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Climate Migration: Evaluating the Conditions that Breed Conflict

Avery Dillon
adillon6@lion.lmu.edu

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Avery Dillon

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Research Question

Under which conditions does environmental migration heighten the risk of conflict?

Abstract

The prediction that climate change will cause conflict is at its core based on the assumption that climate change will trigger resource scarcity, resulting in displaced peoples and potentially violent conflict. However, the empirical evidence supporting this phenomenon is highly uncertain and at times directly contradictory. In recent decades, some have claimed that climate change's exacerbation of extreme weather events such as hurricanes, floods, and droughts have already played major roles in conflicts such as the Syrian Civil War (Selby 2019). Others directly dispute this direct effect, arguing instead that climate change has played only a minor role in influencing the severity or duration of conflict (Buhaug 2010). This signals that researchers need to move toward theorizing and testing factors which link to the indirect pathways from climate change to conflict, such as climate induced migration. In light of recent work that emphasizes indirect pathways between climate-related variables and conflict, my research aims to determine the conditions under which environmental migration will cause conflict (Brzoska and Fröhlich 2016). I perform a case study analysis in order to analyze how the combination of extreme weather events, government capacity, and the vulnerability migrants and displaced peoples affects the likelihood of conflict. My cases of India and Bangladesh offer varied state capacity, while maintaining consistency of weather events and keeping the demographic of displaced people as similar as possible. My findings further the argument that

state capacity is a crucial factor in mitigating conflict related to climate change induced displacement. By conducting a case study analysis, my research is able to increase certainty through a thorough examination of the many variables present and concludes that weak government infrastructure and rescue response both before and after climate disasters together heighten the potential for conflict.

Introduction

The Intergovernmental Panel on Climate Change stated in 1990 that forced migration could be the biggest impact of climate change on humanity, estimating approximately 200 million climate migrants by 2050 (International Organization for Migration 2008). In 2018, the World Bank predicted that Latin America, sub-Saharan Africa, and Southeast Asia alone will generate 143 million climate migrants by 2050 (Podesta 2019). As the impending effects of climate change on extreme weather events (such as hurricanes, floods, and droughts), sea level rise and infectious diseases become more certain, corollary impacts on socio political phenomena such as violent conflict have been predicted but remains highly uncertain (Zografos 2014). Accordingly, there is a long-standing debate in the academic literature regarding whether climate change-related factors such as higher temperatures (Missirian 2017), reductions in rainfall (Selby 2019) and natural disasters (Zografos 2014) increase conflict risk (Koubi 2019; Přívara and Přívarová 2019; Work 2019). As I discuss below, climate migration and its link to conflict has not been adequately discussed in current literature. Certain things are known about the climate change to conflict pathway: climate change does directly and indirectly cause migration, and climate change can directly or indirectly cause conflict under specific circumstances. This research has largely neglected to account for potential intervening effects, for instance how

poverty rates may amplify the impact of decreased rainfall on conflict, or contention that the likelihood of conflict is closely linked to vulnerability (Barnett 2003; Chavunduka and Bromley 2011). Moreover, despite growing recognition that climate migration likely is an indirect pathway linking climate to conflict (Brzoska and Frohlich 2016; Cattaneo and Bosetti 2017; Abel et. al 2019;), climate migration itself as a main intervening variable in conflict has barely been analyzed as a potential mediating effect or a conflict inciter.

The small amount of research that exists so far tends to assume a direct causal linkage between climate migration and conflict. I argue that this is problematic because although this makes logical sense, there are not yet studies determining that this is indeed the case. Depending on the circumstances, climate migration may play a large, small, or negligible role in conflict depending on additional factors and, so far, efforts to identify specific surrounding conditions are lacking. My research therefore aims to add precision to the literature by investigating the conditions under which climate change induced migration is a major factor in causing conflict. Specifically, I ask under which conditions does environmental migration heighten the risk of conflict?

Review of the Literature

In the sections that follow, I first review climate change as a cause of migration, then climate change's causal relationship to conflict, and then I explore what little is already known about climate migrants and their relationship with conflict. It is crucial to link these separate literatures together, instead of only examining the direct migration to conflict literature. The ways in which climate change may cause both migration and conflict is complex and has many intervening variables. In order to effectively theorize the issue at hand, a comprehensive

understanding of these different topics is necessary. While it becomes clear that the climate change to conflict pathway is full of variables, and that climate migration is among the most influential, our knowledge of climate migration and state capacity is quite limited.

Climate Change as a Cause of Migration

As climate change worsens, natural disasters such as hurricanes and droughts will become more prevalent, and force more and more people out of their homelands. An average of 22.5 million people were displaced by environmental disasters each year from 2008 to 2014, and almost all of these displacements occur in developing countries, where states have weak institutions and less ability to help their residents adapt after climatic events (Koubi, Böhmelt, Spilker, and Shaffer, 905, 2018). Increased drought and soil salinization, sea level rise, flooding and hurricanes are among the major shifts that have and will continue to increase environmental migration (IMO 2008).

The dominant view on environmental migration is that climate change reduces and reshapes the availability of natural resources, forcing people to migrate in order to regain access to resources. However, an alternative view presents migration as a successful adaptation strategy to environmental changes instead of an adaptation failure (Kartiki 2011). It can be a favorable adaptation if it helps individuals avoid worse climate conditions, and even positive if those who migrated send remittances (Massey et al., 1993). In this way, migration becomes a mechanism to help households cope with environmental shocks, and as such, it becomes a development issue (Kartiki 2011). When migration is forced and sudden due to weather events such as floods and hurricanes, there is increased vulnerability; when it is planned, it can increase household

resilience. However, as people would prefer to stay put, involuntary migration is problematic (Brzoska and Fröhlich 2016).

Previous work has shown that the number and permanency of migrants after a climactic event is largely dependent on adaptive capacity (Barnett and Adger 2007; Bosetti, Catteneo, and Peri 2018). The resources that individuals have to cope with the environmental changes they are experiencing clearly play a major role in influencing what is necessary for them in order to maintain a bearable living situation (Barnett 2007). Brzoska and Fröhlich argue that populations affected by extreme events have three different responses: immobility (trapped populations), migration, and displacement. The responses to climate change are largely connected to vulnerability and adaptive capacity of communities (2016). As a result, Brzoska and Fröhlich discern the four types of migrants relevant to climate change: ecological-economic migrants, climate disaster refugees, permanent climate refugees, and climate-affected migrants (2016). Ecological-economic migrants generally migrate for labor opportunities, and only one person per household generally migrates; climate disaster refugees are forced to leave when living conditions drop below bearable; permanent climate refugees may be displaced by long term poor ecological conditions and inability to adapt; climate-affected migrants, such as herders, may have to change their patterns of migration due to ecological changes (Brzoska and Fröhlich, 200, 2016). Their work provides insights into the different circumstances of climate migrants, and what environmental situations will likely cause which types of outcomes.

Other recent work similarly illuminates the ways in which climate change and environmental degradation can lead to significant out-migration. For instance, Khavarian-Garmsir et al.'s 2019 study of four shrinking cities in the Khuzestan province of Iran shows that warming climate directly and indirectly influences migration drivers. The authors find that

summer temperatures in Khuzestan reach 40-50 degrees Celsius, making oil drilling, construction and other outside labor not possible. Elites and others with the capability to move do so in order to get out of the climatic circumstances, but indirect push factors such as economic and political drivers are also exacerbated. Their study shows how climate change can act as both a direct and an indirect driver of migration, and reiterates that climate change is at a point where it is at the risk threshold and poses a threat to the health of residents in affected areas ((Khavarian-Garmsir et al. 2019).

Other work distinguishes sudden onset events and slow onset changes as two types of exposures that influence the conditions under which people migrate and the permanency of that migration (Clark 2007; McLeman and Hunter 2010; Privara and Privaova 2019). Slow onset changes may cause temporary (such as seasonal) migration, but are rarely permanent, as migrants return to their original location once the issue is resolved (such as a particularly intense summer drought). Still, Clark (2007) explains that slow migrations for non-environmental reasons can be sped up by environmental effects, and increase vulnerability especially due to a lack of aid and resources by the state. Clark claims that the ability of the state to support its residents after a climactic event plays a large role in migration due to environmental stress. States with weak institutions have limited adaptive capacity and therefore lack the ability to provide assistance in the case of extreme events, which in turn forces populations to migrate towards better circumstances.

Even with strong state capacity, sudden onset migration due to events such as floods and hurricanes typically cause more permanent distress migration due to damage of property and infrastructure. For example, millions were displaced after Hurricane Katrina, despite the disaster hitting the United States and huge amounts of aid provided in the following months and years

(Cuddy et al. 2007). Natural disasters also can accelerate migration that was already occurring (McLeman and Hunter 2010). Prívara and Prívarová (2019) look at how slow-onset and sudden-onset weather events impact migration and find that in Afghanistan, slow-onset climatic changes such as sustained droughts create both long and short-term problems for residents, and reduce overall adaptability. According to the authors, 287,000 people within Afghanistan have been forced to relocate due to drought, and an estimated 13.5 million people are experiencing severe food insecurity due to drought and failed agriculture.

While Privara and Privarova focus on the link between drought and migration, their study further asserts that the severe drought of 2019 and subsequent migration flows caused conflict, but does not elaborate on the mechanism in which this happens or its significance as a causal relationship. As I show below, this criticism applies to the substantial literature linking climate change to conflict, which is plagued by inconsistencies and contradictory findings.

