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Monterey, CA; Naval Postgraduate School

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**NAVAL  
POSTGRADUATE  
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**MONTEREY, CALIFORNIA**

**THESIS**

**WATER SCARCITY AND VIOLENT CONFLICT  
IN NIGERIA**

by

Zach K. Anderson

June 2019

Thesis Advisor:  
Second Reader:

Emily L. Meierding  
Rachel L. Sigman

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**WATER SCARCITY AND VIOLENT CONFLICT IN NIGERIA**

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Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES  
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## **ABSTRACT**

While there has been an abundance of research into answering the question of whether water scarcity causes conflict, there has not been as much research done on the contribution of water scarcity into escalation of regional conflicts. Within Nigeria there are two examples of water scarcity and conflict occurring in close proximity: the Niger Delta, and a violent conflict over oil pollution, and the ongoing threat of Boko Haram in the Lake Chad region, where water grows increasingly scarce. This study seeks to find how water scarcity in these two regions may be influencing armed conflict. To answer this question, a process-tracing method is adopted to better parse out each step along the path from scarcity to conflict. The major finding is that water scarcity works as an amplifier to conflict, especially when livelihoods are disrupted and when the government fails to take appropriate action.

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## I. INTRODUCTION

Water is one of the world's most precious resources, and it is becoming increasingly scarce in many places around the globe. One country in particular facing water scarcity is Nigeria. In the Nigerian portion of the African Sahel, local populations struggle to find adequate clean drinking water. According to a Brookings Institution Report, Lake Chad has shrunk by nearly 90% since its most recent highpoint in the 1960s.<sup>1</sup> Concomitantly, Nigeria has seen a rise in violence between groups of pastoral farmers as well as increased insurgent activity from Boko Haram. Furthermore, insurgent groups in the Niger Delta are engaged in activities to undermine the oil industry that has polluted the environment there with impunity for decades.

The research question motivating this thesis is: how has water scarcity contributed to violence in Nigeria? There are some environmental security researchers who state that water scarcity may lead directly to conflict. In reality, the role that water scarcity plays in rates of armed conflict is more nuanced. Conflict does not always occur where water scarcity exists. However, in Nigeria, there are several cases in which water scarcity and conflict are occurring in tandem.

The remainder of this chapter begins by discussing the significance of the research and why we should care about water conflict in Nigeria. Following this, there will be a review of the existing literature from which the most promising hypotheses are drawn out along with some preliminary supporting evidence. The last two sections are a description of the research design and finally an outline of the thesis itself.

### A. SIGNIFICANCE OF THE RESEARCH QUESTION

A recent report by the International Panel of Climate Change claimed that humanity is projected to only have twelve years to become carbon neutral to avoid dire temperature

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<sup>1</sup> Mariama Sow, "Figure of the Week: The Shrinking Lake Chad," *Brookings* (blog), February 9, 2017, <https://www.brookings.edu/blog/africa-in-focus/2017/02/09/figure-of-the-week-the-shrinking-lake-chad/>.

rise.<sup>2</sup> Barring a significant innovation, there is a very good chance our species will not meet that mark. Along with higher temperatures, the Sahel and many other parts of the globe are expected to experience increased drought severity and subsequent water scarcity issues. This topic has important policy relevance as it will serve as a point of reference for mitigation and adaptation initiatives in a future of more acute droughts. Understanding the links between climate change and conflict can provide guidance about the most pressing actions that should be taken. The challenges facing Nigeria therefore exist as a sample for other developing countries globally.

Environmentally, Nigeria has water scarcity and pollution issues that are likely to affect its population. Climate scientists predict that rising temperatures and increasing CO<sub>2</sub> concentrations will impact late developers in Africa and Asia the worst.<sup>3</sup> Environmental security researchers have long debated whether a scarcity issue can be enough to spark conflict. Finding the answer to when scarcity may lead to conflict will become more important as the climate continues to change, and droughts increase. Through the study of Nigeria, one may more closely pinpoint what happens when there is an acute water scarcity in a region which also struggles to adapt.

In many regions in Nigeria water scarcity and conflict coexist. Two such regions are Lake Chad and the Niger Delta. These two regions represent two prominent versions of the scarcity discussion: desertification in Lake Chad and degradation through pollution in the Delta. Armed conflict in the Delta threatens the energy security of the country and the global energy market more broadly, due to the size of the Nigerian oil industry. The importance of studying Nigerian water pollution due to oil and the link to conflict is important in the context of current events. New oil discoveries have created oil markets in countries such as Ghana. Should oil pollution, water, and conflict be intertwined, the international community would be wise to take lessons learned from the Nigerian example and apply it to new oil producers.

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<sup>2</sup> “Global Warming of 1.5 °C —,” accessed December 4, 2018, <https://www.ipcc.ch/sr15/>.

<sup>3</sup> “Study: Global Warming Hits Poorest Nations Hardest,” Eos, accessed March 29, 2019, <https://eos.org/scientific-press/study-global-warming-hits-poorest-nations-hardest>.

The lasting security of Nigeria is also of strategic importance to the United States. First, Nigeria is the world's fourth largest democracy and a regional partner to the U.S. in Africa, particularly in the fight against terrorism in the region. The United States has a long history of protecting current democracies and promoting democratic institutions abroad. For example, Pillar IV of the most recent National Security Strategy is titled "Advance American Influence." Under this pillar the NSS lays out what the White House views as the American role in the world.<sup>4</sup> A large part of this role is strengthening global partners and the protection of civil liberties, outlined in the Bill of Rights. Due to the fact that Nigeria is a democracy, energy trading partner with the United States, and a regional influencer in Northwest Africa, its advancement and prosperity should be a key part of United States foreign policy.

## **B. LITERATURE REVIEW**

The idea that water scarcity can lead to armed conflict has been widely studied and contested. Logically, it makes sense that, because water is necessary for life, its waning abundance might cause increased rates of armed violence. The causal chain is simple; when there is not enough water to go around, people will fight for control of the resource. In spite of this apparent simplicity, the question of when water scarcity leads to conflict is more complex: requiring that culture, economics, and adaptive capacity be taken into consideration. The literature on this topic is broad and diverse, but for the sake of this review has been divided into four main groups. These are four major ways in which water scarcity in Nigeria might lead to armed conflict. The four groups are, first, that scarcity is a direct cause of conflict; second, conflict emerges from a lack of state capacity to deal with the scarcity; third, scarcity induces migration, which then acts as a destabilizing factor; fourth, water scarcity negatively impacts livelihoods in ways that make conflict more likely.

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<sup>4</sup> 2016 United States NSS, [www. WhiteHouse.gov](http://www.WhiteHouse.gov).

## 1. Water Scarcity As a Direct Cause of Conflict

Most controversially, there have been some environmental security researchers who posit that resource scarcity itself is enough to spark a conflict. In “The Coming Anarchy,” Kaplan paints a future of increasing environmental degradation and rising rates of conflict. His perceived future is one where “disease, overpopulation, unprovoked crime, scarcity of resources, refugee migrations, the increasing erosion of nation-states and international borders, and the empowerment of private armies” run rampant. Kaplan’s argument is clear; as population rises and humans pollute and overconsume, there will come a time when resources have run dry and then conflict and anarchy will become more common.

This was also an argument made by Homer-Dixon, an early proponent of the neo-Malthusian argument for scarcity conflict. One of the author’s key theses is that, due to environmental changes in the near future, there will be “simple scarcity” conflicts over limited resources. According to Homer-Dixon, there are three causes that play into a resource scarcity. First, due to human activity, the amounts of renewable resources are declining. Second, maldistribution of existing resources results in some people getting more resources than others. Third, rising demand as a result of population growth and regional norms strain existing resources. For example, the norms of a country or region dictate the amount of resource consumption appropriate. A resource rich area would be more comfortable wasting a resource because there is no sense of a scarcity.<sup>5</sup>

Resource scarcity then leads to violence through ethnic marginalization and resource capture.<sup>6</sup> Ethnic marginalization refers to a situation in which a negative environmental situation disproportionately impacts some disadvantaged group. Resource capture refers to the acts by a country’s elites to control resources. Poor resource management combines with population growth and resource capture, resulting in ecological marginalization, which may lead to violence.

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<sup>5</sup> THD, “Environmental Scarcities and Violent Conflict: Evidence from Cases • Thomas Homer-Dixon,” *Thomas Homer-Dixon* (blog), June 1, 1991, <https://homerdixon.com/evidence-from-cases-full-article/>.

<sup>6</sup> THD, 12.

Homer-Dixon uses ethnic violence in Mauritania in 1989 as evidence for this theory. Poor environmental conditions reduced crop yields in the region. When the Senegalese River was dammed to produce electricity and control agriculture, it increased the price of the land. Mauritania's elites rewrote the law so that they could seize this land and prevent the local black population from using that land. This prompted an outbreak in ethnic violence between the white Moors and black Mauritians.<sup>7</sup>

Ohlsson differentiates between first and second order scarcities, depicting the latter as "turning of the screw." A second order scarcity is what he calls a "social resource scarcity."<sup>8</sup> A social resource scarcity occurs when institutions are unable to adapt by increasing the amount of resource available or improving efficiency of resource use. In the context of Homer-Dixon's case study, Mauritania suffered from the effects of both a first and second order scarcity. The first order scarcity simply refers to there not being enough water. The second order scarcity refers to government mismanagement, which made the water situation worse.

Some of the claims made by Neo-Malthusians have been criticized for their lack of empirical rigor. Gleditsch makes the point that much of the environmental conflict argument is future-based. He takes issue with the fact that institutions and mitigation efforts are largely ignored. For example, Kaplan invokes West Africa as a model for the future world as a whole, while ignoring the fact that some countries are more suited to adapt and confront environmental challenges than others.<sup>9</sup>

A second criticism is that there has not been enough research into how scarcity is a driver of conflict. While a lot has been written regarding associations between these two variables, there is generally a lack of research into why these two are related. Baalen and Mobjork contend that quantitative research is limited in its depth of analysis while

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<sup>7</sup> THD, 12,13.

<sup>8</sup> Ohlsson, "Water Conflicts and Social Resource Scarcity." *Physics and Chemistry of the Earth, Part B: Hydrology, Oceans, and Atmosphere*, Volume 25, Issue 3 (28 April, 2000): 213-220.

<sup>9</sup> Ragnhild Nordås and Nils Petter Gleditsch, "Climate Change and Conflict," *Political Geography, Climate Change and Conflict*, 26, no. 6 (August 1, 2007): 627-38, <https://doi.org/10.1016/j.polgeo.2007.06.003>.

qualitative research would provide a better idea of the mechanisms driving scarcity and conflict.<sup>10</sup> An earlier work from Meierding states that, while the science of climate research has advanced, theory has lagged behind. She states that in order to better keep up, the importance of local institutions must also be taken into account.<sup>11</sup>

Bernauer et al. offer an alternative perspective. They argue that resource scarcity could inspire cooperation, rather than conflict. Two of their key findings are that, of all the water related events, there were slightly more instances of cooperative actions than conflictual events. Second, they found that non-democratic regimes were more likely than democratic regimes to engage in intrastate water cooperation.<sup>12</sup> These findings lend support to the perspective that resource scarcity, alone, does not cause conflict.

## **2. Water Scarcity and State Institutions**

Within the institutional literature, there are two ways that a state's actions relate to conflict. First, water scarcity leads to poor water management which further stresses resources. While Ohlsson is a proponent of the direct resource conflict hypothesis, he acknowledges that renewable resource scarcities are made worse by the lack of institutions to mitigate drought.<sup>13</sup> Gupta et al. argue that a state with greater institutional capacity is more likely to adapt to climate change. The authors' measure adaptive capacity using six identifying characteristics. These characteristics are variety, learning capacity, space for planned and innovative autonomous action, leadership, availability of resources, and fair

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<sup>10</sup> Sebastian van Baalen and Malin Mobjörk, "Climate Change and Violent Conflict in East Africa: Integrating Qualitative and Quantitative Research to Probe the Mechanisms," *International Studies Review*, accessed December 4, 2018, <https://doi.org/10.1093/isr/vix043>.

<sup>11</sup> Emily Meierding, "Climate Change and Conflict: Avoiding Small Talk about the Weather," *International Studies Review* 15, no. 2 (June 1, 2013): 185–203, <https://doi.org/10.1111/misr.12030>.

<sup>12</sup> Tobias Böhmelt et al., "Demand, Supply, and Restraint: Determinants of Domestic Water Conflict and Cooperation," *Global Environmental Change* 29 (November 1, 2014): 337–48, <https://doi.org/10.1016/j.gloenvcha.2013.11.018>.

<sup>13</sup> Ohlsson, 215.

governance.<sup>14</sup> States which measure poorly on these characteristics, such as many in Africa, are more likely to struggle to adapt to climate change.

In the context of the Syrian Civil War, de Châtel argues strongly that poor land management policies cause conflict, as opposed to water scarcity itself. The author makes the points that, first, drought is a natural part of the Syrian climate. Second, had it not been for government funded agricultural projects which strained groundwater reserves, scarcity would not have displaced as many Syrians as it did.<sup>15</sup> In the author's words "The extent to which climate change exacerbated the situation is debatable, but in any case should not reduce the burden of responsibility on the Syrian government."<sup>16</sup> Essentially, it is the government's responsibility to manage demand. The state is able to accomplish this by providing more resources or using resources more efficiently .

The second way institutions may precipitate conflict from water scarcity is a lack of conflict management capacity. Gizelis and Wooden write that conflict over scarcity almost exclusively applies to non-democracies. It is not the scarcity that drives conflict per se, but the lack of a channel for people to express their discontent. According to their research, democratic institutions help mitigate scarcity conflict because they provide citizens with a clear avenue to express their grievances. They write that "conflicts are often driven by social tensions that primarily reflect institutional failures and mismanagement at the local and community level."<sup>17</sup> Due to the fact that a democracy is responsive to its constituents, this fosters a stronger state-society relationship which is vital for conflict mitigation. The authors use the Colorado River as a case study for the role institutions play

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<sup>14</sup> J. Gupta et al., "Institutions for Climate Change : A Method to Assess the Inherent Characteristics of Institutions to Enable the Adaptive Capacity of Society" (Amsterdam: IVM : Institute for Environmental Studies Vrije Universiteit, 2008), <https://library.wur.nl/WebQuery/wurpubs/422079>.

<sup>15</sup> "The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution: Middle Eastern Studies: Vol 50, No 4," accessed December 5, 2018, <https://www.tandfonline.com/doi/abs/10.1080/00263206.2013.850076>.

<sup>16</sup> "The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution: Middle Eastern Studies: Vol 50, No 4."

<sup>17</sup> Oslo (PRIO).

in mitigating conflict. Violence over the declining waters of the Colorado River has been avoided due to the well-established litigation and mediation of different state's interests.<sup>18</sup>

The literature shows that the existence of strong democratic institutions is a key factor in avoiding violence over resource scarcity. Most water conflicts have their roots in the demand side, rather than the supply side, in the form of worsening drought conditions.<sup>19</sup> Demand side pressure refers to strain caused by excess human consumption. One example of a demand side stressor is water loss as a result of irrigation. This is in contrast to supply side stressors which include rainfall and temperature. The two key ways in which institutions help mitigate water scarcity violence are through mitigation efforts themselves, whether that be promoting efficiency or finding ways to gain access to more water. The second way is by giving citizens who are experiencing a resource scarcity an avenue to air their grievances, promoting a non-violent way to express frustration.<sup>20</sup>

### **3. Water Scarcity and Migration**

Some authors contend that the root of scarcity conflict comes from the effects on migration. Reuveny makes the point that, when individuals are confronted with severe environmental degradation, they can attempt to mitigate the effects, do nothing and accept the consequences, or leave the area.<sup>21</sup> The author's rationale for scarcity driving migration is built on the assumption that people will make the decision to migrate when the opportunities in the new area offset the cost of migration.<sup>22</sup> Water scarcity induces migration because it increases the cost of staying, thus lowering the opportunity cost of leaving.

