ENVIRONMENTAL PEACEBUILDING: TRANSBOUNDARY ENVIRONMENTAL COOPERATION AND CONFLICT PREVENTION

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ABSTRACT

Environment and politics are interdependent. Environmental issues disrupt political status quo, cause shocks to human health, alter the habitat, and threaten water and food security. Conversely, political decisions can bring about environmental disruptions including climate change, anthropogenic, and natural disasters. The research on the relationship between environmental problems and interstate relations is inconclusive, however it shows a nexus between conflict and cooperation—that is, similar conditions i.e., environmental degradation, can lead to either conflictive or cooperative outcomes. Moreover, cooperation has the potential to create stability and lasting peace. Given these assumptions, this paper analyzes two case studies: the Nile Basin and the Lake Chad Basin and finds that in conflict prone areas that have a history of agreements over water are less likely to fight. Moreover, a hydrohegemon has a stabilizing power in the region, whereas poor states experiencing water scarcity are likely clash.

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INTRODUCTION

The 2014 UN report on climate change warns of sweeping, life threatening changes to environment and livelihood worldwide.[1] The report states that climate change has already caused disasters around the world: floods in Pakistan, wildfires in Australia and heat waves in Europe. Global crop yields, especially of wheat, have been on the decline; availability of fish declined by 40-60% in some tropical areas; and food prices increased drastically in Asia and Africa.[2] The report's section on future environmental degradation warns about the risk of death and disruption in coastal areas; severe ill-health in urban populations; mortality and morbidity during extreme heat; breakdown of food systems due to droughts and floods; loss of marine life and biodiversity in coastal areas; and disruption of land and water ecosystems.[3] Not only is living space under threat, access to water and land for farming purposes is also in danger. Some scientists are concerned over the possibility of food deficiency and the rising prices, especially when it comes to feeding the exponentially increasing world population. Moreover, many areas that are affected by current and future climate change are in poor regions, thus, environmental changes are expected to exacerbate already pressing social and political issues and create additional humanitarian crises. For the first time, scientists warned of the possibility of conflict and war outbreaks due to severe environmental degradation and food insecurity.

Social science research on the relationship between environmental degradation and conflict in international relations started in the early 1990s and since has produced numerous findings which remain inconclusive. For example, some scholars argue that environmental problems are

[1]IPCC, "Climate Change 2014: Impacts, Adaptation, and Vulnerability," 2014. http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf

[2] Suzanne Goldenberg, "Climate Change a Threat to Security, Food and Humankind - IPCC Report," *The Guardian*, March 31, 2014. http://www.theguardian.com/environment/2014/mar/31/climate-change-threat-food-security-humankind

[3] IPCC, "Climate Change 2014: Impacts, Adaptation, and Vulnerability," 12.

likely to trigger conflict, whereas others posit that they can, instead, lead to cooperation and peace. Qualitative and quantitative scholarship on environment and conflict suggests that degradation, resource scarcity, and asymmetric access to vital resources is likely to trigger conflicts in already conflict prone areas where ethnic and political tensions are high. However, transboundary rivers have overwhelmingly been a source of cooperation, even between warring neighbors. Because either conflict or cooperation can stem from similar environmental conditions, there is a link between these two outcomes which needs to be explored. Thus, given UN's warning of increasing environmental degradation on a global scale as well as inconclusive findings on the effect of environmental degradation in international relations, this relationship deserves additional study.

The aim of this paper is to discover whether and under which conditions cooperation in areas experiencing environmental problems can decrease tension among states and create potential for peace. Here caution is necessary because it would be inaccurate to assume that environmental cooperation will automatically lead to peace, therefore it is important to discover the causal mechanisms that can potentially have a spillover effect. For these purposes, Ken Conca's framework for environmental peacebuilding will be used.[4] Firstly, Conca asks: "Does environmental cooperation in fact reduce the likelihood, scope, or severity of environmentally induced violence? Can the potential for environmentally induced conflict be an important spur to cooperation? Can environmental cooperation catalyze broader forms of peaceful interaction?"[5] Secondly, he provides a framework for what he calls environmental peacemaking in broad terms; for example, environmental cooperation between states can be analyzed in cases of joint resolution on transboundary pollution, border disputes in resource rich areas, environmental degradation, and

[4] Ken Conca, "Environmental Cooperation and International Peace," in *Environmental Conflict*, eds. Paul F. Diehl and Nils Petter Gleditsch (Boulder, CO: Westview Press: 2001), 230-245. And, Ken Conca and Geoffrey D. Dabelko, *Environmental Peacemaking* (Baltimore, MD: Johns Hopkins University Press, 2002).

[5] Ken Conca, "Environmental Cooperation and International Peace," 226.

water depletion. To narrow the scope of this study, this paper will focus on the effects of water scarcity in the Nile and Lake Chad basins on interstate relations.

Water is absolutely necessary for life and therefore water issues can be considered as high politics issues. Some scholars suggest that given its absolute necessity, water is one of the most likely resources that could lead to disputes between states. As a result of increasing environmental degradation due to climate change and other anthropogenic and natural causes, exponential population increase in many river basin areas, as well as poor infrastructure and management of water resources, the availability of water in some places is beginning to decrease, thus creating potential for conflicts. However, given that states tend to cooperate on shared rivers, river basins provide the most likely cases for cooperative spillover effects such as regional stability and peace.

In order to explore the questions proposed, this paper will focus on two regions as case studies: the Nile Basin and the Lake Chad Basin. These regions were chosen for several reasons, mainly, both basins are a home for growing population which is causing higher water demand for drinking, domestic, and industrial purposes; the population in both areas fully relies on the basin waters for sustenance and local economy given that it is surrounded by arid lands; both areas experience water and food insecurities; both areas have poor infrastructure as well as inefficient water management and are unable to effectively use their water supplies; and, most importantly, both regions have developed regional institutional frameworks to collectively solve these problems—it is hypothesized that institutions play an important role in incentivizing cooperation and fostering an environment for peaceful relations.

This paper is organized in the following way: The first chapter provides a literature review on previous research regarding disagreements over transboundary water use and conflict onset. Then, research on conflict and cooperation in transboundary water sharing is discussed and major

case studies on cooperation are highlighted. Lastly, Conca's framework for pathways toward environmental peacebuilding is summarized and will be used in the following case studies; the methodology is also explained. The second chapter discusses environmental peacebuilding potential in the Nile Basin. Firstly, background information on environmental stresses and causes for conflict in the region is provided. Secondly, the history of water governance in the Nile is summarized and its importance is highlighted. Thirdly, the most recent cooperative transboundary agreement: the Nile Basin Initiative, is analyzed through the framework for environmental peacebuilding. The third chapter examines the possibilities for peace in the Lake Chad Basin. Section one provides background information on the effects of environmental degradation in the Lake Chad. Section two outlines the connections between social, political, and environmental conflicts that occurred in the region. Section three analyses the potential for peacebuilding in the region following the Lake Chad Water Charter agreement. Lastly, the implications are summarized in the conclusion.

CHAPTER 1
ENVIRONMENTAL PEACEBUILDING

1.1 "Water Wars": Rhetoric and Evidence

Over the last several decades, concerns over scarce environmental resources, such as oil and water, have been voiced by numerous government officials and promulgated throughout the global news media outlets. Such statements raised the question whether competition over necessary resources could be the next source of major interstate conflict. One of the terms frequently used to describe potential conflict over freshwater is "water wars", and it has been used by politicians and the media when describing possible conflict in areas where water is scarce. It is clear that some areas of the world experience more scarcity than others, and that those areas are more likely to develop tensions over water use. Moreover, since water is an indispensable resource without which life would not be possible, it is plausible that countries could fight over water in order to ensure survival. Given the public rhetoric and the possibility of conflict over water in certain regions of the globe, academics began to pay more attention to this issue. As a result, scholars from various schools of thought began studying the relationship between environmental scarcity and conflict, and their research has produced competing claims. Some argue that environmental scarcity, including water scarcity, can exacerbate existing regional conflicts, thus leading to militarized conflict. Others posit that common environmental problems can, instead, lead to cooperation, which may spill over into other areas. This chapter will give an overview of existing literature on water scarcity and conflict as well as cooperation, and outline the theoretical approach that will be used in analyzing the effects of water scarcity in the following two case studies.

Environmental problems present unique opportunities for analyzing international relations theory and practice. Given their transboundary properties, environmental problems in the form of degradation, scarcity (or abundance), and dependence often require responses from the affected neighboring states. As a result, states can cooperate, fight over or further ignore these issues. In the past several decades, a growing number of literature has emerged which takes in to account the possibility of conflict as well as cooperation triggered by environmental problems.[6] The debate within environmental conflict research focuses on whether and under which conditions environmental degradation, scarcity, abundance, or dependence can lead to violent conflict.[7] One of the first large studies on the causal relationship between resource scarcity and violent conflict, associated with the work of Thomas Homer-Dixon, was conducted in the 1990s at the University of Toronto, where researchers carried out 16 comparative case studies at regional and country levels.[8] Researchers analyzed the effects of supply-induced, demand-induced, and structural scarcity on conflict onset. The main findings suggest that environmental scarcity can contribute to violent conflict in the form of civil war but not interstate war. Moreover, the authors maintain that environmental degradation is likely to exacerbate already present problems, such as ethnic clashes, but is not likely to trigger conflict on its own.[9] However, Homer-Dixon argues that violent interstate conflict can be triggered over river water, but only under special circumstances.[10]

[6] Mainly: Ken Conca and Geoffrey D. Dabelko, *Environmental Peacemaking*. In this volume, the authors present six case studies of conflict prone areas where environmental cooperation triggered regional stability and peace: South Asia, Central Asia, Southern Africa, the Caucasus, the Baltic, and the U.S.-Mexico border.

[7] For example: Gunther Baechler, "Why Environmental Transformation Causes Violence: A Synthesis," *Environmental Change and Security Project Report* 4 (1998): 24-44. And, Michael T. Klare, *Resource Wars: The New Landscape of Global Conflict* (New York: Holt, 2001).

[8] Thomas F. Homer-Dixon, *Environment, Scarcity, and Violence* (Princeton, NJ: Princeton University Press, 1999); findings summarized in Sanjeev Khagram and Saleem Ali, "Environment and Security," *Annual Review of Environmental Resources* 31 (2006): 397.

[9] Sanjeev Khagram and Saleem Ali, "Environment and Security," 397.

[10] Homer-Dixon outlines narrow circumstances under which water conflicts may arise: "the downstream country must be highly dependent on the water for its national well-being; the upstream country must be threatening to restrict substantially the river's flow; there must be a history of antagonism between the two countries; and, most importantly, the downstream country must believe it is militarily stronger than the upstream country". In *Environment, Scarcity, and Violence* 139.