Climate Change and Conflict

The core of the climate change and conflict risk argument is that climate change induces resource scarcities, which can lead to violent conflict, especially when states are unprepared to adapt to the new climate challenges. By damaging infrastructure, destroying crops, and killing livestock, natural disasters and changing climatic conditions are thought to cause or worsen scarcity that can lead to conflict. Accordingly, Burke et al. (2009) show that higher temperature is directly related to the negative effects on agricultural productivity and economic performance and link temperature rises to increase of conflict in Africa, particularly in regions that are already conflict prone or are currently in conflict. However, similar studies in the African context claim otherwise. Buhaug claims that contextual conditions such as widespread ethnopolitical exclusion

and the collapse of the Cold War system are the main drivers of civil war in Africa (2010). His analysis shows warming in Africa in the past decades, but not a significant causal relationship between temperature and civil war, at least in the short term. These disagreements in the literature point to a need for further nuance in the causal pathway of climate change to conflict. Intervening variables such as strength of state seem at least as important as the actual environmental events or changes, and an understanding of when the environmental factor plays a crucial role rather than a minor role in conflict needs considerably more attention.

Salehyan (2014) attempts to make sense of the disparate findings by examining a variety of literature and cases and determining the more specific conditions that lead to conflict related to climate change. Cases selected include relevant themes such as food and freshwater insecurity, drought, and lack of state support in disaster relief. He finds that the current literature regarding climate change and conflict is convoluted and only accurate when a variety of intervening factors are considered. Salehyan cautions against oversimplifying the climate change-conflict relationship, suggesting that the context of climate change's effect is crucial to determining whether or not there will be conflict. Bernauer, Bohmelt, and Koubi (2011) provide an overview of existing literature on environmental changes and violent conflict and similarly conclude that there are multiple variables that play a critical role in whether or not climate change will lead to conflict in a given situation.

Notably, Bernuer et al. (2011) view economic shifts and migration as the key pathways (both indirect) from climate change to conflict. Their work finds that climate change does not systematically cause conflict, but key conditions such as large migration events as key in driving possible conflict. In the same way, my study aims to provide further nuance, but with added consideration into the effect of migration on conflict. Especially as climate change worsens, it is

predicted that migration will also increase. The influx of environmental migrants could burden

economic and resource bases in the receiving areas, creating conflict over scarce resources

(Mach 2019). Thus, understanding the relationship between migration and conflict is key.

Climate Migration and Conflict

While there is clear empirical basis for migrants affecting conflict, climate change-

induced migrant data is scarce (Clark 2007). There is so far mixed support for the theory that

climate migrants can heighten the risk of or cause conflict. This could also be due to the relative

newness of the field. Although the theoretical framework remains, along with future predictions,

little empirical evidence for climate migration causing conflict currently exists. Brzoska and

Fröhlich argue that forced migration is linked to a higher likelihood of conflict, because those

migrating are attempting to gain resources and adaptability by moving, but their capacity is

already limited (2016). They claim that permanent climate refugees and climate-affected

migrants are more likely to cause conflict than temporarily displaced peoples because of their

lower adaptive capacity and the permanency of their migration. Brzoska and Fröhlich set up a

theoretical model regarding climate migrants and conflict, and suggest their framework be tested

empirically (2016).

Offering support for Brzoska and Fröhlich's theoretical model, Abel, Brottrager,

Cuaresmac, and Muttaraket (2019) explains that migration flows due to climate change are

limited in time and scope due to their dependence on specific climatic events. Abel et al. concede

that as there are numerous factors at play between climate change and conflict, there are also

many factors between conflict and migration; variables surrounding migration circumstances

which can exacerbate or mitigate conflict due to migration (2019). While testing climate

migration's role on conflict, Abel et al. finds that climatic factors played a significant role in increased asylum seeking in 2011-2015 (the studied time period), which is a salient factor in conflict during that time as well (2019). Thus, they can suggest through these two results that there was a combined effect of increased climate asylum requests and increased conflict.

Other work finds a link between climate migration and conflict severity and recurrence. For instance, Chavunduka and Bromley (2011) show how climate change migration has exacerbated existing conflict in Sudan. Nomadic groups have been moving further south in decent decades in order to cope with changing rainfall patterns. While this can be considered an effective adaptation to climate change, settled farmers in the destination area are not pleased by the nomadic group's additional toll on already scarce resources. The two groups have had increasing conflict as a result, which are further fueled by oil exploitation in the area. Additionally, the civil war hindered nomadic groups from moving further south to their usual destination, and brought more refugees who were fleeing South Sudan. The newcomers have also exacerbated existing land disputes, as sedentary farmers want to absorb the migrants into their existing land and systems, while the migrant communities would like to be recognized as their own groups and allocated land accordingly. Ghimire et al. (2015) perform a large-N study consisting of 129 countries and show that while displacement due to flooding does not create new conflicts, it can contribute to chronic conflicts (2015). In a large-n study of migration, Cattaneo and Bosetti (2017) similarly find that extreme weather events cause such large waves of out-migration that the destination countries are unprepared to absorb migrants, and in cases where the receiving countries have existing conflict, the influx of migrants can exacerbate existing conflicts.

Yet other studies do not find a link between climate migration and conflict. Looking at whether emigration due to higher temperatures leads to conflict in the destination countries, Bosetti et al. analyze whether climate migration affects the link between warmer temperatures and conflicts (2018). Bosetti et al. find no data signifying that climate migrants contribute to conflict in their receiving destinations. Additionally, the authors argue that in some cases migrants can diffuse possible tensions by relieving stress on scarce resources in their home country, which is a positive adaptation to the effects of climate change. They cite this as an explanation for lack of migrants inciting conflict in receiving regions. However, Bosetti et al. only look at slow-onset climatic factors such as droughts, leaving open the possibility that migration due to sudden-onset triggers play a greater role in conflict than due to slow-onset factors.

As previously alluded to, migration is often considered one of the indirect pathways linking climate change to conflict. The inconsistency in existing findings regarding conflict migration's effects on conflict may be due, in part, to the need to account for the moderating role of additional factors. Brzoska and Fröhlich (2016) accordingly explain that the causal pathway between climate change, migration, and conflict is anything but simple, as it depends significantly on many factors, and outcomes vary greatly depending on these other variables. In other words, climate change's exacerbation of extreme events and the relationship to migration and violent conflict is non-linear. The likelihood of violent conflict due to climate migration is largely influenced by a number of factors, including the permanence and reason for migration, as well as the ability of the receiving region to handle the migrant influx. Data is currently inconclusive with regards to direct and indirect pathways, and the lack of conclusive evidence linking climatic changes with migration and conflict is largely due to the inability of the existing

research to model adequately the complexity of this relationship. Clearly the relationship between climate change and conflict is incredibly complicated, and it is difficult to form conclusions about the major factors behind a conflict. There are clearly significant factors affecting the climate change to migration to conflict pathway, but this indirect relationship requires further study.

Factors Impacting the Climate Migration-Conflict Connection

Climate migration may affect conflict indirectly by impacting living conditions in a receiving location, which in turn can heighten the risk of conflict. In other words, climate change may lead to large amounts of outwards migration, which can then cause conflict in the receiving location due to a number of other factors (ethnic ties, unemployment, etc). Gleditsch, Nordas and Salehyan (2007) discuss how climate migrants can lead to conflict due to their vulnerability and lack of adaptive capacity, and especially when they are displaced in large numbers. The authors posit that the more migrants can be integrated into their host region by the state, conflict becomes less likely. Although they describe this theoretical framework, they provide little empirical evidence to back it up. Seraina Ruegger examines the ethnicity of refugees and their contribution to conflict in the country of asylum, and finds that in cases of preexisting ethnic tensions, refugees may contribute to decreasing stability (2019). These articles together highlight potential pathways through which the climate migrant/refugee may contribute to conflicts.

Others focus on how the type of climate migration matters, similarly acknowledging that climate migration may not cause conflict in all situations. Koubi, Böhmelt, Spilker, and Shaffer (2018) find that migrants who experienced long term environmental effects in their home regions are more likely to perceive conflict in the receiving area than environmental migrants who

experienced a sudden and short term environmental event. Koubi et al. argue that people with long term exposure are more likely to develop conflict perceptions because increased time of exposure and differences in adaptive capacity can foster different perceptions of deprivation due to the climatic conditions, whereas a short-term event affects people more evenly and can even facilitate a feeling of solidarity (Koubi et al., 908, 2018). Their theoretical framework relies on adaptation failure causing migration for long term events, and thus creating higher relative grievances for when climate migration does occur. This study of the micro level of climate migrants and their perceptions is one of the only sources that focuses directly on climate migrants and their immediate link to (perceived) conflict.

Although the importance of climate migration continues to be referenced in the literature, focus on climate migration and when this form of migration is incited remains scant. Additionally, variables that may contribute to climate migrants directly or indirectly creating or contributing to conflict remains understudied and unknown.

The climate change, migration, and conflict nexus is complicated and conflicted, due to the multitude of different elements that can and have played roles in the causal pathway (Scheffran et al. 2012). Although current literature is working towards understanding the relationship between these three phenomena, climate induced migration has been given little attention to date. Given the gravity of the potential outcomes, additional research more specifically into how these elements factor into one another is necessary in order to understand when climate migration can and will increase the likelihood of conflict.

Theory

Current literature presents a multifaceted story of climate change and conflict that is fraught with disagreement. I argue that neither climate migrants nor the intervening variables that determine whether climate-induced migrants cause conflict are adequately represented in current literature. Migration due to environmental stressors is acknowledged to be a significant intervening variable that affects the conflict outcome (Bosetti et al. 2018; Kartiki 2011; Ruegger 2019). However, further analysis is needed in order to determine the specific conditions under which environmental migration heightens the risk of conflict.

