soldiers are the main violent actors. Instead, civilians are often the targets of violence, its practitioners, or both. Episodes of political violence pit the state against segments of the citizenry, often defined in religious, ethnic, and national terms. Non-state actors within states have in turn launched violent challenges to the state, attacking representatives of state power, state symbols, and state institutions, but typically seeking to avoid direct combat with state armies. Insurgents, terrorists, and rioters are thus unlike the trained, regimented forces of major wars, not simply because they are different kinds of actors, but because the very nature of warfare they employ differs. These types of violent conflicts are hardly new, but the reduction in the incidence of major, in-state warfare has served to turn scholars’ attention to conflict among domestic actors and prompted a renewed interest in the study of unconventional conflict.”<sup>14</sup>

In order to establish what happens before conflicts reach 25 battle deaths, we must start with what we know happens after 25 battle deaths, drawing on the existing conflict literature. Civil conflict research has focused on the importance of opportunity structure – that is, either state weakness or rebel strength of some variety – as the most important factor in conflict initiation. Bargaining theories of civil conflict initiation, conduct, and conclusion have also flourished, drawing out additional variables. Environmental conflict has an uneasy relationship to this literature; since conflict over scarce resources should reduce the capability of those who rely on the land for survival, the broader conflict literature would expect less

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<sup>14</sup> Erica Chenoweth, Adria Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict* (Cambridge, Mass.: MIT Press, 2010), 2.

violence, not more. Starvation should make potential rebels less capable of engaging in warfare. When environmental degradation creates a food shortage, therefore, we should not expect hungry civilians to initiate conflict. Yet environmental conflict scholars have shown a strong correlative relationship between some kinds of environmental scarcity and violence. Hungry civilians sometimes take up arms against their government or their neighbors. This apparent contradiction is puzzling – why should environmental scarcities yield violence? Why do some hungry civilians pursue violence while others do not? The literature has not yet developed suitable mechanistic understandings of why this occurs.

#### **IV. My Contribution**

This project attempts to fill these gaps in the literature and offer some policy guidance regarding which strategies may be effective to curtail violence and contention in environmental disputes. The rest of the dissertation follows in seven chapters.

First, I delve into the literature regarding low level conflict, escalation, and environmental disputes in chapter two. This chapter lays out the previous research that undergirds this project from conflict, contentious politics, and environmental literatures, and also clarifies and expands on the gaps in the literature.

I then outline in chapter three an interactive bargaining theory of patterns in low-level disputes that yield violence and continued contention. Focusing on the factors that influence society-side strategic choices, I hypothesize that scarcity type, past and present repression and violence, and the timing of events impact the

likelihood of violence and the likelihood that contention will end. I also offer brief illustrative examples to demonstrate where segments of this theory are evident in history.

The fourth chapter details my proposal to test the hypotheses laid out in chapter three in two sets of logit models and a single case study. I identify Indonesia as a good site of inquiry and detail the background of environmental disputes there. I then describe the Indonesian dispute event data which I will use to test the hypotheses, including detailed information regarding the coding of each variable, and provide some preliminary descriptive statistics.

Chapter five quantitatively tests the hypotheses developed in chapter three using methods proposed in chapter four. Structural scarcities, as opposed to simple scarcities, and the presence of a death in the last year of that sequence increased the likelihood of violence, while current government repression reduced the incidence of violence. These relationships were largely robust to alternate model specifications accounting for variation across space and time, although the effect of prior death did appear to be somewhat dependent on sub-district. The effect of risk-enhancing conditions also declined as years passed (for the one significant lagged variable), but contrary to expectations dense events were less likely to yield violence.

In the second set of models, current repression and simple types of scarcity increased the likelihood that contention would end, while past repression and violence, and structural types of scarcity reduced the likelihood of contention ending. The effect of current violence increased the likelihood of contention ending, but just missed standard levels of significance. Substitution theory was not supported, instead

the effect of repression in past and present iterations works like a gateway – fewer sequences of events continue past current repression, but those that do tend to persist. The results of the second set of models, however, were not robust to alternate model specifications accounting for variation across space and time. Only scarcity remained significant in model two, and scarcity and past government action remained significant in models three and four. The effects of past violence decreased slightly over time as expected, although past government action behaved irregularly, and closely clustered events were surprisingly more likely to end the contentious sequence.

The sixth chapter then examines a single case in a qualitative study of Mesuji, Indonesia. The case study finds mixed support for the correlations identified in the previous chapter and provides insights into the mechanisms at play. Structural scarcities and past repression played their expected role in increasing the chances of contention and violence. The effects of current repression were overall unclear, but did not support substitution theory since claimants utilized the same strategies before and after repression. Past violence was clearly linked to higher levels of contention, but not necessarily violence, and in two out of three violent events current violence did seem to curtail contention. The effect of event density may be explained in part by the time necessary to mobilize and arm non-professional militants, and in part by less-information-rich environments. Finally, the case study shows that claimants did not pursue only a single strategy at one time, rather the range of acceptable strategies varied over time.

The case study also identifies a handful of complicating factors. These include the cross-district nature of the salient locality, manipulation by elites and general profiteering in an atmosphere of ambiguous legal standards and poor legal enforcement, and finally the ways in which the state and company interests intersected and diverged.

I conclude in chapter seven with a review of the findings of this dissertation and their generalizability, a discussion of policy implications, and areas for future research. This section emphasizes the opportunity for mitigating violence and persistent contention through avoiding utilizing violence as a means of state control, and using repression only as a last resort due to its strong incendiary effects when contentious sequences do continue. It also demonstrates the large impact removing inequitable policies of environmental distribution can have, as well as the role of building positive state-society relationships to minimize the detrimental effect of past violence. I conclude that while there is still much work to be in researching low-level violence and contention, drawing on the contentious politics, and civil and environmental conflict literatures has provided a number of useful first steps in determining which sequences of events end, and which escalate to violence.

## **Chapter 2: Low-Level Conflict, Signaling, and the Contradiction of Environmental Violence**

### **I. Introduction**

This project situates itself between several bodies of literature, all of which offer significant insights to explain why some low-level environmental disputes become violent or persist over time while others do not. In some cases, however, contradictions exist between the expectations of each literature. Understanding why these contradictions exist, and exploring some of the potential explanations requires a review of the current state of conflict, contentious politics, and environmental research.

This chapter will review the prior research that undergirds and motivates my project. It highlights the gaps in the literature on low-level violence and escalation and discusses the particular relevance of these contentious episodes in environmental disputes. It then reviews what it means to characterize violence and contention as means of bargaining and information exchange and identifies specific types of environmental scarcities that relay information. It also discusses how this project addresses a key contradiction between the expectations of the conflict literature and the reality of environmental scarcity disputes. Lastly, it provides an overview of the factors that the conflict literature has concluded are important determinants of conflict onset—capability and repression, ethnic fractionalization, and the presence of a larger conflict region.

## II. Low-Level Violence and Escalation

Relatively little research has been published exploring the dynamics of extremely low levels of conflict and violence, as opposed to the standard levels of civil conflict and war measured at a minimum of 25 battlefield deaths per year.<sup>15</sup> Recently, however, there have been increasing calls for attention to the process of escalation and low-level violence as the nature of violence in the international sphere changes from inter- to intra-state, and as studies of particular types of conflict indicate that the mechanisms in play lead predominantly to low-level violence.<sup>16</sup> Low-level violence is often politically motivated—race riots, land conflict, terrorist attacks, and other types of violent protest are all demands for state action on a political issue. This kind of violence is diffuse, but can be repetitive and wide-spread. Incidents are local, but the issues that motivate the action can be seen across the region and country. These low-level, diffuse, repetitive, contentious incidents present a number of complications in defining, measuring, and analyzing interactions. As Walter comments:

“Economic models, however, remain frustratingly vague about what is meant by repeated play. Does it matter whether a government encounters the same challenger again and again, or if it encounters a series of different ones over time? If the situation includes a series of different players, how similar must each of the players be in order for inferences to be drawn?”<sup>17</sup>

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<sup>15</sup> PRIO, “Armed Conflicts Version 4-2008 - CSCW.”

<sup>16</sup> P. Barron et al., “Understanding Violent Conflict in Indonesia: A Mixed Methods Approach,” *Social Development Working Papers: Conflict, Crime, and Violence* World Bank (2009), <http://siteresources.worldbank.org/proxy-um.researchport.umd.edu/EXTSOCIALDEVELOPMENT/Resources/244362-1164107274725/sdp117.pdf>.

<sup>17</sup> Barbara F. Walter, *Reputation and Civil War: Why Separatist Conflicts Are so Violent* (Cambridge University Press Cambridge, 2009), 12, <http://www.lavoisier.fr/livre/notice.asp?id=OA3WRLAKL36OWL>.

Walter argues that there are three key factors in identifying repeated play—repetition, issue specificity, and observability. In other words, actors do not need to be identical, only maintain the same topical focus, and repeated incidents cannot be hidden if they are to inform the decisions of the actors involved. In general, gaining a better grasp on the mechanisms of low-level contention will allow researchers to create more accurate models that capture the complicated relationships between interacting parties. Walter provides a starting point but further research is necessary to fill in cases beneath the civil conflict level of violence.

Another gap that needs to be addressed to predict likely patterns in contention is the possibility of repetition without escalation and the factors that make escalation more or less likely. Both in the academic literature and in journalistic accounts of violence, we rely heavily on assumptions about the nature of conflict escalation.<sup>18</sup> Generally we assume that large events come from small ones—that actors escalate to violence when they cannot achieve their ends through regular politics or non-violent contention. In her analysis of the escalation of low-level identity conflicts, Tajima comments, “Many commentators have attributed the increased violence to the weakened state institutions which allowed latent conflicts to explode from what began as seemingly minor incidents.”<sup>19</sup> However, the literature is not robust enough to back up this assumption, particularly at low levels of violence.<sup>20</sup> This hole in the field is due primarily to the difficulty in acquiring good data at such low levels over a

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<sup>18</sup> James C. Scott, *Weapons of the Weak: Everyday Forms of Peasant Resistance* (Yale University Press, 1987).

<sup>19</sup> Y. Tajima, “Mobilizing for Violence: The Case of Lampung, Indonesia,” *World Bank Press, Jakarta*, 2004, [http://psflibrary.org/catalog/repository/mobilizing\\_for\\_violence.pdf](http://psflibrary.org/catalog/repository/mobilizing_for_violence.pdf).

<sup>20</sup> Nicholas Sambanis and Zinn, Annalisa, “From Protest to Violence: Conflict Escalation in Self-Determination Movements,” n.d.

reasonable amount of time and across a large geographic area. Where studies are available, they have often focused only on individual disputes or on a very limited number of cases, making it difficult to identify the key factors that cause or prevent escalation.<sup>21</sup>

The assumption of escalation obscures the fact that low-level conflicts are important in their own right. Death tolls, while diffuse, can often become quite high, as in cases of race riots and the civil rights movement in the U.S. and ethnic rioting in Nigeria. Low-level violence can also be the prelude to civil war, as in land disputes and cattle raiding in Sudan.<sup>22</sup> Barron et al. comment, “If these forms of violence cumulatively have serious human security impacts, or if they are a precursor to larger outbreaks of unrest, an important part of the picture is missing.”<sup>23</sup>

Finally, this loose understanding of escalation creates the impression that it is a natural product of unsuccessful political solutions when in fact we do not thoroughly understand the mechanisms at play. In Moroccan nationalist struggles, experts claim that “the eruption of violence makes considerable sense, particularly when non-violent means have made little headway in achieving nationalist aims.”<sup>24</sup> However, viewing violence as “exist[ing] at the upper end of a continuum of

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<sup>21</sup> For Example: E. Aspinall, “The Construction of Grievance: Natural Resources and Identity in a Separatist Conflict,” *Journal of Conflict Resolution* 51, no. 6 (2007): 950; T. F. Homer-Dixon, “Environmental Scarcities and Violent Conflict: Evidence from Cases,” *International Security*, 1994, 5–40; Patrick Meier, Doug Bond, and Joe Bond, “Environmental Influences on Pastoral Conflict in the Horn of Africa,” *Political Geography* 26, no. 6 (2007): 716 – 735, doi:DOI: 10.1016/j.polgeo.2007.06.001; L. A. Kuznar and R. Sedlmeyer, “Collective Violence in Darfur: An Agent-Based Model of Pastoral Nomad/sedentary Peasant Interaction,” *UC Los Angeles: Human Complex Systems*. Retrieved from: [Http://www. Escholarship. org/uc/item/67x4t8ts](http://www.Escholarship.org/uc/item/67x4t8ts), 2005.

<sup>22</sup> N. Sambanis, “Using Case Studies to Expand the Economic Models of Civil War,” *Perspectives on Politics*, no. 2 (June 2004): 259–279.

<sup>23</sup> Barron et al., “Understanding Violent Conflict in Indonesia: A Mixed Methods Approach.”

<sup>24</sup> Chenoweth, Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict*, 144.

conflict”<sup>25</sup> is a potentially problematic assumption. Not only are there numerous cases where political failure did not yield violence, but “violence is not a quantitative degree of conflict but a qualitative form of conflict, with its own dynamics.”<sup>26</sup> In other words, there should be specific determinants of the outbreak of violence over non-violence and understanding these patterns of escalation may be vitally important to understanding when and why wars begin, and provide hints about how to recognize and head off larger conflicts at early stages. Barron et al. comment:

“... we still do not have a good theory for why the small sparks of localized violence and tensions erupt into the large fires of inter-group collective violence. Developing such a theory is important for understanding not only the deadly outbreaks of communal violence in the past, but also (a) the potential for small-scale conflict and routine violence elsewhere in the archipelago to escalate, and (b) the scope for interventions—by the government and/or civil society. If, with the aid of theory, we can understand how to prevent sparks from becoming fires, perhaps one can also hope for fewer and less deadly violent conflicts in the future.”<sup>27</sup>

Scholars are increasingly beginning to call for such research to fill holes in our understanding of conflict escalation mechanisms and to suggest initial mechanisms for investigation. Barron et al. go on to parlay some of the field’s shortcomings into avenues for research:

“First, the comparative work has not fully considered the processes of escalation, which turned existent social tensions into smaller-scale acts of conflict to larger-scale episodes of violence. Second, the explanations have largely been structural, and hence often rather deterministic, focusing on demographic shifts, economic balance, and changing access to political power, and have underplayed the importance of the *processes* of mobilization. Third, there has been an

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<sup>25</sup> Ibid.

<sup>26</sup> Rogers Brubaker and David Laitin, “Ethnic and Nationalist Violence,” *Annual Review of Sociology* 24 (1998): 423–452.

<sup>27</sup> Barron et al., “Understanding Violent Conflict in Indonesia: A Mixed Methods Approach,” 19.

overriding emphasis on macro explanations for the outbreak of violence in certain localities.”<sup>28</sup>

Other authors argue that a key determinant in escalation is the expectation of success, drawing on research showing that non-violent movements are more effective and less costly therefore that violent options are only preferable if non-violent options have no expectation of success. In their study of the effectiveness of civil resistance, Stephan and Chenoweth note, “Our findings show that nonviolent campaigns have achieved success 53 percent of the time, compared with 26 percent for violent resistance campaigns.”<sup>29</sup> Research into this area has identified the ability to prompt security force defections, education level, and institutional strength as important mediating factors determining whether nonviolent tactics will be effective, assuming that violence ensues when these strategies are ineffective.<sup>30</sup>

In order to answer the question of how groups weigh these options, and when one choice is more likely than another, we need to look at them side by side, rather than studying non-violent protest and war independently. For instance, Sambanis comments:

“Nigeria, for example, has been a false positive war prediction for many years, but it has seen a lot of ethnic rioting. It would be valuable for our theories and for policy design to understand why a country such as Nigeria, which has not had a civil war in the past 15 years or so, but has rather had a lot of rioting with high numbers of deaths.”<sup>31</sup>

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<sup>28</sup> Ibid., 20.

<sup>29</sup> M. J. Stephan and E. Chenoweth, “Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict,” *International Security* 33, no. 1 (2008): 8.

<sup>30</sup> R. Shaykhutdinov, “Education for Peace: Protest Strategies of Ethnic Resistance Movements,” *Journal of Peace Education* 8, no. 2 (2011): 143–155; S. E. Nepstad, *Nonviolent Revolutions: Civil Resistance in the Late 20th Century* (Oxford Univ Pr on Demand, 2011); Stephan and Chenoweth, “Why Civil Resistance Works.”

<sup>31</sup> Sambanis, “Using Case Studies to Expand the Economic Models of Civil War.”

Examining various levels of violence may help us explain some of these false-positives predicted in the opportunity literature.<sup>32</sup> By employing a net of diverse approaches that better captures the dynamics in question, research into lower levels of violence will complement—rather than replace—discrete studies of war and protest.

This approach thus takes as a prerequisite acceptance of the field of contentious politics—that is, an acceptance that while the occurrence of protest, riot, and war may have different characteristics in some ways, that “we can learn more about all of them by comparing their dynamics than by looking at each on its own.”<sup>33</sup> McAdam, Tarrow, and Tilly define contentious politics as:

“episodic, public, collective interaction among makers of claims and their objects when (a) at least one government is a claimant, an object of claims, or a party to the claims and (b) the claims would, if realized, affect the interests of at least one of the claimants.”<sup>34</sup>

In asking the question, “why protest, and not war?” for example, one assumes that the menu of options for groups engaged in contention includes both of those options, and that there is some mechanism that prompts a choice for one action or the other. Barron et al. comment, “...if we do not study peace and violence together, we cannot conclusively show which factors were really causal in producing either.”<sup>35</sup> The same holds true of looking at both violent and non-violent iterations of contention.

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<sup>32</sup> Michael D. Ward, Brian D. Greenhill, and Kristin M. Bakke, “The Perils of Policy by P-Value: Predicting Civil Conflicts,” *Journal of Peace Research* 47, no. 4 (July 1, 2010): 363–375, doi:10.1177/0022343309356491; P. Collier and A. Hoeffler, *Greed and Grievance in Civil War*, vol. 56 (Oxford Univ Press, 2004); J. D. Fearon and D. D. Laitin, “Ethnicity, Insurgency, and Civil War,” *American Political Science Review* 97, no. 01 (2003): 75–90.

<sup>33</sup> Doug McAdam, Sidney G. Tarrow, and Charles Tilly, *Dynamics of Contention* (Cambridge University Press, 2001), 4.

<sup>34</sup> *Ibid.*, 5.

<sup>35</sup> Barron et al., “Understanding Violent Conflict in Indonesia: A Mixed Methods Approach,” 19.

This approach does not assume that the processes and structures leading to either protest or war are the same, rather it allows us to examine how these mechanisms may differ from each other. Nor does it assume that the same rules apply once conflict is initiated—war can break from “regular politics” without voiding the observations of contentious politics regarding the onset processes.

There is a need, in short, for research on the roots of larger conflict and the mechanisms whereby violence escalates from non-violent strategies to low levels of violence. This approach should analyze non-violence next to violence to expose the underlying relationships and mechanisms that lead some disputes to escalate. To do this we must also analyze repeated events in contentious sequences, which poses data challenges, but has great potential to supplant existing assumptions about low level conflict and escalation with empirically supported findings.

### **III. Environmental Disputes as Sites of Low-Level Conflict**

Looking at the universe of low-level conflict cases, prior research indicates several issues that are likely to generate these types of conflicts. Studying these likely cases provides a starting point for creating a theory about the factors that lead to low-level violence. Certain types of disputes are more likely to evolve in this manner, and the most prominent of these types appears to be land and environment conflicts.<sup>36</sup>

Homer-Dixon’s classic research in the field of environmental conflict comments that “violence tends to be subnational, diffuse, and persistent.”<sup>37</sup> While a healthy body of literature has shown this conflict to be largely within, rather than

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<sup>36</sup> Homer-Dixon, “Environmental Scarcities and Violent Conflict.”

<sup>37</sup> T. F. Homer-Dixon and J. Blitt, *Ecoviolence: Links among Environment, Population and Security* (Rowman & Littlefield, 1998), 11.

across states, there has been limited work tracking what mechanisms link environmental factors with violence below the 25 battlefield deaths threshold.<sup>38</sup>

The past ten years have seen a blossoming of quantitative work in the field, but unfortunately much of this early research has been contradictory. Hauge and Ellingson found that soil degradation, population density, water scarcity, and deforestation all increase the risk of civil conflict and civil war, while in the same year Esty et al. published a paper finding no direct effects on state failure.<sup>39</sup> De Soysa found that population density increases the risk of conflict, while Collier and Hoeffler, and Hegre and Sambanis found no effect of population density.<sup>40</sup> Miguel, Satyanath, and Sergenti found that deviation from standard rainfall increases the risk of civil war and civil conflict--as did subsequent research by Saleyhan and Hendrix, and Hendrix and Glaser--although they also found that water scarcity decreases the risk of war and conflict, while Raleigh and Urdal found that water scarcity increases the risk of conflict.<sup>41</sup> Another study by Raleigh and Kniveton found that rainfall

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<sup>38</sup> A. T. Wolf, S. B. Yoffe, and M. Giordano, "International Waters: Identifying Basins at Risk," *Water Policy* 5, no. 1 (2003): 29–60; Thomas Bernauer and Tobias Siegfried, "Climate Change and International Water Conflict in Central Asia," *Journal of Peace Research* 49, no. 1 (January 1, 2012): 227–239, doi:10.1177/0022343311425843; Anna Kalbhenn, "Liberal Peace and Shared Resources—A Fair-Weather Phenomenon?," *Journal of Peace Research* 48, no. 6 (November 1, 2011): 715–735, doi:10.1177/0022343311420459.

<sup>39</sup> W. Hauge and T. Ellingsen, "Beyond Environmental Scarcity: Causal Pathways to Conflict," *Journal of Peace Research*, 1998, 299–317; D.C Esty et al., "State Failure Task Force Report: Phase II Findings" (Science Applications International Corporation, 1998).

<sup>40</sup> I. De Soysa, "Ecoviolence: Shrinking Pie, or Honey Pot?," *Global Environmental Politics* 2, no. 4 (2002): 1–34; Collier and Hoeffler, *Greed and Grievance in Civil War*; H. Hegre and N. Sambanis, "Sensitivity Analysis of Empirical Results on Civil War Onset," *Journal of Conflict Resolution* 50, no. 4 (2006): 508.

<sup>41</sup> E. Miguel, S. Satyanath, and E. Sergenti, "Economic Shocks and Civil Conflict: An Instrumental Variables Approach," *Journal of Political Economy*, 2004, 725–753; Cullen S. Hendrix and Sarah M. Glaser, "Trends and Triggers: Climate, Climate Change and Civil Conflict in Sub-Saharan Africa," *Political Geography* 26, no. 6 (2007): 695 – 715, doi:DOI: 10.1016/j.polgeo.2007.06.006; C. Raleigh and H. Urdal, "Climate Change, Environmental Degradation and Armed Conflict," *Political Geography* 26, no. 6 (2007): 674–694; C. S Hendrix and I. Salehyan, "Climate Change, Rainfall, and Social Conflict in Africa," *Journal of Peace Research* 49, no. 1 (January 2012): 35–50.

abundance significant effected social unrest.<sup>42</sup> The most recent wave of environmental conflict research has focused on establishing correlations that take into account spatial and temporal factors in addition to examining a variety of definitions of scarcity and climate change, including temperature, rainfall, and alternative approaches such as vulnerability, and indirect effects.<sup>43</sup>

Generally speaking, this growing body of work has found a significant correlation between some cases of environmental change and conflict. A 2013 meta-study of the climate-violence field published in *Science* concluded that the role of the climate in interpersonal and intergroup conflict is “substantial.”<sup>44</sup> A following *Economist* article commented that:

“The results leave no room for doubt: higher temperatures and more extreme rainfall patterns (leading to drought or flood) really do coincide with an increased frequency of conflict for all types of violence. For once, the direction of causation seems clear-cut: temperature might conceivably lead to a civil war, but a civil war is unlikely to affect temperature (other than metaphorically). Precisely how the chain of causation works remains unclear for now.”<sup>45</sup>

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<sup>42</sup> Clionadh Raleigh and Dominic Kniveton, “Come Rain or Shine: An Analysis of Conflict and Climate Variability in East Africa,” *Journal of Peace Research* 49, no. 1 (January 1, 2012): 51–64, doi:10.1177/0022343311427754; Cullen S. Hendrix and Idean Salehyan, “Climate Change, Rainfall, and Social Conflict in Africa,” *Journal of Peace Research* 49, no. 1 (January 1, 2012): 35–50, doi:10.1177/0022343311426165.

<sup>43</sup> Hendrix and Salehyan, “Climate Change, Rainfall, and Social Conflict in Africa,” January 2012; Marshall B. Burke et al., “Warming Increases the Risk of Civil War in Africa,” *Proceedings of the National Academy of Sciences* 106, no. 49 (December 8, 2009): 20670–20674, doi:10.1073/pnas.0907998106; Raleigh and Kniveton, “Come Rain or Shine”; Antonio Ciccone, “Economic Shocks and Civil Conflict: A Comment,” *American Economic Journal: Applied Economics* 3, no. 4 (October 2011): 215–227, doi:10.1257/app.3.4.215; Theodora-Ismene Gizelis and Amanda E. Wooden, “Water Resources, Institutions, & Intrastate Conflict,” *Political Geography* 29, no. 8 (November 2010): 444–453, doi:10.1016/j.polgeo.2010.10.005; Vally Koubi et al., “Climate Variability, Economic Growth, and Civil Conflict,” *Journal of Peace Research* 49, no. 1 (January 1, 2012): 113–127, doi:10.1177/0022343311427173.

<sup>44</sup> Solomon M. Hsiang, Marshall Burke, and Edward Miguel, “Quantifying the Influence of Climate on Human Conflict,” *Science* 341, no. 6151 (September 13, 2013): 1235367, doi:10.1126/science.1235367.

<sup>45</sup> “Cloudy with a Chance of War,” *The Economist*, accessed December 2, 2013, <http://www.economist.com/blogs/babbage/2013/08/climate-and-conflict>.

Despite this growing consensus about the correlation between climate and conflict, the lack of clarity regarding the specific mechanisms at play has made many leading scholars cautious. Idean Saleyhan (co-author of an important quantitative study of rainfall and conflict in Africa) and Halvard Buhaug (another leading scholar based at PRIO) were both quoted in another followup *Nature* article voicing their skepticism that the meta-study in question was reliable, lacking information about the mechanisms at play.<sup>46</sup> Their concerns represent some basic challenges for the field—how to scope the level of analysis, how to address the role of the political context, and the potentially different mechanisms linking scarcity or abundance to conflict. Uncritically examining correlation across all varieties of violence without identifying the mechanisms poses significant problems; vividly illustrated by the *Science* article’s sweeping conclusion that climate change leads to both civil war and a baseball pitcher striking a batter in a game. While not precluding the possibility that climate does impact both of these things, we must compare them in consistent ways that account for the very different pathways between an overheated pitcher losing her temper and a political organization waging war on the state. In the introduction to a recent special edition of the *Climate Change* journal focused on the climate-conflict connection, the authors comment:

“While there is increasing evidence that changes in climatic conditions seem to be associated with conflicts, we remain unable to provide clear explanations as to *how* this can happen.”<sup>47</sup>

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<sup>46</sup> Lauren Morello, “Warming Climate Drives Human Conflict,” *Nature*, August 1, 2013, doi:10.1038/nature.2013.13464.

<sup>47</sup> François Gemenne et al., “Climate and Security: Evidence, Emerging Risks, and a New Agenda,” *Climatic Change* 123, no. 1 (March 1, 2014): 6, doi:10.1007/s10584-014-1074-7.

Different states with various capabilities, institutional structures, and interests will respond very differently to environmental problems, meaning that a similar change in rainfall in ancient Egypt will have very different results than in modern Canada. Similarly, comparing cases of environmental scarcity and abundance without attending the very different pathways through which these conditions yield violence clouds our understanding of the environment-conflict relationship. Finally, the sensitivity of these large-N studies to alternate model-specification, indicates that we must better understand the mechanisms in play in order to understand why various measures of a similar concept yield diverging results.<sup>48</sup>

The central issue remains one of unspecified mechanisms—as Josh Busby (University of Texas) comments on the *New Security Beat* blog, “there is far more to be gained by focusing on the diverse causal processes connecting climate effects and conflict—in short, when and why—rather than further exploring broad associations.”<sup>49</sup> This backlash within the field to Hsiang et al’s meta-study is ultimately a call for better theory.

Where recent theory-building and qualitative work has been attempted, it has pointed at likely directions of further research but done little to answer underlying questions about unifying mechanisms seen across multiple cases. For example, Deligiannis proposes “a household-livelihood framework,” that would highlight low-

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<sup>48</sup> Thomas Bernauer, Tobias Böhmelt, and Vally Koubi, “Environmental Changes and Violent Conflict,” *Environmental Research Letters* 7, no. 1 (March 1, 2012): 015601, doi:10.1088/1748-9326/7/1/015601.

<sup>49</sup> “Why Do Climate Changes Lead to Conflict? Provocative New Study Leaves Questions,” *New Security Beat*, accessed December 6, 2013, <http://www.newsecuritybeat.org/2013/09/climate-lead-conflict-provocative-study-leaves-questions/>.

level conflict,<sup>50</sup> but unfortunately data availability makes this level of analysis impractical across cases.

Currently, we cannot decisively answer how environmental scarcity contributes to violence, whether the pathways to violence through one environmental condition vary from others, and whether environmental factors contribute primarily to low-scale violence as opposed to civil conflict and war. Research on the dynamics of low-level violence in environmental cases can fill these holes in our understanding of how and when environmental factors contribute to violence and perhaps clarify some of the contradictions in earlier studies.

#### **IV. Information and Bargaining as Key Factors in Conflict Onset**

The bargaining theory of civil conflict onset has become an important strand of conflict research, and the mechanisms and findings of these studies can also inform theories regarding lower levels of conflict. The conflict literature has a long history of addressing the structural constraints on the outbreak of violence, but research has also demonstrated that interactive strategic considerations play a role in conflict outbreak, violent conduct, and peace-making.

The bargaining theory of conflict onset—which has experienced significant explanatory success in both IR and comparative politics—suggests that actors pursue war even when it is a highly costly activity because of three main factors: private information, commitment problems, and issue indivisibilities.<sup>51</sup> The private

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<sup>50</sup> Tom Deligiannis, “The Evolution of Environment-Conflict Research: Toward a Livelihood Framework,” *Global Environmental Politics* 12, no. 1 (2012): 78–100.

<sup>51</sup> R. H. Wagner, “Bargaining and War,” *American Journal of Political Science*, 2000, 469–484; B. L. Slantchev, “The Principle of Convergence in Wartime Negotiations,” *American Political Science Review*

information strand argues that actors have incentives to maintain private information about their capabilities and resolve in an attempt to achieve a better outcome at a lower cost. Opponents then are engaged in a process of seeking information about commitment and capabilities from each other through those actions that provide the most credible signals. Violence most credibly communicates information about capabilities and commitment due to its high cost. Thus, actors ‘bargain’ via violence even when a more optimal situation might be available in a world of perfect information.<sup>52</sup> Violence is therefore a relatively rare event, yet it does still occur.

Chenoweth and Lawrence comment,

“...domestic actors who seek concessions from the state typically do not resort to violence; attacking the state is an extreme form of conflict. Yet... relatively little attention has been paid to understanding why erstwhile non-violent actors sometimes suddenly turn violent. Given that violence can drag on for years, be immensely destructive, and impose costs on the actors involved and on society in general, the move to abandon non-violent ways of resolving conflict in favor of violence is difficult to explain.”<sup>53</sup>

In the civil conflict context, “a contributing factor in the outbreak of violence is a government’s private information about its willingness to negotiate,” says Barbara Walter. She describes the bargaining process in secessionist ethnic conflicts as “a complex strategic interaction where governments are actively seeking to deter separatists, and separatists are carefully seeking to uncover if and when the

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97, no. 04 (2004): 621–632; S. Werner and A. Yuen, “Making and Keeping Peace,” *International Organization* 59, no. 02 (2005): 261–292; J. D Fearon, “Rationalist Explanations for War,” *International Organization*, 1995, 379–414; Barbara F. Walter, “Information, Uncertainty, and the Decision to Secede,” *International Organization* 60, no. 1 (January 1, 2006): 105–135, doi:10.2307/3877869.

<sup>52</sup> Fearon, “Rationalist Explanations for War.”

<sup>53</sup> Chenoweth, Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict*, 3.

government will grant concessions.”<sup>54</sup> She argues that one of the ways that ethnic groups gauge the likely action of the state is observing past state action and concludes that past state violence will diminish the prospects for future violence since the state has developed a reputation for refusing to acquiesce.<sup>55</sup>

The observation that strategic interaction (and not simply structural factors) affects the frequency of conflict onset is an important one, but Walter includes only two of many possible factors that actors consider when analyzing their possible courses of action. Given the degree of uncertainty in these considerations, however, more concrete assessments based on prior behavior may be the most credible. In other words, Walter focuses on the reputational information that contributes to claimants’ assessments of their likelihood of success, but this is not the only information that may matter. This other information may vary widely from case to case, but the most credible method of communication should lie in the actions of the state.

Furthermore, Walter tends to qualify the government as an absolute type—either resolute or irresolute—based on its behavior in the information exchange process. However, there is no reason to believe that all contentious issues, peoples, and areas will be dealt with equally. Governments are often resolute on certain issues—territorial issues most commonly, but also issues of particular salience to their electorate or selectorate—while they are flexible and willing to bargain on other issues. They may also privilege certain segments of the population above others—urban over rural or one ethnic group over another. Thus the mechanism must allow for the information assessment process by the claimants to be much more localized—

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<sup>54</sup> Walter, “Information, Uncertainty, and the Decision to Secede,” 106.

<sup>55</sup> Barbara F. Walter, “Bargaining Failures and Civil War,” *Annual Review of Political Science* 12 (2009): 243–261.

focusing on prior state action in response to similar claimants, as opposed to using prior action to determine an absolute type of government.

Lastly, Walter acknowledges that due to data constraints she does not examine the shift from “conventional politics to more violent forms of protest, or whether government behavior before the outbreak of violence had any effect on what types of demands were made, or what strategies were pursued.”<sup>56</sup> She also notes that the study cannot determine whether government accommodation to non-violent claims had any effect on group demands or violence.

In cases of low-level contention, information is even scarcer than at the standard conflict levels.<sup>57</sup> This should make the presence of previous interactions, and their informational content, more likely to color the strategic decisions of claimants. With this difference, there is good reason to expect that bargaining theory can apply to low-level violence.

Overall, bargaining theories of civil conflict have provided important insights into the onset of violence, but these studies have focused on larger forms of conflict and have neglected lower levels of violence. Using the bargaining framework to analyze disputes before they even become violent may yield important insights into the stages of conflict that occur before 25 or 1,000 battle-deaths have taken place.

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<sup>56</sup> Walter, “Information, Uncertainty, and the Decision to Secede,” 114.

<sup>57</sup> S. N Kalyvas, *The Logic of Violence in Civil War* (Cambridge Univ Pr, 2006); Ashutosh Varshney, Mohammad Zulfan Tadjoeeddin, and Rizal Panggabean, “Creating Datasets in Information-Poor Environments: Patterns of Collective Violence in Indonesia, 1990-2003.,” *Journal of East Asian Studies* 8, no. 3 (December 2008): 361–394.

## V. Informational Content of Scarcity Type

In addition to violence and past behavior, scarcity type and the division of environmental goods can have informational content. Thomas Homer-Dixon identifies three types of environmental scarcities: supply-induced (environmental change), demand-induced (demographic change), and structural scarcity (unequal distribution).<sup>58</sup> Supply and demand scarcity are opposite sides of a coin—the ratio of people relying on natural resources to the measure of resources that are available—while structural scarcity is an imposed inequity often constructed by the government. Simple scarcity is what we generally think of first, where the environment has been damaged or degraded in such a way that environmental goods (food, water, air, shelter, fuel) are no longer available or are insufficient to support the abundance of people attempting to live off of them. Structural scarcity, in contrast, describes a situation in which environmental goods are divided in an uneven manner so that parts of the population lack access to the environmental goods necessary for their survival. Often, when simple scarcity appears, governments also take action to guarantee access for privileged actors so that environmentally-impooverished actors are plunged into even deeper need. These inequalities may exist across ethnic groupings, between state-owned and private enterprises, or between local farmers and foreign corporations.

Many people do not immediately identify land disputes as a type of environmental scarcity conflict, but this is simply due to an overly narrow reading of “environmental” limited to cases of simple scarcity as opposed to structural scarcity. Access to land underlies the provisioning of most environmental goods, which are

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<sup>58</sup> Homer-Dixon and Blitt, *Ecoviolence*, 9.

generally assumed to be “free” environmental services. When the state denies land rights to some groups, it imposes structural inequities and creates environmental scarcity, posing significant challenges for survival in impoverished regions. Helliker and Murisa comment,

“The majority (about sixty-five percent) of the rural poor in Southern Africa depend primarily on agriculture for social reproduction. In such a context, questions of access to land (and to land-based natural resources such as water) are critical to any discourse and practice in relation to inclusive pro-poor rural development.”<sup>59</sup>

The conflict literature has typically dealt with land as an issue of national territory or economic value. However, at a lower level of analysis, land is one of the most important natural resources and shutting off access to land-based environmental services can directly threaten individuals’ survival and may prompt dissent and violence. Sudan has, for example, long been cited as a prime case of environmental conflict; violent conflict increased as environmental conditions caused greater competition between agriculturist and pastoralist groups over the same land.<sup>60</sup> Land is in many ways the invisible natural resource—for years we have discussed timber or diamonds as natural resources under contention, but land that produces them is often left out of the conversation. Similarly, when we discuss the conflict potential of changing climate patterns and rainfall levels, we often fail to acknowledge that a farmer must have access to where the rain falls for it to make any difference.

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<sup>59</sup> Kirk Helliker and Tendai Murisa, *Land Struggles and Civil Society in Southern Africa* (Trenton, N.J.: Africa World Press, 2011), 1.

<sup>60</sup> Ted Dagne, “Sudan: The Crisis in Darfur” (CRS Report for Congress, 2004), Google Scholar; M. Suliman, “Resource Access: A Major Cause of Armed Conflict in Sudan. The Case of the Nuba Mountains,” in *International Workshop on Community-Based Natural Resource Management*. Washington DC, 1998, 10–14; M. Suliman, *Civil War in Sudan: The Impact of Ecological Degradation* (Center for Security Studies and Conflict Research, Swiss Federal Institute of Technology, 1992).