Subsequent research from ENCOP identified "drylands, mountain areas with low-land versus high-land interactions, transboundary river basins, areas degraded by dams and mines, tropical forests, and sprawling metropolises" as the most conflict prone areas, suggesting that environmental stresses in these areas have an impact on "ethnopolitical conflicts, center-periphery conflicts, internal migration conflicts, cross-border migration conflicts, demographically caused migration conflicts, international water conflicts, and global environmental conflicts, such as ozone depletion and global warming".[11] Findings from this study support the argument that environmental scarcity is not likely to be the cause of violent conflict; it can be a trigger in civil war or insurgency but not likely to trigger interstate conflict.

Although, as many scholars have argued, environmental degradation tends to contribute to but not trigger interstate conflict, major river basins have been frequently categorized as conflict prone areas. Given this categorization, additional area of research devoted particular attention to studying "water wars". One of the first large-N studies found that "the sharing of international rivers does seem to be associated with conflict between nations, as well as with activities directed at conflict prevention", but the authors do not suggest that sharing a river is a source of militarized conflict.[12] The risk of international conflict over water is high mostly between upstream and downstream states, especially in the Middle East and Africa.[13] As dams, irrigation, and general consumption lead to diversion and contamination of river water, river basins experience quantity and quality problems, consequences of which are felt heavily by the downstream states. Water scarcity in the downstream states may translate into disputes, given that "severe scarcities of *an essential, non-substitutable, and shared resource*" contribute to the possibility of interstate

[11] Sanjeev Khagram and Saleem Ali, "Environment and Security," 398.
[12] Hictans Petter Wollebaek Toset, Nils Petter Gleditsch, and Havard Hegre, "Shared Rivers and Interstate Conflict," *Political Geography* 19 (2000): 993.
[13] Malin Falkenmark, "Global water issues facing humanity," *Journal of Peace Research* 27, no. 2 (1990): 179.

conflict.[14] Moreover, some have argued that a high level of water scarcity may result in verbal declarations to rights over water possession, which are likely to increase the possibility of militarized conflict.[15]

Despite fears of large-scale interstate conflict, most accurately, transboundary water can be classified as an "irritant" in interstate relations, that is, it "can make good relations bad and bad relations worse."[16] In a study of 1831 cases of international conflict and cooperation over water, water quantity and infrastructure (which tend to be linked) were triggers to nearly 87 percent of conflictive relations among states.[17] More importantly, extremely rapid changes (either institutional or physical) within water basins are identified as most likely to lead to conflict. According to scholars, additional triggers for water conflict include use, pollution, and unequal distribution.[18] For example, the construction of a dam in the Danube region led to economic and environmental concerns between bordering Hungary, Slovakia, and Austria. Domestic political pressure in Hungary resulted in the state's withdrawal from the mutual contract. Subsequently, Austrian banks filled the financial gap and the project continued. In order to exclude Hungary, Slovakia proceeded by diverting river flow from the Hungarian territory, eliciting environmental damage claims from the Hungarian side and thus taking the case to the International Court of Justice.[19] Another example includes pollution of the river Rhine, which led to an increase in tensions among European states. As a consequence of the residue from chemical industries in Switzerland and Germany and potassium mines in France, the river became polluted with

[14] Arun P. Elhance, *Hydropolitics in the Third World: Conflict and Cooperation in International River Basins* (Washington, DC: United States Institute of Peace Press, 1999): 4.
[15] Paul R.Hansel, Sara McLaughlin Mitchell, and Thomas E. Sowers II, "Conflict Management of Riparian Disputes," *Political Geography* 25 (2006): 383-411.
[16] Aaron T. Wolf, Shira B Yoffe and Mark Giordan, "International Waters: Identifying Basins at Risk," *Water Policy* 5 (2003): 40.
[17] Ibid., 41.
[18] Helga Haftendorn, "Water and International Conflict," *Third World Quarterly* 21, no. 1 (2000): 51-68.
[19] Ibid.

chemicals, salt and heavy metals. The Netherlands, a downstream state, uses water from the Rhine mainly for drinking purposes and thus brought pollution complaints towards the upstream states. Given the conflicting purposes for water use the solution to this problem took decades to achieve.

Also adding to the likelihood of conflict is relative distribution of water, especially in the Nile, Euphrates, and Ganges river systems.[20] Due to the increasing use of water by the upstream states in these regions, the flow is reduced for the downstream neighbors. Irrigation, reservoirs and dam projects as well as environmental changes largely contribute to downstream water reduction. Given the nearly total dependence on river water in arid regions such as the one surrounding the Nile basin, water becomes an indispensable resource. The Nile presents an ideal environment for conflict onset, given Homer-Dixon's criteria for water disputes. In essence, Egypt is a militarily dominant downstream state that depends on the Nile for nearly all of its water supply; it has had contentious relations with upstream Sudan and Ethiopia, and has, several times, threatened to go to war if its access to water was decreased.[21] Additionally, water has been used as a political threat in the Euphrates, when Turkey stated that it would restrict water flow into Syria if it continued its support of Kurdish separatists.[22] Violence involving water access has also been recorded in the Jordan River after the British left Palestine—almost immediately the Arabs halted water supply to Jerusalem; moreover, PLO's first terrorist act targeted Israel's National Water Carrier.[23] Cases where water is the direct cause of international conflict, however, are difficult to find. In their research, Hauge and Ellingsen found that water availability had a stronger relationship with armed conflict than civil war, suggesting that water can be a cause of small-scale disputes but not large

[20] Ibid., 56.
[21] Homer-Dixon, *Environment, Scarcity, and Violence*, 139.
[22] Steve C. Lonergan, "Water and Conflict: Rhetoric and Reality," in *Environmental Conflict*, eds. Paul F. Diehl and Nils Petter Gleditsch (Boulder, CO: Westview Press, 2001): 118.
[23] Ibid.

conflicts;[24] thus, probability of international wars over water is low.[25] In sum, any changes to flow from upstream to downstream states can strain relations among co-riparians, but they are not likely to lead to interstate conflicts; on the contrary, many instances of cooperation over water have been recorded and deserve closer attention as mechanisms for regional peacebuilding and stability.

1.2 Transboundary Water Sharing: The Case for Cooperation

Despite persistent political and media rhetoric on impending water conflicts, research has shown that water does not directly lead to conflict, but it can exacerbate conflicts that are already present. Because water is essential for human life, it would be unwise to dismiss the possibility of conflict over water in the future, especially due to climate change and poor management and infrastructure in many river basins. However, continuous focus on water scarcity and conflict ignores the largely cooperative properties of water sharing. Overwhelmingly, states choose to cooperate, not fight over water. This has important implications for interstate conflict resolution, especially since states tend to maintain cooperation over water while managing otherwise tense or conflictual relations. Some scholars have argued that cooperation on environmental problems can be a safe entryway into broader cooperation.[26] Given that environmental cooperation tends to be less politicized than cooperation on military or economic affairs, it is considered low-risk, and thus can build up trust and communication between adversaries.

Challenging the prevalence of environmental conflict literature, especially literature arguing that water is most likely to lead to conflict if it crosses national boundaries,[27] Wolf, Yoffe,

[24] Wenche Hauge and Tanja Ellingsen, "'Causal Pathways to Conflict," *Journal of Peace Research* 35, 1 (1998): 299-317.
[25] Lonergan, "Water and Conflict: Rhetoric and Reality," 123.
[26] Conca and Dabelko, *Environmental Peacemaking.*
[27] Helga Haftendorn, "Water and International Conflict," *Third World Quarterly* 21, no. 1 (2000): 51-68.

and Giordano carried out a comprehensive study that gathered accounts of conflict and cooperation between riparian neighbors during the period from 1948-1999.[28] In the 50 year time frame, they found no instances of war fought over water.[29] Furthermore, they discovered that out of 1831 events of conflict and cooperation, 1228 were cooperative, 507 conflictive (out of which 37 involved violence—30 of them between Israel and its neighbors), and 96 neutral.[30] Thus, they concluded that the majority of interactions over water are cooperative. Historically, even disputing states found ways to cooperate over water resources; for example, Israel and Jordan as well as India and Pakistan/Bangladesh/Nepal continued to cooperate on shared rivers through several major conflicts. Moreover, the authors found that neither water stress nor climate change or government type lead to water disputes. Previously, DuPont argued that environmental issues generally are not likely to cause interstate conflict, and that states with mostly cooperative relations are not likely to fight over water.[31] Other scholars found that states sharing rivers within the "Western civilization" were the most likely to enter into cooperative agreements and treaties; however, states sharing rivers on "civilization boundaries" were also likely to enter agreements on water sharing.[32]

Perhaps counterintuitively, Brochmann and Hensel found that water scarcity has an influence on peaceful attempts at resolution; they argue that states are more likely to claim river rights if the water is scarce; however, states are also more likely to cooperate on resolutions than

[28] Wolf et al., "International Waters: Identifying Basins at Risk".
[29] Moreover, they argue that the only record of war over water resources occurred 4500 years ago between Mesopotamian city-states Lagash and Umma.
[30] Wolf et al., "International Waters: Identifying Basins at Risk," 33.
[31] Alan DuPont, *The Environment and Security in Pacific Asia,* (Oxford: Oxford University Press, for International Institute for Strategic Studies ((Adelphi paper 319)), 1998).
[32] Jennifer Song and Dale Whittington, "Why Have Some Countries on International Rivers Been Successful Negotiating Treaties? A Global Perspective," *Water Resources Research* 40 (2004): 1-18.

fight over control especially when the situation is dangerous.[33] Tir and Ackerman's findings support this argument, adding that "actors compromise when it becomes clear that the existing, unilateral uses of a resource are not sustainable."[34] Dinar posits that there is an inverted U-shaped relationship between water scarcity and cooperation, where at low levels of scarcity, cooperation is not advantageous because the abundance is high; at an increased level of scarcity, benefits of cooperation rise for everyone involved; and, at high levels of scarcity there is too little to share and therefore there are no incentives for cooperation.[35] Thus, the majority of quantitative studies on water scarcity and cooperation find that states are more likely to cooperate than fight over shared waters.

