COOPERATION IN THE NAME OF WATER: SEEKING WATER SECURITY IN THE NILE BASIN'S COOPERATIVE FRAMEWORK AGREEMENT

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Abstract

As global climate change intensifies and population growth increases, the Nile River Basin is confronted with a variety of outcomes for water security in the future. To ensure that transboundary water relations maintain peace and political stability within the region, Nile Basin states established the Cooperative Framework Agreement (CFA) to manage and address present and future political tensions that flow from water insecurity. However, does the CFA truly facilitate international cooperation in the face of global water insecurity within the region? Understanding how the concept of water security relates to the CFA is essential when determining whether Nile Basin states are capable of international cooperation on transboundary water resources. This paper attempts to address the concept of water security within the Nile River Basin's CFA by operationalising Bjørn-Oliver Magsig's Legal Analytical Framework for Water Security. By focusing on the absence or inclusion of water availability, access, adaptability, and ambit within the CFA, this paper claims that the transboundary legal agreement has failed to implement the concept of water security in a way that enables the Nile River Basin states to effectively cooperate on current and future water security issues in the region.

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Introduction

Global climate change guarantees a variety of outcomes for human and environmental security in the future. The problem of water security, along with food and energy security, will be exacerbated by the rise in global temperatures, causing serious water impacts such as precipitation variability.[1] As water scarcity continues to be a real threat to transnational political stability and peace, the need to establish effective international cooperative legal frameworks has never been more necessary, as these structures have the potential to become effective mechanisms to both manage and address political tensions that flow from water scarcity**.** For my thesis, I will focus on the issue of water security by conducting an analysis of the most recent transboundary water agreement made between Nile Basin states, the Cooperative Framework Agreement (herein known as CFA). Understanding how the concept of water security relates to the CFA is essential when determining whether Nile Basin states are capable of facilitating international cooperation with their transboundary water resources. This is an important topic to address within the field of International Relations because, as global climate change continues to intensify, the Nile River Basin is a potential hotspot for major international conflict within the region due to water scarcity.[2] Conflict in the region would not only negatively affect Nile Basin states' water security, but also potentially cause political instability within neighbouring African countries, and beyond.[3]

Nile water agreements are international water agreements negotiated between Nile

1 UN-Water. *Water Security & the Global Water Agenda: A UN-Water Analytical Brief*. Edited by Tim Lougheed. (Hamilton: UNU-INWEH, 2013).

2 Kinfe Abraham. *Nile Dilemmas: Hydropolitics and Potentials Conflict Flashpoints*. Addis Ababa: Ethiopian International Institute for Peace and Development & the Horn of Africa Democracy and Development International Lobby, 2004.

3 Ashok Swain. "Challenges for water sharing in the Nile basin: changing geo-politics and changing climate." *Hydrological Sciences Journal* vol. 54, no. 4 (2011): 687-702; Ashok Swain. "Water Wars: Fact or Fiction?" *Futures* 33, no. 8 (October 1, 2001): 769–81. doi:10.1016/S0016-3287(01)00018-0; Peter Rogers. "The Value of Cooperation in Resolving International River Basin Disputes." *Natural Resources Forum* 17, no. 2 (May 1, 1993): 117–31. doi:10.1111/j.1477-8947.1993.tb00167.x.

Basin countries in an effort to find cooperative water management solutions of the Nile Basin water resources.[4] These agreements are also attempts to end the hydro-hegemony maintained by downstream states, the Arab Republic of Egypt and the Republic of the Sudan (herein known as Egypt and the Sudan). However, do these transboundary water agreements between Nile Basin states truly facilitate international cooperation in the face of global water insecurity within the region? To date, there certainly have been strides towards achieving cooperation between Nile Basin states, mostly through the recent establishment of the Nile Basin Initiative. Some authors[5] even view the Nile Basin Initiative's CFA as a potential opportunity to build peaceful and sustainable inter-state relations within the region. However, the CFA—while having the signatures of the Republic of Rwanda (herein known as Rwanda), the Federal Democratic Republic of Ethiopia (herein known as Ethiopia), the Republic of Burundi (herein known as Burundi), the Republic of Kenya (herein known as Kenya), the Republic of Uganda (herein known as Uganda) and the United Republic of Tanzania (herein known as Tanzania), with the State of Eritrea (herein known as Eritrea) as an observer—continues to lack three signatures: those of the Sudan, Egypt, and the Democratic Republic of Congo. The absence of those three signatures has meant that this treaty has not come into force. In addition to Ethiopia's total exclusion from the 1929 and 1959 Nile Waters Agreements,[6] the Sudan and Egypt continue to be in dispute over unequal water allocations stipulated within the Agreements.[7] As the CFA has been the most ambitious initiative

4 Vakur Sümer. "Agreement over Nile? Khartoum Declaration and Ten Principles That Egypt, Sudan and Ethiopia Have Agreed Upon," *Center for Middle Eastern Strategic Studies*, 26 January 2016. Accessed February 28, 2017. http://www.orsam.org.tr/index.php/Content/Analiz/4556?s=su%7Cenglish.

5 Ashok Swain. "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth." *SAIS Review* 22, no. 2 (July 1, 2002): 293–308. doi:10.1353/sais.2002.0044; Abadir M. Ibrahim, "The Nile Basin Cooperative Framework Agreement the Beginning of the End of Egyptian Hydro-Political Hegemony." *Missouri Environmental Law and Policy Review* 18, (2011): 282; Salman M.A. Salman. "The Nile Basin Cooperative Framework Agreement: A Peacefully Unfolding African Spring?" *Water International* 38.1 (2013): 17-29; Dr. Mesfin A. Abebe. "The Nile—Source of Regional Cooperation or Conflict?" *Water International* 20, no. 1 (January 1, 1995): 32–35. doi:10.1080/02508069508686445.

6 See Chapter 2 for more information regarding Ethiopia's exclusion from the Nile Waters Agreements.

7 For more on the inequitable access of the Nile waters, see Chapter 3.

proposed by all Nile Basin countries to find a solution to the inequitable access to the Basin's water thus far, this standstill indicates that the region continues to lack an intergovernmental framework with the capacity to enhance cooperation and facilitate management of the Nile Basin waters by states.

The literature within the field of water security is wide ranging, and highlights a clear dichotomy in scholars' approaches to this concept. On the one hand, there is scholarship that concentrates on water security within a military paradigm, focusing on power-games, inter-state conflicts, and state-centrism.[8] On the other hand, there are the scholars who mostly focus on security through the lens of international law, mostly within the context of nationalism and state sovereignty. Bjørn-Oliver Magsig argues that, "this stove-piped take on [water security] is unsatisfactory - especially given the growing global instability."[9] According to Magsig, it is important that we address global water scarcity by examining the concept of water security through a legal lens. In doing so, he believes we must first examine issues related to: 1) availability; 2) access; 3) adaptability; and 4) ambit.[10] These four terms are used to understand the concept of water security within the international law prism. He believes that it is not enough to simply use international law to evaluate water security, but rather that legal regimes should be analysed through a comprehensive framework to contribute to the definition and normative parameters with regards to water security.

8 Bjørn-Oliver Magsig. "Introducing an Analytical Framework for Water Security: A Platform for the Refinement of International Water Law," *Journal of Water Law* 20 (2009), 61-69.

9 Ibid., 61.

10 Bjørn-Oliver Magsig. "International Water Law and the Quest for Common Security." Degree of Doctor of Philosophy PhD dissertation, *Research Database*: University of Dundee, October 2013. Accessed 25 May 17. http://discovery.dundee.ac.uk/portal/en/theses/international-water-law-and-the-quest-for-common-security(c08da455-ef7b-4879-95f7-9674df88c3ca).html; In a Linkedin message to the author on May 11, 2017, Bjørn-Oliver Magsig revealed that his novel, *International Water Law and the Quest for Common Security,* is heavily based on his PhD dissertation of the same title. Therefore, due to financial constraints, this thesis will only, hereinafter, be citing Magsig's PhD thesis, as cited above. For further information on Magsig's book publication, see: Bjørn-Oliver Magsig. *International Water Law and the Quest for Common Security*. London: Routledge, 2015.

In regards to the Nile River Basin agreements, there has been little research examining whether these treaties reflect an adequate regional response that might achieve cooperation, when taking into consideration implications of the variability of water impacts foreseen by the Intergovernmental Panel on Climate Change's (herein known as IPCC) variability scenarios.[11] Additionally, the most recent water agreements have not yet been interpreted using an alternative water security framework as a tool of analysis on the capacity of international water agreements to achieve transnational water cooperation. Therefore, I would like to contribute to the field of water security by applying Magsig's alternative theoretical approach as a method of content analysis of the most recent transboundary water agreement made between Nile Basin states. Similar to Magsig, I believe we must conceptualise 'water security' by creating a methodology through which to address the concept within current international agreements. However, this approach will be operationalised by downscaling his analytical approach to the realm of the Nile's transboundary water agreements. By focusing on the absence or inclusion of availability, access, adaptability, and ambit within the context of the CFA, I aim to better understand how the concept of water security has been integrated into the region's efforts to create a transboundary cooperative regime that is designed to manage current and future water insecurity within the Nile Basin.

Research Aims

This thesis aims to conduct an analysis of the concept of water security within the Nile Basin's CFA. Specifically, my research question is: how does the current CFA between Nile Basin states conceptualise water security? I hypothesise that the CFA does not conceptualise water security within the parameters of Magsig's Analytical Framework, thereby reflecting

[11] Tazebe Beyene, Dennis P. Lettenmaier, and Pavel Kabat. "Hydrologic Impacts of Climate Change on the Nile River Basin: Implications of the 2007 IPCC Scenarios." *Climatic Change* 100, no. 3–4 (June 1, 2010): 433–61. doi:10.1007/s10584-009-9693-0.

insufficient transboundary cooperation in the face of present water insecurity, and foreshadowing an inadequate response to future crises. It is the first attempt in academia to analyse the CFA within the context of an alternative theoretical approach to water security. My research aims to conduct a content analysis of the Cooperative Framework Agreement by focusing on Bjørn-Oliver Magsig's Legal Analytical Framework for Water Security. The research aims to shed light on how the current transboundary international treaty negotiated and signed by Basin countries of the Nile provides a conceptualisation of water security as a response to the predicted water effects of global climate change within the region, such as water scarcity, severe flooding, and drought.

Research Objectives

This thesis has 3 research objectives to achieve its aims.

Objective 1: Reviewing Available Knowledge on Water Security, Conflict and Cooperation, and International Water Law

My first objective is to provide a review of the available information and analyses of the context and conceptual frameworks relevant to the aim of this thesis. The findings will be organised into three sections: 1) the definitions related to water security 2) the discourse surrounding water conflict and cooperation and 3) water security in relation to international water law.

This literature review will provide a context to better comprehend this thesis's content analysis of the Nile Basin Initiative's CFA.

Objective 2: Historical Analysis of the Transboundary Nile Basin Agreements

An analysis of the transboundary Nile Basin agreements initiated by various Nile Basin countries creates a case study that fits within the theoretical and historical frameworks presented in Objective 1 and 3. The historical analysis of the transboundary agreements

begins with the Anglo-Egyptian Treaty of 1929, and ends with the Nile 2002 Conference Series. Based on these agreements, my second objective is to analyse the historical narratives, to provide a backdrop to better contextualise a more in-depth analysis of the CFA, further described in Objective 3.