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<sup>18</sup>Oslo (PRIO).

<sup>19</sup> Böhmelt et al., "Demand, Supply, and Restraint," 340.

<sup>20</sup> Böhmelt et al., 345.

<sup>21</sup> Rafael Reuveny, "Climate Change-Induced Migration and Violent Conflict," *Political Geography*, *Climate Change and Conflict*, 26, no. 6 (August 1, 2007): 656–73, <https://doi.org/10.1016/j.polgeo.2007.05.001>.

<sup>22</sup> Reuveny, 659.

Reuveny states that migration leads to conflict through four major pathways. These include competition, ethnic tension, distrust, and fault lines.<sup>23</sup> Competition refers to an influx of migrants stressing the existing pool of resources in the receiving area. Distrust and ethnic tension often work in tandem, when migrants may be coming from a group or tribe that has historically poor relations with an ethnic group in the receiving country or region. This can breed distrust between the migrants and individuals in the receiving area. Finally, when migration reinforces fault lines between different socioeconomic groups it may also cause conflict. An example of this would be a migration from rural to urban areas that highlights the differences between farmers and industrial workers.<sup>24</sup>

The argument that migration causes conflict received a boost with the 2011 Syrian Civil War. A study by Kelley et al. cites severe drought and subsequent migration from rural areas to urban centers as a destabilizing catalyst. Overcrowding and underemployment in Syria's major cities created an environment where grievances were not addressed and an uprising was more easily coordinated.<sup>25</sup> This is similar to the argument espoused by Gleick, in a 2014 article where he states that drought "contributed to the displacement of large populations from rural to urban centers, food insecurity for more than a million people, and increased unemployment."<sup>26</sup>

One other reason for migration causing conflict is that "groups from different areas and of differing ethnicity are more likely to lack shared institutions for conflict resolution."<sup>27</sup> Migration may cause conflict simply because two groups have set norms for how to deal with problems and are not accustomed to cooperating by any other means.

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<sup>23</sup> Reuveny, 659.

<sup>24</sup> Reuveny, 659.

<sup>25</sup> Colin P. Kelley et al., "Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought," *Proceedings of the National Academy of Sciences* 112, no. 11 (March 17, 2015): 3241–46, <https://doi.org/10.1073/pnas.1421533112>.

<sup>26</sup> Peter H. Gleick, "Water, Drought, Climate Change, and Conflict in Syria," *Weather, Climate, and Society* 6, no. 3 (March 3, 2014): 331–40, <https://doi.org/10.1175/WCAS-D-13-00059.1>.

<sup>27</sup> Val Baalen and Mobjork, 2016.

Selby and Hoffman use the case studies of Cyprus and Israel as evidence for their argument that migration functions both as a cause and effect of environmental degradation. Their two key findings are that, first, the possibility for migration to cause conflict differs greatly between countries; and second, that those with greater adaptive capacities are much less likely to experience conflict as a result.<sup>28</sup> They also find evidence that conflict can cause migration, which then degrades the environment.<sup>29</sup>

There has also been some research finding that scarcity causes migration due to the negative effects on livelihoods.<sup>30</sup> Reuveny has shown that migrations in Syria and Eastern Africa were precipitated by the negative effects of scarcity on livelihoods. The next section will explore this concept further.

#### **4. Water Scarcity and Negative Impact on Livelihoods**

In their 1995 work, Collier and Hoeffler argue that civil war can be predicted by quantifying the potential losses and gains of engaging in a rebellion. They conclude that African states are especially susceptible to civil war because of their low per capita income, moderate resource wealth, and increasing population. The reason for this is that when there is a low per capita income in a society there are not sufficient opportunity costs for rebelling to dissuade individuals from trying to overthrow the state. On the other side of the equation, when the state has some degree of resource wealth, but not enough to strengthen its capacity to put down a rebellion, the potential gains of civil war are high.

This is especially true for areas in which livelihood security is tied to climate sensitive occupations. This is the case in many African countries, including Nigeria, where the agricultural industry makes up a large part of the GDP. Ohlsson expands on the opportunity cost argument put forward by Collier and Hoeffler by arguing that rapid changes in livelihoods, rather than persistent and endemic poverty, are the cause of

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<sup>28</sup> Jan Selby and Clemens Hoffmann, "Water Scarcity, Conflict, and Migration: A Comparative Analysis and Reappraisal," *Environment and Planning C: Government and Policy* 30, no. 6 (December 1, 2012): 997–1014, <https://doi.org/10.1068/c11335j>.

<sup>29</sup> Selby and Hoffmann, 1000.

<sup>30</sup> Reuveny, 670.

conflict.<sup>31</sup> Ohlsson goes on to state that, because agriculture makes up a large portion of economies in developing nations, water scarcity likely plays a large role in livelihood conflict. According to Ohlsson, a common feature of “the most atrocious militias” is that their numbers largely consist of young men “who have been subjected to a rapid devaluation of their expectations as a result of loss of family livelihoods, and forced to accept a much worse situation in society.”<sup>32</sup> Tying this back to Collier and Hoeffler, the loss of livelihoods, particularly in agriculture, means that large populations of young men have more to gain from joining an insurgency than they have to lose. This in turn would increase the chances that they engage in armed violence.

Ohlsson expanded on his previous work at the Hague Conference on Environment, Security, and Sustainable Development in 2004. The author stated that, in addition to the loss of livelihoods, there is a coincident rise in frustrations due to unmet expectations by young men regarding the land they are entitled to. In a culture in which land inheritance is a key part of social identity, there are more grievances by indigenes. As climate uncertainty causes more drought, previously fertile land lays fallow and uninheritable. Ohlsson describes this situation, stating, “As young men in rural areas find themselves disinherited...they have lost any chance of gaining the attributes of a real man.”<sup>33</sup> This brings up a tension within the livelihood debate of whether it is the loss of economic opportunity itself or grievances which go unanswered by the government that lead to conflict.

From a water scarcity perspective, Barnett and Adger make the argument that resource conflict does not occur in a vacuum. It is the consequential social changes that lead to armed conflict. One of the proposed causal mechanisms is the impact on the economy in resource dependent sectors. They state: “a common factor in many internal wars is that armed groups are comprised of young men whose expectations for a better life

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<sup>31</sup> Ohlsson, 2.

<sup>32</sup> Ohlsson, 2.

<sup>33</sup> “Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict, Leif Ohlsson, SIDA, 2000 | Capacity4dev.Eu,” accessed December 5, 2018, <https://europa.eu/capacity4dev/public-environment-climate/document/livelihood-conflicts-linking-poverty-and-environment-causes-conflict-leif-ohlsson-sida-2000>.

have been frustrated due to contractions in their livelihoods. This makes joining a group relatively more rational option to achieve some status in society.”<sup>34</sup> Water scarcity makes it more difficult to make a living through traditional means. In cultures where social status is tied to land, this may be particularly destabilizing.<sup>35</sup>

Additionally, research on pastoralists in Kenya provides some evidence of the livelihood explanation happening in real time. Baalen and Mobjork found “worsening livelihood conditions primarily increase the risk of less organized forms of violent conflict, such as livestock raiding and communal conflict.”<sup>36</sup> Traditionally, communal conflict has always been more likely in Kenyan drylands and in areas with a history of competing interests surrounding water. In this example, water scarcity is exacerbating a history of violence due to its effects on livelihoods.

Meierding’s 2013 paper also stresses the importance of uncertainty and insecurity in the lives of individuals in water-dependent industries. The inability to predict whether yields will be enough to sustain oneself and lack of faith that the state would be able to withstand an exogenous climate shock leads to insecurity.<sup>37</sup>

To summarize, the literature has identified four pathways for water scarcity causing conflict. These are simple scarcity, weak institutions, migration, and the negative impact on livelihoods. There are some areas where the literature overlaps. For example, migration is destabilizing, especially when there are not sufficient institutions to absorb displaced individuals. Additionally, the loss of livelihoods may induce migration, as individuals can no longer rely on traditional sources of income to support themselves. This then incentivizes further migration, which stresses a receiving state. The next section applies the core ideas from existing literature to specific cases in Nigeria.

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<sup>34</sup> Jon Barnett and W. Neil Adger, “Climate Change, Human Security and Violent Conflict,” *Political Geography*, Climate Change and Conflict, 26, no. 6 (August 1, 2007): 639–55, <https://doi.org/10.1016/j.polgeo.2007.03.003>.

<sup>35</sup> Barnett and Adger, 642.

<sup>36</sup> Van Baalen and Mobjork, 2016.

<sup>37</sup> Meierding, “Climate Change and Conflict,” 190.

### C. POTENTIAL EXPLANATIONS AND HYPOTHESES

Building off existing theories in the literature, there are a number of ways in which water scarcity could be causing conflict in Nigeria. I have identified four specific hypotheses which come from the four main bodies of literature explored in the previous section.

The first hypothesis is that there is direct scarcity conflict over water in Nigeria. The causal explanation for this scenario is that the root cause of armed conflict is declining water availability. Should I observe examples of leaders within the Delta and Lake Chad Basin communities citing water scarcity as a reason for violence, this would lend support to the hypothesis. Additionally, if the hypothesis has validity, I would expect to observe an inverse relationship between water and conflict. As water availability decreased there would be an observable increase in conflict.

The second hypothesis identified is that water scarcity causes violence when the state responds poorly via weak institutions. If this hypothesis is valid then there would be evidence of a viable institutional response to solve or improve water scarcity which the state could have adopted. Additionally, it would be clear that the state did not take appropriate action, which caused violence. In the Niger Delta, I would expect to see an ecosystem badly polluted by the oil industry. Then, evidence of government corruption and lax regulations which worsen the issue. There is also the possibility that this hypothesis does not go far enough in classifying the state's role in causing conflict. An addition to the existing hypothesis is that it is the state's actions themselves which cause conflict. Should this be the case, I expect to find evidence that the Nigerian government took deliberate action which increased violence.

In the Lake Chad Basin, I expect to find that water mismanagement contributed to violence. While climate change is playing a role in desertification of the land surrounding Lake Chad, human actions such as inefficient damming and irrigation projects, heavy human use, and a focus on short term solutions have all contributed to water shortages.<sup>38</sup>

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<sup>38</sup> "Africa's Vanishing Lake Chad | Africa Renewal Online," accessed December 5, 2018, <https://www.un.org/africarenewal/magazine/april-2012/africa%E2%80%99s-vanishing-lake-chad>.

Should the institutional hypothesis prove correct for both regions, the natural environmental situation would have been made worse by the government's water management policy.

The third hypothesis is water scarcity leads to individuals migrating in search of more water, which then causes conflict. If there is violence between farmers and herders in the Lake Chad Basin, this would provide some evidence of the validity of the hypothesis. For example, as water has grown scarcer, so has the amount of farmable land available. This is further complicated by the existence of pastoral farming in which farmers are nomadic by nature. Consequently, as population increases and good grazing land is diminished, pastoralism would lend itself to migratory patterns which may cause conflict.<sup>39</sup> If migration is causing conflict around Lake Chad, I expect to find that Boko Haram is able to exploit migration for recruiting purposes or as a means to inflict terror. One potential challenge to this hypothesis would be if the role of violence and migration is found to be the reverse. Furthermore, if there is a pre-existing culture of violence between farmers and pastoralists, then recent attacks would not prove the hypothesis. There is also the possibility that migration is a cause of conflict but comes later in the causal chain. If this were the case then improper agricultural practices and lack of governmental regulation would precede migration and there would likely be statements from pastoralists citing this as their reason for migrating.

If migration is a cause of conflict in the Niger Delta, individuals would be migrating in response to heavy oil pollution. There would be evidence that as gas flaring and oil spillage continue to increase land degradation, local Nigerians are migrating to find employment and escape pollution. The literature from the previous section provides evidence to the destabilizing effect of migration, particularly in a country with weak institutions and adaptive capacity

Going one step further, a key part of the migration hypothesis is that individuals are leaving because water scarcity has somehow impacted their livelihood. Additionally,

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<sup>39</sup> "Nigeria's Farmers and Herders Fight a Deadly Battle for Scarce Resources - The New York Times," accessed December 5, 2018, <https://www.nytimes.com/2018/06/25/world/africa/nigeria-herders-farmers.html>.

this hypothesis states that even in the absence of migration, livelihood degradation can still lead to conflict. The fourth hypothesis I will investigate is that water scarcity is having a negative impact on traditional livelihoods which causes violence. If this hypothesis proves correct, I expect to find evidence that a primary cause of conflict are disruptions in the traditional livelihood structure. In both cases there would be examples of pollution reducing local Nigerian's ability to make a living from fishing and farming. If there is evidence that Boko Haram is using employment or financial incentives to recruit, this would increase the strength of the livelihood hypothesis. Furthermore, in the Niger Delta, there would be rhetorical examples from violent groups which cite economic grievances as a cause of conflict.

From the existing literature, I have identified four ways in which water scarcity may be causing armed conflict in Nigeria. These hypotheses are direct conflict over water, water scarcity in addition to weak institutions causing conflict, scarcity induced migration leading to conflict, and finally that the negative effects on Nigerian livelihoods cause violence. This thesis will evaluate which, if any, of these pathways exist in two Nigerian cases.

#### **D. RESEARCH DESIGN**

My research uses qualitative methods to examine two cases of water scarcity and violent conflict within Nigeria. These cases are armed conflict in the Niger Delta and the Boko Haram insurgency in the Lake Chad region. For each of the two case studies, I use a process tracing method in order to assess which pathways have contributed to violence.<sup>40</sup> After this, I synthesize what the main findings were, the similarities and differences between the two cases, and then provide some policy solutions and suggestions for future research.

I use process tracing to evaluate my hypotheses for two reasons. The first reason is the nature of the question itself. My thesis focuses on answering the question, how does water scarcity cause violence? Process tracing is the best suited method to answer this

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Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: The MIT Press, 2005).

question, because it allows me to look at the events that occurred, for both cases, step by step and identify which pathways played the strongest role in precipitating conflict. This method yielded the best results when it came to identifying the causal mechanisms between water scarcity and conflict. The specific way in which water scarcity is inducing conflict was best isolated through this process tracing analysis. Process tracing also allowed for the isolation of causal mechanisms, while eliminating superfluous information.

The second reason for this research design is because the roles water scarcity plays are likely to be more nuanced than a reduction in water leading directly to increased violence. Water depletion and degradation, migration, poor water management, and livelihood loss do not exist in a vacuum. Rather, each variable interacts with the others, creating unique environments which led to violent conflict. The qualitative approach used for this thesis allows me to derive conclusions about the importance and relationship of the variables vice simply finding correlations.

There has been a lot of research into *if* water scarcity causes conflict, but not a lot of research into *how* it causes conflict. The two cases were chosen because they are examples of water scarcity and violent conflict occurring in tandem. This thesis examines how water scarcity may be driving conflict in Nigeria, building off previous research into potential causal mechanisms. The cases were analyzed from an institutions, migration, and livelihood aspect.

