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, the consequences of environmental degradation, such as decrease in water supply due to natural or anthropogenic reasons, have the potential to trigger transboundary hostility and conflicts among co-riparians. However, the presence of powerful institutions, in the form of international organizations, has a substantial mitigating effect which can lead to stability and peaceful relations in the region.

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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.

Research on the relationship between environmental degradation and conflict in international relations started in the early 1990s, most famously with a research team at the University of Toronto, and since has produced numerous findings which remain inconclusive.

[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.

For example, some scholars argue that environmental problems are likely to trigger conflict whereas others posit that they can, instead, lead to cooperation and peace. Large amount of qualitative and quantitative scholarship on conflict and environment 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 in particular 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;

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[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.

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for example, environmental cooperation between states can be analyzed in cases of transboundary pollution, border disputes in resource rich areas, environmental degradation, and water depletion. To narrow the scope of this study, this paper will focus on the effects of environmental degradation in the Nile and Lake Chad basins on interstate relations.

Water is high politics because it is absolutely necessary for life. Some scholars suggest that given its absolute necessity, water is one of the most likely resources that could lead to disputes between states. As the 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 potential for cooperative spillover effects such as regional stability and peace.

In order to answer 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 a following way: The first chapter sets up a theoretical framework for analyzing the nexus between conflict and cooperation in international relations, beginning with a brief summary of realist and liberal approaches. Then, research on conflict and cooperation in transboundary water sharing is discussed and the methodology of this study is explained. Lastly, Conca's framework for pathways toward environmental peacebuilding is summarized and will be analyzed in the following case studies. 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, a brief description 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 betweensocial, 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 Conflict and Cooperation in the International System

Realism is widely considered as the dominant theory in International Relations. Realism takes a systemic approach in explaining state behavior by focusing on the context of the environment in which states operate as opposed to their internal mechanisms. Realists claim that the international system is anarchic, the state is a unitary, rational actor, and that state's main objective is survival.[6] Because the international system lacks a global guarantor of order, states can pursue their national interests without much regard for their neighbors' preferences, thus leading to conflicts. Whereas classical realism assumes that conflict is caused by human lust for power, neorealism, associated with Kenneth Waltz, rejects the emphasis on human nature and provides a structural explanation of conflict in international relations. Waltz argues that "the first concern of states is not to maximize power but to maintain their position in the system".[7] Thus, "The fundamental goal of states in any relationship is to prevent others from achieving advances in their relative capabilities", given that there is no overarching authority to prevent violence or offer protection from destruction or enslavement.[8] To ensure survival, states balance power against each other, leading to the security dilemma—a condition where one state's increase in relative capabilities triggers the perception of threat and insecurity from another state, thus prompting it to increase its own security in the form of arms or alliances. However, the degree of aggression among states is disagreed upon by realists. Offensive realists argue that states want to

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[6] Jennifer Sterling-Folker, *Making Sense of International Relations Theory* (Boulder, CO: Lynne Reinner Publishers Inc., 2006).
[7] Kenneth N. Waltz, *Theory of International Politics* (Reading, Mass: Addison-Wesley Pub. Co., 1979), 126.
[8] Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," *International Organization* 42, no. 3 (1988): 498.

maximize power and therefore are more likely to implement expansionist policies, therefore leading to conflicts, whereas defensive realists argue that states want to maximize security and therefore are open to a wider range of policy choices. Thus, defensive realist allow for some form of cooperation, such as alliances in the form of NATO, but argue that even within such alliances national interests prevail. Realism and neorealism assume that the anarchic nature of the international system makes it difficult for states to cooperate because they are concerned with being double crossed; their interests may change over time; and promises and threats are not guaranteed given the lack of enforcement mechanisms.[9] For these reason, realism rarely concerns itself with interstate cooperation; it maintains that if states exist in the shadow of war and fear of extinction, they are not likely to trust each other and cooperate.