In addition to quantitative analyses, there have been several in-depth studies of successful regional environmental cooperation which show how cooperation over rivers and seas prevented conflict and fostered development and, in instances, economic cooperation. Environmental cooperation in the Baltic Sea has been considered as one of the most successful cases. After the collapse of the Soviet Union, unsettled borders, ethnic tensions, state failure, and transition from socialism strained relations between the Baltic states. The dissolution of the Soviet Union brought fears of instability in the region, for example, economic and political instability in Russia could spill over into the former soviet republics Latvia, Lithuania and Estonia; the former republics were afraid of Russia's "imperial impulse"; and nuclear weapons were of great concern.[36] The region also experienced a number of environmental problems, including localized degradation and pollution, air and water contamination across the region, as well as possession of large quantities

[33] Marit Brochmann and Paul R. Hensel, "Peaceful Management of International River Claims," *International Negotiation* 14 (2009): 393-418.
[34] Jaroslav Tir and John T. Ackerman, "Politics of Formalized River Cooperation," *Journal of Peace Research* 46, no. 5 (2009):636.
[35] Shlomi Dinar, "Scarcity and Cooperation along International Rivers," *Global Environmental Politics* 9, no. 1 (2009): 109-135.
[36] Stacy D. VanDeever, "Environmental Cooperation and Regional Peace: Baltic Politics, Programs, and Prospects," in *Environmental Peacemaking,* eds. Ken Conca and Geoffrey D. *Dabelko* (Baltimore, MD: Johns Hopkins University Press, 2002), 23-60.

of radioactive materials and chemical and biological contaminants which posed high environmental risks.[37] Threats posed by environmental issues exacerbated ethnic tensions between the ethnic citizens and large Russian minorities. In Latvia and Estonia, for example, ethnic Russians were the predominant workers in industrial and oil sectors and tended to live in more polluted communities. Higher environmental regulations in the form of modernizing or closing down inefficient factories would be costly and would largely affect Russian minorities who were already experiencing ethnic discrimination, and further increase ethnic tensions. Given the extensive environmental concerns and the tertiary problems that accompanied them, the Baltic states engaged in several forms of cooperation: bilateral, multilateral, sub-national, regional and local. Cooperation on environmental issues in the form of institution building has outpaced other forms, such as economic and security institutions. Environmental cooperation has greatly improved multilateral and bilateral relations among the Baltic states, especially between the Nordic and the post-Soviet transition states.[38]

Additional case of successful environmental cooperation as conflict prevention, thus far, is Central Asia. During the Soviet rule, Moscow's careless policies in the region perpetuated a steady process of drying up of the Aral Sea. Lack of economic diversity and heavy reliance on cotton led to the divergence of major river flow for irrigation purposes thus heavily reducing the inflow of water into the sea, leading to one of the greatest environmental disasters in the region. Downstream regions relying on water from Syr Darya, Amu Darya and other rivers experienced a public health crisis due to the rise of dust and salt storms, pollution, runoff from agricultural chemicals, and inadequate diet; in addition, already present social and economic problems were exacerbated by

[37] Ibid.
[38] Ibid.

the collapse of the Soviet Union.[39] Coupled with environmental degradation, several geopolitical concerns contributed to conflict in the area. Border disputes, which were not an issue during the Soviet times, regime transition and attempts at democratization, economic reforms, and the rise of Islamic fundamentalism all exacerbated conflicts in the region. There has been an outbreak of ethnic conflicts between Uzbeks and Tajiks in the Vakhsh River valley due to land and water issues arising from poor irrigation and subsequent resettlement of Tajiks into Uzbek communities; conflict between Tajiks and Kyrgyz arose in the Isfara-Batken region along the border of the two states following a dispute over a water canal; in Osh, Kyrgizstan deadly conflicts broke out when Uzbek land was reassigned for Kyrgyz housing.[40]In 2011, Central Asia region was on the list of potential war outbreaks—border disputes as well as energy and water management were largely the cause.[41]

The beginning of internal regional cooperation in Central Asia followed the collapse of the Soviet Union, when, in 1992, the five states signed an agreement on "Cooperation in the Management, Utilization, and Protection of Water Resources of Interstate Sources".[42] There are several explanations for the unexpected cooperation agreement between the five states: firstly, there were many uncertainties regarding the region's future in the absence of Moscow's stabilizing presence; secondly, small scale ethnic conflicts and Osh riots further threatened the stability of the region; and lastly, the newly independent states could not revert to the centralized Soviet-style management. Scholars argue that in this context, cooperation on water served as a conflict

[39] Erika Weinthal, "The Promises and Pitfalls of Environmental Peacemaking in the Aral Sea Basin," in *Environmental Peacemaking*, eds. Ken Conca and Geoffrey D. Dabelko (Baltimore: Johns Hopkins University Press, 2002): 86-119.
[40] Erika Weinthal, *State Making and Environmental Cooperation* (Cambridge, Mass: MIT Press, 2002).
[41] Shairbek Juraev, "Central Asia's Cold War? Water and Politics in Uzbek-Tajik Relations." PONARS Eurasia Policy Memo No. 217 (2012): 1-5.
[42] "Agreement Between the Republic of Kazakhstan, the Republic of Kirgizstan, the Republic of Uzbekistan, the Republic of Tajikistan and Turkmenistan on Cooperation in Management, Utilization, and Protection of Water Resources of Interstate Sources", Articles 1 and 3.

prevention strategy and not a reaction to environmental concerns.[43] Similar cases of environmental cooperation can be found in Southeast Asia, Southern Africa, and the US-Mexico border.[44]

Summarized findings on the relationship between environmental problems and interstate relations show a nexus between conflict and cooperation—similar conditions may lead to either conflictive or cooperative outcomes. It is more likely that the states will cooperate over waters, therefore the implications are important for regional stability and spillover effects into other areas of cooperation, such as, economic or developmental. Given these assumptions, this paper hypothesizes that co-riparians are likely to enter cooperative agreements over water if, by not cooperating, they will face greater insecurity. Moreover, different political systems are likely to produce different patterns of cooperation. Thus, set patterns of engagement should not be used as a criteria for determining peacebuilding success. For example, Egypt's hegemonic presence in the Nile Basin will dictate water agreements, whereas the absence of a hegemon in Lake Chad will produce a more multilateral approach to creating cooperative institutions and engendering regional peace.

To test these hypotheses, this paper will analyze two regions: the Nile Basin and the Lake Chad Basin. These regions were chosen in order to control for several factors: both basins are a home to exponentially increasing population which is causing higher water demand for drinking, domestic, and industrial purposes; both areas are surrounded by arid lands, fully relying on the basin waters for sustenance and local economy; both areas experience water and food insecurities; both areas have poor infrastructure as well as inefficient water management and are unable to effectively use their water supplies; and, most importantly, both regions have developed regional institutional frameworks to collectively solve these problems.

[43] Erika Weinthal, "The Promises and Pitfalls of Environmental Peacemaking in the Aral Sea Basin."
[44] Ken Conca and Geoffrey D. Dabelko, *Environmental Peacemaking*.

There are also important differences between the two regions. In the Nile basin, Egypt is considered a hydrohegemon that has been successful in constructing the Nile governance rules, which are predominantly in its favor; only since the dissolution of the colonial empires have co-riparian states began to voice their dissatisfaction with status quo. The distribution of power among the Nile riparians provides a unique political dynamic in the foreground of environmental issues. In the Lake Chad basin there has been no hegemonic power to dictate water governance and several conflicts due to environmental degradation have occurred. The Lake Chad basin provides a political dynamic which can be contrasted with that of the Nile and a clearer understanding of the role of institutions and peacebuilding mechanisms may be developed.

Given that this study is interested in the mechanisms that lead to either conflict or cooperation on transboundary water issues, case study approach is more effective than a large-N study in identifying causal processes. Process tracing will be used in order to explore the chain of events which led to the creation of the basin governing institutions and their subsequent effects on regional peacebuilding. The background conditions, such as environmental degradation and water scarcity, are held constant while details unique to each case, such as political and socio-economic conditions and institutions, are analysed within Conca's framework for environmental peacemaking. Before proceeding with the analyses, certain terms are defined. Thus, "A conflict is a clash between antithetical ideas or interests – within a person or involving two or more persons, groups or states pursuing mutually incompatible goals."[45] Whereas "violence consists of actions, words, attitudes, structures or systems that cause physical, psychological, social or environmental damage and/or prevent people from reaching their full human potential."[46] According to Keohane,

[45] "Conflict," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 10.
[46] "Violence and Non-Violence," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 116-120.

"intergovernmental cooperation takes place when the policies actually followed by one government are regarded by its partners as facilitating realization of their own objectives, as the result of a process of policy coordination."[47] Cooperative arrangements can vary in scope, strength and duration, where scope is the range of arrangements varying from narrow to comprehensive; strength of an agreement depends on whether the agreement is binding on state behavior; and duration reflects the persistence of an arrangement which can be long-lasting or temporary.[48] It is widely accepted that at its most basic, peace is defined as the absence of violence;[49] here, peace is defined as a continuum from the absence of violence to inconceivability of violent conflict.[50] Peacebuilding "covers all activities aimed at promoting peace and overcoming violence in a society", consisting of altering structural contradictions; improving relations of conflict parties; and changing individual attitudes and behavior.[51]

1.3 Towards Environmental Peacebuilding

Ken Conca outlines two pathways through which environmental cooperation may lead to peace: changing the strategic climate and strengthening post-Westphalian governance.[52] Changing the strategic climate consists of several factors, the first of which is reducing uncertainty. Uncertainty, due to incomplete information, has been considered as one of the main sources of discord and conflict by liberal theorists. There are two types of uncertainty, strategic and analytic:

[47] Robert Keohane. *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984), 51-52.
[48] Peter Haas, *Saving the Mediterranean*, 64-65.
[49] Johan Galtung, "Violence, Peace, and Peace Research," *Journal of Peace Research*, 6 no. 3 (1969): 167-191.
[50] Ken Conca, "The Case for Environmental Peacemaking," in *Environmental Peacemaking* (Baltimore, MD: Johns Hopkins University Press, 2002), 9.
[51] "Peace, Peacebuilding and Peacemaking," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 62-63.
[52] Ken Conca, "Environmental Cooperation and International Peace," in *Environmental Conflict*, eds. Paul F. Diehl and Nils Petter Gleditsch (Boulder, CO: Westview Press: 2001), 230-245.

"Strategic uncertainty exists because actors have incomplete information about each other's attributes, preferences, and intentions. Analytic uncertainty results from incomplete understandings of cause-and-effect relationships in a particular system, domain, or issue-area".[53] For example, strategic uncertainty arises from suspicions regarding another state's economic and political reasons for disagreeing on environmental policies. Analytic uncertainty stems from doubts regarding true effects of environmental harm, ecological cause-and-effect, and the impact of policies.[54] Both types have stood as barriers for environmental cooperation given that uncertainty, technical complexity of environmental issues, and varying interpretation of data cause stagnation in international environmental debates. However, these uncertainties can be turned into incentives for cooperation. That is, combining national data among contiguous states can improve knowledge and create awareness of interconnectedness and shared problems. Strategically, initiating environmental cooperation can be perceived as low-risk, low-politics issue, which can build trust among actors and serve as a precedent for further cooperation in other areas.