## **E. THESIS OVERVIEW**

The remainder of the thesis will proceed as follows. There will be two chapters devoted to the two cases identified previously. The first chapter focuses on the situation in Lake Chad and how desertification of the lake may or may not be contributing to the Boko Haram insurgency. I also explore the socioeconomics of the insurgent group and how it recruits Nigerian youth to their cause. The second chapter is on the current situation in the Niger Delta. I will specifically look at the relationship between the oil companies, the state, and Delta State residents. I pay special attention to the evolution of protests in the region, and answer the question; why have protest movements become more violent since the

1990s? The thesis ends with a conclusion summarizing the findings of my research and some recommendations for further study.

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## II. THE LAKE CHAD BASIN AND BOKO HARAM

### A. INTRODUCTION AND OVERVIEW

Nigeria is in the midst of an environmental and humanitarian disaster. Lake Chad, a key supplier of water to bordering states, has receded substantially in the past fifty years. Since 1960, Lake Chad has shrunk by close to 90%. The lake acts as a key supplier of water to Nigeria and was once the largest reservoir in the Sahel covering 26,000 square kilometers.<sup>41</sup> Climate change and increased demands for irrigation have hastened its retreat. Since the mid-2000s, the region harbors the extremist group Boko Haram. Terrorists in the region have been a persistent threat to civilians, undermining regional stability with frequent attacks. In this chapter, I find that water scarcity in the region contributes to Boko Haram's influence by disrupting traditional livelihood structures, which, in turn, increases the number of potential recruits. Alarming, the CIA World Factbook states that the agricultural industry in Nigeria employs 70% of its population. However, droughts have consistently reduced annual crop yields. This is especially worrying as the economy in Northeastern Nigeria relies on Lake Chad for fishing and farming. The recession of Lake Chad is threatening traditional livelihood structures, which feeds the threat of Boko Haram, as the organization has had continued success when targeting impoverished Nigerian youth. The evidence from the Lake Chad Basin, with disrupted livelihood structures and insufficient or improper government action, lends support to the third and fourth hypotheses.

The remainder of this chapter begins with an overview of the ecology and bathymetry of Lake Chad in the context of climate change. This overview will also include potential solutions to persistent drought. It will be followed by a brief history of Boko Haram and an overview of the conflict in the Lake Chad Basin. I will then explore the socio-economic conditions of the region itself, how traditional livelihoods are being disrupted, and the role disrupted livelihoods play in fostering violent extremism. The

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<sup>41</sup> "Africa's Vanishing Lake Chad | Africa Renewal Online," United Nations, accessed August 22, 2018, <https://www.un.org/africarenewal/magazine/april-2012/africa's-vanishing-lake-chad>.

chapter concludes with a discussion about the role [s] water played—and did not play—in the Boko Haram insurgency.

## **B. LAKE CHAD AND REGIONAL WATER SECURITY**

Lake Chad is notable for its importance to shoreline communities and susceptibility to climate fluctuations. At its peak, Lake Chad had a surface area of 25,000 square kilometers. However, that area had shrunk to only about 1500 square kilometers by 2010.<sup>42</sup> Historically, the lake acted as a key supplier of fresh water to its bordering countries, which include Niger, Nigeria, Cameroon, and Chad. As the primary supplier of fresh water in the region, the lake is vital to the Sahelian economy. Fertile land on the lake's shores supports agriculture, crop production, livestock grazing, and fisheries.<sup>43</sup> The combined shallow depth and dependence on rain to maintain its water levels means it is highly susceptible to drought. This was apparent during periods in the 1970s when the Northern basin was left completely dry.<sup>44</sup>

The Chari river from the south and the Komodugu-Yobe river from the northwest are largely responsible for controlling lake levels.<sup>45</sup> Rainfall can also reach the lake through tributaries and groundwater discharge.<sup>46</sup> Heavy rains from the African monsoon season replenish the lake's water levels after an intense period of drought. The short rainy season usually begins in July and lasts through September, while the dry season is most intense from November through March.<sup>47</sup> Lake Chad has experienced cycles of drought for thousands of years and dramatic recessions are nothing new, as evidenced by French explorer Jean Tilho reporting a dry Northern basin in 1910.<sup>48</sup> What has been significant

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<sup>42</sup> "LAKE CHAD," February 6, 2010, <https://web.archive.org/web/20100206160207/http://www.ilec.or.jp/database/afr/afr-02.html>.

<sup>43</sup> "LAKE CHAD," ILEC.

<sup>44</sup> "LAKE CHAD," ILEC.

<sup>45</sup> "The Rise and Fall of Africa's Great Lake: Scientists Try to Understand the Fluctuations of Lake Chad," November 9, 2017, <https://earthobservatory.nasa.gov/features/LakeChad>.

<sup>46</sup> "The Rise and Fall of Africa's Great Lake," NASA.

<sup>47</sup> "The Rise and Fall of Africa's Great Lake," NASA.

<sup>48</sup> "The Rise and Fall of Africa's Great Lake," NASA.

is the switch from balanced drought and monsoon seasons to persistent dryness. With improvements in climatological research methods, scientists have been able to record a shift from complete drought recovery during rainier seasons, to a continued decline in lake levels. Research done by Churchill Okonkwo shows that this shift began in the 1970s and has persisted through to the present. According to him, climatic conditions have shifted, such that the drier spells due to the Atlantic Multi-decadal Oscillation (AMO) are now overriding the wetter conditions of La Niña, beginning in the 1980s.<sup>49</sup> Data since the 1900s have shown that lake levels mirror the fluctuations in rainfall; however the period between the 1960s and 1980s saw levels plunge three meters below the 100 year mean. What this means is that while Lake Chad has experienced periods of drought for thousands of years, the change in recent years has been the trend of drier seasons overriding wetter conditions.

Studies have revealed three reasons for Lake Chad's recession. First, the lake's unique bathymetry, which lends itself to splitting into two lakes, makes it more vulnerable to water loss. Second, water use for irrigation has increased since the 1970s, which has prevented recovery of lake levels even during wetter seasons. Third, climate change has reduced average annual rainfall amounts from 1960 to the present, thereby reducing inflow.<sup>50</sup> As Gao explains "Failure of the lake to merge back into a single lake following wetter conditions in the 1990s is a result of irrigation withdrawals--without irrigation, the lake would have merged in 1999, although it would have split again in 2004."<sup>51</sup> This study shows that the issue is multifaceted and reasons for its reduced levels are due to human, geological, and climatological factors.

In their study, Coe and Foley find that, since the 1970s, Lake Chad's shrinkage can be explained in equal parts due to local human behavior and climate change.<sup>52</sup>

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<sup>49</sup> "The Rise and Fall of Africa's Great Lake," NASA.

<sup>51</sup> H. Gao et al., "On the Causes of the Shrinking of Lake Chad," *Environmental Research Letters* 6, no. 3 (July 2011): 034021, <https://doi.org/10.1088/1748-9326/6/3/034021>.

<sup>52</sup> Coe and Foley, "Human and Natural Impacts on the Water Resources of the Lake Chad Basin," *Papers on Climate and Dynamics*, Volume 106, Issue D4, 27 February 2001, 3349-3356.

Additionally, they found increased irrigation losses to climate change as well, because as the number of rainfall events decreases, more water is required for agriculture from the lake.<sup>53</sup> Therefore, immediate man-made causes are responsible for 50% of the loss.<sup>54</sup> Moreover, climate change impacts the lake for its primary and secondary effects on human behavior.

### C. MITIGATING LAKE RECESSION

The multifaceted causes of Lake Chad's recession require comprehensive mitigation and adaptation efforts. A variety of solutions have been proposed and range from redirecting entire rivers to educating communities in smarter irrigation methods.

Efforts to save Lake Chad range from the mundane to the more extreme. In 2015, the Lake Chad Basin Commission convened and agreed upon commitments to empower local communities to build resilience to climate change with a specific focus on livelihoods.<sup>55</sup> Similar themes were noted in a 2017 meeting in Oslo on the same subject, in which a three-pronged approach was identified to include an estimated \$1.6 billion to be directed towards a humanitarian response, stabilization with regards to the Boko Haram insurgency, and once again building community resilience.<sup>56</sup>

Of the more extreme variety, there has been limited talk regarding the idea of diverting water from the Congo River towards refilling Lake Chad. Originally constructed by Italian engineers in the 1980s, Transaqua was and is, as Gao et al. describe "a plan to construct a 2400 km canal to transfer water from upstream tributaries of the mighty Congo River all the way to the Chari River Basin, which feeds Lake Chad."<sup>57</sup> However, the sheer

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<sup>53</sup> Coe and Foley, 3350.

<sup>54</sup> Coe and Foley, 3355.

<sup>55</sup> "The Tale of a Disappearing Lake - Chad," ReliefWeb, accessed January 16, 2019, <https://reliefweb.int/report/chad/tale-disappearing-lake>.

<sup>56</sup> "High Level Conference on the Lake Chad Region 3-4 September, Berlin, Germany | UNDP in Africa," UNDP, accessed January 16, 2019, <http://www.africa.undp.org/content/rba/en/home/presscenter/events/high-level-conference-on-the-lake-chad-region.html>.

<sup>57</sup> Will Ross, "Can the Vanishing Lake Be Saved?," March 31, 2018, sec. Africa, <https://www.bbc.com/news/world-africa-43500314>.

size of the project and the unknown environmental consequences of diverting the Congo River have left Transaqua to only exist in the minds of hopeful African engineers.

Building off of Gao et al.'s study into the unique bathymetry of Lake Chad, there are structural changes which would improve and reduce the tendency of the lake to split. One important feature of Lake Chad is a shallow ridge roughly 40km wide which dissects the Northern and Southern portions.<sup>58</sup> When the water level is at or above the barrier the two portions merge into one lake. When this occurs, referred to as a "Big Lake Chad" there is less water loss due to evaporation and subsequently a reduced susceptibility to drought. Additionally, the Northern portions is dependent on inflow from rivers which feed the southern portion to maintain its levels. Thus, when the lake is split, the north can dry out rapidly. This was the case when the northern portion was completely dry in 1986.<sup>59</sup> One solution to the recession problem would be to breach the barrier rather than build a canal. In their study, Gao et al. were able to show "breaching the barrier could help reduce the amount of water transfer required to restore the lake; modeling results suggests that it would take one year less when using the 50 cubic kilometers per year inflow scenario."<sup>60</sup> A physical solution to the problem would be to breach the natural barrier within the Lake itself. This would be more cost effective and require fewer resources than diverting a river by building a canal. While there has been limited discussion of breaching the barrier in the past, it is possible that this solution would become more viable should ecological conditions worsen. Due to the fact that these issues are difficult to correct, scarcity in the region is likely to remain stubbornly persistent for years to come.

#### **D. OVERVIEW OF CONFLICT**

Understanding Lake Chad's role in Boko Haram's present activities requires a deeper understanding of the terrorist group itself. Nigeria has a history of resistance to Western influence dating back to the British seizing control of the Sokoto Caliphate in

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58 Gao et al.

59 Gao et al.

60 Gao et al.

1903.<sup>61</sup> Boko Haram, as we now know it, was officially founded in 2002 by Mohammed Yusuf; however the group's existence goes back to 1995 when an Orthodox Islamic sect of theology was formed at the University of Maiduigiri by Ababakar Lawan.<sup>62</sup> This sect remained non-violent until 2002 when Lawan left the University to study in Saudi Arabia and leadership was assumed by Mohammed Yusuf.<sup>63</sup> Yusuf subsequently changed the focus of the group from education to jihad.<sup>64</sup> After Yusuf took control, the group maintained a relatively low profile, dissociating themselves from society as a way to further indoctrinate their members.<sup>65</sup> However, the group's existence hit mainstream attention in 2009, when their actions included a major anti-government revolt in Nigeria. Notably, the revolt involved attacks on schools, government buildings, and police stations.<sup>66</sup> Yusuf was ultimately captured and killed by Nigerian forces after the skirmish had ended; however, his death made him a martyr. Videos of his death are still used as motivation for current members.<sup>67</sup> Since the 2009 revolt, there have been several high-profile attacks carried out by the group. In 2011 the group expanded the sphere of targets from local government buildings to a United Nations building.<sup>68</sup>

The United Nations refugee agency estimates that, since 2011, the conflict has been responsible for putting seven million people at risk of starvation and displacing another 2.4 million.<sup>69</sup> In that same seven-year span, a Council on Foreign Relations report recorded 2,021 violent incidents involving Boko Haram with 37,530 people killed.<sup>70</sup> Civilians have

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61 Farouk Chothia, "Who Are Nigeria's Boko Haram Islamist Group?," *BBC News*, November 2016.

62 Freedom C Onuoha, "Boko Haram: Nigeria's Extremist Islamic Sect," *Al Jazeera*, February 29, 2012.

63 Onuoha.

64 Chothia.

65 Onuoha.

66 Onuoha.

67 Onuoha.

68 Chothia.

69 "Boko Haram's Deadly Impact," Council on Foreign Relations, accessed February 18, 2019, <https://www.cfr.org/article/boko-harams-deadly-impact>.

70 "Boko Haram's Deadly Impact," *Council on Foreign Relations*.

borne the greatest proportion of violent conflict related deaths with 45% or roughly 15,107 total Boko Haram related casualties.<sup>71</sup> Arguably the most jarring activity involved the kidnap of 276 schoolgirls in April of 2014 in Borno State, Nigeria.<sup>72</sup> It is estimated that the group itself has between 7,000 and 10,000 militants.<sup>73</sup> Militant activity peaked in 2014 and 2015, though the insurgency has since lost a substantial amount of territory due to a successful military campaign by the Nigerian government. Geographically, Boko Haram mainly operates in northeastern Nigeria around Lake Chad.<sup>74</sup> Figure 1 puts the geographic concentration of attacks in context.

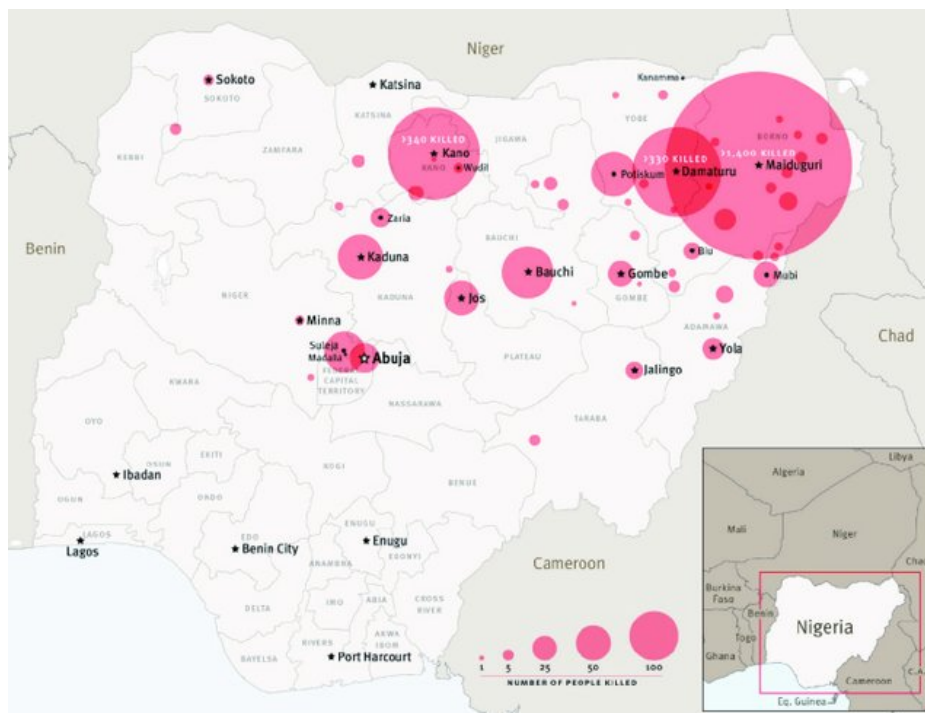


Figure 1. Map of Nigeria showing Boko Haram attacks. Source:<sup>75</sup>

<sup>71</sup> “Boko Haram’s Deadly Impact,” *Council on Foreign Relations*.