Liberalism is the most prominent challenger of realist thought on cooperation. As within realism, there are disagreements within the liberal IR framework, however several core assumptions are identifiable.[10] Liberals believe that institutions, rules, and norms in the international system are important factors that allow for a greater likelihood of cooperative agreements. Thus, liberalism focuses not only on states as the dominant actors, but also recognizes organizations, individuals, and societies as important actors which can enhance or constrain cooperation. Furthermore, liberals posit that self-interested states often engage in mutually rewarding cooperation.[11] Liberalism and realism recognize that the international system is anarchic, but where realists see it as ripe for conflict, liberals argue that "order emerges as self-

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[9] Robert Jervis, "Realism, Neoliberalism, and Cooperation: Understanding the Debate," *International Security* 24, no. 1 (1999): 42-63.

[10] As outlined by Sterling-Folker, there are several categories of liberal thought. For example, one strand of liberalism is democratic peace research, which suggests that democracies are less likely to fight with each other and thus a greater number of democracies is likely to promote greater peace and cooperation. Liberal interdependence strand argues that capitalist markets or the environment have cooperative potential given their transboundary properties. Additionally, liberals believe that proliferation of information and communication among actors is likely to lead to cooperative agreements. Lastly, international institutions are considered important actors which can give credibility to international agreements. Given these assumptions, unlike realists, liberals see the world as more cooperative than conflict prone.

[11] Arthur A. Stein, *Why Nations Cooperate: Circumstances and Choice in International Relations* (New York: Cornell University Press, 1990).

interested actors coexisting in an anarchic environment reach autonomous and independent decisions that lead to mutually desirable cooperative outcomes".[12]Additionally, realist see conflict as a consequence of the self-help structure of the international system, where constant struggle for power and survival prevents long-term cooperation. For liberals conflict is a consequence of uncertainty, imperfect information, and a lack of international institutions. They argue that institutions can diffuse information and norms as well as serve as enforcement agencies in the realm of international law. International, nongovernmental, and transnational organizations, powerful firms, and businesses promote interdependence among nonstate and state actors thus creating an environment for peaceful relations.

In sum, conflict and cooperation are the main focus areas of international relations scholarship; they encompass the polar opposite choices presented to states—engagement in war or creation of alliances. The dominant paradigms that try to explain why states engage in conflict or cooperate are realism and liberalism. Whereas realists state that due to the anarchic nature of the international system states will act in their self-interest in order to guarantee own survival, which may lead to security dilemmas and increase potential for conflict, liberals argue that there is more potential for states to cooperate given the presence of international institutions, regimes, and norms. While it may be correct to assume that liberals see less conflict in international relations than realists, this may be explained by the fact that liberals focus on subjects such as international political economy and the environment, whereas realists tend to focus on international security and war. However, leaving out aspects of conflict and cooperation cannot lead to a comprehensive understanding of international relations. Thus, it may be agreed upon that the international system is anarchic and that states are the dominant actors which pursue national interest and possess legitimate monopoly on violence, the role of international

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[12] Stein, *Why Nations Cooperate*, 8.

institution in mitigating relationships between states must also be taken seriously. This paper will apply aforementioned realist and liberal concepts to an analysis of international relationswithin the environment realm, keeping in mind the possibility of conflict, but focusing on cooperative opportunities towards peacebuilding.

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 ignore these issues. Given that international relations is a property of interactions among states, this paper will focus on the interplay between conflict and cooperation in the realm of the environment—more specifically, transboundary water sharing—although examining motivations behind nonaction may be just as meaningful. Furthermore, greater attention will be given to cooperation, especially to the potential it creates for peacebuilding in conflict prone areas. A literature overview of research on conflict and cooperation on environmental scarcity and degradation will be discussed below.