Objective 3: Qualitative Content Analysis of the Nile Basin Initiative's Cooperative Framework Agreement, using Magsig's Water Security Framework

According to Margaret G. Hermann, it is essential to determine what to focus on while reviewing your units of analysis.[12] Therefore, my third objective is to analyse the most recent agreement—the CFA—through Bjørn-Oliver Magsig's Legal Analytical Framework for Water Security. This framework provides a legal analytical lens through which one can evaluate the significance of water security within a particular legal source. The interpretation of the CFA within this framework has yet to be attempted. Based on my analysis, the aim is to interpret whether the concept of water security has been sufficiently considered within the aforementioned agreement. I will document the absence or presence of articles and principles relating to the '4As': 1) availability; 2) access; 3) adaptability; and 4) ambit, as outlined within Magsig's Framework.[13]

Scope and Limitations

Geographically, the scope of this thesis is the Nile River Basin.[14] The Nile Basin region is comprised of Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, the Sudan, South Sudan, Tanzania, and Uganda.[15] The temporal scope is

12 Margaret G. Hermann. "Content Analysis." *Qualitative Methods in International Relations*, edited by Audie Klotz and Deepa Prakash, 157. Research Methods Series. Palgrave Macmillan UK, 2008. doi:10.1057/9780230584129_10.

13 Bjørn-Oliver Magsig. "Introducing an Analytical Framework for Water Security: A Platform for the Refinement of International Water Law," 65; For more information regarding the '4As,' see Chapter 3.

14 See Chapter 2 for further information regarding the geographical components of the Nile Basin.

15 Sequence listed alphabetically.

from the early 20th century, through the present. This focused scope is also a limitation, as it does not cover the Nile Basin before 1929. It would be misleading to focus on more than a century's worth of water agreements within the region, therefore more general historical information from earlier times can be found within Chapter 2. It must also be noted that, due to the analysis mostly focusing on the concept of water security within the CFA, only glancing references will be made to the postcolonial power dynamics[16] that are embedded within the agreements' framework. Another limitation to be considered is language. Within Objective 1, it is only possible for me to examine a narrow scope of literature related to water security, conflict and cooperation, which is written in English and French. Because of my limited language proficiency, research published in other languages, in particular in Arabic, cannot be referenced. Lastly, one important limitation to note is that, although the concept of climate change will be discussed, the research will not engage in the debate on the actuality of climate change. Furthermore, the research will not be addressing the science of how climate change will affect freshwater waterways in general, or the Nile River Basin in particular. The research will also be limited in that it will not be analysing transboundary relations outside of the relations between Nile Basin states, meaning that an analysis of local Nile Basin governance and interactions will not be included in the scope of this thesis.

This paper is organised into three chapters. Chapter 1 consists of a literature review on research related to water security, cooperation, and conflict. In the second chapter, the central focus will be outlining the historical background of Nile Basin agreements. Specifically, it will provide the narrative behind the Nile Waters Agreements (the 1929 Anglo-Egyptian Treaty and the 1959 Egypt-Sudan Treaty) and the recent Nile Basin Initiative. Chapter 3 will provide the reader with an in-depth summary of Magsig's '4As' Analytical Approach,

16 Greeta Chowdhry, and Sheila Nair. *Introduction: Power in a Postcolonial World: Race, Gender, and Class in International Relations. (*Oxfordshire: Routledge, 2004), 10.

followed by an analysis of the recent CFA within the confines of his framework. Lastly, the findings will be summarised in the concluding section.

Chapter 1: A Review of Water Security

This chapter will provide a review of the literature and theoretical frameworks related to water security, conflict, cooperation, and international water law. To better contextualise Chapter 3's operationalisation of the concept of water security within the Cooperative Framework Agreement, the chapter will first begin by examining existing definitions of the concept. This will then be followed by a review of the current theoretical discourse related to water conflict and cooperation, as well as how the concept of water security is linked to international water law.

1.1 Finding a Definition for Water Security

Environmental security has a fairly recent history compared to other security regimes, such as the societal and military security sectors.[17] As a result, it is still uncertain as to what forms of political structures will emerge from global environmental concerns hovering on the horizon. Beginning with the United Nations Conference on the Human Environment in 1972, scientists and environmental activists began to discuss the securitisation of the environment. Water security, on the other hand, is a concept which remains hazy within the field of environmental security. While there have been numerous attempts to define the concept, water security remains a buzzword that while frequently used, is seldom understood. Eric Gutierrez claims that the concept must be viewed beyond the scope of abundance, stating that:

> "A comprehensive definition goes beyond *availability* to issues of *access*. Access involves issues that range from a discussion of fundamental individual rights to national sovereignty rights over water. It also involves equity and affordability, and the role of states and markets in water's allocation, pricing, distribution and regulation. Water security also implies social and political decision-making on *use* –

[17] Barry Buzan, Ole Wæver, and Jaap De Wilde. "The Environmental Sector: The Governmental Security Agenda," *Security: A New Framework For Analysis* (London: Lynn Rienner Publishers, 1998), 71.

the priority to be accorded to competing household, agricultural or industrial demands on the resource."[18]

In their article, *Sink or Swim? Water Security for Growth and Development*, David Grey and Claudia Sadoff define the concept of water security as "the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies."[19]

Similar to Grey and Sadoff's, UN-Water's[20] definition not only includes the quantity of water within a given population, but also its quality. UN-Water states that "water security is defined here as the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."[21] Furthermore, UN-Water also adds the importance of socio-economic development within its definition. Placing socio-economics into the water security equation is important when addressing issues of water-risks and its consequences, as economic development plays an important role in influencing the ways in which the international community responds to issues that flow from the problem of adequate access to sustainable, quality water resources for the world's population.

For the purpose of this thesis, however, the concept of water security used throughout will be the definition developed by Bjørn-Oliver Magsig, stating that "a community is water

[18] Eric Gutierrez. "Boiling Point: Issues and Problems in Water Security and Sanitation," *Water Aid Briefing Paper (*Global Water Partnership, London, 1999), 2; Patricia Wouters. "Water Security: What Role for International Water Law?" Doddle F. (ed), *Human and Environmental Security: An Agenda for Change* (Earthscan, 2005).

[19] David Grey, and Claudia W. Sadoff. "Sink or Swim? Water Security for Growth and Development." *Water Policy* 9, no. 6 (09, 2007), 569. doi:10.2166/wp.2007.021.

[20] UN-Water is the United Nations inter-agency coordination mechanism for all freshwater related issues.

[21] UN-Water. *Water Security and the Global Water Agenda: A UN-Water Analytical Brief* (United Nations University 2013), 1.

secure when it has sustainable access to freshwater of sufficient quantity and quality, or to the benefits derived therefrom; and the ability to minimise water-related risk and its various repercussions to an acceptable level – without compromising the supporting ecosystems."[22]

Firstly, this definition will be used as it is the definition as operationalised within Magsig's analytical framework. Secondly, the definition includes the term "community,"[23] which enables the concept of water security to be used at any level of community, such as local, regional, or international.[24] Thirdly, Magsig's definition of water security encompasses "sustainable access to freshwater of sufficient quality and quantity" and "the ability to minimise water-related risk and its various repercussions to an acceptable level," allowing for communities to choose how to incorporate the concept in accordance to its specific needs and preferences.[25] While, it could be argued that Magsig's conceptualisation of water security blurs the boundaries of traditional security studies, Magsig's aim is to open up the conversation about the concept of water security in a way that embraces the conceptual complexity of the term, rather than merely constricting it.[26]

1.2 The Discourse on Water Conflict and Cooperation

As the international community faces the potentially grave consequences of climate change, an academic discourse related to water scarcity and state reactions to access to water resources has emerged. While the history of water conflicts and cooperation during the past five decades demonstrates that international interactions concerning water issues greatly favour cooperation over conflict,[27] concerns for the possibility of water conflict continues to

22 Magsig, *International Water Law and the Quest for Common Security,* 33.
23 Ibid.
24 Ibid.
25 Ibid.
26 Ibid., 34.
27 Magsig; A. T. Wolf., S. B. Yoffe, and M. Giordano. *International Waters: Indicators for Identifying Basins at Risk*. Paris: Unesco, 2003.

receive attention. For example, 'Neo-Malthusians' assert that the overexploitation of certain resources, caused by factors such as rapid economic and population growth, will lead to an outbreak of violent conflict; they believe that looking towards the past cannot construct the basis for predicting water conflicts.[28] Other scholars, known as 'Cornucopian' theorists, perceive the concept of water security as not an issue of scarcity, but rather resource mismanagement, and that solutions to the issues that beset water resources can be achieved by attaching monetary value onto water.[29] As a result, scholars such as Dinar, Rosegrant, and Meinzen-Dick[30] gravitate towards a purely economic perspective to achieving water cooperation, whereby the most effective form of water cooperation comes from dealing with it as an economic good to be priced and controlled by the marketplace.[31] Yet, the management of water security solely through an economic-centred approach disregards the underlying social, political, and scientific (environmental) factors at play, and most literature that addresses water security reveals a more divisive discourse within its fabric. Predominantly, scholars either focus on water security through a state-centric and military approach, or, at the other end of the spectrum, there are those who perceive water security in regards to international water law and state sovereignty.

Among those who perceive water security through a state-centric approach include the works of Zeitoun and Warner, who calculate the amount of state access to transboundary

[28] Magsig, 22; Thomas F. Homer-Dixon. "Environmental Scarcities and Violent Conflict: Evidence from Cases." *International Security* 19, no. 1 (1994), 19. doi:10.2307/2539147.

[29] Marwa Daoudy. "Hydro-hegemony and International Water Law: Laying Claims to Water Rights." *Water Policy* 10, no. S2 (07 2008), 90. doi:10.2166/wp.2008.204; Tony Allan. *The Water Question in the Middle East: Hydropolitics and the Global Economy*. London: Tauris, 2001.

[30] Ariel Dinar, Mark W. Rosegrant, and Ruth Meinzen-Dick. "Water Allocation Mechanisms: Principles and Examples." Working Paper 1779, *The World Bank*, Washington, DC, 1997.

[31] Daoudy; Franklin M. Fisher, Shaul Arlosoroff, Zvi Eckstein, Munther Haddadin, Salem G. Hamati, Annette Huber-Lee, Ammar Jarrar, Anan Jayyousi, Uri Shamir, and Hans Wesseling. "Optimal Water Management and Conflict Resolution: The Middle East Water Project." *Water Resources Research* 38, no. 11 (2002). doi:10.1029/2001wr000943; David Grey, and Claudia W. Sadoff. "Sink or Swim? Water Security for Growth and Development." *Water Policy* 9, no. 6 (2007).

water resources based on the wider interactions of political power structures.[32] While it must be noted that not all transboundary rivers have a hegemon,[33] transboundary interstate relations often deal with a hegemonic power that frequently influences states' efforts in conflict resolution, as seen in cases such as the Mekong, Iberian,[34] and Ganges River Basins.[35] Termed 'hydro-hegemony', Zeitoun and Warner describe this effect within transboundary water conflicts as being, "hegemony at the river basin level, achieved through water resource control strategies such as resource capture, integration and containment. The strategies are executed through an array of tactics (e.g. coercion-pressure, treaties, knowledge construction, etc.) that are enabled by the exploitation of existing power asymmetries within a weak international institutional context."[36] Water security within a region and the region's potential transboundary water conflict intensity, must therefore be analysed through understanding its power asymmetry. According to Zeitoun and Warner's theory of hydro-hegemony, the results of state-centric water resource competition relies on how the hegemon within the affected region enforces its power.[37] They believe that it is only through the hydro-hegemony frame that scholars might properly analyse how Basin states position and interact with one another in relation to conflict, water, security, and asymmetrical power.[38] This is linked to neo-functionalist perspectives on cooperation, where low level political cooperation can influence matters of state security and sovereignty.[39] Although this influence may indicate the potential

32 Mark Zeitoun, and Jeroen Warner. "Hydro-hegemony – a Framework for Analysis of Trans-Boundary Water Conflicts." *Water Policy* 8, no. 5 (2006).