<sup>72</sup> “The Chibok Kidnappings in North-East Nigeria: A Military Analysis of Before and After | Small Wars Journal,” accessed January 23, 2019, <https://smallwarsjournal.com/jrnl/art/the-chibok-kidnappings-in-north-east-nigeria-a-military-analysis-of-before-and-after>.

<sup>73</sup> “How Big Is Boko Haram?,” accessed March 11, 2019, <https://warisboring.com/how-big-is-boko-haram/>.

<sup>74</sup> “Boko Haram’s Deadly Impact,” *Council on Foreign Relations*.

<sup>75</sup> John Emerson. Human Rights Watch.

Recently, the group's tactics have shifted from popular insurrection against the government and are now more reliant on suicide bombings against civilians. For example, suicide bombing related deaths comprised 3% of Boko Haram related deaths in 2013, but have since jumped to close to 30% in 2018. In the first half of 2018 alone there were 30 suicide bombings.<sup>76</sup> Importantly the *Council on Foreign Relations* report states, "the group has derived its support from a deeply impoverished population that has long felt neglected by the central government."<sup>77</sup>

Today, the fight against Boko Haram is ongoing, as the government tries to respond to persistent attacks and kidnappings. The issue has been complicated by deteriorating socio-economic conditions in part caused by desertification of Lake Chad. When discussing the methods of fighting Boko Haram, Onuoha argues that the group itself is built on a tripod. The three pillars of their strength come from covert support from politicians, influential ideologues connected to other terror groups in the region, and finally the susceptibility of Nigerian youth to the enticements of the group's relative size and strength compared to one's own impoverishment.<sup>78</sup> Importantly, Boko Haram draws support from northern Nigeria, Niger, Chad, and Sudan--essentially the Lake Chad Basin. Furthermore, its members are mostly "disaffected youths, unemployed graduates, and former almajiris."<sup>79</sup> Almajiris are poor children who are sent to live and study under powerful Islamic preachers.

Boko Haram's strength is due, partly, to its financing. It is estimated that while being a relatively low-cost insurgency, the group has an annual income of around \$10 million.<sup>80</sup> Funding generally comes from illicit activities including kidnappings, robberies, extortion, looting, and other commercial activities. In 2013 and 2014 for example, Boko Haram earned \$11 million from five different kidnapping incidents and another \$6 million

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<sup>76</sup> "Boko Haram's Deadly Impact," *Council on Foreign Relations*.

<sup>77</sup> "Boko Haram's Deadly Impact," *Council on Foreign Relations*.

<sup>78</sup> Onuoha.

<sup>79</sup> Onuoha.

<sup>80</sup> "Boko Haram: On the Verge of Defeat or a Long Term Threat?," *FOI*, November 2017.

from bank robberies.<sup>81</sup> Their relatively high income in a region with widespread poverty gives the group the ability to recruit via economic incentives. The next section will look closely at how deteriorating environmental conditions in Lake Chad are harming traditional livelihoods in the region, and how that subsequently may be feeding into Boko Haram's recruitment.

## **E. SOCIO-ECONOMICS OF THE LAKE CHAD BASIN**

It is difficult to overestimate how significant Lake Chad is to the continued health of the rural communities that occupy its shores. Data from a 1993 survey revealed that 59% of people reported a majority of their income came from farming, while 36% reported a mixture of fishing and farming for income, and 5% relied solely on fishing.<sup>82</sup> More recent data from the Global Water Partnership reveals that the structure of the economy has not changed much, with 60% of the population reporting a majority of their income coming from agriculture in 2011.<sup>83</sup>

Farming in the Lake Chad basin can be in one of three varieties. These include rainfed farming, flood-recession farming, and irrigated agriculture.<sup>84</sup> As the name suggests, rainfed farming takes place during the rainy season without the use of irrigation. Flood-recession farming takes advantage of the varying lake levels and exposed fertile soil of floodplains when water recedes.<sup>85</sup> A recent report on the state of the ecosystem states "flood recession farming is practiced by a large majority of the population around the lake and remains a household practice, although some mechanical interventions are undertaken to develop cash crops."<sup>86</sup> The third type of farming is irrigated agriculture, which, as the

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<sup>81</sup> "Boko Haram: On the Verge of Defeat or a Long Term Threat?" *FOI*.

<sup>82</sup> Marie-Thérèse Sarch and Charon Birkett, "Fishing and Farming at Lake Chad: Responses to Lake-level Fluctuations," *Geographical Journal* 166, no. 2 (June 1, 2000): 156–72, <https://doi.org/10.1111/j.1475-4959.2000.tb00015.x>.

<sup>83</sup> "Lake Chad Basin," Global Water Partnership, accessed February 16, 2019, <https://www.gwp.org/en/WACDEP/IMPLEMENTATION/Where/Lake-Chad/>.

<sup>84</sup> "Report on the State of the Lake Chad Basin Ecosystem," Lake Chad Basin Commission, 2012.

<sup>85</sup> "Report on the State of the Lake Chad Basin Ecosystem," LCBC.

<sup>86</sup> "Report on the State of the Lake Chad Basin Ecosystem," LCBC.

report also states, “is becoming increasingly widespread to meet the growing demand of the population and the vulnerability of rainfed agriculture to climate stress.”<sup>87</sup>

Major cash crops in the basin include peanuts, cotton, millet, rice, and onions. Economic activities also extend to metal ore extraction and more recently oil exploration and production.<sup>88</sup> The basin economy rests on the flexibility of its population. The report explains that “spaces are generally multifunctional and ethnic groups have learned to diversify their activities to accommodate flooding and climate variability allowing different resources to be exploited on the same space.”<sup>89</sup> Due to the lake’s fluctuating levels, few people are able to rely on a single source of income.<sup>90</sup> Fishing and farming follow the natural flood and drought cycles. When water reaches its peak around mid-January, work focuses primarily on fishing. When the dry season begins, the lake recedes, revealing fertile land which is then used for farming.<sup>91</sup> Historically, the mid-1980s experienced a drought most similar to what is currently happening. Responding to the continued recession, communities were re-established on newly revealed land and farming began on what was previously lake floor. Significantly, this was a period when the farmers were doing very well and producing a food surplus.<sup>92</sup> Records also reveal that a reduction in the fishing industry increased the number of people farming, which led to some violent clashes between farmers over land.<sup>93</sup>

Demographically, the basin is young, growing rapidly, and struggling to cope with the changes. In 2010, for example, it was reported that 44% of the population was below the age of 14.<sup>94</sup> The fertility rate in Nigeria is 6.01 due to a combination of a high proportion of the population being within child-bearing age (45% of women are between

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<sup>87</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>88</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>89</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>90</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>91</sup> Sarch and Birkett, “Fishing and Farming at Lake Chad,” 157.

<sup>92</sup> Sarch and Birkett, 160.

<sup>93</sup> Sarch and Birkett, 161.

<sup>94</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

the ages of 15–45<sup>95</sup>) and little to no family planning or access to contraceptives. As a result, predictions show that “the lakeside population living within a radius of 300km will grow from 13 million inhabitants in 2012 to at least 35 million by 2050.”<sup>96</sup> Meanwhile states face challenges in providing the necessary infrastructure and employment opportunities for an expanding population. The previous report states, “on completing school, many young people face unemployment due to the lack of jobs.”<sup>97</sup>

Increased rates of migration, specifically migration in and around the Lake Chad region itself, have been prompted by the flexibility of the basin economy, climate change, and conflict. Interestingly, recent reports provide evidence that livelihood loss is relatively minor when discussing reasons for migration. According to the UN Migration Agency, in a report from February 2019, 34.5% cited ongoing conflict as their reason for moving and another 35% cited fear of attacks. Additionally, 16.5% stated poor living conditions as their primary driver for moving.<sup>98</sup> One reason for migration is due to the seasonal nature of the basin economy. Its residents are uniquely suited to migrate and adapt to changing ecological conditions. As noted previously, the economy is based on lake fluctuations so when the water is high, fish are the primary commodity, and when the water is low, most Nigerians switch to farming on the newly exposed fertile land. Due to the adaptable economy migratory patterns follow the water level.

Second, the region is also home to pastoralists who are nomadic by nature and thus migration is a way of life. As new grassland shorelines open up, new migration patterns are evolving, as well as agriculture occurring where previously there had been a fishing economy.<sup>99</sup> This is the case with the Darak subdivision, which had not previously been suitable for farming, but has become an important location for agro-pastoralists.<sup>100</sup>

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<sup>95</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>96</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>97</sup> “Report on the State of the Lake Chad Basin Ecosystem,” LCBC.

<sup>98</sup> “Boko Haram’s Deadly Impact,” *Council on Foreign Relations*.

<sup>99</sup> Zieba et al, "Seasonal Migration and Settlement around Lake Chad: Strategies for Control of Resources in an Increasingly Drying Lake," August 2017, DOI: 10.3390/resources6030041.

<sup>100</sup> Zieba et al.

Migration into previously aquatic regions has induced intercommunal conflict. As Zieba et al. write “competition for land resources is resulting in violent conflicts between members of different communities.”<sup>101</sup> For example, in Darak there is a dispute between the Nigerians who claim they settled in Darak first and the Cameroonians who claim the subdivision falls within their territory.<sup>102</sup> One observation from this example is that there are multiple different types of conflict in the Lake Chad region. Additionally, these conflicts follow their own unique causal pathway. The dispute over the Darak subdivision lends support to my second hypothesis regarding migration because there is conflict as a result of movement to newly revealed land.

Third, attacks by Boko Haram are also prompting migration. According to the most recent Displacement Tracking Matrix (DTM), there were 6,931 movements recorded in the week of 04–10 February 2019. Movements, according to the DTM report, include internally displaced persons (IDPs), refugees, returnees from abroad, and returnees who were previously IDPs. An important characteristic of the basin economy is its flexibility, which, when combined with the ongoing threat from Boko Haram and climate change, has caused significant migration.

## **F. REGIONAL LIVELIHOODS AND THE PULL OF EXTREMISM**

In spite of the fact that the recession of the Lake may have been good for farmers in the short run, continued drought and increased rainfall variability have disrupted traditional livelihoods. According to a recent FAO report, the drought has caused a 60% decline in fish production and a 46.5% decline in crop production.<sup>103</sup> Between 1960 and 2010, total annual fish yields have gone from 220,000 tons to roughly 60,000 tons.<sup>104</sup> Moreover, in spite of receding water exposing more fertile ground, there has been a

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<sup>101</sup> Zieba et al.

<sup>102</sup> Zieba et al.

<sup>103</sup> “Lake Chad, a System under Threat | Land & Water | Food and Agriculture Organization of the United Nations | Land & Water | Food and Agriculture Organization of the United Nations,” accessed January 24, 2019, <http://www.fao.org/land-water/news-archive/news-detail/en/c/267309/>.

<sup>104</sup> Uche T. Okpara, Lindsay Stringer, and Andrew Dougill, “Lake Drying and Livelihood Dynamics in Lake Chad: Unravelling the Mechanisms, Contexts, and Responses.,” *Ambio* 45, no. 7 (November 2016): 781–95.

reduction in crop yields. For example, sorghum yields have decreased from 328,000 tons in the late 1960s to 180,000 tons in 2010.<sup>105</sup> Furthermore, livestock has been declining at a rate of 2% per year since the 1960s.<sup>106</sup> The lake's recession is having a direct effect on the fishing and farming in the Lake Chad Basin.

Affected communities are unable to adapt and mitigate the negative effects of a drying lake due to a combination of limited capital and government neglect. One example of this is that, as Okpara et al. write, “scarce local infrastructure...weaken trade networks and prevent people from earning sufficient income from the sale of agricultural produce.” The authors continue, “governments often display unwillingness to invest in infrastructural development at lakeshore locations whose future is uncertain or whose jurisdiction is unclear.”<sup>107</sup> While the government could have invested in its people and eased the strain caused by livelihood disruption, policymakers failed to deliver adequate institutional change. According to Okpara, this has left Nigerians with “constrained capacities to create locally adapted solutions that both reduce poverty and enhance well-being.”<sup>108</sup> The combination of livelihood insecurity, government neglect, and inability to adapt thus creates a sense of deprivation, especially as access to resources declines.<sup>109</sup>

In response to the lack of government action, the international community has attempted to build community resilience. A conference held in Germany in 2018 states “the crisis has led to massive internal and cross-border displacement of 2.4 million people, destruction of livelihoods, disruption of local governance systems, human rights abuses, and disruption of health, education, and other basic services.”<sup>110</sup> The loss of the Lake Chad ecosystem is devastating to livelihoods due to the lake's historical abundance. In the 1960s for instance, “the lake hosted about 135 species of fish and fishermen captured 200,000

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<sup>105</sup> Okpara, Stringer, and Dougill, 786.

<sup>106</sup> Okpara, Stringer, and Dougill, 786.

<sup>107</sup> Okpara, Stringer, and Dougill, 790.

<sup>108</sup> Okpara, Stringer, and Dougill, 791.

<sup>109</sup> Okpara, Stringer, and Dougill, 791.

<sup>110</sup> “High Level Conference on the Lake Chad Region 3-4 September, Berlin, Germany | UNDP in Africa.”

metric tonnes of fish every year, providing an important source of food security and income to the basin's populace and beyond."<sup>111</sup> The fact that such an ecological disaster is unfolding in tandem with Boko Haram's rise has given voice to those that see livelihood loss as a driving factor in insurgencies. Some theorists see this as "a perfect recruiting ground for the Islamist militants. The offer of a little cash and the promise of some training and a gun persuaded many to join."<sup>112</sup>

Boko Haram recruiting is deeply rooted in the socio-economic conditions of the communities in which they operate. Dating back to their founding in 2002, the group routinely adopted, educated, and indoctrinated impoverished youth in their specific interpretation of Islam. These Almajiris demonstrate the role poverty plays in directing people towards a life of extremism. Meagher makes the point that Boko Haram is an attractive option for livelihood insecure Nigerians because "[they] offered one meal a day, arranged low-cost marriages, and provided loans for petty commercial activities, thus offering basic social dignity to the poor and unemployed."<sup>113</sup> As fishing and farming industries shrink, the opportunity cost of joining an insurgency is lowered. Suddenly, when confronting enduring poverty and starvation, joining Boko Haram may seem more palatable for Borno State residents.

This is backed up with a SIPRI report from May of 2017 which states the importance of combatting climate change-induced livelihood loss as a way to foment community resilience and stop individuals from joining Boko Haram.<sup>114</sup> Moreover, a USIP report, conducting research on why youth join Boko Haram, released some statistics which depict the role livelihood loss plays in insurgent recruiting. For example, in 2011, 100 million Nigerians lived in absolute poverty, with the worst rates of poverty in the Northeast, around Lake Chad. Furthermore, survey research in Kaduna state revealed that

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<sup>111</sup> "The Tale of a Disappearing Lake - Chad," *ReliefWeb*.

<sup>112</sup> Ross, "Can the Vanishing Lake Be Saved?" *BBC News*.