The causal pathway that my research follows goes as such: climate change and environmental conditions cause increased vulnerability and resource scarcity, which then spurs some level of environmental migration, and this, among other factors, heightens the risk of conflict. To this end, the vulnerability and adaptive capacity of a population greatly affect the extent to which both migration and risk of conflict are increased. Vulnerability is the potential for loss in a given circumstance, and an individual's level of climate vulnerability is dependent on a number of factors. Climate change vulnerability is determined by an individual's dependency on natural resources and ecosystem services, the extent to which the resources they rely on are sensitive to climate change, and their adaptive capacity as these crucial resources change (Barnett 2003). Koubi et al. claims that especially in the case of long term climatic strains, migration only occurs after other adaptation attempts have failed (2018). The more that people are reliant on natural capital instead of economic capital, the more vulnerable they are to climate change, and if they are unable to adapt, they then must migrate.

However, climate change does not undermine human security in isolation from other factors, such as weak states, vulnerable livelihoods, and poverty (Barnett 2003). This

acknowledgement of different factors is key to not only how climate change affects human security, but also how it affects conflict and migration. Depending on an individual's adaptive capacity, they may be more or less likely to emigrate from an environmentally insecure location. An understanding of the level of climate vulnerability and its connection to other factors is an important aspect of identifying the conditions under which climate change causes migration, and also when climate migration causes conflict. The relationship between these phenomena cannot be studied in a vacuum, as other factors can drastically affect the possibility of conflict.

While studies have been performed on slow-onset environmental factors, sudden onset migration and its relationship to conflict requires further evaluation (Bosetti et al. 2018). Communities with little capacity to respond to sudden onset events such as floods may face major destruction in very short amounts of time. People situated on land near large bodies of water face the perpetual threat of degradation, and protecting one's land from flood risk is expensive, as it often involves building a sea wall, raising up one's house, or moving locations as preventative measures. For those who are not able to adapt in this way, sudden floods can cause massive displacement along with property destruction. The displaced people are then left vulnerable, and likely must rely largely on their state's ability to respond with aid. I study sudden onset climatic events in the form of flooding due to the fast and large displacements that floods cause, along with the increased vulnerability of flood victims.

Significant research shows that large migrations can cause problems in their destination areas, even if the migration size is relatively small relative to a large host community (Gleditsch, Nordas, and Salehyan, 2007). We also know that environmental stressors can and have caused large emigrations (Piguet 2010). Logically then, there is a risk of conflict due to environmental migration. Gleditsch et al. explains two pathways from environmental stress to conflict in which

migration is the key factor. This theoretical pathway (Figure 1) is supported in segments through

separate studies (Bohmelt et al. 2019; Koubi 2018; Scheffran et al. 2012), however, qualitative

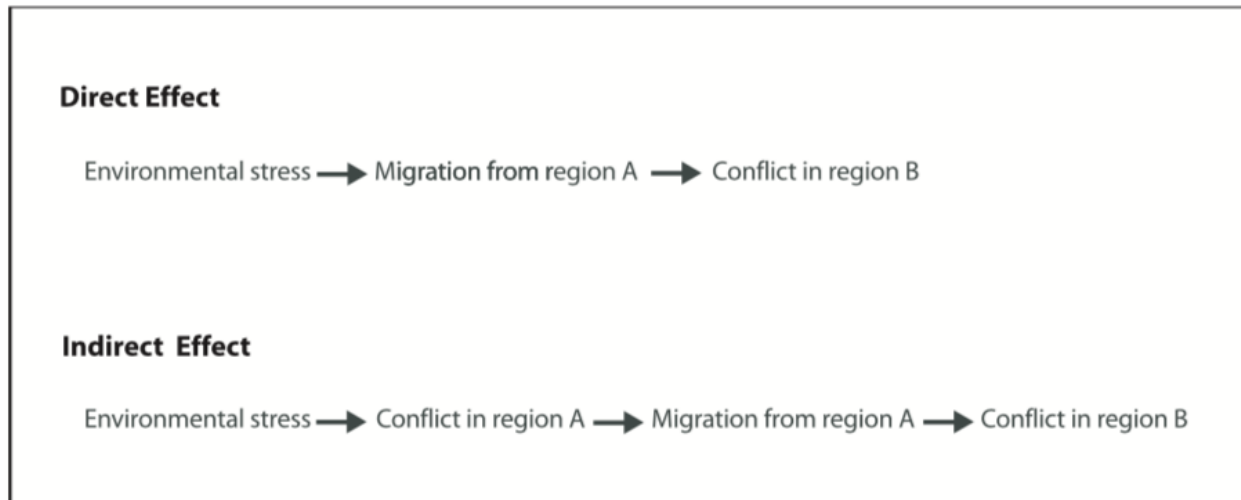analysis of this theory is almost nonexistent.

Figure 1. Gleditsch, Nordas, and Salehyan, 4, 2007.

While the figure by Gleditsch et al. provides a theoretical framework, it does not account for

crucial intervening variables, which are chronically understudied. My study attempts to rectify

this issue by evaluating one specific intervening variable which I argue plays a critical role in

whether or not climate migration causes conflict. I argue that state capacity is most relevant to

the climate migration and conflict nexus due to the previously studied effect of adaptive capacity

on individuals and communities facing environmental disasters. With more ability and support

from the state, displaced peoples should logically have fewer grievances in their host

communities and be less likely to resort to conflict. Government support in the form of housing

and supplies, as well as economic capacity lessening competition for employment opportunities

should make migrants less likely to become involved in conflicts.

I attempt to explain how large and sudden migration influxes into certain cases

contributes to conflict, beginning with increased vulnerability due to extreme events and

resource scarcity, and further affected by lacking state capacity. Climate migrants do not have an

identified effect on civil wars, but they have been linked to increased non-state conflict (Bohmelt, Bove, and Gleditsch 2019). Environmentally related conflict tends to be communal violence due to resource scarcity over livestock, cropland, or water holes, and does not involve state agents (Fjelde and Uexull 2012). This logic of conflict due to resource insecurity also applies to climate migrants putting stress on resources in their destination community. Climate migrants increase the resource demand of a given area, and could create increased competition for jobs and housing, or resources such as firewood or physical space, especially in already crowded cities. Climate migrants could also shift the distribution of identity groups and cause furthered environmental degradation. Economic vulnerability of local communities can also interact with physical vulnerability, since the poor often inhabit degraded land that is more exposed to natural disasters such as flooding (Fjelde and Uexull 2012). Climate migrants moving to other marginalized land could further damage it, making it even more vulnerable to natural disasters, beginning the cycle over again and creating further vulnerability. However, state capacity has a mitigating effect on non-state conflict, which is another reason why I focus on communal conflict (Bohmelt et al. 2019).

Presumed Direct Effect
Climate disaster ➔ Migration from region A ➔ Conflict in region B

Presumed Indirect Effect
Climate disaster ➔ Resource scarcity and vulnerability ➔ Displacement in region A ➔ Conflict in region A

Theorized Causal Pathway
Climate migration x State capacity x Host society factors ➔ Risk of conflict

Figure 2. Causal pathway of climate displacement and migration to conflict.

Although there are links between conflict, climate change, and adaptive capacity, these topics have not yet been applied to the climate migration. It has been established that more vulnerability and less adaptive capacity can lead to forced migration, but the pathway from climate migration to conflict remains hazy and undefined. The conditions present that bring the plight of climate migrants to outright conflict can thus far only be hypothesized based on factors of migration for other reasons and its links to conflict. State capacity is a crucial intervening variable within this causal pathway, and my research provides necessary insight into this relationship.

Methods

My overarching research goal is to determine the conditions under which environmental migration causes conflict; this will strengthen literature on the specific link between climate change and conflict. My hypothesis is that weaker states with less adaptive capacity are more likely to experience conflict when there is an influx of environmental migrants than strong states. The relationship between climate change and conflict has been carefully analyzed and found to be incredibly complex; likewise, the relationship between migration and conflict has been studied. However, our understanding of the relationship of climate change induced migration to conflict is highly uncertain, in fact, little is known with much certainty about climate migrants to begin with (Koubi, Böhmelt, Spilker, and Shaffer 2018). In this section, I first identify and operationalize my independent, dependent, and intervening variables, then explain how I will conduct the case studies, and finally provide a justification for my chosen cases.

Identifying and Operationalizing Variables

In order to focus on climate migrants, my primary independent variable is climate change-induced migration, while my dependent variable is communal (inter-group) conflict. Climate induced migration is operationalized through the Internally Displaced Monitoring Centre database, which describes the amount and cause of internal migration, including the climate event that caused the migration. IDMC states that the key characteristics of an internally displaced person is one who is involuntarily forced to leave their home, and who moves within international borders. I look at flooding, because it is a sudden onset occurrence that has increased with climate change, and it can make living conditions unbearable, prompting migration. My focus will be on flooding events that displaced a lower threshold 1 million or more people within one week. Such events have continued on to displace hundreds of thousands of people, and I track the total amount of displaced people related to each specific event. Conflict is operationalized through the Armed Conflict Location & Event Data Project (ACLED) and Uppsala Conflict Data Program (UCDP) databases, where conflict is recorded down to the village level. The UCDP dataset defines non-state conflict as "the use of armed force between two organised armed groups, neither of which is the government of a state, which results in at least 25 battle-related deaths in a year" (UCDP 2019). ACLED does not have a deaths related threshold, so I utilize both databases in order to capture as much as possible, including tensions that may lead conflict later. Because the study I am conducting focuses on internal displacement and non-state conflict, I isolate communal, intergroup conflict for analysis. Additionally, news sources and government reports are used to further inspect the cause and circumstances surrounding any conflicts.