33 For example, the case of the Dutch and Belgian conflict related to the sharing of the Meuse River exemplifies an instance where there was no hegemony within transboundary river relations.

34 All but one of the Iberian river basins are controlled by a hegemonic power.

35 Jeroen Warner, and Neda Zawahri. "Hegemony and Asymmetry: Multiple-Chessboard Games on Transboundary Rivers." *International Environmental Agreements: Politics, Law and Economics* 12, no. 3 (September 1, 2012): 215–29. doi:10.1007/s10784-012-9177-y.

36 Mark Zeitoun, and Jeroen Warner, 435.

37 Ibid.

38 Ibid., 455.

39 David Mitrany. *The Functional Theory of Politics*. New York: St. Martin's Pr. for the London School of Economics & Political Science, 1976.

for positive results in low level political cooperation, Mariam Lowi's analysis on issues of water insecurity within the case of the Euphrates-Tigris River Basin claims that in circumstances where upstream states hold both military and economic power, there is no incentive for the hydro-hegemon to cooperate with weaker riparians.[40]

Yet, while discourse surrounding transboundary water sharing often focuses on understanding the variables of water conflict, some scholars perceive issues of transboundary water security as being catalysts for state cooperation. Neoliberal theorists argue that waters which travel across state boundaries create a political environment where cooperation and conflict management can flourish.[41] Furthermore, they believe that political regimes facilitate cooperation within circumstances of transboundary water sharing, which, if placed within the context of international relations, complements international regime theorists who argue that transboundary water and resource management is best facilitated by institutions which utilise cooperative regimes in order to manage resources.[42] Therefore, according to neoliberal theorists, one common mechanism used to facilitate transboundary water cooperation is through the use of international legal instruments.[43] Specifically, the discourse on water security is now being lead in the direction of legal analysis related to international water law, a development within literature that will be further discussed in the following section.

40 Miriam R. Lowi. *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*. Cambridge: Cambridge University Press, 1993, 10.

41 Aaron Wolf. *Hydropolitics along the Jordan River; Scarce Water and Its Impact on the Arab-Israeli Conflict*. United Nations University Press, 1995; Shira B. Yoffe. *Basins at Risk: Conflict and Cooperation over International Freshwater Resources*. Ann Arbor, MI: UMI Dissertation Services, 2001; Tony Allan. *The Water Question in the Middle East: Hydropolitics and the Global Economy*. London: Tauris, 2001.

42 Oran R. Young. *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca, NY: Cornell University Press, 1993; Anton Earle, Anders Jägerskog, and Joakim Öjendal. *Transboundary Water Management: Principles and Practice*. London: Earthscan, 2010.

43 Patricia Wouters. "International Law—Facilitating Transboundary Cooperation." *Global Water Partnership, TEC Background Papers* no. 17, (2013).

1.3 Water Security and International Water Law

In order to establish international cooperation that enables countries to work together to collectively tackle arising water security challenges, international law has become a tool in global efforts to facilitate effective water cooperation. On the usefulness of international law to facilitate state cooperation on issues of water security, international water law scholar Bjørn-Oliver Magsig writes:

> "International law is a particularly useful tool in promoting water security, as it: (1) defines and identifies the legal rights and obligations regarding the use of water and provides the prescriptive parameters for the management of the resource; (2) provides tools for ensuring the continuous integrity of the regime (including dispute prevention and settlement); and (3) allows for modifications of the existing regime, in order to be able to accommodate change."[44]

Of course, it is no easy feat for governments, from local to international levels, to agree upon effective legal frameworks. In order to achieve cooperation while approaching the increasingly uncertain global horizon of our natural environment, it is essential that we construct institutions and legal frameworks that can ease our globe into one which aims to cooperate in order to address environmental issues such as water security. Notably, the most recent landmark made in international environmental legal frameworks has been the ratification of the 2015 Paris Agreement, which exemplifies the way in which international regimes has initiated the fair allocation of accountability on all governments and territories in regards to global climate change. Daniel Bodanksy writes that, "The Paris Agreement seeks a Goldilocks solution that is neither too strong (and hence unacceptable to key states) nor too weak (and hence ineffective). To safeguard national decision-making, it adopts a bottom-up approach, in which the agreement 'reflects rather than drives national policy.' But to promote stronger action, states' 'nationally-determined contributions' (or NDCs, for short) are complemented by international norms to ensure transparency and accountability and to prod

[44] Magsig, 35.

states to progressively ratchet up their efforts."[45] Bodansky concluding that the 2015 Paris Agreement is, to a certain extent, a tool "to prod states to progressively ratchet up their efforts"[46] implies that the agreement is doing all that it can to fairly push states to collaborate in order to slow down climate change within the agreement's limits.

Yet, while the 2015 Paris Agreement indicates that the international community is moving towards a cooperative form of engagement with issues pertaining to global climate change, international water law has yet to produce an agreement that is as significant in its attempt to harmonise governments to cooperate on, and adapt to, the use of water resources. Only 36 states have ratified the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, the most groundbreaking step towards international cooperation of global water resources to date. Adopted on May 21, 1997—and only recently entered into force in 2014—the UN Watercourses Convention "established the principles of equitable and reasonable utilization and no harm done to other co-riparians. Harm would be valued in quantitative *and* qualitative terms […] Harm avoidance did not however imply the obligation for the river to be kept free from transformation."[47] Based on international water law's principle of proportionality and equitable utilization,[48] Article 7 of the 1997 UN Convention implies that "states would be under the obligation to take all appropriate measures not to cause significant harm to other riparian States."[49] Therefore, the 1997 UN Watercourses Convention, along with the primary rule of customary international water law (of 'equitable and reasonable use'),[50] has built a mechanism that encourages

45 Daniel Bodansky. "The Paris Climate Change Agreement: A New Hope?" *The American Journal of International Law* 110, no. 2 (2016), 289. doi:10.5305/amerjintelaw.110.2.02

46 Ibid.

47 Daoudy, 93.

48 Muhammad Mizanur Rahaman. "Principles of International Water Law: Creating Effective Transboundary Water Resources Management." *International Journal of Sustainable Society* 1, no. 3 (2009), 2010, 207.

49 Daoudy, 93.

50 Article 33 of the UN Watercourses Convention. *Settlement of Disputes: Amendments to the Proposal for Article 33 Contained in Document A/C.6/51/NUW/DC/CRP. 10*. New York: UN, 1997.

international water security cooperation.[51] Moreover, Article 33 of the 1997 UN Convention lays down the foundation for states to cooperate peacefully when faced with a dispute concerning the Convention,[52] which encourages states engaged in water conflict to have a legal framework through which they are able to avoid escalation and solve problems cooperatively.

While the 1997 UN Watercourses Convention is a step in the right direction, the international community still lacks a legal framework that directly tackles international water security. Bjørn-Oliver Magsig's *International Water Law and the Quest for Common Security* argues that although international water law "provides a framework for the interaction of states regarding their rights to, and responsibilities for, transboundary freshwater resources,"[53] its principle of equitable and reasonable utilization does not facilitate the type of transboundary freshwater management needed in order to face international water insecurity cooperatively.[54] He argues that the legal regime continues to use a state-centric approach in addressing issues of water security, basing itself on sovereignty and state-centrism as opposed to hydrosolidarity in order to stabilise global peace, and confront the varying, and largely understudied, complexities of transboundary water security.[55] Magsig proposes that, instead, international water law should infuse a 'hydrosolidarity' approach within its framework.

First coined as 'water solidarity' by hydrologist Malin Falkenmark in 1998, the term was initially used in opposition to the concept of 'hydroegoism,'[56] which, according to Gerlak *et al.*, is "the view that satisfying geopolitical self-interests (national, regional, sectoral, political, or other) should be the chief principle guiding water management in general and

51 Wouters, "Water Security: What Role for International Water Law?" 178.

52 Article 33 of the UN Watercourses Convention. *Settlement of Disputes: Amendments to the Proposal for Article 33 Contained in Document A/C.6/51/NUW/DC/CRP. 10*. New York: UN, 1997.

53 Magsig, 7.

54 Ibid.

55 Magsig, 71.

56 Malin Falkenmark. "Forward to the Future: A Conceptual Framework for Water Dependence – Volvo Environmental Prize Lecture" *Ambio* 28, 4 (1998), 360.

allocation in particular."[57] In contrast to hydroegoism, Victor Dukhovny states that hydrosolidarity is a recent conceptual framework that is comprised of five components: "(1) motivating stakeholders and decision-makers to use broad information, (2) designing organizational structures for finding compromise solutions, (3) making public participation socially acceptable, (4) addressing social implications of resource use, and (5) redressing the use of resources that damages the interest of other uses."[58] Dukhovny continues to address an additional four conditions, which include: (1) focusing on state governance within the principle of hydrosolidarity, (2) public involvement in advocating for awareness of the concept, (3) the inclusion of laws and provisions, and (4) forecasting.[59] Lastly, one important element of hydrosolidarity which allows it to be an even greater mechanism to encourage transboundary within international water law is that it is flexible, and can be adapted to different levels of governance, from local to global.[60]

Magsig asserts that in order to embed hydrosolidarity within international water law, we must first conceptualise water security.[61] Establishing a concept of water security that can be operationalised within legal regimes enables the international community to steer the concept away from being regarded through a state-centric approach, and instead redirect our understanding of water security which facilitates the management of our global water resources in a way that creates hydrosolidarity among nations. In Chapter 3, I will attempt to operationalise Magsig's concept of water security within the Nile Basin's CFA. However, before doing so, we must first explore the historical background of Nile Basin water governance in order to provide further context to the analysis of the CFA in Chapter 3.

57 Andrea Gerlak, Robert Varady, and Arin Haverland. "Hydrosolidarity and International Water Governance." *International Negotiation* 14, no. 2 (2009), 312.

58 VA Dukhovny, "Big Challenges and Limited Opportunities: What Are the Constraints on Cooperation?" *Conflict to Cooperation in International Water Resources Management: Challenges and Opportunities*, 2002, 121.

59 Ibid.

60 Gerlack *et al.,* 314.

61 Magsig.

Chapter 2: Climate Change and Nile Basin Water Governance

This chapter will provide an historical backdrop of Nile Basin governance during the 20th century, to place in context the analysis of the Cooperative Framework Agreement (CFA) in Chapter 3. The chapter will begin with background information regarding the Nile Basin region's geography, and an analysis of climate change's impact on water security within the region, based on the Intergovernmental Panel on Climate Change 2014 African Assessment Report. The second half of Chapter 2 will outline the history of Nile Basin governance in the 20th century, with a strong focus on the 1929 and 1959 Nile Waters Agreements.