There is a key distinction between the types of scarcities experienced in these various studies, regardless of whether they are shortages of water, land, food, or forest cover—the informational content of simple supply/demand scarcity as opposed to the unequal imposition of structural scarcity. While simple scarcity in a particular type of environmental good or service does not provide information about the intent of the state and may not alter the relative power balance between claimants and the government, unequal treatment by the government which causes the initial scarcity, a failure by the government to respond to calls to enforce a more equitable distribution, or behavior that exacerbates inequity through mitigation activities relays information about the government’s capability, its commitment, and the likelihood that it will respond to demands for assistance. Citizens understand that a government which discriminates against them is less likely to acquiesce to their demands—particularly when their competition for environmental goods is a favored ethnic group, company, or other actor—unless they bring other pressure to bear. This distinction may shed light on why some scarcities seem to matter for conflict onset and others do not.

In sum, environmental scarcities can be categorized and differentiated in a great variety of ways—by the natural resource in question, by whether it is growing population or shrinking resources that initiated the scarcity, or by the speed of change relative to institutional capacity to adapt. However, inequitable policies regarding the distribution of environmental goods and services send a signal to claimants that is particularly salient for the onset of violence. Applying a bargaining theory of conflict to low-level environmental disputes helps to reveal the important informational

differentiation between structural scarcities and simple scarcities. This could provide part of the missing mechanistic link that connects environmental scarcity to violence.

## **VI. Transitioning Other Lessons from the Conflict Literature into Low-Level Contexts**

Bargaining theory of conflict initiation offers a variety of valuable insights that should hold even in a low-level violence context, but the conflict literature is a diverse body constituted of a number of research branches. Other important insights from the conflict literature that are relevant to understanding the emergence of low level environmental violence and persistent contention include the effect of capability, state repression, ethnic conflict, and the presence of a larger conflict region.

### *6.1 Capability & Opportunity*

The bargaining literature on conflict does not generally assume that structural variables do not matter, merely that strategic interaction also matters. Primary among the structural constraints on conflict and war is the capability of rebels to rebel and the capability of the government to repress them. The general conflict literature has been relatively unified in its focus on capability as a contributing factor to conflict initiation and its dismissal of grievance-based arguments. However, when we narrow our analysis to the environmental security literature, the findings have been potentially confounding to the expectations of the larger conflict field. This implies that looking at all conflicts without regard for their diverse onset mechanisms may be

counterproductive, while separating conflicts by onset-type may shed light on when and how violence appears.

As discussed above, environmental conflicts are particularly puzzling when viewed through the general conflict literature since scarcity should yield reduced capability and disincentivize conflict. Scarcity arguments have generally been associated with grievance-side arguments, as opposed to the more dominant capability and opportunity-based arguments.<sup>61</sup> However, grievance arguments have been repeatedly challenged in the modern conflict literature, not least by Fearon and Laitin who argue, “if, under the right environmental conditions, just 500 to 2,000 active guerrillas can make for a long-running, destructive internal war, then the average level of grievance in a group may not matter that much.”<sup>62</sup> On the other hand, capability and opportunity-based arguments do not explain the growing body of statistical research showing a correlative relationship between scarcity and violence. Gemenne et al. note in relation to climate conflict that “even the very destitute act in times of crisis to reduce their underlying vulnerability.”<sup>63</sup> In order to resolve this contradiction we must better understand the mechanisms involved both in a change in relative capability, and the effects of scarcity.

Fearon and Laitin argue, “rebellion is better explained by “opportunity” than by grievance.”<sup>64</sup> By this logic, if actors are marked by relative incapability—where they have little to no capacity to pursue violence in opposition to a stronger force—

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<sup>61</sup> Ole Magnus Theisen, “Blood and Soil? Resource Scarcity and Internal Armed Conflict Revisited,” *Journal of Peace Research* 45, no. 6 (November 1, 2008): 801–818, doi:10.1177/0022343308096157.

<sup>62</sup> Fearon and Laitin, “Ethnicity, Insurgency, and Civil War,” 88.

<sup>63</sup> Gemenne et al., “Climate and Security,” 7.

<sup>64</sup> Fearon and Laitin, “Ethnicity, Insurgency, and Civil War,” 76; For the grievance argument see: T. R. Gurr, “Why Men Rebel,” 1970.

we should not see them initiate conflict.<sup>65</sup> Relative incapability can indicate either state strength or rebel weakness, where funding and arms are not adequate to make a viable stand against the government. Relatedly, Fearon and Laitin also argue that insurgents, being smaller weaker forces by definition, must be able to hide from government forces in inaccessible or remote areas—specifically, “rough terrain, poorly served by roads, at a distance from the centers of state power”—and they find significant support for the argument that mountainous territory is correlated with more violence.<sup>66</sup> In short, remoteness makes violence more likely.<sup>67</sup>

Absent a better understanding of the mechanisms for conflict initiation and escalation, the association of scarcity with both grievances and decreased capability has made it difficult even for scarcity-conflict scholars to understand why scarcity would yield conflict.<sup>68</sup> If scarcity makes an actor less capable via hunger, loss of income, etc. then an argument based on capability would find the onset of violence in this case puzzling.

The scarcity-conflict literature largely assumes that a lack of food, water, and shelter make insurgents less capable of engaging in effective combat.<sup>69</sup> Combat practitioners like Che Guevara and Mao Tse-Tung also emphasize the importance of access to food, water, and shelter.<sup>70</sup> Milward comments, “Most economic theorists of

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<sup>65</sup> Fearon and Laitin, “Ethnicity, Insurgency, and Civil War.”

<sup>66</sup> Ibid.

<sup>67</sup> Halvard Buhaug, “Dude, Where’s My Conflict? LSG, Relative Strength, and the Location of Civil War,” *Conflict Management and Peace Science* 27, no. 2 (April 1, 2010): 107–128, doi:10.1177/0738894209343974.

<sup>68</sup> Collier and Hoeffler, *Greed and Grievance in Civil War*; Fearon and Laitin, “Ethnicity, Insurgency, and Civil War.”

<sup>69</sup> Magnus Theisen, “Blood and Soil?”

<sup>70</sup> E. Guevara, *Che Guevara on Guerrilla Warfare* (Praeger, 1961); M. Tse-Tung, Z. Mao, and S. B. Griffith, *On Guerrilla Warfare* (Univ of Illinois Pr, 2000).

war seem to have agreed on the fact that food is a good of unique strategic significance.”<sup>71</sup> He notes that it is possible to replace steel or coal’s role in the economy, but that food is not substitutable for other goods. A rebel army, for example, can find multiple ways of making cash to buy weapons, but without basic access to food, water, and shelter, they cannot survive. This indicates that increasing environmental scarcities should increase grievances but reduce opportunities for violence, making scarcity conflicts a contradiction in terms. Theisen states of scarcity-conflicts;

“Environmental security conflict models rest, to a large extent, on the assumptions of relative deprivation theory, implying that renewable resource scarcity will give rise to socio-economic grievances that, in turn, spill over into conflict.”<sup>72</sup>

The dominance of capability arguments in the conflict literature generally has given rise to resource abundance and resource capture arguments for conflict outbreak. However, in studies examining abundance as opposed to scarcity and conflict initiation, scarcity rarely shows a statistically significant positive effect. De Soysa relates rapacity to opportunity, and paucity to grievance, and concludes that:

“...rapacity encouraged by an abundance of natural resources tends to fuel civil conflict. Paucity of natural resources, on the other hand, does not seem to be such a strong factor in determining the likelihood of civil strife, despite the recent upsurge of interest in environmental degradation and scarcity as a source of conflict.”<sup>73</sup>

Where the environmental conflict literature does address opportunity, it takes the form of state weakness. Homer-Dixon argues that environmental scarcities both

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<sup>71</sup> Alan S. Milward, *War, Economy and Society, 1939-1945*, 1979, 245.

<sup>72</sup> Magnus Theisen, “Blood and Soil?”.

<sup>73</sup> Indra de Soysa, “6. The Resource Curse: Are Civil Wars Driven by Rapacity or Paucity?,” in *GREED AND GRIEVANCE Economic Agendas in Civil Wars*, Edited by Mats Berdal and David M. Malone, 2000, [http://www.research-matters.net/minga/ev-124489-201-1-DO\\_TOPIC.html](http://www.research-matters.net/minga/ev-124489-201-1-DO_TOPIC.html).

increase demands on the state and reduce the state's ability to meet those demands due to falling revenues, infighting and fractionalization, and resource capture by elites.<sup>74</sup> He also argues that scarcities increase the likelihood of conflict between societal groups similarly by increasing grievances and opening opportunities:

“The five key social effects of environmental scarcity...produce or exacerbate conflict among groups...by simultaneously increasing the grievances of the affected population and changing the structural of political opportunities so that it is more rational to act violently upon those grievances.”<sup>75</sup>

However, Homer-Dixon never specifies why environmental scarcities should reduce the state's capabilities while not reducing the population's capabilities proportionately. Unless this relative capability is altered, it is unlikely that the opportunity structure for resistance would be significantly altered. He also does not address how and when conflict will ensue between social groups as a function of changing opportunity structures.

Colin Kahl also advances a state-side scarcity-conflict argument, expanding on Homer-Dixon's explanation along two specific mechanisms:

“The modified version of the state failure hypothesis ... suggests that violent conflicts occur when [demographic and environmental security] puts pressure on both society and the state, simultaneously increasing the incentives and opportunities for social groups to engage in violence via the logic of the security dilemma. State exploitation represents a second pathway to bloodshed. These conflicts occur when population and environmental pressures provide state elites and their allies with incentives and opportunities to instigate violence that serves their narrow self-interests.”<sup>76</sup>

Similar to Homer-Dixon, he does not adequately address why states fail and societies do not. Raleigh and Urdal have attempted to address the question of state

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<sup>74</sup> Homer-Dixon and Blitt, *Ecoviolence*.

<sup>75</sup> *Ibid.*, 10.

<sup>76</sup> C. H Kahl, *States, Scarcity, and Civil Strife in the Developing World* (Princeton Univ Pr, 2006), 26.

failure or weakness as a step in the scarcity-conflict mechanism by conducting a large-N analysis examining state weakness as an intermediary between climate change and civil conflict.<sup>77</sup> They found little evidence that state weakness is a significant mechanism linking climate change to violent conflict.

Nor does the environmental security literature adequately capture the central role of power in conflict dynamics. This shortcoming has hobbled the environmental conflict literature's ability to control for and model the interactions between the environment and state policies. In their review of the climate-security literature, Gemenne et al. comment:

“...power remains often absent from the literature on climate and security. Vulnerability is a function of power: the power of political processes and markets to deny some groups the freedoms and opportunities that they need to make choices in their interests and to act on those decisions, and the power of institutions to appropriate and divert processes that aim to overcome vulnerability.”<sup>78</sup>

So if scarcity does not increase the relative capability of a military group, how can it exert a positive effect on the decision to pursue violence? A cost-benefit analysis by the claimants involved may incline them to violence when they have greater capability, and thus likelihood of success, relative to any future capability. In other words, when the costs of inaction are extreme and when environmental services that are crucial to survival become unavailable, claimants must alter the situation or die, increasing the likelihood of extreme measures like violence despite the relatively stronger repressive capabilities of the state. There may be options other than violence—migration, for example—but these cases of desperate scarcity may help us

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<sup>77</sup> Raleigh and Urdal, “Climate Change, Environmental Degradation and Armed Conflict.”

<sup>78</sup> Gemenne et al., “Climate and Security,” 7.

to understand why the environmental conflict literature seems to defy the capability-oriented expectations of conflict-studies.

Ultimately, it is clear that relative capability is a crucial factor in conflict onset. However, it is also clear that environmental scarcities do yield violence, as reviewed in the environmental dispute section above. Research must seek to solve this puzzle of apparent decreased capability yielding greater levels of violence. Clarifying why this contradiction occurs may help to illuminate the mechanisms of low-level conflict generally, not just bridge the gap between environmental security and broader conflict literatures.

## *6.2 State Repression*

In any interactive process there are as many perspectives and strategic logics as there are actors. There are discreet logics for governments using violence against their citizens and corporations may also have their own logics for utilizing private security companies which use repressive tactics against dissent. While there is a wealth of research addressing the government-side of this process, there is less that illustrates when and how other actors opt into violence.<sup>79</sup> This largely overlooked society-side process of escalation may contain valuable insights into the mechanisms of escalation to violence.

The repression literature has been bewitched by the question of whether repression sparks or subdues unrest. Chenoweth and Lawrence note,

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<sup>79</sup> David E. Cunningham, Kristian Skrede Gleditsch, and Idean Salehyan, "It Takes Two A Dyadic Analysis of Civil War Duration and Outcome," *Journal of Conflict Resolution* 53, no. 4 (August 1, 2009): 570–597, doi:10.1177/0022002709336458.

“The effects of repression on regime opposition have been widely discussed in the literature on opposition in authoritarian regimes. Yet repression seems to have contradictory effects. On the one hand, it is thought to be a critical authoritarian tool capable of silencing opposition. But on the other hand, repression has also been said to spur opposition. For example, one historian wrote that repression stifled Tunisian nationalists in 1938, but fueled Tunisian nationalism in 1952. Repression apparently produces different results at different times. Even if repression does provoke opposition, it may do so by prompting further peaceful opposition or generating more popular support for the cause rather than by specifically causing violence.”<sup>80</sup>

Many authors theorize that these diverging responses to repression represent the relationship between violence and different timeframes—that repression is immediately quelling but inflammatory in the long term.<sup>81</sup> However, there is little empirical research that concludes such a time-variant relationship exists. Research has, however, concluded that conflict tends to cluster in both time and space, whether due to diffusion, neighborhood effects, refugee movements, or other mechanisms.<sup>82</sup> How exactly time matters for conflict is unclear though, nor are approaches to time uniform—sometimes authors refer to the effect of time as the distance between events or the density of events, and sometimes they clump all events within a calendar year. Davenport, for example, states in an early article that most of the repression literature concludes that frequency of dissident events is the most important factor determining

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<sup>80</sup> Chenoweth, Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict*, 149.

<sup>81</sup> Chenoweth, Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict*; Karen Rasler, “Concessions, Repression, and Political Protest in the Iranian Revolution,” *American Sociological Review* 61, no. 1 (February 1, 1996): 132–152, doi:10.2307/2096410.

<sup>82</sup> H. Buhaug and K. S. Gleditsch, “Contagion or Confusion? Why Conflicts Cluster in Space,” *International Studies Quarterly* 52, no. 2 (2008): 215–233; John O’Loughlin, Frank D. W. Witmer, and Andrew M. Linke, “The Afghanistan-Pakistan Wars, 2008-2009: Micro-Geographies, Conflict Diffusion, and Clusters of Violence,” *Eurasian Geography and Economics* 51, no. 4 (2010): 437–471, doi:10.2747/1539-7216.51.4.437; E. Forsberg, “Conflict Diffusion: Ethnic Kin as a Transmitter of Internal Conflict,” in *Annual Meeting of the International Studies Association, March, 2005*, 1–5; Sebastian Schutte and Nils B. Weidmann, “Diffusion Patterns of Violence in Civil Wars,” *Political Geography* 30, no. 3 (2011): 143–152.

state repression.<sup>83</sup> Other approaches gauge the change in a variable's effect over time, while others merely differentiate present and past effects.<sup>84</sup>

Another leading theory in the repression and dissent literature is substitution theory, originating with Lichbach and continuing in Will Moore's work, which concludes that actors will opt into the strategy that most is most effective to meet their ends—when violent groups are confronted with repression, they will opt for nonviolent protest.<sup>85</sup> In other words, this theory finds support for the effectiveness of repression at reducing violence but not necessarily contention. Despite failing to find support for the argument that repression may increase violence, or may increase it in the future, Moore opens his article by noting,

“Repression sparks dissident behavior, yet repression also deters dissident behavior; statistical analyses of the relationship between the two indicate that both statements can be substantiated.”<sup>86</sup>

The state-side strategic logic is thoroughly explored by a number of other scholars writing on the decision to target civilians and the nature of this targeting generally in the context of insurgencies. Valentino et al. argue that states are more likely to engage in mass killing against groups that employ guerilla tactics, insurgencies with large civilian support systems, and insurgents that threaten its

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<sup>83</sup> C. Davenport, “Multi-Dimensional Threat Perception and State Repression: An Inquiry into Why States Apply Negative Sanctions,” *American Journal of Political Science* 39, no. 3 (1995): 683–713.

<sup>84</sup> *Ibid.*; Collier and Hoeffler, *Greed and Grievance in Civil War*; H. Hegre, “Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816–1992,” *American Political Science Review* 95, no. 01 (2002): 33–48; Dylan Balch-Lindsay and Andrew J. Enterline, “Killing Time: The World Politics of Civil War Duration, 1820–1992,” *International Studies Quarterly* 44, no. 4 (2000): 615–642.

<sup>85</sup> Mark Irving Lichbach, “Deterrence or Escalation? The Puzzle of Aggregate Studies of Repression and Dissent,” *The Journal of Conflict Resolution* 31, no. 2 (June 1, 1987): 266–297; W. H Moore, “Repression and Dissent: Substitution, Context, and Timing,” *American Journal of Political Science* 42, no. 3 (1998): 851–873.

<sup>86</sup> Moore, “Repression and Dissent.”

political survival.<sup>87</sup> Kalyvas argues that indiscriminant violence is the product of low information and a preference for low-cost, short-term policies.<sup>88</sup> Downes argues that governments target civilians out of desperation to achieve victory, reduce the costs of a war of attrition, and acquire territory.<sup>89</sup> While these studies focus on an insurgency context in which large numbers of civilians are killed, they start to fill in the strategic logic of the state-side argument. Other scholars have focused on repression of riots, protests, and other forms of contention. Davenport finds that conflict frequency, strategic variety, deviance from cultural norms, and degree of democracy are all correlated with political repression.<sup>90</sup> Franklin finds that violent challenges in Latin American governments most often yield repression, and also that the degree of limitation of demands, regime type, and international criticism for human rights abuses are also significant determinants of repression.<sup>91</sup> In a review of the repression literature, Davenport defines one of the most consistent and persistent findings across time and space:

“When challenges to the status quo take place, authorities generally employ some form of repressive action to counter or eliminate the behavioral threat; in short, there appears to be a “Law of Coercive Responsiveness.”<sup>92</sup>

While Davenport cites several areas where repression research is under-developed, he generally describes a booming subfield that has grown significantly over the last few decades.

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<sup>87</sup> B. Valentino, P. Huth, and D. Balch-Lindsay, “‘Draining the Sea’: Mass Killing and Guerrilla Warfare,” *International Organization* 58, no. 02 (2004): 375–407.

<sup>88</sup> Kalyvas, *The Logic of Violence in Civil War*.

<sup>89</sup> A. B. Downes, *Targeting Civilians in War* (Cornell Univ Pr, 2008).

<sup>90</sup> Davenport, “Multi-Dimensional Threat Perception and State Repression.”

<sup>91</sup> James C. Franklin, “Contentious Challenges and Government Responses in Latin America,” *Political Research Quarterly* 62, no. 4 (December 1, 2009): 700–714.

<sup>92</sup> Christian Davenport, “State Repression and Political Order,” *Annual Review of Political Science* 10, no. 1 (2007): 1–23, doi:10.1146/annurev.polisci.10.101405.143216.

My research will fit into the less-explored half of this literature. I argue that both sides of the state-society strategic logic are interesting, but that not every research question must address both sides of the equation, rather, the field generally is advanced when discrete projects fit together to inform the larger picture of an interactive strategic process. Research must attempt to flesh out the role of non-state actors in escalation to low levels of violence.

### *6.3 Ethnic Impacts on Violence*

In addition to capability and repression, previous literature has highlighted ethnic divisions and fractionalization as factors in conflict initiation. Ethnic conflict, like environmental conflict, has mixed findings on the relationship between ethnic schisms and violence. Horowitz argues that plural societies are particularly prone to violence, while Anderson claims that it is barriers to minority group social mobility that lead to violence.<sup>93</sup> Other scholars, such as Posner and Wilkinson, make a case for an institutional explanation that incentivizes violence and ethnic mobilization, and argue that leaders may strategically activate group identities in order to garner support.<sup>94</sup> Birnir places the ethnic politics literature within the information and bargaining sub-field, identifying ethnic identities as ‘information short-cuts’ for voters.<sup>95</sup> Fearon and Laitin, however, find little support for ethnic arguments in their

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<sup>93</sup> D. L. Horowitz, *Ethnic Groups in Conflict*, vol. 387 (Univ of California Pr, 1985); B. Anderson, *Imagined Communities* (London, 1983).

<sup>94</sup> Daniel N. Posner, *Institutions and Ethnic Politics in Africa* (Cambridge University Press, 2005); S. I. Wilkinson, *Votes and Violence: Electoral Competition and Ethnic Riots in India* (Cambridge Univ Pr, 2006).

<sup>95</sup> J. K. Birnir, *Ethnicity and Electoral Politics* (Cambridge Univ Pr, 2007).

influential study.<sup>96</sup> In short, whether ethnicity is regarded as a primordial division eternally separating groups of diverse people or a constructed category which elites manipulate for their own benefit, it has a disputed, but much studied place in conflict studies.

In addition to looking at ethnicity for its own merits, several scholars have identified a particular tendency of ethnic violence to occur in cases of environmental competition. Martin notes that the natural disaster literature “finds that sudden environmental stress can, under certain social conditions, be a catalyst for deepening social segmentation and intensified intergroup competition and conflict.”<sup>97</sup> He cites the inability of the magnitude of environmental events to account for social response as an illustration of this socially constructed intervening factor. This tendency means that “...the surface manifestations of ‘ethnic conflict’ frequently obscure underlying causes that have motivated the ‘instrumentalization’ of ethnicity...”<sup>98</sup> In other words, the environmental roots of conflicts may be masked by ethnic cleavages, which in fact are only conditioning the effect of scarcity. This argument is supported by a number of other authors: Aspinall argues that in Aceh, Indonesia, the impact of resource extraction was conditioned by the presence of identities that facilitated collective action, and Olzak argues that ethnic conflict occurs when ethnic groups compete over finite resources.<sup>99</sup>

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<sup>96</sup> Fearon and Laitin, “Ethnicity, Insurgency, and Civil War.”

<sup>97</sup> A. Martin, “Environmental Conflict Between Refugee and Host Communities,” *Journal of Peace Research* 42, no. 3 (2005): 334.

<sup>98</sup> Ibid.

<sup>99</sup> Aspinall, “The Construction of Grievance”; S. Olzak, *The Dynamics of Ethnic Competition and Conflict* (Stanford Univ Pr, 1994).

One of the better developed mechanisms in the literature connecting scarcity and conflict is that of migration, competition, and conflict. Scarcity drives people from their land in search of food, water, grazing territory, fuel-wood, etc. These mobile populations move into territory in use by other populations, and may quickly over-tax the local environment, creating anew the scarcity that they fled. Even in cases where migrants do not decimate the landscape, their use may come in conflict with that of “host communities.” The division of the population into refugees and internally displaced people on the one hand and host communities on the other facilitates clear lines of identity construction, grievance, and conflict between the two groups. Other differences, like ethnic divisions, between the two populations can exacerbate this problem.<sup>100</sup>

Despite the complex relationship between ethnic and environmental conflict, it is reasonable to take a conservative approach to identifying land conflicts—despite the tendency of ethnic conflict to occlude the underlying issues, these conflicts should be identified as ethnic until further research can clarify the relationship, particularly in large-N studies where limited time can be dedicated to attributing causes aside from the most obvious superficial issue. Particularly at low levels of conflict where ethnic mobilization is still minimal, this is a safe assumption. It is, however, useful to control for the effect of ethnic fractionalization in these low-level conflicts.

#### *6.4 Larger War and Conflict Environments*

Examining cases of low-level conflict adds an additional potential complication of housing these disputes within larger civil conflict environments.

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<sup>100</sup> Martin, “Environmental Conflict Between Refugee and Host Communities.”

Insecurity in the form of civil conflict or civil war makes policing difficult, and as such, unrelated violence may increase in contexts of mass violence.<sup>101</sup> Individuals have less expectation that the rule of law will be enforced and may either take advantage of the lack or feel that they need to take matters into their own hands to defend their lands or families. Violence may also bleed over from other sources—secessionist movements may lead to violence over mining pollution if actors frame the environmental damage as impacting the same group, as in areas of Aceh, or the proliferation of arms in a region may alter actors’ analysis of the benefits of violence.<sup>102</sup> Larger conflicts create grievances and harden identities that create a feedback loop into more conflict at both higher and lower levels. A larger unrelated conflict environment in either case should yield more low-level violence.

## **VII. Conclusion**

Current research largely neglects low-level violence, which obscures our understanding of the roots of larger conflict. In order to narrow this gap, a contentious politics approach that compares violent and non-violent strategies is necessary. Current research also tends to focus on the state-side of repression and dissent, with only limited research on the society-side logic. Increasing our mechanistic understanding of environmental conflict should help to clarify the relationships at play in low-level escalation, and framing disputes as interactive processes can also inform when and where violence or an end to contention is likely to occur. Viewed through a lens of signaling, the differentiation of simple or structural scarcities sheds

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<sup>101</sup> Seth G. Jones et al., *Establishing Law and Order After Conflict* (Rand Corporation, 2005).

<sup>102</sup> Aspinall, “The Construction of Grievance.”

light on the likely actions of the state and thus the strategic choices faced by claimants. Similarly, scarcity type, past repression, and violence play an important signaling role, but we cannot dismiss the material impacts that current violence and repression can have on relative capability. Other variables worth accounting for in analyzing patterns in contentious processes include ethnic fractionalization, government capability, and a larger conflict setting.

Filling these gaps in the literature should help us to understand the roots of violent conflict, and also to reconcile the dissonance between the expectations of the conflict literature with regard to scarcity and the findings in the environmental literature. From a policy perspective, answering these questions may also help us to adopt strategies that mitigate violence and persistent contention, which can have significant costs in human lives, human development and welfare, economic development, and political stability.

The next chapter moves to build on this literature and fill these gaps with an interactive bargaining theory of when violence and continuing contention are most likely in environmental disputes. It acknowledges material restraints on violence and contention posed by repression and violence and also argues that timing is a key factor in patterns of violence and contention. The subsequent chapters will then test this theory.

## **Chapter 3: Environmental Disputes as a Bargaining Process**

### **I. Intro**

The prior chapter identified key gaps in the literature, and also applicable theories that can help us to understand why some environmental disputes escalate to violence, or persist over time, while others do not. Of particular relevance is the shortage of research on low-level conflict, particularly those factors that make society-groups more likely to escalate, and also the contradictory expectations of the conflict and environmental conflict literatures with regard to capabilities. While accounting for structural permissive factors, viewing contentious sequences through an interactive bargaining lens should help us understand the mechanisms of escalation.

In order to address these questions and gaps, I construct a theory below that identifies key factors which influence the sequence of events in contentious processes. My project attempts to model an interactive bargaining process between claimants and the state, focusing on the factors that influence strategic decisions by society groups making environmental claims. I argue that scarcity type, past repression, and previous violence all have signaling functions that indicate to claimants the likelihood of the government acquiescing to their demands without further escalation. I posit that constraints on capability in the form of current repression and violence also play a role in the likeliness of violence and continuing contention. Finally, I propose that the timing of events is critical to patterns in violence and contention.

The chapter below starts by giving some context for my theory by framing these disputes within sequences and within situations of environmental scarcity. It then lays out the logic of my theory and the factors that should be most important to violence and continuing contention in these sequences. Next, it attempts to demonstrate how this theory unfolds in the real world using a brief overview of conflict in Chiapas, Mexico. Finally, it translates my theory into a set of hypotheses for testing in future chapters.

## **II. Events within Sequences of Environmental Disputes**

In order to elucidate some basic structure in this dissertation's context, limitations, and unit of analysis, this section discusses what it means to focus on events within a sequence and to address mechanisms within environmental disputes particularly. First, clarifying how this research will analyze events and sequences is essential to building testable hypotheses. Second, identifying the context of this project as limited to environmental disputes helps us to understand where we may expect these findings to be generalizable, and why I made certain choices in methodology and testing.

### *2.1 Sequences and Events*

Interactive processes depend on repetitive interactions linked into sequences of events. Focusing on series of interactions between society and state necessitates theorizing sequences of more and less likely events, in which we analyze earlier parts of the sequence for the likely process later in the sequence. Moore notes,

“...if one has an interest in interaction as a process, it makes a great deal of sense to try to conceptualize that process as a sequence of interactions, and such a conceptualization is rather distinct from traditional conceptualization of intranational conflict.”<sup>103</sup>

In a sequence of contentious events, the process can escalate to violence, remain non-violent, or cease altogether. I theorize that strategic interaction which communicates the likelihood that the government will comply with society demands—as signaled by structural scarcity, government behavior, and prior violence—conditions the likelihood of violence and of continuing contention. This project cannot address the likelihood of any contentious event existing in the first place, but once the process has started (i.e., a contentious event has occurred) it traces the sequence of events that determine whether actors escalate to violence, maintain non-violence, or cease contentious activity entirely. In analyzing sequences, we must also be interested in the frequency or timing of the sequence. Is a more dense sequence of events the same as a more diffuse one? Does repression have the same effect when events come fast and furious compared to when events are only occasional? Does repression still matter if it occurred four years in the past? In order to allow for variance in these issues of timing and also view the sequence as the context of each event, the unit of analysis must be the interactions, or events, themselves.

## *2.2 Environmental Disputes*

This dissertation aims to flesh out the mechanisms that link environmental factors to conflict in order to clarify the causation that is under-developed in

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<sup>103</sup> Moore, “Repression and Dissent,” 857.

correlative studies of environmental conflict (as detailed in the previous chapter). As such, it focuses on environmental disputes to the exclusion of other types of dispute and does not attempt to compare or differentiate between these types. The conclusions drawn from this study, then, are limited to other environmental disputes.

Part of my rationale for focusing on environmental disputes is their intriguing divergence from the expectations of conflict literature, as discussed in the previous chapter. The environmental conflict literature shows that those most vulnerable to shortages of environmental goods are subsistence farmers with little capability to replace the food, water, income, and shelter that they acquire from their natural environment. This population composes a large population of rural poor.

“Most of the world’s poor are farmers; they share the same profession and the same challenges... They are tasked with growing enough food to support their families with only tenuous access to land and natural resources, the most basic of tools, and increasingly unpredictable weather patterns to deal with.”<sup>104</sup>

The fact that this scarcity does not appear to reduce the prospects for violent conflict suggests that the context of environmental scarcity alters the society-side decision matrix by increasing the cost of inaction. Desperate actors struggling to survive may have little option but to reach for violence even when the state indicates that it is willing to repress the claimant violently.

Risky violent behavior on the part of farmers should increase when survival is dependent on access to the resources being denied. Environmental scarcity, and little hope of institutional rescue, drives actors to take any action necessary to secure food or other environmental goods necessary for survival. While the costs of violence may

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<sup>104</sup> “The Farmer’s Dilemma: Climate Change, Food Security, and Human Mobility,” *New Security Beat*, accessed December 1, 2013, <http://www.newsecuritybeat.org/2013/06/farmers-dilemma-climate-change-food-security-human-mobility/>.

still be quite high, if the cost of inaction is likely death or extreme hardship, actors will be more willing to engage in that risky violence. Desperation to survive will drive some actors to violence even though under other circumstances they might opt for less risky strategies. In China, for example, despite relatively extreme repression, land disputes remain frequent.

“The protest that has erupted in a village in China's Guangdong province has grabbed headlines around the world, but the issues at the heart of the dispute are alarmingly commonplace. Every year, China is plagued by tens of thousands of "mass incidents" - a catch-all phrase that the government uses to describe riots, protests and strikes. Many are about land rights. ...And if there are disagreements, they can easily result in angry demonstrations, organised by villagers who often feel they have no other option.”<sup>105</sup>

This is not to argue that capability is not important, but that particularly at low levels of violence, environmental scarcities make the high costs of violence less deterring. I do not test this proposition, which is more suited to cross-conflict-type comparisons and would obscure my project's focus on the mechanisms of one kind of conflict, but I utilize the insight to identify environmental disputes as a good location to explore the dynamics of low-level conflict processes.

### **III. Strategic Interaction: Repression, Violence, and Scarcity in Low-Level**

#### **Environmental Conflicts**

This section will build on the context and approach described above to first detail the process of interaction that occurs between claimants and the state. It will then delve into what makes violence and continued contention more or less likely for any given event in a contentious sequence. It will focus on the characteristics of prior

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<sup>105</sup> “Why Do Chinese Farmers Riot?,” *BBC*, December 15, 2011, sec. China, <http://www.bbc.co.uk/news/world-asia-china-16193089>.

events in the sequence, the event itself, and the effect of time on violence and contention, while holding constant the other factors identified in the literature as important for conflict initiation.

### *3.1 The Process*

The process begins with an interaction (either violent or non-violent) between claimants and the state regarding an environmental scarcity. This interaction signals the claimants' demands and their commitment to reaching their political goals, as well as the state's interests and commitment to a course of action. These signals lead to variation in the presence of violence and in the likelihood that contention will continue.

Since I am diverging from the standard conflict literature's definitions of violence at 25 or 1,000 battle-deaths, to look at lower-level conflicts that may have only generated a single fatality, I will first define what I mean by violence. I am building largely on Schock's definition of violent political action as involving "the use of physical force or the threat of physical force against human beings in pursuit of political objectives."<sup>106</sup> This excludes methods such as sit-ins, non-violent protests, sabotage, strikes, and blockades, which may seem fiery, but do not involve violence against people.<sup>107</sup> This is a narrower definition than common parlance, but it falls in line with the norms in the conflict literature in that it is concerned specifically with deaths (as opposed to other forms of contention that an average person might consider violence such as assault or vandalism).

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<sup>106</sup> Kurt Schock, *Unarmed Insurrections: People Power Movements in Nondemocracies* (Minneapolis: University of Minnesota Press, 2005), 15.

<sup>107</sup> *Ibid.*, 16.

Since contentious politics are not necessarily violent, I will also define my use of that term. McAdam, Tarrow and Tilly define contentious politics as:

“episodic, public, collective interaction among makers of claims and their objects when (a) at least one government is a claimant, an object of claims, or a party to the claims and (b) the claims would, if realized, affect the interests of at least one of the claimants.”<sup>108</sup>

I adopt this definition and its exclusion of non-collective struggle, including crime.

While environmental scarcity may also increase the crime rate in the area, this dissertation remains focused on political violence and does not explore that question.

As McAdam, Tarrow and Tilly clarify, “episodic” refers to ad hoc political events and “public” refers to events of general (not private) interest that have political ramifications.<sup>109</sup> These events can take a wide variety of forms.

“Scholars have identified hundreds of nonviolent methods—including symbolic protests, economic boycotts, labor strikes, political and social non-cooperation, and nonviolent intervention—that groups have used to mobilize publics to oppose or support different policies, to delegitimize adversaries, and to remove or restrict adversaries’ sources of power. Nonviolent struggle takes place outside traditional political channels, making it distinct from other nonviolent political processes such as lobbying, electioneering, and legislating.”<sup>110</sup>

The initial contentious interaction—violent or non-violent—can have both material and informational content. Material capabilities may be altered if the interaction is violent or attracts new participants to a societal movement, and information may be updated regarding interests, commitment, and capability. Following Fearon, Walter, and the bargaining theory of war, I propose that the most credible sources of information regarding the government’s stance are the government’s past and present actions on related issues in the same area, the presence

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<sup>108</sup> McAdam, Tarrow, and Tilly, *Dynamics of Contention*, 5.

<sup>109</sup> *Ibid.*

<sup>110</sup> Stephan and Chenoweth, “Why Civil Resistance Works,” 10.

of violence in the past or present, and unequal treatment of various groups (i.e., structural scarcity). These signals impact claimants' choices by indicating the likely consequences of their menu of actions. (The impacts on government choices of repression or violence against civilians are well covered in the literature, as discussed in the previous chapter.) McAdam, Tarrow, and Tilly call this process collective attribution:

“Collective attribution... involves (a) invention or importation and (b) diffusion of a shared definition concerning alterations in the likely consequences of possible actions (or, for that matter, failures to act) undertaken by some political actor.”<sup>111</sup>

Claimants then choose a course of action based on the costs of action or inaction and their belief in the likelihood of success of nonviolent or violent strategies, based on the information they have gathered through their interactions with the state. According to McAdam, Tarrow, and Tilly, actors establish:

“(1) a probability that the initiation of interaction X will produce outcome Y, and (2) a causal theory connecting Y to X. Thus the actor reasons from outcomes to appropriate interactions, from interactions to likely outcomes, or more plausibly both at once. Even in this radical simplification we sense the great importance of previous experience in shaping highly selective repertoires of contention.”<sup>112</sup>

If the state has already responded supportively or seems likely to address the group's concerns adequately without any escalation, then it is unlikely that violence will occur or contention will continue. Scott notes:

“In the Third World it is rare for peasants to risk an outright confrontation with the authorities over taxes, cropping patterns, development policies, or onerous new laws; instead they are likely to nibble away at such policies by noncompliance, foot dragging, deception. In place of a land invasion, they prefer piecemeal squatting; in place of open mutiny, they prefer desertion; in place of attacks on public or private grain stores, they prefer pilfering. When

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<sup>111</sup> McAdam, Tarrow, and Tilly, *Dynamics of Contention*, 95.

<sup>112</sup> *Ibid.*, 139.

such stratagems are abandoned in favor of more quixotic action, it is usually a sign of great desperation.”<sup>113</sup>

If demands can be met without continuing contention, then contention should not continue, and where continuing contention is necessary, nonviolence should be the preferable choice; not only is violence more costly, it also has a lower chance of success than nonviolent strategies.<sup>114</sup> Although claimants should prefer to resolve issues without contention and barring that, nonviolently, they may interpret signals from the government to mean they stand no chance of success unless they change the cost-benefit analysis of the government. This cost-benefit analysis can be influenced through violence or through non-violent events by what Chenoweth calls “seizing control of the conflict through widespread noncooperation and defiance.”<sup>115</sup> The state must expend money, personnel, and time addressing the issue, and may lose legitimacy domestically or internationally by mishandling the situation. It is through convincing the state that these costs will increase if the state does not acquiesce to claimants’ demands that otherwise powerless groups can seek political change.

### *3.2 Escalation Factors*

Claimants may decide to escalate if the state has demonstrated that it is unlikely to acquiesce to the claimants’ demands by responding repressively to prior events, engaging in violence in prior events, or by privileging other groups over the claimants. However, claimants may also be constrained by changes in material capability due to current violence or repression. Lastly, very dense events may signal

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<sup>113</sup> Scott, *Weapons of the Weak*, xvi.

<sup>114</sup> Stephan and Chenoweth, “Why Civil Resistance Works.”

<sup>115</sup> *Ibid.*, 10.

a need to escalate if they suggest that the current tactics are not altering the state's cost-benefit analysis.