State capacity is the main moderating variable, which I hypothesize will affect whether there is conflict as a result of climate migration. If the government is able to provide for its residents in times of environmental crisis and help them adapt, fewer people will migrate, and in cases of large migrations, higher state capacity should enable the state to mitigate possible conflicts by providing resources to help with individual and communal adaptive capacity (Bohmelt et al. 2019). State capacity will be operationalized by looking at the Worldwide Governance Indicators and the Human Development Index. Due to regional differences in state capacity, I also examine sub-national Human Development and GDP per capita as sub-state measures of capacity. This is especially important when looking at climatic events that occur on the outskirts or in rural areas of my case studies, where displacement is more common yet state capacity is limited. Additionally, I utilize news articles and any additional sources possible in order to find and evaluate the ways in which the state did, or did not, respond to the influx of environmental migrants. If my hypothesis is supported, the state's actions in response to those displaced peoples will be correlated with the amount of conflict seen.

Because the key to my study is the acknowledgement that conflict does not happen in a vacuum, other intervening variables to be considered are ethnic ties and political exclusion, as these factors are also known to increase the likelihood of conflict (Saideman 2001; Hendrix 2010; Rugger 2019). These will be operationalized through history of inter-ethnic conflict; unemployment rate and GDP per capita, respectively. While these variables must be considered due to their documented effect on climate, I anticipate that state capacity is most salient with regards to the climate migration and conflict nexus.

Case Selection and Justification

Case selection depended on the occurrence of floods causing significant amounts of migration in short periods of time. My interest focuses on medium and low-income countries with varying amounts of state capacity. India and Bangladesh are often faced with the very same storms, but have completely different institutions and levels of government support with which to deal with climate disasters. Environmental migrants in these countries often move from rural to urban areas, where theoretically there are more resources and state capacity to assist them. Additionally, large rivers critical to rural communities have continuously overflowed in the past years, causing massive flood damage and displaced people, both in a seasonal and permanent basis (Avinash 2016).

Figure 3. This map includes Bangladesh and India by state. My case studies include events affecting Assam, West Bengal, Andhra Pradesh, Puducherry, and Tamil Nadu, as well as Bangladesh. Source: whereig.com

In India, states have varying amounts of autonomy, and may use more or less of the central government's support depending on the on factors regarding subnational state capacity. Wealth disparity in India is infamous, and each state's ability to support relief efforts and supply residents with essential needs after a disaster may not be the same as the next, although they both fall within the country of India. This difference allows a stronger comparison of different climate disasters and their following conflicts, because variables such as the storm severity can remain constant, while subnational capacity is contrasted with that of other states hit by the same disaster. I will largely be looking at Indian state capacity on this subnational scale, and comparing government efficiency and adequacy of one Indian state to another, and then looking at likelihood of conflict. This close-up approach allows me to dive deeper into the particular circumstances surrounding climate migration that did or did not affect conflict in the region.

Bangladesh is a low-income state with lacking government capacity and infrastructure. It has approximately 11 million people living below the poverty line on its coast, which are annually wracked with monsoons and floods. With little government support to provide preventative and post-disaster aid, residents along the coast of Bangladesh are often left even more vulnerable after the arrival of each monsoon. Examining how the state attempts to intervene and support its affected residents after a major climate disaster has serious implications on the well-being of those in affected areas, as well as their vulnerability when the next storm hits. Bangladeshis have high poverty rates, weak infrastructure, high density living, and a large

percentage of sustenance based livelihoods. If state capacity plays a major role in climate migration based conflicts, it is logical that conflict is seen in Bangladesh.

In order to analyze my cases, I will first look at instances of flooding that led to migration across the case countries, using the Internal Displacement Monitoring Centre. I will then look at the ACLED and UCDP databases down to the village and province level in order to determine if conflict occurred during or after the people were displaced, and if those people were involved. The difficult part is identifying where the climate migrants went when they were displaced, and in order to ensure accuracy I will also use drawing on policy reports, INGO response reports, newspaper articles, and media, in addition to the datasets.

Case Studies

India

I chose extreme weather events in several Indian states and a territory, and delved into the situations surrounding the climate disasters in order to most aptly compare different state capacity levels to conflict outcomes. Due to India's enormity in both geographic and population scale, among other factors, the capacity in India varies widely by state. Indian states have historically handled disasters largely on their own, with limited aid from the central government. As Indian states have individual Human Development Indices, vulnerabilities to extreme weather, and varying resilience measures in place, I compared different state responses to the same weather events and then looked at conflict in individual states. This minimized alternate variables and allowed the study to focus on state capacity and response efforts' effect on the likelihood of conflict.

Assam Floods of 2012

Background and State Capacity of Assam

Assam is a state situated in Northeastern India, with the Brahmaputra river flowing through the length of the state. Assam has a history of heavy flooding during monsoon season (June to September), with major displacements as a result of short term climatic events. These events vary in scale from year to year, but in severe instances have displaced millions in the span of a few days. Extreme floods destroy housing and force people to move to nearby villages or refugee camps. Flooding in Assam happens annually, but as the effects of climate change become more pronounced, storms will become a bigger issue. Scientists calculate longer and less predictable monsoon seasons, with greater amounts of rain falling and the average size of monsoons increasing (Turner and Annamalai 2012).

Over 95% of Assamese rely directly or indirectly on the land, and 23% of cultivatable land in Assam is at risk of flooding. In addition, approximately 10% of the Assamese population are Muslims who live on chars, the almond-shaped islands lying within the Brahmaputra River (Coelho 2013). These chars only make up 4% of the land in Assam, and they are highly exposed to floods and degradation due to the nature of their existence within a large river that floods annually (Kumar and Das, 2019). Additionally, the silty and sandy ground makes the chars even more vulnerable to erosion. When floods occur, people who live on chars are forced to either relocate to another char in hopes that the new char will not be submerged, or move temporarily to the mainland (Coelho 2013). The average displacement of households living on chars is twice in 10 years; this number will only increase as the effects of climate change worsen household vulnerability of char dwellers. Assam's capacity to handle flooding and provide basic needs for

its char dwellers is increasing, although still quite limited. Resource scarcity is a significant issue

for Muslim char dwellers, especially during monsoon seasons. The Muslim char dwellers

instability and resource scarcity is related to them being socially out casted from the larger

Assamese population.

Figure 4. The Hindu, July 2012. The Brahmaputra River is overflowing and has flooded

surrounding area.

There is considerable tension existing between Bodos, the indigenous people of Assam,

and Muslim minority groups. Assam has had influxes of immigrants since the colonial period,

and as a result the religious and ethnic makeup of Assam is very diverse (Kumar and Das, 2019).

Due to the long immigration period, many people (Bengalis) have been in Assam for three or

four generations and are assimilated into Assamese culture, while more recent newcomers

remain culturally distinct. Regardless of their legal status, the perceived illegal immigration of

Muslims into Assam alienates them from dominant society, who are the predominant inhabitants

of the chars. If a group of Bengali-speaking Muslims settles down on the mainland, the locals are

suspicious and unreceptive to their presence there. This longstanding tension is what has led

most Muslims to living on the chars. When chars are eroded and the char dwellers must move, they face not only the economic loss of their homes and land being destroyed, but also must confront the heightened tension between them and the indigenous peoples. Due to fear that conflict will break out if the Muslim char dwellers are put in close proximity to the Bodos, relief efforts separate the groups into different refugee camps (Kumar and Das, 2019). Lack of overall resources and support focused on indigenous peoples leaves the char dwellers even more exposed, and with lackluster relief provisions.

State capacity to handle flooding and other disasters in Assam exhibited a lack of resources and increased vulnerability for all residents. Assam's Human Development Index score in 2012 was .582, compared to .600 for India statewide (Global Data Lab). Of India's 29 states and 7 territories, Assam ranked 30th in HDI score in 2012. Assam's lacking state capacity and inadequate rescue response may have had an impact on the following violence outbreak. Refugee camps were insufficient for housing all those affected by the floods, and although a larger population of Muslim minorities were affected by the floods, it was mainly the majority groups who stayed in the camps. Without the state capacity to provide for everyone in need, preference was given to the dominant non-Muslim population. This lack of ability to provide for everyone in need increased resource scarcity and heightened ethnic tensions, eventually leading to violence between ethnic groups.

June 2012 Floods

Beginning in the third week of June 2012, torrential rains flooded the Brahmaputra river and surrounding area. News sources reported flooding in 26 districts and 4,540 villages, affecting almost 3 million people (Sphere India 2012). By October 2012, the Internal Displacement

Monitoring Centre reported that 6.9 million people were displaced following the June floods, and a large portion of those people's houses and possessions were completely washed away (IDMC 2019). As the first major flood wave came, the government set up 340 relief camps, supporting 485,000 people (The Hindu, 2012). Due to fear of riots breaking out, relief camps for Muslim refugees were separated from other relief camps, and a majority of the camps and relief efforts went to non-Muslim Assamese. Many communities were left outside of the relief efforts due to lack of state capacity. According to the International Federation of Red Cross reports, those trapped on riverbanks faced unbearable living conditions, with lacking food, water, and shelter. As the floods destroyed the hand pumps, purified water was crucial. The government and NGOs provided some food, water, and tarpaulin sheets, but these provisions were insufficient for the number and condition of the IDPs (The Hindu, 2012). As weeks passed after the initial flooding event, relief efforts slowed further; donors mistakenly believed that those impacted by the flood could return to their previous homes. Unfortunately, thousands of homes were destroyed and most people had nowhere left to return.