The second factor in changing the strategic climate is diffuse reciprocity. Defined as "replying in kind to another's actions", reciprocity is essential for international cooperation.[55] Also defined as tit-for-tat, reciprocity promotes cooperative behavior given that states will cooperate when their counterpart cooperates or defect when their counterpart defects.[56] The more states reciprocate cooperative behavior the more trust they build with each other. As argued by Keohane, in order to engage in long-term cooperation, reciprocity must work in a form of credit, because

[53] Conca, "Environmental Cooperation and International Peace," 230; original differentiation in Keisuke Iida, "Analytic Uncertainty and International Cooperation: Theory and Application to International Economic Policy Coordination," *International Studies Quarterly* 37 (1993): 431-457.
[54] Conca, "Environmental Cooperation and International Peace," 231.
[55] Ibid., 233.
[56] Robert Axelrod, *Evolution of Cooperation* (New York: Basic Books, 1984).

equal exchange does not foster further cooperation.[57] Scholars suggest that one of the best ways to promote positively reciprocal relations is through diffuse reciprocity, which means returning the favor at another time or in a different location. For example, in the realm of environment, the needs of riparian states may be asymmetrical in instances where a downstream state is worried about water supply but has access to vital natural resources, such as gas, which it can trade with the upstream state, and in return receive guarantees that access to water will not be used against it as a political weapon in a dispute. Thus, diffuse bargaining provides wider opportunities for cooperation than an equal exchange between actors, especially regarding environmental issues which, given their unique transboundary properties, have the potential to institutionalize diffuse reciprocity.[58]

"Lengthening the shadow of the future" is the third and final factor in creating favorable climate for cooperation.[59] When actors perceive themselves as bound in future interactions, they are less likely to defect—the gains from cooperation often outweigh the losses from defection.[60] Environmental cooperation, especially on the global level, appears to be very difficult to achieve because states tend to consider short term costs resulting from policy changes over long term benefits for everyone involved. Yet, the environment presents one of the best opportunities for prolonged cooperation given that environmental issues tend to be transboundary and degradation processes take time.

As argued by Conca, the discussion on changing the strategic climate in favor of cooperation is grounded in IR theory which assumes that states are the main actors with set

[57] Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984).
[58] Conca, "Environmental Cooperation and International Peace," 235.
[59] Ibid.
[60] Axelrod, *Evolution of Cooperation.*

interests, fixed national identities, territorial integrity, and predominant authority over international policies. Such an assumption, although valid, overlooks additional important aspects, emphasized by the constructivist thought, mainly the socially constructed nature of meanings and perceptions in international relations. Thus, taking this into account, Conca suggests strengthening post-Westphalian governance as a second pathway for environmental peacebuilding.

A post-Westphalian governance stems from the recognition of social construction and fluidity of meanings and identities in international relations. For example, numerous studies have shown that gender identities, post-migration national identities, and the identities of indigenous people are fluid, and generally constructed within and influenced by the surrounding societies.[61] Moreover, one of the most respected concepts in international relations—sovereignty, in the form of autonomy as well as territorial integrity, has been tampered with militarily and through international law since colonial times.[62] Like national identity, sovereignty is not fixed. Nevertheless, states often invoke sovereignty as the basis for nonintervention or noncompliance with international treaties. Given this rationalization for non-action, transboundary environmental issues can be some of the most difficult to address. Yet, they provide excellent opportunities for cooperation because they do not conform to artificial state boundaries and therefore require joint responses. Additionally, international and nongovernmental organizations and civil societies have become increasingly involved in environmental advocacy, interacting with states as well as other organizations domestically and internationally. Interactions among these actors can create new

[61] See: Barbara Schmitter-Heisler, "The sociology of immigration," in *Migration Theory: Talking across Disciplines*, eds. Caroline B. Brettell and James F. Hollifield (New York: Routledge, 2000), 77-96. And, Franke Wilmer, *The Indigenous Voice in World Politics* (Newbury Park, California: Sage Publications Inc., 1993).

[62] See: Stephen D. Krasner, "Constitutional Structures and New States after 1945," in *Sovereignty: Organized Hypocrisy* (Princeton: Princeton University Press, 1999), 184-219. And, Gerry Simpson, "The Great Powers, Sovereign Equality and the Making of United Nations Charter: San Francisco 1945," in *Great Powers and Outlaw States: Unequal Sovereigns in International Legal Order* (Cambridge: Cambridge University Press, 2004), 165-193.

forms of interdependence and lead to a more peaceful coexistence.[63] Fostering new environmental norms, constructing transnational civil societies, and transforming state institutions are the steps that can lead to peace.

[63] This assumption is rooted in liberal thought which argues that economic interdependence fosters peaceful relations.

CHAPTER 2
PEACEBUILDING IN THE NILE BASIN

2.1 Conditions for Conflict

The Nile is the longest international river system in the world, it stretches 6,700 kilometers through modern day Burundi, DR Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda, before discharging into the Mediterranean Sea. The environment surrounding the Nile is incredibly diverse, it includes large lakes, rivers, waterfalls, forests, savannahs, and mountains. Extensive territories consist of deserts and arid lands and are largely inhospitable with limited amount of land suited for agriculture as well as limited freshwater sources, thus making the Nile an indispensable wellspring of livelihood in the region. Until recently, the river has been able to provide sustenance for its inhabitants, given that for nearly five thousand years the population of the basin oscillated around twenty million. However, following the industrialization boom in the twentieth century, the population around the Nile has increased dramatically, currently reaching nearly 240 million within the basin and 440 million in all eleven riparian states, and it is expected to double in the next 25 years.[64] In addition to population growth, climate change, caused by anthropogenic activities, is likely to alter the environment in the Nile basin, i.e., cause prolonged droughts and floods. Inability to attend to problems precipitated by climate change, coupled with population growth and demands resulting from economic development, can lead to rising tensions and conflict between the eleven riparian states.

The Nile basin has been exemplified as a basin at risk for conflict in several studies on environmental/water scarcity and conflict. Vast research on resource conflicts suggests that water conflicts are unlikely unless certain scope conditions are met. According to Homer-Dixon, in order

[64] Nile Basin Initiative, "Understanding the Nile Basin," http://nilebasin.org/index.php/about-us/the-river-nile

for conflicts to occur "the downstream country must be highly dependent on the water for its national well-being; the upstream country must be threatening to restrict substantially the river's flow; there must be a history of antagonism between the two countries; and, most importantly, the downstream country must believe it is militarily stronger than the upstream country".[65] Very few regions meet these condition, however, the obvious one is the Nile basin. Among the Nile riparians, Egypt is the downstream hegemon. Egypt worries that the upstream states can use the Nile as political weapon by diverting flow or otherwise reducing water inflow. It is completely dependent on the Nile for its water consumption, and has a quarrelsome history with upstream Sudan and Ethiopia. Moreover, it is the most militarily powerful riparian in the region, and has threatened its neighbors several times. For example, former President of Egypt Antwar Sadat stated that: "If Ethiopia takes any action to block our right to the Nile waters, there will be no alternative for us but to use force".[66] He also stated that "The only matter that could take Egypt to war again is water".[67]

Among the riparians, Egypt has been the most efficient in using the Nile's waters and has made great economic and social progress compared to its neighbors. It has the highest annual GDP per capita in the region at $1,836, with Sudan a distant second at $537, and DRC being the poorest at $97.[68] Given the wide economic disparities among upsteam and downstream states, the upstream riparians are increasingly interested in utilizing greater amounts of water in order to raise their level of development. However, prior agreements, specifically 1929 and 1959 Water Agreements, restrict water utilization for upstream states, giving Egypt the right to veto projects which would

[65] Homer-Dixon, *Environment, Scarcity, and Violence*, 139.
[66] Ibid.
[67] Patricia Kameri-Mbote, "Water, Conflict, and Cooperation: Lessons from the Nile River Basin," *Navigating Peace* 4 (2007), 1.
[68] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," *United Nations Environment Programme* (Kenya, 2013), 82.

in any way diminish water flow and reduce its quota. The upstream riparians are increasingly disregarding these agreements, thus raising national security fears in Egypt. Moreover, Egypt and Sudan are in dispute over another resource rich area, the Halayeb-Shalateen Triangle, a contiguous territory by the Red Sea. According to the Egyptian Council of Ministers spokesman, "Egypt considers the Halayeb and Shalateen region to be rich in resources, and of special strategic importance politically and economically."[69] Egypt voiced its concerns over national and resource security in the region, stating that it is important for its national interest to cooperate with Sudan over their shared borders. Both states' refusal to give up territorial claims make it more difficult to develop a joint resolution. Relations between the two states also worsened over the Nile waters, given Sudan's support for Ethiopia's Renaissance Dam. The construction of the Renaissance Dam on the Blue Nile has strained riparian relations in region. Egyptian officials argue that the dam can significantly reduce water flow into Egypt, affecting its economy, energy security, and livelihood of its citizens; therefore, Egypt has tried to undermine its construction while espousing rhetoric of urgency and fear.[70] A former Minister of Water and Irrigation stated that "The [Egyptian] Aswan Dam will completely cease to operate for two years after the Renaissance Dam reservoir begins to be filled up. Once that reservoir is filled to its 74 billion cubic meter capacity, the water depth at the Aswan Dam will continue to decrease and will not surpass 160 meters during the flood seasons, in the best of cases. In turn, this will reduce its electricity-generating capacity by 30-40%."[71] Such rhetoric, often overstated, has been promulgated in the media by Egyptian officials, and raised concerns and opposition among Egyptians. However, the dam has gained support from the

[69] Ayah Aman, "Egypt, Sudan Rhetoric Escalates Over Disputed Region," *Al Monitor*, February 3, 2014. http://www.al-monitor.com/pulse/originals/2014/02/egypt-sudan-halayeb-shalateen-border-region.html#

[70] Walaa Hussein, "Egypt Fears Ethiopia Renaissance Dam Threatens Water Supply," *Al Monitor*, January 13, 2014. http://www.al-monitor.com/pulse/originals/2014/01/ethiopia-renaissance-dam-ceremony-aswan-dam-anniversary.html##ixzz3KLqEIIxN

[71] Ibid.

upstream riparian states, including Sudan. The upstream riparians are less willing to tolerate Egypt's hydrohegemony, creating a shift in power dynamics within the region and making the future of the Nile governance uncertain.

In addition to political and economic restrictions on water usage in the Nile basin, the exponential population growth has increased the demand for water supply. The Nile is the main source of water for domestic and industrial consumption in the region. It is expected to provide water for hydroelectricity, industry, transport, agriculture, fishing, as well as domestic and drinking purposes.[72] The World Bank suggests that the minimum amount of water per capita to sustain "an adequate quality of life in a moderately developed country" is 1000 cubic meters per year.[73]At 2009 population level, annual withdrawal of water per capita in Egypt is at 923 cubic meters, while only 56 cubic kilometers of its water is renewable, making Egypt 96.9 percent dependable on the Nile for all its water needs.[74] In Sudan, annual withdrawal per capita is nearly 1030 cubic meters, while 62.5 cubic kilometers of water is renewable, making it 76.9 percent dependable on the Nile.[75] Generally, Egypt and Sudan withdraw 57 and 31 percent of the Nile's renewable water, leaving nearly 12 percent for the remaining eight upstream riparians.[76] Thus, these countries are becoming highly dependent on the river while the availability of water for personal use is declining. Moreover, not only is growing population causing decline in water supply directly, an indirect effect is manifested through an increase in demand for services such as electricity and waste management which require construction of additional infrastructure, especially in the developing

[72] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 85.
[73] Patrick MacQuarrie and Aaron T. Wolf, "Understanding Water Security," in *Environmental Security and Issues*, eds. Rita Floyd and Richard A. Matthew (London: Routledge, 2013), 169.
[74] Source: World Bank; cited in UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 84
[75] Ibid.
[76] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 84.

nations; advancements in infrastructure require withdrawal of large quantities of water. These observations suggest that water insecurity will soon become a major concern for all riparian states.