### *3.3 Repression*

Repressive behavior in prior events, like arresting, bullying, or threatening claimants, signals that the government is willing to expend resources to not comply with claimants' demands. This is a more credible signal than "cheap talk" that costs the government nothing. Following Davenport and Goldstein, I define repression as involving:

"...the actual or threatened use of physical sanctions against an individual or organization, within the territorial jurisdiction of the state for the purpose of imposing a cost on the target as well as deterring specific activities and/or beliefs believed to be challenging to government personnel, practices or institutions."<sup>116</sup>

While repression can include violence, I treat violence as a different concept and address it below. In the face of repressive state behavior, claimants who believe that their survival depends on access to the environmental resource in question should be more likely to escalate to violence and continue contentious activity because they have little reason to believe their demands will be met without raising the costs for the government. This effect is illustrated in the escalation of the Mau Mau resistance into a full blown rebellion:

"Popular reaction to the mass arrests was swift among the most committed of the Mau Mau initiates. Over the next few months, as many as 20,000 mostly young, poor (read landless), male Kikuyu fled to the forest reserves to the north and west of Nairobi. The active military phase of the struggle had begun. It grew out of a complicated, but by now familiar pattern of conflictual interaction among various challengers and state and nonstate elites

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<sup>116</sup> Davenport, "State Repression and Political Order," 2; Robert Justin Goldstein, *Political Repression in Modern America from 1870 to the Present* (Boston: G.K. Hall, 1978), xxvii.

increasingly attuned to each other's' actions and to the shared sense of uncertainty and threat embodied in the developing situation. In this sense, the declared Emergency and the Kikuyu retreat to the mountains were but two of the later and more dramatic iterative moves in the escalating conflict."<sup>117</sup>

Even if the state eschews repression in one event and demonstrates that it is likely to pursue complete inaction, claimants will likely escalate since the threat-to-survival posed by environmental scarcities persists. Hence, as the state's actions become less compliant and more indicative of committed resistance, violence is more likely and curtailment of contention becomes less likely.

However, the conflict literature also tells us that while state actions may signal the state's intention and commitment and lead to more contention and violence in the future, the state can also successfully repress contention and violence. In short, much of the literature concludes that repression works at least so far as immediately reducing the incidence of violence. However, other studies find mixed effects and show that repression may increase violence over the long-term or increase the incidence of nonviolent contentious politics through substitution.<sup>118</sup> Hence the time-variant effects of repression (past and present) and violence (past and present) do not vary uniformly across time.

In the long term repression may stir up grievances, increasing violence through the process detailed above and in the previous chapter. This long-term effect of repression has to do with the process of information dissemination and recruitment—in essence the lagged collective attribution process analyzing government signals and the likely consequences of each course of action. In India

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<sup>117</sup> McAdam, Tarrow, and Tilly, *Dynamics of Contention*, 101–102.

<sup>118</sup> Moore, "Repression and Dissent."

government signaling over land disputes has driven many civilians to join the Maoist insurgency:

“Sundar identified and condemned a raft of repressive government policies — from throwing locals off their land to commandeering schools — and insisted that such repression constitutes the prime reason for recruitment to the insurgency. “Injustice more than inequality” explains why people join the Maoists, she said.”<sup>119</sup>

In other areas, short-term repressive action has controlled, but not eliminated, contentious action. As substitution theory suggests, repression may prompt actors to simply substitute the repressed strategy for a different one.<sup>120</sup> In Pakistan, where the timber mafia has created environmental scarcities and inequities:

“Growing protests from those threatened by the unchecked exploitation of the forests have led to reprisals by profiteers. Although widespread conflict has been avoided, incidents occur regularly.”<sup>121</sup>

When the government is repressing the current event, material limitations should reduce the short-term incidence of violence while simultaneously making contention less likely to end since claimants will simply try to switch to other strategies of contention. Past repression, however, should have a uniform effect of increasing violence and contention. This time-differentiated effect on the likelihood of violence functions like a gateway, through which fewer contentious sequences pass, but those that do are increasingly likely to become violent. This effect of current repression on the likelihood of violence is different from the effect on the likelihood of ending contention—substitution theory argues that actors will replace violent

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<sup>119</sup> “India’s Threat from Within,” *New Security Beat*, accessed December 2, 2013, <http://www.newsecuritybeat.org/2010/09/indias-threat-from-within/>.

<sup>120</sup> Rasler, “Concessions, Repression, and Political Protest in the Iranian Revolution.”

<sup>121</sup> Thomas Homer-Dixon and Peter Gizweski, “The Case of Pakistan, Part 2,” accessed December 13, 2013, <http://www.homerdixon.com/projects/eps/pakistan/pak2.htm>.

strategies with non-violent ones when faced with repression. Current repression should therefore successfully prevent violence, but not curtail contention.

### *3.4 Violence*

Prior violence demonstrates even more than repression the government's commitment to bear the costs of non-compliance with the claimant's demands. Even if the state originally targets only a few ring-leaders, the group may understand this action as directed at the identity or claimant group as a whole.<sup>122</sup> Similar to prior repression but on a magnified scale, cases of prior violence should be much more likely to see further violence and further contention. The increased magnitude of the effect of violence is the first major theorized difference between the impacts of violence and repression. Secondly, while I argue that the effect of current repression on violence is negative, for obvious reasons I do not theorize the effect of current violence on violence.

Substitution theory stipulates that current violence, like current repression, leads claimants to alter strategies but not curtail contention entirely, in contrast with the expectations developed in the broader conflict literature that fatalities will reduce capability and the incidence of contention. This important branch of the repression and dissent literature expects that when confronted with violence claimants will simply substitute one strategy for another, which should not lead to the end of contention. Furthermore, the information signaled by this behavior will convince

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<sup>122</sup> Abrams makes a similar argument regarding the misinterpretation of terrorist attacks as "maximalist", whereas they are intended merely to alter policy. In other words, action taken against a group is interpreted as targeting the group in its entirety, as opposed to seeking narrower goals. M. Abrams, "Why Terrorism Does Not Work," *International Security* 31, no. 2 (2006): 42–78.

claimants that they must continue contention to achieve their political demands. Current violence should then reduce the likelihood that contention ends.

Given that the critical mechanism here is one of information exchange regarding commitment to particular policy demands or the status quo through signaling mechanisms (i.e. violence, unequal treatment, or contentious action), the initiating party is not a salient factor since both parties must choose to engage or not engage in a continuing process of interaction. A death in an event signals a strong commitment, on either side of a dispute, since repression, contention, and resistance all have to rise to a certain level for this kind of violence to occur. From a signaling perspective, who kills whom is irrelevant. Both parties have persisted in their demands (either for a political change, or for the cessation of contention) to such a degree that violence erupted. If, for example, angry claimants storm a police-line with broken bottles, and in the ensuing chaos a claimant is shot by a police officer, citing this as a case of police signaling is misleading. Rather, it is a signal of the commitment on both sides that each party did not back down to the point of violence. Additionally, each side may view the other as having “started it” through their actions or lack thereof. In the example above, the police may blame the claimants for charging their line, while the claimants may blame the police for having fired the shot that killed someone. Furthermore, while pre-contention periods may feature factors that make one group or another more likely to initiate contention and violence, this theory starts after this point of initiation, tracing the patterns of contentious sequences and not patterns leading to contentious sequences. If grievances are common, but violence is rare, this middle stage of mutual signaling and commitment between an

aired grievance and violence is a key window for potential mitigation of escalating disputes.

### *3.5 Scarcity*

Structural scarcity demonstrates that the government is promoting interests distinctly in conflict with those of the claimants. When viewed through a bargaining theory framework, the signaling difference between “simple” supply/demand scarcity versus structural scarcity is the key distinction that leads structural scarcity to be particularly incendiary. Structural scarcity manifests as cases of access and control disputes, and will yield higher levels of violence since it communicates preferential treatment as opposed to simple shortage. This preferential treatment can be more effectively protested than simple scarcity cases, since, for example, governments do not have the ability to make the rain fall, but they do have the ability to rewrite land-access laws. In some cases, governments can enact environmental protection regulations, or provide money for cleanup efforts, but cases of unequal distribution are still more alterable by policy changes than simple scarcity, meaning that violence and continuing contention are more likely because they can have a greater effect and the responsibility for the inequality lies with people, rather than the ecosystem. I propose that in cases where the government has showed its preference for another group over the claimants, violence and contention should be more likely because the claimants will interpret the inequitable policy as a signal of government intention and commitment, and will conclude that they need to change the government’s cost-benefit analysis to achieve their political demands.

### *3.6 Time*

In examining sequences, not only the characteristics of a sequence or an event matter, but also the timing with which these characteristics and events occur. Time impacts the likelihood of violence and continuing contention in three ways. The first is discussed above for repression and violence—the effects of some factors vary depending on whether they are in the present or the past. The second effect of time is the declining impact of these effects as they move farther into the past. Third, dense, frequent events make violence and continuing contention more likely.

Often when we discuss the effect of one thing on another, we assume either that this effect is consistent across time or that it occurs within a certain time period. When examining a sequence of events, however, it is important to explicitly note whether repression that occurred several years prior has the same effect as repression in the last year. The information signaled in events that occurred farther in the past becomes less credible over time due to potential changes in the situation of the dispute, whether that be changes in personnel on either side, changes in capabilities and commitments, and shifts in policy preferences within the larger political picture. Hence, as time goes on, the effect of a past event on the likelihood of violence or contention should weaken.

Density of events, or how much time passes between events, can vary from slow, infrequent contention to a fast and furious slew of interaction. Studies focused on larger conflicts have found that violence tends to cluster in time and space.<sup>123</sup> This makes intuitive sense since this clustering may indicate a high level of commitment

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<sup>123</sup> Buhaug and Gleditsch, “Contagion or Confusion?”; O’Loughlin, Witmer, and Linke, “The Afghanistan-Pakistan Wars, 2008-2009.”

on both sides, leading to a tit-for-tat strategy of one-upmanship to credibly demonstrate that each side's commitment is greater than their opponent's. Frequent, densely clustered events also increase the risk of potential accidents, which could be the spark necessary to inflame violence and fuel persistent contention. Events that occur closer to the previous event should therefore be more likely to see violence and continuing contention.

### *3.7 Other Factors that May Impact the Contentious Process*

Other branches of conflict research as discussed in the literature review have identified additional factors such as government capacity, remoteness, ethnic divisions, and the presence of a larger conflict in the region that will affect the likelihood of violence. The previous chapter has detailed standard expectations from each of these literatures—in short, greater government capacity and relatedly less remoteness should decrease the likelihood of violence, and I extend this expectation to continued contention as well. Ethnic divisions and a larger conflict region should increase the likelihood of violence and continued contention. I anticipate, however, that bargaining theories of conflict will be more salient in low-level conflict environments than these largely structural considerations.

## **IV. How This Process Looks in the Real World: Chiapas, Mexico**

The process described above can be illustrated in the case of Chiapas Mexico.<sup>124</sup> Chiapas' environment for decades has been characterized by demographic

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<sup>124</sup> This example is taken in its entirety from Homer-Dixon and Blitt. T. F. Homer-Dixon and J. Blitt, *Ecoviolence: Links among Environment, Population and Security* (Rowman & Littlefield, 1998).

growth, deforestation, and soil degradation. Beginning in the 1970s, access to government agricultural credit has favored large-scale beef producers. Economic reforms have further separated subsistence farmers from industrial farmers, privileging the latter and showing very poor responsiveness to the former. Subsistence farmers have been frequently relegated to the least productive land, or dispossessed entirely. Unrest and later outright insurgency emerged, demanding a change in land policy.

“The goal of the insurgency, therefore, was to force the government to renew its land redistribution efforts with greater honesty; it also hoped to force the government to reform the electoral process so that democracy could provide an outlet for peasant grievances.”<sup>125</sup>

Over the length of the conflict, as national policies continued to move farmers off their lands, decimate the forest, and relocate subsistence farmers to increasingly poor areas, the disenfranchised farmers should have been less capable of resistance, but in fact conflict blossomed and escalated.

“At the edge of the Lacandon, severe land scarcities produced fierce competition among farmers, rancheros, squatters, loggers, and indigena communities. Conflict grew increasingly frequent and violent from 1972 on as the pace of expulsions and intercommunity competition quickened. In the 1980s, campesino and indigena communities – often in alliance with church members of all ranks and denominations – were involved in many protests, marches, and riots, mostly against the lack of respect for land rights by state elites.”<sup>126</sup>

Structural inequalities were created and enforced by the state along several culturally relevant divisions, a signal to claimant groups about the state’s priorities:

“As with many government policies, the limits were unevenly applied, and peasants in the Canadas region found themselves under a more rigorous

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<sup>125</sup> *Ibid.*, 45.

<sup>126</sup> *Ibid.*, 45.

regime, enforced by caciques, than that applied to the growing number of rancheros near Palenque.”<sup>127</sup>

By 1992 EZLN (Ejercito Zapatista de Liberacion Nacional) began seriously arming and mobilizing, and a broad swath of poor Mexicans began to see the PRI (Partido Revolucionario Institucional) regime as illegitimate. Government actions against the populace both repressed contention and spread grievances. Homer-Dixon notes,

“System legitimacy is therefore a critical intervening variable between rising poverty and civil conflict. The Zapatista leadership articulated and channeled peasant grievances so as to focus blame for the peasants' hardship on the PRI regime.”<sup>128</sup>

The Zapatistas argued that PRI behavior “signaled that the PRI would never honor its land reform and redistribution commitments.”<sup>129</sup> The onset of violence (as opposed to strategies of relocation and protest) was largely due to the changes in government policy that indicated not only a decline in claim strength for subsistence farmers, but also communicated the government’s lack of concern over their claims. A continued trend of violence over time convinced society that the government was committed to not acquiescing to their demands. Government actions also created structural scarcities, particularly of arable land necessary for the livelihood and survival of rural farmers. This combination of government actions made it clear that cooperative nonviolent strategies were not going to be effective in order for small-time farmers to survive.

The following section converts this story into a series of testable hypotheses.

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<sup>127</sup> Thomas Homer-Dixon and Philip Howard, *The Case of Chiapas, Part 1* (Project on Environment, Population and Security, American Association for the Advancement of Science and the University of Toronto, January 1996), <http://www.homerdixon.com/projects/eps/chiapas/chiapas1.htm>.

<sup>128</sup> Ibid.

<sup>129</sup> Homer-Dixon and Blitt, *Ecoviolence*, 51.

## **V. Hypotheses**

The central contention of this dissertation is that structural scarcity, past and present state behavior and violence, and timing are important factors in the incidence of low-level violence and the likelihood that contention in environmental disputes will end. Information about the state's likelihood of acquiescing to claims is most strongly communicated to claimants through past repression, past violence, and whether the scarcity is unequally imposed on a limited population. Current state violence and repression also signal state intent but their impact on materially capabilities has a stronger impact on claimants' immediate ability to engage in contentious politics and violence. Violence and continuing contention are most likely when the state and its agents have demonstrated an unwillingness to capitulate to the claimant demands either through repressive actions, prior violence, or preferential treatment of other groups. These actions convey to claimants the government's preferences and commitment, and can demonstrate that non-contentious claim-making will have a low likelihood of success. Instead, actors understand that in order to improve their chances of convincing the government to acquiesce to their claims, they must alter its decision matrix through the use of violence and continuing contention.

However, these actions also have a varying effect over time, first from past to present, with contemporary repression reducing the likelihood of violence but past repression increasing the likelihood of violence. Second, the effects of the past events on violence and continuing contention decline over time, with repression five years

ago extending contention less than repression in the last year. And third, dense sequences of events produce a greater likelihood of violence and continuing contention than diffuse sequences.

These factors are nestled within the larger political and social structure that surrounds the conflict, which previous research has shown can be critical to the onset of violence. Key factors in this opportunity structure include state capacity, the presence of salient ethnic and religious cleavages, remoteness, and location in a larger civil conflict region.

Although I am ultimately analyzing sequences of events, the unit of analysis here is the individual event nested within these sequences. I then ask, given the characteristics of the previous sequence and the current event, what is the likelihood of violence or of an end to contention? Since every sequence is slightly different (and the constellation of salient factors changes over time even in the same sequence in terms of types of scarcity, past and present violence, past and present repression, and timing), focusing on the likelihood of violence in any given event supplies more information about *when* we should anticipate violence or the curtailment of contention in each sequence, than focusing on the likelihood of violence in a whole sequence.

The hypotheses below structure the theoretical story described above into testable statements and focus on the change in likelihood for a given event of either violence or an end of contention. In all cases, these apply in a context of environmental disputes within a locality.

*1A) Past state repressive actions are more likely to lead to violence.*

*1B) However, contemporary repression will reduce the likelihood of violence.*

*1C) Past repression makes events less likely to conclude the contentious episodes.*

*1D) Contemporary repression makes events less likely to conclude the contentious episodes.*

Informational content is communicated most credibly through action, so the best clue a claimant has to the likely reaction of the state is recent reactions to prior environmental disputes in the same locality. State responses can communicate a range of intentions, from likely repression of societal demands, through a neutral middle-ground, to support for societal demands. Importantly, this variable is independent from the violence variable—I analyze these two concepts separately, both in the independent and dependent variables. This allows me to examine cases where the state non-violently arrests protesters as a repressive strategy, the effect of which I propose may be separate from that of violence because of the different signaling value that it will have to claimants. Similarly, because of this different signaling strength and the possibly divergent expectations of the conflict literature and substitution theory and the corresponding mechanisms of material capabilities and strategic choice, I anticipate that these factors may not impact the likelihood of violence and continuing contention the same way, particularly as they vary from past

to present. Hence, the above set of repression hypotheses breaks out the effect of repression into four parts, by time and by the dependent variable.

There are two dimensions upon which the effect of this variable varies—over time and the likeliness of violence and the conclusion of contention. Current government repression should reduce the incidence of violence in a given event by decreasing relative material capabilities, while past repression should increase the likelihood of violence by signaling government obstinacy. In relation to the continuation of contention, past and present government actions should make actors less likely to conclude contention entirely; they should respond to repression by substituting a more appropriate contentious strategy.

When there are multiple events in the same locality, holistic pictures of society-state relations are more salient than the most recent or most incendiary events. This holistic approach addresses the complete history of the locality within the time period, rather than only incorporating the most recent event or the most incendiary events. This is in line with Walter’s argument that, “it is the full range of information... about the government and its history that shapes their beliefs rather than any single isolated act at any one time.”<sup>130</sup> She goes on to conclude,

“...governments did not always lose a reputation for being tough simply by making one concession to one group... Reputations, therefore, did not have the grim reaper quality (where a single act of accommodation caused a government to be labeled weak forever) that the theory predicted.”<sup>131</sup>

In short, government actions in the past should be aggregated in order to paint an accurate picture of the effects of a sequence of interactions over time.

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<sup>130</sup> Walter, *Reputation and Civil War*, 167.

<sup>131</sup> *Ibid.*, 205.

***2A) Preferential treatment of other groups resulting in structural scarcity is more likely to yield violence than simple scarcity.***

***2B) Preferential treatment of other groups resulting in structural scarcity is less likely to conclude the contentious episodes.***

A second method by which the state can signal its unlikeliness to meet claimant demands is by treating other populations preferentially in the distribution of access to environmental goods and services. When the state distinguishes between different ethnic groups, provinces, or social, business, or political groups by rewarding one group with resources and favorable policies, the less-favored groups interpret this as an indicator that their demands are less likely to be met unless they bring additional pressure to bear to change the calculations of the government. Cases where the state is clearly favoring another group are more likely to yield violence than cases where degradation of environmental goods and services occurs without distributional inequalities and they are less likely to yield a cessation of contentious events.

***3A) Prior violence in a locality's environmental disputes increases the likelihood of contemporary violence.***

***3B) Prior violence in a locality's environmental disputes decreases the likelihood that an event concludes the contentious episodes.***

***3C) Contemporary death in any given event makes it less likely that an event will conclude contentious episodes.***

Prior violence in an area increases the likelihood of future violence and the likelihood that contention will continue because the past violent events have communicated a high state resistance to the claimants' demands on similar issues. State engagement in violence—including the commitment of police and military to uphold certain policies or understandings—demonstrates a high level of commitment to countering the demands of claimants and a high tolerance for costs (in terms of the budget, the endangerment of security forces, and potential threats to regime legitimacy). Where prior violence has failed to force the state to capitulate, this is a credible commitment to continue countering claimant demands. As such, claimants should not expect the state to comply with their demands unless its cost-benefit analysis is altered through continued violence and contention. In short, prior violence tends to perpetuate itself, yielding higher levels of violence and more contention.

Current violence's effect on continued contention should be similar to that of current repression, except stronger. Since substitution theory argues that claimants will simply switch strategies and not curtail contention altogether and the violence signals an unwillingness of the government to capitulate, contention should be more likely to continue after violent events.

Unlike non-fatal government repression and violence, deaths within a certain time period have a “grim reaper” quality—a single death overrides other events in

which no one was killed. The presence of death is a signal how far the state is willing to go in its commitment to non-capitulation, so non-fatal events do not weaken that signal in the way that mixed repression and support may.<sup>132</sup>

Lastly, I have discussed past and present iterations of time above, but time is a complex issue and to account for the many ways time may impact violence and contention, a few other hypotheses must account for declining effects of past violence over time and the impact of event density. Previous research has concluded that conflict clusters in time and space, which would indicate that as events' density and frequency increase, they are more likely to be violent and contention is more likely to continue. Dense back-and-forth contentious interactions indicate a high level of signaled commitment on both sides, necessitating escalation in order to demonstrate greater commitment and alter the other party's analysis of the situation. Frequent events also increase opportunities for accidents and require excellent control on both sides.

Similarly, when past violence and repression occur further back in time, their effect on the likelihood of violence and contention should decrease because changes that occur over time dilute the signals sent by past behavior.

***4A) As events occur farther from the previous event in the sequence, they will be less likely to be violent.***

***4B) As events occur farther from the previous event in the sequence, they will be more likely to conclude.***

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<sup>132</sup> Ibid.

*4C) As violence and repression move farther into the past, their effect on the likelihood of violence will become weaker.*

*4D) As violence and repression move farther into the past, their effect on the likelihood of concluding contention will become weaker.*

The other factors that are important in determining the likelihood of violence revolve around the permissive factors that open a window to conflict or make it less likely. These factors must be controlled for in gauging the support which the evidence shows for the hypotheses above.

First and foremost, when there is a strong state capability, violence is less able to emerge and contention is less likely to continue. Relatedly, when the areas in question are distant from the provincial capital and government resources, violence and continuing contention should be more likely.

Secondly, where ethnic and religious cleavages are salient, a frame for understanding any non-preferential government behavior as structural discrimination already exists. This increases the likelihood that claimants pursue violence and continue contention since frames already exist within the population for viewing government policies as indications of the government's unequal treatment of their ethnic group.

Lastly, when land disputes emerge in regions that are already experiencing civil conflict, even if the conflict is unrelated to the land issue, they are more likely to

yield violence. The lack of rule of law and the environment of insecurity provide little assurance that violence will be punished, allowing predatory violence to run unchecked and incentivizing violent measures in defending land and family.

## **VI. Conclusion**

This theory of violence and curtailment of contention in environmental disputes attempts to address the puzzling incidence of environmental conflict, and the under-explored patterns of escalation in low-level conflict through analyzing two potential outcomes in any event as part of a larger sequence of contention. Insights from the conflict, contentious politics, and environmental literature inform hypotheses about which factors make violence and contention more or less likely. This theory mixes an interactive bargaining model with material restraints on violence and contention posed by repression and violence and also argues that timing is a key factor in the effect of variables and the likelihood of violence and continued contention.

In the following chapter, I propose a series of methods for testing the hypotheses described here and identify Indonesia as an excellent site of inquiry. I detail the variables and their coding and provide some preliminary descriptive statistics. The two subsequent chapters then analyze the quantitative data and trace an in-depth case study to explore my theory.

## Chapter 4: Indonesian Land Policy and Data

### **I. Introduction**

In the previous chapters I built a theory that identifies key factors which influence patterns in low-level violence and contention. This theory models an interactive bargaining process between claimants and the state, focusing on scarcity type and on repression and violence as signaling mechanisms, but also as potential influences on capability. It also argues that the timing of events matters for the likelihood of violence and continuing contention. This theory addresses theoretical gaps in the research literature, and should also help us to understand which factors matter most in policy decisions attempting to avoid further contention and violence.

Analyzing low-level events involves looking at a large number of cases over short periods of time in limited areas. In other words, global long-term analysis is both impractical in terms of research resources and impossible due to a lack of consistent data. I therefore limit my analysis, and focus on Indonesia post-Suharto, where there is good variation on my independent variables without introducing possible complicating factors like regime type. Indonesia has experienced a spate of environmental disputes due to vague and contradictory land laws. These specific laws, detailed below, are limited to Indonesia, but the issue of unclear land law is not; many countries around the world face the same problem. New low-level data from Indonesia makes quantitative analysis possible (with additions from other data sources), and journalistic and academic case studies of Indonesian environmental disputes facilitate qualitative analysis as well. To test my theory against this data, I

propose utilizing two sets of logit models to find correlative relationships between my variables and violence or continuing contention, accounting for variation across time and space. I also closely analyze the sequence of events in Mesuji, Indonesia, to verify and flesh out the relationships identified in the quantitative analysis.

This chapter proceeds to propose a site of inquiry, introduce a dataset, detail the coding for this data, show some preliminary descriptive statistics, and finally lay out several methods for testing the theory developed in the previous chapter.

## **II. Indonesia**

In order to control for state-level factors such as regime type and GDP on the outbreak of violence, I will analyze a series of cases within a single state. Indonesia presents a good range on all of my variables and is an excellent location to explore the dynamics of low-level violence because of the wealth of recent data and the variation in environmental, institutional, and contentious factors across the country. It also features a contradictory and vague set of land and environment laws that enable regular contention over these issues.

Indonesia is an amazingly diverse republic spread across an archipelago, with a relatively decentralized government. It features over 30 provinces and a handful of special regions, has a population of approximately 251 million people, a GDP per capita of \$5,100, and 39% of the labor force works in agriculture.<sup>133</sup>

Disputes over the environment have been frequent in Indonesia, and are partially the product of government policies that are unclear or inconsistent in their

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<sup>133</sup> CIA, "Indonesia," *The World Factbook*, accessed December 20, 2013, <https://www.cia.gov/library/publications/the-world-factbook/geos/id.html>.

application of land-use laws. Indonesian land law is composed of three often contradictory systems: Dutch colonial law, national laws of the Indonesian republic, and *adat* (customary or traditional) laws of the Indonesian people.

“These three legal systems diverged in their policies towards forestry: the Dutch principally sought their own profit with little regard for indigenous law; the Republic's law, in theory, served the welfare of the majority of the population, but, in practice, ignored local laws in order to reap profits for the Indonesian elite and foreign investors; and, *adat* law preserved the rights of the indigenous peoples to own land, often communally.”<sup>134</sup>

Dutch colonial law focused primarily on extraction, but the constitution and the Basic Agrarian Law (BAL) of 1960 paid lip service to the *adat* rights of local populations. However, they also claimed all natural resources for the use of the state, including land.

“Article 33, paragraphs 2 and 3 of the Constitution states: Branches of production which are important for the State and which affect the lives of most people, shall be controlled by the State. Land and water resources and the natural riches therein shall be controlled by the State and be made use of for the greatest welfare of the people.”<sup>135</sup>

Conflicts between *adat* and state priorities were always resolved in the interests of the state. So while the constitution, and later the BAL, were the first documents to recognize *adat* rights, they did so largely theoretically. They also made no attempt to map or survey the land claimed under *adat* practices, which later led to most land in Indonesia being listed as state property.

In 1962 the Land Reform Programme was initiated, which:

“...involved the imposition of land ceilings and the redistribution of private and state lands. However, with the political turmoil in 1965 and the rise of the

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<sup>134</sup> Amy Rossabi, “Legal Policies Surrounding the Degradation of Indonesia’s Forests,” *Vermont Journal of Environmental Law* 1, no. 1998–1999, accessed July 13, 2012, <http://www.vjel.org/journal/VJEL10003.html>.

<sup>135</sup> *Ibid.*

Soeharto administration, agrarian reform implementation was stopped in 1966-1967.”<sup>136</sup>

Land redistribution was somewhat haphazard, and following the stoppage of reform in 1966 much of the land was returned to its original owners or passed to third-party hands. The purpose of the original land reform was perceived differently by state actors, indigenous populations, foreign companies, and others. While some felt that it was the material enactment of previous law that had called for redistribution of land to the poor, others saw it as a tool for the state and its cronies to gain access to important territory. The government, during this period, also passed a number of smaller laws that chipped away at the *adat* property rights promised by the BAL.

“In 1963, the Indonesian government, like the nineteenth century Dutch colonial administrators, invited foreign investors to participate in logging in order to increase the flow of foreign capital in the archipelago. However, true forest exploitation did not begin until the government enacted the Basic Forestry Law of 1967; a law in theory designed to alleviate the economic and social problems the newly-installed government faced.”<sup>137</sup>

This usage of land law to aid the state in overcoming economic difficulties continued into the 80s, when a drop in oil prices pushed the government to find other means of maintaining its economic growth rate. The government’s solution included a number of laws which facilitated land acquisition by foreign companies.

“Among them were: Permendagri No. 12 (1984) – How to Make Land and Land Rights Available; Presidential Decision 53 (1989) – Promotion of Industrial Activities to Entice Relocation of Business and Extension of Usage Permits from 25 to 60 years; Presidential Decision 15 (1993) – Land Use for Public Good and Implementation of Land Registration (to end the red tape that slows down processing of land permits). In summary, the previous

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<sup>136</sup> Sahrudin Lubis, “Rumahku Indonesia: Land Reform Policy: Case of Indonesia Under New Order Government,” 2007, <http://rumahkuindonesia.blogspot.jp/2007/08/land-reform-policy-case-of-indonesia.html>.

<sup>137</sup> Rossabi, “Legal Policies Surrounding the Degradation of Indonesia’s Forests.”

legislations further protected access to land by big corporations at the expense of the peasants.”<sup>138</sup>

After the fall of the Suharto administration, the Habibie government attempted to address some of the problems with the previous land and forest tenure laws. In 1999 they drafted a new Basic Forestry Law, once again recognizing *adat* rights, but also severely qualifying them. These restrictions required the state to acknowledge the *adat* community, but also mandated that the community have proof of their long-standing presence in the area, that the forest have clear boundaries, and any number of other restrictions that essentially allowed the state to continue to ignore *adat* principles. Other regulations that emerged at this time determining the degree of provincial power and autonomy also assigned control over natural resources to district governments.<sup>139</sup>

This pattern has resulted in many farmers being kicked off of land they have farmed their entire lives (and often land farmed by their ancestors) because the land is recognized as “state forest” and as such is eligible for sale or lease to corporations or plantations or can be designated as a national park—all without permission from the local community.

“Many Indonesian farmers do not have any clear land titles, as it is estimated that only 40% of ownership can be proven by formal certificates. Moreover, some territories on the national mapping appear as “empty”, even if they have been inhabited for generations. In principle, most of the farmers’ communities are covered by customary laws that are also recognized by the state. However, land deals are extremely profitable both for the authorities and for the companies

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<sup>138</sup> Lubis, “Rumahku Indonesia: Land Reform Policy: Case of Indonesia Under New Order Government.”

<sup>139</sup> Ketut Deddy, “Land Tenure and Natural Resource Conflict in Indonesia,” in *State, Communities and Forests in Contemporary Borneo*, accessed July 13, 2012, [http://epress.anu.edu.au/apem/borneo/mobile\\_devices/ch05s02.html](http://epress.anu.edu.au/apem/borneo/mobile_devices/ch05s02.html).

who negotiate them. The lack of respect for people's rights to land makes it extremely easy for companies to brutally evict farmers.”<sup>140</sup>

It is this confluence of contradictory policies that has created an environment that fosters conflict over land in Indonesia.

Decentralization has also had an effect on the emergence of these conflicts—laws and customs can vary from one district to another, so that the application of legal respect for *adat* practices can be very different across cases and it can be difficult for farmers to gauge how friendly the government is going to be to their claims. Bakker, in a study of the connection between land, ethnicity, and conflict in Indonesia documents this fracturing of policy norms:

“The Dayak Lundayeh ethnic group live in the western part of Nunukan district and have strong representation in the district parliament. They managed to get their ulayat (communal customary) land claims recognised in a district regulation. Land rights in the eastern part of Nunukan, on the contrary, are fully managed according to national land laws. Much of this land is the property of ethnic Buginese, migrants to the area with no *adat* land in East Kalimantan. Landholders here possess land certificates issued by BPN (the National Land Agency) and register their land transactions with that agency. Bugis are the largest minority group in the eastern coastal area and also hold several seats in the district parliament.”<sup>141</sup>

Generally speaking, scholars disagree on the effect of decentralization on governance in Indonesia. Some claim that decentralization allows solutions to be better tailored to the unique local situation. They also argue that local problem-solving is more equitable than centralized decisions.<sup>142</sup> On the other hand, some

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<sup>140</sup> Saragih, “Indonesian Farmers.”

<sup>141</sup> Laurens Bakker, “Land, Ethnicity and Politics,” *Inside Indonesia*, October 11, 2009, <http://www.insideindonesia.org/edition-98-oct-dec-2009/land-ethnicity-and-politics-18101243>.

<sup>142</sup> A. Agrawal, “Small Is Beautiful, but Is Larger Better? Forest-Management Institutions in the Kumaon Himalaya, India,” *People and Forests: Communities, Institutions, and Governance*, 2000, 57–85; J. Holston, “Spaces of Insurgent Citizenship,” *Making the Invisible Visible: A Multicultural Planning History*, 1998, 37–56; J. C. Ribot, “Decentralisation, Participation and Accountability in Sahelian Forestry: Legal Instruments of Political-Administrative Control,” *Africa: Journal of the International*

authors argue that a decentralized system allows for the development of “privatized, corporatist agreements that fail to reflect diverse values and interests.”<sup>143</sup>

Decentralization has also fostered battles for control over valuable fiefdoms, with local political candidates often promising vast tracts of land to corporations for campaign support.

Against this backdrop of overlapping and contradictory land laws which often produced very different effects from their original meanings, land conflicts began to blossom across Indonesia in the late 1990s, spurred on by the collapse of Suharto’s long-standing New Order regime. Advocacy organizations and Peasant Unions began to sprout up, calling upon the government to respect in practice the *adat* property rights that so many official documents had proclaimed in principle.

“Rural mobilisation accelerated further after the collapse of the New Order in 1998. Around the country, peasants occupied land that had been taken from them – or from their parents – over the preceding thirty years. Peasant unions and other rural social movement organisations gained thousands of members.”<sup>144</sup>

Bachriadi goes on to note that these organizations emerged despite the long-standing repression of the New Order regime. However, these movements also quickly became fragmented, and developed along local issues rather than a shared grievance of peasant vs state. Farmers often attempted to retain or regain access to the natural resources their livelihoods required by occupying land they had farmed

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*African Institute* 69, no. 1 (1999): 23–65; J. Friedmann, “The New Political Economy of Planning: The Rise of Civil Society,” *Cities for Citizens: Planning and the Rise of Civil Society in a Global Age*, 1998, 19–35.

<sup>143</sup> Marcus B. Lane, “Decentralization or Privatization of Environmental Governance? Forest Conflict and Bioregional Assessment in Australia,” *Journal of Rural Studies* 19, no. 3 (July 2003): 283, doi:16/S0743-0167(02)00084-0.

<sup>144</sup> Dianto Bachriadi, “Fighting for Land,” *Inside Indonesia*, accessed July 6, 2012, <http://www.insideindonesia.org/feature/fighting-for-land-23012886>.

previously, which did not lend itself to mass movements. This curtailed the mobilization potential of aggrieved farmers and led to a diffuse network of disputes and conflicts instead of a national campaign.<sup>145</sup> The scarcities that prompted these land grabs were structural, rather than an absolute shortage. The Secretary General of the Indonesian Peasant Union commented, “We have the capacity and natural resources to feed the whole country yet we are deprived of our land...” and government policies have forced 2.16 million farmers from their farms.<sup>146</sup>

In recent years, the government has made promises to improve the land tenure laws, establishing an agency to map the entirety of Indonesia and to catalogue and resolve land conflicts. But little improvement has been seen on the ground and so conflict continues to disturb the Indonesian countryside. Counterproductive policies designed to facilitate foreign land investment have also angered many farmers and activists who claim that campaign promises have been violated. The government is often viewed as untrustworthy and “cheap talk” is not an effective means of communicating commitment to the population. Pius Ginting of Walhi, one of Indonesia’s largest environmental advocacy organizations, commented:

"The Indonesian government has many times made this promise in the past, saying they want to protect the environment, but then their policies still continue... For example, they said they would stop mining in national parks, but then they changed the status of 'national park' to accommodate mining operations. So we don't believe their decision to revoke the permit, as we don't believe it is an honest commitment by the government."<sup>147</sup>

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<sup>145</sup> Ibid.

<sup>146</sup> Saragih, “Indonesian Farmers.”

<sup>147</sup> Kate Hodal, “Indonesian Protests Force Government to Revoke Gold Mining Permits.”

Despite some progress, including a two-year moratorium on logging in primary forests, there have been widespread claims that logging—both legal and illegal—continues, often with the collusion of the state.<sup>148</sup>

In short, land law in Indonesia is vague and contradictory, often permitting whatever policy the state prefers and offering few actual rights to farmers. Disputes between farmers claiming *adat* rights to land and corporations who have received permits from the government to utilize land are common. Resistance is present, but has not evolved into a national movement. Instead small-scale land conflicts are a regular occurrence across Indonesia. Given the unsupportive government behavior and backlog of dispute cases, farmers have little faith that institutional methods such as court cases have any chance of success. In this context it is easy to see why land disputes often result in contention.

Although the background to the conflicts detailed above is specific to Indonesia, many similarly vague and contradictory regulatory systems exist throughout the world. Countries such as Liberia, Malaysia, Vietnam, Cambodia, Kenya, Sudan, and Sierra Leone have all already experienced conflict due in part to unclear land laws.<sup>149</sup> Focusing on recent data for Indonesia will illuminate patterns that are likely generalizable to many other countries where similar environmental regimes foster disputes and conflicts between groups that seek to use the same land.

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<sup>148</sup> "Ecosystem Marketplace - Indonesia Bets on REDD With New Moratorium, but Can It Deliver?," *Ecosystem Marketplace*, accessed July 13, 2012, [http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page\\_id=8328&section=news\\_articles&eod=1](http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=8328&section=news_articles&eod=1).

<sup>149</sup> "Global Land Grab Could Trigger Conflict, Report Says"; Kugelmann and Levenstein, *The Global Farms Race Land Grabs, Agricultural Investment, and the Scramble for Food Security*; "Dark Forests."



larger conflicts across Indonesia.<sup>153</sup> The G&G dataset (funded and led by Ausaid and the Institute of Development Studies),

“draws together data on the economic characteristics and performance of Indonesia’s districts (Kabupaten/Kota) between the years 2001 and 2007 along with data from a 2007 survey by KPPOD/Asia Foundation which measured the quality of economic governance at the district level.”<sup>154</sup>

The G&G dataset also pulls heavily from surveys executed by Badan Pusat Statistik (BPS), the Indonesian national statistics agency.