2.1 Nile Basin Geography and Future Water Security Risks

The Nile River Basin could not be a more fitting example of a watercourse where water stretches across political, cultural, and geographical boundaries in abundance. Its two main tributaries—the White and the Blue Nile—cover approximately 6,800 kilometers, making it the longest river in the world.[62] The Blue Nile waters originate in the vast Ethiopian Highlands, whereas the water source of the White Nile begins on the Equatorial Lake Plateau,[63] accounting for 10.3% of the total area of the African continent[64] and including up to eleven countries.[65] One may assume that the Nile's vastness equates an endless abundance of water for all countries that touches its waters, yet unfortunately this is not so. The large population dependent on its waters largely overburdens the amount of water available, and climate change scientists predict this gap will only grow with time.

62 The Nile Basin Initiative. "Summary: The State of the River Nile Basin 2012." *State of the River Nile Basin 2012, Chapter 9*, (2012): 225-238; United Nations Educational Scientific and Cultural Organization (UNESCO). *Managing Water under Uncertainty and Risk: UN World Water Development Report* 4 S.l., 2012, 397.

63 The Equatorial Plateau includes Burundi, Rwanda, Zaire, Uganda, Kenya, and Tanzania.

64 Karen Frenken and Jean-Marc Faurès. *Irrigation Potential in Africa: A Basin Approach*. Rome: Food and Agriculture Organization of the United Nations, 1997, 56.

65 The Nile Basin drainages includes Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, the Sudan, and Tanzania.

In addition to the pressures caused by population growth, Nile waters are deteriorating in quality due to an intensive use of agricultural practises (from irrigation, most significantly), soil erosion, and industrial development.[66] In highly populated urban areas, the Nile waters are heavily polluted, in the Equatorial Lakes region there is a high possibility of eutrophication,[67] and in the Ethiopian Highlands, an extreme variability in rainfall patterns has caused major land degradation.[68] When taking into consideration the current environmental challenges faced in the region, especially with regards to water security, Nile Basin countries must prioritise environmental concerns within their political agendas.

According to security scholars Barry Buzan, *et al.*, "the scientific [security] agenda is about the authoritative assessment of threat for securitizing or desecuritizing moves, whereas the political agenda deals with the formation of concern in the public sphere about these moves and the allocation of collective means by which to deal with the issues raised."[69] Therefore, for the Nile Basin countries to achieve water security cooperation, scientific evidence must be weighed by governments to assess the need for securitising measures. At the core of the scientific agenda's predictions of water insecurity within the Nile Basin are the scientific assessment reports compiled by the United Nation's Intergovernmental Panel on Climate Change (IPCC). Established in 1988, the IPCC is the primary international organisation that evaluates the science related to climate change. IPCC assessments are made in order to supply governments with scientific evidence as a basis to develop policies related to climate change issues, and are conducted by internationally respected scientists who

66 The Nile Basin Initiative. "Summary: The State of the River Nile Basin 2012."

67 Eutrophication is described as the excessive growth of algae and plant life within a body of water, potentially causing the body of water to become oxygen deficient.

68 The Nile Basin Initiative. "Summary: The State of the River Nile Basin 2012."

69 Barry Buzan, Ole Wæver, and Jaap De Wilde. "The Environmental Sector: The Governmental Security Agenda," *Security: A New Framework for Analysis* (London: Lynn Rienner Publishers, 1998), 72.

voluntarily provide their knowledge as lead authors of the assessment reports.[70] The aim of their reports is not to instruct policy-makers and governments on how to respond to climate change, but rather to "present projections of future climate change based on different scenarios and the risks that climate change poses and discuss the implications of response options."[71] So far, they have published five reports, with the first published in 1990 and the most recent in 2014.[72]

The IPCC assessment reports include regional assessments of climate change variability within each continent. The African assessment report includes observed climate trends and future projections, the continent's vulnerability and impacts, key risks, and potential methods of adaptation. The 2014 report observed trends and projections related to both temperature and precipitation, and provides data related to climate change's impact on the region's water resources and freshwater ecosystems.[73] Firstly, the report indicates that the participating scientists are highly confident that climate change has driven an increase in temperatures across all regions of Africa during the last 100 years. Moreover, climate scientists also predict with a medium level of confidence that the mean annual temperature in Africa is expected to increase beyond the 2° mark by the end of the 21st century. To make matters worse, the amount of precipitation in Northern Africa—where stretches of the Nile

70 Intergovernmental Panel on Climate Change. *Factsheet: What is the IPCC?*, viewed on 27 April 2017, <https://www.ipcc.ch/news_and_events/docs/factsheets/FS_what_ipcc.pdf>

71 Intergovernmental Panel on Climate Change. *Factsheet: What is the IPCC?*

72 J.T. Houghton, G.J. Jenkins and J.J. Ephraums (eds.). "Climate Change: The IPCC Scientific Assessment (1990)." *Report prepared for Intergovernmental Panel on Climate Change by Working Group I*, Cambridge University Press, Cambridge, Great Britain, New York, NY, USA and Melbourne, Australia, 1990; C.B., Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.). "Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects." *Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2014.

73 Isabelle Niang, O.C. Ruppel, M.A. Abdrabo, A. Essel, C. Lennard, J. Padgham, and P. Urquhart. "Africa: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects." *Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2014, 1202.

Basin can be found—is likely to be significantly reduced by the turn of the century.

Concerning the region's freshwater ecosystems and water availability, there is high confidence that there will be significant future impacts due to climate change. According to the IPCC's Fifth Assessment Report (herein known as AR5), "water resources are subjected to high hydro-climatic variability over space and time, and are a key constraint on the continent's continued economic development. The impacts of climate change will be superimposed onto already water-stressed catchments with complex land uses, engineered water systems, and a strong historical sociopolitical and economic footprint."[74] Therefore, the Nile Basin region is likely to experience variabilities and impacts on temperature, precipitation, changes in the freshwater ecosystems, and overall water availability—all caused by the continuing momentum of climate change. The IPCC assessment reports are only one source of the many serious calls for creating national, regional, and international adaptation plans and implementations designed to address the predicted water insecurity of the future.[75] Government wills need to develop serious cooperation strategies in order to avoid future water conflict and increased water insecurity. The following section will outline the initiatives taken by some Nile Basin countries in an attempt to cooperate on the use and allocation of Nile waters during the 20th century.

2.2 Cooperation and Conflict: The Nile Waters Agreements

In order to understand the present state of Nile Basin relations, it is essential that we first take a step back into the 20th century and look to where the origins of Nile Basin cooperation exist: the Nile Waters Agreements. Including both the 1929 Anglo-Egyptian

74 Isabelle Niang, *et al.*, 1202.

75 Jennifer C. Veilleux and Elizabeth P. Anderson. "2015 Snapshot of Water Security in the Nile, Mekong, and Amazon River Basins." *Limnology and Oceanography Bulletin* 25, no. 1 (01, 2016): 8-14; UNEP "UNEP - Climate Change - Adaptation - Nile River Basin," accessed May 6, 2017, http://staging.unep.org/climatechange/adaptation/EcosystemBasedAdaptation/NileRiverBasin/tabid/29584/Default.aspx; UN-Water. *Water Security & the Global Water Agenda: A UN-Water Analytical Brief*. Edited by Tim Lougheed. (Hamilton: UNU-INWEH, 2013).

Treaty and the 1959 Egypt-Sudan Treaty, the Agreements have been at the core of transboundary Nile governance. During the 19th century until 1937, Britain had control over Egypt, and thereby control over the Nile. In the Sudan, Britain controlled the country from 1899 until 1956, ending a period of colonisation that brought with it numerous treaties that were, for the most part, British attempts to assist Egypt in gaining control over the allocation and use of the Nile.[76] Beginning in 1891, there was protocol signed between Britain and Italy concerning access to the Nile waters in eastern Africa, which restricted Nile Basin countries to construct projects that would hinder the flow of the Blue Nile, Lake Tana or Sobat to the highly Nile-dependent countries of Egypt and Sudan. In 1889, the first dam was constructed in Aswan, Egypt, with an additional dam being constructed in 1928. Both dams were created with the purpose of irrigation and the maintenance of flooding.[77]

Yet, in the wake of the construction of the second dam and Egypt's newfound independence,[78] the 1929 bilateral Anglo-Egyptian Treaty was concluded between Egypt and Kenya, Anglo-Egyptian Sudan, Tanzania, and Uganda—all British colonies. It strongly favoured the interests of Egypt, mainly in the stipulation that Egypt was to receive an annual allocation of 48 billion cubic metres (bcm) of water, with only 4 bcm being allocated to the Sudan.[79] The remaining 32 bcm of water was unallocated, and no rights were negotiated for any of the other upstream Nile Basin countries, including Ethiopia, where over 80% of the Nile's water flow originates.[80] Moreover, the treaty provided that Egypt could veto the

76 Ashok Swain. "Ethiopia, the Sudan, and Egypt: The Nile River Dispute." *The Journal of Modern African Studies* 35, no. 4 (12 1997).

77 Ibid., 676.

78 Following the Egyptian revolution in 1919, the country officially gained independence from the British in 1922.

79 Hala Nasr & Andreas Neef. "Ethiopia's Challenge to Egyptian Hegemony in the Nile River Basin: The Case of the Grand Ethiopian Renaissance Dam." *Geopolitics* 21, no.4, 2016: 969-989. doi: 10.1080/14650045.2016.1209740

80 Valerie Knobelsdorf. "The Nile Waters Agreements: Imposition and Impacts of a Transboundary Legal System." *Columbia Journal of Transnational Law* 44, no. 2, 2005: 622.

construction of any project executed on the Nile and its tributaries, if needed to protect its access and control over Nile flow.[81]

Disagreement over Egypt's planned construction of the High Dam, and the Sudan's desired revision of the 1929 Treaty, led to a short-lived deterioration of relations between the two countries.[82] Following the Sudan's independence in 1956, and as Egyptian President Nasser began planning the construction of the Aswan High Dam without consulting the Sudanese government, Sudan's Prime Minister Ismail al-Azhari began to push for revisions to the 1929 Treaty.[83] According to the Sudanese Minister of Irrigation and Hydroelectric Power, the project was solely for the use and benefit of Egypt, and not only would the Sudan be excluded from the project's implementation, but it would also bring further harm to the country.[84] If built, the High Dam would submerge 170 kilometres of Sudanese land, and waters would rise over the contour line to up to 182 metres above sea level.[85] Moreover, the Sudanese government opposed the High Dam because of its belief that a better course would be to build smaller dams along the Nile river valley, to make the most effective use of water resources of the Nile, and to minimise the unavoidable damage caused by flooding.[86]

In 1959, however, Nile Basin cooperative gains were made in the signing of a new treaty. In the 1959 Egypt-Sudan Treaty, Egypt agreed to the construction of the Roseires Dam[87] in Sudan, in exchange for the Sudan's consent for the Aswan High Dam.[88] According to Carroll:

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81 Mwangi S. Kimenyi, and John Mukum Mbaku. "The Nile Waters Agreements: A Critical Analysis." *Governing the Nile River Basin: The Search for a New Legal Regime*, 33-45. Brookings Institution Press, 2015. http://www.jstor.org/stable/10.7864/j.ctt130h973.7.