<sup>113</sup> Kate Meagher, "Beyond Terror: Addressing the Boko Haram Challenge in Nigeria," Norwegian Peacebuilding Resource Centre, November 2014.

<sup>114</sup> Florian Krampe, "Climate-Fragility Risks in the Lake Chad Region: Scope for Conflict Prevention and Resilience Building," *Stockholm Forum on Peace and Development*, May 2017.

83% of people say that unemployment and poverty are direct causes of youth religious violence.<sup>115</sup> Additionally, the study found that children with difficult upbringings are also more vulnerable to extremist ideology.<sup>116</sup> Thus, the consequences of livelihood loss might extend intergenerationally. The progeny of an impoverished farmer might be equally susceptible to the enticements of Boko Haram as the farmer himself.

One particularly successful tactic used by Boko Haram to recruit Nigerian youth is the provision of business loans. According to a 2016 Mercy Corps report, Boko Haram exploits the ambitions of local youth and their desire to achieve financial success by granting loans in exchange for joining the group.<sup>117</sup> Due to scarce formal employment opportunities and localized inequality, becoming a successful business owner is one way for youth to get ahead. However, they often do not have the ability to start a business without an injection of capital from a third party. Boko Haram is able to exploit this vacuum and the ambitions of local youths in order to strengthen their numbers.<sup>118</sup> As the report states “the tactics practiced by Boko Haram resemble organized criminal gangs and their practice of doling out favors, only to demand repayment at a high cost. Either not fully aware of the unspoken conditions or unwilling to take the risk, these youth were drawn into a dangerous situation with the promise of support to their business.”<sup>119</sup>

A recent Afrobarometer report provides some statistics which lend support to economic factors driving Nigerians to extremist groups. Of those individuals surveyed, the researchers found that 31% of Nigerians cite unemployment, or a lack of economic opportunities, as the primary reason for joining an insurgency. The next highest response was poverty with 27% of respondents citing this as the key reason. The next two highest

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<sup>115</sup> Freedom C Onuoha, “Why Do Youth Join Boko Haram?,” USIP, 12.

<sup>116</sup> Onuoha, 12.

<sup>117</sup> “Motivations and Empty Promises: Voices of Former Boko Haram Militants and Nigerian Youth” (Mercy Corps, April 2016).

<sup>118</sup> “Motivations and Empty Promises: Voices of Former Boko Haram Militants and Nigerian Youth,” Mercy Corps.

<sup>119</sup> “Motivations and Empty Promises: Voices of Former Boko Haram Militants and Nigerian Youth,” Mercy Corps.

responses were religious beliefs (11%) and the ineffectiveness of the government (9%).<sup>120</sup> Then when asked to identify the most effective way of addressing the problem of armed extremists, 46% responded with “improve the economy and create more jobs.”<sup>121</sup> The second most popular response was to strengthen military response or military capabilities with 43% of those surveyed having this as their first or second response.

The 2017 UNDP report “Journey to Extremism” found that the economy was a strong contributing factor in an individual’s choice to join an extremist group. For example, 34% people responded with employment when asked the question “what was the most immediate need at the time of joining the organization?”<sup>122</sup> The importance of the economy is further evidenced by the fact that 13% of respondents stated that employment was an important component for their reason for joining. Moreover, the researchers found evidence that Nigerians who were either fully employed or full time students were less likely to join altogether or took longer to join than their unemployed peers.<sup>123</sup> However, the role that the economy plays in driving extremism is more complex than the correlation of more unemployment causing more extremism. As the report states “economic factors are likely to be a critical component of the overall incentives and drivers leading to recruitment in many cases, although at the same time are also unlikely to be the sole factor.”<sup>124</sup>

Additional factors that increased successful extremist recruiting were grievances generated from perceived economic woes, a general lack of education, and a communal precedent for violent extremism. Moreover, the presence of strong social recruiting networks for insurgent groups, misunderstandings of religious texts, and a deep mistrust of

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<sup>120</sup> “Unemployment, Poverty, and Religious Beliefs Drive Some Nigerians to Join Extremist Groups, According to Afrobarometer Survey” (Abuja, Nigeria: Afrobarometer, January 15, 2018).

<sup>121</sup> “Unemployment, Poverty, and Religious Beliefs Drive Some Nigerians to Join Extremist Groups, According to Afrobarometer Survey,” Afrobarometer.

<sup>122</sup> “Journey to Extremism in Africa: Drivers, Incentives, and the Tipping Point for Recruitment” (United Nations Development Program, September 2017).

<sup>123</sup> “Journey to Extremism in Africa: Drivers, Incentives, and the Tipping Point for Recruitment,” UNDP.

<sup>124</sup> “Journey to Extremism in Africa: Drivers, Incentives, and the Tipping Point for Recruitment,” UNDP.

the government, politicians, police, military, and other apparatuses of the state were other factors contributing to Boko Haram's ability to recruit.<sup>125</sup> The report attempts to paint a picture of the profile of a violent extremist with some descriptive statistics. According to the researchers 33% have four years or fewer of secular education, 51% cite religious reasons for joining while 57% report never reading or understanding religious texts. Although these numbers may seem contradictory at first glance, it actually highlights the fact that some Nigerians join extremist groups for religious reasons without being able to interpret holy texts. Rather than thinking for themselves and deciding what to believe some rely on itinerant preachers for religious guidance.<sup>126</sup> Moreover, 83% feel that "the government only looks after the interests of a few."<sup>127</sup> Both the Afrobarometer and UNDP reports on the drivers of violent extremism illustrate the important role that poor economic conditions plays on extremism. It is likely that widespread poverty and unemployment make affected communities more vulnerable to extremists; however, other factors like perceptions of inequality, low education levels, and a history of government abuse are also drivers of violent extremism.

Crucially, the dynamic between Boko Haram and livelihoods works in the opposite direction as well. The Boko Haram insurgency is having deleterious effects on those working in communities where the group is conducting terror operations. A 2018 UNDP report told the story of the Ngwom community, which had previously been thriving up until its brush with Boko Haram. Ngwom suffered attacks by the terrorist group in 2014 and 2016 leading to the death of 100 Nigerians and the displacement of roughly 2300 more to neighboring host communities.<sup>128</sup> Unfortunately their story is not an isolated one. In the roughly nine years that Boko Haram has been actively conducting terror operations, there

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<sup>125</sup> "Journey to Extremism in Africa: Drivers, Incentives, and the Tipping Point for Recruitment," UNDP.

<sup>126</sup> Onuoha, 13.

<sup>127</sup> "Journey to Extremism in Africa: Drivers, Incentives, and the Tipping Point for Recruitment," UNDP.

<sup>128</sup> "Boko Haram Survivors Receive New Livelihoods and Infrastructure as Ngwom Community Reopens," UNDP in Nigeria, accessed January 25, 2019, <http://www.ng.undp.org/content/nigeria/en/home/presscenter/articles/2018/03/20/boko-haram-survivors-receive-new-livelihoods-and-infrastructure-as-ngwom-community-reopens-.html>.

has been an estimated two million displaced Nigerians.<sup>129</sup> This shows that terrorism and livelihoods are closely related in both directions of the causal chain. On one hand, Lake Chad's recession is increasing community vulnerability due to the negative effects it has had on fishing and farming. Then, as the local insurgency grows in strength, its members are able to conduct attacks on susceptible communities, further increasing livelihood instability. It is a vicious cycle of insecurity begetting insecurity.

One additional factor contributing to Boko Haram's ability to recruit is the inequality between northern and southern Nigeria. For example, Meagher argues that while the Nigerian economy has advanced in recent years, the gains have disproportionately been felt by southern Nigerians. She writes, "owing to a history of educational disadvantage in the Muslim north, the region has been perversely affected by economic restructuring, leaving it less able to seize the new opportunities created by Nigeria's economic resurgence."<sup>130</sup> She continues, "Recurrent drought, neglect of agriculture, deindustrialisation, and public sector retrenchment have gutted the northern rural and urban economy, while the more educated southern zones of Nigeria have been able to benefit from liberalisation and diversification into high-value services."<sup>131</sup> The dependence on agriculture and fishing for survival in the north has made the communities susceptible to climate change and unable to transition to new jobs. This has limited their ability to absorb the benefits of Nigeria's growing economy. It is also possible that the apparent divide between regional economic success contributes to anti-government grievances due growing inequality. The fact that organizations such as the UNDP, USIP, and SIPRI all focus on building community resilience to combat Boko Haram is indicative of the role livelihoods play in the insurgents' ability to conduct terror.

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<sup>129</sup> "Boko Haram Survivors Receive New Livelihoods and Infrastructure as Ngwom Community Reopens," UNDP.

<sup>130</sup> Meagher, "Beyond Terror: Addressing the Boko Haram Challenge in Nigeria," Norwegian Peacebuilding Resource Centre.

<sup>131</sup> Meagher.

## **G. DISCUSSION**

Tracing Boko Haram's history and Lake Chad's changing ecology shows that there is an association between the two. First, one can observe that lake-bordering communities are extremely dependent on the lake for subsistence and livelihoods. Furthermore, data from the past 50 years shows that the present drought is worse than previous years. It has likely been made worse by climate change, with most experts predicting the situation will worsen rather than improve. High birth rates and internal migration are adding to local population growth, which further stresses resource scarcity. Water scarcity is having measurable negative effects on fishing and farming productivity, which cause livelihood loss amongst communities in the Lake Chad basin.

Boko Haram has a history of recruiting from struggling communities and impoverished youth. Moreover, terror attacks on struggling communities leads to more livelihood loss. Thus, it would seem that the relationship between water scarcity and Boko Haram is cyclical, with livelihood loss acting as the operant variable between the two; Lake Chad recession reduces community resilience, which strengthens Boko Haram. Then, as Boko Haram gains strength and is able to conduct more terror activities, this further reduces community resilience and the cycle repeats.

What this tells us about water security and conflict is that, although people are not fighting over water directly, the second and third order effects can be a destabilizing force, especially for at risk communities. This finding lends support for the hypothesis that it is disrupted livelihoods which links water scarcity and conflict. On Lake Chad's shores, the economy is hugely dependent on the agricultural sector for livelihoods. Drought and overpopulation contribute to growing water scarcity, which then disrupts livelihood security. High birth rates, low access to capital, and government neglect have created a large group of disaffected youth who see Nigerian politicians as a cause of their problems. Boko Haram is able to exploit this sentiment along with economic incentives to attract Nigerian youth to their cause.

One issue to address is why violent extremism did not emerge in the 1980s when the Sahel experienced drought comparable to what is occurring at present. The reason is

that water scarcity alone is not enough to create violent extremism. In a vacuum, water scarcity will not create conflict; however, it will act as an amplifier to existing conflict, especially when the state does not have the capacity to mitigate its effects.

For years, the Nigerian government has recognized issues posed by Lake Chad's recession and has consistently failed to take appropriate action. The fact that inefficient water usage is a key reason for lake recession means that adopting measures such as breaching the North-South barrier and investment in drought-resistant crops would provide some relief. Moreover, corruption and income inequality have only fed into Boko Haram and their overarching theme that Western influence is evil.

These findings lend support to my second and fourth hypothesis due to the fact that there were things which the government could have done to alleviate the scarcity issue, yet they chose to take insufficient action. It is likely that there is less supporting evidence for these hypotheses in the 1980s because demand was not as high as it is presently due to rising population. Evidence from the Darak subdivision supports the third hypothesis, because migration created new spaces for intercommunal competition. Additionally, it appears there is a relationship between hypotheses three and four, as some migration is caused livelihood insecurity.

The water crisis in the Lake Chad basin is having a strong impact on destabilizing communities which are most susceptible to Boko Haram. Furthermore, income inequality and government corruption have only increased antipathy from Boko Haram and others in the Muslim majority north towards the Government.

### **III. OIL POLLUTION AND VIOLENCE IN THE NIGER DELTA**

#### **A. INTRODUCTION:**

The oil business in Nigeria has historically been accompanied by corruption, greed, and violence. In the Niger Delta, residents have been exploited by oil companies since the resource's discovery in 1956. In response to growing inequality and ecological devastation protest movements such as the Movement for the Survival of the Ogoni People (MOSOP) have fought for justice. This chapter answers the question, what role has oil pollution played in the creation and persistence of violent protest movements in the Delta? I find that the resultant ecological degradation disrupted livelihoods, which, combined with a weak response by the government, contributed to violence.

The chapter first addresses the history of oil in Nigeria, followed by an overview of the resultant environmental damage. This is followed by a discussion of the effects of pollution on livelihoods. The precipitation of local grievances is examined with a historical focus on Ken Saro-Wiwa and MOSOP with a focus on livelihood disruption and the role these disruptions played in motivating protests. The chapter concludes with a discussion about how oil pollution and scarcity in a broader sense might induce violent protest. Lastly, this chapter assesses how more recent violent groups such as MEND and the NDA are related to MOSOP and whether the issue of pollution is a key reason for their grievances.

#### **B. OIL DISCOVERY AND EARLY DEVELOPMENT**

Nigerian oil production began in 1956 when the resource was first discovered in the Oloibiri fields by The Royal British Petroleum Company. Production began in 1958,<sup>132</sup> and between the start of production and 1983, the oil industry generated approximately \$101 billion in revenue.<sup>133</sup> Nigeria was, and remains, a good example of the deleterious

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<sup>132</sup>Adati Ayuba Kadafa, "Oil Exploration and Spillage in the Niger Delta of Nigeria," *Civil and Environmental Research* 2, no. 3 (2012): 38-51-51.

<sup>133</sup> Ike Okonta and Oronto Douglas, *Where Vultures Feast: Shell, Human Rights, and Oil in the Niger Delta* (Verso, 2003). 28.

effects of the resource curse. As the oil industry grew and state leaders became more dependent on resource revenues, agriculture was neglected and production of key cash crops dropped. According to some estimates, “between 1970 and 1982 cocoa, rubber, cotton, and ground nuts – fell by 43, 29, 65, and 64 percent, respectively.”<sup>134</sup> By 1980, the oil market had swelled so that it comprised 96% of external revenue for the state and 27% of GDP.<sup>135</sup> When oil was first discovered in Nigeria, the hope was that it would bring wealth to the people. However, as the industry evolved, the benefits of increased revenue were disproportionately beneficial to a select group of elites.

A big part of the reason oil revenue did not benefit the everyday Nigerian is the organization of the petroleum industry. In 1971, Nigeria nationalized the oil industry. Then, in 1978, the Land Use Act transferred land rights from the local people to the federal government. According to Okonta and Douglas, this ensured that “the people of the Niger Delta could not challenge the expropriation of their natural resources by the central government in Lagos in a court of law.”<sup>136</sup> The de facto consequences of such laws were that oil revenue was concentrated solely the hands of the federal government. The fact that the people were seeing none of this revenue itself was one reason why Nigerians, especially in the oil regions, were so angry at the oil industry.

Most oil production is in the form of joint ventures between the Nigerian National Petroleum Company (NNPC) and foreign oil companies.<sup>137</sup> There are currently six joint ventures total in Nigeria involving NNPC and other companies including Agip, Texaco, and Mobil.<sup>138</sup> The largest producer of Nigerian oil is a joint venture between NNPC and Shell. This joint venture, established in 1979, is the Shell Petroleum Development Company of Nigeria (SPDC) and is responsible for 60% of all oil production in Nigeria.

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<sup>134</sup> Okonta and Douglas, 29.

<sup>135</sup> Okonta and Douglas 30.

<sup>136</sup> Okonta and Douglas 26.