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.[13] The debate within environmental conflict research focuses on whether and under which conditions environmental degradation, scarcity, abundance, or dependence can lead to violent conflict.[14]   One of the largest studies on the causal relationship between resource scarcity and

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[13] 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. Ken Conca's theoretical framework for environmental peacebuilding will be applied in this paper.
[14] 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).

violent conflict, associated with the work of Thomas Homer-Dixon, was conducted in the 1990s at the University of Toronto, where researchers examined 16 comparative case studies at regional and country levels.[15] Researchers analyzed the effects of supply-induced, demand-induced, and structural scarcity on conflict onset, where "supply-induced scarcity is generated through processes of depletion and/or degradation of natural resources. Demand-induced scarcity is driven by the increased consumption generated largely by growth in income and population. Structural scarcity involves the unequal distribution of natural resources across social groups."[16] 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."[17] Findings from both studies suggest that environmental scarcity is not likely to be the cause of violent conflict; however, it can be a trigger in civil war or insurgency but not likely to trigger violent interstate conflict.

Additional area of environmental conflict scholarship focuses on the relationship between abundance of resources and violent conflict. Collier and Hoeffler were some of the first researchers to argue that abundance, not scarcity, of natural resources is an important factor in

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[15] 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.
[16] Sanjeev Khagram and Saleem Ali, "Environment and Security," 397.
[17] Sanjeev Khagram and Saleem Ali, "Environment and Security," 398.

civil war onset.[18] They found that, holding the level of grievance constant, countries with the abundance of natural resources are more likely to experience rebellion. Collier and Hoeffler suggested that rebels loot environmental resources in order to finance their operations; yet, subsequent large-N quantitative analyses found no support for such relationship.[19] Since, numerous statistical analyses testing the relationship between natural resources and violence emerged from academics and researchers in various international organizations. However, a category of environmental research that is more relevant to this study tries to link environmental problems to national security.[20] The logic behind such a link suggests that matters of national security tend to raise concerns within states and elicit prompt reactions. Because of this tendency, scholars argue that linking environmental issues to national security is likely to move these issues to the forefront of discussion and result in effective policy changes. The problem with this line of thought is that national security concerns are often accompanied by zero-sum logic which is incompatible with cooperation.

Given the extensive scholarship on the relationship between environment and conflict, another group of researchers began to focus on the possibility of using environmental threats as incentives for cooperation and long-term peace. Reaching this aim requires an explanation of causal mechanism that lead to cooperation, thus research on cooperation predominantly consists case study analyses. One of the first major studies on environmental cooperation came from Peter Haas, who examined the largely successful international cooperation in the Mediterranean.[21] Engaging with IR theories, Haas provides several explanations for interstate

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[18] Paul Collier and Anke Hoeffler, "Greed and Grievance in Civil War," *Oxford Economic Papers* 56 (2004): 563-595.
[19] See: James D. Fearon and David Laitin, "Ethnicity, Insurgency and Civil War," American Political Science Review 97, no. 1 (2003): 75-90.
[20] For example, Karin Dokken "Environment, Security and Regionalism in the Asia-Pacific: Is Environmental Security a Useful Concept?" *The Pacific Review* 14, no. 4 (2001): 509-530.
[21] Peter Haas, *Saving the Mediterranean:Politics of International Environmental Cooperation* (New York: Columbia University Press, 1990).

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cooperation.[22] According to Haas, realism would suggest that that under anarchy, hegemonic France took the leadership role in the Mediterranean by initiating cooperation in the region, given that problems of pollution could spill over into other areas of concern such as national security. The strength and duration of cooperation covaries with French power as well as availability of information. Effects of cooperation according to realism are French regionalism and diffusion of power, as well as mutual benefits with regards to the environment. Historical materialism argues that given the dominance of the powerful states in the system, the North engaged in relations with weaker states in the South via imperialism, mainly pursuing its own areas of interest in the Mediterranean region. Here, the scope of cooperation depends on the extent of imperialist domination. Historical materialists argue that such relations led to underdevelopment of the weaker states, limitations on development strategies, unequal distribution of benefits and South's dependence on the North. Lastly, epistemic communities approach argues that bargaining and learning led to cooperation; the scope of cooperation varies with government involvement. The outcomes include convergence of policies on pollution control as well as reinforcement of credibility and further cooperative agreements. Thus, the motivation for cooperation can be interpreted in several ways; nevertheless, Haas concludes that policy coordination is, in fact, possible among states and signals "an entirely new international political order for the environment."[23] Research on transboundary water cooperation provides the most optimism for cooperative agreements and potential for peacebuilding.[24]