I also utilize data directly from BPS for official figures, including provincial government size and composition.<sup>155</sup> BPS tracks a wide variety of variables, but limits what it makes publically available, and has only limited data available at the sub-national level.

In order to verify the correct dates for other conflicts across Indonesia that might constitute larger conflict zones, I utilized PRIO data, and for communal conflicts I relied on various studies by Gerry van Klinken and also conflict timelines from the Ploughshares Fund.<sup>156</sup>

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<sup>153</sup> BPS Statistics Indonesia, “2011 Statistical Yearbook,” accessed December 3, 2013, <http://webbeta.bps.go.id/eng/flip/flip11/index3.php>; McCulloch. N., “The Indonesian Sub-National Growth and Governance Dataset - Documentation,” accessed January 27, 2013, <http://www.ids.ac.uk/idspublication/the-indonesian-sub-national-growth-and-governance-dataset-documentation>.

<sup>154</sup> McCulloch. N., “The Indonesian Sub-National Growth and Governance Dataset - Documentation.”

<sup>155</sup> BPS Statistics Indonesia, “2011 Statistical Yearbook.”

<sup>156</sup> PRIO, “Armed Conflicts Version 4-2008 - CSCW”; Gerry Van Klinken, “Blood, Timber, and the State in West Kalimantan, Indonesia,” *Asia Pacific Viewpoint* 49, no. 1 (April 1, 2008): 35–47, doi:10.1111/j.1467-8373.2008.00359.x; Gerry van Klinken, *Communal Violence and Democratization in Indonesia: Small Town Wars* (London: Routledge, 2009); “Indonesia – West Papua (Irian Jaya) (1969 – 2004),” *Project Ploughshares*, accessed December 3, 2013, [http://ploughshares.ca/pl\\_armedconflict/indonesia-west-papua-irian-jaya-1969-2004/](http://ploughshares.ca/pl_armedconflict/indonesia-west-papua-irian-jaya-1969-2004/); “Indonesia – Kalimantan (1996 – 2003),” *Project Ploughshares*, 2003, [http://ploughshares.ca/pl\\_armedconflict/indonesia-kalimantan-1996-2003/](http://ploughshares.ca/pl_armedconflict/indonesia-kalimantan-1996-2003/); “Indonesia – Sulawesi (1998 – 2004),” *Project Ploughshares*, 2005, [http://ploughshares.ca/pl\\_armedconflict/indonesia-](http://ploughshares.ca/pl_armedconflict/indonesia-)

Environmental conflicts include those over land (public or private), natural resources (like water or minerals), access (to any kind of resource), and pollution (like environmental degradation or air pollution). My data subset only includes conflicts coded as primarily about one of these categories (as opposed to conflicts which were coded as primarily electoral or identity-based, and secondarily environmental).

NVMS captures conflict in a range of forms, including demonstrations, blockades, riots, group clashes, fights, lynching, terror attacks, vandalism, assault, sweeping (removing people from territory or searching by force), and kidnapping. There is a language difference in the terminology that NVMS and I use to classify these events: NVMS terms “violent” any of the forms above that did or could yield deaths, injuries, property damage, or impingement upon personal freedom. As discussed in the previous chapter, I define these as contentious events when they are non-fatal, drawing on the stronger signal sent by death, and reserve the term “violence” for contentious events that have at least one fatality. Additionally, only events demanding a policy change are coded—NVMS includes crime without political objectives as a separate category, but I do not include these cases.

NVMS data is event data, in which each case is coded for date, location, and the various independent, dependent, and control variables. I am ultimately interested in sequences of events, but in order to understand why one part of a sequence might make a given outcome more or less likely after a given amount of time, I use individual events as the unit of analysis, and code them for the characteristics of their

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sulawesi-1998-2004/; “Indonesia – Molucca (Maluku) Islands (1999 – 2006),” *Project Ploughshares*, 2007, [http://ploughshares.ca/pl\\_armedconflict/indonesia-molucca-maluku-islands-1999-2006/](http://ploughshares.ca/pl_armedconflict/indonesia-molucca-maluku-islands-1999-2006/).

sequence up to and including the current event. This approach allows variation within a sequence over time, and can identify when in the sequence violence should occur or contention should end.

Where the data was not time-variable, or was available only at higher levels of administrative regions (i.e., district or province as opposed to sub-district), all events within the larger group or over time are coded consistently on that variable. In other words, if sub-district was not available, I coded at the district level, and if annual data was not available I coded all events at the next available period of time. This level-of-analysis and chronologically-specific data slippage is undesirable but unavoidable in order to include control variables. These adjustments were necessary on all the variables utilizing the Governance and Growth data (i.e., distance to provincial capital, G&G Security index, and ELF) or the BPS data (civil servants by province).

Many of the events in the NVMS data were coded down to the village level, but I opted to code only to the sub-district (*kecamatan*) because conflict literature shows that conflict often exceeds village boundaries and because data is not consistently available to support this extreme degree of locality in the level of analysis. English-speaking researchers have translated the Indonesian administrative sub-divisions in a variety of ways, sometimes referring to *kecamatan* as districts while referring to *kabupaten* or *kota* (the level above *kecamatan*) as regencies or cities. However, I mirror the translation used by the national statistics agency to refer to the latter two as districts and *kecamatan* as sub-districts. The *provinsi* level above this is consistently referred to as a province. This formulation should make it easier

for an English-speaking audience to understand the levels involved as Province>District>Sub-district>Village.

Indonesia began a process of decentralization after the fall of Suharto, and that process has brought with it a splintering of administrative districts. From 1999 to 2012, the number of sub-districts has increased from approximately 4,038 to 6,543.<sup>157</sup> This increase presents particular problems for analysis—non-time-variable data from sources outside of NVMS are not necessarily coded for current districts. In other words, I had to track the genealogy of the districts and sub-districts to ensure that coding was consistent over time and that new or old sub-districts that do not currently appear on the NVMS event list locations were appropriately assigned to the dated data. The G&G data was intentionally coded per historic, rather than contemporary, district identities as districts began to split, a process which I reversed in order to assign the appropriate values of control variables to each event in my dataset. As the Growth and Governance codebook notes: “That is, if districts subsequently split after 2001, we aggregated the data from the child districts so that our dataset shows a consistent series of variables for the geographical regions that comprised the districts in 2001.”<sup>158</sup> Since the G&G data was coded to fit within 2001 sub-district delineations, but the NVMS data reflects the sub-district at the time of the event, G&G data was applied to these “child districts” as well.

While I have tracked sub-district splits for the purpose of coding variables, I have not sequenced split sub-districts together. This is both because the process would be extremely unwieldy, and also because new sub-districts can be reasonably

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<sup>157</sup> kementerian Dalam Negeri Republik Indonesia, “Buku Induk Kode Data Wilayah 2013,” No 2013, <http://www.kemendagri.go.id/pages/data-wilayah>.

<sup>158</sup> McCulloch. N., “The Indonesian Sub-National Growth and Governance Dataset - Documentation.”

assumed to be re-evaluating or resetting their relationship with their new local government and the state government which allowed and facilitated their split. If significance is achieved even without this inclusion, it only strengthens the argument for the presence of a relationship between the causal variables I have outlined and the likelihood of violence and continuing contention.

I had to significantly alter the data to recode the NVMS data and integrate other data sources in order to effectively test the theory I developed in chapter 3. For sequenced variables (prior violence and government actions over 1, 2, and 5 years, and final event), the events needed to be sorted by sub-district and date and then each event needed to be coded for prior events within the relevant time period and sub-district. Other variables were added by sub-district, district, and province designations in addition to dates of the events. For a detailed description of the coding of each variable please see the detailed variable coding section below. The table below gives an overview of the variables.

**Table 4.1 Variable Overview**

IVs				
<i>Variable</i>	<i>Definition</i>	<i>Data Source</i>	<i>Coding</i>	<i>Notes &amp; Codes</i>
Government Action	State intervention either supports claimant demands, ignores, or attempts to repress them. In the current event and last 1, 2, and 5 years, did the state engage in this behavior in	NVMS – Sequenced Intervener and Result variables matched with actors involved and recoded.	0 –Supportive of claimant demands 1 – Neutral (or non-state intervention) 2 – Repressive of claimant demands  Coded for current event, and past 1, 2,	Complex process of matching actors involved with intervention results variable. See variable coding below for details.  <i>Gvt</i> <i>GvtI</i>

	response to environmental disputes within the same sub-district?		and 5 years, dropping the appropriate number of initial years for each coding. Where multiple prior cases existed, values averaged.	<i>Gvt2</i> <i>Gvt5</i>
Structural Scarcity	Structural scarcity or simple scarcity?	NVMS – Dispute sub-type recoded.	0 – Simple Scarcity 1 – Structural Scarcity	<i>Scarc</i>
Prior Violence	Violence (fatalities) in the same sub-district in the past 1, 2, and 5 years.	NVMS – Recoded from sequenced sub-district dispute events (and death binary).	1 – Prior Violence 0 – No Prior Violence  Coded for prior 1, 2, and 5 years, dropping appropriate number of initial years for each coding.	<i>Death1</i> <i>Death2</i> <i>Death5</i>
Time Between Events	Number of days between an event and the previous one in the same sub-district.	NVMS – Derived from sequenced sub-district dispute events.	Total number of days, log of total number of days.	First event in each sub-district dropped.  <i>Ticker</i> <i>Tickerln</i>
<b>DVs</b>				
<i>Variable</i>	<i>Definition</i>	<i>Data Source</i>	<i>Coding</i>	<i>Notes &amp; Codes</i>
Violence	Were disputes resolved violently or non-violently? Violence in this case defined as events which resulted in fatalities.	NVMS – Recode death counts per incident into those with and without deaths.	0 – Non-violent dispute 1 – Violent dispute	This variable is an IV in the second model.  <i>Death</i>

Final Event	Did the sequence of events end for at least two years after this event?	NVMS – Recoded after sequencing.	0 – Not final event 1 – Final event	<i>Fin</i>
Controls				
<i>Variable</i>	<i>Definition</i>	<i>Data Source</i>	<i>Coding</i>	<i>Notes &amp; Codes</i>
Civil Servant	Number of civil servants in the provincial government, proxying government capacity.	BPS Statistik – 2011 statistical yearbook.	Number of civil servants working in the province.	Provincial level.  <i>Civser</i>
Remoteness	Straight line distance to provincial capital.	G&G Distance to Provincial Capital	Real distance in km.	District level.  <i>Dist</i>
Ethnic Cleavages	Ethnolinguistic fractionalization (ELF).	G&G ELF	The index takes values between 0 and 1, where ELF closer to 1 implies a highly heterogeneous district and ELF closer to 0 refers to a perfectly homogeneous district.	District level.  <i>ELF</i>
Larger Conflict Region	Presence of a larger civil or communal conflict in the district or province when the event occurred.	PRIO, Klinken case studies, and Ploughshares conflict timelines.	0 – No Civil Conflict 1 – Civil Conflict  .	District/province level depending on nature of conflict.  <i>ConReg</i>

## IV. Variable Coding

This section breaks down each variable as summarized above and explains how and why it was coded as it was. It notes problems in the coding, and describes necessary transformation from the form of the original data.

### *4.1 Death Binary*

The NVMS Data is coded for number of deaths in the any individual event.<sup>159</sup> I transformed this into a binary variable with a 0 for no death and a 1 for any number of deaths. The original range of deaths in environmental disputes goes from 0 to 8 deaths for a single event with the majority of fatal events having only a single death.

### *4.2 Final Event in Sequence*

After sequencing events by sub-district and date, events that had no following events for at least two years were coded “final” (1) and all events with an event in the next two years were coded “non-final” (0). The two-year gap allows for a brief respite in contention without ending the sequence, including anniversary events that rekindle contention. Requiring two years, rather than just a one-year gap most closely approximates the approach taken in country-year studies, since a calendar year without violence actually indicates more than just January-December peace. For example, violence may end in April of the previous year, remain non-violent through the relevant calendar year coded as peaceful, and finally resume the following year in September. In other words, a calendar year approach examines cases where non-violence has occurred at a minimum of one year and a maximum of just under three

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<sup>159</sup> Barron et al., “Understanding Violent Conflict in Indonesia: A Mixed Methods Approach.”

years. The mean time between events lies at just less than one year, which indicates that a single year is a better measure of a standard time between events, and too short a time to gauge whether a sequence has actually ended. On the other hand, just shy of 90 percent of the times between events fall within two years. This makes two years an empirically standard period of time with which to gauge whether an event concludes a contentious sequence. Two years better captures true “finality,” whereas a single year without contention may be simply a time for claimants to reorganize after a loss.

The last two years of data were dropped since we cannot say whether an event was final or not without two years of subsequent data. This right-censoring reduces the total number of cases to 2,240.

#### *4.3 Prior Death*

Using Death Binary as a starting point, I sequenced the events by sub-district and then date, producing series of events over time in each sub-district. Looking back over the previous 1, 2, and 5 years within the sub-district, I coded each event for the presence of a death within the relevant time period. 1 indicates the presence of a fatal event, 0 indicates no fatal event.

For events that occurred close to the start-date of my analysis, I coded the 1 and 2 year variable by analyzing prior data available in NVMS which was excluded from my event list because it occurs before the political transition. However, the NVMS data set does not extend far enough before the transition for the 5 year variable so in these cases I dropped the left-censored data. This reduced the cases coded for this variable to 2,756.

#### *4.4 Scarcity Type*

Scarcity type distinguishes structural (equity-related) scarcity from simple scarcity. I recoded “dispute sub-type” from the NVMS dataset, compounding pollution and resource degradation types of conflicts into a 0 for simple scarcity, and land and access conflicts into a 1 for structural scarcity. Each environmental dispute recorded in NVMS identifies the proximate triggers from numerous newspaper articles. I combined natural resource disputes like those over water or mining, and pollution disputes like those over air pollution and other environmental degradation into a category of “simple scarcity.” I also combined public and private land disputes, and access disputes over natural resources into “structural scarcity.” I dropped man-made resource and salary disputes including pay and industrial relations from the resource category because they are not relevant to my inquiry.

#### *4.5 Government Actions*

In order to create a variable that measures the impression that society has of the government’s prior receptiveness to their demands, I compiled information from a number of NVMS variables and constructed a tripartite response. From this response, I then sequenced the events geographically and over time and coded for previous events in the same sub-region.

First, I created three categories from the various actors listed in NVMS. I have ignored those actors from NVMS that do not appear in my data sub-set.

**Table 4.2 Consolidation of Actors into Tripartite Categories**

NVMS Actors	My Categories
Government – elected or bureaucracy	Government

(civil servant or government body, e.g. courts, Department of Health) TNI (Indonesian Armed Forces) Police Brimob (Police special forces)	
Private Company, contractor, shop	Company
IDPs Indonesian NGO Political Party Affiliation with religious groups Formal and informal labor groups Secular organizations Separatist groups Students Ethnic Affiliation Geographic Affiliation Unclear* Other*	Society  *Note: Further examination of the data revealed that designations of Unclear or Other always indicated a group of citizens whose affiliations were unknown. Therefore I coded them as society.

Next, I compared the categories of initiator (only looking at the primary actor, not supporting actors) and victim, along with intervening party, if there was one, and the result of the intervention. These results fall into five categories – no intervention, an intervention with no arrests, an intervention with arrests of the initiator (labeled just “arrest” below), an intervention with arrests of the victim, and an intervention that prompted further violence. Examining every possible combination of those factors, I developed the following rubric where 0 represents a pro-society action by the government, 1 represents a lack of action or neutral action by the government, and 2 represents an anti-society action.

**Table 4.3 Coding Scheme for Government Action**

Initiator	Victim	Intervention	Explanation
Society	Company	Intervention no arrests=0 Arrest victim=0 Arrest=2	When government actors act as unbiased conflict mediators they build credibility with society. However, when they arrest society groups they demonstrate a lack of

			willingness to capitulate to the demands made by those groups. <sup>160</sup> Conversely, when they arrest the members of the company that society has targeted they demonstrate a willingness to give society groups what they want.
	Government	Intervention no arrests=2 No intervention=2* Arrest=2 Arrest victim=0	In cases where government groups are already involved (as victims in this case), the only way for an intervening government group to demonstrate a willingness to acquiesce to society demands is to arrest the government group involved. Otherwise the involvement of a government in the base dispute overpowers the potential for the government to give an impression of willingness to capitulate.
	Society	Intervention no arrests=0 Any arrests=2	When two society groups have a dispute, the government can become a mediating party or it can anger one or the other of the society groups by making arrests.
Company	Company	Intervention no arrests=0 Any arrests=0	When companies have disputes, society benefits from the resolution of that dispute, so any intervention is viewed positively.
	Government	Intervention no arrests=0 Arrest=0 Arrest victim=2	The government in this case often represents in the interests of people against the interests of private companies. Intervention without arrests and arrests of company aggressors are seen as pro-society.

<sup>160</sup> As dictated by the institutional findings of; Patrick Barron and Joanne Sharpe, "Local Conflict in Post-Suharto Indonesia: Understanding Variations in Violence Levels and Forms Through Local Newspapers.," *Journal of East Asian Studies* 8, no. 3 (December 2008): 395–423.

	Society	Intervention no arrests=0 Arrest=0 Arrest Victim=2	Interventions are seen as positive when a company attacks society groups so long as members of the society groups are not arrested.
Government	Company	Intervention no arrests=0 Arrest=2 Arrest victim=0	The government in this case often represents in the interests of people against the interests of private companies. Intervention without arrests and arrests of company actors are seen as pro-society.
	Government	Intervention no arrests=0 Any arrests=2	When government groups have disputes, government interveners can be a positive mediating force or can anger one side or the other (in this case representing the interests of people within the other factions) by making arrests on either side.
	Society	Intervention no arrests=2 No intervention=2* Arrest=0 Arrest victim=2	In cases where government groups are already involved (as initiators in this case), the only way for an intervening government group to demonstrate a willingness to acquiesce to society demands is to arrest the government group involved. Otherwise the involvement of a government in the base dispute overpowers the potential for the government to give an impression of willingness to capitulate.
* In all cases except the two starred combinations above in which the government was one of the two primary participants, when no intervention occurred cases were coded as a 1. In all cases where a government intruded but the violence became worse, disputes were coded as a 2.			

It is worth noting that the government can play multiple roles in this matrix:

that of initiator, victim, or intervener. The government is theoretically a tool of society, but often also works at cross-purposes with society. This complex relationship is characterized above as “supportive” actions shift depending on

whether the government is facing off against a society group or a company that is involved in a dispute with a society group.

Each event in the dataset has been coded 0, 1, or 2 in accordance with the above rubric. There is some difficulty in defining how actors at the individual level perceive the government, because numerous factors may impact this impression, many of which may be idiosyncratic. However, generally speaking these clear signals from the government should, holding all other things constant, move public opinion in one direction or another.

#### *4.6 Past Government Action*

To compute past government action in the 1, 2, and 5 years preceding each event, I averaged the scores of all previous events in the sub-district within the specified time frame, including events back to 1997, which are not otherwise included in the dataset that begins June 7<sup>th</sup> 1999. (As discussed above, only events which occurred near the beginning of my data-set and lacked NVMS data for the 5 year precedent were left-censored.) This number represents predominantly pro-society actions (in the eyes of society groups in the region) when it approaches 0, and more anti-society actions when it approaches 2. Score near 1 suggest past government action is neutral. This approach addresses the complete history of the sub-district within the time period, rather than only incorporating the most recent event or the most incendiary events. This approach is in line with Walter's argument that "It is the full range of information... about the government and its history that shapes their

beliefs rather than any single isolated act at any one time.”<sup>161</sup> She goes on to conclude:

“...governments did not always lose a reputation for being tough simply by making one concession to one group... Reputations, therefore, did not have the grim reaper quality (where a single act of accommodation caused a government to be labeled weak forever) that the theory predicted.”<sup>162</sup>

This operationalization can balance incendiary negative events against a potential history of positive relations.

#### *4.7 Ticker (Density)*

Events were sequenced within sub-districts, and the number of days between an event and the prior event within the sub-district were recorded. This time period ranged from zero to almost ten years, with the vast majority of observations around zero. This variable was eventually logged to account for the bias in the distribution. All first events in a sub-district were dropped, reducing the total coded events to 1,757. (1,319 for the second DV when the last two years were also dropped.)

#### *4.8 Civil Servants by Province*

The Indonesian state’s statistical agency (BPS) provides the 2009 number of civil servants by province.<sup>163</sup> As the province is the lowest level that this data is available for across all regions of Indonesia, I have applied this data to all districts and sub-districts within each province. Consistent numbers for earlier time periods are unavailable, so this data does not vary over time, although where spotty data is

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<sup>161</sup> Walter, *Reputation and Civil War*, 167.

<sup>162</sup> *Ibid.*, 205.

<sup>163</sup> BPS Statistics Indonesia, “2011 Statistical Yearbook.”

available, the ratio of civil servants from one province to another seems to remain roughly the same barring provincial splits, although the total number of civil servants generally across all cases increases slowly over time.

This proxy is not ideal as a measure of state capacity; however, due to limited available data, it is the closest proxy. For further analysis of the response of society actors to state actions (as opposed to state capacity), I also run a second model using sequencing and the likelihood of final events to address which state behaviors reduce contention.

#### *4.9 Distance to Provincial Capital*

I took this variable directly from the G&G KPPOD dataset, which includes district-level data on the straight-line distance from the district center to the provincial capital.<sup>164</sup> In Indonesia the relevant measure is to provincial capital rather than national capital because of decentralization and the distribution of islands. State control, particularly on security issues, flows largely from provincial capitals. Due to the biased nature of the data, this variable was eventually logged before being used in the models.

#### *4.10 ELF*

The KPPOD draws on data from the Indonesian census to provide district-level ethno-linguistic fractionalization numbers. The census measures population dynamics in 2000, and “traced 1,068 ethnics across regions in Indonesia. The ELF index can be defined as follows:  $ELF = 1 - \sum_{i=1}^n X_{ij}^2$

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<sup>164</sup> McCulloch. N., “The Indonesian Sub-National Growth and Governance Dataset - Documentation.”

$$X_{ij} = \frac{\text{Population belong to ethnolinguistic group } i \text{ in district } j}{\text{Population in district } j}$$

where  $X_{ij}$  is the share of population ethnic group  $i$  in district  $j$ .<sup>165</sup>

#### 4.11 Conflict Region

In keeping with a 25 death level, I have coded all conflicts with 25 deaths per year, although these deaths do not necessarily have to have occurred on a “battlefield” nor does one of the actors need to be the state government. To identify these larger conflict regions, I first utilized the PRIO civil conflict dataset, which listed only the conflict in Aceh. Other conflicts were communal, and therefore not listed by PRIO.<sup>166</sup> Gerry van Klinken lists 6 other conflicts, and details their history in his book on communal violence in Indonesia.<sup>167</sup> I verified these conflicts and dates with the Ploughshares project, a Canadian organization researching peacebuilding.<sup>168</sup>

**Table 4.4 Larger Conflict Regions**

Province	Years	Source
West Kalimantan	1999	Klinken
Maluku	1999-2002, 2004	Klinken
Central Sulawesi	1999-2002	Klinken
North Maluku	1999-2000	Klinken
Central Kalimantan	2001	Klinken
Aceh	1999-2005	PRIO
West Papua	1999-2003	Klinken

## V. Descriptive Statistics

<sup>165</sup> KPPOD, USAID, and The Asia Foundation, *Local Economic Governance in Indonesia*, 2007, [http://www.kppod.org/index.php?option=com\\_content&view=article&id=8&Itemid=47](http://www.kppod.org/index.php?option=com_content&view=article&id=8&Itemid=47).

<sup>166</sup> PRIO, “Armed Conflicts Version 4-2008 - CSCW.”

<sup>167</sup> Klinken, *Communal Violence and Democratization in Indonesia*.

<sup>168</sup> “Indonesia – West Papua (Irian Jaya) (1969 – 2004)”; “Indonesia – Kalimantan (1996 – 2003)”; “Indonesia – Sulawesi (1998 – 2004)”; “Indonesia – Molucca (Maluku) Islands (1999 – 2006).”

There are a total of 2,863 events in my data. Violent incidents compose 9.5 percent (271) of those events, and 5.2 percent (150) experienced a death in the prior year, 8 percent (231) experienced a death in the prior two years, and 12 percent (332) experienced a death in the prior 5 years. Events concluded contention in their sub-district 39.5 percent (885) of the time. (N=2,240 due to dropping last two years of data.)

Of all the events, 75.5 percent (2161) were over structural rather than simple scarcities.

Government actions were predominantly neutral, with 79.7 percent (2,282) neutral (coded 1) events, 5.6 percent (160) events that supported society demands, and 14.7 percent (421) that repressed them. Overall, past government actions in the past 1, 2, and 5 years all averaged 1.

Most of the events occurred between 2005 and 2009, with 2009 seeing the most events with 18.3 percent (525) followed closely by 2005 and the most deaths occurring in 2005 (18 percent of all fatal cases, 49 total events) followed closely by 2008. This would tend to indicate that most of these disputes were not purely opportunistic in the weak phase immediately following the fall of Suharto.

Interestingly, provinces that experienced the most contentious events did not necessarily also experience a higher percentage of violent events. Jawa Timur and Sumatera Utara each experienced the most total events, 427 and 482 respectively, yet of these events only 7.2 percent and 7.6 percent were violent. Whereas in Maluku there were only a total of 123 events, but 21.2 percent of these were violent.

Of cases where no one died, only 4.4 percent (113) had seen previous violence in the last year, whereas in cases where there were fatalities 13.7 percent (37) had seen prior violence. Similarly, in cases where no one died, 74 percent (1,918) of scarcities were structural, whereas in fatal cases 89.7 percent (243) were structural. Mean government action in the past did not change, however, averaging 1 (neutral) both in violent and nonviolent events.

For the second dependent variable, final events had prior deaths in the last year in 3.8 percent (34) of cases, whereas non-final events had prior deaths in the last year in 6.4 percent (87) of cases. Final events were over structural scarcity issues 71.6 percent (634) of the time, whereas non-final events were over structural scarcity 77.9 percent (1,056) of the time. Finally, there were only very small differences between the percentages of government actions that were neutral, positive, or negative across final vs. non-final events.

In violent events, 54.1 percent (119) concluded the sequences of events (45.9 percent of violent events were not the final event), whereas nonviolent events concluded the sequence only 37.9 percent (766) of the time (62.1 percent of nonviolent events did not conclude the sequence.)

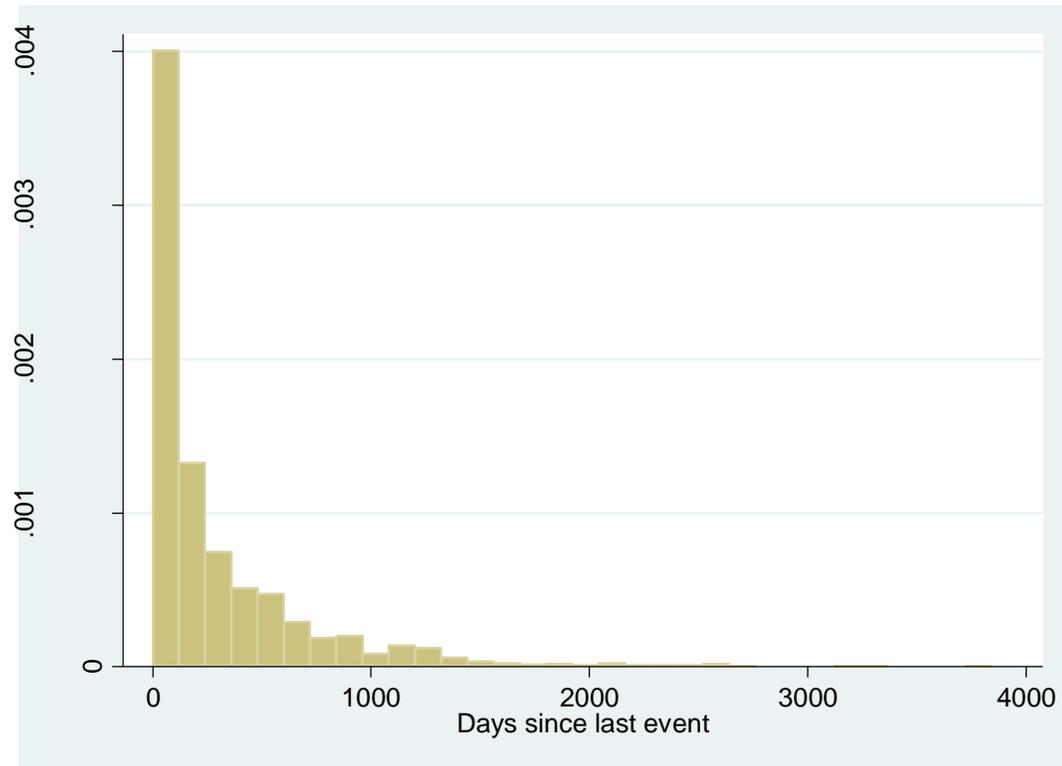
The data utilized to code the government action variables also yields a few useful observations—the vast majority (62 percent) of disputes were initiated by society groups, while companies initiated 26 percent and the government initiated only 11 percent. Furthermore, a higher percentage of society-initiated disputes escalated to violence—13 percent as opposed to the 2 percent of government-initiated disputes that escalated to violence. This lends support to a society-side approach: if

society groups are starting most of these disputes and those disputes are more likely to become violent, understanding their strategic logic is particularly relevant. If these disputes were initiated primarily by government actors, then we might assume that government decisions to repress and the continuing fallout from that decision were the key factors in plotting conflict processes. However, the data tells a different story, and therefore a deeper examination of society-side factors (particularly placed within a context of the extensive prior research exploring state-side factors) is key to a complete understanding of intra-state violence.

Most of the events were assaults and vandalism, followed by fights and group clashes. Of events where there was an intervention, a higher percentage of government interventions (as opposed to non-interventions and non-government interventions, and without considering statistical significance) coincide with violent events, but it is not clear what direction the causal arrow goes; whether governments tend to intervene in more potentially violent conflicts, or whether government presence tends to make conflicts more violent.

Most events occurred close to other events in their sub-district. The vast majority of events cluster near zero days since the last event, but a few stretch up to 3,845 days or approximately ten years. This constitutes the entire range of time that I examine, and indicates that some sub-districts saw contentious sequences end shortly after the fall of Suharto, only to flare up again ten years later. The graph below shows the distribution of time between events.

**Figure 4.5 Histogram of Days between Events**



These observations paint some interesting pictures, but in order to test any of the hypothesized relationships we must utilize a more complex set of models, which I detail below.

## **VI. Methods and Models**

I will run the variables described above through two sets of four logistic regressions, one set per dependent variable. Each independent variable will have a basic model, a spatial model, an event density model, and a spatial and time-sensitive model.

Binary dependent variables lead me to use logistic regressions and do not impose as stringent assumptions on the data as a probit model would have.

Frequently, event data is also used for survival analysis, but my research questions do not explore the length of time before conflict breaks out or ceases, rather I attempt to establish which factors matter in the eventual outbreak of violence or cessation of contention. I utilize time-sensitive variables because other researchers have indicated that the effect of these variables may not be constant over time. However, the core question remains ‘what?’ and not ‘when?’ As such, survival models are not appropriate to address my research questions, although future research may find such analysis productive.

For each set of models, I will first run a basic logit analysis to capture the overall effect of the variables on the likelihood of violence and continued contention. The two basic models (using 1 prior year iterations of time-sensitive variables) are as follows –

$$\begin{aligned} \text{Logged odds (death)} = \\ a + b_1 (\text{death1}) + b_2 (\text{scarc}) + b_3 (\text{gvt1}) + b_4 (\text{gvt}) + b_5 (\text{ELF}) + b_6 (\text{distln}) + b_7 \\ (\text{conreg}) + b_8 (\text{civser}) \end{aligned}$$

$$\begin{aligned} \text{Logged odds (fin)} = \\ a + b_1 (\text{death1}) + b_2 (\text{scarc}) + b_3 (\text{gvt1}) + b_4 (\text{gvt}) + b_5 (\text{death}) + b_6 (\text{distln}) + b_9 \\ (\text{ELF})^{169} \end{aligned}$$

Treating the two models independently will allow me to explore whether the factors that contribute to an escalation to violence are the same as those that

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<sup>169</sup> In the final event models conflict region and civil servant control variables are eventually dropped due to insignificance.

contribute to a de-escalation of contention, and the effect that various government actions have on the decisions of society groups. It also allows me to utilize the presence of a death in the current event as an independent variable in the second model exploring the likelihood that contention concludes. This is critical in establishing the role that fatalities have in encouraging or repressing contention. Alongside each other, these sets of models will hopefully illuminate the process that plays out once a contentious event has emerged. Moving a variable from a DV to an IV from my first set of models to the second might be construed as an indicator that a nested logit was called for, but in this case ending contention is not a subset of violent or non-violent choices, it can occur after either. Part of the function of this second DV is to establish whether it is correlated with either violence or non-violence. Given the structure of a nested logit, I would have to select contention's end as a sub-set of either violence or non-violence, however in the descriptive statistics there is no support for the argument that final events are a sub-set of violent events. Violent events can be final or non-final, and final events can be violent or non-violent, which makes a nested logit an inappropriate method of assessing these relationships.

For each basic model, I will also produce predicted probabilities for violence or an end to contention in order to concretely illustrate the potential effect each variable has on the outbreak of violence or contention, particularly given that the effect of each varies depending on the values of the other variables in a logit model.

To gauge whether 1, 2, and 5 prior year variables have a different effect, I will run the model for each time period and compare the coefficients. This is not intended primarily to measure the degree that time effects change, but instead to identify which

time period, relative to the others, has the greatest effect and whether time generally increases or decreases the effect of the variable in question. Different variables are included in the model to address current vs prior factors—for example, in the second (fin) model, death in the current event is included as an IV along with death in a prior time period, to address whether fatalities have a varying effect over time.

Moving on from the basic models, I will then run three additional models for each set—for a total of four models for each dependent variable. The second model for each set will account for the cross-sectional nature of the data—that there may be variation particular to the sub-district that accounts for some or all of the total effect found in the basic model. Given the tendency of violence to perpetuate itself in space and time, it is reasonable to assume that some sub-districts will experience more violence and contention than others. The third model will include the ticker variable, accounting for time between events, or the density of contention. Not only should density play an independent role in the likelihood of violence or continued contention, but it may also impact the effect that the other variables in the model have on the dependent variable. The fourth model will account for both the cross-sectional data and event density. In each case, I will compare the variables across models that remain significant predictors of violence or continued contention.

Lastly, I will trace the conflict process as a sequence in a single case study of Mesuji, Lampung, Indonesia. This case study is intended to verify and illustrate the mechanisms identified in the quantitative analysis. Since this case will be drawn entirely from other studies and journalistic accounts, the primary parameter for case selection is the availability of reliable information from multiple sources in English.

The case will not be limited to the same time period as the quantitative study, since events continue into 2013 and there is no reason to believe that mechanisms after 2010 have changed. These selection criteria will bias the case toward one which is more likely to escalate – small or non-existent sequences of events don't get studied or written about. As the purpose of the case study is to examine in more depth the escalation processes as identified in the quantitative analysis and to identify potential complicating factors, this is appropriate. However, the case study should not be construed as a generalizable test of the most likely turn of events, but rather as an extreme case in which violence is most likely.

## **VII. Conclusion**

This chapter has laid out data and methodology for testing the theories developed in the previous chapter. In narrowing down the site of inquiry for testing these theories, I identified Indonesia as presenting good variation on my independent variables. I gave some background as to the thicket of laws and customs that have made environmental disputes frequent in Indonesia, while noting that many other countries, particularly in the developing world, feature similarly problematic laws, making patterns identified in Indonesia generalizable to many other countries.

I have described the new National Violence Monitoring System Indonesia (NVMS) dataset as well as supplementary data-sources, and described how I have transformed this data into a set of coherent variables accounting for sequences within sub-districts. I then outlined two sets of logit models: one set to identify which factors are correlated with fatal events and one set to identify which factors are correlated

with an end to the contentious sequence. In each set of models I will account for the effects of time and space. To flesh out the mechanisms involved in these relationships, I will also conduct a single case study of Mesuji, Indonesia, to illustrate the escalation to violence. The following chapters move forward to run the tests proposed here.

# **Chapter 5: Common Patterns in Indonesian Environmental Disputes**

## **I. Introduction**

What factors make violence or continuing contention more likely? Current research has inadequately explored this question at levels below civil conflict. Nor has it been able to explain why environmental scarcities, which reduce capability, should yield conflict at all since this is at odds with the expectations of the conflict literature. Stepping into this puzzle, I proposed that a plausible theory of violence and continuing contention in environmental disputes is one of bargaining between desperate claimants and the government, in which certain factors such as violence, repression, and inequitable distribution of environmental goods and services signal the likelihood that the state will appease society groups without escalation and thereby make violence and contention more or less likely. To test these propositions, I transformed and expanded the NVMS dataset from Indonesia, sequencing events within sub-districts and coding each event for current and past variables in that sequence.

In this chapter I will discuss the results of two logit models with different binary dependent variables—the first explaining when events are more likely to become fatal, and the second explaining when events are most likely to end a series of contentious events. In each model I also explore how time and space impact the likelihood of violence or continuing contention. In short, the first set of models, testing which factors make violence more or less likely, finds that structural scarcities

or a death in the last year increase the likelihood of violence, while current government repression reduces the incidence of violence. These findings are largely robust to alternate model specifications accounting for variation across space and time. This first set of models also finds that while the effect of risk-enhancing conditions declines as years pass (for the one significant lagged variable), the likelihood of violence increases as the time between events increases.

The second set of models, testing which factors make contention more or less likely to continue, finds that current repression and simple types of scarcity increase the likelihood that contention will end, while past repression, past violence, and structural types of scarcity reduce the likelihood that contention will end. These results, however, were not robust to alternate model specifications accounting for variation across space and time. The effects of past violence decreased slightly over time as expected, although past government action behaved irregularly, and closely clustered events were surprisingly more likely to end the sequence.

This chapter proceeds to first explore which variables make events more likely to be fatal, the strength of these effects, and variations across space and time. Then I repeat this process for the likelihood that contention will end in any given event. The following chapter will then examine a sequence closely to verify and flesh out the relationships identified here.

## **II. Fatal Events**

What makes violent events more likely in low-level environmental disputes? My theory anticipated that the likelihood of any environmental dispute becoming

violent is conditioned by structural scarcity, past violence, repressive government behavior over environmental disputes within the same sub-district in the last year, current government behavior in any given event, the recentness of these conditioning factors, and the frequency of events.

To review, the expected relationships for this first dependent variable are identified in the six hypotheses below, as developed in chapter 3.