<sup>137</sup> Bronwen Manby, *Shell in Nigeria: Corporate Social Responsibility and the Ogoni Crisis* (London, 2000), <https://doi.org/10.4135/9781473968738>.

<sup>138</sup> Nigerian National Petroleum Corporation, Joint Venture operations, <http://www.idsl.nnpcgroup.com>.

The arrangement is such that NNPC holds 55% of shares, Shell holds 30%, Elf 10%, and Agip 5%.<sup>139</sup> Due to SPDC's vital role in oil production, as well as the government's dependence on petroleum for revenue, Shell has been able to influence national politics. This created a situation in the Delta where a private company could operate with relative impunity and little fear of repercussions, regardless of the level of pollution it caused.

### C. OIL POLLUTION AND ITS IMPACTS

The negative environmental effects of oil exploitation are numerous and far reaching. A case study into oil pollution in the Niger Delta is a case study of unmitigated resource extraction with little or no attention paid to potential ecological implications. The Delta Mangrove Swamp spans 1900 square kilometers and is the largest mangrove swamp in Africa.<sup>140</sup> It is also considered one of the ten most important wetlands in the world.<sup>141</sup> This is due to its role as both a fishing and wildlife nursery and because it acts as a natural pollution filter. The Niger Delta wetlands are also a vital ecosystem to the fishing and farming industry in the region.

Some of the ways oil is negatively affecting the local environment include contamination of streams and rivers, oil spills, forest destruction, biodiversity loss, gas flaring, and effluent discharge.<sup>142</sup> The largest and most visible environmental concern is oil spillage. To quantify the amounts of oil being spilled, Kadafa reports "an estimated 9 million – 13 million tons of oil has been spilled in to the Niger Delta ecosystem over the past 50 years."<sup>143</sup> To put this in perspective, that would be the equivalent of 50 Exxon Valdez oil spills.<sup>144</sup> The oil spill problem is having a measurable negative impact on the wetlands. For example, a blowout of the Funiwa no. 5 well in 1980 resulted in the spillage

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<sup>139</sup> Manby.

<sup>140</sup> Kadafa, "Oil Exploration and Spillage in the Niger Delta of Nigeria." *Global Journal of Science Frontier Research Environment and Earth Sciences*, Volume 12, Issue 3, 2012.

<sup>141</sup> Kadafa.

<sup>142</sup> Achi Celestine, "HYDROCARBON EXPLOITATION, ENVIRONMENTAL DEGRADATION AND POVERTY: THE NIGER DELTA EXPERIENCE," Diffuse Pollution Conference, Dublin 2003.

<sup>143</sup> Kadafa.

<sup>144</sup> Kadafa.

of 421,000 barrels of oil and the consequent destruction of 836 acres of mangrove forest.<sup>145</sup> These incidents are unfortunately all too common; between 1976 and 1990 it was reported that Shell alone was responsible for 2,796 oil spill incidents resulting in 2,105,393 barrels spilled.<sup>146</sup>

A second big issue in the Delta is gas flaring. This is a practice in which natural gas is burned in the petroleum extraction process, rather than separated from oil and consumed. The reason gas flaring is prevalent in Nigeria is because the country lacks sufficient infrastructure to distribute and consume the gas. Measurements taken between 1970 and 1986 show that 81.7 % of all available gas was flared, leaving a small portion for domestic consumption.<sup>147</sup> According to a report released by the Energetic Solution Conference in 2004, the 123 gas flaring sites in Nigeria burn 1.8 billion cubic feet of gas every day, discharging 45.8 billion kilowatts of heat into the atmosphere.

In 2017, the UN Environmental Program (UNEP) issued a report detailing the extent of environmental damage in Ogoniland, a state which borders the Niger Delta, and is home to substantial oil production. Its findings paint a grim picture for the current and future state of the Delta. The starting estimates for how long it would take to conduct a full environmental recovery are 25 to 30 years.<sup>148</sup> Mangrove forests, which are a key part of the Delta ecosystem, are coated in bitumen, a byproduct of oil production. These forests act as both a nursery for fish and wildlife and as a filter for pollution. Therefore, ecological destruction is a self-perpetuating cycle as nature loses its ability to clean itself. Ash and tar coat coastlines because fires have become more prevalent with large amounts of oil spillage. This makes successful ecological rehabilitation more difficult. Creeks in and around Ogoniland have a visible oily sheen and the fishing industry is taking a hit as fish

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<sup>145</sup> Kadafa.

<sup>146</sup> Kadafa.

<sup>147</sup> Kadafa.

<sup>148</sup> “UNEP Ogoniland Oil Assessment Reveals Extent of Environmental Contamination and Threats to Human Health,” UN Environment, accessed February 2, 2019, <http://www.unenvironment.org/news-and-stories/story/unep-ogoniland-oil-assessment-reveals-extent-environmental-contamination-and>.

migrate towards cleaner water away from the polluted Delta. Moreover, fish farms are increasingly difficult to maintain because the water is unfit for marine life.<sup>149</sup>

There is also evidence that pollution is a direct threat to public health. UNEP scientists reported finding an 8 cm layer of refined oil floating on the groundwater in Ogoniland which serves community wells used for drinking water. This coincides with the finding that “in one community...in Western Ogoniland, families are drinking from wells that are contaminated with Benzene – a known carcinogen – at levels over 900 times above World Health Organization guidelines.”<sup>150</sup>

Gas flaring is known to contribute to acid rain, as groundwater samples have illustrated. The normal Ph of water is 6.5 to 8.5 while the pH collected as part of a UNDP report had a pH of between 3.35 to 5.58.<sup>151</sup> Acid rain can adversely impact health of the communities as well as local wildlife.

#### **D. SOCIOECONOMIC IMPACTS OF OIL ON LIVELIHOODS**

Oil pollution has been detrimental to local populations due to the Delta’s economic structure and consequent loss of traditional livelihoods. The region’s largest employment sectors include agriculture, fishing, and forestry which collectively employ 44.2% of the people.<sup>152</sup> Small markets and household industry account for 17.4% of employment. The next two largest sectors are services (9.8%) and education and health (7.1%).<sup>153</sup> The northern, inland portions of the Delta region tend to have a more diversified land-based economy. States that are closer to the water are generally more reliant on fishing. Farming is generally small-scale and only for subsistence. The average household engaged in farming owns less than one hectare of land. Major crops include cassava, yams, and maize.

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<sup>149</sup> “UNEP Ogoniland Oil Assessment Reveals Extent of Environmental Contamination and Threats to Human Health,” UN Environment.

<sup>150</sup> “UNEP Ogoniland Oil Assessment Reveals Extent of Environmental Contamination and Threats to Human Health,” UN Environment.

<sup>151</sup> “Human Development Report: Niger Delta” (United Nations Development Program, 2006).

<sup>152</sup> “NDDC -- Niger Delta Development Commission,” accessed February 5, 2019, <http://www.nddc.gov.ng/masterplan.html>.

<sup>153</sup> “NDDC -- Niger Delta Development Commission.”

The Delta provides the largest source of shrimp in West Africa. Fishing activities generally consist of canoes and passive gear. However, due to declining aquatic resources, Nigeria is the largest importer of fish products in Africa.<sup>154</sup> Forests provide timber, fruits and vegetables, and serve as a source of wild game and snails.<sup>155</sup> The oil sector employs a disproportionately small proportion of Nigerians, in comparison to its importance to the country's economy. The National Bureau of Statistics reported that only 0.01% of Nigerians worked in the oil industry.<sup>156</sup>

While the Delta region's residents do not see the benefits of oil production, they feel its costs in the disruption of their traditional livelihoods. Ipingbemi's 2009 report utilized a questionnaire dispersed to the Burutu region of the Delta to collect primary source data on the impacts of environmental degradation on livelihoods. According to Ipingbemi, whenever oil spills occur, 88.4% of those surveyed claim their businesses suffered in the days following the spill.<sup>157</sup> The author goes on to report that the detrimental impacts of oil pollution has led to "43.0% of respondents [changing] their means of livelihoods whereas 25.5% intend to change theirs."<sup>158</sup> Those that reported changing or considering changing their livelihoods stated that the primary motivating factor included "no catches immediately after major oil spillages, dwindling income over the years and low demand for products/commodities during and after an oil spillage."<sup>159</sup>

The UNDP cites "occupational disorientation" as one of the greatest challenges to development in the Delta. The report states:

Fishing and agriculture have suffered so much from environmental problems and social challenges, and from the neglect of successive

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<sup>154</sup> "NDDC -- Niger Delta Development Commission."

<sup>155</sup> "NDDC -- Niger Delta Development Commission."

<sup>156</sup> "Unemployment: Oil Sector Employs 0.01% of Nigerian Workforce - Vanguard News Nigeria," accessed February 5, 2019, <https://www.vanguardngr.com/2014/06/unemployment-oil-sector-employs-0-01-nigerian-workforce/>.

<sup>157</sup> Olusiyi Ipingbemi, "Socio-Economic Implications and Environmental Effects of Oil Spillage in Some Communities in the Niger Delta," *Journal of Integrative Environmental Sciences* 6, no. 1 (March 2009): 7–23, <https://doi.org/10.1080/15693430802650449>.

<sup>158</sup> Ipingbemi, 17.

<sup>159</sup> Ipingbemi, 18.

governments, that it is very difficult to motivate young people to take an interest in these livelihoods. Many youths, even those still residing in rural areas, are more interested in rent-seeking from oil operations in the form of standby money or oil bunkering, hostage-taking and sabotage of oil pipelines.<sup>160</sup>

Livelihood loss is also a contributing factor to urban migration. The lack of employment opportunities in rural communities has prompted people to move to cities outside of the Delta region which in turn has caused, as Stanley states, “urban sprawl, slum housing, traffic congestion, unemployment, and underemployment.” Furthermore, this has prompted a breakdown in traditional authority structures and a sense of community. As a consequence, youth unemployment and rates of illicit activities have risen.

One interesting dynamic in the Delta is that perceptions of the oil company differ by region. The coastal communities in the southern Delta generally harbor more animosity towards oil companies than do the northern communities.<sup>161</sup> This difference is noted in Stanley’s 1990 report where he lays claim that southern communities have more negative feelings due to the communities’ closeness to oil pollution. He writes “The South has visual and heat sensitive gas flaring, oil containment ponds, artificial canals, and all of the conspicuous and frequently less desired manifestations of exploration, extraction and transportation of oil.”<sup>162</sup> The north differs from the south, in that it is responsible for the refining side of the oil business. Refineries are generally further away from the population than extraction, leaving the socio-economic conditions more intact.<sup>163</sup> The association between regional perceptions of ecological damage and negative feelings towards oil companies hints at a link between the two and a possible role in fomenting violent protest. Due to its close proximity, the petroleum industry becomes a convenient source of blame for local animosity.

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<sup>160</sup> “NDDC -- Niger Delta Development Commission.”

<sup>161</sup> William R. Stanley, “Socioeconomic Impact of Oil in Nigeria,” *GeoJournal* 22, no. 1 (September 1, 1990): 67–79, <https://doi.org/10.1007/BF02428540>.

<sup>162</sup> Stanley, 72.

<sup>163</sup> Stanley, 73.

The Niger Delta economy has traditionally relied on agriculture, fishing, and farming for sustainable livelihoods. Oil has played a large role in eliminating these traditional livelihoods due to the negative effects of pollution. Furthermore, the legal system is structured in a way that prevents peaceful conflict resolution. The next section examines how the Nigerian judiciary benefits oil companies at the expense of its citizens.

## **E. LEGAL CHALLENGES FOR DELTA COMMUNITIES**

This section outlines the difficulties faced by Niger Delta communities whose residents attempted to challenge the petroleum industry through litigation. The findings lend support to the third hypothesis, which posits that institutions play an important role in mitigating the negative effects of ecological damage. In the case of the Niger Delta, judicial institutions made it very difficult to peaceably resolve the pollution crisis.

Two reasons for continued environmental pollution are government corruption and difficulties challenging Shell in court. Petro-states are notorious for government corruption.<sup>164</sup> Due to the state's reliance on oil for revenue, top level government officials are very susceptible to bribes from oil companies. Additionally, the Nigerian oil industry lends itself to corruption due to its complexity, concentration of revenue flows, and the natural monopolies it creates.<sup>165</sup> Corruption manifests itself in several key ways in Nigerian petro-politics. For example, the government is responsible for awarding licenses and contracts. Under the Nigerian Petroleum Act, the Minister of Petroleum has near complete authority when it comes to the allocation of licenses.<sup>166</sup> Furthermore, government officials have significant power in granting large scale contracts to oil companies and may benefit from awarding contracts to companies in which they have a personal stake.<sup>167</sup> Historically, there have been some overt cases of corruption exposed at

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<sup>164</sup> "Oil, Politics and Corruption," accessed February 11, 2019, <https://www.economist.com/special-report/2008/09/18/oil-politics-and-corruption>.

<sup>165</sup> P.A Donwa, C.O. Mgbame, and O.L. Ogbeide, "Corruption in the Nigerian Oil and Gas Industry and Implication for Economic Growth," *International Journal of African and Asian Studies* 14 (2015): 29–39.

<sup>166</sup> P.A Donwa, Mgbame, and Ogbeide, 33.

<sup>167</sup> P.A Donwa, Mgbame, and Ogbeide, 33.

a high level. One such instance occurred in December of 2009 when James Ibori, the former governor of the Delta State, was acquitted in a Nigerian court for 170 charges filed against him by the Economic and Financial Crimes Commission. He would later be jailed in a British court for fraud and the embezzlement of N12.6 billion.<sup>168</sup> Another high profile example of corruption was the 2002 Halliburton scandal in which it was revealed that the U.S. oil company was guilty of paying out \$180 million in bribes to top officials in order to secure four contracts for LNG facilities in Nigeria.<sup>169</sup> Clearly the petroleum industry is closely linked to corruption in Nigeria. A lackadaisical government attitude towards regulation combined with corruption make litigation extremely difficult for Delta states.

In spite of a lack of enforcement there is some environmental policy in place. In 1999 the Constitution of the Federal Republic of Nigeria was established, which attempted to institute a policy to safeguard the environment and improve air, water, and land resources.<sup>170</sup> The Department of Petroleum Resources (DPR) is tasked with “monitoring the operations of oil companies, setting and enforcing environmental standards, collecting royalties and rents, as well as supervising and ensuring compliance with oil industry regulations.”<sup>171</sup> The National Oil Spill Detection and Response Industry (NOSDRA) is tasked with monitoring and assisting the detection and subsequent clean-up of oil spills. Problematically, the State Environmental Protection Agencies (SEPAs), which would be best suited at detecting and fighting environmental degradation in the individual states, lack the power to take any meaningful action. Instead, the federal government, drowning in corruption, possesses the most power to actually protect the environment.<sup>172</sup> Thus, the SEPAs are close in proximity to ecological fallout, yet lack the ability to protect their land.

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<sup>168</sup> P.A Donwa, Mgbame, and Ogbeide, 35.

<sup>169</sup> “Contractor Profile - Federal Contractor Misconduct Database - POGO,” accessed February 1, 2019, <http://webarchive.loc.gov/all/20121015032430/http%3A//www.contractormisconduct.org/index.cfm/1%2C73%2C221%2Chtml?ContractorID%3D149>.

<sup>170</sup> “Corporate Liability in a New Setting: Shell and the Changing Legal Landscape for the Multinational Oil Industry in the Niger Delta,” *Essex Business and Human Rights Project*, 2010.

