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State Centric versus Human Centric: How Should Water as a Conflict Variable be Understood?



A Research Report submitted to the Faculty of Humanities in partial fulfilment of the requirements for:

The Degree of Master of Arts (by Coursework and Research Report) in International Relations

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Abstract

In this thesis, the continuous dialogue between state-centered and human-centered approaches to security studies is discussed in the context of their ability to explain emerging threats within the international system. One emerging threat that has received a particularly large amount of attention is the possibility of water wars in the future. Water Wars are deemed to be conflicts that have water as their primary driving force, both in the onset and continuation. Through the use of the Chad River Basin and the Nile River Basin, this thesis will determine how each approach to security studies explains a particular conflict over water by, considering how each of them explain a "water war" within these Basins. Importantly, through this approach, the thesis aims to determine in what way, if any, the human- centered approach offers a better explanation to water-related conflict than state-centered security. In doing so, the thesis unpacks the various factors relating to the use, distribution and management of shared watercourses. While the findings in this thesis are not exhaustive, it is hoped that it will provide insight into how one ought to understand *who* is likely to be party to water wars and *what* is likely to be threatened in these water wars.

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Declaration

I, ***Ricardo de Sao Joao,*** declare that this work is my own unaided, original work unless, where I have explicitly indicated otherwise. I have followed the referencing conventions of the University of the Witwatersrand, Johannesburg. In addition, I declare that this work has not been submitted to any other University for Degree Purposes.

Signed on……of…….., 2013

…….

Ricardo de Sao Joao

Johannesburg

Dedication

For My Mommy in Heaven, Rest in Peace

And

All those who lost their brave battle with Cancer

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List of Abbreviations Used

CAR	Central African Republic
CSS	Critical Security Studies
ECOWAS	Economic Community of West African States
EU	European Union
ECSC	European Coal and Steel Community
FAO	Food and Agricultural Organisation
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEF	Global Environment Facility
GWP	Global Water Project
HDI	Human Development Index
ICJ	International Court of Justice
IPCC	International Panel for Climate Change
IPE	International Political Economy
IRCC	International Red Cross Committee
ISS	International Security Studies
LCBC	Lake Chad Basin Commission
LHWP	Lesotho Highlands Water Project
NBI	Nile Basin Initiative
MENA	Middle East and North Africa
TRWR	Total Renewable Water Resources
UN	United Nations
UNESCO	United Nations Educational, Social and Cultural Organisation
UNEP	United Nations Environmental Program

UNSC	United Nations Security Council
UNSG	United Nations Secretary General
USSR	Union of Socialist Soviet Republics
WB	World Bank

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Chapter 1

Introduction

1.1 Introduction

In the absence of clear examples of water wars between states, it is not clear that State Security can explain conflict over water.[1] To this end Human Security has emerged as an alternative explanation for the factors that motivate conflict over water. In the Chad River Basin a multitude of factors not located within the context of Human Security, played an important role in the onset of conflict within the region. These factors range from the effect that access to water has on food security to the ability to sustain economic growth in a time that is increasingly dependent on alternative forms of energy production.[2] The ontological status of water as a security concern can therefore not be confined to traditional security concerns such as an arms race or nuclear weapons proliferation.

In this thesis, the author examines the extent to which both state security and human security explain the onset of conflict over water in order to determine in what way, if any, human security offers a better alternative to state security in explaining water conflict, particularly as it is likely that conflict over water will not limited to soldiers of a national army or even a particular location in terms of a battlefield.[3] In this chapter the conceptual grounding for the thesis is clarified. It includes an introduction to why the way in which water is understood as a security concern is relevant to the debate over water within Security Studies. In addition, it makes clarifications to the scope of various concepts, such the criteria for a case to be considered a conflict that will be used within the thesis. The second chapter will discuss the

[1] Allan, J.A, Hydro-Peace in the Middle East: Why No Water Wars? A Case Study of the Jordan River Basin" SAIS Review, Vol. 22, Iss. 2, 2002, pp. 255-272

[2] Brown, L.R., and Halweil, B., " China's Water Shortage Could Shake World Food Security" World Watch, July/August 1998 , http://wefts.org.au/downloads/policy/China's%20Water%20Shortage%20lester_brian.pdf pp.10-21

[3] There is an increasing trend in literature that examines future threats to security that focusses on what the future conduct of warfare might entail. For example, an advance in the field of technology has meant that information related to the conduct of war has become more accessible in terms of the speed of communication and so on. What it also means is that battlefields in addition to the mode of attack and even how one identifies the enemy is increasingly hard to identify. An example of this is cyber-warfare in which both the enemy and the battlefield cannot easily be designated to one particular location, see Ignatius, D., "The Future of Warfare" in The Washington Post, 2 January 2011, http://www.washingtonpost.com/wp-dyn/content/article/2010/12/31/AR2010123104128.html (date accessed: 2012-10-22)

two ways in which water as a security concern can be understood, namely state centric and human centric security. The third chapter introduces the Lake Chad River Basin as a case of inter-state conflict over the appropriation and use of a Transboundary water resource. The fourth chapter introduces the Nile River Basin as a form of inter-state water conflict specifically by discussing the case of the Suez Crisis of 1956. The fifth chapter concludes the thesis by summarizing the debate of the preceding case studies and explaining the significance of the findings for the debate of water as a security concern within Security Studies.