82 M. El Zain, *Environmental scarcity, Hydropolitics & the Nile: Population Concentration, Water Scarcity and the Changing Domestic and Foreign Politics of the Sudan*, The Hague (2007), 354.

83 Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," 679.

84 I. H. Abdalla. "The 1959 Nile Waters Agreement in Sudanese-Egyptian Relations." *Middle Eastern Studies* 7, no. 3 (10 1971): 330. doi:10.1080/00263207108700185

85 Ibid.

86 I. H. Abdalla.

87 The Roseires Dam is situated on the Blue Nile in the Sudan.

> "…the agreement established that after the Aswan High Dam was fully operational, the Sudan would receive 18.5 km3 and Egypt would receive 55.5 km3 as long as the Nile yield remained the same. In allocating the Nile waters, the states assumed that 10 km3 would be lost due to evaporation from Lake Nasser and seepage under the Aswan Dam. The Sudan and Egypt agreed to jointly prevent losses of Nile Basin waters from the Sudanese swamps. Egypt and the Sudan also agreed to present a unified view in any other negotiations concerning the Nile waters."[89]

More importantly, the 1959 Treaty also 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."[90] As we shall see in Chapter 3, this stipulation will lead to Egypt's continual opposition to extending the allocation of Nile flow to other riparian countries, especially to the Sudan. Moreover, it must be noted that, once again, no other countries situated within the Nile Basin were party to the negotiations.[91]

During the 1960s, however, a new page was turned in Nile Basin cooperation. After an unexpected period of rainfall across the Equatorial Lakes, inundating the Sudd floodplain and flooding lake shores, the Project for the Hydro-meteorological Survey of the Equatorial Lakes (also know as the Hydromet Project) was created.[92] Established in 1967, the Hydromet Project's purpose was to implement a hydro-meteorological survey of the catchment area of Lake Albert, Kyoga, and Victoria, and its participants included Burundi, the Democratic Republic of Congo, Egypt, Kenya, Rwanda, the Sudan, Tanzania, and Uganda.[93] Although the 25-year Project failed to develop into a lasting basin-wide agreement, it was a precursor to the

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88 Christina M. Carroll. "Past and Future Legal Framework of the Nile River Basin." *Georgetown International Environmental Law Review* 12.1, 1999.

89 Carroll, 280.

90 Ashok Swain, "Ethiopia, the Sudan, and Egypt: The Nile River Dispute," 677.

91 Carroll.

92 Dereje Zeleke Mekonnen. "The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-Sac?" *European Journal of International Law* 21, no. 2 (2010): 421–40. doi:10.1093/ejil/chq027.

93 Okidi Charles Okidi. "Legal and Policy Regime of Lake Victoria and Nile Basins." *Indian Journal of International Law* 20, No. 3 (3 September 1980): 395-447.

Technical Committee for the Promotion of the Development and Environmental Protection of the Nile Basin (TECCONILE), established in 1992 and ultimately leading to the Nile 2002 Conference Series.[94] A further attempt at basin-wide cooperation, the Series made room for the most significant basin-wide initiative to date—the Nile Basin Initiative (herein known as NBI).[95]

In the following chapter, an in-depth analysis of the NBI and its Cooperative Framework Agreement will be explored through Bjørn-Oliver Magsig's water security analytical framework. In order to better understand the significance of the NBI's CFA, the aforementioned history of Nile Basin governance in the 20th century has outlined some of the present complexities involved in seeking cooperation in the Nile Basin. Firstly, the scientific data provided by the IPCC identifies climate change's potentially negative impacts on the region, ultimately resulting in the high possibility of an increase in water insecurity within the region. Secondly, understanding the colonial and postcolonial impacts of the Nile Waters Agreements adds further historical context to the present state of Nile Basin relations to be further explored in Chapter 3.

94 Okidi Charles Okidi.

95 See Chapter 3 for more information regarding the NBI.

Chapter 3: Seeking Water Security in the Cooperative Framework Agreement

In order to place the concept of water security within the context of the Nile Basin region, this section will focus on the analysis of the Nile Basin Initiative's Cooperative Framework Agreement (CFA).[96] As the CFA is the most significant agreement made between Nile Basin countries, it is the focal point of water governance within the region. While analyses of the CFA have been previously conducted within academia,[97] it has yet to be analysed through Bjørn-Oliver Magsig's water security analytical framework.[98] Therefore, this chapter will provide an analysis of the CFA through his methodological framework. Providing an effective analysis, however, requires us to first understand Magsig's approach before applying it to the CFA. This chapter will first lay out the foundation of Magsig's 4'As' analytical framework, followed by an operalisation of the concept of water security within the CFA through the confines of his methodology.

3.1 Magsig's Analytical Framework

As previously mentioned in Chapter 1, Magsig's definition of the concept of water security is: "a community is water secure when it has sustainable access to freshwater of sufficient quantity and quality, or to the benefits derived therefrom; and the ability to

96 Nile Basin Initiatives' Cooperative Framework Agreement (14 May 2010; not entered into force) [hereinafter the Cooperative Framework Agreement] available at: http://www.nilebasin.org/images/docs/CFA%20-%20English%20%20FrenchVersion.pdf

97 Abadir M. Ibrahim. "The Nile Basin Cooperative Framework Agreement: the Beginning of the End of Egyptian Hydro-Political Hegemony." *Missouri Environmental Law and Policy Review* 18, (2011). http://scholarship.law.missouri.edu/jesl/vol18/iss2/4; Dereje Zeleke Mekonnen. "The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-Sac?" *European Journal of International Law* 21, no. 2 (2010): 421–40. doi:10.1093/ejil/chq027; Emmanuel B. Kasimbazi. "The Complexities of Developing a Transboundary Water Resources Management Agreement: Experiences from the Nile Basin." *Water and the Law*, 2014: 85-107. doi:10.4337/9781783479627.00011.

98 Bjørn-Oliver Magsig. "International Water Law and the Quest for Common Security." Degree of Doctor of Philosophy PhD dissertation, *Research Database*: University of Dundee, October 2013. Accessed 25 May 17. http://discovery.dundee.ac.uk/portal/en/theses/international-water-law-and-the-quest-for-common-security(c08da455-ef7b-4879-95f7-9674df88c3ca).html

minimise water-related risk and its various repercussions to an acceptable level – without compromising the supporting ecosystems."[99] Furthermore, in Chapter 1, it was stressed that an important aspect of creating a legal mechanism which embraces transboundary hydrosolidarity is that the legal mechanism is flexible and adaptable to different levels of governance, such as local, international, or, in this case, regional.[100]

Specifically, Magsig's definition of the concept of water security revolves around the way it should be applied and developed within the realm of international law, as international law is a useful tool in promoting water security and facilitating effective transboundary water governance.[101] His aim is to create an approach in which water security may be viewed through a legal lens. To do this, he has proposed four parameters that attempt to expose "the core elements of water security"[102] which must be addressed through a legal lens.[103] Known as the '4A Operational Methodology,'[104] his approach consists of analysing legal regimes based on whether the concept of water security is being applied within the parameter of water's; (1) availability; (2) access; (3) adaptability, and (4) ambit.[105] Therefore, the purpose of this section is to take an in-depth look into the definitions and reasonings behind each parameter included in his analytical framework in order to better understand how these parameters are applied within the analysis of the CFA.

3.1.1 Availability

The first 'A' of Magsig's analytical framework, 'availability':

> "…relates to issues of water quantity as well as quality. Primarily, this element deals with the actual management of the resource as such—including its control and

99 Magsig, 33.
100 Gerlack *et al.*, 314.
101 Magsig, 35.
102 Magsig, 36.
103 Ibid.
104 Magsig, 206.
105 Magsig, 37.

> protection. While the total usable water existing on the planet is—in theory—more than enough to satisfy all human and environmental requirements, the problem, however, is that water is not always available in sufficient amounts and quality at the right time and location needed."[106]

The 'availability' of water must be included within the parameters of the analytical framework because, as the climate changes and as global population remains on the rise, freshwater availability becomes minimised.

Moreover, Magsig argues that as the global population will grow to over 9 billion people by 2050,[107] humans will increasingly place extreme stress on earth's freshwater resources, most notably because of increased demands on the agricultural and energy sectors.[108] As food production accounts for the withdrawal of over 70% of available global freshwater resources,[109] and the energy sector is becoming further dependent on water-heavy power generation,[110] the water-food-energy nexus must be placed under the magnifying glass when taking 'availability' into consideration.[111] Additionally, Magsig claims that supply and demand management must be addressed within the conceptualisation of water security at the international level.[112] Therefore, it is only when we address the availability of water, in regards to both its quantity and quality, within international law that water security will be achieved.[113]

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106 Magsig, 37.

107 Claudia Ringler, Elizabeth Bryan, Asit Biswas, and Sarah A. Cline. "Water and Food Security Under Global Change." *Water Resources Development and Management Global Change: Impacts on Water and Food Security*, 12, 2009, 4. doi:10.1007/978-3-642-04615-5_1.

108 Magsig, 37.

109 Magsig, 37; FAO Land and Water Division, *Coping with Water Scarcity: An Action Framework for Agriculture and Food Security* (FAO 2012), 2.

110 Magsig, 38; International Energy Agency, "Chapter 7: Renewable energy outlook." *World Energy Outlook 2012* (International Energy Agency 2012), 226.

111 Aiko Endo, Izumi Tsurita, Kimberly Burnett, and Pedcris M. Orencio. "A review of the current state of research on the water, energy, and food nexus." *Journal of Hydrology: Regional Studies*, 2015, 3; H. Hoff. "Understanding the Nexus." *Background Paper for the Bonn 2011 Conference: The Water, Energy and Food Security Nexus.* Stockholm Environment Institute, Stockholm, 2011, 32.

112 Magsig, 39.

113 Ibid.

According to Magsig,[114] there are many transboundary international agreements that use the basic principles of international water law regarding quantitative aspects of water use.[115] Related to the issue of hydrological and physical aspects (such as the control and protection of water), international law has a varied spectrum of rules and concepts that may be applied.[116] Some of these rules include: substantive rules (e.g. rules outlining the requirements for certain quality, quantities, or uses of water);[117] procedural rules (e.g. rules outlining the requirements for consulting on changes to the regime,[118] or to new or increased uses);[119] and through additional activities undertaken through institutional mechanisms, such as the Nile Basin Initiative.[120]

Yet, the number of transboundary water agreements which address issues regarding water quality impacts caused by climate change, as well as pollution control and prevention, remain limited.[121] Once again, international water law provides a framework to enable transboundary water governance of the sustainability and protection of shared water resources.[122] For example, Articles 5 and 20 of the 1997 UN Watercourses Convention provide that "states are required to use and develop their shared waters 'with a view to attaining optimal and sustainable utilization […] consistent with adequate protection of the course' and to 'protect and preserve the ecosystems of international watercourses.'"[123] Therefore, international water law is a tool that can facilitate local, regional, or international cooperation on sustainability and environmental protection of transboundary watercourses,

114 Magsig, 53.

115 Art 6 of the Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan (26 October 1994); Art 2 of the Indus Waters Treaty 1960 between the Government of India and the Government of Pakistan (19 September 1960).