*1A) Past state repressive actions are more likely to lead to violence.*

*1B) However, contemporary repression will reduce the likelihood of violence.*

*2A) Preferential treatment of other groups resulting in structural scarcity is more likely to yield violence than simple scarcity.*

*3A) Prior violence in a locality's environmental disputes increases the likelihood of contemporary violence.*

*4A) As events occur farther from the previous event in the sequence, they will be less likely to be violent.*

*4C) As violence and repression move farther into the past, their effect on the likelihood of violence will become weaker.*

To test these propositions I utilize low-level environmental dispute data from Indonesia, covering the post-Suharto decade (1999-2010) and recoded as described in chapter 4. Just less than ten percent of these events were violent. I run four logit or cross-sectional logit models for this dependent variable.

### *2.1 Fatal Events Four Model Overview*

In examining the effect of my variables on the likelihood of violence in any given event, I ordered the events into sub-district sequences and coded each event for what had occurred in the history of that sequence and in the event itself. I then ran these variables through four models, the first basic model examines general patterns across Indonesia. The second model accounts for potential sub-district-specific random effects; in other words, is the effect of these variables specific to certain areas and therefore a product of that sub-district? The third model examines whether time between events is a relevant factor in the likelihood of violence, allowing us to examine whether violent events are partially a product of the density of events. And finally, the fourth model accounts for both spatial and chronological variation by combining models two and three. We can see that most of the variables remain statistically significant in each of the four models, with a few exceptions which will be discussed below. (See Table 5.6) This robustness to variations in model specification indicates that the effects are relatively consistent across both time and space.

In the table below, I provide a complete overview of the coefficients, standard errors, and levels of significance, with total cases and the model's overall explanatory power appearing at the bottom.

**Table 5.6 Fatal Events Master Table**

<b>Variable</b>	<b>Basic Model</b>	<b>Sub-district</b>	<b>Time</b>	<b>Sub-district and Time</b>
<b>Prior Death</b>	0.96***	0.53	1.45***	1.03**
<i>Standard Error</i>	0.22	0.28	0.26	0.33
<b>Scarcity Type</b>	1.15***	1.23***	1.27***	1.34***
<i>Standard Error</i>	0.21	0.23	0.35	0.37
<b>Past Government Action</b>	0.00	0.04	0.10	0.14
<i>Standard Error</i>	0.27	0.30	0.31	0.33
<b>Current Government Action</b>	-0.48**	-0.53**	-0.50*	-0.50*
<i>Standard Error</i>	0.15	0.17	0.21	0.23
<b>Civil Servants</b>	0.00***	0.00***	0.00*	0.00*
<i>Standard Error</i>	0.00	0.00	0.00	0.00
<b>Distance (ln)</b>	0.31***	0.34***	0.31***	0.35***
<i>Standard Error</i>	0.04	0.05	0.06	0.07
<b>ELF</b>	-0.99***	-1.13***	-0.72	-0.93
<i>Standard Error</i>	0.28	0.34	0.41	0.51
<b>Conflict Region</b>	0.92*	0.91*	-0.27	-0.37
<i>Standard Error</i>	0.30	0.36	0.65	0.69
<b>Time Between Events (ln)</b>			.04	0.14
<i>Standard Error</i>			0.20	0.23
<b>Time Between Events (lnsq)</b>			.01	-.003
<i>Standard Error</i>			0.02	0.03
<b>Constant</b>	-3.07***	-3.30***	-4.21***	-4.60***
<i>Standard Error</i>	0.50	0.59	0.86	0.97
<b>N</b>	2831	2831	1757 <sup>170</sup>	1757
<b>Pseudo R2/Wald Chi2</b>	.12***	116.47***	.16***	79.23***

\*significant at .05 \*\*significant at .01 \*\*\*significant at .001

## 2.2 The Basic Model

The basic model measures the effect of the variables generally, across Indonesia, without accounting for the cross-sectional nature of the sub-district

<sup>170</sup> For models three and four, the N was reduced due to dropping the first event in every sequence.

sequences, or for the effect of time. It also provides us with a baseline against which we can measure the changes in the three other models.

In the basic model, all the variables (including control variables) returned statistically significant results except for past government behavior. Both prior violence and structural types of scarcity increased the likelihood of violence. (See Table 5.7 below.) A death in the last year over environmental issues in the sub-district increased the odds of violence in an event by 162 percent, while structural scarcity (as opposed to simple scarcity) increased the odds of violence by 215 percent, supporting hypotheses 2A and 3A.

**Table 5.7 Fatal Events Basic Model Effects**

<b>Model Estimates</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Odds Ratio</b>	<b>Percent Change in Odds<sup>171</sup></b>
<b>Prior violence<sup>172</sup></b>	.96***	.22	2.62	162
<b>Scarcity type</b>	1.15***	.21	3.15	215
<b>Current government action</b>	-.48***	.15	.62	-38
<b>Past government action<sup>173</sup></b>	-.003	.27	.99	-1
<b>Civil servants</b>	0***	0	1	0
<b>Distance (ln)</b>	.309***	.04	1.36	36
<b>ELF</b>	-.99***	.28	.37	-63
<b>Conflict region</b>	.92***	.30	2.50	150
<b>Constant</b>	-3.06***	.5		
<b>Likelihood Ratio</b>	<b>Pseudo R-squared</b>	<b>P-Value</b>	<b>N</b>	
<b>204</b>	.12	.000	2831	

\*significant at .05 \*\*significant at .01 \*\*\*significant at .001

<sup>171</sup> For a one-unit change in the independent variable.

<sup>172</sup> One year iteration of variable.

<sup>173</sup> One year iteration of variable.

On the other hand, current repression did appear to have a violence-reducing effect. While past government action fell well outside statistical significance, current government behavior becoming less supportive by one (over a range of two) reduced the odds of violence by 36 percent, showing support for hypothesis 1B, but giving no indication of whether past government action has any effect as in hypothesis 1A.

The control variables all came back significant, but not necessarily with any substantive effect. The number of civil servants (as a proxy for government capability in the region) had an infinitesimally small effect, while distance from the provincial capital made violence slightly more likely, which is in line with findings from the conflict literature showing that violence is more likely in less-well-regulated hinterlands than central areas.<sup>174</sup> Ethno linguistic fractionalization (ELF) reduced the likelihood of violence by 63 percent as it moved from homogenous to heterogeneous, against expectations, and the presence of a larger conflict in the region increased the likelihood of violence by 150 percent, as expected.

### *2.3 Predicted Probabilities of Violence*

What do these numbers actually mean for the likelihood of violence given different conditions on the ground? In any specific constellation of conditions, we can use the results of the basic model to predict how a change in any one condition will

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<sup>174</sup> I use the log of distance because the data is skewed: most observations cluster around zero but there is a long tail of large distances and residuals have a large spike around -5, rather than clustering cleanly around zero. I also analyzed whether using a log of civil servants was appropriate, but the residuals were distributed relatively evenly around zero, and scattering them against predicted values revealed that they are not heteroscedastic, just largely unrelated. Thus, the substantive effect of a one unit change in the number of civil servants is very small. Since there are large differences in the numbers of civil servants, this variable is not entirely irrelevant, but changes would have to comprise hundreds of thousands of civil servants to make much of a difference.

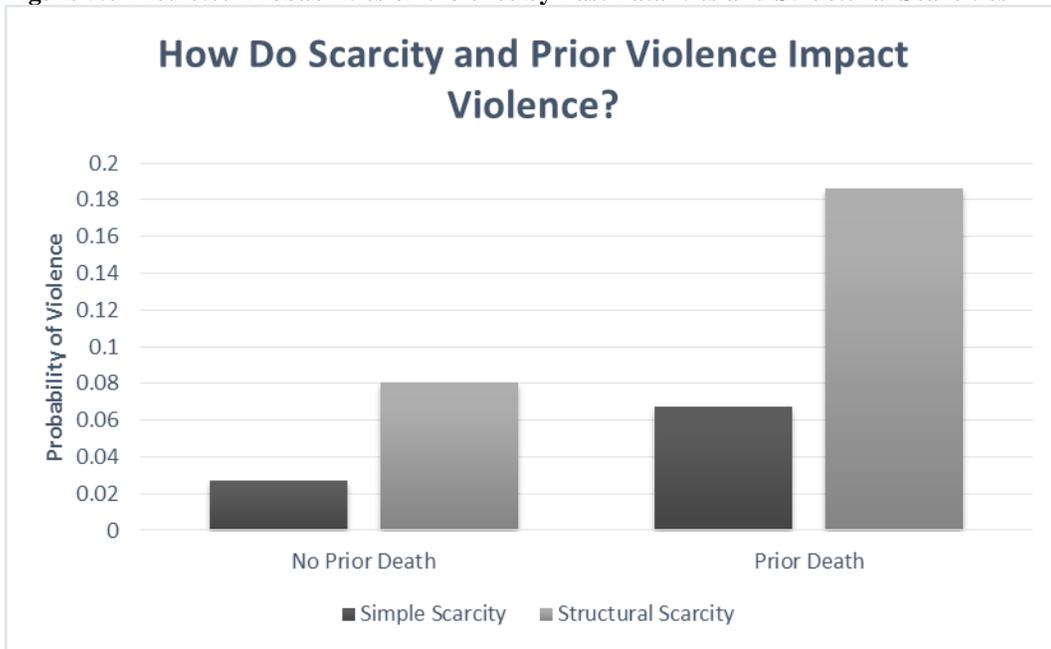
impact the likelihood of violence. These predicted probabilities provide a more concrete way to examine the substantive impacts of scarcity, prior death, and current government action which the coefficients alone cannot illustrate. In this model, the predicted probability is the probability that violence will break out in a specific event, given specific values of the explanatory variables. Since predicted probabilities vary depending on the values assigned to other variables in the model, I will examine these variables in pairs. As I examine these pairs of variables below, all other variables, including other explanatory variables and control variables, are held at their means or modes.<sup>175</sup>

For the first two variables, prior death and the presence of structural scarcity, both of which increase the likelihood of violence, the baseline probability of violence in their absence is 3 percent. If there is a prior death, but no structural scarcity in the current event, the probability of violence increases by 4 percentage points to 7 percent, and if structural scarcity exists without prior death, the probability of violence increases by 5 percentage points to 8 percent. However, when both of these occur at the same time—when structural scarcity coincides with prior death—the probability of violence jumps to 19 percent. The graph below illustrates the much stronger effect that structural scarcity and prior violence have in combination.

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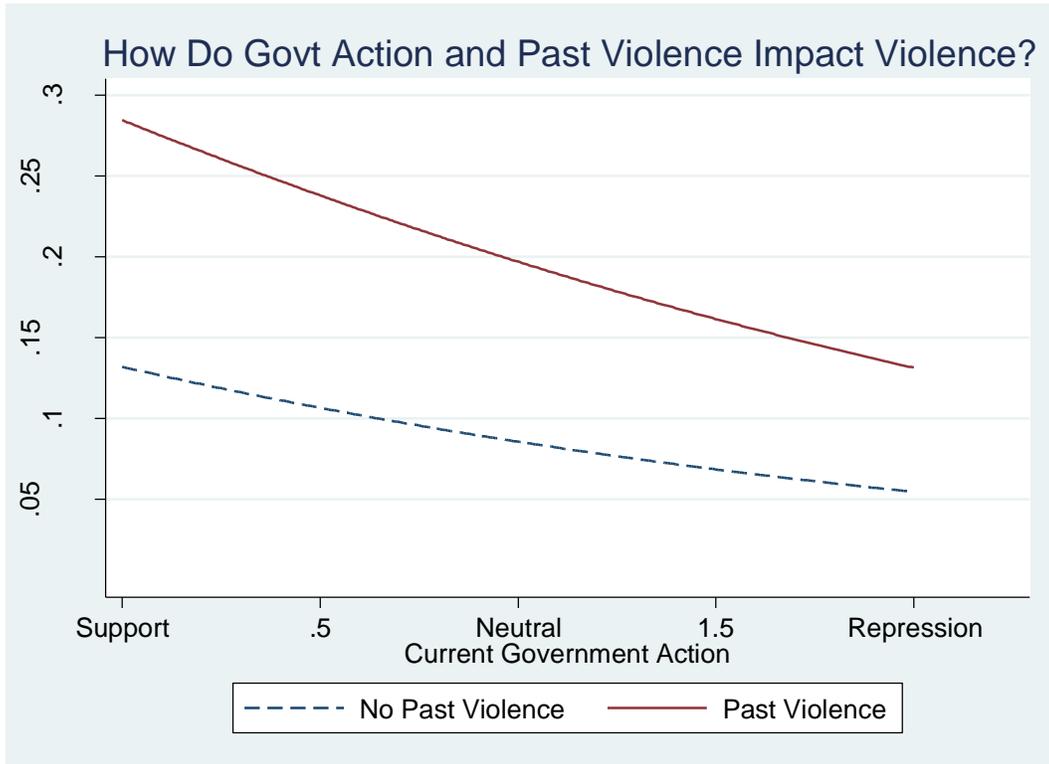
<sup>175</sup>In model one, modal values were for structural scarcity and no prior death, with the control variable set at no presence of a larger conflict region. Mean for current government action was set to 1.09 and past government action was set to 1.03. Mean number of civil servants was set to 215,130 people, mean distance to the provincial capital was set to 100.03km, and mean ELF was set to .59.)

**Figure 5.8 Predicted Probabilities of Violence by Past Fatalities and Structural Scarcities**



The predicted probability of violence is lowest (5 percent) when the government is currently repressive and there have been no prior deaths, and this probability increases steadily as current government behavior becomes more supportive of claimants' demands (see Figure 5.2). Notably, cases without a violent history where the government is not engaged in any current repressive behavior have exactly the same probability of violence (13 percent) as cases where the government is employing its repressive apparatus but there is prior violence. The presence of structural scarcity in these models—as it is the modal value of scarcity—explains the otherwise surprising base level of violence even without prior violence. The probability of violence continues to increase as cases with prior violence move from repressive to supportive state responses. In short, violence is most likely (28 percent likelihood) in cases where the government is not responding repressively to societal demands, but where prior violence exists.

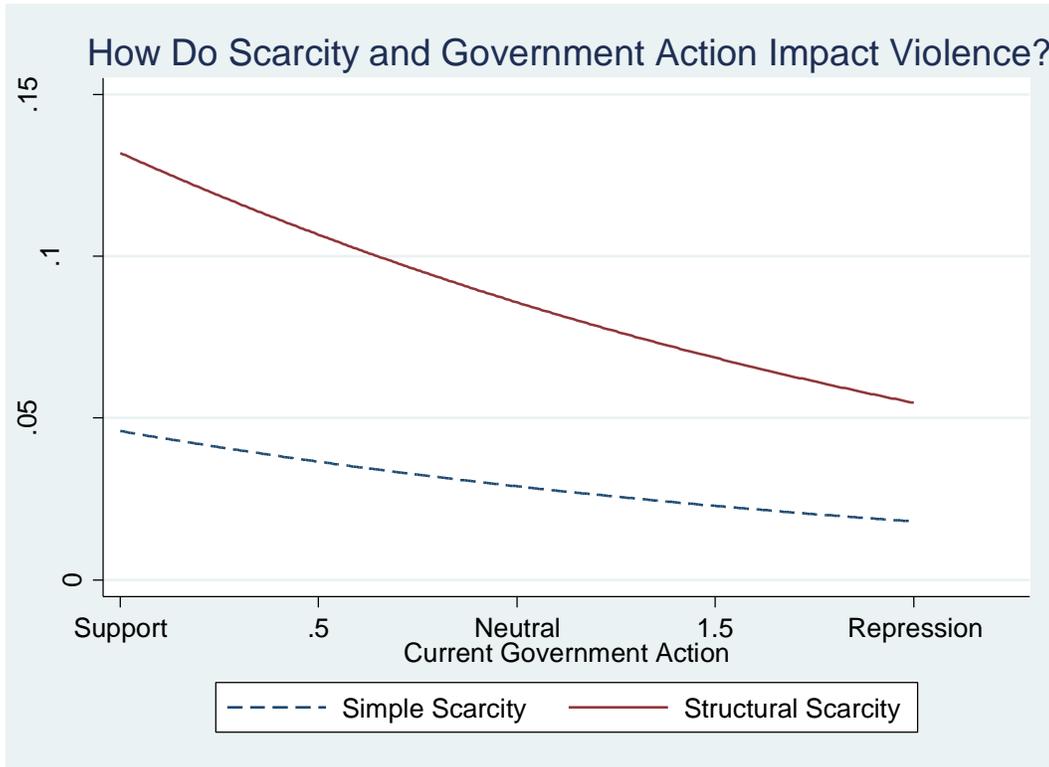
Figure 5.9 Predicted Probabilities of Violence by Government Action and Past Fatalities



The predicted probabilities for government action by scarcity type look very similar to those above but at slightly lower probabilities. This lower level of base probability is a product of using modal replies for dummy variables and does not indicate a necessarily higher impact on violence. All of the other graphs assume structural scarcity since this is the most common type of scarcity in Indonesia (i.e., the modal value), but in this last graph we also look at cases of simple scarcity where pollution or a complete lack of resources has prompted the dispute rather than questions of access to the land and its resources (see Figure 4.5). The greatest probability of violence, at 13 percent, exists when structural scarcity occurs without

government repression, and the least probability at only 2 percent, when simple scarcity occurs with government repression.

**Figure 5.10 Predicted Probabilities of Violence by Structural Scarcity and Government Action**



If all three significant variables in the full model are set at their most violence-prone values (structural scarcity with prior death and no repression) then the predicted probability of violence is 28 percent. When government repression occurs without prior death or structural scarcity, the predicted probability is at its lowest at 2 percent. As my variables move from the least to greatest risk of violence, the likeliness of violence changes substantively from an extremely low probability and increases by 26 percentage points.

These predicted probabilities were derived from the basic model, and do not account for variation across space and time. The next sections will discuss alternate model specifications and test the robustness of these findings.

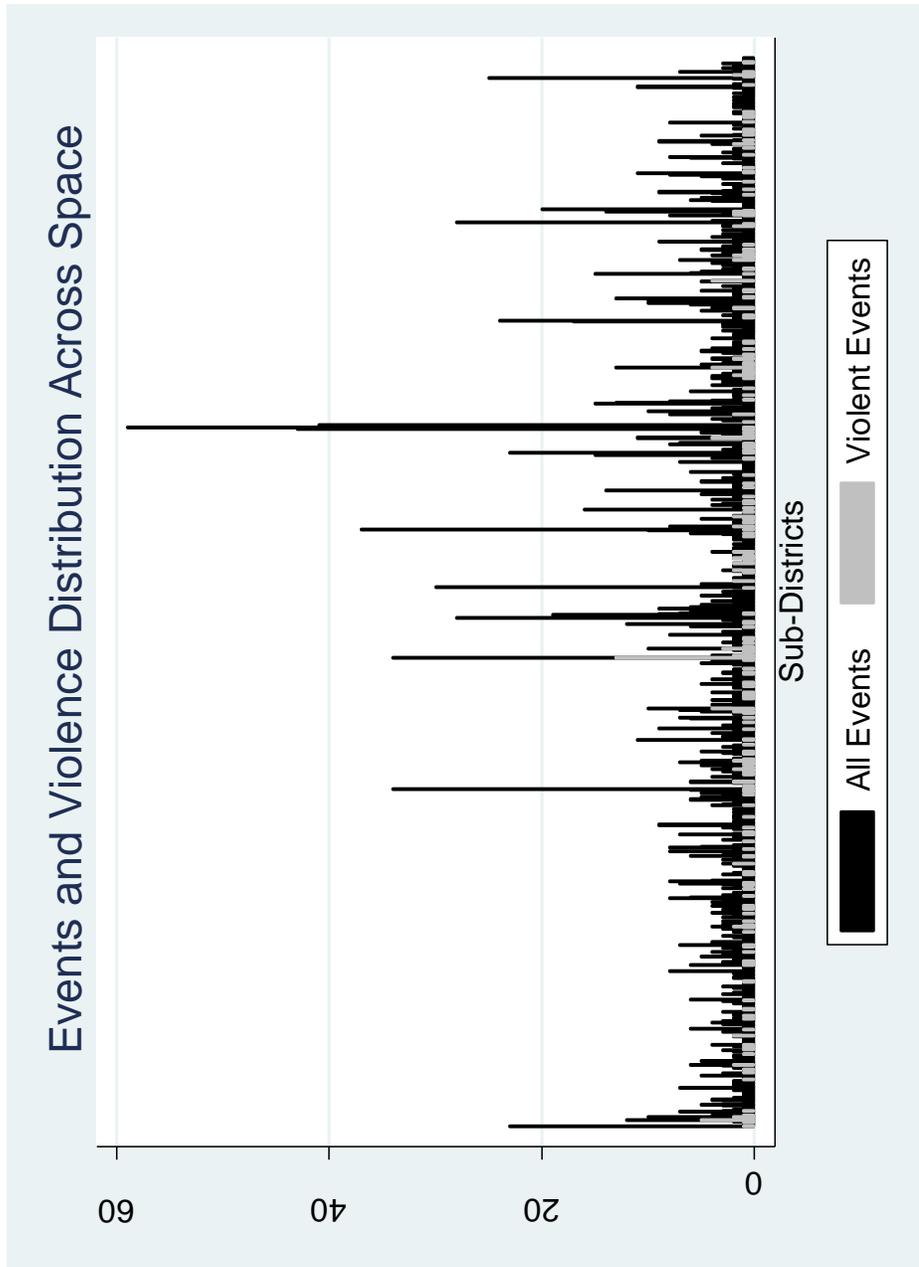
#### *2.4 Accounting for Variation across Sub-Districts*

The second model controls for the cross-sectional nature of the data, allowing us to see whether fixed effects of the sub-districts are impacting the relationships discussed above. The rho of the entire second model is .21, indicating that 21 percent the variance in the likelihood of violence can be attributed to the sub-districts. The only variable that drops out of statistical significance is prior death; all the other variables maintain their significance and direction, although the coefficients change to a certain degree. Accounting for variance across individual sub-districts causes the effect of all the significant variables to increase, although some only shift marginally. (See Table 5.6.)

With over a thousand sub-districts it is difficult to visualize the distribution of violence across space. The graph below gives a visual overview of number of events and violent events by sub-district. (See Figure 5.11.) The visible spikes in a few districts of violent events demonstrate why the prior violence variable may have lost significance in this model. In other words, sub-districts with high fatalities are by definition more likely to have also had prior fatalities, but this model cannot tell us whether the spike is caused by this previous violence or by an underlying factor which makes a given sub-district inherently more violent. Larger conflict regions are controlled for, however, so there is a sub-district-specific effect or omitted variable

aside from other conflict making violence much more likely in these sub-districts. Further research should explore whether this is indeed an omitted variable, or an idiosyncratic effect in a few sub-districts that initiated violence which then violence perpetuated itself as I have described in Chapter 3.

**Figure 5.11 Total Events and Violent Events by Sub-District**



The fourth model accounts for both the cross-sectional sub-district effect and the effect of time between events (discussed in the section below). All the independent variables that were significant in the basic model remained significant, despite a drop in total events once the initial events in each sequence were dropped. When the effect of time between events is accounted for, prior death once more regains significance. However, the control variables, ELF and conflict region, lose significance.

Overall, prior death seems to be relatively robust, showing significance in three of four models, but there may be variations across sub-districts that account for some of the effect of past violence. In other words, past violence is likely not randomly distributed across Indonesia. This is not particularly surprising, given that prior violence produces more violence, leading to a downward spiral of localized violence—this would produce some sub-districts with higher levels of violence. Further research should explore whether there are omitted variables that influence the distribution of violence, or whether this effect is purely idiosyncratic and dependent on a few unusual cases.

### *2.5 The Effect of Time*

I utilize two approaches to analyze the effect of time on the probability of violence. The first is to examine how the effect of past violence and repression varies across 1, 2, and 5 years. The second is to measure how many days pass between events in the sequence and analyze how this time between events impacts the likelihood of violence.

The model above utilizes one year iterations of the past death and past government action variables, but do longer timeframes produce greater reactions through a buildup of grievances? Running the basic model with 1, 2, and 5 year iterations of these two variables indicates that the effect is strongest for past death in the last year, declining as time continues. (See Figure 4.2.) Past government action is not statistically significant in any iteration. The explanatory power for the entire model decreases with each extension of the time-frame, however. Taken together, these indicate that there is a slackening effect over time, with uncertainty in the effect of past government action over time. Further analysis using 2 and 5 year models does not reveal interesting time-sensitive patterns in the effect of my variables over time compared to the 1 year iteration. In other words, a government's reputation for violent intransigency does not grow, but rather declines as fatalities recede into the past. This suggests that recent violent events are more salient to the outbreak of violence than those farther in the past, although this observation is limited to the relatively short time-period of the post-Suharto years that constrains my data. This shows partial support for hypothesis 4A.

**Table 5.12 Effect of Lagged Variables on Violence over Time in Odds Ratios**

	<b>1 Year Past</b>	<b>2 Years Past</b>	<b>5 Years Past</b>
<b>Past Death</b>	2.61	2.10	1.98
<i>P-value</i>	0.00	0.00	0.00
<b>Past Government Action</b>	.997	.1.09	.799
<i>P-value</i>	.991	.97	.4
<b>Pseudo R-squared of whole model (<i>P-value</i>)</b>	.115 0.00	.113 0.00	.106 0.00

The second approach I have taken toward time is to analyze whether more densely packed events—events that happen closer together in time—are more likely to become violent. Since this data was biased with a long tail and a majority of data near 0 but some outliers up to 3,842 days out, I utilize the log and square log of this variable.

Time between events is accounted for in the third and fourth models described at the beginning of this chapter. The Odds Ratios of the various models are reviewed here:

**Table 5.13 Review of Fatal Events Odds Ratios across Models**

	<b>Basic Model</b>	<b>Sub-Districts</b>	<b>Time</b>	<b>Both</b>
<b>Past Death</b>	2.62***	1.69	4.25***	2.79**
<b>Scarcity</b>	3.15***	3.41***	3.56***	3.8***
<b>Current Govt Action</b>	0.62**	0.59**	0.61*	0.61*
<b>Past Govt Action</b>	0.99	1.04	1.1	1.15
<b>Civil Servants</b>	1***	1***	1*	1*
<b>Distance (ln)</b>	1.36***	1.4***	1.37***	1.4***
<b>ELF</b>	0.37***	0.32**	0.49	0.4
<b>Conflict Region</b>	2.5**	2.5*	0.76	0.69
<b>Time Since Last Event (ln)</b>			1.04	1.16
<b>Time Since Last Event (lnsq)</b>			1.01	1

When accounting for the effect of time alone, the effect of prior death nearly doubles from the basic model, increasing the probability of violence by 325 percent, and is highly significant. The last model, accounting for both time and sub-districts, reduces the strength of the effect and remains significant. The other independent variables either increase slightly in the strength of their effect, or stay approximately

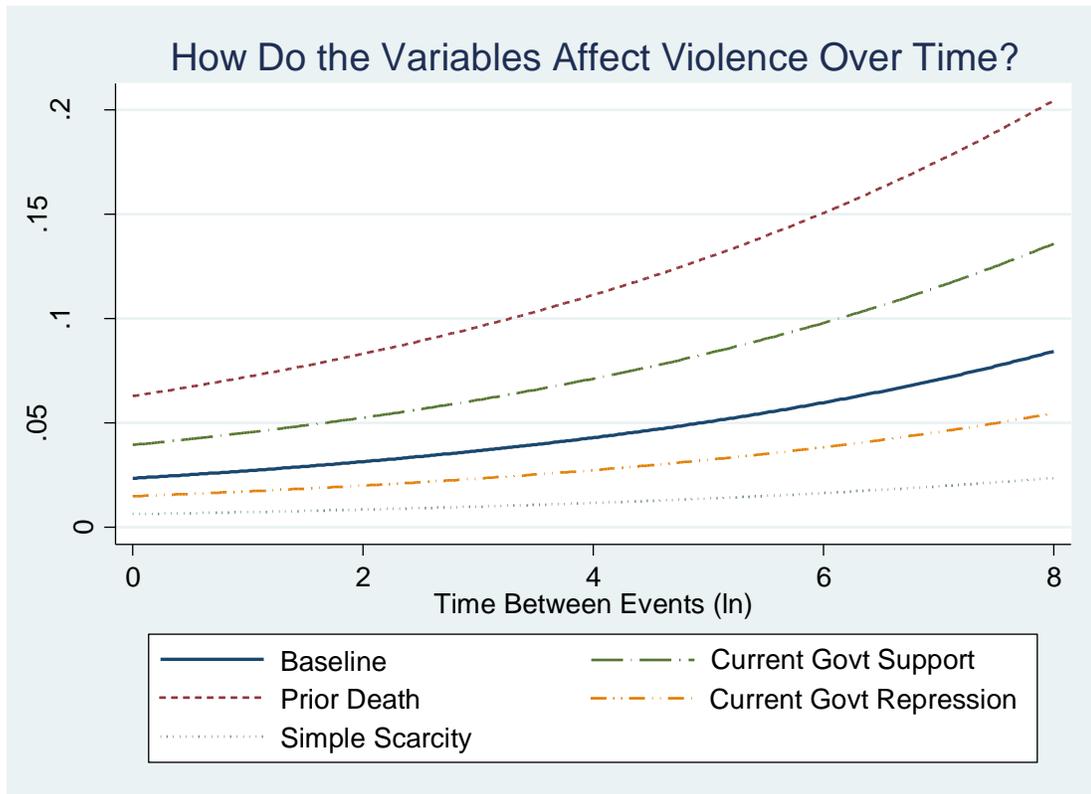
the same. The control variables ELF and conflict region drop out of significance once time is factored in. Overall, all the variables are robust to changes in the model to account for the effect of time.

In hypothesis 4C, I proposed that events clustered in space would be more likely to be violent. In fact, in low-level environmental disputes in Indonesia, the opposite is true—events are more likely to become violent as they draw farther apart from each other. (See Figure 5.5.) In the graph below, the variables are compared to a baseline effect of time between events where all other independent and control variables are held at their means or modes.<sup>176</sup>

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<sup>176</sup> Modal values include no prior death, structural scarcity, and no larger conflict region. Mean values include current government action at 1.07, past government action at 1.05, civil servants at 195,977 people, the log of distance at 2.72, ELF at .65, the log of time between events at 4.56, and the log squared at 24.12.

Figure 5.14 Multi-Variable Effect on Violence by Event Density



As time since the last event increases, so does the likelihood that the next event will be violent and the impact of each of the variables. An event occurring immediately after a prior violent event, for example, has a 6 percent probability of violence, but as time stretches on this likelihood rises to over 20 percent. This is a correlative finding and does not explain why this relationship exists—whether only events more prone to violence persist over long periods of inaction, or whether these periods of inaction are necessary for the violence to occur, perhaps because of mobilization or preparation time. The case study in chapter 6 explores these mechanisms more deeply. Even without a clear causal explanation, this finding challenges the claim in the literature that violence clusters in time—at least for this

local, low-level violence and contention. While the effect of prior death is strongest for events within a year, as events get farther away from each other, they become more violent.

While these two findings related to time seem to be in conflict—one showing an increase in the likelihood of violence over time and the other a decrease—it is important to remember that these are measuring different patterns. The first examines whether prior death or prior repression have occurred within the set time period, and the strength of its influence over time on the likelihood of violence. The second examines the impact of the density of events on the likelihood of violence. The graphic below illustrates this difference. It shows the change in probability of violence at event X in differently timed sequences, given a prior event Y, and a past death in event Z.



the likelihood of violence by over 200 percent in all the models. It also shows that past violence increases the likelihood of violence, but that some of this effect may be due to random sub-district effects. This is consistent with expectations derived from a bargaining theory of conflict that anticipate signaling of intention and commitment will influence the likelihood of violence.

Additionally, it shows that government repression can quash the immediate likelihood of violence, although the variable for past repression was not significant, so no conclusions can be drawn about whether the effect of repression on violence varies over time. In short, the critical insight here is that repression works, at least in the short term. This is consistent with expectations from the conflict literature that focus on material capabilities and opportunities for violence. The likelihood of violence decreases as the state arrests, bullies, and credibly commits to a strategy of non-acquiescence against society.

Another critical insight is while the effect of past violence on the likelihood of current violence decreases over time, increasing the length of time between events actually increases the likelihood of violence. Contrary to findings from the larger conflict literature, violence does not cluster in time in low-level environmental disputes in Indonesia. I will discuss several possible mechanisms linking diffuse events with violence in Chapter 6.

Lastly, the control variables did not all perform as expected. The size of the local government (as a proxy for government capability) had an infinitesimally small impact on the likelihood of violence. This may indicate that there is indeed little relationship between government capability and violence but rather that behavior is

more important than capacity, or it may be an indication of a poor proxy. Ethnic fragmentation also reduced the likelihood of violence, which is at odds with traditional expectations of the ethnic conflict literature.<sup>177</sup> Only the presence of a larger conflict region and the log of distance to the provincial capital performed as expected, increasing the likelihood of violence. These surprises in the control variables represent the lack of research at very low levels of violence—with further research, facilitated by better data, we can begin to develop better models and controls.

### **III. Ending Contentious Sequences**

What makes sequences of contention more likely to end? In my second set of models, I test which factors increase the likelihood that contention stops for at least two years. This contentious sequence may feature violent and/or nonviolent events. I use the explanatory variables featured in the models above, with one key change: the dependent variable from the previous models—whether the current event is fatal or not—has been changed into an independent variable to explore whether violent events are more likely to end contention or extend it.<sup>178</sup>

Reviewing the expected relationships between my variables, I have seven hypotheses that relate to this dependent variable:

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<sup>177</sup> The ethnic conflict literature is broad and diverse. In this case I am referring primarily to classical arguments that increased plurality leads to greater violence. Horowitz, *Ethnic Groups in Conflict*.

<sup>178</sup> Moving a variable from a DV in one set of models to an IV in the second set might be construed as an indicator that a nested logit was called for, but in this case ending contention is not a subset of violent or non-violent choices, it can occur after either. Part of the function of this new DV is to establish whether a two year end to contention is correlated with either violence or non-violence. A nested logit would be an inappropriate method of assessing these relationships, because it would require pre-selecting contention's end as a sub-set of either violence or non-violence.

*1C) Past repression makes events less likely to conclude the contentious episodes.*

*1D) Contemporary repression makes events less likely to conclude the contentious episodes.*

*2B) Preferential treatment of other groups resulting in structural scarcity is less likely to conclude the contentious episodes.*

*3B) Prior violence in a locality's environmental disputes decreases the likelihood that an event concludes the contentious episodes.*

*3C) Contemporary violence in any given event makes it less likely that an event will conclude contentious episodes.*

*4B) As events occur farther from the previous event in the sequence, they will be more likely to conclude.*

*4D) As violence and repression move farther into the past, their effect on the likelihood of concluding contention will become weaker.*

To test these hypotheses I use the same dataset described in Chapter 4. In this data, final events compose approximately 40 percent of all the events. I use a set of four models to test for the likelihood of contention ending, which are detailed below.

### *3.1 Ending Contention: Four Model Overview*

In this set of models, just like in the set of fatal events models, I sequenced the events by sub-district and coded each event for the past and present independent variables. In these models, however, the dependent variable is a binary coding of whether all contention ceases for the two years after the event. Like the fatal events

analysis, I also use four models to examine the effect of these variables on contention. The first basic model looks at general trends across Indonesia. The second once again accounts for cross-sectional random effects due to the sub-district, and the third accounts for the effect of the spacing of events over time. Lastly, the fourth model accounts for both sub-district and time effects.

This set of models is not particularly robust to alternate model specification. (See Table 5.9.) The only independent variable that remains significant across all four models is scarcity type. Prior death and current government action are significant only in the first model, while past government action is significant in all but the second model. With the exception of scarcity type, most of my variables' effects on the conclusion of contention do not stand up well to alternate model specifications accounting for time and space. This is a very different pattern across models than the fatal events set.

In the table below, I provide a complete overview of the coefficients, standard errors, and levels of significance in each variable across models, with the total cases and each model's overall explanatory power at the bottom.

**Table 5.16 Ending Contention Master Table**

	<b>Basic Model</b>	<b>Sub-district Effect Model</b>	<b>Time Between Events Model</b>	<b>Sub-district and Time Model</b>
<b>Prior Death</b>	-1.02***	-0.28	0.06	0.17
<i>Standard Error</i>	0.22	0.29	0.24	0.32
<b>Scarcity Type</b>	-0.36**	-0.35*	-0.39*	-0.44*
<i>Standard Error</i>	0.11	0.15	0.17	0.22
<b>Past Govt Action</b>	-0.53**	-0.45	-0.45*	-0.58*
<i>Standard Error</i>	0.19	0.26	0.22	0.27
<b>Current Govt Action</b>	0.23*	0.21	0.27	0.28
<i>Standard Error</i>	0.11	0.15	0.17	0.20
<b>Current Death</b>	0.30	0.12	0.22	0.21
<i>Standard Error</i>	0.16	0.21	0.24	0.30
<b>Distance (ln)</b>	0.35***	0.43***	0.28***	0.38***
<i>Standard Error</i>	0.03	0.05	0.04	0.06
<b>ELF</b>	-1.01***	-0.95***	-1.08***	-1.01*
<i>Standard Error</i>	0.17	0.30	0.28	0.43
<b>Ticker (ln)</b>			-0.50**	-0.31
<i>Standard Error</i>			0.15	0.20
<b>Ticker (lnsq)</b>			.09***	.05*
<i>Standard Error</i>			0.02	0.02
<b>Constant</b>	-0.49	-0.18	-0.83	-0.71
<i>Standard Error</i>	0.29	0.44	0.53	0.71
<b>N</b>	2223	2223	1319	1319
<b>Pseudo R2/Wald's Chi2</b>	.14***	127***	.16***	89.86***

### 3.2 The Basic Model

The basic model tests the effect of the variables across Indonesia generally, without accounting for the effect of time or sub-districts. It also provides us with a baseline for comparison with the other models. The total number of cases for this

model is slightly reduced to 2,223 since the dependent variable could not be coded for the last two years of data due to right-censoring.

In the basic model all the variables except for a death in the current event were significant at standard levels. Prior violence, structural scarcity, and past government repression all made contention more likely to continue, while current government repression made it more likely to end.

The presence of prior violence made conflict 64% less likely to end, supporting hypothesis 3B. A change from simple to structural scarcity decreased the likelihood of curtailment by 30 percent, supporting hypothesis 2B that unequal distribution of environmental goods and services is more inflammatory than disputes over simple environmental quantity and quality. These are both binary variables and this change represents their entire range. Hypothesis 3C received no support, however; the effect of fatalities in the current event was not statistically significant. The effect of current fatalities contradicted the expectations of substitution theory and decreased the likelihood that contention will continue, but this effect fell just outside typical measures of significance at .054.