July 2012 Riots

On July 23rd, 2012, almost exactly one month after the flood, as relief efforts dwindled, riots broke out between the Bodos and minority Muslim groups. The estimated death toll for this conflict is 44 people, and people in almost 400 villages were displaced (FirstPost, 2012). According to news reports, the underlying issue is "infiltration" anger and resentment (Relief Web, 2012). Soldiers were given "shoot on sight" orders for anyone perpetrating violence (FirstPost, 2012). Climate change highlights this issue by furthering resource scarcity and putting further economic strain on all involved peoples. Monsoon flooding acts as a catalyst for violence.

The Indian state attempted to provide relief supplies, and military was deployed to stop the violence.

Case Findings

The monsoon floods did not create violence, but sufficiently exacerbated underlying tensions by causing huge amounts of internal displacement, which the state did not have the necessary capacity to deal with. The people were left without resources due to the state's inability to provide them. Additionally, a sense of disparity between Muslims and Bodos fueled the flames of tension. Had Assam been able to provide for each household based on need rather than other factors, such as ethnicity or religion, there may not have been conflict. Furthermore, each time people are displaced due to flooding, they become more vulnerable because they lose all of their possessions, including their house, land, and annual crop growth (Coelho, 2013). Especially for the Muslim char dwellers, this cyclical cycle will continue to become more vicious, especially if the state of Assam continues to put ethnic factors ahead of people's resource scarcity and relative vulnerability. Future and more extreme flooding and further marginalized people in Assam may continue to cause future conflict.

Cyclone Thane

	HDI (2011)	GDP ($billion)	GPI
Andhra Pradesh	.590	125.614	.59
Tamil Nadu	.656	226.827	.61
Puducherry	.739	-	-

Figure 5. Comparison of state capacity in Andhra Pradesh, Tamil Nadu, and Puducherry based on three measures.

Overview and State Capacity of Tamil Nadu

Tamil Nadu is a state in southeast India with approximately 72 million people and the second largest economy in India (Government of Tamil Nadu). The state is urbanized and industrialized, with its power distribution ranked in the top three states in India and 97% of the state electrified (World Bank India). Tamil Nadu is known for having one of the fastest growing economies in India, driven by the growing service industry, and has a relatively low poverty rate at 12% of the population. The literacy rate is 80% as of the 2011 census, with Scheduled Tribe and Scheduled Caste bearing a large proportion of the illiterate residents. Although inequality has been on the decline, Tamil Nadu still has a slightly above average rate of consumption inequality (World Bank India). Tamil Nadu has received the weakened remains of several major cyclones in the past few decades, but Cyclone Thane was one of the most destructive to hit (Government of Tamil Nadu).

Overview and State Capacity of Puducherry

Puducherry has different state capacity indicators, because it is a small territory, rather than an Indian State. Multiple indicators show that Puducherry is above the national average in terms of government performance, including employment opportunities, healthcare, and infrastructure such as roads (Business Standard 2018). The sub-state Human Development Index in 2011 was .739 (Global Data Lab). Poverty level based on purchasing power parity (PPP) of Puducherry fell from 37.4 % in 1994 to 9.69 % in 2012, and has continued to fall in recent years

(Knoema 2012). Average literacy was 85.44% according to the 2011 census, with 69.16% of people living in urban districts and only .16% of the population was recorded as homeless. These various measures indicate relatively high sub-state capacity. This is attributed to Puducherry's small population of approximately one million people, but the decades long steady increase in HDI is also due to the local government consistently prioritizing healthcare and employment initiatives.

Cyclone Thane Overview

Cyclone Thane was the largest tropical storm in the Indian Ocean in 2011. Lasting from December 25th to December 31st, Cyclone Thane claimed 48 lives and displaced 250,000 people in India (and more in Sri Lanka). The worst damage was seen in Puducherry and Tamil Nadu; Andhra Pradesh to the north did not have any casualties.

In Tamil Nadu, the Cuddalore district was devastated by Cyclone Thane. With a population of 2,605,914 as of the 2011 census, thousands were left without power and faced acute food and water shortages. Hundreds of acres of standing crops were destroyed by the heavy rains, and 25,000 acres of paddy crops were damaged with varying severity. On the coast, water flooded up to 500 meters inland, and people in low lying areas were displaced and thousands were put in relief camps with food, water, and other emergency supplies. Several districts in Puducherry were largely destroyed by the storm's wind and accompanying floods.

Relief Response

Tamil Nadu Chief Minister J. Jayalalithaa and Puducherry Chief Minister N. Rangasamy held emergency meetings to evaluate the situation and order relief measures. Tamil Nadu Chief

Minister J. Jayalalithaa gave 200,000 rupees to each dead person's family, and 150 crore rupees (1.5 billion rupees) to localities for reconstruction of infrastructure and disaster relief efforts. These funds were separate from emergency relief camp funding. The Tamil Nadu and Puducherry governments requested national funding and resources in order to further support relief efforts and future resilience (Punithavathi, Tamilenthi, and Baskaran 2012).

There were disaster preparedness methods in place before the cyclone, but their effectiveness varied. Warnings were aired on television and radios at in the days leading up to the cyclone, which helped warn residents and encourage safe and timely evacuation. However, the power was preemptively shut off twenty-four hours before Cyclone Thane was supposed to make landfall, so these warnings could not be received by many of those who needed them (Sudhir and Bharti 2011). Still, early evacuations and school closures are credited for why the death toll remained so low, despite the severity of the storm and extent of the damage. Thatched houses sustained the most damage, with 380,000 damaged in Cuddalore alone, and similar damages occurred throughout the rest of Tamil Nadu's coast and Puducherry (India Waterportal 2011). In Cuddalore, cyclone shelters were prepared beforehand and people were evacuated to them without much difficulty. However, issues arose when the cyclone ended and thousands did not have homes to come back to. In Puducherry, there were not such facilities, and the government struggled to house those who had been displaced, leading to food, water, and privacy shortages (World Bank India).

Figure 6. The Hindu, 2011. Puducherry's embankments held much of the water back, eliminating some flooding concerns.

After the cyclone, priority was given to clearing roads of debris, restoring power, food and water provisions, and damage assessment. The state of Tamil Nadu provided extensive resources to the worst hit areas, but Puducherry was left to deal with the destruction on its own. Essentials such as rice, candles, and kerosene prices rose exponentially in the aftermath of the cyclone (International Federation of Red Crescent 2011). Damage assessment crews from the governments gave compensation packages to those whose lives were most damaged by the cyclone, and residents were eager to receive these in light of the resource shortages. Where factories were damaged and shut down, workers were given time off (some with pay and some without) until repairs could be made in order to start up again. The agricultural sector struggled more, as long-standing crops cannot be fixed with machinery, so a large portion of compensation went to farmers.

No cyclone has displaced as many people in the affected areas since Cyclone Thane, and further development and disaster relief measures can be attributed to this, as storms of similar

sizes have occurred (India Meteorological Department 2011-2019). Although Tamil Nadu and Puducherry were severely affected by Cyclone Thane and subsequent storms, increased disaster preparedness and relief efforts have prevented further mass displacements (International Federation of Red Crescent 2011).

Conflict

Occasional clashes between Hindus and Muslims have occurred in Tamil Nadu, Andhra Pradesh, and Puducherry, and these non-state conflicts have caused fatalities, though rarely in the 21st century. Following Cyclone Thane, there were no fatalities due to non-state violence, and no reports of conflict or increased tensions in any of the affected states

Case Findings

Where the storm hit strongest, most houses had electricity and were structurally sound, and few people were homelessness prior to the cyclone. Due to these preventative factors, less people were displaced. Additionally, the government administered compensation for those who were most reliant on the land. In addition to the tangible relief from this compensation, affected people were also assured that their government was keen to help them through the environmental disaster. Severe flooding is less of a threat on every level due to increased capacity on a prevention and resilience level. The outcomes of storms such as Cyclone Thane, although severe, are easier for higher capacity states to respond to. Better infrastructure limits the number of those who are displaced, and this in turn eases resource scarcity and possible resulting tensions. In this case, high state capacity appears to have reduced the level of internal displacement, which in turn may have mitigated the likelihood of conflict taking place in the aftermath of the disaster. This

speaks to the argument that climate change related disaster, in and of itself, does not cause

violence, rather the potential increases in combination with other factors (mass displacement,

state incapacity, history of ethnic tensions).

Cyclone Aila (India)

Overview of Cyclone Aila

       Cyclone Aila hit Bangladesh and the eastern coast of India, including Kolkata in West

Bengal and Assam. Warnings were given shortly before the storm made landfall, and it is

estimated that 500,000 people in India were evacuated to higher ground. Categorized as a severe

cyclonic storm, Aila was one of the worst storms to hit the eastern coast of India in

approximately 20 years (The Indian Express, 2009). Strong winds, heavy rains, and excessive

flooding caused a majority of the damage, although deaths and injuries also occurred due to

indirect damages such as fallen power lines and electrocution. Cyclone Aila made landfall from

May 26th to May 27th, 2009. Although estimated fatalities are relatively low, at 339 in both India

and Bangladesh, over 2,300,000 people were internally displaced due to Aila's effects.

Displacement was largely concentrated along the mouth of the Ganges River, and clean drinking

water was an acute problem due to tidal surges contaminating usual water sources.

State Capacity and Rescue Response

West Bengal

       While West Bengal faced losses significant losses of life due to heavy flooding and tidal

surges, people were also killed by landslides, fallen trees, and snapped power cables. All

operations within Kolkata and the surrounding area were stopped for the duration of the cyclone.