116 Magsig, 53.

117 Arts 12-16 and Arts 18-19 of the 1997 UN Watercourses Convention.

118 Art 17 of the 1997 UN Watercourses Convention.

119 Ibid.

120 Magsig, 53.

121 Magsig, 54.

122 Magsig, 55.

123 Magsig, 55; Art 5 and 20 of the 1997 UN Watercourses Convention.

thereby allowing international transboundary legal frameworks to address matters related to the 'availability' of shared water resources.[124]

Also, 'availability' must address the management of potential water-related emergencies caused by natural events, such as flooding and drought, when establishing rules related to emergency response and preparedness.[125] Cross and Latorre state that legal instruments must address water quality impacts caused by climate variability and climate change.[126] For example, in the transboundary Agreement between Kazakhstan and China on Water Quality Protection of Transboundary Waters, a joint commission has been created with the aim of monitoring, analyzing, and evaluating the shared water, as well as managing emergency response and prevention, including damages caused by impacts of climate change.[127] Therefore, it is clear that international water law enables water security to be embedded within transboundary water agreements by addressing issues related to the sustainability and environmental protection of transboundary watercourses in the face of the variabilities of climate change, thereby including 'availability' within the parameters of legal frameworks.[128]

3.1.2 Access

According to Magsig, "legal and institutional responses to the allocation of transboundary waters are essential to ensuring long-term water security. In order to achieve this, the rules governing the (re)allocation of water have to be perceived as fair by all parties involved."[129] He argues that there are many factors that play into states' 'access' to freshwater

124 Magsig 56.
125 Magsig 55.
126 K. Cross, and C. Latorre. "Which water for which use? Exploring water quality instruments in the context of a changing climate." *Aquatic Procedia* vol. 5, 2015. https://doi.org/10.1016/j.aqpro.2015.10.012
127 Ibid.
128 Magsig, 56.
129 Magsig, 40.

resources, such as political power, inequality through the uneven amount of clean water given within time and space, and physical water scarcity.[130] As previously mentioned, global population growth has caused heightened water stress on certain regions of the world, forcing competition for water resources to potentially result in a water security crisis.[131] The author highlights that within conflict scholarship, water security is often conceptualised through conflict caused by issues over water allocation.[132]

Moreover, Magsig states that the gap between the increasing global demand for quality water and water availability is widening, causing issues of water distribution and development to create ripples in relations between riparians.[133] Therefore, in order to address the important issues associated with water 'access,' we must integrate this parameter within the analytical framework to observe whether states collectively govern the (re)allocation of water in a fashion that is viewed as fair by all those involved.

Regarding international water law, at the heart of water 'access' is the principle of 'equitable and reasonable utilisation and participation.'[134] The principle "requires that a State sharing an international watercourse with other States utilize the watercourse, in its territory, in a manner that is equitable and reasonable vis-à-vis the other States sharing it. In order to ensure that their utilization of an international watercourse is equitable and reasonable, States are to take into account all relevant factors and circumstances."[135] As it relates to water security, the management and use of transboundary waters must address the issue of water access in a way that reflects the flexible and broadly inclusive process that is at the core of equitable and reasonable use, as it is built to navigate and "respond to the changing

130 Magsig, 39.

131 H. Bigas (Ed.). "The Global Water Crisis: Addressing an Urgent Security Issue." Papers for the *InterAction Council*, Hamilton, Canada, UNU-INWEH, 2012.

132 Magsig., 40.

133 Ibid.

134 Art 5-6 of the 1997 UN Watercourses Convention.

135 Stephen C. McCaffrey. "Convention on the Law of the Non-Navigational Uses of International Watercourses." *Audiovisual Library of International Law*, 2008. http://legal.un.org/avl/ha/clnuiw/clnuiw.html.

circumstances in the development, use and management of transboundary waters."[136] However, while the principle of equitable and reasonable utilisation and participation is commonly understood as the core principle of international water law, issues related to the fairness of water access continue to divide riparian countries, and the issue of access continues to be a complex challenge in achieving transboundary water security.[137]

3.1.3 Adaptability

One of the most important factors to consider when analysing a transboundary agreement in relation to its conceptualisation of water security is how flexible the agreement is. Magsig argues that for all parties to successfully share and effectively manage water resources, "they need certainty of the quantities and qualities of the water they are entitled to use and required to provide."[138] Furthermore, legal frameworks for transboundary watercourses must be adaptable to changes in supply and demand.[139] He writes that we "must take into account the reality of the ever changing interplay between supply and demand. Understanding the temporal and spatial distribution and flux of water is key for managing the resource efficiently."[140] The resilience of an agreement depends on whether it takes this variability of supply and demand, along with the continuous changes of political, environmental, and societal needs, into consideration.[141]

Legally, including flexibility within transboundary water agreements is a challenge when considering the complex nature and interweavings of current global challenges, such as economic development, population growth, and, most importantly, climate change.[142]

136 Magsig, 57.
137 Magsig, 58.
138 Ibid.
139 Magsig, 41.
140 Ibid.
141 Ibid.
142 Ibid.

Moreover, future global challenges faced are unable to be fully reflected within transboundary water management, as transboundary water agreements, which permit the fair allocation of water to all participating parties, must predict the supply and demand of water resources for those participating in the agreement.[143] Therefore, when taking into consideration global issues such as climate change, coupled with the uncertainty and hydrological variability it brings with it, the frameworks used to facilitate transboundary water governance and cooperation must encompass adaptability.[144]

Also, it is argued that when there is a quick change in the supply or demand of water resources, and when institutions are unable to deal with the rapid change, the likelihood of conflict increases.[145] When taking into consideration the changes in climate and global population growth, it is becoming ever-important that sustainable water resource sharing and management ensures that flexibility is implemented into transboundary water agreements. However, the question arises as to whether the principle of equitable and reasonable utilisation and participation facilitates the flexibility needed in adapting to changing circumstances caused by climate change.[146] While the principle of equitable and reasonable utilisation and participation does address flexibility and future adjustment to quick changes in circumstances,[147] there is little direction as to how participating parties can practically cooperate on matters related to the adaptive management of bodies of water under stress.[148] In fact, numerous studies have concluded that most freshwater treaties will need to be changed or possibly renegotiated so that they can include mechanisms which enable flexibility in the

143 Magsig, 41.
144 Magsig, 44.
145 Magsig, 61.
146 Magsig, 62.
147 Art 6 of the 1997 UN Watercourses Convention.
148 Magsig, 61; Stephen C. McCaffrey. "The need for flexibility in freshwater treaty regimes." *Natural Resources Forum* vol. 27, 2003, 156-162. doi:10.1111/1477-8947.00050

face of climate-uncertainty.[149] Magsig writes that "in a case where no provisions are made for future changes in circumstances, the contracting parties are likely to lose sight of the fact that aquatic ecosystems and the dependencies on them are constantly changing, and that this matter of fact is becoming even more challenging with the uncertainty added by global climate change."[150]

He continues to argue that there are many ways that freshwater agreements can further incorporate adaptability, through methods such as allocating water according to percentage and time of flow (instead of simply allocating a fixed amount). Another way of enhancing the flexibility of a transboundary agreement is by including provisions that can enhance adaptability, such as introducing the 'escape clause,'[151] or by creating joint institutions—such as basin-wide commissions or councils—among participating parties as a method of basin-wide cooperation and dispute prevention.[152] While customary international law does not oblige participating transboundary states to build joint institutions,[153] Magsig argues that they are the best potential method to incorporate adaptability as a means to face the unpredictable challenges of global climate change that lay ahead.[154]

3.1.4 Ambit

In regards to the final 'A' of Magsig's analytical framework, ambit determines:

> "…the scope of water security – i.e., the sphere of influence of the notion. In addition to the orthodox concept of 'scope,' the approach here is to better mirror the common character of the global water crisis [...] The scope of a transboundary water agreement usually determines (1) the waters covered by the regime; (2) the range of stakeholders

149 Magsig, 62; Stephen C. McCaffrey. "The need for flexibility in freshwater treaty regimes."

150 Magsig, 62.

151 Itay Fischhendler. "Legal and institutional adaptation to climate uncertainty: A study of international rivers." *Water Policy* 6(4), 2004, 281-302.

152 Magsig, 63.

153 Art 8(2) of the 1997 UN Watercourses Convention.

154 Magsig, 64.

that are eligible to participate in the utilisation of those waters; and (3) the breadth of objectives addressed."[155]

Furthermore, Magsig stresses the importance of water security being regarded as a common security issue. This entails that all parties involved in negotiations not only come to the table to discuss their respective interests and concerns, but also that they view them within the wider scope at hand.[156] This translates into participating parties taking certain global challenges, such as climate change, into serious consideration when viewing their issues pertaining to water security, as transboundary water management requires observing the complex interlinkages of the issues in order to effectively cooperate.[157] He writes, "since water is at the heart of the interlinkages of various risks, transboundary water interaction usually also touches several areas and levels of policy, law and management."[158] Therefore, to create an analysis which properly observes the reality of global water crises, and the risks that the international community faces, it is essential that we understand how those involved merge their local and regional challenges within the international agenda.[159]

Another aspect of the analysis of ambit to be highlighted is that participating actors within transboundary water negotiations must not simply address the wider scope of challenges that are faced when attempting to cooperate on the management of water resources. The participants must also include different concepts in order to address the water crisis within international water law.[160] According to Magsig, this means that participants must be open to include ideas such as 'virtual water' or 'peak ecological water'[161] in order to

155 Magsig, 64.
156 Ibid.
157 Ibid.
158 Ibid.
159 Magsig, 45.
160 Magsig, 46.
161 Ibid.

integrate the discourse and ideas from disciplines relevant to the cause.[162] In doing so, he argues that ambit must push international water law outside of the practise of simply meeting international legal obligations and rights in order to be open to exploring contemporary approaches to attaining common water security.[163] Furthermore, the ambit of a transboundary agreement must provide the terms used to describe the hydrological amount of waters covered (such as 'international watercourse' or 'international drainage basin'), and who the stakeholders are by determining the scope of legal actors that are eligible to participate in the utilisation of watercourses.[164]

The last important aspect of the analysis of ambit that Magsig highlights is that in order for transboundary agreements to achieve common water security among participating parties, international water law must address issues related to the concepts of distributive equity, and national and absolute sovereignty.[165] After the recent adoption of the 2008 Draft Articles on the Law of Transboundary Aquifers by the International Law Commission, there has been a potential setback to the 1997 UN Watercourses Convention's attempt at overcoming a state-centric approach to the use and protection of shared transboundary waters.[166] Instead, the 2008 Draft Articles on the Law of Transboundary Aquifers continues to focus on distributive equity through the lens of state sovereignty, claiming that "each aquifer State has sovereignty over the portion of a transboundary aquifer or aquifer system located within its territory [and…] it shall exercise its sovereignty in accordance with international law…"[167] Magsig continues to state that the 2008 Draft Articles' approach to sovereignty is a contrast to the concept of limited territorial sovereignty embedded within the 1997 UN

162 Ibid.
163 Ibid.
164 For example, Art 2(c) of the 1997 UN Watercourses Convention provides the definition of a 'watercourse state.'
165 Magsig, 66.
166 Ibid.
167 Art 3 of the 2008 Draft Articles on the Law of Transboundary Aquifers.