**Table 5.17 Ending Contentious Events Basic Model Effects**

<b>Model Estimates</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Odds Ratio</b>	<b>Percent Change in Odds<sup>179</sup></b>
<b>Prior Violence<sup>180</sup></b>	-1.02***	.220	.36	-64
<b>Fatality in current event</b>	.30	.157	1.4	40
<b>Scarcity type</b>	-.36**	.111	.7	-30
<b>Current government action</b>	.23*	.111	1.26	26
<b>Past government action<sup>181</sup></b>	-.53**	.194	.59	-41
<b>Distance (ln)</b>	.35***	.027	1.4	40
<b>ELF</b>	-1.01***	.173	.36	-64
<b>Constant</b>	-.49	.294		
<b>Likelihood Ratio</b>	<b>Pseudo R-squared</b>	<b>P-Value</b>	<b>N</b>	
<b>426</b>	.14	0.000	2223	

\*significant at .10 \*\*significant at .05 \*\*\*significant at .01

The results above are surprising in that they do not support hypothesis 1D, that contemporary repression will make contention less likely to conclude. In the theory, I drew from substitution theory, which posits that while repression may lead claimants to change strategies, it does not necessarily lead them to end contention. (Substitution theory distinguishes this from repression’s effect on the likelihood of violence; repressed violent actors should eschew violence but switch between alternate forms of contention.) This expectation, however, is not upheld in this data. Instead, repression “works” to repress all contentious activity. Behavior by the state that represses the demands of the population (via arrests of claimants, bullying, and

<sup>179</sup> For a one-unit change in the independent variable.

<sup>180</sup> One year iteration of variable.

<sup>181</sup> One year iteration of variable.

state-initiated sanctions against society groups) makes contention 26 percent more likely to conclude than neutral behavior. The same applies if the government makes a one-unit change from supporting the claimants to adopting neutral behavior, totaling a potential 52 percent increase in the likelihood of ending contention as the state moves from support to repression.

Past repression, however, increases the likelihood that contention will continue, as expected in hypothesis 1C. A one-unit change in government behavior from support to neutrality or from neutrality to repression makes contention 41 percent more likely to continue, totaling a potential 82 percent change if the government changes from support to repression.

These divergent effects of repression in the past and present are particularly interesting when viewed side-by-side. The effect of repression is time-dependent—while the immediate effect of repression is to increase the likelihood of ending contention, in the longer term, it decreases the likelihood of an end of contention. These two effects appear on the surface to be contradictory—if contention is less likely to continue, how does it fuel future conflict? As discussed in Chapter 3, my theory of the effect of violence differentiates these effects as products of two separate mechanisms—one of reducing material capabilities and one of signaling resolve. Although the current violence variable is not significant in this analysis, the model's results suggest that these two mechanisms also explain the time-differentiated effects of repression—whereas initially because of substitution theory, I predicted both past and present violence and repression would create more persistent contention. Instead, these effects reveal mixed-mechanism gateways—contentious sequences which are

not deterred by current repression “pass through” the gateway and then become more likely to persist. In other words, not all contentious episodes will continue, but those that do build momentum. These higher-risk cases may then be on the track to further escalation and larger-scale violence. Which factors are most likely to create these contentious juggernauts? In order to better understand which sequences will survive past these gateways, we must explore which variables make contention more likely to continue after repression. This topic is addressed in detail in the predicted probability section below.

Although the current violence variable lies just outside of typical measures of significance at .054, the past and present iterations of violence may form the same type of gateway as past and present repression, with current violence repressing contention but past violence making it more likely to continue. This tentatively contradicts the expectations of substitution theory, which would anticipate claimants merely switch tactics instead of curtailing contention, and supports an argument that current violence just temporarily reduces the material capabilities of claimants to engage in continued contention. However, my current model cannot decisively establish that this is what’s going on. The current violence variable is sensitive to adjustments in the specification of other variables in the model—when I first ran the model without using the log of distance, current violence was significant at the .001 level. Why this model and variable are so sensitive to particular specifications is unclear, but the relationship between contention and current violence requires further research to clarify. It may be that current violence increases or decreases the likelihood of continuing contention only within certain parameters, which might

explain why altering the distance variable would create such a large change in the significance of current violence.

The control variables in this model are once again poorly defined with only the log of distance and ethnolinguistic fractionalization testing statistically significant. Additionally, both of these surviving control variables behave unexpectedly. As distance from the provincial capital grows, contention becomes 40 percent less likely to continue, and as ethnic diversity increases, contention also drops off. These results bely the expectations of the general conflict literature that would hold that both distance from government centers and ethnic cleavages should increase the opportunities for conflict.<sup>182</sup> This highlights the necessity for looking at violence and non-violence side-by-side, clarifying which patterns are transferrable from the conflict literature, and which are not. Further research on patterns in contention, assisted by better data on these low-level events, is necessary to better specify models and control variables.

### *3.3 Predicted Probabilities of Contention Conclusion*

Different constellations of variables produce different probabilities that contention will end. Predicted probabilities in this model refer to the probability that any given event will conclude the sequence of events (i.e., that no further contention will occur for two years). As with the initial set of models, all variables not under

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<sup>182</sup> These literatures are broad and cover a variety of arguments. These control variables are drawn from dominant or classical arguments from each field. Fearon and Laitin, "Ethnicity, Insurgency, and Civil War"; Horowitz, *Ethnic Groups in Conflict*.

discussion will be held at their means or modes.<sup>183</sup> I will start by examining the probability that conflict will end across the range of variables, given a gateway effect of repression. Second, given the importance of prior violence, I will analyze which factors best reduce the likelihood of continuing contention when prior violence has already occurred. And lastly, I will discuss the maximum and minimum predicted probabilities when all variables are set to their most and least incendiary values.

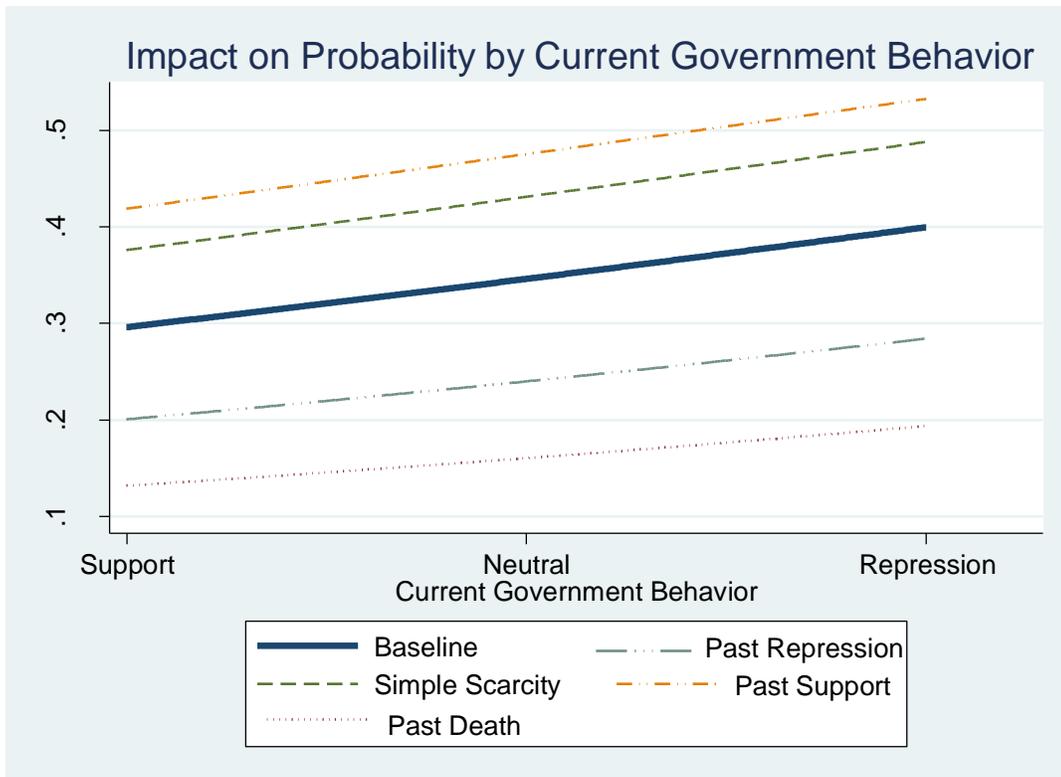
Given what we have discovered above—that repression reduces the likelihood of continuing contention in the short term, but increases the likelihood of continuing contention in the long term—discovering which factors allow some contentious events to pass through this gateway of repression is critical to understanding which sequences of events persist over time.

The graph below (see Figure 5.18) shows how predicted probabilities change for each of the significant independent variables as they interact with current levels of government support or repression. The central baseline is the effect of current government action on the probability of contention ending (holding all variables at their means or modes). The probability of contention ending when current government behavior is supportive of the claimants is 29 percent, increasing to 34 percent when current government behavior is neutral, and rising to 40 percent when current government behavior is repressive. Compared to this baseline, simple scarcity and past supportive behavior from the government make contention more likely to end overall.

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<sup>183</sup> Modal values for the explanatory values include non-fatal, non-prior-death, and structural scarcity cases. Means of the explanatory variables are held at 1.09 for current government action, and 1.02 for past government action. Control variables are held at .6 for ELF and 3.19 for the transformed measure of distance from the provincial capital.

**Figure 5.18 Multi-Variable Predicted Probability of Contention Ending by Government Behavior**



Simple scarcity and current supportive government behavior have a 37 percent probability of ending contention for at least two years, increasing to 49 percent when current government behavior is repressive. The change in predicted probability between the baseline (structural scarcity) and simple scarcity, under conditions of current repression, is 9 percentage points. Although the two lines may appear to be parallel, current repression slightly increases the effect of scarcity type by 1 percentage point.

Past supportive behavior has a 42 percent probability of ending contention when paired with current supportive behavior, but current repression could increase

this to 53 percent. Past repressive behavior, on the other hand, has a 20 percent likelihood of ending contention when paired with current supportive behavior, increasing to a 28 percent probability when current behavior becomes repressive. While it may be difficult to see, these 11 and 8 percentage point differences cause very subtle divergences in these lines on the graph above as current behavior moves from supportive to repressive. Overall, current repression has the highest probability of ending contention (25 percentage points), as past government behavior moves from the supportive minimum to repressive maximum.

The inclusion of prior fatalities in the model dramatically reduces the likelihood that a sequence of contentious events will end. When prior deaths are paired with current government support, the probability that contention will end is 13 percent, which rises only 6 percentage points to 19 percent when current government behavior is repressive (as opposed to the 11 points rise of the baseline). In the context of current repressive behavior, just the presence of a prior death causes a divergence of 21 percentage points.

To answer the question above—which variable matters most for sequences that can pass through a gateway of current repression and become persistent contentious juggernauts—it is now evident that past government behavior has the greatest effect across its entire range (25 percentage points, from minimum to maximum), followed by prior death (21 percentage points), and then scarcity (9 percentage points.) Substantively speaking, however, past government behavior rarely moves from entirely supportive to entirely repressive, or vice versa. Instead, governments are often making a decision from a stance of relative neutrality, from

which only half the total effect shown above is possible. Hence, while past government behavior presents the largest potential statistical change, in reality this complete traversal of the range of prior government action should be very rare. Substantively speaking, this would make prior death the most important variable in the creation of contentious juggernauts.

I discussed in Chapter 3 the expectation that violence is a stronger signal than repression, but I find little to support that statement in this data. Insignificance in the variables has made comparison impossible in all cases except between the effects of past repression and past violence on continuing contention. In this case, as detailed above, realistic ranges of past repression—moving from neutrality to either support or repression or vice versa—indicate that repression probably has a weaker effect on continuing contention than the potential change across the entire range of action. Additionally, the differences between the effects of violence and repression are not particularly large. This does not allow me to address whether either violence or repression has a stronger signaling power.

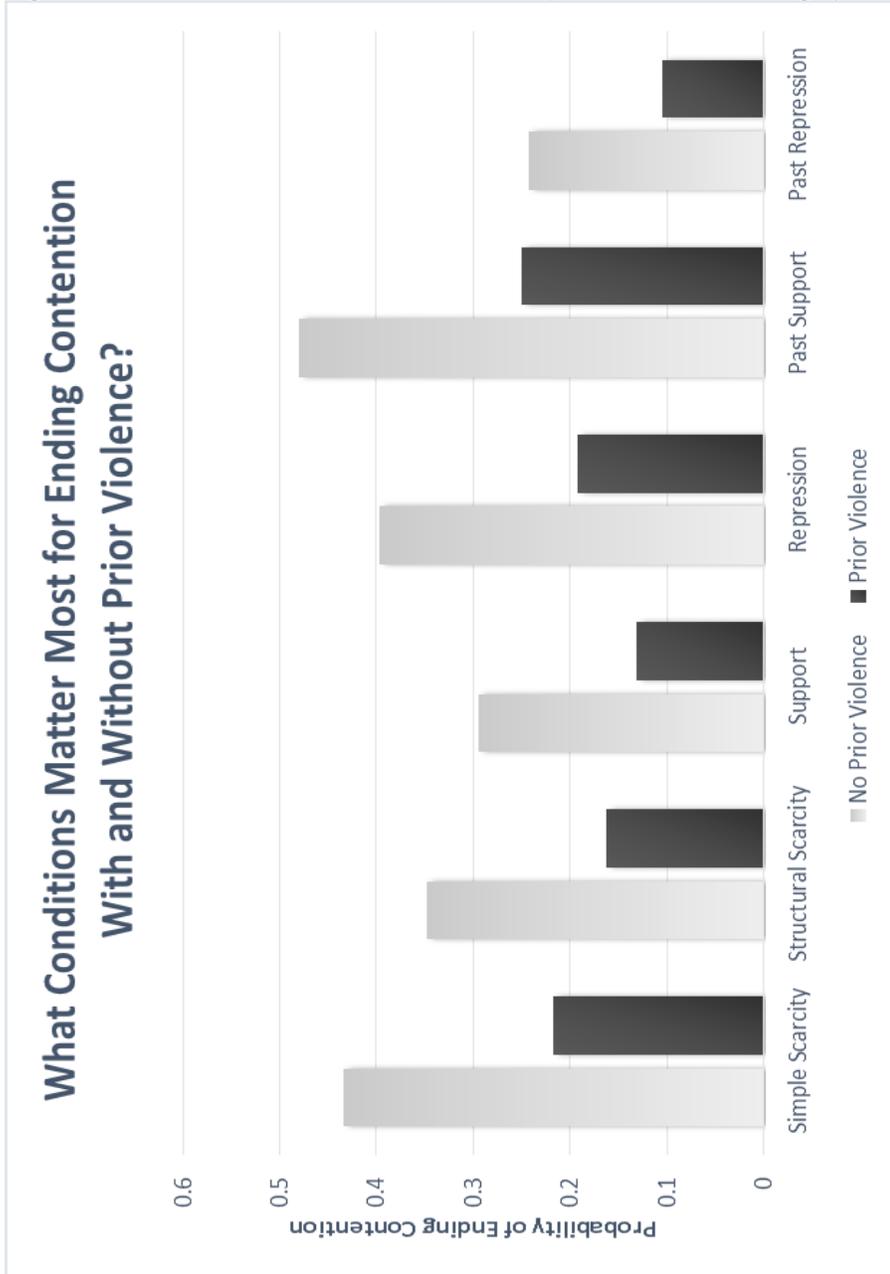
Given the importance of prior violence both generally and as a crucial factor in the creation of sequences that persist beyond repression, from a policy-building perspective we might ask what factors are most effective at mitigating this effect, when violence is unavoidable or has already occurred. In other words, if an area has experienced violence in the past, what constellation of variable values is most likely to end the contentious episodes?

The condition with the greatest single significant likelihood of ending contention when prior violence has already occurred is past government support,

which, holding all other variables at their means and modes, has a 25 percent likelihood of ending contention. Following closely behind this, situations of simple scarcity have a 22 percent chance of ending contention. On the other end of the scale, situations of past repression have only a 10 percent probability of ending contention. (See Figure 5.19.)

This suggests that from a policy perspective, building relationships composed of mostly supportive behaviors may be a worthwhile “investment” toward avoiding persistent contention. Additionally, states can diminish the likelihood of persistent conflict by removing structural inequalities in environmental and resource policies. Even though simple scarcities may still exist, addressing structural inequalities in resource access and control can make persistent contention more rare.

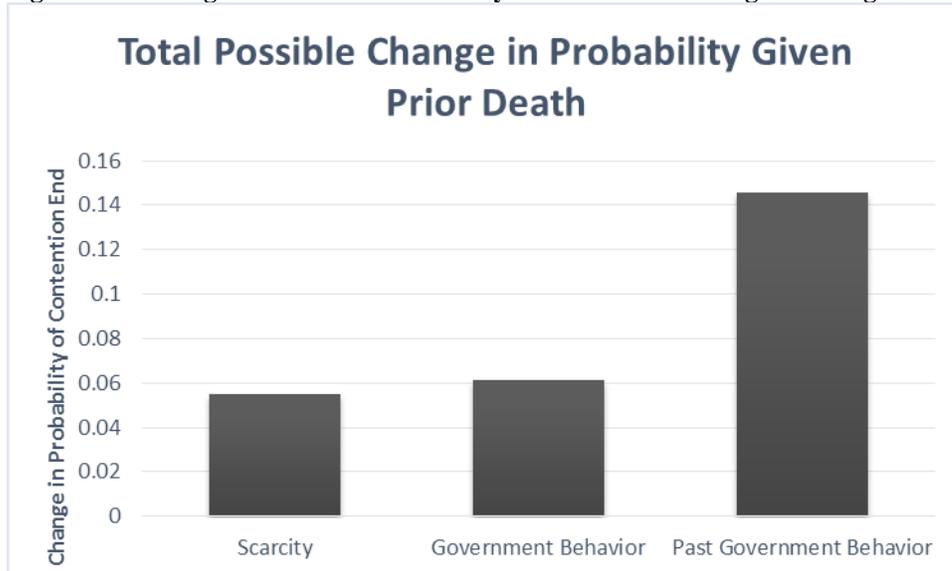
Figure 5.19 Multi-Variable Predicted Probability of Contention Ending by Prior Violence



As is evident in the graph above, past support and past repression have the highest probability and the lowest probability, respectively, of ending contention. As these are minimum and maximum values of the same variable, it is clear that past government behavior has the greatest potential percentage point change over its entire

range. (See Figure 5.20.) However, it is worth noting that since this variable extends from support, through neutrality, to repression, a government utilizing repression will probably not shift entirely to support and will therefore probably only experience half of the total effect graphed below, approximately 7.5 percentage points. This change in probability even over half the range for this variable, is still more than the change in probability caused by any other variable, emphasizing the importance of relationship building and signaling between state and society for ending contentious sequences.

**Figure 5.20 Change in Predicted Probability of Contention Ending Assuming Prior Violence**



Finally, if all of the explanatory variables are set to their most incendiary values, the probability of contention ending is only 11 percent.<sup>184</sup> If all the same variables are set to their least incendiary, the probability of contention ending is 53

<sup>184</sup> No fatalities in prior year, fatality in current event, simple scarcity, prior government support, and current government repression. Controls set to their means.

percent.<sup>185</sup> This represents a significant variation in the likeliness that contention continues—and an opportunity for interrupting cycles of contention that may lead to violence.

However, these predicted probabilities were derived from the basic model, not accounting for variation across space and time. The next sections will discuss alternate model specifications that test the robustness of these findings.

### *3.4 Accounting for Variation across Sub-Districts*

The second model controls for the cross-sectional nature of the sub-districts, and allows us to address whether random effects of these areas are in fact driving the correlations found in the basic model. The rho of this model is .43, indicating that a large amount of the effect on contention continuance is due to sub-district effects. Accordingly, all of the independent variables except for scarcity type drop out of significance in this model. The coefficient of scarcity type remains the same. The control variables also remain significant. The total number of cases for this model remains at 2,223 just like the basic model for this dependent variable. The only cases that were dropped in both models were those in the last two years of observation in order to code the dependent variable.

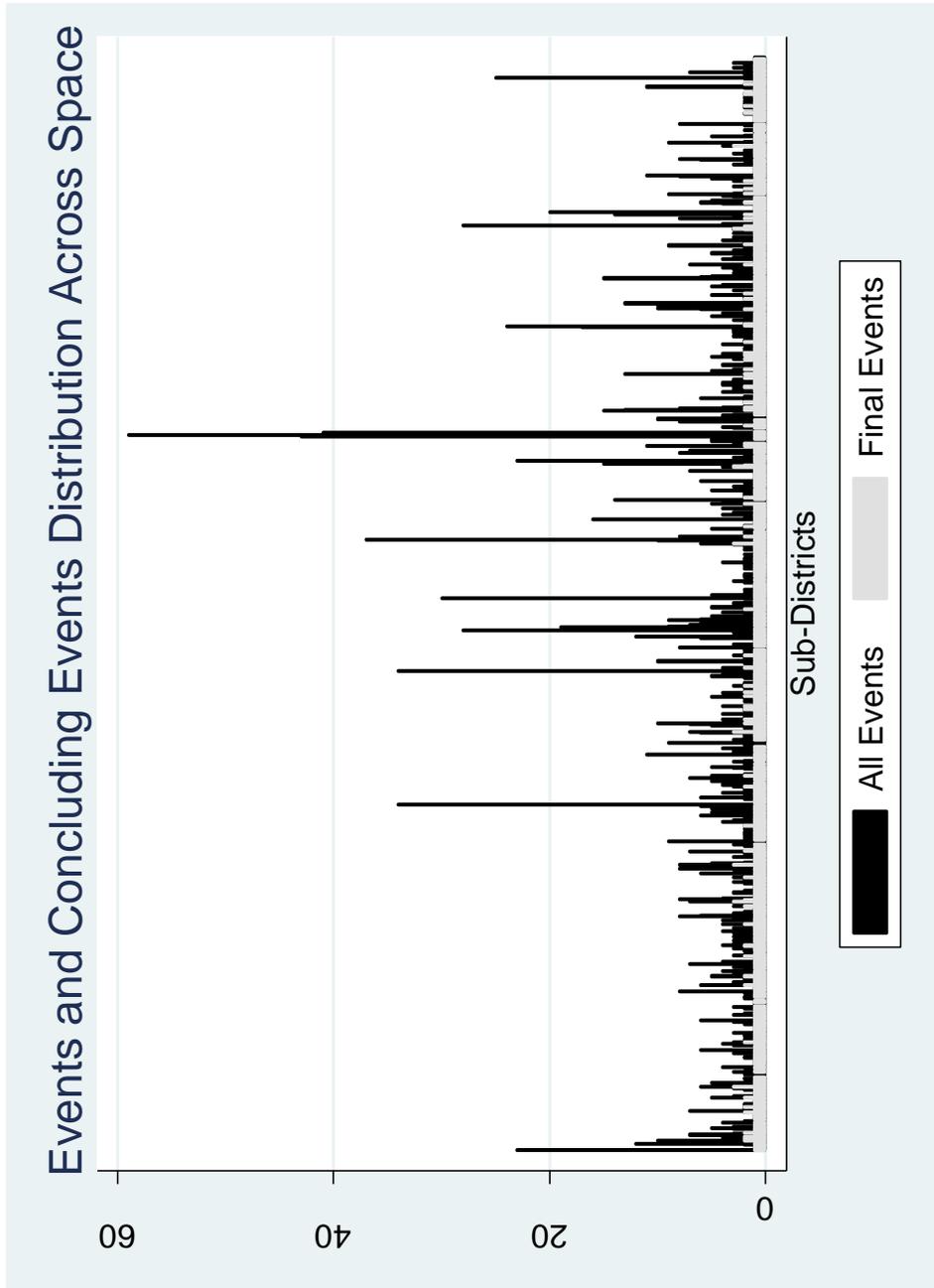
The graph below gives us an overview of the distribution of final events across space. Unlike the distribution of violence across space, there are no large outliers, but there is a subtle differentiation between sub-districts which have had one or two final events. What exactly does it mean to have multiple final events? It

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<sup>185</sup> Fatalities in prior year, no fatality in current event, structural scarcity, prior government repression, current government support. Controls set to their means.

indicates that contention has started, ended, remained quiet for two years, started again, and then ended again. Hence the variables that should drive the presence of multiple final events are those that are likely to rekindle contention in the long term. As such, the continuing significance of only scarcity type is not surprising. However, the random effects of the sub-districts does indicate that there are also other important variables explaining why contention ends, rekindles, and ends again in some sub-districts, but not others.

Figure 5.21 Total Event and Concluding Events by Sub-District



In the fourth model, both the sub-district effects and the effect of time between events (discussed below) are accounted for. This model drops to an N of 1,319, since both the last two years of data and the first event in every sequence were

dropped. The rho decreases to .35 from .43 in the second model, reducing the random explanatory power of the sub-districts when event timing is accounted for. In this model both scarcity type and past government action are statistically significant, with only a minor increase over the basic model in the coefficients for both. The control variables also maintain their significance. This indicates that fatalities (both in past and current form) and current government behavior are not equally distributed across Indonesia when event density is controlled for, and that other factors are likely driving this distribution. In the previous set of models, we saw that 21 percent of the variance in violence was explained by random sub-district effects, so this finding is not surprising. Further research is necessary to identify and account for any omitted variables that may be driving violence in some districts but not others.

### *3.5 The Effects of Time*

In addition to looking at past and present iterations of the variables, I account for the effect of time in two ways. First, I compare the effect of the lagged variables in 1, 2, and 5 year iterations. Second, I gauge the effect of the frequency or density of events on the likelihood that contention ends.

The two lagged variables are past death and repression. In the basic model both are run using a one year iteration. But does time enhance the effect of these variables, or decrease it? All three periods of time (1, 2, and 5 years) for past violence and past government action are statistically significant. (See Table 5.22.) The effect of past death decreases slightly over time, and the effect of past government action fluctuates within 9 percentage points, but both have substantive and statistical impacts

in all three time periods.<sup>186</sup> The past death effect supports hypothesis 4D that the variable effects decline over time, but the effect of past government action is highest in the 2 year iteration, lowest in the 1 year iteration, and at a medium level at 5 years, which does not support 4D. Overall this mixed support for 4D shows that the effect over time varies across the variables. The uneven effect of past government action as time passes is puzzling, and should be explored in greater detail in further research.

**Table 5.22 Effect of Lagged Variables on Continued Contention Over Time in Odds Ratios**

	<b>1 Year Past</b>	<b>2 Years Past</b>	<b>5 Years Past</b>
<b>Past Death</b>	.36	.38	.47
<i>P-value</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
<b>Past Government Action</b>	.59	.50	.56
<i>P-value</i>	<i>.006</i>	<i>.000</i>	<i>.005</i>
<b>Pseudo R-squared of whole model (<i>P-value</i>)</b>	.1431 <i>0.00</i>	.1471 <i>0.00</i>	.1511 <i>0.00</i>

While the effect of prior death does decline over time, it does so very slowly, making the end of contention more than 50 percent less likely even more than five years after the death. The effect of this variable persists, and effects should not be considered to be confined to only one year prior, although there will be a difference in degree of the effect as the time period lengthens. The very slow tapering of this effect over time is an important indicator of the lingering effect of violence, and the long period of time that violence can poison the state-society relationship.

The second approach to the effect of time asks whether the time between events matters for the continuation of conflict. Do densely packed, frequent events make contention more likely to continue?

<sup>186</sup> In looking at odds ratios, numbers closer to one indicate a weaker effect.

The last two models include the event density variable, the first modeling just time, and the second modeling both time and the cross-sectional effect of sub-districts. Since the time between events is skewed with a long tail, with most events clustering close together near zero, but a few up to 3,842 days apart, I used the log and square log of this variable. The odds ratios of all the models are reviewed below:

**Table 5.23 Review of Continuing Contention Effects across Models in Odds Ratios**

	<b>Basic Model</b>	<b>Sub-District Effect Model</b>	<b>Time Between Events Model</b>	<b>Sub-district and Time Model</b>
<b>Prior Death</b>	.36***	.76	1.06	1.19
<b>Scarcity Type</b>	.70**	.71*	.68*	.64*
<b>Past Govt Action</b>	.59**	.63	.64*	.56*
<b>Current Govt Action</b>	1.26*	1.23	1.31	1.32
<b>Current Death</b>	1.35	1.13	1.24	1.24
<b>Distance (ln)</b>	1.42***	1.54***	1.32***	1.47***
<b>ELF</b>	.36***	.39***	.34***	.37*
<b>Ticker (ln)</b>			.61**	.73
<b>Ticker (lnsq)</b>			1.09***	1.06*

When accounting for the effect of the time between events on the likelihood of contentious sequences ending, only scarcity type and past government action remain statistically significant. The other variables are not robust to model specifications that include this event frequency variable. Including this time variable has only a minor impact on the effects of scarcity type and past government action. When time between events is accounted for, also accounting for random sub-district effects (in model four) makes no difference in which variables have a significant

effect on the likelihood that violence ends.<sup>187</sup> The effects of scarcity and past repression change very little between models three and four.

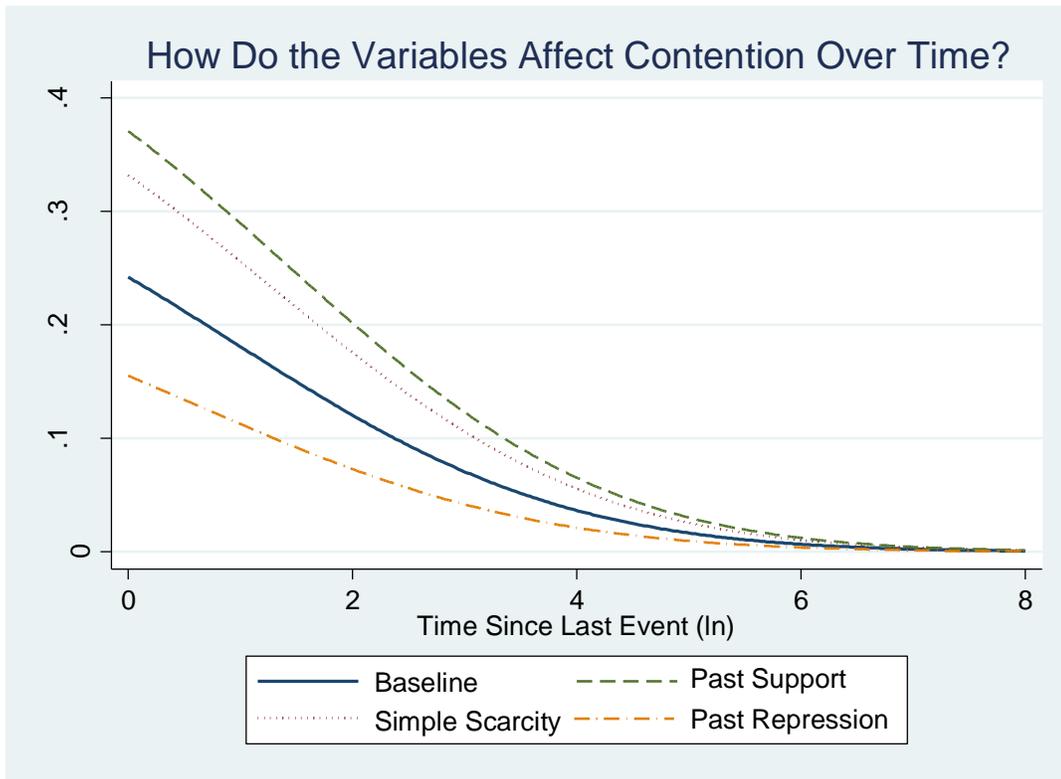
In hypothesis 4B I theorized that events which were farther apart would be more likely to curtail contention, but the results show that events which are farther apart actually are less likely to end contention. Furthermore, as the time between events extends, the effects of the variables shrinks. The graph below looks at only the statistically significant variables in model four, comparing them to a baseline where all the variables are held at their means or modes.<sup>188</sup> The baseline effect when events are closest together has a 24 percent probability of ending contention, and as the time between events stretches out, this probability drops, with all the effects converging at zero for the longest periods between events (around ten years). This indicates that as events grow farther apart, any recurrence is less likely to be one-off singular occurrences; they are more likely to be followed in the next two years by further contention. In short, I find no support for hypothesis 4B, instead I find evidence that large gaps between events make contention more likely to recur.

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<sup>187</sup> Although as noted previously, accounting for density picks up part of the random sub-district effect.

<sup>188</sup> Modal values are for no prior death, structural scarcity, and no current fatalities. Mean values are 1.05 for past government action, 1.07 for current government action, 2.62 for the log of distance, .67 for ELF, 4.37 for the log of time between events, and 22.34 for the square of logged time between events.

Figure 5.24 Multi-Variable Effects on Continuing Contention by Event Density



From a policy perspective, this indicates that in order to make a difference in sequences of contention, action is most effective when it alters policies of inequitable environmental distribution or the prior state-society relationship in closely packed events. When events grow farther apart, the signaling power of these changes is less powerful.

To summarize, while the effects of past violence decrease slightly over time, the effects of past government action are puzzlingly irregular. Furthermore, events that are closely clustered in time are more likely than diffuse events to end the contentious sequence.

### *3.6 Conclusions for Ending Contentious Sequences Model*

All things considered, the second set of models tell us that scarcity type, past and current government behavior, and past violence are all important factors in whether a sequence of contentious events will end or continue. It identifies a kind of gateway in the time-differentiated effect of repression; current repression will “work” in some cases, but sequences that “pass through” the gateway undeterred are more likely to continue. Substantively speaking, the factor that has the greatest effect on whether sequences pass through this gateway is prior violence, although statistically there is also an opportunity to be found in those in rare cases where past government behavior transformed itself from completely repressive to completely supportive (or the reverse). Given past violence, the factor that has the greatest total effect on the likelihood of contention ending is past government behavior, even when only half the total range (i.e., from neutrality to repression or vice versa) is considered. Overall, the basic model described a total potential change in probability of 42 percentage points, offering significant opportunities for reducing the likelihood of persistent contention.

However, these results were not particularly robust to alternative model specifications that included spatial sub-district effects, and the effects of time. All the variables except for scarcity type dropped out of significance in the model that accounted for the cross-sectional nature of the data, with sub-districts explaining a large percentage of the variance in multiple final events (in other words, the likelihood of multiple sequences beginning and ending at least two years apart). Only scarcity and past government action remained significant in the time models.

Furthermore, while the effect of prior death declined over time, the effect of past government behavior was irregular. Also, as events drew farther apart, the likelihood that a given event would end a sequence of contention declined, as did the effect of the variables on this likelihood.

#### IV. Conclusions for Both Sets of Models

This chapter has tested the effect of select variables on the likelihood of violence and continued contention in environmental disputes in Indonesia. The results have largely supported my theorized expectations, but in several places they have been surprising. This last section will briefly review the findings for both sets of models and compare and contrast these findings with each other.

**Table 5.25 Overview of Significant Variable Direction**

	<b>Fatalities</b>	<b>Continuing Contention</b>
<b>More Likely</b>	Structural Scarcities Past Violence	Structural Scarcities Past Violence Past Government Repression
<b>Less Likely</b>	Current Government Repression Dense Events	Current Government Repression Dense Events

The majority of the variables tested statistically significant in the basic models for each dependent variable. For the basic fatal events model, structural scarcity and past violence make violence more likely, but current government repression makes violence less likely. Past government behavior was not significant. In the ending contentious sequences basic model, on the other hand, structural scarcity, past government repression, and past violence all made sequences less likely to end, while

current government repression made them more likely to end, upsetting the expectations of substitution theory. Current government violence just missed standard levels of significance, but the direction of the effect was also contrary to my expectations. The table above compares those variables that have a significant effect at on the likelihood of fatalities or continued contention in the basic models. (See Table 5.25.) The only difference in general relationships is that past government repression matters for the ending contentious sequences basic model where it does not for the fatal events basic model. In other words, past government bullying, arrests, and intimidation lead to more contention, but not to more violence. The strengths of the effects of all the independent variables on the dependent variable in question, however, are quite different, indicating that while a given variable may make both fatalities and continuing contention more likely, it does not do so evenly.

Overall, my findings uncovered no support for substitution theory. Instead, I found gateways of repression, and possibly violence—although the effect of current violence was just insignificant for continued contention and void for the fatal events model. These gateways appear to reflect a mix of material capability mechanisms constraining contention in the short-term, and signaling mechanisms inflaming contention in the long term. In the table below I summarize the direction of both my theorized relationships, and the results of the statistical analyses for those variables relevant to these gateway effects.

**Table 5.26 Theory VS Results “Gateway” Variables**

	<b>Violence</b>		<b>Continued Contention</b>	
	<i>Theory</i>	<i>Results</i>	<i>Theory</i>	<i>Results</i>
<b>Current Violence</b>			+	-/Insig
<b>Past Violence</b>	+	+	+	+
<b>Current Repression</b>	-	-	+	-
<b>Past Repression</b>	+	Insig	+	+

The fatal events models were largely robust to alternate model specification accounting for variation over time and space, although prior death did drop out of significance in model two. However, the ending contentious sequences results were not particularly robust to alternative model specifications. Only scarcity remained significant in model two, and scarcity and past government action remained significant in models three and four. In short, more of the likelihood of repeated contentious sequences (spaced apart by at least two years of non-contention) is explained by random effects of sub-districts and the density of events than by the likelihood of fatal events, which was more accurately predicted by the variables over time and space.

For both sets of variables, the effect of past death decreased as time since the event increased, but in the first set of models past government action was insignificant, while in the second set it behaved irregularly. In both sets of models, as events grew farther apart violence and continuing contention became more likely, contrary to expectations. This surprising finding suggests that at low levels of violence and contention, un-clustered events are actually more dangerous, both in terms of potential violence and persistent contention, which I will discuss in more detail in Chapter 6.

Lastly, from a policy perspective, these findings point to methods of short-circuiting cycles of escalation contention and violence. Past violence and scarcity type have particularly strong effects on the likelihood of violence, pointing to the importance of avoiding the outbreak of violence (i.e., fatalities) in contentious sequences. In some cases where violence has already occurred, altering policies that create unequal distribution of environmental goods should help reduce the likelihood of violence. Using repression to reduce the likelihood of violence is effective, but less so than the other variables, and should be a last political resort since it will also increase the likelihood of persistent contention as time passes. When the state uses repression to control a situation, prior death is the factor most likely to make the contentious sequence persist over time, although in rare scenarios when the government has managed to pull a complete about-face from completely repressive to completely supportive (or vice versa) past government behavior also plays a large role. In situations where prior death has already occurred, the factor that influences continuing contention more than any other, even at only half its total range (a more realistic real-world scenario) is past government behavior. This highlights the potential role for positive reputation building between state and society in mitigating persistent contention.

In both sets of models, there is a significant opportunity for policy decisions to change the likelihood of violence and continuing contention. These findings are correlative, however, so to further explore the causal mechanisms at play, the following chapter will explore the case of Mesuji, Indonesia.