Hundreds of thousands of people in West Bengal were displaced, and large areas of crop land were destroyed (Walton-Ellery 2009). The state government of West Bengal quickly responded with rescue operations, setting up temporary relief camps and providing dry food and drinking water pouches to everyone affected. The army was also deployed to bring essentials to people in more isolated parts of the state, and these efforts included air dropping (Times of India, 2009). Additionally, 1.5 crore from the Contingency Fund was allocated to the relief effort, distributing tons of rice and tarpaulin. The Centre dispatched National Disaster Response Force (NDRF) personnel in order to support West Bengal state's response efforts.

Assam

The rescue response to Cyclone Aila was incredibly limited in Assam, with little support for those whose homes and livelihoods were destroyed by the cyclone. Few reports focused on Assam's damages, as Indian news sources focused on Aila's impact on West Bengal, which is less often devastated by cyclones of Aila's severity. Even so, records indicate that thousands of homes were destroyed, and people lost all of their agriculture within the two days in which Aila struck (The Times of India, 2019). Flooding and tidal surges turned fertile cropland into unusable saline land. The state of Assam's support was negligible, as documented by journalist Namrata Goswami, "the neglect of the hill districts of Assam by the state government is a fact of life. The level of social, political and economic development of the North Cachar Hills is one of the poorest in the state. People still depend on shifting cultivation and there are no alternative support structures if people lose their daily means of subsistence due to the ravages of the weather or ethnic violence" (Outlook India, 2012). This lack of state capacity and involvement in

caring for its people fans the flames of issues surrounding climate change and flooding, as well as existing ethnic tensions, making the clash between the two issues deadlier.

Conflict

West Bengal did not have conflict in 2009 that was at all related to internal displacement and flooding. The state's timely and significant rescue response, including army support in delivering food and water to displaced peoples may have been a mitigating factor in no conflict arising. Resources were allocated to people based on need, including remote villages in the Sundarbans, where people are largely to entirely subsistent on the land.

In Assam, all conflict in 2009 took place during monsoon season (March to August), and was between Dimasa and Zeme Naga ethnic groups. Dimasa is the majority ethnic group (35%) over Zeme Naga, which are 12% of the population. For decades, these groups have lived together with very few conflicts, but Zeme Naga assailants began attacking Dimasa houses and villages in the summer of 2009. The largest attacks fell immediately after 2009's largest and most destructive hurricanes, which occurred on May 26th and July 1st, 2009. The graph below shows conflict deaths, but it is important to note that storming, pillaging, and destruction of Dimasa villages happened throughout summer but were concentrated closely following monsoons and major flooding. News articles did not speak to the conflict's origin.
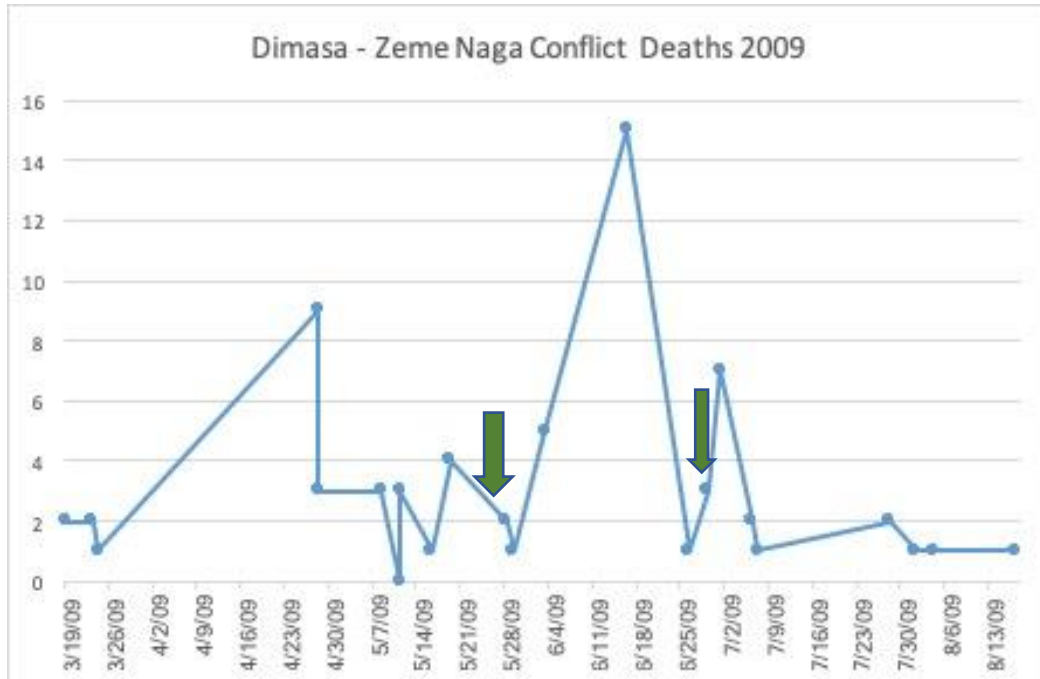
Figure 7. This graph shows the conflict deaths between Dimasa and Zeme Naga clashes in summer of 2009. The green arrows indicate where the largest monsoons of the summer occurred (Cyclone Aila is the first arrow).

Case Discussion

Within West Bengal, Cyclone Aila did not spark or exacerbate conflicts. West Bengal had better precautions in place than Assam and responded with a higher and more rapid level of relief aid, even though Assam is faced with cyclones of comparable size to Aila more regularly than West Bengal. In Assam, conflict peaked in the days immediately following Aila, and the conflict occurring was one that had been largely inactive for decades. Since the ethnic clashes were caused by resource shortages and the feeling of one community being better off than the other, it follows that Cyclone Aila played a fairly major role in at least exacerbating the tensions between the Zeme Naga and Dimasa. It is difficult to tell what was the primary cause of this conflict, but the occurrence of conflict only immediately after the storm's damage, and then

diminishing fatalities as the monsoon season drew to a close is supporting evidence; another,

stronger motive for the conflict's incitation in 2009 could not be found.

A separate consideration that may need to be researched further is the relationship

between increased disease incidence and increased conflict. With the contamination of water

sources and inadequate access to clean drinking water, diarrheal disease affected thousands of

Assamese following Aila, while those in West Bengal largely did not suffer of diarrhea due to

aid packages and supplied drinking water. Increased incidence of disease in already displaced

populations, especially because diarrheal infections are highly contagious, will further

marginalize already vulnerable populations (Center for Disease Control). As climate change

worsens, diarrheal disease remains a potentially deadly threat; its connection to climate change

related conflicts should be studied and better understood.

Bangladesh

Located next to Northeastern India, Bangladesh often receives the same monsoons as some

Indian states as they travel north from the Bay of Bengal. Divisions in Bangladesh do not have

the same level of influence and autonomy as states in India do; in fact, they have relatively

limited sway over public policy. The state government of Bangladesh has infamously low

capacity, with Bangladesh known as one of the poorest and least developed countries, as well as

being most vulnerable to climate change due to the high concentration of very poor citizens

living at sea level. Additionally, Bangladesh's weak development allows less room for the

country to provide preventative measures for climate disasters, as resources are stuck being

allocated for damage control rather than resilience measures.

State Capacity

In 2010, Bangladesh's Human Development Index was .545, and ranked 136th out of 189 countries. Bangladesh's inadequate infrastructure and rampant corruption are issues that drag down state capacity levels and in turn make Bangladesh even more vulnerable to climate change, and possible violence that may follow climate induced displacement. The Asian Disaster Preparedness Center stated that Bangladesh "is already under pressure from increasing demands for food and the parallel problems of depletion of agricultural land and water resources from overuse and contamination. Climate variability and projected global climate change makes the issue particularly urgent" (Asian Disaster Preparedness Center, 2012).

Specifically related to climate change disaster resilience, there is a clear need for increased early warning systems (only 38% of households received a warning before cyclone Aila, and these were skewed towards wealthy households) and disaster preparedness training (14.4% overall, again significantly skewed towards wealthy households receiving a much higher percentage of training than poorer households).

Cyclone Sidr

Cyclone Sidr Overview

Cyclone Sidr, a Category 4 storm, struck the southwestern coast of Bangladesh on November 15th, 2007. According to the International Recovery Platform, at least 4,234 people were killed in cyclone Sidr and its following floods. Almost 9 million people were affected, with approximately two million homes severely damaged or destroyed (Shelter Projects 2009). Sidr caused extensive damages to houses, water and sanitation infrastructures, harvests, food stocks

and livelihoods. It killed livestock, destroyed fishing equipment, and other essential livelihood

resources. Cyclone Sidr disrupted the lives of millions of people in the poorest and most

vulnerable areas of Bangladesh. Damaged roads made access to the affected areas almost

impossible, and aid workers struggled to reach survivors in most of the affected areas

(International Recovery Platform 2007).

Figure 8. Emergency shelter built after Cyclone Sidr, using materials found or given to the

household by rescue efforts. Photo by Dave Hodgkin.

Response Efforts

Despite early warning systems sounding the alarm, thousands of residents remained in

their home. Further research suggests 75% of those affected by Sidr were aware of the coming

storm before it made landfall, but did not trust the government warnings and therefore did not

evacuate their homes. However, millions of people were evacuated, and it is estimated that

100,000 lives were saved due to early evacuation. In 1991, a similar sized stormed called

Cyclone Gorky killed an estimated 140,000 people, and the early evacuation is credited with the difference between Sidr and Gorky's death tolls. Unfortunately, the millions evacuated returned to total devastation, with upwards of 1.5 million homes damaged or destroyed completely (Paul 2009).