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[22] Ibid., 64-65.
[23] Peter Haas, *Saving the Mediterranean.*
[24] Aaron T. Wolf and Jesse H. Hamner, "Trends in Transboundary Water Disputes and Dispute Resolution," In *Environment and Security: Discourses and Practices, Part II, Practices*, eds. Mirriam R. Lowi and Brian R. Shaw (New York: St. Martins, 2000).

1.2 Transboundary Water Sharing: A Conflict-Cooperation Nexus

Previous research suggests an increase in conflict due to declining water supply in major rivers as well as pollution and appropriation by upstream states.[25]Moreover, water is most likely to lead to conflict if it crosses national boundaries.[26] Some of the triggers for water conflict include use, pollution, and unequal distribution.[27] 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. 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 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 Nile, Euphrates, and Ganges river systems.[28] Due to the increasing use of water by the upstream states in these regions, the flow is reduced for the downstream neighbors. Irrigation, reservoirs

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[25] Homer-Dixon, *Environment, Scarcity, and Violence*.
[26] Helga Haftendorn, "Water and International Conflict," *Third World Quarterly* 21, no. 1 (2000): 51-68.
[27] Ibid., 53.
[28] Ibid., 56

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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. Any changes to flow from upstream to downstream can strain relations among co-riparian states. Despite these assumptions, many instances of cooperation have been recorded. In addition to cooperation in the Mediterranean and over the Danube and Rhine Rivers, environmental cooperation in the Baltic Sea has been considered as one of the most successful.

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.[29] 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 of radioactive materials and chemical and biological contaminants which posed high environmental risks.[30] 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

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[29] 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.
[30] Ibid.

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, and that the desire for regional integration and security were some of the main drivers of cooperation in the Baltics.[31]

An additional case of successful environmental cooperation as conflict prevention, thus far, is Central Asia following the disintegration from the Soviet Union. 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 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 major 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 the collapse of the Soviet Union.[32]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

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[31] Ibid.
[32] 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.

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.[33]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.[34]

The beginning of internal regional cooperation in Central Asia followed the collapse of the Soviet Union. In 1992, the five states signed an agreement on "Cooperation in the Management, Utilization, and Protection of Water Resources of Interstate Sources".[35] 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. Some scholars argue that in this context, cooperation on water served as a conflict prevention strategy rather than a manifestation of environmental concerns.[36]

Given the large amount of quantitative and qualitative literature on water and conflict over international rivers, Wolf, Yoffe, and Giordano carried out a comprehensive study that gathered accounts of conflict and cooperation between riparian neighbors during the period from 1948-1999, and subsequently identified basins at risk for conflict in the future years.[37] In the 50

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[33] Erika Weinthal, *State Making and Environmental Cooperation* (Cambridge, Mass: MIT Press, 2002).
[34] Shairbek Juraev, "Central Asia's Cold War? Water and Politics in Uzbek-Tajik Relations." PONARS Eurasia Policy Memo No. 217 (2012): 1-5.
[35] "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.
[36] Erika Weinthal, "The Promises and Pitfalls of Environmental Peacemaking in the Aral Sea Basin."
[37] Aaron T. Wolf, Shira B. Yoffe and Mark Giordan,. "International Waters: Identifying Basins at Risk," *Water Policy* 5 (2003): 29-60.

year time frame, they found no instances of war fought over water.[38] Furthermore, they discovered that out of 1831 events of conflict and cooperation, 1228 were cooperative, 507 conflictive (out of which 37 involved violence), and 96 neutral.[39] Thus, the majority of interactions over water are cooperative. Historically even disputing states find ways to cooperate over water resources; for example, Israel and Jordan as well as India and Pakistan continued to cooperate on shared rivers through several wars. Moreover, the authors found that neither water stress nor climate change or government type lead to water disputes.