## Chapter 6: Escalation in the Real World

### I. Introduction

In previous chapters I identified low-level violence as an under-studied area and discussed the contradiction inherent in the concept of environmental conflict, particularly the traditional conflict literature's lack of mechanistic understanding of how and why scarcity yields violence and contention. I then laid out a theoretical bargaining process in which claimants interpret signals from government behavior—namely inequitable distribution of environmental resources, repression, and violence. I described how Indonesia offered a good testing ground for this theory and explained the new dataset that makes this examination of low-level conflict possible. Then I tested this theory in two sets of logit models, one for each of my two dependent variables: violence and a two year end to contention.

To briefly summarize, the results for the models that tested what makes violence (measured as at least one fatality) more likely found that a death in the last year and structural scarcity increased the likelihood of violence, while current government repression reduced it. These findings were largely robust to alternate model specifications accounting for variation across space and time. The effect of a prior death—the only significant lagged variable—declined as years passed, but surprisingly the likelihood of violence increased as the time between contentious events increased.

The results for the second set of models found that current repression and simple types of scarcity increased the likelihood that contention would end for at least

two years, while past repression, past violence, and structural scarcity reduced the likelihood that contention would end. These results, however, were not robust to alternate model specifications accounting for variation across space and time. The effects of past violence decreased slightly over time, as expected, although past government action had irregular effects, and closely clustered events were surprisingly more likely to end the sequence.

I will now attempt to substantiate these findings with a look at how this sequence actually plays out in a violent environmental dispute in Mesuji, Indonesia. Mesuji is an example of a sequence in which there were multiple violent events, making it a good candidate for illustrating the process through which escalation occurred. It was chosen as a case because there is consistent documentation available regarding the types of scarcity and the contentious dynamics in play, and also because it bears similarities to a number of other sequences of high contention and violence. While the process I describe cannot be generalized to all environmental disputes in Indonesia, I suggest that it is representative of the high-contention pathway because it is visible in many sequences of contention over land, mining pollution, and other natural resources, and therefore is of particular interest in understanding the mechanisms of escalation.<sup>189</sup> In fact, later in the case study we see that these shared experiences with other Indonesian environmental disputes lead to cross-dispute mobilization and draw a spectrum of environmental disputants to combined

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<sup>189</sup> Other similar cases are discussed in; "Unrest Tarnishes Drive to Tap Indonesia's Gold Riches," *The Jakarta Globe*, accessed February 3, 2014, <http://www.thejakartaglobe.com/archive/unrest-tarnishes-drive-to-tap-indonesias-gold-riches/>; Cici Novia Anggraini et al., *More than Just Ownership : Ten Land and Natural Resource Conflict Case Studies from East Java and Flores* (The World Bank, December 1, 2004), <http://documents.worldbank.org/curated/en/2004/12/6406586/more-just-ownership-ten-land-natural-resource-conflict-case-studies-east-java-flores>; Anton E Lucas, Warren, and Anton E Lucas, *Land for the People: The State and Agrarian Conflict in Indonesia*, 2013.

contentious events. While the mechanisms uncovered here are common to several other conflicts that have become violent, this case is only intended to illustrate a more incendiary course of events and not to portray an inevitable path to violence for every Indonesian land dispute. Most environmental disputes in Indonesia never escalate to violence, and Mesuji cannot represent the process in those cases. Instead it focuses on the key mechanisms whereby the relationships established in the statistical analysis actually yield undesirable outcomes like violence and chronic contention. This focus should offer useful insights for preventing future violence. Lastly, while I do not expect that a single case study can provide supporting evidence for every relationship identified above, the patterns evident in a highly incendiary case may be the most important for curtailing violence and persistent contention. The case study approach also allows for a more nuanced approach to conflict dynamics. In a large-N study some detail is of necessity lost, but in this case study contention can be broken down more finely, assumptions can be relaxed and analyzed, and complicating factors not evident in the statistical analysis can be identified.

To briefly preview the details below, the case study largely supports the correlations identified in Chapter 5 and is consistent with those statistical findings in their deviations from my theory, although there are a few areas where the case study could not clearly support or reject the correlations—the effect of current government repression on violence and continuing contention is unclear, as is the effect of past violence on fatalities. Structural scarcities and past repression played their expected role in increasing the chances of contention and violence. The effects of current repression were overall mixed, but clearly did not support substitution theory since

claimants utilized the same strategies before and after repression. Past violence was clearly linked to higher levels of contention, but not necessarily violence, and in two out of three violent events, current violence did seem to curtail contention. The surprising effect of event density found in the statistics may be explained in part by the time necessary to mobilize and arm non-professional militants, and in part by less-information-rich environments. Finally, the case study shows that claimants did not pursue only a single strategy at one time, rather the range of acceptable strategies varied over time.

In this chapter I approach contention in two ways—first I provide a narrative of the complete history of the Mesuji cases. This narrative not only describes contentious events as defined in the quantitative chapter, but also details the specific context and non-contentious factors that played a role in the dispute. In addition to consensual legal agreements (which occur in this case only at the very beginning), I also identify legal claims against another party. Once legal mechanisms have been exhausted, claimants moved on to contentious methods—protests without injury or property damage at the less contentious end of the scale, followed by riots, property damage and burnings, and lastly, killings. While this narrative approach is useful for getting the whole picture of what occurred in Mesuji, I also make explicit use of the variables and definitions from the quantitative section (Chapters 4 and 5) to compare the contentious events in the case study with the generalized findings of the statistics. This dual approach to the case study allows me to flesh out the mechanisms of some of the relationships identified in the previous chapter, but also grants a broader view

in order to identify any salient factors in this case that have not been accounted for in the statistical analysis.

While this case largely supports the quantitative findings, it also identifies a handful of complicating factors. These include the cross-district nature of the salient locality, manipulation by elites, general profiteering in an atmosphere of ambiguous legal standards and poor enforcement, and finally the ways in which the state and company interests intersected and diverged.

In exploring the dynamics of this particular case, it became clear that this was not a single sequence, but three intertwined sequences that impacted each other's escalation dynamics. The first was over an area of land called Register 45, while the other two occurred nearby, but across district and provincial boundaries. Some events in the sequence also occurred in the national and provincial capitals. By taking a broader view of the salient locality, the case study allowed a more full analysis of the Mesuji sequence of events, raising some important issues for how to approach the concept of locality in future research.

Looking ahead, this chapter will first lay out the background to the disputes in Mesuji, identifying the key contextual factors that allowed the disputes to emerge. Then it will trace the sequence of both contentious and non-contentious events. This will be followed by a discussion of the role of the variables that were significant in the statistical analysis and the central patterns illustrated in this case study. Finally, it will identify complicating factors and comment on how these may affect the final analysis and suggest strategies for addressing these issues in future research.

## II. Background to the Disputes

Most land conflicts in Indonesia have their roots in contradictory, vague land laws and the land disputes in Mesuji are excellent examples of how these laws can foster disputes. Under the Dutch colonial system, large areas of Lampung—a province on the southern tip of the island of Sumatra—were carved out as protected forest areas.— In 1940, residents of a local village called Talang Batu signed over and were compensated for Register 45, then 33,500 ha (approximately 130 square miles or twice the size of Washington, D.C.). However, ten years later when Indonesia’s war of independence concluded, the cash-strapped new state began issuing logging permits for its protected forests, including Register 45.<sup>190</sup> Over the next 30 years, much the forest was cleared and inward-migration shifted from largely staffing the logging camps to seeking arable farmland, until most people in Lampung were small-holding farmers or worked on commercial plantations. The increase in population and the shift in land-use to commercial plantations created scarcities in a variety of local environmental goods, particularly fish, which had previously fed many of the local communities. Additionally, swamp rice production declined and was replaced by Cassava, a food product for those too poor to purchase rice.<sup>191</sup> This shift in land-use and declining economic welfare came hand in hand with a

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<sup>190</sup> IPAC’s impeccably researched report includes extensive review of official documents including non-public fact-finding reports and interviews of the key players involved in the land disputes. Sidney Jones, *Mesuji: Anatomy of an Indonesian Land Conflict* (Institute for Policy Analysis of Conflict, August 13, 2013), 3,

[https://www.academia.edu/4419350/Mesuji\\_Anatomy\\_of\\_an\\_Indonesian\\_Land\\_Conflict](https://www.academia.edu/4419350/Mesuji_Anatomy_of_an_Indonesian_Land_Conflict).

<sup>191</sup> David Madden and Patrick Barron, *Violence and Conflict Resolution in Non-Conflict Regions: The Case of Lampung, Indonesia* (The World Bank, August 1, 2004),

<http://documents.worldbank.org/curated/en/2004/08/5796142/violence-conflict-resolution-non-conflict-regions-case-lampung-indonesia>.

demographic increase from 8 to 60 people per square kilometer between 1980 and 1993.<sup>192</sup>

The growing population pressure was due, in part, to the government policy of transmigration, essentially a resettlement policy that moved settlers from Java and other areas within Lampung to rural areas to pursue agriculture, either as a small-holder or on a plantation. This program originally was intended in part to avoid the:

“spontaneous settlement of migrant farmers in areas designated as government “forest” land and instead embark on a programme of reforestation to protect sensitive watersheds in the upland areas around Sendang and Gunuung Balak in South and Central Lampung respectively.”<sup>193</sup>

However, ultimately the program played a crucial role in shuttling migrants into cleared and corporate lands and increasing deforestation. Land values skyrocketed and land ownership became increasingly inequitable.<sup>194</sup>

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<sup>192</sup> Rebecca Elmhirst, “Resource Struggles and the Politics of Place in North Lampung, Indonesia,” *Singapore Journal of Tropical Geography* 22, no. 3 (2001): 289, doi:10.1111/1467-9493.00111.

<sup>193</sup> *Ibid.*, 288.

<sup>194</sup> Elmhirst, “Resource Struggles and the Politics of Place in North Lampung, Indonesia.”

Figure 6.27 Map of Mesuji Area<sup>195</sup>



In Register 45 this general trend of population pressure and growing scarcity was punctuated by the re-writing of the borders of the protected/corporate land. The first expansion occurred in 1986 when a planning board “re-measured” the agreed-upon area and wrote an additional 9,600 ha (37 square miles) into Register 45—

<sup>195</sup> “Google Maps,” *Google Maps*, 2014, <https://www.google.com/maps/@-4.7863205,105.857206,8z/data=!3m1!4b1!4m2!6m1!4s209888727358334588994.0004f0e48b189ec eabed0>.

including land in and around several local villages. The Indonesian army—provisioned and assisted by the company that would soon be granted a permit for the land—promptly evicted 470 people from one of the villages, despite proof of land ownership and permanent residence.<sup>196</sup> A second expansion in 1994 “through an apparently faulty mathematical calculation” expanded the company’s territory by another 1,000 ha (nearly 4 square miles).<sup>197</sup>

Lampung residents had little expectation of assistance from government institutions. The police rarely got involved in disputes or crimes, and when they did it was primarily to extract a bribe. In an interview with a World Bank staffer, a local doctor commented, “East Lampung is like a Jungle...It is like a time bomb. It is like a war. There is no law here.”<sup>198</sup> This lawlessness promoted a culture of vigilantism, with thieves regularly being beaten or burned to death by angry mobs. While this vigilantism was often a vengeful reaction to crime (either between individuals or communities), it was also regularly applied against perceived illegitimate actions by the state.<sup>199</sup>

Despite this embrace of vigilantism, even against the institutions of the state, there was also considerable fear of the state and the military. Suharto’s New Order maintained tight central control, and responded strongly punitively to challenges to its control. In one case in 1989, the army killed approximately 100 villagers over a land

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<sup>196</sup> Jones, *Mesuji*.

<sup>197</sup> *Ibid.*

<sup>198</sup> Madden and Barron, *Violence and Conflict Resolution in Non-Conflict Regions*.

<sup>199</sup> *Ibid.*

conflict in East Lampung.<sup>200</sup> As such, until the fall of Suharto in 1998, farmers did not dare to challenge the military or government directly. Despite this, during the final years of the New Order muted peasant unions emerged which were instrumental in the eventual re-emergence of contention after the New Order fell. Bachriadi notes,

“In short, despite sustained repression, violence and arrests, over the long term the New Order failed to prevent the re-emergence of movements that challenged its supremacy, including in rural areas.”<sup>201</sup>

Not only did the state express its interests repressively when it bothered to engage in Lampung at all, but its policy-preferences were confused by collusion with the corporate sphere. The distinction between the growing plantation presence and the state was muddled in a number of ways—first, some plantations were in fact state-owned. Secondly, the government often appropriated tracts of land with little or no compensation for residents, and then sold rights to the land to corporations at huge profits. And lastly, the police and military routinely served alongside guards to enforce corporate rights to this land and they were often fed and supplied by the companies.<sup>202</sup> Barron et al comment, “Collusion between the public and private sectors often makes the actions of the state indistinguishable from those of private actors.”<sup>203</sup>

In Register 45, a temporary permit was granted to the company PT Silva in 1991. This was originally a joint venture with a state-owned company but PT Silva bought out the public shares in 2004. In 1997 the company was issued a full permit

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<sup>200</sup> At first the army claimed that the villagers were Muslim fundamentalists, but later admitted to the land dispute. Adam Schwarz, *A Nation in Waiting: Indonesia's Search for Stability* (Boulder, Colo.: Westview Press, 2000), 173.

<sup>201</sup> Bachriadi, “Fighting for Land.”

<sup>202</sup> Jones, *Mesuji*.

<sup>203</sup> Madden and Barron, *Violence and Conflict Resolution in Non-Conflict Regions*.

for 43,100 ha (over 165 square miles) for 45 years, “in the name of protecting the environment” through tree planting, development, and prosperity.<sup>204</sup> This permit came with a range of conditions and obligations, and stated that any privately owned land that was residential or agricultural was not included in the commercial forest. The conditions included minimum planting and coverage rules within certain timeframes, which were almost immediately violated in the context of the Asian economic crisis.<sup>205</sup>

Similar processes of company land acquisition were also happening in several other local plots, and would soon become relevant in the Register 45 dispute. In Mesuji District of Lampung province, approximately 40km (25 miles) from Register 45, PT Barat Selatan Makmur Investindo (BSMI) secured a permit for 17,000 ha (roughly 65 square miles) to plant oil palm in 1994. However, the residents of the four villages in the area claimed that they had not been consulted in the sale price of their land, that where consultation had occurred it had been highly coercive, that the company took more land than was granted and paid less than even the coerced agreements and bribed many officials, and finally that the conditions of the sale were not upheld on the company end.<sup>206</sup>

A third local dispute erupted just across the provincial border, in Mesuji Sub-District of Ogan Komering Ilir (OKI) District, South Sumatra province in 1997.

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<sup>204</sup> Jones, *Mesuji*, 5.

<sup>205</sup> Jones, *Mesuji*.

<sup>206</sup> Hasyim Widhiarto et al., “Ethnic Group Plays Victim to Justify Illegal Land Trade,” accessed December 21, 2013, <http://www.thejakartapost.com/news/2011/12/30/ethnic-group-plays-victim-justify-illegal-land-trade.html>; Hasyim Widhiarto et al., “Three Different Areas, Actors and Causes,” accessed January 26, 2014, <http://www.thejakartapost.com/news/2011/12/30/three-different-areas-actors-and-causes.html>; Human Rights Watch, *The Dark Side of Green Growth: Human Rights Impacts of Weak Governance in Indonesia’s Forestry Sector*, July 2013, 34, <http://www.hrw.org/node/117099>.

These villagers also claimed that the conditions of the company's permit had not been met.<sup>207</sup> Then in 2004 the company was bought out by another, which did not recognize the arrangement made between the villagers and the previous company.<sup>208</sup>

The conditions and background described above illustrate why society groups made their land claims, but not why they escalated to violence when their disenfranchisement should have left them less capable of pursuing coercive measures. The three claims emerged independently but as the sequence of contention evolved they became inextricably linked through mobilization messages suggesting that their cases were representative of government behavior in all land disputes across Indonesia, although this was clearly an exaggeration. Turning from this largely legal backdrop to the sequence of contentious events that followed, the next section works through the contentious process once the fall of Suharto prompted a blossoming of environmental disputes.

### **III. Sequence of Contention**

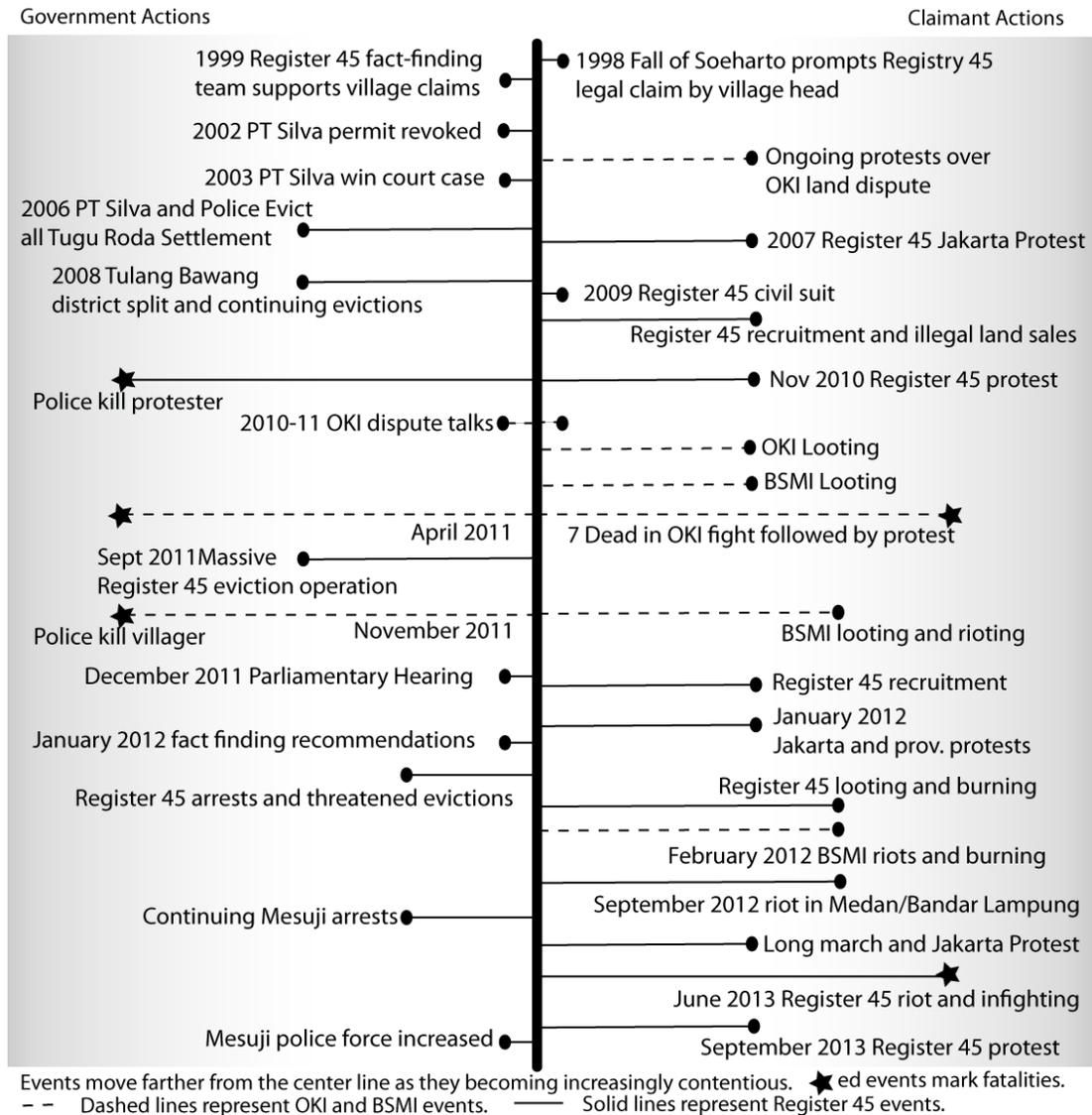
This narrative will detail the events in Mesuji starting with the fall of Suharto in 1998. It attempts to draw a complete picture of events, both contentious and non-contentious, related to the Mesuji disputes, in order to build an informed basis for analyzing the effect of the variables later in the chapter. To that end, the timeline below is intended primarily to give an overview, with longer lines demonstrating more contentious events, and is not to scale in terms of time between events—event density will be addressed later in this chapter.

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<sup>207</sup> Human Rights Watch, *The Dark Side of Green Growth*, 32.

<sup>208</sup> Widhiarto et al., "Three Different Areas, Actors and Causes."

**Figure 6.28 Timeline of Mesuji Events**  
Timeline of Mesuji Area Land Disputes



### 3.1 Core Mesuji Claims Develop and Escalate

In May of 1998, Suharto resigned after swift economic decline and months of protests in Jakarta.<sup>209</sup> The fall of the New Order and the ensuing democratic elections opened the door for an avalanche of land disputes—Suharto’s tight control, repressive policies, and state violence were suddenly replaced by new hope in government

<sup>209</sup> “Rise and Fall of Strongman Suharto,” *BBC*, September 28, 2000, sec. Asia-Pacific, <http://news.bbc.co.uk/2/hi/asia-pacific/903024.stm>.

responsiveness to citizen demands.<sup>210</sup> In other words, perceptions about likely actions of the government were reset.

Hoping that their claims would have some legal traction in the new system, the residents of Talang Batu (approximately 1,200 families) increased the vigor of their claims to the 9,600 ha expanded area of Register 45, lodging a complaint with the forestry ministry. This prompted a fact-finding venture which supported the villagers' claims. Political support swung back and forth, however, as forestry ministers were replaced in 2000 and again in 2002, and government action ranged between supportive and neutral. Finally, in 2002 the PT Silva permit was revoked on grounds that the company had not fulfilled the conditions of the permit, but the company took the case to court and eventually won. The verdict was seen as rigged—the company has to-date never lost a court case—and the claimants' hopes for a legal or political solution began to wane.<sup>211</sup>

Many of the claimants in the Register 45 dispute had either never been evicted in the first place, or had returned after the 1986 eviction. These communities—often well-established with roads and schools—had an ambiguous relationship with the authorities.— While the government termed them squatters and did not issue them identity cards, it also set up polling places in the villages for the national elections. However, in 2006 the company issued warnings giving the farmers two weeks to leave, and then followed up with a joint operation with the police and military which tore down 550 homes in a community called Tugu Roda. The company then announced its intention to move on to the next community within the disputed area,

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<sup>210</sup> Lucas and Lucas, *Land for the People*.

<sup>211</sup> Jones, *Mesuji*, 8.

but the community organized and with the assistance of other local villages, managed to convince the company to delay the eviction.<sup>212</sup> While the company and police had stepped up their repressive actions against the claimants, the villagers were still attempting negotiation; contention was limited to “everyday resistance,” like sheltering with relatives, returning to cleared areas, and farming prohibited land.<sup>213</sup> The history of relations between society and state signaled to the claimants that political solutions had no hope and they began to end-run regulations with their low-level resistance.

Local politicians began to take notice of the dispute, and seeing a potential voting block in the settlers, began to court the vote of the claimants. In 2007, the settlers also chartered 28 buses and went to Jakarta to demonstrate for ownership rights, joining farmers from other provinces in accusing security personnel of intimidating settlers.<sup>214</sup> This up-scaling of contention was the first serious response to the evictions.

In October 2008, however, the district of Tulang Bawang split, as a part of the continuing decentralization process post-Suharto. Register 45 now belonged to Mesuji district, with a less friendly political atmosphere toward the settlers.<sup>215</sup> There were now two areas legally called “Mesuji”—a district in Lampung province and a sub-district in Ogan Komering Ilir district where another land dispute was occurring.

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<sup>212</sup> Ibid.

<sup>213</sup> Scott, *Weapons of the Weak*.

<sup>214</sup> “Farmers Demand Justice in Land Disputes,” *The Jakarta Post*, June 5, 2007, <http://www.thejakartapost.com/news/2007/06/05/farmers-demand-justice-land-disputes.html-0>.

<sup>215</sup> “Indonesian Legislature Considers Creation of 12 New Districts,” *BBC Monitoring Asia Pacific - Political Supplied by BBC Worldwide Monitoring*, September 13, 2007.

These two areas border each other, and are divided only by a provincial boundary.<sup>216</sup>

This confusing geography later became increasingly relevant as disputes were aggregated in the public eye.

The company continued its campaign to clear the contested area of squatters. In August 2008, company forces razed 42 houses in Tugu Roda, many of which belonged to settlers who had returned after previous evictions.<sup>217</sup> Around this time, outside organizations also moved in to help and organize the squatters, recruit new settlers to swell the farmers' ranks, mobilize for their own political ends, and capitalize on selling illegal land grants to migrants. These organizations were led by PEKAT, a Jakarta-based organization called Defenders of Homeland Unity, but also included the Islamic Defenders Front slightly later on, and much later the People's Democratic Party, modelled on the old Indonesian Communist party.<sup>218</sup> PEKAT's recruitment strategies started a new era in the conflict—one in which large populations of migrants complicated the claims made to the land. New land buyers—mostly uneducated, poor farmers—were told that they were buying traditional tribal land and were issued false land certificates, often spending their life savings on land that was not legally for sale.<sup>219</sup> PEKAT settled these new farmers on land that the company owned but wasn't actively cultivating and then used ties with the local police force to prevent them from being evicted or arrested. 45 people were arrested for selling land illegally between 2008 and 2010, but that was probably just the tip of the iceberg. PEKAT also brought another (deeply flawed) suit against PT Silva in

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<sup>216</sup> Jones, *Mesuji*, 15.

<sup>217</sup> *Ibid.*, 10.

<sup>218</sup> Jones, *Mesuji*.

<sup>219</sup> Widhiarto et al., "Ethnic Group Plays Victim to Justify Illegal Land Trade."

2009, losing the case. The new settlers, meanwhile, began to move from unused land which was becoming scarcer into areas being actively used by PT Silva.<sup>220</sup> The general level of contention remained the same, but with greater consequences for the company since the number of illegal settlers was rapidly increasing. This method of resistance, flooding the area with people, would not register as contention according to my definition since it did not occur in discrete events or with explicitly political goals by the new land owners themselves, although the goals of PEKAT were divided between profiteering and applying more political pressure on PT Silva and the government. Nevertheless it caused the company and government to respond forcefully.

The provincial level government formed a security team to protect the company trees and stop illegal logging. The team worked with the company—receiving payment, food, and accommodation for the police forces—to move forward on eviction plans.<sup>221</sup> In November 2010 the police confronted protesters in Pelita Jaya and opened fire, killing one settler. After the shooting, a private security officer was videotaped putting a machete in the hand of the dead man at the direction of the police in an attempt to make the attack look like self-defense.<sup>222</sup> This was a dramatic escalation of the conflict. It was after this point that settlers began resisting more forcibly, although with little means of doing so effectively and in some fear that the new government had shown itself just as willing to use violence to suppress them as the old one.

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<sup>220</sup> Jones, *Mesuji*, 11.

<sup>221</sup> Human Rights Watch, *The Dark Side of Green Growth*, 31.

<sup>222</sup> *Ibid.*

In January of 2011, after the police failed to negotiate a peaceful departure of the settlers, 52 squatters were arrested, and then in February 1,000 police and company guards attempted to evict the rest of Tugu Roda with bulldozers. The settlers escalated from their prior level of resistance by setting up roadblocks, burning tires and cutting company trees in the roads, and blocking the only major highway in the region, creating a 24 km (15 mile) traffic jam. A water cannon eventually dispersed the rioters, but about 150 buildings were destroyed in the process. Contradicting earlier statements threatening impending clearing campaigns, the police once again told settlers that they would delay evictions until the cassava harvest was completed. The police continued attempting to convince settlers to leave and making the occasional arrest for illegally occupying land.<sup>223</sup>

Finally in September 2011, the long-delayed mass eviction was conducted quickly and efficiently, clearing out approximately 800 families. A company officer commented, “It was a brilliant operation... It lasted less than half a day and cost just over Rp. 2 billion (\$200,000).”<sup>224</sup> This operation highlights the effect that repressive strategies can have on material capability to resist, and the power of private information since only the state knew if and when they planned to make good on their threats to clear the Register 45 population. Unable and unprepared to resist such coordinated action, there was little the claimants could do. The Register 45 conflict now seemed at an end after the combined repressive actions of the state and company against the claimants, however the outbreak of violence in other local land disputes quickly changed the dynamic of the dispute.

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<sup>223</sup> Jones, *Mesuji*, 13.

<sup>224</sup> *Ibid.*, 14.

### 3.2 OKI & BSMI Disputes Join the Fray

From 2010-2011, talks were held to try to resolve the OKI land dispute just across the provincial border, but no progress was made. Meanwhile disenfranchised looters attempting to feed their families were regularly harvesting oil palm fruit from company trees. The company recruited government help to evict the claimants, and these security forces made regular trips to the villages to intimidate farmers into ceasing looting in the disputed area.<sup>225</sup> A similar process was occurring in the BSMI dispute in Mesuji.<sup>226</sup>

The OKI dispute had increased in tension through 2010-2011 as “looters” were arrested in the disputed area while the company, despite a moratorium on planting, utilized the land without punishment. The unequal enforcement and repressive tactics by the police signaled to the villagers that the government was unlikely to support their claims. Violence erupted in April 2011 after the company had failed to show up at a mediation they had called themselves. Two young looters (who claimed to only have been driving past the plantation) were stabbed to death along with a security guard, followed by a riot where the local villagers killed two more security guards and two company officials, leaving a total of seven people dead.<sup>227</sup>

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<sup>225</sup> Hasyim Widhiarto et al., “Govt Complacency Triggers Mesuji Deadly Land Dispute,” accessed December 21, 2013, <http://www.thejakartapost.com/news/2011/12/31/govt-complacency-triggers-mesuji-deadly-land-dispute.html>.

<sup>226</sup> Widhiarto et al., “Three Different Areas, Actors and Causes.”

<sup>227</sup> Hasyim Widhiarto et al., “Villagers Struggling to Move on amid Fears,” accessed January 27, 2014, <http://www.thejakartapost.com/news/2011/12/21/villagers-struggling-move-amid-fears0.html>; Ridha Saleh, “No Beheadings in Mesuji: Human Rights Commission,” *The Jakarta Post*, December 23, 2011, <http://www.thejakartapost.com/news/2011/12/23/no-beheadings-mesuji-human-rights-commission.html>.

In the BSMI dispute, the community filed law suits with the courts early in 2011 to no effect. They then protested in front of the local parliament, again to no effect.<sup>228</sup> Starting in September 2011 the residents demonstrated frequently on the land concession itself and at the company's request up to 382 additional Brimob (Mobile Brigade, Indonesian Special Forces) soldiers were posted on the land.<sup>229</sup> Legal and non-violent contention had clearly not worked. Violence erupted in November 2011, although the exact nature of this violence is disputed. Some claimed that looters were shot in the disputed area, one fatally, followed by riots in which the company was ransacked.<sup>230</sup> Others claimed that the community mobilized in response to false rumors that a man had been killed, and that in the ensuing riot, the Brimob shot and killed a protester.<sup>231</sup> The official fact-finding report supports the second scenario, claiming that police reinforcements arrived after the main rioting, were blocked and aggressively confronted by the crowds, and opened fire. In any case, another death was added to the Mesuji land-dispute tally.<sup>232</sup>

This death turned out to be a tipping point. A retired army officer, Maj. Gen. Suarip Kadi, appalled by the news of the violent land disputes, reached out to the combined Mesuji claimants and arranged a parliamentary hearing for them in December 2011. PEKAT prepared a video for this hearing, exaggerating the violence and blaming all of it on security forces, blurring the different disputes together, and including unrelated footage. The reaction to the hearing and video was dramatic, both

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<sup>228</sup> Human Rights Watch, *The Dark Side of Green Growth*, 34.

<sup>229</sup> Ibid.

<sup>230</sup> Widhiarto et al., "Three Different Areas, Actors and Causes."

<sup>231</sup> Jones, *Mesuji*.

<sup>232</sup> Human Rights Watch, *The Dark Side of Green Growth*, 35.

within parliament and once the news reached the larger populace.<sup>233</sup> While controversy sprang up immediately about the overblown claims and unrelated footage, the video served its purpose in helping PEKAT to resuscitate its recruitment campaign.<sup>234</sup> It also combined the three incidents to portray of a pattern of government violence.

This publicity reignited the Register 45 dispute. Just as the government and company had been ready to declare victory, the power of this series of violent events negated their success. The numbers of squatters in the disputed area of Register 45 shot up again, driven by the publicity of the hearing, the growing public acceptance of the farmers' claims, criticism of police and company behavior, and re-energized illegal land sales. The long term inflammatory repercussions of violence had overcome its short-term repressive effects. The combination of structural scarcity, past violence, and past government repression created a situation in which—looking at both the statistics and the case study—contention was very likely to persist, and more violence was increasingly likely.

PT Silva's problems started all over again. But this time the settlers were bolder, more willing to escalate, and less willing to engage in legal negotiation. A huge set of protests in the provincial capitals and Jakarta were staged almost immediately demanding national-level agrarian reform.<sup>235</sup>

A fact-finding team was assembled after the December 2011 hearing to establish what was going on in Mesuji and this team quickly came back with

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<sup>233</sup> Jones, *Mesuji*, 15.

<sup>234</sup> "Indonesian Police to Probe Alleged 'Massacre' of 30 Villagers in Sumatra," *BBC Monitoring Asia Pacific - Political* Supplied by *BBC Worldwide Monitoring*, December 16, 2011.

<sup>235</sup> *Land Grabbing : Indonesia Is Moving for People's Rights* (Centre Tricontinental, January 17, 2012), <http://www.cetri.be/spip.php?article2478&lang=fr>; "Land Protests Jam Jakarta | The Jakarta Post."

suggestions for action, including immediate legal action against land speculators, stopping the in-flow of settlers from outside the area, and using persuasion to convince those who had already migrated in to depart again. It also recommended that negotiations be conducted between the inhabitants of the original villages, the national and local governments, and the company. Third, it argued for coordination meetings between the company and government to ensure that the company abided by the conditions placed on its permit.<sup>236</sup> In other words, it suggested that the government equitably apply and enforce its laws. Unfortunately, the government did little to act on these recommendations.

A month later 3,000 people had moved into the tent city at Tugu Roda. When representatives of the provincial government went from house to house trying to convince the settlers to leave, they were threatened with violence. The government made clear its plans to go forward with evictions, but at the last minute backed down. The settlers, meanwhile, made their communities more permanent, and burned and looted the company trees, clearing 11,000 ha (roughly 42 square miles) of trees in a year.<sup>237</sup> The government did make attempts to arrest those suspected of perpetrating the illegal land sales and organizing the resistance, but what was purported to be “the biggest round-up in the province’s history” only scratched the surface.<sup>238</sup>

Adding to the settlers’ sense that no real action was going to be taken on their behalf was the lack of punishment of the police and military officers involved in the three initial killings. Some officers simply never responded to summons, while others

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<sup>236</sup> Jones, *Mesuji*, 18; Human Rights Watch, *The Dark Side of Green Growth*, 30.

<sup>237</sup> Jones, *Mesuji*, 18.

<sup>238</sup> Apriadi Gunawan, “Farmers Demand Fair Land Conflict Settlement | The Jakarta Post,” *The Jakarta Post*, September 24, 2012, <http://www.thejakartapost.com/news/2012/09/24/farmers-demand-fair-land-conflict-settlement.html>.

stood for disciplinary hearings in which the worst punishment for a guilty verdict was a suspension of promotion or 21 day confinement.<sup>239</sup> The government, however, was also unwilling to expend significant resources to repress the rekindled contention. Essentially, looking back to the statistical results, the government did everything wrong to reduce the likelihood of persistent contention—it did not remedy inequitable policy and, against a backdrop of past violence and repression, it did not repress the growing contention.

In response to government intransigency and inaction, contention took another escalatory step—from regular protest to regular rioting that intentionally inflicted large amounts of property damage. The claimants also began to reject legal olive branches and became more active in resisting and protesting arrests. They grew increasingly accustomed to vigilante justice in the environment of lawlessness that characterized the area. General Saurip Kadi summed up the state of mind regarding state support with his declaration of interest in the Mesuji struggle.

“The government is not siding with the people [struggling to survive] but with the corporations that get permits for thousands of hectares... If people go to court they always lose.”<sup>240</sup>

Forcing political change thus required an escalation in tactics.

In February 2012, riots and arson broke out at the BSMI plantation with protesters citing lack of government action on their claims and the fact-finding recommendations. Rioters burned extensive areas filled with company buildings and

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<sup>239</sup> Al araf et al., “Police Brutality and Land Reform,” accessed January 28, 2014, <http://www.thejakartapost.com/news/2012/01/05/police-brutality-and-land-reform.html>.

<sup>240</sup> Jones, *Mesuji*, 17.

property and the company was forced to close its doors for several months. Damages totaled over 1 billion Rp (\$110,000).<sup>241</sup>

In June 2012, intra-community tensions were mounting. Some communities were receiving power from the state electricity company while others were not, perpetuating the feeling among original communities that they were being treated unfairly in favor of newer arrivals to the Register 45 area. The original villages requested power from the electrical company to no avail.<sup>242</sup> Following a set of arrests, another riot took place in front of the PT Silva offices, demanding the release of the prisoners. A guardpost was burned down, but the police successfully dispersed the crowd. A larger demonstration was arranged, and this time participants were offered cash to attend—more buildings were damaged and the police chief agreed to release the prisoners. However, after the protest, the organizers did not pay the waiting crowd and were hacked to pieces with machetes.<sup>243</sup> While this violence was not part of the land dispute properly—the deaths were vengeful and not political—they were certainly the product of the dispute and insecure environment.

Given the increasing lawlessness of Register 45, the police were eager to enact another major clearing campaign, but a large unrelated clash elsewhere in Lampung drained their resources and budget, so the evictions had to be delayed.<sup>244</sup> Upcoming elections had also turned problematic squatters into potential votes in the

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<sup>241</sup> “Mesuji Violence Should Be a Warning: Indonesian NGO,” *The Jakarta Globe*, accessed January 22, 2014, <http://www.thejakartaglobe.com/archive/mesuji-violence-should-be-a-warning-indonesian-ngo/>; Oyos Saroso H.N et al., “Govt Blamed in Lampung Arson Attack,” accessed January 27, 2014, <http://www.thejakartapost.com/news/2012/02/28/govt-blamed-lampung-arson-attack.html>.

<sup>242</sup> Oyos Saroso H.N et al., “Mesuji Land Dispute Gets More Complicated,” accessed December 22, 2013, <http://www.thejakartapost.com/news/2012/11/30/mesuji-land-dispute-gets-more-complicated.html>.

<sup>243</sup> Jones, *Mesuji*, 23.

<sup>244</sup> *Ibid.*, 22.

eyes of several politicians who suggested that the settlers be given rights to the land and a vote in local elections.

Additionally, the settlers, anticipating another clearing operation, had stocked up on arms—rumored to include 500 firearms as well as a number of knives and spears.<sup>245</sup> This clearly identifies a key mechanism through which expected state violence and repression leads to future violence—by arming themselves in self-defense following prior violence, the settlers created an highly charged environment in which government repression was more likely to set off significant violence. This mechanism requires time—building their armory was not an overnight activity. This may point to the reason why more diffuse events are actually more likely to become violent—the effective use of violence requires time and preparation, particularly for actors whose primary activity is not militant like the farmers in this case, as opposed to national armies or even irregular militias that practice constant preparedness.