Watercourses Convention's principle of equitable and reasonable utilisation and participation.[168] This demonstrates that international water law is still struggling against a zero-sum conflict approach towards transboundary water management if moving towards a more hydrosolidarity and common security approach.[169] Therefore, the conceptualisation of water security within international water law must address the ambit of water security in order to create a space that flows past the confines of state boundaries and into a perspective that embraces hydrosolidarity.

3.2 The Cooperative Framework Agreement: An Analysis

As explored in Chapter 2, previous to the creation of the NBI, Nile Basin governance was left in the hands of sub-basin bilateral agreements.[170] However, the NBI's shared vision of inclusive cooperation between all countries of the Nile brought forth a new stage of transboundary water governance within the region, leading to the greatest achievement in Nile Basin governance that the region has accomplished. According to its Overarching Strategic Plan (2012-2016), the NBI is:

> "…a regional partnership for spurring growth and addressing the critical challenges of the Nile River Basin. Countries of the Nile Basin jointly established the NBI in 1999 to harness the potential gains of cooperative management and development of the Nile Basin. The partnership continues to be led by the riparian states of the Nile. It is built around a shared belief that countries can achieve better outcomes for all the peoples of the Basin through cooperation rather than competition."[171]

To embed the NBI's vision of cooperation in a legal framework, the intergovernmental organisation's main objective is to negotiate and sign a draft of the CFA between all Nile Basin countries through which the NBI's vision of cooperation can be

168 Magsig, 66.
169 Magsig, 67.
170 Dereje Zeleke Mekonnen. "The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-Sac?"
171 *NBI overarching strategic plan 2012-2016*. 2011, 1.

realised.[172] With the help of bilateral and multilateral donors, the United Nations Development Programme (UNDP) and the World Bank financially assisted the participating countries in establishing institutional principles, structures and functions through which the countries could negotiate and finalise the CFA.[173] The Initiative's structure is organised and divided into three parts; (1) the Council of Ministers of Water Affairs of the Nile Basin (Nile-COM); (2) the Secretariat (Nile-SEC); and (3) the Technical Advisory Committee (Nile-TAC).[174] The eleven participating states[175] divided themselves into two subsidiary action programs; the first including the Equatorial Lakes Region, and the second being the eastern Nile countries—Egypt, the Sudan and Ethiopia.

Following the creation of the NBI in 1999, the CFA negotiations commenced and lasted for a total of ten years.[176] On 14 May 2010, in Entebbe, Uganda, the CFA was signed by Ethiopia, Rwanda, Uganda, and Tanzania. Kenya followed suit five days later, and Burundi joined in February 2011.[177] As we will see in the following subsections, the Sudan and Egypt[178] have yet to sign the CFA because of their disagreement over the CFA's Article 14(b).

As a result, the realisation of the NBI's shared vision of cooperation of the Nile Basin through the CFA has yet to be fully realised. Furthermore, the failure of the CFA to obtain the signatures of all Nile Basin countries has brought the agreement to a standstill. Specifically, the standstill reveals that the region continues to have an inadequate intergovernmental framework aimed at building cooperation and management of the Nile Basin waters. As the

172 *NBI overarching strategic plan 2012-2016*. 2011, 422.

173 Salman M.A. Salman. "The Nile Basin Cooperative Framework Agreement: A Peacefully Unfolding African Spring?" *Water International* 38.1 (2013), 22.

174 Ashok Swain. "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth." *SAIS Review* 22, no. 2 (2002), 302.

175 Participating countries include Burundi, the Democratic Republic of Congo, Egypt, Eritrea (as an observer), Ethiopia, Kenya, Rwanda, South Sudan, the Sudan, Tanzania, and Uganda.

176 Salman.

177 Salman.

178 Along with the Democratic Republic of Congo and Eritrea (an observer).

region continues to confront global water insecurity, which will become even further exacerbated by challenges such as climate change and population growth, it is crucial that governments facilitate cooperation through a legal framework which includes the concept of water security.

Yet, while the CFA has not been a success so far, the Agreement is the greatest achievement in cooperation between all Nile Basin countries to date. Moreover, the NBI continues to be a functioning intergovernmental organisation with aim of obtaining the signatures of all Nile Basin states for the CFA. Thus, the CFA is worthy of analysis in regards to whether it adequately confronts the concept of water security within its framework. In the following subsections, this thesis will conduct an in-depth analysis of the provisions related to water security within the CFA, as conceptualised by Magsig's legal analytical framework. By operationalising Magsig's concept of water security within the CFA, the analysis aims to determine whether the concept of water security is integrated within its provisions, thereby exemplifying whether or not it is a legal regime capable of facilitating water governance and cooperation on issues relating to water security in the region.

3.2.1 Availability

The CFA incorporates articles related to the availability (ie. 'the actual management of the resource as such—including its control and protection')[179] of Nile water resources. The obligation not to cause significant harm is addressed in Article 5, which writes that "Nile Basin States shall, in utilizing Nile River System water resources in their territories, take all appropriate measures to prevent the causing of significant harm to other Basin States."[180] Also, Article 12 addresses emergency situations that should arise which cause or pose "an imminent threat of causing, serious harm to Nile Basin States or other States and that results

[179] Magsig, 37.
[180] Art 5 of the Cooperative Framework Agreement.

suddenly from natural causes."[181] Additionally, Article 11 engages the prevention and mitigation of harmful conditions resulting from human conduct or natural causes, such as "flood conditions, invasive water weeds, water-borne diseases, siltation, erosion, drought or desertification."[182] As this includes harmful impacts on water quality which may be caused by climate change, such as drought or flooding, it is clear that Article 11 addresses water quality regulations to address climate change impacts. This signifies that the CFA enables participating states to effectively cooperate on issues related to the sustainability and environmental protections of the Nile River Basin in the face of the uncertain climate changes of the future.

Explicitly relating to water quality and quantity as understood by Magsig, the CFA provides clear regulations for the protection and conservation of the Nile Basin waters and its ecosystems.[183] For example, Article 6(1)(a) states that Nile Basin states must take all appropriate measures to rehabilitate the Nile Basin and its ecosystems by "protecting and improving water quality within the Nile River Basin."[184] Moreover, Article 6 directs that "Nile Basin States shall take all appropriate measures, individually and, where appropriate, jointly"[185] in regards to the protection and conservation of the Nile Basin. This demonstrates that the framework focuses on a transboundary approach to cooperating on issues related to the availability of the Nile Basin's water.

181 Art 12 of the Cooperative Framework Agreement.
182 Art 11 of the Cooperative Framework Agreement.
183 Art 6 of the Cooperative Framework Agreement.
184 Art 6(1)(a) of the Cooperative Framework Agreement.
185 Art 6(1) of the Cooperative Framework Agreement.

3.2.2 Access

With respect to issues related to the (re)allocation (i.e., access) of the Nile Basin water sources,[186] the CFA addresses access through the application of the general principle of equitable and reasonable utilisation.[187] As previously mentioned,[188] this principle is one of the key provisions of the 1997 UN Watercourses Convention and is at the core of water 'access,' and "requires that a State sharing an international watercourse with other States utilize the watercourse, in its territory, in a manner that is equitable and reasonable vis-à-vis the other States sharing it. In order to ensure that their utilization of an international watercourse is equitable and reasonable, States are to take into account all relevant factors and circumstances."[189]

The principle of equitable and reasonable utilisation has influenced the access of Nile Basin waters addressed within the CFA, as stipulated in Article 4 of the agreement. This provision states that "Nile Basin States shall in their respective territories utilize the water resources of the Nile River System in an equitable and reasonable manner [...] Each Basin State is entitled to an equitable and reasonable share in the beneficial uses of the water resources of the Nile River System."[190] Furthermore, in order to determine what factors and circumstances are taken into account when considering how access is deemed to be equitable and reasonable, Article 4 includes provisions related to factors and circumstances such as forces of a natural character (i.e., climatic, hydrological, ecological, and geographic),[191] the

186 Magsig, 188.
187 Art 4 of the Cooperative Framework Agreement.
188 See Chapter 3, section 3.1.2.
189 Stephen C. McCaffrey. "Convention on the Law of the Non-Navigational Uses of International Watercourses," 2.
190 Art 4 of the Cooperative Framework Agreement.
191 Art 4(2)(a) of the Cooperative Framework Agreement.

population dependent of the water resources in each Basin state,[192] and the amount and size of the drainage area in the territory of each Basin state.[193]

The equitable and reasonable use of water used in each Nile Basin state is determined by the Technical Advisory Committee, which is responsible for making recommendations to the Nile Basin Council with respect to decisions relating to the factors and circumstances addressed in Article 4.[194] In order to resolve conflict related to the management of the Nile Basin waters, the CFA addresses the settlement of disputes within its provisions. Article 34(1)(a) states that:

> "…if the States concerned cannot reach agreement by negotiation requested by one of them, they may jointly seek good offices, or request mediation or conciliation by, the Nile River Basin Commission or other third party, or agree to submit the dispute to arbitration, in accordance with procedures to be adopted by the Council, or to the International Court of Justice."[195]

While the principle of equitable and reasonable utilisation and participation is addressed within the CFA, issues related to the fairness of water access continue to divide Nile Basin countries and pose a complex challenge to achieving water security within the region. Based on its acquired rights and uses of the Nile waters as found within the provisions of the colonial-era Nile Waters Agreements,[196] Egypt and the Sudan continue to contest the aforementioned Article 14(b), which calls for equitable allocation.[197] Article 2 defines water security as "the right of all Nile Basin States to reliable access to and use of the Nile River system for health, agriculture, livelihoods, production and environment."[198] According to Article 14's provisions related to the aforementioned definition of water security, Article

192 Art 4(2)(c) of the Cooperative Framework Agreement.
193 Art 4(2)(i) of the Cooperative Framework Agreement.
194 Art 26(5) of the Cooperative Framework Agreement.
195 Art 34(1)(a) of the Cooperative Framework Agreement.
196 See Chapter 2.
197 Salman.
198 Art 2(f) of the Cooperative Framework Agreement.

14(b)'s stipulation that Nile Basin states must agree "not to significantly affect the water security of any other Nile Basin States"[199] is an issue of concern for the Sudan and Egypt.[200] Instead, Egypt proposed that this wording be replaced with "not to adversely affect the water security and current uses and rights of any other Nile Basin State."[201] If the wording were replaced in this way, the Sudan and Egypt would be able to retain their rights and uses of the Nile waters previously stipulated within the Nile Waters Agreements. Most notably, Egypt would be able to continue having veto power over the construction of any project initiated on the Nile.[202]

The Sudan and Egypt's refusal to agree to the original wording of the CFA's Article 14(b) has led to tensions between the two countries and the upper Nile Basin states, who view the Sudan and Egypt's rights and uses of the Nile waters as stipulated within the Nile Waters Agreements as a continuation of the inequitable use of Nile waters.[203] Following ten years of negotiations, parties to the treaty could not agree upon the inclusion or rewording of Article 14(b),[204] resulting in the CFA being limited to six Nile Basin states who have signed the agreement[205] (with only three having ratifying it),[206] and thereby excluding both the Sudan and Egypt—both of whom are major users of the Nile waters—from the framework. Further

199 Art 14(b) of the Cooperative Framework Agreement.

200 Salman.

201 [Art 14b]: Attachment of the Cooperative Framework Agreement.