However, water can be an "irritant" in interstate relations, that is, it "can make good relations bad and bad relations worse."[40] Additionally, water quantity and infrastructure (which tend to be linked) were triggers to nearly 87 percent of conflictive relations among states.[41] More importantly, extremely rapid changes (either institutional or physical) within water basins are identified as most likely to lead to conflict. For example, dissolution of the British Empire and later the Soviet Union has led to institutional shocks and potential for conflict in the Nile basin and the Aral Sea. Given that in instances of rapid change riparians without treaties were found to be "significantly more conflictive", the authors suggest that treaties and basin organizations are the best institutions for reducing the negative impacts of change; thus, "institutions matter."[42]

The findings on the relationship between environmental problems and interstate relations show a nexus between conflict and cooperation—similar conditions can lead to either conflictive or cooperative outcomes. Moreover, cooperation on environmental problems has the potential to create stability and lasting peace. Given these assumptions, this paper hypothesizes that in conflict prone areas, the consequences of environmental degradation, such as decrease in water

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[38] Moreover, they argue that the only record of war over water resources occurred 4500 years ago between Mesopotamian city-states Lagash and Umma.
[39] Wolf et al., "International Waters: Identifying Basins at Risk," 33.
[40] Ibid., 40.
[41] Ibid., 41.
[42] Ibid., 45.

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supply due to natural or anthropogenic reasons, have the potential to trigger transboundary hostility and conflicts among co-riparians. However, the presence of institutions, in the form of international organizations, has a substantial mitigating effect which can lead to stability and peaceful relations in the region. To test the hypothesis, 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 for 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.

There are also important differences between the two regions. In the Nile basin, Egypt is considered a hydrohegemon that has been successful in constructing Nile governance rules, which are predominantly in its favor; only since the dissolution of the colonial empires have the co-riparian states began to voice their dissatisfaction with the 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 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 unique political dynamic which can be contrasted with that of the Nile and a clearer understanding of the role of institutions may be developed.

Given that this study is interested in the causal mechanisms that lead to either conflict or cooperation on transboundary water issues, case studies are more effective than large-N studies 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 organizations. The background conditions are held constant, i.e., environmental problems, while details unique to each case, such as political and socio-economic conditions, are present. Further, the potential of the two organizations that have developed in both basins for establishing peaceful relations in the regions will be analysed within Conca's framework for environmental peacemaking. But firstly, 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."[43] 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."[44]

According to Keohane, "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."[45] 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.[46]

It is widely accepted that at its most basic, peace is defined as the absence of violence;[47] here, peace is defined as a continuum from the absence of violence to inconceivability of violent

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[43] "Conflict," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 10.
[44] "Violence and Non-Violence," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 116-120.
[45] Robert Keohane. *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984), 51-52.
[46] Peter Haas, *Saving the Mediterranean*, 64-65.
[47] Johan Galtung, "Violence, Peace, and Peace Research," *Journal of Peace Research*, 6 no. 3 (1969): 167-191.

conflict.[48] 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.[49]

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.[50] 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: "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".[51] 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.[52] Both types have stood as barriers for environmental cooperation given that uncertainty, technical complexity of environmental issues, and varying interpretation of data

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[48] Ken Conca, "The Case for Environmental Peacemaking," in *Environmental Peacemaking* (Baltimore, MD: Johns Hopkins University Press, 2002), 9.

[49] "Peace, Peacebuilding and Peacemaking," in *Berghof Glossary on Conflict Transformation* (Berlin: Berghof Foundation Operations, 2012), 62-63.

[50] 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.

[51] 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.

[52] Conca, "Environmental Cooperation and International Peace," 231.