<sup>171</sup> “Corporate Liability in a New Setting: Shell and the Changing Legal Landscape for the Multinational Oil Industry in the Niger Delta,” *Essex Business and Human Rights Project*.

<sup>172</sup> “Corporate Liability in a New Setting: Shell and the Changing Legal Landscape for the Multinational Oil Industry in the Niger Delta,” *Essex Business and Human Rights Project*.

There are two key legal challenges to responsible government regulation. First, NOSDRA itself cannot detect oil spills and instead relies on oil companies to report the spill within 24 hours or risk a penalty.<sup>173</sup> This makes it easier for an oil company to conceal the extent to which they may be polluting the land and inhibits a rapid response to an oil spill. Second, the Land Use Act limits corporate responsibility of an oil company in the event of sabotage as a cause of spillage. Consequently, Ogbannaya writes “oil companies in Nigeria have taken advantage of this sabotage alibi and absence of effective regulations to perpetrate irresponsible practices and adopt production methods which maximize profit and minimize investment in environmental safety.”<sup>174</sup>

There have been some successful lawsuits from Nigerians against Shell. However, the size and strength of Shell, in addition to the fact that they are a multinational corporation, has made it resilient to legal challenges. Some successful examples include *Umudje v. Shell-BP Petroleum* (1975) where the company was held responsible for damages to lakes and rivers of the plaintiff by the Nigerian Supreme Court.<sup>175</sup> Unfortunately, in 2017 the High Court in London ruled that Royal Dutch Shell could not be sued in London for damages resulting from oil spills in Nigerian communities.<sup>176</sup> Corrupt business practices and legal problems are unfolding currently. Due to government corruption and difficulties in holding Shell responsible in its native country, successful tort litigation in Nigeria may not result in desired compensation. Oil companies in Nigeria pollute the environment knowingly, deny their role, and instead of assuming responsibility, pass the buck to local Nigerians. This speaks to the institutional hypothesis because, if the rule of law was stronger, then there would have been more opportunities to resolve grievances legally rather than resorting to violence.

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<sup>173</sup> “Corporate Liability in a New Setting: Shell and the Changing Legal Landscape for the Multinational Oil Industry in the Niger Delta,” *Essex Business and Human Rights Project*.

<sup>174</sup> Ufiem Ogbonnaya, “Environmental Law and Underdevelopment in the Niger Delta Region of Nigeria,” *African Research Review* 5 (October 2011): 68–82.

<sup>175</sup> “Corporate Liability in a New Setting: Shell and the Changing Legal Landscape for the Multinational Oil Industry in the Niger Delta,” *Essex Business and Human Rights Project*.

<sup>176</sup> “Court Rules Shell Can’t Be Sued in London for Nigeria Oil Spills,” *Reuters*, January 26, 2017, <https://www.reuters.com/article/us-shell-nigeria-court-idUSKBN15A1JV>.

## F. Ogoni and MOSOP Case Study

The case of the Ogoni people, MOSOP, and Ken Saro Wiwa provides an example of how the loss of livelihoods may lead to violence. The evolution of violence began with the loss of livelihoods in Ogoniland and was made worse by actions taken by the Nigerian government. First, assessing the impact of oil pollution on Ogoniland in particular, it is clear that livelihoods were severely negatively impacted by Shell's activities. The SPDC reportedly had a system of above ground and poorly maintained pipes in the Ogoni State which consistently leaked oil.<sup>177</sup> Shell also reportedly passed the blame on to local farmers for spills, claiming the pipes were sabotaged.<sup>178</sup> Gas flaring was reported to have created a "permanent scorched earth regime," and the Bomu oil spill and Ibobu oil spills in 1973 were responsible for widespread loss of fishing and farming land.<sup>179</sup> As Crayford writes, "the placement of pipelines and other oil facilities has also had a damaging effect simply by taking up large amounts of precious farmland for which the Ogoni claim they are poorly paid and occasionally not even consulted." In short, Shell was polluting, burning, and taking land from the Ogoni people without compensation.<sup>180</sup>

The collective loss of livelihood created a communal sense of suffering amongst the people. This created a situation very conducive to Ogoni mobilization to solve their issues.<sup>181</sup> Together the communal suffering, combined with a rising sense of urgency as degradation worsened, created facilitating conditions for Ken Saro-Wiwa to form the Movement for the Survival of the Ogoni People (MOSOP). The struggle for greater Ogoni rights has its roots in 1945 when the Ogoni Central Union was formed in order to have a stronger united voice when competing for government resources.<sup>182</sup> Early efforts to unify

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<sup>177</sup> Steven Crayford, "The Ogoni Uprising: Oil, Human Rights, and Democratic Alternative in Nigeria," *Africa Rights Monitor*, Volume 43, No. 2, 183-198, 1996.

<sup>178</sup> Stanley, 74.

<sup>179</sup> Eghosa E. Osaghae, "The Ogoni Uprising: Oil Politics, Minority Agitation and the Future of the Nigerian State," *African Affairs* 94, no. 376 (1995): 325-44.

<sup>180</sup> Crayford, 187.

<sup>181</sup> Osaghae, "The Ogoni Uprising," 337.

<sup>182</sup> Crayford, 187.

the Ogonis grew stronger in the 1980s as the people realized, in the midst of environmental destruction and political exploitation, that they shared a common goal in addition to a common ethnicity. At the start, MOSOP's leaders worked at the grassroots level, building community support with the help of local clan leaders. They raised awareness about the Ogoni people's socioeconomic and environmental plight, utilizing propaganda. They also promised money in return for membership when they received compensation from oil companies.<sup>183</sup> External factors such as Nigeria's transition to democracy, increased environmental awareness, and the increased militancy of the current regime all served Saro-Wiwa's cause.

The group's first action was to write an Ogoni Bill of Rights targeting perceived exploitation by the Nigerian Government and Shell.<sup>184</sup> The Bill of Rights demanded "1. Ogoni Political autonomy within a wider Nigerian confederation of states. 2. Protection of local Ogoni languages. 3. Control of a fair share of the economic resources derived from Ogoni land. 4. Protection of Ogoni environment."<sup>185</sup> The role of environmental degradation to the movement was paramount. This is backed up by some of Saro-Wiwa's rhetoric when he accused Shell of "reckless oil exploitation or ecological warfare."<sup>186</sup> In a statement to the Ogoni Civil Disturbances Tribunal in 1995, Saro-Wiwa describes the Ogoni people as living with no social amenities, in extreme poverty, and plagued by high rates of unemployment. The Ogoni were "faced with environmental degradation, political marginalization, economic strangulation, slavery, and possible extinction."<sup>187</sup> In short, MOSOP was dedicated to fighting for the Ogoni people and seeking justice against Shell and the Nigerian government for exploiting their state's people and resources.

The beginning of the protests was relatively peaceful and mostly consisted of acts of passive resistance. For example, on January 4, 1993 MOSOP leadership organized the

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<sup>183</sup> Crayford, 188.

<sup>184</sup> Okonta and Douglas, 126.

<sup>185</sup> Ogoni Bill of Rights, 1990.

<sup>186</sup> Manby, 2000.

<sup>187</sup> Saro-Wiwa, Speech to Ogoni Tribunal, September 21, 1995.

first Ogoni Day which attracted upwards of 300,000 to engage in benign festivities.<sup>188</sup> However, the actions taken by the Nigerian Government served to intensify the movement rather than mitigate the potential uprising. On 15 July, 1993 there were one hundred and thirty-two Ogoni men, women, and children massacred on the banks of the Andoni River. The Police Commissioner of Rivers State refused to conduct an investigation. Then on the 5<sup>th</sup> and 6<sup>th</sup> of August, the Ogoni market village of Kaa was attacked with grenades, mortar shells, and automatic weapons. According to Saro-Wiwa, his contacts informed him that more attacks were planned for the border territories between the Okrika and Ndoki sub-groups by the government as a coordinated effort to undermine MOSOP.<sup>189</sup> This is further evidenced by the fact that Human Rights Watch received statements from two soldiers involved in the massacres claiming they had been ordered to “shoot everyone who crossed our path.”<sup>190</sup>

With the death toll rising and increasing tension between the government and MOSOP, the international community began to take note of the events unfolding. With the Ogoni crisis now in the international spotlight, human rights activists documented “instances of detentions, harassment, and the extrajudicial executions of MOSOP activists.”<sup>191</sup> The crisis became more violent when ethnic clashes broke out between the Ogoni and the Andonis, a separate ethnic group in the Delta. Some of MOSOP’s leaders claimed the increase in ethnic violence was actively promoted by the government.<sup>192</sup> Ken Saro-Wiwa himself explained how the Nigerian government orchestrated attacks on the Ogoni border of other states as a way to incite ethnic tension.

An additional factor contributing to the increase in violence was increased militarization of the Delta region by Shell itself. First, Shell was responsible for employing the Nigerian police specifically to act as paramilitaries tasked with guarding local

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<sup>188</sup> "Movement for the Survival of the Ogoni People," [www.nigerdeltaaffairs.org](http://www.nigerdeltaaffairs.org), 2014.

<sup>189</sup> Ken Saro-Wiwa, Speech to Ogoni Tribunal, 1995.

<sup>190</sup> Crayford, 190.

<sup>191</sup> Manby.

<sup>192</sup> Manby.

refineries. According to Osaghae's 1995 report, the members of this "supernumerary" force reported being told to incite violence between various groups as well as harass protestors.<sup>193</sup> Additionally, in spite of Shell's claims otherwise, it has been shown that, as late as 1995, the oil company was negotiating the sale of arms to the Nigerian police.<sup>194</sup>

Ken Saro-Wiwa's life and the early days of the MOSOP movement came to an end in 1994 when he was executed along with eight other leaders who would become known as the "Ogoni Nine." Each of the Ogoni Nine were found guilty of murder of four other Ogoni leaders. The trial itself was not a fair and equal process. Some issues included the appointment of a court after the government already announced a guilty ruling and that one of the judges was an active Lieutenant Colonel in the Nigerian military. Finally, this case was happening at the same time as another case involving Ogoni protestors, and evidence produced for that trial was also used in the trial of the Ogoni Nine.<sup>195</sup> Their deaths were met with international outrage and diplomatic condemnation including banning Nigeria from the Commonwealth of Nations and the retraction of several foreign diplomats.<sup>196</sup>

Assessing the impact of environmental causes on the Ogoni uprising, one can see that they played a large part in establishing the movement. Ken Saro-Wiwa's rhetoric and the Ogoni Bill of Rights are evidence of this. Together, Shell and the Nigerian government cooperated together and exploited the Delta for its resources while neglecting the rights of its residents. The movement was precipitated by strong state and ethnic identity, perceived ecological injustice, and the leadership qualities of Ogoni elites who were successful in mobilizing a protest. Once the protest began, the government and Shell increased tensions by failing to deal appropriately with the issue and instead worked to incite ethnic tension. Coordinated attacks, militarized oil companies, and limited power of the local government served to prolong the fighting and make it more violent. These findings provide support to the hypothesis two and four. Disrupted livelihoods played a key role in generating public

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<sup>193</sup> Crayford, 190.

<sup>194</sup> Osaghae, 330.

<sup>196</sup> "CNN - Nigeria Suspended from Commonwealth - Nov. 11, 1995," accessed December 5, 2018, <http://www.cnn.com/WORLD/9511/nigeria/11-11/>.

discontent. Additionally, the government did not have adequate institutional capacity to deal with the resultant occupational dislocation associated with oil pollution. Moreover, there were deliberate efforts by the federal government to increase violence. This speaks to the vital role of institutions in mitigating and adapting to environmental stress.

Speaking to hypotheses one and three, there was limited supporting evidence that simple scarcity or migration were causing conflict. It is possible that because the pollution was so geographically concentrated, migration out of the Delta region would help alleviate conflict. Furthermore, local grievances are not targeted at water scarcity per se, but rather how the government allowed Shell and others to exploit the region's land.

#### **G. CURRENT EVENTS:**

Like the mythological hydra, the Nigerian government's attempts to cut off the head of the Ogoni oil insurrection only sprouted others to take its place. The newer, more violent iteration of oil protestors was the group named the Movement for the Emancipation of the Niger Delta (MEND). They were dedicated to disrupting the oil business in the Delta, specifying a target of a 30% reduction in oil output.<sup>197</sup> Beginning in the mid-2000s, MEND was very successful in these efforts. On January 11, 2006, the group attacked an offshore oil vessel. Then, on 18 February of the same year, they succeeded in stopping production by 20% in a single attack when they destroyed the Forcados crude loading platform.<sup>198</sup> MEND's actions were more violent than those of MOSOP and include, as Watts writes, "car bombings, brazen attacks on government and military buildings, massive disruption of oil installations...and the audacious kidnapping of workers."<sup>199</sup> MEND succeeded in reaching its goal of a reduction of 30% of oil production, prompting the Nigerian government to adopt a peace agreement in an effort to stop the rebels. In 2009 MEND militants were granted an unconditional pardon and received cash in exchange for stopping

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<sup>197</sup> Michael Watts, "Petro-Insurgency or Criminal Syndicate? Conflict & Violence in the Niger Delta," *Review of African Political Economy* 34, no. 114 (December 2007): 637-60, <https://doi.org/10.1080/03056240701819517>.

<sup>198</sup> Watts. 646.

<sup>199</sup> Watts. 647.

violence and turning in their weapons.<sup>200</sup> The Amnesty agreement worked until the government cut payments in 2014 in response to the collapse of oil prices, giving rise to new militant groups like the Niger Delta Avengers (NDA).

Although MEND is similar to MOSOP in targeting government corruption and illicit oil activities, they have different goals. Ken Saro-Wiwa was mostly focused on Ogoni rights, which extended to livelihood protections, environmental regulation, and respect from the government and oil companies. MEND's goals are greedier and more self-serving. For example, the BBC reported in 2009 that General Godswill Tamuno, a MEND military leader, articulated their goal as total control of the Niger Delta's oil wealth.<sup>201</sup> Two of their other demands include receipt of 50% of revenues from oil pumped out of the Delta and a withdrawal of government troops from the Delta.<sup>202</sup> Notably, in April 2006, MEND demanded Shell pay \$1.5 billion in compensation for pollution in the Niger Delta. There is still an environmental side to MEND; however, unlike MOSOP it does not play as central a role. Rather, new militant groups in the Delta seem to be more motivated by gaining control of oil resources or revenue.

The nature of MEND's decentralized leadership structure is both a blessing and a curse. While it does not have any clear central target for the government to focus on, the group is likewise fragmented on its specific goals. While some members seem to want to become a legitimate political entity within Nigerian government, others are vying for regional political autonomy.<sup>203</sup> In comparison to MOSOP, MEND is decentralized, more violent, and more focused on gaining control of oil resources. The fact that the amnesty agreement succeeded by giving cash and employing former militants is evidence that livelihood disruption does play a role in motivating Nigerians to join an insurgency. If improving militants' economic condition led them to stop engaging in violent extremism

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<sup>200</sup> Xan Rice, "Nigeria Begins Amnesty for Niger Delta Militants," *The Guardian*, August 6, 2009, sec. World news, <https://www.theguardian.com/world/2009/aug/06/niger-delta-militants-amnesty-launched>.

<sup>201</sup> Rice.

<sup>202</sup> "MEND: The Niger Delta's Umbrella Militant Group," Council on Foreign Relations, accessed February 8, 2019, <https://www.cfr.org/backgrounder/mend-niger-deltas-umbrella-militant-group>.