202 See Chapter 2 for details regarding the rights and uses of the Nile waters based on the 1929 and 1959 Nile Waters Agreements.

203 John Rao Nyaoro. "Realising the Water Security of the Nile River Basin States: Critical analysis of Article 14(b) on the Water Security of the Nile River Basin Cooperative Framework Agreement 2010." Degree of Doctor of Law PhD dissertation, University of Nairobi, May 2016. Accessed 20 May 2017: http://hdl.handle.net/11295/97185.

204 Mwangi S. Kimenyi and John Mukum Mbaku. "The Cooperative Framework Agreement: A New Legal Regime for the Nile River?" *Governing the Nile River Basin: The Search for a New Legal Regime*, 83-89. Brookings Institution Press, 2015. http://www.jstor.org/stable/10.7864/j.ctt130h973.11.

205 As of 2015, Burundi, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda have signed the Cooperative Framework Agreement. In addition to the Sudan and Egypt, the Democratic Republic of Congo and Eritrea (an observer) have yet to sign.

206 As of March 2015, Ethiopia, Rwanda, and Tanzania have ratified the Cooperative Framework Agreement.

complicating the matter, the Democratic Republic of Congo has yet to sign the CFA as it views the agreement to be entrenched in rights provided by colonial-era agreements.[207]

If the CFA is to reflect an adequate legal mechanism to cooperate on Nile River Basin states' access to freshwater resources, state differences surrounding Article 14(b) and the rights and uses of the Nile waters as stipulated within the Nile Waters Agreements must be resolved. All those involved in the CFA, including the Sudan and Egypt, must also be willing to address changing circumstances in the development, use, and management of Nile Basin waters. This is especially important when considering the unpredictable environmental impacts of climate change, which will increasingly affect the supply and demand of the region's water through natural events such as flooding and drought.[208] Therefore, it is only when the Sudan and Egypt give up the rights and uses of the Nile waters provisioned to them through the Nile Water Agreements that the CFA is capable of pushing past the boundaries of state-centrism and embrace the flexible and inclusive use of the Nile waters as embodied within the principle of equitable and reasonable utilisation and participation.

3.2.3 Adaptability

The adaptability of the Nile Basin is confronted by several major issues, especially with regards to climate change.[209] As previously mentioned in Chapter 2, the most recent IPCC African Assessment Report has predicted that the amount of precipitation in Northern Africa is likely to be significantly reduced by the end of the century.[210] Furthermore, the IPCC's AR5 predicts that areas such as the Nile Basin region are like to experience climate change variabilities and impacts on the freshwater ecosystems, temperature, precipitation, and overall water availability. Therefore, the CFA must permit the adaptation to the constant

207 Nyaoro, 247.
208 Isabelle Niang, *et al.*, 1202.
209 For more information regarding the IPCC's most recent assessment report, see Chapter 2.
210 Isabelle Niang, *et al.*, 1202.

interplay between the supply and demand of water resources caused by present and future climate change variabilities and impacts within the Nile Basin region.

The CFA has several provisions addressing the sharing of data and information concerning the Nile River Basin, including the regular exchange of data and information found in Article 7, stating that, "Nile Basin States shall on a regular basis exchange readily available and relevant data and information on existing measures and on the condition of water resources of the Basin, where possible in a form that facilitates its utilization by the States to which it is communicated."[211] Moreover, Article 8 stipulates that Nile Basin states must exchange the aforementioned information by way of the Nile River Basin Commission.[212] Regarding environmental impacts on the Nile Basin, the CFA includes environmental impact assessment and audits, stipulating that Nile Basin states must conduct a comprehensive assessment of the environmental impacts for any planned measures that may impact their respective territories and the territories of other Nile Basin states.[213]

Yet, while the CFA does have well-developed provisions with regards to it adapting to future environmental challenges ahead, one of the most effective methods of Nile Basin cooperation on matters of adaptability has been the creation of a joint institution to facilitate basin-wide cooperation.[214] Aside from the Nile Basin Initiative's (NBI) aim to create a legal framework through which Nile Basin states can achieve transboundary cooperation, the NBI complements the CFA by building a strong basin-wide institution that has the capacity to quickly adapt to new environmental circumstances in the region. In December 2012, the NBI established the Nile Basin Decision Support System (NB DSS) where scientific knowledge and analytical tools are used among Nile Basin states to enhance cooperative and adaptive

211 Art 7(1) of the Cooperative Framework Agreement.
212 Art 8(1) of the Cooperative Framework Agreement.
213 Art 9(1) of the Cooperative Framework Agreement.
214 Magsig, 63.

water use and management.[215] Developed by the NBI and Nile Basin member states, the NB DSS "is a common computer-based platform for communication, information management and analysis of water resources. It provides a framework for sharing knowledge, understanding river system behavior, evaluating alternative development and management strategies, and supporting informed decision making."[216] Furthermore, the NB DSS specifically focuses on issues related to climate change and water quality, such as flood protection and impacts, energy development (hydropower), optimal water resources utilisation, crop-production and irrigation, and drought management.[217]

3.2.4 Ambit

The major factor that determines the ambit of the CFA is the relationship between the downstream riparians (the Sudan and Egypt) and upstream Nile Basin states. As previously mentioned, Egypt and the Sudan's disagreement regarding Article 14(b)'s stipulation that Nile Basin states must agree "not to significantly affect the water security of any other Nile Basin States"[218] has led to both countries not being party to the agreement.[219] As a result, this means that the ambit of the agreement is limited with regards to both the waters covered by the CFA, as well as those who are party to the utilisation of the Nile waters. The CFA, therefore, does not, in its present state, embody a transboundary agreement that has the ambit required to face water insecurity in the Nile Basin region.

Egypt and the Sudan's opposition to Article 14(b) also signifies a deeper struggle related to water security which stretches far beyond the Nile River Basin. As mentioned

215 Nyaoro, 253.

216 Nile Basin DSS. *What is the Nile Basin DSS?* Viewed on 30 May 2017, <http://nbdss.nilebasin.org/support/solutions/articles/4000039715-what-is-the-nile-basin-dss->

217 Ibid.

218 Art 14(b) of the Cooperative Framework Agreement.

219 The Democratic Republic of Congo is also not party to the agreement, although it also rejected Egypt and the Sudan's position towards Article 14(b).

earlier in Chapter 3, Magsig argues that the ambit within transboundary agreements must address issues related to both national and absolute sovereignty and distributive equity.[220] This means that for the CFA to become a transboundary legal framework with the capacity to enhance cooperation and facilitate management of the Nile Basin waters, all Nile Basin states, including Egypt and Sudan, must be included. In doing so, the ambit of the agreement will cover more waters protected by the regime, include all participating parties who utilise the Nile waters, and view interests and concerns related to water security within the wider scope at hand. It is only when they fully merge their local and national challenges into the CFA that Nile Basin states can effectively manage the waters of the region in the face of future water stress.

220 Magsig, 66.

Conclusion

The variability of outcomes caused by global climate change represents a major threat to the world's water security. Consequently, water management and governance must transcend borders to promote peaceful and sustainable transboundary water relations. A powerful mechanism used to establish international cooperation that enables transboundary states to work together to collectively tackle arising water security challenges is transboundary water agreements.[221] A community—as opposed to state-centric and military focused—approach to water security must be implemented if states are to rid themselves of hydroegoism and, instead, embrace a form of cooperation that facilitates hydrosolidarity.[222]

To achieve hydrosolidarity in the face of water security challenges, we must first conceptualise water security in a way that enables the concept to go beyond political rhetoric and become operationalised in a way that can address the complex and varied needs of the community.[223] By focusing on the basin-wide community of the Nile River Basin states, this thesis concentrated on the concept of water security as implemented within the Nile Basin Initiative's Cooperative Framework Agreement. Specifically, this thesis explored how the current CFA between Nile Basin states conceptualises water security by operationalising the concept through Bjørn-Oliver Magsig's analytical approach based on the 4 'As': 1) availability; 2) access; 3) adaptability; and 4) ambit.[224] In doing so, I addressed how the concept of water security has been implemented into the Nile Basin region's wider efforts to create a transboundary regime which facilitates state cooperation on current and future issues related to the Nile Basin waters. I argue that the results from operationalising Magsig's 4 'As'

221 UN-Water. *Promoting Water Cooperation: Legal frameworks and institutional arrangements.* Information Brief, 2013.
http://www.un.org/waterforlifedecade/water_cooperation_2013/pdf/info_brief_legal_frameworks.pdf

222 Gerlack et al., 314.

223 Magsig, 207.

224 Magsig, "Introducing an Analytical Framework for Water Security: A Platform for the Refinement of International Water Law," 65.

demonstrate that Nile Basin states continue to lack a transboundary agreement that embeds the concept of water security needed to collectively address the present and future water issues within the region. While the framework of the CFA shows strength in its capacity to address issues related to the Nile River Basin waters' availability and adaptability, both the access and ambit of the agreement remain the biggest challenges for the CFA to become an effective mechanism used to assist Nile Basin states to work together to tackle arising water security challenges.

More closely, the 4 'A' analysis of the Nile Basin's CFA has proven the following: firstly, the analysis has shown that there are strong provisions related to the 'availability' of waters as understood by Magsig. For example, Article 6 contains regulations to protect and conserve both the Nile Basin waters and its ecosystem.[225] Additionally, Article 5 addresses the obligation not to cause significant harm to other Basin states.[226]

Secondly, in regards to the 'adaptability' of the CFA, the analysis demonstrates that Articles 7 and 8 provide well-developed provisions which aid Nile Basin states to exchange and share data to better adapt to the unknown future of environmental challenges.[227] Furthermore, the CFA is complemented by the Nile Basin Initiative's Nile Basin Decision Support System—a computer-based platform used among Nile Basin states as a means to share, understand, and evaluate scientific knowledge of the Nile River Basin in order to address issues related to climate change and water quality.[228]

Thirdly, the 'access' to water resources of the Nile is addressed within the CFA by its implementation of the principle of equitable and reasonable utilization.[229] Yet, while the principle is applied within the framework, Egypt and the Sudan refuse to give up their rights

225 Art 6 of the Cooperative Framework Agreement.
226 Art 5 of the Cooperative Framework Agreement.
227 Art 7-8 of the Cooperative Framework Agreement.
228 Nile Basin DSS. *What is the Nile Basin DSS?*
229 Art 4 of the Cooperative Framework Agreement.

and uses of the Nile waters provisioned to them through the Nile Waters Agreements. Consequently, the Nile Basin states continue to be divided over the CFA's Article 14(b)'s stipulation related to the equitable allocation of Nile waters.

Lastly, the 'ambit' of the Nile waters is limited as the agreement does not include the Democratic Republic of the Congo, the Sudan, or Egypt, nor the waters covered by the three states. The analysis of the CFA's ambit has proven that the downstream Sudanese and Egyptian hydro-hegemony of the region is yet to be resolved. More importantly, the failure to receive the signatures of the Sudan and Egypt has lead the treaty to a standstill. Therefore, when taking into consideration the agreement's lack of accessibility and ambit as understood by Magsig, this thesis argues that the Cooperative Framework Agreement, in its present form, has failed to implement the concept of water security in a way that facilitates the Nile River Basin states to effectively cooperate on current and future water security issues in the region.

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