Furthermore, agriculture in the basin countries consumes the largest amount of water and is closely tied to the production and availability of food in the region, thus linking water and food insecurity. When it comes to land availability for agriculture, the UN Food and Agriculture Organization states that "It is realistic to suppose that the absolute minimum of arable land to support one person is a mere 0.07 of a hectare—and this assumes a largely vegetarian diet, no land degradation or water shortages, virtually no post-harvest waste, and farmers who know precisely when and how to plant, fertilize, irrigate, etc."[77] With this in mind, in Egypt, only 2.9 percent of land is available for agricultural purposes, resulting in 0.04 hectares per person, while in Sudan mere 7.9 percent of land is arable, allowing for 0.39 hectares to be utilized for agriculture.[78] Secondly, not only is arable land scarce in the region, it requires large amounts of water for irrigation—natural and artificial. According to several studies, agricultural activities result in 80 percent of water usage in the Nile basin.[79]

The capacity of the River Nile to sustain a growing population is strained by increasing water demand for personal, industrial, and agricultural needs and the lack of infrastructure to harness electricity and maintain water reservoirs. Moreover, these issues are tied with economic and developmental concerns as well as unequal power relations. Egypt is the most economically advanced riparian in the region with the most developed infrastructure and it wants to maintain favorable status quo. The upper riparian states are threatening the status quo by asserting their needs and rights to the Nile waters for economic development, electricity generation, agriculture

[77] Soil Loss Accelerating Worldwide, *Food and Agriculture Organization* (Rome, Italy: 1993).
[78]World Bank, Agriculture and Rural Development Indicators Dataset, http://data.worldbank.org/topic/agriculture-and-rural-development
[79] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 84.

and personal use purposes. Given these developments, and because water has been defined as a possible trigger in socio-political conflicts, scholars argue that disputes in the Nile basin may destabilize regional peace; thus, the Nile has continuously been named a basin at risk. The focus on contentious relations, however, obscures the ongoing instances of cooperation among the states. Dating back to colonialism, the Nile riparians entered agreements, albeit under British dominion, which aimed to regulate the use of the river. In the post-colonial age, the riparians became members of the Nile Basin Initiative, a joint agreement to govern the waters. Moreover, Egypt's hostile public rhetoric aside, it has voiced the need for cooperation with the upstream states in recognition of their needs as well as to safely protect its own water supply. The history and willingness of cooperation deserves more attention in the midst of conflict research and rhetoric. Cooperative relations have important implications on peacebuilding and regional peace.

2.2 History of Nile Governance

History of Nile governance during the British colonialism is extensive and well documented.[80] The first agreements on the use of the Nile waters date back to colonial times, when in 1891 Britain and Italy signed a protocol prohibiting irrigation projects which would in any way divert river flow. Under the colonial rule, Britain espoused regional hydropolitics in an attempt to control riparian states by controlling the Nile waters, which were reserved for water intensive agricultural economy in Egypt. According to Tvedt, in order to maintain power over the Nile's water supply, Britain engaged in expansionist policies upstream, and thus, "by 1902, Britain controlled Uganda, Sudan, Egypt—the whole area around Lake Victoria. It also controlled Kenya.

[80] In Terje Tvedt, *The Nile: An Annotated Bibliography,* 2nd ed. (London and New York: I.B. Tauris, 2004); and, Terje Tvedt, *The River Nile in the Age of the British: Political Ecology and the Quest for Economic Power* (London and New York: I.B. Tauris 2004, and Cairo 2006).

And they had an agreement with Ethiopia which secured the Blue Nile waters for Egypt and the Sudan. So in fact, by 1902, Britain was the ruler of the whole Nile basin."[81] In 1902, Britain and Ethiopia decided that no structures inhibiting the river flow down to Egypt should be built on the Nile. Furthermore, Egypt became progressively protective of its water supply following a considerable increase in agricultural activities in the twentieth century—manly stemming from British emphasis on cotton production and agriculture based economy.[82] Thus, in 1929, Egypt and Britain (on behalf of Sudan, Kenya, Uganda and Tanzania) signed the *Nile Waters Agreement* which allocated nearly 48 billion cubic meters of water annually to Egypt and nearly 4 billion to Sudan, leaving 32 billion unallocated.[83] The agreement stated that "no works were to be constructed on the Nile or its tributaries or the equatorial lakes, so far as they were under British jurisdiction, which would alter the flows entering Egypt without her prior approval".[84] This agreement gave Egypt extensive ability to dictate water distribution in the Nile. In order to assert legitimacy, Egypt claimed historic rights to the Nile given its nearly 5000 year dominance of the Nile basin region.

After the 1952 Egyptian revolution and 1956 Sudanese independence, one of the first acts of the new prime minister of Sudan was the demand for revision of the 1929 Agreement. Furthermore, Sudan objected to the construction of the Aswan High Dam in Egypt—a source of Egypt's hydropower and national pride, thus losing Egypt's support in building a reservoir on the Blue Nile.[85] This contention led to a dispute resulting in Sudan's withdrawal from the 1929

[81] Terje Tvedt "The Nile and the British Road to Imperialism," *Al Jazeera*, June 12, 2011, http://www.aljazeera.com/programmes/struggleoverthenile/2011/05/201153181349369966.html
[82] Valerie Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," *Columbia Journal of Transnational Law* 44, no. 2 (2006): 622-647.
[83] Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," *The Journal of Modern African Studies* 35, no. 4 (1997): 675-694.
[84] Robert O. Collins, *The Waters of the Nile: Hydropolitics and the Jonglei Canal, 1900-1988* (Oxford University Press, 1990), 156.
[85] Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," 679.

Agreement and the subsequent placement of Egyptian troops on the border.[86] Following the 1958 coup which led to a change of government in Sudan, the tensions between the two states subsided. In 1959, Egypt and Sudan replaced the 1929 Agreement with *Agreement for the Full Utilization of the Nile Waters*, reallocating 55.5 billion cubic meters of water to Egypt and 18.5 to Sudan, with Sudan having full rights to its allowance of water; upstream states were not included in this agreement.[87] In addition to asymmetric control of water usage, Egypt enjoys material, bargaining, and ideational power among the riparians.[88] Egypt's military capacity allows it to sustain hegemonic presence in the Nile region. Moreover, given its historic regional military and economic might, it has tangible bargaining power relative to its riparian neighbors and thus the capacity to dictate agenda regarding water usage of the River Nile. For example, it has defined its dependence on water as a matter of national security: "the first consideration of any Egyptian government is to guarantee that Nile waters are not threatened".[89] Through portraying water as a national security issue, Egypt has been able to steer discourse toward its national interests.

Although the 1959 Agreement was legally binding on Egypt and Sudan only, the water quota that was meant to reach Egypt and Sudan effectively restricted the amount that could be used by the upstream states. In fear of upstream states developing infrastructure which could limit water inflow downstream, Egypt and Sudan created a bilateral Joint Technical Commission, intended to approve and oversee any projects along the Nile.[90] As a result of bilateral dominance by Egypt and Sudan regarding the use of the Nile waters, the upstream riparians regarded the 1959 Agreement

[86] Gabriel R Warburg, "The Nile in Egyptian-Sudanese Relations," *Orient* 32, no. 4 (1991): 570.
[87] Okidi Charles Odidi, "Legal and Policy Considerations for Regional Cooperation on Lake Victoria and Nile River," *Journal of Environmental Policy and Law in Africa* 1 (1999): 1-59.
[88] As defined by Zeitoun and Warner (2006) and cited in Cascão p. 248, *material power* is defined as military might, political stability, economic development, and access to external political and financial support; *bargaining power* is defined as the ability to define agenda in negotiations; *ideational power* is defined as the ability to influence knowledge and construct discourse.
[89] Mohamed Hassanein Heikal, "Egyptian foreign policy," Foreign Affairs 56, no. 4 (1978): 714-727.
[90] Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," 630.

as an outdated colonial remnant in which they had no say and which ignored their needs. Thus, following their independence in the 1960s, Kenya, Tanzania and Uganda disregarded binding power of the agreement.[91] Similarly, Ethiopia, which was not included in the agreement, stated that it "simply does not acknowledge any existing treaty or other obligations preventing it from freely disposing of the Nile waters on its territory".[92] Furthermore, Tanzania declared that "an agreement purporting to bind [upstream riparians] in perpetuity to secure Egyptian consent before undertaking its own development programs based on its own resources was considered to be incompatible with Tanganyika's status as a sovereign state", and thus it will not adhere to colonial agreements, "unless required by international law".[93] In 2003, the government of Kenya also reneged on the agreement following a fishing incident in Lake Victoria where Kenyan fishermen were arrested by Ugandan authorities. Kenya cited "socio-economic interests of the people living around the lake [Victoria]" as the basis for breaching the treaty; moreover, Kenya invoked the same argument as Tanzania—it was not consulted before the enactment of the 1959 Agreement and therefore it is not obligated to abide.[94] Ethiopia, like Tanzania and Kenya, also questioned the binding validity of the 1929 and 1959 agreements. Ethiopia reneged "based on the Egyptian and Sudanese practice of denouncing treaties signed by Britain on their behalf if they no longer reflect their development needs", given that Egypt recognized colonial water treaties as binding, only allowing for "developmental approach" to water utilization as an exception.[95]

British colonial policies left a lasting impact post-colonial governance of the Nile waters. Egypt has benefited the most from the British policies, having gotten near guarantees to the largest

[91] Ana Elisa Cascão, "Changing Power Relations in the Nile River Basin: Unilateralism vs. Cooperation," Water Alternatives 2, no. 2 (2009): 245-268.
[92] Bonaya Adhi Godana, *Africa's Shared Water Resources: Legal and Institutional Aspects of the Nile, Niger and Senegal River Systems* (Geneva: Lynne Rienner Publishers, Inc., 1985), 197.
[93] Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," 632.
[94] Ibid., 634.
[95] Ibid., 635.

share of the waters and developed the most efficient infrastructure for storing floodwaters. Egypt's historic claims to waters became less powerful as the British withdrew from the region, resulting in loss of centralized authority to govern the waters. As a result, Egypt has tried to influence any upstream infrastructure project that would diminish its access to water, thus creating political tensions within the basin.