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.[53] 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.[54] 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 equal exchange does not foster further cooperation.[55] 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

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[53] Ibid., 233.
[54] Robert Axelrod, *Evolution of Cooperation* (New York: Basic Books, 1984).
[55] Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Econom*y (Princeton: Princeton University Press, 1984).

environmental issues which, given their unique transboundary properties, have the potential to institutionalize diffuse reciprocity.[56]

"Lengthening the shadow of the future" is the third and final factor in creating favorable climate for cooperation.[57] 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.[58] 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 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

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[56] Conca, "Environmental Cooperation and International Peace," 235.
[57] Ibid.
[58] Axelrod, *Evolution of Cooperation.*

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people are fluid, and generally constructed within and influenced by the surrounding societies.[59] 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.[60] 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 forms of interdependence and lead to a more peaceful coexistence.[61] Fostering new environmental norms, constructing transnational civil societies, and transforming state institutions are the steps that can lead to peace.

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[59] 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).
[60] 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.
[61] 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 River 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.[62] 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.

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

Research suggests that water conflicts are unlikely unless certain scope conditions are met. According to Homer-Dixon, in order 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".[63] 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."[64] He also stated that "The only matter that could take Egypt to war again is water."[65]

Egypt has been the most efficient in using the Nile 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.[66] 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 in any

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

way diminish water flow and reduce its quota. The upstream riparians are increasingly disregarding these agreements, thus raising fears in downstream sates and elevating political tensions.

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.[67] 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.[68] 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.[69] 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.[70] 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.[71] 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 leading to diminishing 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 nations; advancements in infrastructure require withdrawal of large

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[67] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 85.
[68] 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.
[69] Source: World Bank; cited in UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 84
[70] Ibid.
[71] UNEP, "Adaptation to Climate-change Induced Water Stress in the Nile Basin," 84.

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. Firstly, 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."[72] 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.[73]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.[74]

The capacity of the River Nile to sustain growing population is strained by increasing water demand for personal, industrial, and agricultural needs. Moreover, this issue is tied with economic and developmental concerns as well as unequal power relations. Given that water has been defined as a possible trigger in socio-political conflicts, the Nile basin is at risk for future conflict.

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

2.2 History of Nile Governance

Agreements on the use of the Nile 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. In 1902, Britain and Ethiopia decided that no structures inhibiting the river flow 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.[75] Thus, in 1929, Egypt and Britain (on behalf of Sudan as well as British colonies 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.[76] 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".[77] 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, thus losing Egypt's support in building a reservoir on the Blue Nile.[78] This contention led to a dispute resulting in Sudan's withdrawal from the 1929 Agreement and the subsequent placement of

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[75] Valerie Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," *Columbia Journal of Transnational Law* 44, no. 2 (2006): 622-647.
[76] Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," *The Journal of Modern African Studies* 35, no. 4 (1997): 675-694.
[77] Robert O. Collins, *The Waters of the Nile: Hydropolitics and the Jonglei Canal, 1900-1988* (Oxford University Press, 1990), 156.
[78] Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," 679.

Egyptian troops on the border.[79] 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.[80] In addition to asymmetric control of water usage, Egypt enjoys material, bargaining, and ideational power among the riparians.[81] 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".[82] 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.[83] As a result of bilateral dominance by Egypt and Sudan regarding the use of the Nile waters, the upstream riparians regarded the 1959 Agreement as an outdated colonial remnant in which they had no say and which ignored

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[79] Gabriel R Warburg, "The Nile in Egyptian-Sudanese Relations," *Orient* 32, no. 4 (1991): 570.
[80] 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.
[81] 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.
[82] Mohamed Hassanein Heikal, "Egyptian foreign policy," Foreign Affairs 56, no. 4 (1978): 714-727.
[83] Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," 630.

their needs. Thus, following their independence in the 1960s, Kenya, Tanzania and Uganda disregarded binding power of the agreement.[84] 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".[85] 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".[86] 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.[87] 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" as an exception.[88]

Historical account of these agreements is particularly important given that, as previously discussed, research found that co-riparians which experience rapid shock (institutional or