The local police chief expressed concern that if the delayed eviction operation had gone wrong, “it would just strengthen the solidarity among the squatters and lead to huge demonstrations.”<sup>246</sup> The police began to express discomfort with repressive tactics, pressing decisions on central state authorities and denying responsibility.<sup>247</sup> In hindsight, delaying a clearing campaign that would most likely have become violent may have been the key factor that eventually allowed the dispute to de-escalate. A member of the government fact-finding team commented to the press:

“I have advised the central government not to use repressive means to evict the illegal occupants in Register 45, as it will only cause many casualties. With the use of the repressive means, the number of victims

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<sup>245</sup> Ibid.

<sup>246</sup> Ibid.

<sup>247</sup> Human Rights Watch, *The Dark Side of Green Growth*.

is feared to be much higher than those last year because the forest encroachers have become increasingly powerful.”<sup>248</sup>

Other experts on the dispute agreed that renewed large-scale repression in Mesuji was likely to yield bloodshed.<sup>249</sup>

In September 2012, timing their protest to occur at the same time as other land-riots in Medan (a city in North Sumatra, where a number of other land disputes were playing out) claimants in Lampung and South Sumatra blocked the major highway through Bandar Lampung, the Lampung provincial capital. The settlers also began to reject efforts by officials to measure and map the area, a project that had once been locally supported—blocking surveyors from entering the area.<sup>250</sup>

Increasingly part of a national dialogue about land grabbing and plantations, the claimants more frequently joined larger protest movements, including riots in provincial capitals across Sumatra and a “long march” to Jakarta from December 2012 to January 2013.<sup>251</sup> They also increasingly protested against arrests of their leadership, prompting a 400-person increase in police presence in September of 2013.<sup>252</sup> This increase came on top of an earlier enhancement in Mesuji’s security forces—in mid-2012 it finally received its own police station and staffing, rather than

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<sup>248</sup> H.N et al., “Mesuji Land Dispute Gets More Complicated.”

<sup>249</sup> “Indonesia Faces Showdown Over Mesuji Land Conflict, IPAC Warns,” *The Jakarta Globe*, accessed December 22, 2013, <http://www.thejakartaglobe.com/news/showdown-looms-over-mesuji-land-conflict-ipac-warns/>.

<sup>250</sup> Jones, *Mesuji*, 23.

<sup>251</sup> *Ibid.*, 19; Apriadi Gunawan, “Farmers Demand Fair Land Conflict Settlement | The Jakarta Post”; Apriadi Gunawan et al., “Farmer Protest Turns Violent in Medan, Dozens Hospitalized,” accessed January 28, 2014, <http://www.thejakartapost.com/news/2012/09/25/farmer-protest-turns-violent-medan-dozens-hospitalized.html>.

<sup>252</sup> Antara News, “Police Deploy 400 Personnel to Secure Mesuji,” September 4, 2013, <http://www.antaraneews.com/en/news/90570/police-deploy-400-personnel-to-secure-mesuji>.

relying on that of Tulang Bawang, its mother-district.<sup>253</sup> However, police forces were also slow to recover from the strain on their resources caused by the unrelated Lampung dispute. Despite the slow renewal of capability, the state forbore conducting large-scale campaigns and violence did not re-emerge.

The government continued to plan for, and broadcast their plan for a major eviction campaign in Register 45, but “after a flurry of arrests in August [2013] that seemed to be a prelude to a major crackdown, no one was evicted and a package was worked out to allow most of the squatters to stay.”<sup>254</sup> Although it is impossible to say what a counterfactual case might have yielded—if the police had been able to organize and fund another large eviction campaign earlier in 2012 or 2013—experts on the subject predicted a blood bath if large-scale evictions continued in an environment of structural scarcity, and prior violence and repression.<sup>255</sup> Instead, the last period of the dispute was characterized by de-escalation and non-violence.

While we cannot say conclusively that the contentious sequence has ended—two years have not passed since the last event—contention currently seems unlikely to resurface in Mesuji. This, therefore, concludes the accounting of the events in Mesuji. The section below discusses the patterns and variables as they relate to my theory and statistical findings in more detail.

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<sup>253</sup> The Jakarta Post, “Police to Create Offices in 200 New Districts,” June 15, 2012, <http://www.thejakartapost.com/news/2012/06/15/police-create-offices-200-new-districts.html>.

<sup>254</sup> Sidney Jones, “Recent Events in Mesuji,” January 21, 2014 (Personal email); “Indonesia Faces Showdown Over Mesuji Land Conflict, IPAC Warns.”

<sup>255</sup> “Indonesia Faces Showdown Over Mesuji Land Conflict, IPAC Warns.”

#### **IV. Patterns & Key Variables**

The Mesuji sequence described above (combining three mini-sequences occurring over Register 45, OKI, and BSMI) features the explanatory variables in a few different ways. Largely this sequence supports the quantitative findings, although in a few places the case study is unclear. This section will now work through each variable, establishing whether the case study supports the theorized relationship and the statistical findings, and identifying where the case study can explain surprising findings.

In Mesuji there is no variation on the scarcity variable—all three disputes are about distribution of environmental goods and access to land—but the causal link is quite clear between the unfair distribution of land and the original claim. The assessment that the government is unlikely to legally support the claimants either through the courts, legislation, or enforcement is rooted in this inequitable treatment toward company and society groups. Even when there was a moratorium on company use of disputed land, the police continued arresting villagers while doing nothing to punish the company for its illegal actions. In both the case study and the statistics results, structural scarcity increases the likelihood of violence and continuing contention by signaling the commitment of the government to maintaining the inequalities in distribution of environmental goods.

The case also illustrates how past government behavior determines how society groups estimate the odds of achieving their ends without escalation. Claimant assessments of the likelihood that the government would support their claims devolved from hope that the new, post-Suharto government would support them to

the assessment that escalation would be necessary after the state used repressive tactics to quell their demands. This process is particularly clear in the multiple events in Register 45 where villages analyzed previous behavior—clearings in other local villages for example—and increased their level of resistance accordingly by building roadblocks, burning buildings, and forcefully resisting eviction. In short, past government repression does motivate future contention and lead claimants to prepare for violence.

While it is difficult to predict the counterfactual likelihood of violence had the state not used repression, it is evident in this case that aside from the fatal events, all contentious events were a delayed reaction to repression. The only cases where dissent and repression happened simultaneously were those that were violent. In Register 45 repression did appear to be working to reduce capability of the claimants and drive them from the area until violence elsewhere changed the dynamics of the conflict. In the OKI dispute, however, government repression did not appear to have reduced violence, but instead seemed to trigger the violence. This is likely due to the presence of past government repression and structural scarcity, both of which increased the likelihood of violence through signaling government intransigence and commitment to resisting the claimants' demands. Similarly, late in the contentious sequence in Register 45 repression in the form of arrests did not prompt large-scale violence—although it did perpetuate contention—but experts in the dispute contended that a large clearing operation would prompt a bloodbath. This makes the effect of current repression on the likelihood of violence and continued contention unclear. Lastly, supporting the findings of the statistical section, and counter to my

theory, I found no evidence that substitution strategies were used to side-step state repression—the same tactics were used before and after repression by the government.

Past violence in this sequence of events plays a clear role in increasing the level of contention and causing it to persist. After the violent events, dissent graduated from small acts and protests to intentional property damage and rioting. It is unclear whether the various violent acts across Mesuji can be attributed to claimants having interpreted signals from the Register 45 violence to calculate the likelihood of their success without violence. However, past violence certainly convinced the occupants of Register 45 that arming was necessary, and had police resources not been distracted, violence would have likely emerged again. Largely this supports my theory, although relaxing assumptions regarding the salient locality requires better documentation of the attribution process—which is not currently available. In other words, we have no decisive evidence indicating whether or not the OKI and BSMI dispute actors considered Register 45 in their strategic choice process.

Although the OKI dispute escalated to violence abruptly after the violence in Register 45, there is no clear evidence that these villagers were aware of the recent death in the Register 45 conflict, or that it influenced their collective attribution process. However, since the prior incident made national news and the two sites are local to each other it would be reasonable to assume that they knew of the fatality. This may be merely a lack of documentation of the attribution process, nevertheless, the role of prior violence on this outbreak of violence is un-confirmed.

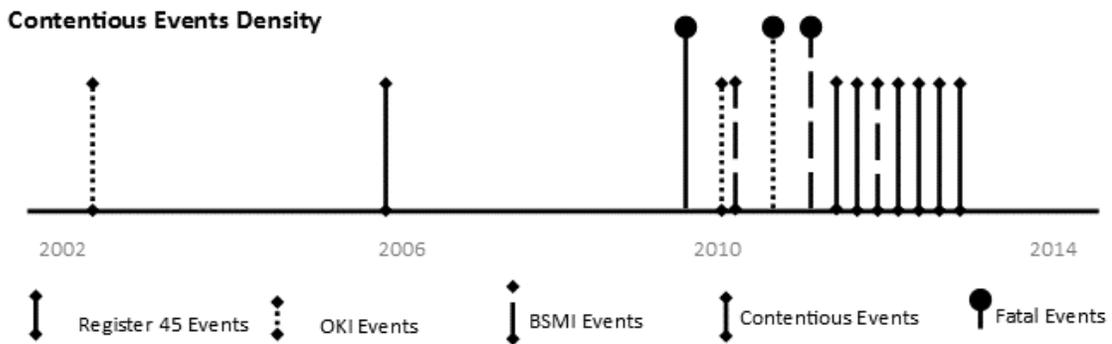
Current violence's effect was insignificant in the statistical analysis and remains unclear in the case study. Current violence does appear to have quelled future contention to a certain degree after two out of three violent events. In Register 45, contention probably would not have continued if other events hadn't intruded—contentious action was at a halt until the mobilization efforts after the parliamentary hearing over a year later. In OKI, likewise, contentious actions ceased after the violence. In BSMI, however, riots and burnings continued only a few months after the violence. Overall the effect of current violence is unclear.

My theorized expectations regarding dense events were not supported by the quantitative results and this case study begins to offer a few potential answers for why dense events are surprisingly less violent and less likely to continue. The revelation that the residents of Register 45 were arming in the wake of government repression and past violence highlights a likely mechanism that links event density with violence. This arming and mobilizing process is one that takes time, particularly for claimants that do not regularly arm and mobilize for battle. This differentiation—of the actors involved, farmers versus soldiers—may explain why violence would cluster in time at the civil conflict level, but not in low-level contentious sequences. Soldiers constantly emphasize preparedness, whereas farmers require time to acquire the people and arms necessary to resist violently. Also, when dense repetitious contentious events take place, all participants gather more information—as the police demonstrated an unwillingness to engage violently toward the end of the Mesuji sequence, the claimants became assured that these were “safe” tactics unlikely to be answered with extreme action and violence. Density, then, is another word for an

information-rich environment in which the preferences, commitments, and limitations of each side are clearer, and thus fewer mistakes and miscalculations are made.

The figure below translates the events in the timeline at the beginning of this chapter—separated into the three disputes at Register 45, OKI, and BSMI--into the definitions used in the quantitative section. Removing the extraneous non-contentious events and representing the events across time paints a picture in which violence occurs early in the contentious process and before events become increasingly dense. This would seem to contradict expectations that contentious escalation is a product of aggregate past contentious events, and supports the argument that violence is more a function of preparation and poor information.

**Figure 5.29 Density of Contentious Events in Mesuji**



In short, this case study provides mixed support for my theory and statistical findings. Although there was no variation on the scarcity type in the case study, structural scarcities were clearly linked with the demands of claimants. Past repression also played a clear role in signaling government commitment and determining whether claimants chose to escalate. The effect of current repression on

violence and continuing contention was inconsistent in the case study, although there was no support for substitution theory since claimants utilized the same strategies before and after repression. Past violence has an unclear effect on violence in the case study, in part due to documentation problems, but it was clearly linked to higher levels of contention. Current violence did appear to reduce continuing contention after two out of three violent events, although the statistical finding on this variable was insignificant. The effect of timing lined up with the statistical findings—and the case study offered a potential explanation for this surprising finding—in the case of Register 45 the claimants needed time to mobilize and arm. While they did not in the end engage in further violence, the potential for violence was very high and was only avoided by a lack of large-scale government repression.

## **V. Complicating Factors**

In addition to illustrating the mechanisms at play in the correlative relationships, this case study illuminates a few critical previously-overlooked considerations that influenced violence and persistent contention. Three factors arise from this case study, which did not appear in my original theory but should be considered in future analyses. First, what is considered “regional” or “local” and therefore relevant in the calculation of the government’s likely actions in similar disputes in the same area was not determined by sub-district, district, or provincial lines. Instead proximity, aided by a confusion in local media of similar regional names, rendered the disputes relevant to each other—the three inter-related disputes are not far from each other, but occur in two different provinces. In my quantitative

analysis, I use sub-district level data to address a gap in the research identified in prior studies. Prior research has indicated that environmental conflict may occur primarily at the local level, but most conflict studies focus on a minimum of 25 battle-deaths, and there is little research available at lower levels of violence. However, this approach may miss some cross-border associations that are quite salient. In short, while local analyses are necessary, caution must be used both in defining the locality and in becoming too local—analysis within such a small area may risk missing key patterns.

Two proposed methods of addressing this complicating factor are, first: to use proximity and geo-referenced data, assuming that a certain circumference around a given dispute will include all associated disputes as well. This assumption is not necessarily a good one because large cities, and particularly political seats or provincial and national capitals may attract protests from outlying areas. Or second, to pursue small-N process tracing that would allow each salient locality to be determined case-by-case and not by an arbitrary legal or geographic determinant. The first approach presents additional challenges for gathering data, while the second presents problems for generalizability. The relocation of protests out of the immediate area of the dispute may also account for the strong cross-sectional effect of sub-districts in the statistical analysis. If the provincial and national capitals tend to aggregate protests from all around the country, the political salience of these locations may be what is driving the spatially uneven distribution of events.

The second complicating factor is elite political mobilization and manipulation, as well as profiteering and in-migration. While political theorists often

cite elite manipulation as a key factor in conflict, the role of profiteering by minor players in an under-policed area has not been adequately explored.<sup>256</sup> In this case the vagueness of the land laws, and the contradictory claims opened the door for others to attempt to profit by staking their own claim or selling false land permits. Similarly, the ambiguous status of the settlers presented a political opportunity for local politicians, national political parties on the market for constituents, and Islamist organizations recruiting for their own ends. While in this case Islamist ideology does not appear to have taken hold in Mesuji, the connection between unsatisfied claims and extremist organizations hunting for recruits merits further investigation. Overall, profiteering should be accounted for by future theories of low-level violence and contention.

Lastly, the role of the sometimes contradictory interests of companies and states complicated the logic of when repression was a useful tool, and the perception of the state as an unbiased arbiter in the eyes of the claimants. The fact-finding report concluded that the company payments to the police, army, and Special Forces could potentially “endanger the neutrality and professionalism” of the state’s security forces.<sup>257</sup> This lack of neutrality and professionalism certainly plays into claimants’ analysis of whether the state will support or repress their claims. Furthermore, the police were clearly aware of the dangers of their more aggressive actions, from the warnings mentioned above regarding the possible negative consequences “if the operation went wrong,” to an increasing hesitancy to actually use force to move

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<sup>256</sup> R. Bates, A. Greif, and S. Singh, “Organizing Violence,” *Journal of Conflict Resolution* 46, no. 5 (2002): 599; D. Slater, “Revolutions, Crackdowns, and Quiescence: Communal Elites and Democratic Mobilization in Southeast Asia,” *American Journal of Sociology* 115, no. 1 (2009): 203–254; J. Snyder, *From Voting to Violence: Democratization and Nationalist Conflict* (Norton New York, 2000).

<sup>257</sup> Human Rights Watch, *The Dark Side of Green Growth*, 30.

armed and hostile settlers and a disengagement by local forces, claiming that the central state must lead.<sup>258</sup> This tendency is also visible in the frustrations of the company later in the dispute. One official from PT Silva commented,

“After the tents started going up we wanted to stop them, but the police asked us to withdraw out of concern that there would be a clash. They said, “trust us.” So we pulled back, and more came in. Then they started building huts, burning our land and taking our trees. Our workers were even invited to cut down trees. We went to the district police chief and said, “what now?” He assured us they were capable of dealing with it. We went to the provincial police and to the top in Jakarta but they were all getting the same message from the district chief... In the end, no one did anything.”<sup>259</sup>

However, despite the government’s awareness of the possible negative repercussions of their actions, unproductive and incendiary actions were sometimes taken at the behest of the company.

It may in fact have been this lack of action later in the process that was responsible for the de-escalation of the conflict. The most violence occurred earlier in the process, when the police appeared to be more in the pocket of the companies, prior to the national exposure and censure of the parliamentary hearing. While some of the clearing operations at the request of the companies did appear to have successful repressive effects on contention, others ignited further contention. Hence, while my analysis has argued that the claimants see little difference between the state and the companies, that they are often indistinguishable from each other, there is a crucial divergence of interest. One is only focused on private profit and the other has to balance security as well as national economic growth. The diverging interests between company and government driving security actions have led to both fluctuating incoherence in state policy as well as poor decision-making regarding

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<sup>258</sup> Human Rights Watch, *The Dark Side of Green Growth*.

<sup>259</sup> Jones, *Mesuji*, 21.

repressive actions. Future research should explore whether policies determined by government-company partnerships are more likely to yield violence and contention than those developed solely in the interests of the state.

## **VI. Conclusion**

This case study has attempted to illustrate the relationships identified in the statistical analysis in a close examination of three inter-related disputes in Mesuji. The patterns evident in the case study of a highly incendiary sequence of events largely supported my statistical findings with the exception of a few relationships which did not clearly support or reject the correlative finding. The case study diverged from the statistical findings in the current government repression variable, which reduced the likelihood of violence and continuing contention in the quantitative analysis, but had an unclear affect in the case study. The effect of past violence on fatalities in the case study was also under-documented in terms of its role in the communal attribution process, so cannot fully support the positive correlation. However, overall the case study supported and illuminated the statistical analysis—the effect of structural scarcities on the likelihood of violence and continuing contention was supported and fleshed out, and the signaling mechanism linking past government repression and past violence with continuing contention was also verified.

Structural scarcities were clearly linked with the demands of claimants, and past repression also played a clear role in signaling government commitment and determining whether claimants chose to continue contention—all as expected. The

effect of current repression was unclear however, but consistent with the statistical findings clearly did not support substitution theory since claimants utilized the same strategies before and after repression. The effect of past violence on the likelihood of violence in the current event was also unclear, in part due to documentation problems, but it was clearly linked to higher levels of contention. Current violence did appear to reduce continuing contention after two out of three violent events, although the earlier statistical finding on this variable was insignificant. The surprising increased likelihood of violence in diffuse cases may be explained in part by the time necessary to mobilize and arm non-professional militants in Register 45, and in part the tendency of violence to occur in less-information-rich environments.

Lastly, this chapter identified three complicating factors from the case study—the cross-border nature of the salient locality, the role of manipulation and profiteering, and the effect of diverging state and company interests. These factors should be accounted for in future theories of violence and contention in environmental disputes.

In a single case study we cannot expect every variable to behave as expected in every event, but this analysis has helped flesh out the mechanisms that link structural scarcity and past repression to violence and contention, and has also provided mixed support for other causal relationships, suggesting limitations on the effects in some cases. Largely, while there were some unexpected deviations from my theory, the case study did not decisively contradict any of my statistical findings, although in some variables the evidence was mixed or unclear. Furthermore, the case study has provided a more grounded view of the factors that mattered in this highly

incendiary case, and suggested other factors that should be considered in future analyses.

In the following chapter I will tie together the entire project, identify opportunities for mitigating violence and persistent contention, and suggest areas for future research.

## **Chapter 7: Minimizing Violence and Contention in Environmental Disputes**

### **I. Introduction**

What makes violence or continuing contention more likely in low-level environmental disputes? This dissertation fit itself into a gap in the literature, addressing conflict below 25 battle deaths and the contradictory expectations of the general civil conflict literature and environmental conflict research in an effort to provide insights into which factors could potentially short-circuit the roots of violent conflict. Low-level conflicts are increasingly common as large inter-state wars have given way to civil conflict, insurgency, terrorism, and rioting. As climate change propels the world into even greater degrees of environmental change, environmental conflict is also becoming increasingly common. We must expand research that explores low-level violence and environmental disputes in order to understand how best to curtail violence and persistent contention. In this dissertation, I proposed a bargaining theory of violence and continuing contention in environmental disputes in which desperate claimants and the government signal their intentions and commitments through violence, repression, and inequitable distribution of environmental goods and services. This bargaining process is constrained by changes in material capability and influenced by the frequency of interactions.

To test these propositions, I utilized statistical analysis to establish general patterns and correlations, and followed this with a case study to clarify and expand on the mechanisms at play in these relationships. I transformed and expanded the NVMS

dataset from Indonesia, sequencing events within sub-districts and coding each event for current and past variables in that sequence. Indonesia was an appropriate site of inquiry and a strong test case for my theory because of the availability of new data and detailed event coverage, its diversity and variation across the salient variables, and as a representative example of environmental competition and contention which is occurring increasingly throughout the developing world. Using this new data, I ran two sets of logit models with different binary dependent variables—the first explaining when environmental disputes are more likely to become fatal, and the second explaining what factors are most likely to end a series of contentious events. In each set of models I also explored how time and space impact the likelihood of violence or continuing contention. Lastly, I explored the mechanisms of contention in a highly incendiary single case in Mesuji, Indonesia.

The first set of models found that structural scarcities and a death within the last year increased the likelihood of violence, while current government repression reduced the incidence of violence. These findings were largely robust to alternate model specifications accounting for variation across space and time, although the effect of prior death did appear to be somewhat dependent on the sub-district. I also found that while the effect of past violence declined as the years passed, contrary to expectations the likelihood of violence increased as the time between events stretched on.

The second set of models, testing which factors made contention more or less likely to continue, found that current repression and simple types of scarcity increased the likelihood that contention would end for at least two years, while past repression,

past violence, and structural scarcity reduced the likelihood of contention ending. This second model uncovered an intriguing pattern—the effect of current repression was contrary to the expectations of substitution theory, and instead worked like a gateway. In other words, fewer contentious sequences continue in the face of current repression, but those that do tend to persist. Current government violence fell just shy of standard levels of significance, but also decreased the likelihood of continued contention. The results of the second set of models, however, were not robust to alternate model specifications accounting for variation across space and time. Only scarcity remained significant in model accounting for spatial variation, and scarcity and past government action remained significant in the models that accounted for just time, and both time and spatial variation. The effects of past violence decreased slightly over time as expected, although past government action exerted an irregular effect, and closely clustered events were surprisingly more likely to end the sequence of contention.

To further explore these findings, I turned to a case study to illustrate several of the correlations identified in the statistical analysis. Mesuji, Indonesia provided a well-documented case of violent conflict over land, combining three intertwined sequences of low-level disputes connected by the salient locality. Many of the characteristics of this case are also evident in other environmental disputes in Indonesia that escalated to violence. While the mechanisms at play may not be generalizable to less incendiary environmental disputes, I argue that this case offered a good representation of common patterns in high-conflict cases.

The case study largely supported my statistical findings with some areas where the evidence was mixed or unclear. Structural scarcities were clearly at the root of the demands of claimants and past repression also played a clear role in signaling government commitment to opposing claimants' demands and in determining whether claimants calculated that they needed to escalate—all as expected. The effect of current repression was unclear, but did not support substitution theory since claimants utilized the same strategies before and after repression. The effect of past violence on the likelihood of violence in the current event was also unclear, in part due to documentation problems, but past violence clearly caused higher levels of persistent contention. Current violence did reduce continuing contention after two out of three violent events in the case study, although the statistical finding on this variable was just outside traditional levels of significance. Diffuse events did seem to be more prone to violence, because of the time necessary to mobilize and arm non-professional militants, and probably also because violence tended to occur in less information-rich environments. Lastly, I identified three complicating factors from the case study which suggest areas for future research: the cross-border nature of the salient locality, the role of manipulation and profiteering, and the effect of diverging state and company interests.

## **II. Generalizability**

In Malaysia, Kenya, Indonesia, Vietnam, Sudan, Liberia, Cambodia, and Sierra Leone land conflicts have already kindled dissent and violence.<sup>260</sup> Throughout the developing world, other types of environmental change have also contributed to

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<sup>260</sup> "Global Land Grab Could Trigger Conflict, Report Says."

violence.<sup>261</sup> We cannot expect every type of environmental change, scarcity, or abundance to impact security in the same way, but across the most basic and necessary resources (water, land, food, etc) structural scarcities should yield more violence than simple scarcities. Nor can we expect that all states and institutional configurations and strengths will allow this type of dispute to emerge—the environmental conflict literature tells us that “violence is never the outcome of nature alone,” but instead a product of the institutional capacity to address demands and “socio-political relations.”<sup>262</sup> This suggests why these patterns are most likely to hold in the developing world, particularly in areas where land tenure is weak and laws are vague and contradictory. Furthermore, where there is a high level of state capacity, conflict is less likely to emerge for two main reasons: more effective non-contentious processes of dispute resolution and a more effective state repressive apparatus.<sup>263</sup> In short, the patterns revealed in my analysis are generalizable within a context of developing countries with poor state capacity.

Pervasive trends of land-grabbing in countries around the world are exacerbating this problem. As competition over increasingly scarce land continues, more impoverished farmers will be removed from their land and therefore their livelihoods.

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<sup>261</sup> Hendrix and Salehyan, “Climate Change, Rainfall, and Social Conflict in Africa,” January 2012; Raleigh and Kniveton, “Come Rain or Shine”; Bernauer, Böhmelt, and Koubi, “Environmental Changes and Violent Conflict”; Koubi et al., “Climate Variability, Economic Growth, and Civil Conflict”; Deligiannis, “The Evolution of Environment-Conflict Research”; Hsiang, Burke, and Miguel, “Quantifying the Influence of Climate on Human Conflict.”

<sup>262</sup> Giorgos Kallis and Christos Zografos, “Hydro-Climatic Change, Conflict and Security,” *Climatic Change* 123, no. 1 (March 1, 2014): 77, doi:10.1007/s10584-013-0893-2; Wolf, Yoffe, and Giordano, “International Waters.”

<sup>263</sup> Chenoweth, Lawrence, and Belfer Center for Science and International Affairs, *Rethinking Violence States and Non-State Actors in Conflict*.

“Population growth is placing rising demands on arable land, water and other natural resources; similarly, environmental degradation, exacerbated by climate change, intensifies perceived ‘land scarcity’. Furthermore, the globalization of economies has generated a surge in investments related to land and other natural resources in many parts of the globe, notably in Africa; land markets are expanding and land values are rising. Consequently, people and their livelihood systems are brought into increased contact and competition: competition between users and land-uses increasingly results in confrontation and, at times, in violent conflict.”<sup>264</sup>

The disputes that grow out of these dispossessions have economic, environmental, and security impacts, disrupting the welfare of individuals and the stability of the state.<sup>265</sup> Interacting factors can lead to a downward spiral of poverty, insecurity, and environmental degradation.

“...high rates of landlessness or the inequitable distribution of land, leads to instability within countries. We see this today in Pakistan where an estimated 300 families preside over huge swaths of the countryside and lord over the majority of the rural population. And we can find this in our history books, in the chapters on devastating civil conflicts from Mexico and Russia, to China, and Vietnam—each of these bloody conflicts was fought by hungry peasants eager for their share of the land.”<sup>266</sup>

This dissertation helps to address what the literature is only beginning to explore—why some low level environmental disputes enter a downward spiral with patterns of violence and persistent contention and how some escape the cycle. While the data and case study both focus on Indonesia, I anticipate that future research will reveal similar patterns in other parts of the developing world. The variables and hypothesized relationships are certainly all applicable in other countries, and in many

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<sup>264</sup> United Nations, *Land and Conflict: Toolkit and Guidance for Preventing and Managing Land and Natural Resource Conflict*, 13.

<sup>265</sup> Kugelman and Levenstein, *The Global Farms Race Land Grabs, Agricultural Investment, and the Scramble for Food Security*.

<sup>266</sup> “Connecting the Dots Between Security and Land Rights in India,” *New Security Beat*, accessed December 1, 2013, <http://www.newsecuritybeat.org/2012/11/connecting-dots-security-land-rights-india/>.

cases await only improved sub-national data in order to be tested in a cross-national project.

### **III. Policy**

This project has attempted not only to fill gaps in the academic literature, but also to address what factors foster an escalation to violence or give birth to a spiral of persistent contention. Isolating what reduces violence and contention can facilitate peace, prosperity, and environmental protection. The timing of government action in contentious sequences can also influence the success of mitigation strategies. I have identified a number of opportunities for breaking cycles of violence and contention and for cutting them off before they build momentum.

Structural scarcity strongly increases the likelihood of violence compared to simple scarcity. Since structural scarcity distinguishes itself from simple scarcity by the unequal distribution of environmental goods and services, adjusting state policies to avoid these distributional issues should help assuage the driving force behind these environmental disputes. The state may need to negotiate with multiple groups of claimants to reach an agreement on what distribution of goods is equitable for all parties, and provide assistance if an equitable solution does not provide the necessary environmental goods and services for survival. Although the commercial benefits of bending regulations to suit the interests of the state and its cronies may seem tempting in the short-term, long-term development and foreign investment will be damaged by persistent contention and violence. A specious, short-sighted strategy of inequitable

distribution of environmental goods offers more long term costs that it is likely worth in terms of potential benefits of economic development.

Avoiding violence and fatalities in contentious interactions between security forces and protestors is key to preventing downward spirals. This kind of violence may temporarily repress contention—although statistically the effect of current violence is just outside standard levels of significance—but as time goes by that violence will reverberate through the conflict, exerting a particularly strong effect that makes both future violence—to an even greater degree when events are chronologically diffuse—and continuing contention more likely. Violence and chronic contention pose a series of problems for states, including hobbling economic development, sapping state resources, and decreasing state legitimacy. Even when states are determined to control violence and contention, violent policies may end up costing the state more in the long term than their short term repressive effect can justify. Nor should states determine that the contentious sequences most at risk for violence are those that feature dense frequent events as Davenport claims they are prone to do—in fact the sequences most at risk of bursting into violence are those that feature diffuse events.<sup>267</sup> Furthermore, since violence at such a low level can be caused by only a handful of police—perhaps losing their cool in the face of an angry mob, disobeying orders, or even aiming to ‘set an example’—control over security forces is important to avoiding these precipitous deaths.

In situations where violence has already occurred, this study reveals that the government’s past record of supporting, ignoring, or actively opposing the aggrieved group influences continuing contention more than any other factor. This holds true

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<sup>267</sup> Davenport, “Multi-Dimensional Threat Perception and State Repression.”

even if governments only adjust their policies from entirely repressive to a neutral average, or from neutral to supportive—a more likely scenario than wild policy swings between completely supportive or completely repressive actions. This highlights the importance of developing a positive reputation and perhaps even employing confidence building measures to promote engagement within official dispute resolution mechanisms and to allay persistent contention.

Similar to violence, using repression to temporarily reduce the likelihood of fatal violence is weakly effective, and should be a last political resort since it will create the same counterproductive result described earlier, increasing the likelihood of persistent contention as the material effects fade and the signaling impact takes hold once the repression is past. When the state uses repression to control a situation, prior death is the factor most likely to make the contentious sequence persist over time, although in rare scenarios when the government has pulled a complete about-face from completely repressive to completely supportive (or vice versa), this past government behavior also plays a large role. This time-differentiated effect of current repression and past repression creates a gateway through which fewer sequences pass, but those that do are more likely to become juggernauts of contention. In addition to the divergent direction of the effects of repression in past and present, the strength of these effects is much greater when it increases the likelihood continuing contention. The effect of past government action is nearly twice as strong as the effect of current government action, and current government action is not robust to variation over space and time, where past government action remains significant even when time and sub-district are accounted for. However, past government action had an

indeterminate effect on violence, whereas current government action reduced the likelihood of violence significantly and robustly. Therefore, current government repression can be a tool in repressing potential violence, but given the strong negative repercussions for future contention, it should be used only as a last resort.

The case study raises some further questions about the efficacy of repressive action—in some of the events, violence appeared to be avoided by a lack of government action. Through their absence, government forces denied protestors an opportunity for violence. The context for the Mesuji case study showed that past violence and repression had convinced claimants that escalation was necessary to make the state take their demands seriously, and they took time to mobilize and arm themselves. Contention escalated from protests to rioting and property damage, but after the first round of deaths, no further violence occurred. Ultimately, budget constraints forced security forces not to take action, and so the mobilized and armed claimants did not pursue violence on their own. Even when all the variables were at their most incendiary and violence was on the verge of emerging on a larger scale, this lack of government engagement was critical in avoiding bloodshed. This may explain why past government support or opposition toward the claimants did not have a significant effect on the likelihood of violence—its effectiveness is determined by other contextual factors. My case study indicates that one of these factors is a collective attribution process that leads claimants to mobilize and arm, and the time to do so before another repressive crackdown. Had another repressive event occurred in Mesuji—in other words, had the security forces moved in as planned—past repression would certainly have had a contributing effect on violence because

claimants were already armed, mobilized, and convinced that they needed to fight back to avoid eviction and the destruction of their homes.

Overall, my research indicates that there are significant opportunities for reducing the risk of violence and persistent contention in environmental dispute sequences. Since violence tends to persist once it has started—prior violence being one of the strongest indicators of violence in any given event—cutting off these sequences at their roots has the potential to help avoid larger-scale violence as well, and avoid the downward spirals of failing security, economy, and environment that haunt the developing world.

#### **IV. Future Research**

This project has begun to answer the question of what prompts violence and continuing contention in low-level environmental disputes, but it has also raised a number of further questions that merit exploration in future research projects.

The lack of previous research at this low level of conflict makes itself evident in the misbehaving control variables. These control variables were largely borrowed from the civil conflict literature, but did not transition to low-level conflict particularly well—the direction of their effect was often unexpected, and often they were insignificant. As the body of research at lower levels of violence builds, aided by better sub-national data, this problem should be addressed. One of the challenges in this research is how to manage the concept of a “salient locality.” This study has shown that administrative and legal boundaries are not always a good determinant of which local events are related to each other, nor do events within a certain distance

necessarily capture all related events—multiple events were relocated to Jakarta or provincial capital because of the political salience of that area. As researchers respond to the call for more research on low-level conflicts, they must develop creative solutions for addressing this problem, likely mixing quantitative studies (which of necessity miss some of the details of each event) with case studies (that relax some of the assumptions and definitions necessary in a more generalized study to capture un-operationalized but significant factors at work in the conflict).

There are significant variations in how violence and persistent contention are distributed across Indonesia. Some sub-districts are more likely to see violence and continuing contention, even controlling for the factors I have included in this study. What explains this spatial variation? Future research should attempt to identify if there are omitted variables that explain why some sub-districts are more violence- and contention-prone than others.

I anticipated that current violence would make contention more likely to continue due to substitution strategies and the signaling power of fatalities, but the coefficient of this variable lay in the opposite direction indicating a mechanism similar to current violence in reducing the material capabilities of claimants to engage in future contention. However, this coefficient was just outside traditional levels of significance and the significance was very sensitive to the other terms used in the model—logging a distance variable rendered the variable insignificant when it had been significant before the transformation. It seems likely that the effect of current violence on the continuation of contention is conditional on other factors not included

in this study. Future research should attempt to identify the contexts in which current violence reduces the likelihood of persistent contention.

Two of my lagged variables showed a steady decline in effect as time passed and one was insignificant, but the effect of past government action on continuing contention did not decline or increase steadily over time. This irregular pattern is surprising and puzzling—why should the effect of past government action increase between one and two years, and then decrease by five years out? Is this a peculiar quirk of this data and the change in total number of cases between two and five years? Is the mechanism at play one that requires two years to build steam for future contention? Follow-on studies are necessary to address these outstanding questions.

This project has also illustrated the occasional inconsistency of government behavior, particularly when government-corporate partnerships cloud the preferences of the state. This suggests that a new avenue of inquiry into whether these relationships are linked with conflicts and contention might be fruitful.

I noted in my case study that the effect of violence may operate in part through drawing national and international attention to a dispute, softening the government stance under the spotlight of attention and criticism. While this mechanism seems to have played some role in Mesuji, it is unclear whether this is a generalizable pattern and under what conditions such pressure is effective. Subsequent large-N analysis should analyze the degree to which national and international media coverage impact government behavior and the likelihood of violence and continued contention.

There is still much work to be done, but this project has attempted to shine some initial light into the factors that contribute to low-level violence and persistent contention. Continuing our pursuit of how these factors work, and what other considerations are yet missing will help humanity to avoid the tragedies of violence and persistent unrest which destroy lives, economies, and environments.

## **V. Conclusion**

In Indonesia and across the world, claimants in environmental disputes are making decisions regarding whether they will escalate their demands in such a way that necessitates or facilitates violence or a persistent sequence of contentious events.

In Kenya, one farmer commented:

“This land ownership is giving us a headache. We know there are people who have sold our land when it isn't theirs to sell. They are criminals and we will fight them, with guns and with sticks,” said Ali Saidi Kichei of Ozi village, which last month sent a delegation to the Kenyan capital, Nairobi, to demand a meeting with the Kenyan minister for lands. “We lived in paradise, in peace,” he said. “Now what? No water, only salty water, land thieves and water thieves, and children with empty stomachs.”<sup>268</sup>

What influences the likelihood that violence and persistent contention actually ensues? This dissertation has argued that strategic interactions—in the form of violence, government behavior, and scarcity type—signal the likelihood that the government will support claimant demands, and thus determine whether desperate claimants decide they must escalate to maintain access to environmental goods and services necessary for survival. I also argued that there were material constraints from

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<sup>268</sup> Tracy McVeigh in the Tana Delta and Kenya, “Biofuels Land Grab in Kenya’s Tana Delta Fuels Talk of War,” *The Guardian*, July 2, 2011, <http://www.theguardian.com/world/2011/jul/02/biofuels-land-grab-kenya-delta>.

current repression and violence, and that timing mattered. I found support for the claims that prior violence, structural scarcity, and past government repression increase the likelihood of continued contention, and the same variables except for past government action also increase the likelihood of violence. Current government repression reduced the likelihood of both violence and continued contention. Timing also mattered, although dense events were surprisingly less likely to yield violence or continued contention. As such, it demonstrates that bargaining theories of conflict are salient even for low levels of violence, although not all of the expectations from the civil war literature carried over smoothly. It also indicated that there are significant opportunities for reducing the likelihood of violence and persistent contention through policy changes, potentially reducing the suffering of individuals, the destruction of natural environments, and drains on the capability of the state.

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