The dissolution of the British Empire can be considered as a rapid institutional shock, after which the newly independent states claimed sovereignty over their land and access to river water. Research found that co-riparians which experience rapid shock (institutional or physical) were significantly more likely to be conflictive if they did not have prior treaties.[96] Thus, the presence of institutions either in the form of treaties or basin organizations was found to ameliorate negative consequences of change, which, in conjunction with Egyptian hydrohegemony, is one of the key reasons for why the region did not engage in water wars. "Institutions can serve as an outlet for conflict management by providing an arena for riparians to resolve their differences, by providing neutral information, reducing uncertainty, and minimizing transaction costs";[97] however, Hensel et al. argue that without enforcement mechanisms treaties are not likely to prevent conflict.[98] Egypt's military might, economic advancements, and former backing of the British Empire made it a powerful regional player who could enforce its agreements and against whom fighting would be very costly. However, in addition to Egypt's deterrence, a history of institutional cooperation has built a level of trust and a platform for negotiating national interests; thus, a joint, post-colonial Nile governance began with the Nile Basin Initiative, a cooperative agreement aimed at solving

[96] Wolf et al., "International Waters: Identifying Basins at Risk," 33
[97] Hansel et al., "Conflict Management of Riparian Disputes," 389; and, Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy*.
[98] Hansel et al., "Conflict Management of Riparian Disputes," 389.

problems collectively. The implications of the Nile Basin Initiative on peacebuilding, in the context of weakening Egyptian control of the Nile waters, will be discussed in the next section.

2.3 Paths to Basin-Wide Cooperation

The Nile Basin Initiative (NBI) was established in 1995 as the Nile River Basin Action Plan and approved by the World Bank and other major donors in 1997. NBI was signed into an agreement in 1999 by the Ministers of Water Affairs of ten Nile riparians, and it is the first cooperative agreement on the Nile waters among all riparian states.[99] It is a transitional institution in place until a permanent Cooperative Framework Agreement is agreed upon by the member states. In charge of policymaking are the Ministers of Water Affairs of the co-riparian states (Nile-COM), who are supported by a Technical Advisory Committee (Nile-TAC) composed of 20 senior government officials.[100] The main goal of NBI is "to achieve sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile basin water resources".[101]

Before the NBI, there was no platform for communication or exchange of information. "At the beginning, we would be in a room and we wouldn't talk to each other – we saw each other as enemies. No one would talk in meetings because of the suspicion", said Uganda's Commissioner for Water.[102] Ethiopian Minister stated that "Before NBI, our Basin was a region of mistrust and conflict. Trust among countries was not in abundant supply. It is therefore very important to keep in mind that building enduring regional cooperation and meeting all the necessary technical,

[99] Eritrea holds observer status.
[100] "Cooperation on the Nile," The Nile Basin Initiative, (2013): 4.
[101] NBI, "Nile Basin Initiative," http://nilebasin.org/index.php/about-us/nile-basin-initiative
[102] Dr. Callist Tindimugaya, Uganda's Commissioner for Water Resources Planning and Regulation and Nile-TAC member. Quoted in "Cooperation on the Nile," The Nile Basin Initiative, (2013): 4.

institutional, organizational, financial, requirements that goes with it, takes time".[103] As the history of previous agreements shows, governance of the Nile waters has been heavily influenced by Egyptian self-interested hegemony and exclusion of co-riparian states. Thus, the aim of NBI was firstly to build confidence among the riparians by sharing scientific information and secondly to support realistic approaches to dealing with common problems by taking into account the diverse environment and needs along the Nile Basin.

A recognition of common environmental problems and the possibility of them leading to conflict was one of the main incentives for regional cooperation among the riparians. For example, "South Sudan joined the NBI because we believe in working together with our partners in the Basin to address the common challenges and risks to our common water resources, including floods, droughts, land degradation and climate change. We are determined to work closely with all Nile riparian countries towards an enhanced cooperation in the Basin" stated a former Minister of Water.[104] The goals, challenges and alternative agreements that came as a result of NIB engage with Ken Conca's pathway to regional peace in several ways.

On a rhetorical level, goals outlined by NBI and subsequently CFA attempt to both "change the strategic climate" and bring about "post-Westphalian governance" in the region. As outlined by Conca and previously discussed in detail, changing the strategic climate for cooperation requires reducing uncertainty, promoting reciprocity and lengthening the shadow of the future. Sharing environmental information among the riparians was one of the first and most important acts established by NBI. Realization that environmental degradation in the basin may lead to instability and conflicts has led the member states to share information on the conditions of the

[103]Hon. Kebede Gerba, Ethiopia's State Minister of Water and Energy. Quoted in "Cooperation on the Nile," The Nile Basin Initiative, (2013): 8.

[104]Hon. Paul Mayom Akec, former Nile-COM Chair and Minister of Water Resources and Irrigation of the Republic of South Sudan. Quoted in "Cooperation on the Nile," The Nile Basin Initiative, (2013): 2.

physical environment and water usage, which created a possibility for open dialogue about creating and implementing the most efficient social, economic, and infrastructural developments. In seeing that the diverse basin environment requires region-specific approaches to sustainability and management, member states reciprocate the allocation of resources, thus engaging in unequal exchange which promotes further engagement through "repayment" of favors. Moreover, such agreements project the expectation of cooperation in the future, thus creating a cycle of cooperation and interdependence while significantly reducing the possibility of conflict. Most importantly, the creation of a Subsidiary Action Program leads to tangible outcomes on the local lever, gaining support from the local civil society. In addition to technical and structural cooperation, NIB promotes the idea of post-Westphalian governance though civic engagement. Diffusion of information into the public sphere is one of the seven main projects outlined by NBI. Given that member states have to agree upon all proposed initiatives, NBI itself has no authority to implement or enforce projects. However, an informed and engaged public as well as the stakeholders have the ability to influence member state policies. Moreover, the assumption is that social, economic, and political cooperation among diverse groups of people is likely to lead to positive relations among individuals and groups in different societies, thus reducing hostilities. For this reason, NBI focuses on informing and engaging the public on regional, sub-regional, and national levels. "Members of parliament, lawyers, women, elders, opinion leaders, youth, local riparian users and the civil society" all contribute to oversight and implementation of NIB projects.[105]

The goals, though reflective of Conca's framework for environmental peacebuilding in conflict prone areas are proving difficult to achieve through this organization. Egypt's persistent hegemonic claims to water quota and refusals to sign agreements that it deems unfavourable

[105]"Shared Vision Program," The Nile Basin Initiative, http://nileis.nilebasin.org/content/shared-vision-program.

hindered the success of some basin-wide projects.[106] There have also been problems with the way decisions are made within the organization: with the aim to challenge Egypt's historic hydrohegemony, upper riparians wanted a majority vote to result in sufficient binding, agreements on NBI projects, whereas Egypt wanted a unilateral consensus, which means all initiatives would have to be approved by Egypt, thus effectively halting various projects. Egypt froze its NBI membership in 2010, during its transition period into Cooperative Framework Agreement. After this treaty on equitable sharing of the Nile was signed by Rwanda, Ethiopia, Uganda and Tanzania, followed by and addition from Burundi and Kenya which took away Egypt's power to veto upstream irrigation projects, Egypt found no reason to remain an active member and argued that the treaty is non-binding.[107] In 2013, the Minister of Water Resources and Irrigation Mohamed Baha'a El-Din said, "…we need everyone to respect previous agreements. We have had our share of the water for thousands of years and we need to respect previous agreements made by Italy, Belgium, England and other countries that occupied Egypt and the Nile Basin countries."[108] CFA aims to coordinate Nile's water use multilaterally rather than bilaterally, or through other direct arrangements; moreover, CFA "requires signatories to use modern dispute resolution or international courts to decide conflicts about Nile projects or water."[109] Because Egypt is reluctant to give up its historic rights in exchange for common governance, it refuses to sign the CFA.

Sudan, which has generally sided with Egypt regarding water agreements, since it is the only other downstream state heavily dependent on the Nile, has initially joined Egypt's rejection of CFA. Recently, it ended its boycott and called on Egypt to resume participation. With Sudan

[106] Luiz Sanchez, "Water ministry rejects new Nile agreement," *Daily News Egypt*, January 13, 2013, http://www.dailynewsegypt.com/2013/01/13/water-ministry-rejects-new-nile-agreement/
[107] "Sudan asks Egypt to rejoin Nile Basin body," *News24*, June 06, 2014, http://www.news24.com/Africa/News/Sudan-asks-Egypt-to-rejoin-Nile-Basin-body-20140619-24
[108] Ibid.
[109] Scott O. McKenzie, "Egypt's Choice: From the Nile Basin Treaty to the Cooperative Framework Agreement, an International Legal Analysis," *Transnational Law & Contemporary Problems* 21 (2012): 571-599.

changing its stance, DR Congo remains Egypt's only ally.[110] Kenya, Tanzania, and Ethiopia have been the main supporters of CFA, with Ethiopia stating that "the presence of genuine co-operation, agreed upon legal frameworks and operational institutional arrangements that can regulate the equitable and reasonable utilisation of the resource" is essential for basin-wide cooperation to succeed.[111] Currently, the treaty has been signed by six co-riparians: Ethiopia, Uganda, Rwanda, Tanzania, Kenya and Burundi, but only Ethiopian and Tanzania ratified it. Once it is ratified by six of eleven co-riparians it will go into effect. Most Nile riparians voice support for CFA, with Sudan as the latest addition, suggesting that the strategic climate regarding river governance is beginning to shift. Egypt is the only major actor that inserts uncertainty in the process. Most riparians agree that colonial agreements are no longer binding, thus if Egypt wants to remain an active member in the Nile Basin it will have to compromise its rigid stance on its historic rights as well as find ways to cooperate with Ethiopia on the Renaissance Dam—two of the biggest issues preventing it from joining the CFA.

Despite the rejection of the Cooperative Framework Agreement, Egypt has actively cooperated with co-riparians through bilateral agreements, funded numerous local projects in Uganda, signed a $26.6 million deal with South Sudan for technical development and water infrastructure,[112] and initiated the Presidential Infrastructure Champion Initiative (PICI) which aims to connect East and North Africa through water and waste infrastructure developments.[113] Building relationships and trust through bilateral agreements may appear in opposition to the Nile

[110] Joint Report, "Egypt, Sudan part ways over boycott of the Nile Treaty," *The EastAfrican*, June 21, 2014, http://www.theeastafrican.co.ke/news/Nile-Sudan-breaks-ranks-with-Egypt--Dar-also-U-turns-/-/2558/2357176/-/unduyp/-/index.html

[111] Ibid.