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[84] Ana Elisa Cascão, "Changing Power Relations in the Nile River Basin: Unilateralism vs. Cooperation," Water Alternatives 2, no. 2 (2009): 245-268.
[85] 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.
[86] Knobelsdorf, "Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System," 632.
[87] Ibid., 634.
[88] Ibid., 635.

physical) were significantly more likely to be conflictive if they did not have prior treaties.[89] The presence of institutions either in the form of treaties or basin organizations was found to ameliorate negative consequences of change. The dissolution of the British Empire can be considered as a rapid institutional shock, after which the newly independent states decided to publicly disregard the water agreements. These states received a clean slate and the ability to pursue their national interests as well as assert their sovereignty over their territory. The upstream states have been heavily constrained in developing infrastructure and economic growth and therefore have not been satisfied with their position in relation to the downstream states. Thus, newly gained independence combined with economic and developmental disparities, population growth and increasing stress on the Nile waters could have led to conflictive relations among the co-riparians. Instead, the states initiated the Nile Basin Initiative, a cooperative agreement aimed at solving problems collectively. The implications of the Nile Basin Initiative on peacebuilding will be discussed in the next section.

2.3 The Nile Basin Initiative

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.[90] Currently 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 (Nile-COM), who are supported by a Technical Advisory Committee (Nile-TAC) composed of 20 senior

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[89] Wolf et al., "International Waters: Identifying Basins at Risk," 33
[90] Eritrea holds observer status.

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government officials.[91] 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".[92] Additional objectives are:

> To develop the Nile Basin water resources in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples; To ensure efficient water management and the optimal use of the resources; To ensure cooperation and joint action between the riparian countries, seeking win-win gains; To target poverty eradication and promote economic integration; and To ensure that the program results in a move from planning to action.[93]

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.[94] 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, institutional, organizational, financial, requirements that goes with it, takes time".[95] As the history of previous agreements shows, the governance of 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.

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[91] "Cooperation on the Nile," The Nile Basin Initiative, (2013): 4.
[92] NBI, "Nile Basin Initiative," http://nilebasin.org/index.php/about-us/nile-basin-initiative
[93] Ibid.
[94] 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.
[95] Hon. Kebede Gerba, Ethiopia's State Minister of Water and Energy. Quoted in "Cooperation on the Nile," The Nile Basin Initiative, (2013): 8.

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 the former Minister of Water.[96] In order to reach its goals, NBI developed a Shared Vision Program (SVP) and a Subsidiary Action Program (SAP). The main goal of SVP is "creation of an enabling environment for investments and action on the ground, within an agreed basin wide framework".[97] SVP covers seven regional projects:

The Applied Training Project	Focuses on water management and training
The Nile Transboundary Environmental Action Project	Focuses on sustainable development in the Basin
The Regional Power Trade Project	Focuses on the development of power supply infrastructure
The Efficient Water Use for Agricultural Production Project	Focuses on improving the agricultural sector
The Water Resource Planning and Management Project	Focuses on water stress issues, inadequate capacity, regional differences and information management
The Socio-economic Development and Benefit Sharing Project	Focuses on bringing together experts, academics, sociologists, and representatives from civic groups and NGOs from across the region to collaborate on innovative ideas for development
The Confidence Building and Stakeholder Involvement Project	Focuses on a wide range of affairs, including informing the public and the stakeholders regarding the issues around the Nile Basin

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[96]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.
[97] "Shared Vision Program," The Nile Basin Initiative, http://nileis.nilebasin.org/content/shared-vision-program.

Combined, the SVP projects create a common vision among the riparian states. The SAP program is intended to carry out the visions presented by SVP. Thus, it focuses on local, on-the-ground development, acknowledging the idea that the diversity of the basin environment requires unique approaches. Some of the SAP projects include: hydropower generation, addressing land degradation, interconnecting power, road, and railroad infrastructure as well as enhancing economic cooperation.[98]

Cooperation stemming from NIB contributes to "changing the strategic climate" and "post-Westphalian governance" peacebuilding paths in several ways. As 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 lead the member states to share information on the conditions of the 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 SAP leads to tangible outcomes on the local lever, gaining support from the local civil society.