In order to help the situation, the government deployed naval ships, aircraft, and helicopters to support the relief operation. Due to the clear severity of the storm and its mass destruction, Sidr was seen as a humanitarian emergency (Chughtai 2008; Davidson 2008). Thousands of trained volunteers were active in the situation from the outset, and Bangladesh received global support in responding and relieving its citizens after Cyclone Sidr struck. The top donors were Saudi Arabia and the Central Emergency Relief Fund, providing approximately $120 million (2007 USD; Chughtai 2008). The government gave 100,000 people whose houses had been completely destroyed about $70 as an emergency housing grant (Chughtai 2008). However, later assessments showed that these grants were used largely on emergency items such as food and water, as well as repairs to livelihood necessities such as fishing nets. NGOs such as Oxfam and IFRC provided shelter supplies to thousands of affected people. Unfortunately, some local officials did not allow the relief organizations to give out emergency supplies, arguing that foreign governments would provide permanent building supplies. For hundreds of thousands, this did not come. The Bangladesh targeted almost 80,000 households to officially assist in house rebuilding, but this still left 276,000 families (1.38 million people) who were deemed in need of housing assistance, but unable to receive resources due to the government's inability to meet this need (Chughtai 2008). Oxfam and IFRC provided some additional supplies, but many remained without, and these households remained the most vulnerable to future storms (Devlin and Hendrix 2014).

The nature of post disaster relief distribution was unfair and influenced by deep-set government corruption. Nadiruzzaman and Wrathall analyzed the economy in Bangladesh after Cyclone Sidr and documented how and to whom aid was distributed, and who made these decisions (2015). They defined marginality as "one's relative distance from the power network" and explained that those furthest from the power network in Bangladesh were the people excluded from receiving supplies and money after Sidr, although these very people were most in need. Additionally, since humanitarian assistance works largely through the existing power networks, these uphold power networks rather than providing aid to those who the government has overlooked (Nadiruzzaman and Wrathall 2015).

Conflict

Although no outright conflict related to Cyclone Sidr was reported, Bangladesh was in the middle of the 2006-2008 political crisis, which was largely concerned with existing governmental corruption. In January of 2007, both of the major party leaders were charged with corruption, along with 158 other government leaders. The expressly documented corruption regarding handling of Cyclone Sidr illustrates that these trials were ineffective in purging the country of corruption. Further marginalization of the most vulnerable Bangladeshis due to climate displacement as the country attempted to grapple with wealth inequity and corruption may act as a risk multiplier in the future for rioting or heightened tension.

Case Discussion

Due to the overwhelming global support of both the Bangladesh government and the affected Bangladeshis, the lasting damages of Cyclone Sidr were relatively minimized.

However, the relief managed to help a portion of those affected get back to a similar standing as before the hurricane, but did not build resilience for future cyclones. In an assessment three months after Sidr, one report stated, "in all cases people were more vulnerable for future winds, floods or tidal surges than they had been before the cyclone" (Shelter Projects 2009). The heightened destruction of Cyclone Aila two years later proved this to be correct. As far as conflict goes, persistent corruption in all areas of government activity including climate change disasters will continue to threaten state stability and security as climate displacement increases over the next decades.

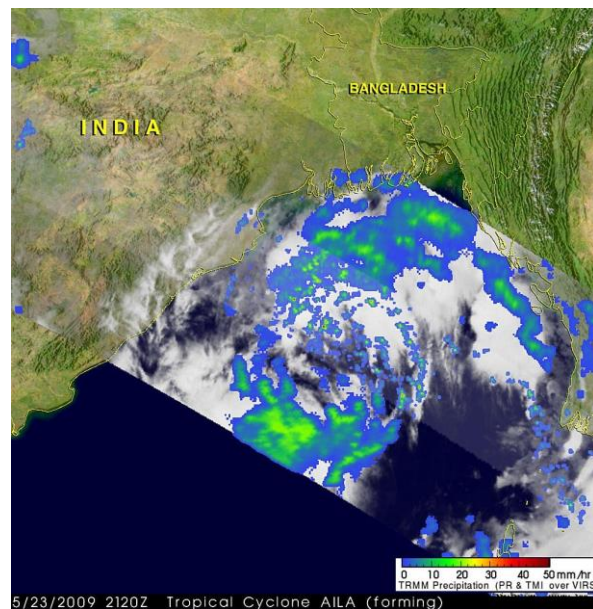### Cyclone Aila (Bangladesh)

Figure 9. Nasa, 2009. This satellite image depicts where Cyclone Aila hit both India and Bangladesh.

Cyclone Aila Overview

The meteorological departments of India and Bangladesh have documented consistently increasing incidence and severity of disasters such as cyclone Aila since the 1990's, and this is

attributed larger to climate change and the warming of the Bay of Bengal's surface temperature. With continued warming, cyclone intensity will continue to increase, and continually destroy the homelands of millions of people (Parvin et al. 2019).

Due to Cyclone Aila, more than one million people lost their homes and were forced to migrate away from their homelands, and the damage done was upwards of $269 million USD, with 9.3 million people affected according to Islamic Relief Bangladesh. In Bangladesh alone, the cyclone destroyed 2,000 kilometers of coastal land, in addition to agricultural land and thousands of livestock (ReliefWeb 2009). Flooded lands caused salinization of water and soil, creating long term problems with land that was previously fertile, as well as completely destroying the current year's worth of crops. Salinization also largely destroyed access to clean drinking water, and at least 50,000 Bangladeshis were reported to suffer from diarrhea as a result (Forest Peoples Program 2009). Additionally, almost 2,000 kilometers of road were fully or partially destroyed due to flooding. With an estimated 3 million people affected by losing their homes and/or livelihoods through lost crops and livestock, over 35% of people affected were permanently displaced to higher ground (Forest Peoples Program 2009). An analysis of which displaced people migrated permanently after Aila found that decisions were made "due to their financial vulnerability, loss of physical resources, and insecurity, and they were suffering severely in terms of their unemployment, lack of housing, health problems, and their low access to the local public services" (Islam and Hasan 2015; Ashan et al. 2016).

Throughout the summer and next years, people were still unable to return to their livelihoods as continued monsoon rains and destroyed levees expose farmland and shrimp beds to seawater twice a day as the tide comes in (The New Humanitarian 2009). In 2014, Islam Relief published an article reporting that even after five years, Bangladesh was still struggling

significantly to cope with the effects of Cyclone Aila (ReliefWeb 2009). Due to Aila's

destruction of the coastal embankment network, which served to minimize flooding and saline

intrusion due to sea level rise, communities continued to face long term water logging and

salinization for years after the cyclone hit (ReliefWeb 2014). An overwhelming lack of

opportunity to earn a livelihood and rebuild after Cyclone Aila has caused continued migration to

urban areas of Bangladesh, as thousands of people find themselves resource deprived and unable

to recover from Aila's devastation.

Response Efforts

Immediately after Cyclone Aila, the international perception was that Aila was not a

major disaster, and therefore little immediate relief efforts (and overall low NGO support) was

mobilized. As the extent of damage became apparent in the months following the cyclone, NGOs

began providing additional emergency response facilitation. Islam Relief and International

Federation of Red Cross and Red Crescent Societies (IFRC) worked to deliver temporary

shelters to those displaced. Eventually the government transferred shelter coordination efforts to

the IFRC. In an assessment report of the IFRC's handling of Cyclone Aila, they state that the

government's lack of ability to coordinate shelter provisions and even to transfer leadership to

the IFRC highlights a lack of institutional capacity, which negatively impacted the millions in

need of aid following the cyclone (Walton-Ellery 2009).

Bangladesh's Food and Disaster Management Ministry gave preliminary reports of the

damage and initially spoke of collaboration with the Water Development Board, army and the

local administration to repair works of the damaged embankments and road (ReliefWeb 2009).

Food and Disaster Management Minister Abdur Razzaque said that Bangladesh asked for $1.15

billion USD for long term sustainability and resistance improvements angled toward increasing incidence of climate change disasters, and stated that Bangladesh would attempt to handle Cyclone Aila's effects without international aid in the interest of receiving long-term support. True to this, approximately 90% of immediate aid to those affected by Aila was from the Bangladesh government. Relief was distributed through state safety net channels and was successfully targeted to those most affected, but the amount of aid received (food, water, money, medicine) was inadequate for the level needed. The government provided Tk. 3-5,000 (US$ 43-72) to each affected household to meet immediate basic needs, but the wealthier portion of the population received more aid than the poor and ultra-poor, and the poorer households were forced to pay more and higher bribes related to emergency supplies (Mahmud and Prowse 2012). Additionally, although 98% of households were provided with a supply of rice in the months after the disaster, poorer households were again given less than their entitled amount, with wealthier households and friends of those in charge of resource allocation receiving more.

Wealth quartiles	Shelter taken during Aila (%)				Refused access to cyclone shelter (%)			Reasons for lack of cyclone shelter (%	
	Cyclone shelter	Union parishad/school/other concrete building	Embankment/at home	Total	Yes	No	Total	Reserved by social elite	No space
Ultra poor	4.3	25.7	70	100	25	75	100	25	33.3
Poor	10	38.6	51.4	100	32.1	67.9	100	12	52
Middle	13	30.4	56.5	100	38.9	61.1	100	3.7	59.3
Wealthy	13	34.8	52.2	100	26.8	73.2	100	0	43.8
Total	10.1	32.4	57.6	100	30.9	69.1	100	8.75	50

Figure 10. Table of which households were given shelter following Cyclone Aila and their wealth quartile. Mahmud and Prowse 2012.