[112] Philip Aleu, "South Sudan, Egypt Ink $26 Million in Bilateral Deals," *Voice of America*, November 24, 2014, http://www.voanews.com/content/south-sudan-egypt-water-agreement/2532358.html

[113] Frances Ringwood, "Cradle of Civilisation Prioritises Infrastructure," *InfrastructureNews.Ws*, November 11, 2014, http://www.infrastructurene.ws/2014/11/11/cradle-of-civilisation-prioritises-infrastructure/

Basin Initiative goals, however, the presence of such relationships makes a strong foundation for multilateral agreements. More importantly, because Egypt is not an active participant of NBI and refuses to enter CFA, its outreach and cooperation with co-riparian states is essential for regional stability. Since reciprocity is essential for international cooperation, Egypt's assistance in upstream states creates an environment for mutual gains—with states like Uganda and South Sudan receiving financial and infrastructure aid and Egypt having a say in which projects to build, so as to not threaten its downstream supply. Egypt can also build support in upstream civil societies that see tangible positive changes stemming from its support. Such bilateral engagements foster cooperation, exchange of ideas, greater understanding and economic investments that can result in lasting regional stability. The issue between Egypt and Ethiopia regarding the Renaissance Dam can also be resolved through bilateral agreements, given that the two states are the most affected by the issue. The majority of the Nile's waters come from Ethiopia, whereas Egypt relies completely on the Nile for its survival. The two states are more likely to come to a bilateral agreement than a multilateral agreement involving less interested parties.

An overview of the Nile's environmental issues coupled with political developments has shown that conflictive relations among the riparians are a possible outcome. Loss of centralized rule following the dissolution of the British Empire left governance of the Nile's waters to newly independent African states. With Egypt, a militarily dominant downstream riparian, calming historical rights to a particular quota, tensions arose after the upstream states began asserting their sovereignty over land and water. These events, in conjunction with poor infrastructure for water storage and use as well as growing shortages of water, made the Nile Basin ripe for conflict. However, early institutional developments in the form of water agreements beginning with the British colonialists engendered an environment of cooperation that carries through to post-colonial

multilateral Nile governance. In the Nile Basin, several forms of cooperation are occurring at once. Bilateral agreements are historic, and preferred by Egypt, who refuses to be an active member of NBI given its concerns over water shortage. Multilateral agreements and joint governance are preferred by the upstream states, most of which support the Nile Basin Initiative. Although the riparian that is the cause for regional destabilization concerns chooses to refrain from multilateral agreements within NBI, it has frequently voiced and shown its support for alternative kinds of cooperation, making it an invested member of the Nile Basin and an unlikely destabilizer of peace. It is adapting to the changing political and ecological environment which is on the trajectory to environmental peacebuilding.

CHAPTER 3
LAKE CHAD: POSSIBILITIES FOR PEACE

3.1 Environmental Degradation in the Lake Chad Basin

For thousands of years Lake Chad has provided water for people in modern day Chad, Cameroon, Niger, and Nigeria. Lake Chad is located on the southern edge of the Sahara Desert and is the main source of freshwater for nearly 40 million people as well as the surrounding flora and fauna. Before 1963 Lake Chad was one of the largest lakes in Africa, since then it shrunk by nearly 90 percent.[114] The lake has fluctuated in size over long periods of time, but it decreased dramatically from 25,000 square kilometers in the 1960s to 1,350 square kilometers today; it remains very shallow, ranging 2-7 meters in depth.[115] Extensive droughts in the 1970s and 1980s substantially altered the environment around the lake. Droughts led to the lake's shrinkage, but also decreased water flows from the Chari-Logone, and Komadugy-Yobe Rivers—the main sources of the lake's water. Lake Chad is continuously decreasing in size due factors such as climate change, population growth, extensive use of water for domestic and agricultural purposes, low capacity for resource management by the co-riparians and the lack of mechanisms for environmental policy enforcement.[116] Nevertheless, it remains the focal area of the largely arid region and draws in millions of people.

The local economy and sustenance are almost entirely dependent on water from the lake. Countries in the Lake Chad basin are some of the most economically underdeveloped in the world. The region is technologically poor and the development progress is slow. The primary supply of

[114] Hillary Mayell, "Shrinking African Lake Offers Lesson on Finite Resources," *National Geographic News,* April 26, 2001. http://news.nationalgeographic.com/news/2001/04/0426_lakechadshrinks.html
[115] World Bank, "Restoring a Disappearing Giant: Lake Chad," http://www.worldbank.org/en/news/feature/2014/03/27/restoring-a-disappearing-giant-lake-chad
[116] Ibid.

food comes from fishing, agriculture, and pastoralism.[117] Nearly 150,000 fishermen from as far as Ghana live on Lake Chad's shores.[118] The expected production of fish from the lake is nearly 60,000-85,000 tons annually (in the 1970s this number ranged from 130,000-141,000 tons).[119] With the drying of the lake came high mortality among fish as well as disappearance of certain species.[120] Locals often deplore the loss of biodiversity which has become a part of their culture and cuisine. Moreover, with the decrease in fish availability many fishermen are losing jobs. Thus, an area that used to be a major fishing hub is slowly becoming reliant on agriculture as the main source of sustenance, accounting for nearly 60 percent of the basin population.[121] People around the lake have long been implementing a system of lake-bottom cropping—farming the floor of the lake after flood waters retract. Historically, monsoon rains provided substantial amount of lake water in addition to the river inflow, but with the extensive desertification, damage from wind and use of land for farming, the top layer is eroding, resulting in infertile soil around the Lake Chad basin.[122]

Furthermore, desertification of the lake led to the disappearance of vegetation for the people and for livestock. As a result, an unsustainable positive feedback loop occurred: droughts led to desertification of the lake and the region around it; desertification caused an increase in irrigation practices and a heavier reliance on the lake; this additional stress to water supply reduced vegetation, led to overgrazing and decreased the ecosystem's ability to regenerate moisture in the form of monsoons; lack of precipitation further exacerbated droughts. Additionally, increased

[117] World Wildlife Fund, "Case Study on River Management: Lake Chad," http://wwf.panda.org/about_our_earth/about_freshwater/rivers/irbm/cases/lake_chad_river_case_study/
[118] Ibid.
[119] Eric O. Odada, Lekan Oyebande and Johnson A. Oguntola, "Lake Chad: Experience and Lessons Learned Brief," World Bank (2006): 75-91.
[120] World Wildlife Fund, "Case Study on River Management: Lake Chad"
[121] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 78
[122] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 77.

reliance on lake waters and ineffective irrigation projects and dams significantly decreased water quantity in the lake as well as the rivers that fill it. Thus, about 50 percent of the lake's desertification is caused by climate change, the other 50 percent is attributed to human consumption.[123]

Because of deteriorating environmental conditions, migration became a problem in the region. People who depend on the lake's waters for economic and sustenance purposes, i.e., fishermen, followed the drying borders of the lake, disregarding national boundaries.[124] By 1980 environmental migration led to a crisis. Given that the lake has no demarcated boundaries, people moved into territories of neighboring states which resulted in territorial disputes. Inter-ethnic violent conflicts have become a regular occurrence in the basin, mainly over water supply and land for agriculture.

3.2 Environmentally Induced Conflicts

Environmental degradation in the Lake Chad has been a cause for conflicts among the basin population. Due to droughts and desertification of land, several large-scale irrigation projects led to extraction of water directly from the rivers flowing into the lake and the lake itself. These irrigation projects caused drying up of water sources and shrinking of rivers. Consequently, conflicts between upstream and downstream users erupted. Similarly, inefficient dams were the source of poorly managed water consumption and distribution which led to transboundary conflicts.[125]Additionally, ethnic conflicts between farmers and nomadic herders have become common. Nomads move around in search for grazing land for their livestock. With the decrease

[123] UNEP, "Lake Chad: Almost Gone," http://www.unep.org/dewa/vitalwater/article116.html
[124] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 82.
[125] Ibid.

of vegetation, the herders tend to impose on famer's territories resulting in violent altercations.[126] Fishing, too has led to conflicting relations. Given that for a long time the lake waters have not been regulated, overexploitation has been a major issue, even more so recently due to environmental reasons. Moreover, there are no visible border demarcations in the lake and fishermen often fish in foreign waters. This has led to conflicts between fishermen and the gendarmes patrolling the waters.[127]

Given the disputed borders, border conflicts emerged between Cameroon and Chad since neither country accepted ECOWAS protocols on the free movement of citizens in the region.[128] In 1981, five Nigerian soldiers were killed by Cameroonian patrol near the coast of Rio del Ray, a region thought to be endowed with oil, gas, and uranium.[129] Border clashes between Nigeria and Cameroon continued in subsequent years. In 1983, territorial disputes induced by environmental migration led to violent conflict between Nigerian and Chadian soldiers which resulted in more than 100 deaths.[130] Subsequently, the border between Nigeria and Chad was closed for 3 years. Recently, Islamic extremism and terrorism have become more prominent in Nigeria, which some have linked to joblessness due to environmental degradation.[131]For example, militant Islamist group Boko Haram, which is strongly opposed to Western education and norms, has created its own schools from which it recruits young impoverished men who are sent there by poor families.[132] With staggering poverty and joblessness in the Lake Chad basin, young people have no prospects

[126] Ibid. 83.
[127] Freedom Onuoha, "Environmental Degradation, Livelihood and Conflicts: A Focus on the Implications of the Diminishing Water Resources of Lake Chad for North-Eastern Nigeria," *African Journal on Conflict Resolution* 8, no. 2 (2008): 35 – 61.
[128] "Nigeria: Local and Bilateral Issues," Country Data, http://www.country-data.com/cgi-bin/query/r-9454.html
[129] Ibid.
[130] Peter Wallensteen and Margareta Sollenberg, "Armed Conflict 1989-98," *Journal of Peace Research* 36, no. 5 (1999): 602.
[131] I. P. Ifabiyi, "Recharging the Lake Chad: The Hydropolitics of National Security and Regional Integration in Africa," *African Research Review* 7 (3), no. 30 (2013): 196-216.
[132] Farouk Chothia, "Who are Nigeria's Boko Haram Islamists?" *BBC News Africa*, May 20, 2014. http://www.bbc.com/news/world-africa-13809501.

for employment in the predominantly poor region. Thus, poverty compounded with environmental degradation and the rise of extremism is destabilizing the region.

According to the World Bank, all of the four Lake Chad co-riparians are among the 23 poorest countries in the world, their citizens living on less that $2 a day.[133] At 2003 levels, annual per capita Gross National Product in Cameroon was the highest at $630, followed by Nigeria with $350, Chad with $240, and Niger with $200.[134] Economic development in this region is stagnant, with GDP growth around 1.4-1.9 percent per year, which is highly insufficient for tackling staggering poverty.[135] International Monetary Fund states that the percentage of Chad's population living in poverty is more than 60 percent. In Nigeria, nearly 90 percent of people live on less than $2 per day. In Niger 63 percent are considered poor and 34 extremely poor.[136] According to UNEP, the highest percentage of the poor live closest to Lake Chad. Forty percent of Nigeria's poor inhabit areas by the lake; similar situation is evident in Cameroon. In addition to poverty, diseases are a major problem in the basin region. Some of the most common diseases include malaria, respiratory infections, measles, yellow fewer and chicken pox.[137] Many of these diseases are very rare or easily treatable in the developed world, however given the extreme poverty and lack of institutions in this region these diseases persist. Deteriorating environmental conditions are exacerbating the scope and severity of diseases, adding to low life expectancy.