<sup>203</sup> "MEND," Council on Foreign Relations.

then we can infer that they were engaging in violence for economic reasons. This could be due to their personal grievances associated with livelihood disruption, the potential monetary benefit of joining an extremist group, or a combination of the two. If one were to engage the counterfactual, the Amnesty agreement not working would be evidence that the movements themselves were purely ideological or motivated by something other than economics. However, the Amnesty agreement was successful lending support to an economic theory for violence. Collier argues that a key factor in extremism is a low opportunity cost of engaging in violence. It is likely that access to oil revenues and livelihood disruption in the Delta created an environment that was more conducive to violent militancy. This provides support for the fourth hypothesis.

## **H. CONCLUSION AND FINDINGS:**

Based on this study of oil pollution, its impacts on livelihoods, and the cases of MOSOP and MEND there are two conclusions that can be drawn. First, oil operations in the Delta are having deleterious effects on the environment since they are responsible for spilling millions of gallons of oil and disrupting the ecosystem by destroying flora and fauna. Local Nigerians were and are very dependent on the environment for traditional livelihoods. Oil pollution, through its impact on the environment, disrupted these livelihoods which consequently eroded the social fabric of Delta societies.

Secondly, livelihood disruption caused by environmental destruction played a key role in uniting the Ogoni people and mobilizing them to action. However, actions taken by the government such as intentionally killing Ogonis in ethnically sensitive areas made the conflict more violent. It is possible that if the government had given the Ogoni people greater political rights and helped clean up the oil pollution the issue it would have been sufficient to end the movement. The demands outlined in the Ogoni Bill of Rights were not unreasonable and Ken Saro-Wiwa himself was a rational actor bound by personal convictions to peacefully protest. Moreover, this would have set a precedent of engaging with the people rather meeting protest with force. Unfortunately, this was not the approach adopted by Nigerian leadership. Environmental issues, along with grievances against Shell and the government, united the Ogonis. Then, external factors made the protest movement

violent. These findings provide support to hypothesis three because actions taken by the federal government were the catalyzing factor for violence, which speaks to the power of state institutions.

The motivations of MEND are harder to identify and, therefore, it is difficult to conclude to what extent livelihood instability has contributed to violence. Statements from the group indicate that they are driven by resource control, as opposed to MOSOP's social and environmental justice roots. This being said, drawing upon Collier's study of opportunity costs and violence, it is likely that the presence of oil in an environment where livelihoods have been disrupted would lower the opportunity cost of joining that group. Even if it is not articulated by the group itself, it is likely that individuals are joining MEND out of the economic reality that joining will grant new militants a financial boost. More research into livelihoods and the role it plays in the modern Delta insurgencies such as MEND and Niger Delta Avengers is suggested.

## IV. CONCLUSION

This thesis examined the question, how does water scarcity affect armed conflict in Nigeria? It began with an overview of water security as an issue and the main bodies of thought that exist within the field. My literature review identified four ways water scarcity may encourage armed conflict: direct conflict, insufficient institutions to cope with the scarcity, change in migration patterns, and disruption of livelihoods. My research differs from traditional water-conflict studies because it more precisely identifies each step along the causal pathway from scarcity to conflict. This approach is unique in the sense that it takes a step back from the magic formula approach of water-conflict, where previous studies have attempted to deduce exactly the right combination of variables to induce violence. My research begins with the understanding that each case of water-conflict is unique, then traces the steps and interaction of variables to see how conflict unfolds.

In order to answer this question, I conducted an analysis of two cases of violence in Nigeria, in areas where there is also water scarcity. The first case of water security and violence is in the Lake Chad Basin, where lake recession and violent attacks by Boko Haram are occurring concomitantly. The second case was the Niger Delta, where oil pollution has degraded the natural environment. The region itself currently harbors some violent extremist groups, which were preceded by Movement for the Survival of the Ogoni People (MOSOP), which fought for the environmental rights of its people

The methodology selected to analyze the two cases was process tracing. For each case, I began with a broad analysis of regional environmental concerns. I then followed the beginning of violence, parsing out resultant actions by citizens, the state, and any violent group. Similar to fitting the pieces together in a jigsaw puzzle, a more complete picture gradually emerged of what transpired to cause violence. This specific methodology was chosen because it allowed for a closer analysis of the changes that occur within a community, as water scarcity increases. Each step along the path, from the beginning of the scarcity to armed conflict, was identified to recreate the specific sequence of events which caused history to unfold as it did.

## A. FINDINGS

Overall, this thesis finds support for hypothesis two and four which posit that state institutions and livelihood disruption are responsible, in the cases analyzed, for inciting violence. There was insufficient supporting evidence for hypothesis one, simple scarcity as a direct cause of conflict. Speaking to hypothesis three, there were some select cases where migration did cause conflict. This being said, migration was closely related to livelihood disruption, so its role in the causal chain could be as an intermediate variable with livelihoods and institutions as the more direct cause.

First, examining hypothesis one, scarcity alone did not cause violence. Based off of the evidence in the Niger Delta and around Lake Chad, water scarcity is insufficient to initiate violence. This is backed up by the fact that all cases of violence had additional conditions which increased tension, outside of environmental stressors. Lake Chad's history provides evidence that simple scarcity was not enough to incite violence. For example, the basin experienced drought in the 1980s which was comparable to today and violent extremism did not spring forth. While there were some instances of communal conflict during the 1980s, an underlying condition for the present conflict is increased demand and lack of government response. Additionally, in the Niger Delta, MOSOP was dedicated to environmental justice. However, MOSOP itself was more broadly about the political autonomy of the Ogoni people, who had historically been marginalized by the Nigerian government. In this instance, environmental degradation was another example of how the Nigerian government was failing the Ogonis.

Water scarcity acted as an amplifier for violence by enhancing inequality and the perception of inequality. For example, MOSOP had a strong environmental justice theme. Much of Ken Saro-Wiwa's rhetoric played on the theme that oil money was enriching the lucky few while harming the impoverished majority. Moreover, the Ogoni people did not have the legal means to challenge those responsible for the environmental degradation enhancing their feelings of inequality. This same sentiment is evident in the Lake Chad Basin, which is home to the greatest levels of poverty and unemployment in Nigeria. In this case, water scarcity further takes away from the meager economic opportunities enhancing the perception of inequality. Boko Haram was also able to play on the religious

differences between the Muslim majority north and the Christian South. The evidence from the Niger Delta and Lake Chad Basin indicate that water scarcity itself was not the sole cause of armed conflict but worked with other factors to amplify existing tension which then lead to violence.

Second, the Nigerian government did not do enough to help its people adapt to environmental stressors. A critical component in the transition from animosity to violence were the actions (or inaction) of the Nigerian government. For decades, oil extraction was left unregulated in the Delta, leading to ecological devastation. Then, when Delta residents chose to engage in passive resistance in response to their people's exploitation, the Nigerian government took deliberate violent action. Furthermore, the Ogoni people did not have the legal means to challenge those responsible for the environmental degradation enhancing their feelings of inequality. There is evidence that the Nigerian military engaged in targeted attacks on specific ethnic tribes in order to divide the Delta states. Moreover, the government frequently sided with oil companies, refusing to hold them accountable for their negative environmental impact. By refusing to try and solve the actual issues and instead working against its people, actions by the Nigerian government increased tension and violent conflict.

In the other case, lack of government action in the Lake Chad Basin has allowed for continued deterioration of socio-economic conditions and Boko Haram's ongoing attacks. Although the government is more proactive today in combatting Boko Haram, the most at-risk communities were left to fend for themselves in the past. One solution that could improve conditions is breaching the wall between the northern and southern portions of the lake to ameliorate evaporation loss during drought. The government could also have educated fishermen and farmers in the region on sustainable practices so that they would not further degrade their increasingly scarce resources. Additionally, increased access to employment opportunities and business loans would have prevented some Nigerian youth from falling prey to Boko Haram's economic enticements. In the Sahel, a lack of action was what reduced community resilience while in the Niger Delta the government worked to foment violence. These two examples speak to the importance of institutions in mitigating and adapting to environmental stressors.

Third, migration was more a result of conflict than a driving factor. Furthermore, migration is more of a mitigation and adaptation technique than something to cause conflict. In the instances when migration did cause conflict, such as between pastoralists in the Lake Chad Basin, it was due to increasing competition over resources and not due to migration itself. Around Lake Chad, the motivating factor behind migration were violent attacks by Boko Haram. In the Niger Delta, there is little to no mention of migration as a cause of conflict. Instead, Delta State residents are more likely to migrate as a response to environmental degradation. In this way, migration could be seen as a way to reduce the likelihood of conflict by reducing resource stress.

The final finding is livelihood disruption was a cause of violence, and violence was a cause of livelihood disruption. Due to the structure of the Nigerian economy, the environmental impact of oil pollution and drought disrupted livelihoods, which provoked violent conflict. Additionally, the role of livelihoods is more cyclical than a causal chain, as conflict then further disrupts livelihoods. The economies of the Lake Chad Basin and the Niger Delta are centered on the land, agriculture, and fishing. The local populations in this region are negatively impacted by environmental changes due to their reliance on these industries for their traditional livelihoods. As livelihoods are disrupted, local Nigerians are forced to look for other means to support themselves. In the Lake Chad Basin this took the form of joining Boko Haram which promised some form of economic security. In the Niger Delta this takes the form of MEND and the NDA. The cyclical nature of livelihood disruption and violence is present in the relationship between Boko Haram and local communities. For example, traditional livelihoods are disrupted due to a combination of a rising population and drought. However, frequent attacks by Boko Haram create unstable conditions in the region which further erode traditional communities and livelihoods and feed into regional insecurity. This is important because it highlights the necessity of a complete and diverse reaction in order to find a lasting solution. Solving the economic woes without fighting Boko Haram will not solve the issue, just as eradicating Boko Haram would not restore peace due to the dire economic and environmental situation. In summation, water scarcity caused violence through its amplifying effects on existing and

underlying tension, specifically though the disruption of traditional livelihoods. Moreover, the role of government is essential in adapting and mitigating environmental threats.

## **B. SUGGESTIONS FOR FURTHER RESEARCH**

This thesis built upon existing literature and took a closer look at how water scarcity might be playing a role in increased rates of armed conflict. However, the work on this topic is far from over and there are other topics to be researched to better our understanding of water scarcity. First, what is the relationship between the environmental justice and conflict? One theme that emerged from my study was that environmental factors increased the perception of inequality. It would be useful to see how different classes react to water scarcity. How does the capability to transition to other livelihoods physically relocate for better economic opportunities impact conflict? Similarly, how is ethnic marginalization impacted by water scarcity? The socioeconomic differences between ethnic groups would make some more susceptible to environmental strain than others. Is it possible that competing over resources would heighten existing tensions or even create new fault lines?

Second, how do reactions to different forms of scarcity differ from one another? For example, the Niger Delta was an example of a degradation-induced scarcity related to oil pollution. This differed from the absolute scarcity in the Sahel. Research into the different reactions to degradation versus absolute scarcity would shed more light on human behavior in response to a water security threat.

## **C. POLICY SOLUTIONS**

The role of institutions and their influence in mitigation and adaptation is one of the key findings of this thesis. This finding is significant due to its implications in how scarcity issues are confronted. Often, scarcity causing conflict is seen as a foregone conclusion. In an age of increasingly dire messages about the climate change rapture, it is easy to view conflict over scarce resources as an inevitability. This thesis makes the case for the power of institutions in mitigating and adapting to environmental stress. Humans are a remarkably adaptable species, which is why it is flawed to look at environmental stress and conflict as a static issue. Outlined next are some policy suggestions that the

Nigerian government could adopt to help the local populations in the Niger Delta and around the Lake Chad Basin.

In the Niger Delta, the focus should be on equalizing wealth disparity and greater environmental protection. For starters, by giving local Nigerians a greater share of oil revenues the government could reduce the perception that oil is benefitting the few at the expense of the many. Dubai and Kuwait/Saudi Arabia, in spite of their authoritarian leadership, are two examples of how to keep its citizens happy while juggling vast oil wealth. The Nigerian government should follow these countries' examples and pay its citizens a greater proportion of oil revenues. MEND's rhetoric is indicative of the role that perceived economic grievances plays in the generation of conflict. Paying Nigerians directly would reduce economic grievances and thus, undercut a key pathway to violence. While I acknowledge that this would be difficult to institute due to Nigeria's large population, the point remains that redistributing wealth would help reduce grievances as evidenced by the success of the amnesty program with the NDA.

While paying Nigerians is a short-term solution, the long-term focus should be on diversifying the economy in order to reduce unemployment. The government could do this by investing in alternative energy. Not only would this employ a greater proportion of Nigerians, renewable energy sources also do not have the same negative externalities as fossil fuels. Not only would this shift be an environmentally conscious decision, but investing in renewable energy is wise economically as solar and wind gain greater share of the global energy market and as U.S. demand for foreign oil declines. The government must also hold Shell and other oil corporations accountable for their oil spills. These companies have the resources to pay damages to Delta state residents, restore the environment, or both.

Some of these proposed policy solutions are more viable than others. The likelihood that Nigeria would transition its economy towards renewable energy if the oil market remains profitable. However, depending on how seriously politicians take the threat of climate change in the coming decades there is a chance that the global demand diminishes and countries, like Nigeria, which traditionally relied on oil, would have to find other ways of generating revenue. Diversifying the economy would become more viable should green

technology improve. The policy solution which is more immediately viable is redistribution of wealth. Though corruption still stands in the way, Nigeria has the potential to strengthen its democratic institutions. The success of the amnesty program, though brief, could help pave the way for a more comprehensive form of oil wealth redistribution in the future.

The good news about Lake Chad is that there are tangible physical solutions to the water shortage, which would improve the lives of Sahelians. One solution is to breach the wall between the Northern and Southern portions of Lake Chad to reduce the negative impacts of drought. This action is more feasible than redirecting the Chari River and would not have the negative environmental implications of reducing fresh water supply in one area for greater supply in another.

As the research showed, a significant portion of the water shortage is caused by poor agricultural practices. Therefore, teaching local communities about sustainable fishing and farming would help to reduce man made water losses. One way to reduce stress on the lake would be to educate people in different, more sustainable, growing techniques. Investment in drought-resistant crops would also reduce the deleterious effects of water shortage. As droughts are predicted to become more common in the future, it is important to have crops which can weather increasingly erratic growing conditions.

When discussing countering Boko Haram, the Nigerian government should provide loans and financial support to Nigerian youth who wish to start businesses. One successful recruiting tool employed by Boko Haram is granting loans in return for someone's service. Therefore, government aid for business would undercut Boko Haram through the elimination of the insurgent group's financial incentives.

In addition to providing loans, the government would be wise to invest in education. Studies show that greater education insulates a community against the pull of extremism because it allows for Nigerians to read and interpret holy texts themselves. Moreover, students are less likely to join an extremist group due to the economic opportunities afforded those who have an advanced degree.

Whether any of these solutions will be implemented depends on a variety of factors. As the drought continues, the opportunity cost of breaching the barrier within Lake Chad is lowered. This is also true for investment in drought resistant crops. Taking a closer look at investments in Nigerian youth, that will depend on the priorities of the government. However, the government is not solely responsible for instituting these solutions. There is a lot of room for NGOs, international organizations, and foreign governments to provide assistance. In Namibia, for example, the International Atomic Energy Agency is already assisting with transitioning farmers to drought resistant crops.<sup>204</sup>

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<sup>204</sup> Nathalie Mikhailova, "Drought-tolerant Crops to Contribute to Food Security in Namibia," International Atomic Energy Agency, March 2019.

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