In order to support those who were now unable to work due to flooding and soil salinization, the government launched a cash/food-for-work initiative; however, corruption was high and significant wage stripping occurred. This highlights a significant aspect of Bangladesh's limited state capacity due to corruption: resource shortages fell shorter than actual state ability to provide, because misallocation heightened inequality and further marginalized those who were already most in need. Rebuilding of infrastructure was also lacking and very slow. Agencies managing disaster interventions unanimously agreed in October 2009 that the situation had only worsened since preliminary reports, due to the destruction of embankments and continued tidal inundation, as well as inadequate and corrupt responses to the people's needs in the short and long term following the cyclone. Consequently, people were without essentials for years afterwards, which further increased poverty and stalled economic development (Subhani and Ahmad 2019).

Conflict

Between 2007 and 2012, during which Bangladesh was recovering and being hit by Cyclone Sidr and Cyclone Aila, among others, 86 separate events were documented surrounding food scarcity protests (Hossain and Scott-Villiers, 2017). There was no other conflict that can be reasonably connected to cyclone Aila. A decrease in available resources due to necessary response to Aila undoubtedly took a toll on Rohingya refugees, who were already deprived of essential needs and services prior to monsoon season (Kabir, Khan, Ball, and Caldwell 2016).

Although this continues to marginalize the most vulnerable populations, conflict other than the afore-mentioned food skirmishes did not occur.

Case Discussion

A lack of preventative and resilience-building measures before and after Cyclone Aila hit has created a long-term humanitarian crisis that has yet to be solved, especially as Bangladesh continues to be hit by cyclones and floods due to climate change.

Recovery from Cyclone Aila was much slower and more prolonged than for Cyclone Sidr, for two reasons. Firstly, the water receded quickly after Sidr, and embankments sustained less damage, which kept recurring floods and salinization from happening. Due to this, people were able to recover their livelihoods faster than after Cyclone Aila, where flooding continued for the rest of monsoon season and into the following summers (The New Humanitarian 2009; ReliefWeb 2014). Additionally, the international rescue effort following Cyclone Sidr was rapid and well-funded. After Cyclone Aila, emergency response was lacking, poorly distributed, and slow. Bangladesh's government lacked ability to adequately manage the disaster, and incorrect international understanding of the caliber of aid needed combined to create not only a climate disaster, but a weather disaster as well (Islam and Hasan 2016). People's inability to regain essentials such as shelter, clean drinking water, and be able to return to their livelihoods furthered lasting vulnerabilities and deepened poverty for the millions displaced.

Discussion

Out of this case study analysis has come several findings, which largely support existing research on this topic. Firstly, state capacity is a crucial element to climate displacement, in

terms of the number of people displaced, how permanent the displacement is, and how long it takes those affected by climate disasters to resume their livelihoods. In multiple cases, low state capacity and lackluster response efforts were linked to violence spikes in the form of village looting, food riots, and reignited ethnic conflicts.

A clear trend was that in each situation, those with the most need did not get the most resources. The wealthy, ethnic and/or religious majorities were given preference, and the lower-class populations were afforded what was left over. This supports Nadiruzzaman and Wrathall's specific assessment of aid distribution after Cyclone Sidr. The populations closest to the power network will receive more resources first, compared to others who are farther from power networks but have a greater need for aid. This may in turn lead to future conflicts due to increased horizontal inequality. Social polarization and horizontal social inequalities are positively correlated with conflict, as is of course economic inequality (Østby 2008). This is connected to the theory of Relative Deprivation, where people of one group are unhappy when they feel that they have less than the other groups around them, and this contributes to conflict (Macours 2006).

During the 2012 Assam Floods, the indigenous Bodos were sheltered in relief camps, given supplies and supported largely by the Assamese government. Meanwhile, the minority Muslim population of char dwellers were almost completely left out of rescue efforts and funds, even though in many cases, the islands that the Muslim people had once called home were completely washed away by the Brahmaputra's flooding. The separation of Bodos and Muslims into groups who were and were not given support after the flooding, especially as the Muslims were already significantly poorer and more exposed to flooding than the Bodos, heightened horizontal inequality and perceptions of relative deprivation. This culminated in riots over

resources between the ethnic groups, which further destabilized the region and displaced even more people, as the Muslim minority destroyed and pillaged Bodos villages. This supports Ruegger's finding that in cases of preexisting ethnic tensions, refugees may contribute to decreasing stability (2019). Furthermore, my case studies largely support the findings of Ghimire et al. (2015), which found that flood displacements do not create new conflict but can exacerbate chronic conflicts. In Bangladesh, food shortages and government corruption are ongoing issues, and the displacement and loss of resources following cyclones Aila and Sidr emphasized these problems. Climate disasters such as the 2012 Assam Floods and Cyclone Aila only increase and highlight inequities within the communities and people who are affected, and will continue to do so in the future unless state capacity is increased and people and their livelihoods are safer during monsoon seasons.

Higher state capacity and rescue response resulted in less damages and faster recovery in each case studied. Early warning systems and cyclone shelters before disasters, as well as aid packages, food and water after disasters allowed less people to be permanently displaced. Additionally, strong state and humanitarian responses can help communities get back on their feet faster than if the resources and support are not there. A prime example of this is the difference between Cyclone Sidr and Cyclone Aila. The immediacy with which Sidr was dealt with and resources provided to victims, although still seriously lacking in meeting overall needs, were critical in helping Bangladesh recover from Sidr faster than Aila. After Cyclone Aila, also a Category 4 storm, people had lost whatever extra support or savings they had due to Sidr, and Aila wiped out everything that was left and had been rebuilt after Sidr. The lack of government support following Cyclone Aila created longstanding issues, the extent to which are still being felt more than a decade later. The cyclones and monsoons create a vicious cycle of destruction,

which the affected people do not have the resources to combat—unless there is government intervention. Without initiatives to increase resilience and adaptive capacity both before and after weather events, the people in each storm's path will be stuck restarting their lives and livelihoods over from scratch every few years. In a few cases, such as the 2012 Assam Floods and Cyclone Aila, this extreme vulnerability does lead to increased conflict along existing societal lines. A major concern rests with future disasters and the additional conflicts that may be caused or heightened by the inability for people or the state to respond appropriately and mitigate vulnerability.

Although not necessarily what was expected, the overwhelming finding from these case studies is that state capacity is as crucial in pre-disaster preparation as post-disaster relief. If climate displacement acts as a risk multiplier for conflict, and state capacity is the main factor in moderating this relationship, then pre-disaster resilience infrastructure is the first and best way to stop the climate change to conflict causal pathway before it has a chance to get started. Higher state capacity is correlated with pre-disaster safety measures, which lead to fewer displacements and therefore lessen climate displacement as a threat multiplier for conflict.

After Cyclone Thane, Tamil Nadu and Puducherry had less homes destroyed and people displaced, as well as fewer deaths due to pre-disaster evacuations, than comparable storms in Assam, where this infrastructure is not in place. Due to the relative lack of damage, the prepared state is better equipped to handle what destruction has occurred, and focus funds on the most affected and vulnerable populations. Providing based on need and fully meeting the basic necessities of all those affected will lessen the overall toll of each cyclone. Additionally, supporting the most vulnerable people in building houses that can withstand storms will continue

to lessen the need for emergency services and structural rebuilding necessary after each subsequent weather event.

In the cases of Cyclone Sidr and then Cyclone Aila hitting the same area, it is clear that repeated disasters without sustainable rebuilding techniques after the initial event continue to increase the risk of conflict, loss of life and livelihood, and generate even more vulnerability for the next storm. News sources heavily reported on the huge devastation of Cyclone Sidr, but when Aila came two years later, the new damage piled on top of and surpassed Sidr's destruction. Conflict only occurred in this area after the second major cyclonic event in a few years. This supports the argument Koubi et al. puts forth, that people with long term exposure are more likely to develop conflict perceptions because increased differences in adaptive capacity can foster different perceptions of deprivation, whereas a short-term event may affect people more evenly. Although all events studied here were short term, some had longer lasting effects than others. Additionally, regions like Bangladesh and Assam face more often and severe cyclones and monsoons than Tamil Nadu and Andhra Pradesh. The logic of Koubi et al. may be able to explain part of this, as the areas with longer and less frequent weather disasters had less conflict (2018). Another factor in this is of course the state's capacity and ability to keep up with rescue efforts; one major cyclone every twenty years is less overwhelming than one every two to five years, as has become the case north of the Bay of Bengal.

One important factor to mention is that the places which are most consistently hit with severe storms and floods are already the least developed parts of both India and Bangladesh. This may be because development is more difficult due to the climatic conditions, but it does not mean that inhabitants of the most vulnerable areas must remain susceptible and unprepared for inevitable monsoons and cyclones. Gleditsch, Nordas and Salehyan (2007) state that the

vulnerability and adaptive capacity of a climate migrant affects their likelihood of contributing to conflict, and my findings support this assertion.

These findings support the public health and policy experts whose overwhelming recommendation emphasis has been on the importance of finding sustainable solutions to the coming climate change disasters. Raising development levels, including stronger housing and road infrastructure and a shift away from completely environmentally based livelihoods, is the way to prevent not only conflict but climate displacement and migration in the first place. This finding contains hope: although the meteorological effects of climate change are now happening out of our control, it is possible to significantly mitigate how severely these disasters affect us as humans. Increased resilience and training for the most vulnerable populations before the disasters happen will cause significantly less and shorter-term damage than what currently occurs in the same size storm. Increased state capacity through development initiatives and increasing numbers of sturdy core houses, as well as cyclone shelters and early warning evacuations, will significantly lessen the damages that future climatic disasters are capable of causing.

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