3.3 A Pathway towards Peace: The Lake Chad Basin Commission

[133] "Global International Water Assessment: Lake Chad Basin," *GIWA Regional Assessment* 43 (2004): 34.
[134] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 78.
[135] However, some hope that the discovery of oil in Chad will bring economic investments and industrialization to the region. According to Odada et al., Chad holds nearly one billion barrels worth of oil, and a 1,070 kilometer Exxon-Mobil pipeline from Chad to Cameroon's Atlantic coast is expected to generate $2 billion for Chad and $500 million for Cameroon over the 25 year period.
[136] "Global International Water Assessment: Lake Chad Basin," 34.
[137] Ibid. 36.

The major institution designated for solving environmental problems in the Lake Chad Basin is the *Lake Chad Basin Commission* (LCBC). The commission was established in 1964 and includes the four riparians sharing the lake: Chad, Cameroon, Niger, and Nigeria. Originally, this agreement did not include other basin states which do not share lake boundaries: Central African Republic, Sudan, parts of Algeria, and excluded northern Niger as well as northern Chad. In 1994, Central African Republic joined, followed by Sudan in 2000.[138]LCBC is an international organization which is governed by two Commissioners from each member state. LCBC was created "to regulate and control the utilisation of water and other natural resources in the Basin; to initiate, promote and coordinate natural resources development projects and research within the basin area; to examine complaints; and to promote the settlement of disputes, thereby promoting regional cooperation and integration".[139]

From its establishment, LCBC has had several deficiencies, mainly, poor funding which comes from the member states and is at times delayed or withheld. Inconsistency in funding is a major breach of trust among the states and signals that LCBC is not a top priority. Additionally, past conflicts among the riparians add to the general distrust and tensions among states. Scientific data are also weak, as is the capacity to monitor and evaluate such data.[140] The lack of scientific data across the region hinders the ability to address current environmental problems and predict future environmental conditions. Moreover, LCBC "recognises the sovereign rights of the member States over the water resources in the Basin, but forbids any unilateral exploitation of the lake water, especially when such use has a negative effect on the interests of the other states".[141] Thus, it does not regulate fisheries and water allocation, only suggests that states regulate their own

[138] "Global International Water Assessment: Lake Chad Basin," 38.
[139] Ibid.
[140]Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 84.
[141] "Global International Water Assessment: Lake Chad Basin," 38.

resources in such a manner that they do not infringe on the sovereignty of another state. Allocation of water and fisheries is one of the most contentious issues in the Lake Chad Basin, and such a position renders the LCBC ineffective. LCBC has a poor legal framework and does not have enforcement mechanisms to ensure policies that states do agree on are carried out. Furthermore, many projects initiated with the help of foreign international organizations have been abandoned by the member states.

In addition to environmental issues, LCBC has the responsibility to deal with complaints and disputes among member states. In this area, too, it has not been successful. For example, as mentioned previously, retraction of lake borders led to an increase in environmental migrants knowingly and unknowingly crossing borders which were not demarcated. In 1983 and subsequently 1993, migration and border disputes led to violent conflicts between Nigeria and Cameroon. The riparians turned to LCBC in order to stop these conflicts; LCBC appointed a border demarcation committee and a patrol system.[142] This decision did not prevent future conflicts and Cameroon went to the International Court of Justice, which had the authority to delineate borders and resolve this issue. Thus, it is unclear how the member states should use the LCBC for conflict resolution purposes.

The institutional capacity of LCBC is very weak, lacking the most basic requirements for changing the strategic climate toward cooperation: reducing uncertainty and building trust. History of conflictive relations and LCBC's ambiguous structure can both be considered as the causes of distrust. However, in 2003 LCBC has launched Vision 2025 program, which aims to increase cooperation among the riparians. The program "identified poor decision making, lack of water and environmental management policies, low level of stakeholders' participation and economic

[142]Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 83.

condition of the member states as main challenges of the lake".[143] In 2012, LCBC passed an amendment to the 1964 Convention and Statute of the LCBC by signing the Lake Chad Water Charter, "a document setting out the rights, obligations, duties, restrictions, processes and procedures pertaining to proper management of the Lake Chad resources".[144] The charter's main objective is to bring regional peace and stability; this suggest that the states recognize that environmental degradation is a source of conflict in the region. Such a realization may lead to tangible cooperative results. As stated by LCBC, harmonization of water policies among the member states is the first step towards successful cooperation, which will require reducing uncertainty and building trust through long-term agreements, such as the Vision 2025 project.

Regarding conflict resolution, LCBC remains vague. It states that "Under Article 85, State parties have committed themselves to settle inter-state disputes in a friendly manner, having regards to UN, AU Charters governing the matter. Article 86 also insisted on State parties to pursue friendly settlement on the interpretation and application of the Charter. Article 87 enjoins the members to refer any dispute they are unable to resolve directly between them, to the Commission to mediate and resolve".[145] Thus, it is reluctant to portray itself as a willing mediator of disputes, but it recognizes that cooperation on environmental issues may lessen the tensions among states and leas to less conflicts. The Water Charter is a recent agreement which, for the first time recognizes the importance of active participation in the Lake Chad Basin management and it shows potential for changing the strategic climate towards environmental peacebuilding in the region.

[143] Silas Damson Garba, "Climate Change, Water Security and The Challenges of Managing Transboundary Water Resources: Can Fort-Lamy Convention Save Lake Chad?" Center for Energy, Petroleum and Mineral Law Policy, 1-17.
[144] "The Lake Chad Water Charter as a Vehicle for Sub-regional Integration and Security," LCBC, http://www.cblt.org/en/lake-chad-water-charter-vehicle-sub-regional-integration-and-security.
[145] Ibid.

From the onset, the Lake Chad Basin Commission has been a weak institution, created by some of the poorest, conflict ridden countries in the world. With no ability to enforce agreements, general distrust, and lack of funding for development, the organization has been passive in regional conflict resolution. However, with the rise of terrorist attacks by Boko Haram, continuous environmental problems, and poverty, the LCBC members are beginning to take the organization more seriously. Recently, terrorist group Boko Haram has killed 48 Nigerian fishermen by the Lake Chad.[146] In the wake of such attacks, members of LCBC agreed to send a draft resolution to the UN for approval of joint military cooperation in the basin.[147] Executive Secretary of the Commission stated that such cooperation is necessary "So that these armed forces can work as a team even though they are from different counties. They can work together and go into each others' countries to flush out insurgents and other terrorist groups".[148] Although environmental degradation is persistent and the states have done little more than sign treaties on the issues, they have used the basin commission as a platform for regional discourse on issues of national security and economic development. In this case, environmental cooperation seems to have a potential for spillover effect to engender cooperation in other areas. However given the poverty, low institutional capacities, and no enforcement mechanism, the commission remains ineffective in stabilizing the region.

[146] "Nigeria: 'Horrific attack close to the shores of Lake Chad'," BBC, November 23, 2014, http://www.bbc.com/news/world-africa-30170795

[147] "Terrorism: Lake Chad Member Countries To Send Draft Resolution To UN, AU," *Leadership*, November 26, 2014, http://leadership.ng/news/391853/terrorism-lake-chad-member-countries-send-draft-resolution-un-au

[148] Ibid.

CONCLUSION

The relationship between environmental degradation and international relations is complex. As shown by previous research, environmental problems are likely to increase tensions among states and trigger conflict in socially or politically strained situations. The anticipation of such problems however, may instead incite cooperation as a preventive measure. The evidence for both assumptions has been supported in the case studies. In the Nile Basin, recognition of the link between environmental degradation and conflict onset triggered cooperative agreements, which throughout history were heavily in favor of Egyptian hegemony. Although Egypt maintains a strong stance on its historic rights to the Nile waters, which is a point of contention in the Nile Basin Initiative and subsequent Cooperative Framework Agreement, it has engaged in many bilateral cooperative projects over water and infrastructure, thus building trust as well as economic and civil society ties with its co-riparians. Moreover, tensions within NBI aside, Egypt has voiced its support for various NBI. The Nile has often been named as a basin in danger of conflict eruption, but given the history of cooperation, agreements, and cultural ties, the region is more likely to cooperate over the river waters than engage in "water wars".

In the case of Lake Chad, conflicts exacerbated by environmental degradation and lake desertification preceded any successful cooperative agreements. Moreover, conflictive relations were a hindrance to establishing trust within the LCBC, making any cooperation difficult. Given the weak institutional framework of the Lake Chad Basin Commission, no prior agreements to build a foundation for trust, and no powerful or wealthy hegemon to regulate the use of the lake waters, there was no cooperative base from which to prevent conflict eruption. The situation in the Lake Chad Basin remains conflictive, but several promising signs are showing with LCBC's Water Charter amendment, which will attempt to regulate water and fisheries allocation and protect the

environment within the Lake Chad Basin. Additionally, the member states reached a joint resolution to unite their armed forces in the fight against terrorist group Boko Haram, which can be a hopeful glimpse into future cooperation over regional security.

As this research relied on primarily secondary sources, it could have been improved in several ways. Field research could show developments on the ground, this giving a better understanding of the severity of a situation without media or political bias. Moreover, this study could have greatly benefited from Field research in the Lake Chad Basin, given that information on the developments in the region is very scarce, the majority of which comes from the LCBC website and cannon be corroborated. Much of scholarly research on Lake Chad focuses on environmental degradation from physical perspective, with little analysis of its socioeconomic impact. With the limited amount of information on Lake Chad, this paper supports prior research which posits that states without previous treaties or water agreements are more likely to experience environmentally triggered conflict.

A lot has been written on the Nile and other major, strategic river basins across the globe, but not much on regions such as Lake Chad. Further research on this subject would be important in answering the question: How should poor, environmentally degraded states go about cooperation on environmental as well as regional security issues? With weak institutional capabilities, poor funding and regional instability, poor nations need a realistic framework for cooperation and development.

In sum, violent conflict over water tends to be rare, whereas conflictual rhetoric is abundant. Research has shown that states are more likely to cooperate over waters especially if they have a history of treaties and agreements. With such a history, it is possible to trace what Conca defined as pathways towards peacebuilding. In the Nile, joint cooperation among the

riparians stems from understanding of environmental problems, sharing of important ecological information, long-term cooperation and engagement with civil society through bilateral infrastructure projects as well as NBI's dissemination of information to the public. Lake Chad is at the beginning of joint environmental operations, however, the objectives defined by the LCBC mirror those of NBI, with emphasis on information sharing, long-term projects and engagement of the civil society.

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