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[98] "The Eastern Nile Subsidiary Action Program," The Nile Basin Initiative, http://nilebasin.org/index.php/the-eastern-nile-subsidiary-action-program.

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. 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.[99]

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

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.[100] 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.[101] 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.[102] 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

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[100] 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
[101] World Bank, "Restoring a Disappearing Giant: Lake Chad," http://www.worldbank.org/en/news/feature/2014/03/27/restoring-a-disappearing-giant-lake-chad
[102] Ibid.

supply of food comes from fishing, agriculture, and pastoralism.[103] Nearly 150,000 fishermen from as far as Ghana live on Lake Chad's shores.[104] 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).[105] With the drying of the lake came high mortality among fish as well as disappearance of certain species.[106] 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.[107] 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.[108]

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 reliance on lake waters and ineffective irrigation projects and dams

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[103] 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/
[104] Ibid.
[105] Eric O. Odada, Lekan Oyebande and Johnson A. Oguntola, "Lake Chad: Experience and Lessons Learned Brief," World Bank (2006): 75-91.
[106] World Wildlife Fund, "Case Study on River Management: Lake Chad"
[107] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 78
[108] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 77.

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.[109]

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.[110] 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 Environmental, Political, and Social Conflict Nexus

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.[111]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 of vegetation, the herders tend to impose on famer's territories resulting in violent

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

altercations.[112] 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.[113]

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.[114] 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.[115] 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.[116] 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.[117] 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.[118] With staggering poverty and joblessness in the Lake Chad basin, young people have no prospects for employment in the predominantly poor region. Thus,

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[112] Ibid. 83.

[113] 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.

[114] "Nigeria: Local and Bilateral Issues," Country Data, http://www.country-data.com/cgi-bin/query/r-9454.html

[115] Ibid.

[116] Peter Wallensteen and Margareta Sollenberg, "Armed Conflict 1989-98," *Journal of Peace Research* 36, no. 5 (1999): 602.

[117] 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.

[118] Farouk Chothia, "Who are Nigeria's Boko Haram Islamists?" *BBC News Africa*, May 20, 2014. http://www.bbc.com/news/world-africa-13809501.

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.[119] 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.[120] 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.[121] 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.[122] 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.[123] 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

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[119] "Global International Water Assessment: Lake Chad Basin," *GIWA Regional Assessment* 43 (2004): 34.
[120] Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 78.
[121] 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.
[122] "Global International Water Assessment: Lake Chad Basin," 34.
[123] 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.[124]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".[125]

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.[126] 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".[127] Thus, it does not regulate fisheries and water allocation, only suggests that

[124] "Global International Water Assessment: Lake Chad Basin," 38.
[125] Ibid.
[126]Odada et al., "Lake Chad: Experience and Lessons Learned Brief," 84.
[127] "Global International Water Assessment: Lake Chad Basin," 38.

states regulate their own 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.[128] 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

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

economic condition of the member states as main challenges of the lake".[129] 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".[130] 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".[131] 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.

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[129] 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.
[130] "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.
[131] 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, but became the most promising when all member inclusive Nile Basin Initiative took hold. In the case of Lake Chad, conflicts exacerbated by environmental degradation and lake desertification preceded successful cooperative agreements given the weak institutional framework of the Lake Chad Basin Commission. Moreover, conflictive relations were a hindrance to establishing trust within the LCBC, making any cooperation difficult.

Environmental cooperation in the Nile Basin did reduce the likelihood of environmentally induced violence, and given NBI's focus on civil society engagement it is possible to assume that the peace n the Nile basin may progress from the absence of violence, to inconceivability of violence. 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. With the help of regional institutions, environmental cooperation has led to stability in various regions around the world: the Baltic Sea, Central Asia, and the Nile Basin. Thus, it deserves future study, especially in regions such as the Lake Chad Basin, where potential for peaceful cooperation is developing.

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