1.2 Problem Statement

In 1985 it had been stated by Boutros Boutros Ghali that wars in the future are likely to be fought over water.[4] However, the absence of clear evidence for such a war to date in combination with the fact that many scholars on water politics ultimately see water as grounds for cooperation rather than conflict does not give any empirical grounding to the water wars hypothesis. The hypothesis claims that water is likely to become a focal point on wars fought between states in the future and is exacerbated by both climate change and increasing population density.[5] The objections to the former United Nations (UN) Secretary General's observation are justifiably grounded in the widely held belief that water has never been a direct motive for inter-state conflict.[6] Notwithstanding the former, there are cases in which water has been an indirect motive for interstate conflict. Moreover, where water has been mentioned as a potential direct cause of conflict, it is very difficult to separate the issue of water from other political issues, which are more likely to sit at the root of conflict.[7] The problem remains that if water is going to be a motive for conflict between states, it is not clear how one ought to characterise that motive. To fully understand how water could be a motive for conflict it is important to understand how water security, which refers to "the reliable availability of water for health, livelihoods and production, coupled with an

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[4] Klare, M.T., Resource Wars: The New Landscape of Global Conflict, Owl Books, New York, 2001 pp.12-13 (e-book loc. 435) See also Priscoli, J.D, "Water, Security and Global Water Policies" in Water Climate Lecture Series, Princeton University, 3 March 2010, p. 3 (available online at www.princeton.edu/pei/**water**-climate/priscoli_jerry.ppt *date accessed: 2012-11-12)*

[5] This is a term that is used in the literature for those who examine the relationship between conflict and water, see Cooley, J.K., "The War Over Water" Foreign Policy, No 54, 1984 , pp. 3-26 see also Starr, J., "Water Wars" Foreign Policy, No 82, 1991, pp. 17-36

[6] Wolf, A.T., "Water Conflict and Cooperation" in Water Policy, Vol. 1, No. 2, 1998 (available online in html format at: http://www.transboundarywaters.orst.edu/publications/conflict_coop: date verified 2012-09-15)

[7] Wolf, A.T., (et.al.) "Managing Water Conflict and Cooperation" in State of the World, The Woldwatch Institute, 2005, p. 83

acceptable level of water related risks", is threatened.[8] It is equally important that one determines exactly who the referent object of water security is and by extension exactly who is threatened when water security is threatened. In this way one would have a clear indication of how water security is threatened, while at the same time having an indication of exactly who experiences threats to water security.

This thesis aims to demonstrate an alternative approach in understanding water as a security concern. It argues that a human-centric approach, which is grounded in the principles of Human Security, offers a better alternative to the state-centric approach. The state-centric approach by contrast to the human-centric one sees the process of water conflict as one that occurs at the state level, rather than individual level.[9] Therefore the problem of water as a source of conflict is located within the sphere of political interaction amongst states rather than that of the individuals that make use of water for daily activities.

1.3 Rationale for this Research

Literature on water related conflicts and how they ought to be understood is seemingly dichotomised by state-centric and human centric approaches to hydropolitics.[10] What this means is that the literature as it stands tends to focus on water security whose referent object is either states themselves or people and does not consider one against the other within the same case.[11]

However, very little if any of the current literature focus on the merits of the arguments they oppose. Furthermore, they do not explicitly give empirical grounding to their findings other than to select cases that fit their desired conclusion.[12] In this study is that reader will be invited to consider both state-centric and human-centric views within the same case study. Ultimately while the human-centric approach will be argued as the better alternative, it does not mean to say that the state-centric approach lacks legitimacy altogether.

In summary by the end of this dissertation, the reader will be in a better position to distinguish the ways in which conflict over water can be understood. In addition the reader

[8] Muller M., (et.al) "Water Security in South Africa" in Working Series Paper No. 12 Development Planning Division, Development Bank of South Africa, Midrand, South Africa, 2009, p. 8

[9] This is argued by those who maintain that war as a tool of statecraft and national interest is exclusive to the State as an actor within the international system.

[10] Turton, A., "Report on the Hydro political Dimension" in Strategic View of River Research, Water Research Commission Project, WRC Report No. 1198/1/03, February, 2003, pp. 65-67

[11] For a in depth discussion on the dichotomy within the literature see: Kerr, P., The Evolving Dialectic Between State-Centric and Human Centric Security, Working Paper 2003/2, Department of International Relations, Australian National University, September, 2003, pp.4-6

[12] As will be argued later, Thomas Homer-Dixon in particular is accused of this.

will have a better understanding of how both the state-centric and human-centric approaches to water conflict are characterized.

1.4 Literature Review

The debate on the possibility Water Wars has been rife within the last twenty years.[13] The emergence of the debate within this period is partly a function of the shifting focus of Security Studies after the end of the Cold War.[14] Those active in the debate include, but are not necessarily limited to politicians, policy-makers, the media and academia.[15] The debate itself has largely concerned itself with whether or not such wars are likely to occur between states. It is also concerned with what the contributing factors for such a war would be.[16] For the sake of brevity, in this thesis this debate will be called the water-wars hypothesis.

The water-wars hypothesis and those who support it have increasingly had the legitimacy of the hypothesis challenged. The challenge is centered on the lack of empirical validation in that water has not been a driving force for the onset of war, even when conceding that politicians have threatened the use of force where water has been identified as a strategic end.[17] However, the lack of an inter-state war fuelled by water does necessarily mean that conflict over water is not likely or is impossible. It does not follow from the fact that because water-wars between states are historically absent that water wars are unlikely in the future. The issue then is less about the possibility of wars over water but rather who would be the parties to such war.

This presents another problem for the water-wars hypothesis in that current literature is not very clear on what is considered to be "war". War, for example, can refer to an absolute war in which the entire resource pool of a state is directed towards warfare or achieving a political goal.[18] Alternatively, it could refer to war in a Clauswitzean sense where war is the

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[13] This contention is justified taking into account the numerous articles written by Ashton, Turton and Gleick. For a comprehensive bibliography see Turton, A., "Report on the Hydro political Dimension", Op.Cit. pp. 65-67 and pp. 71-82

[14] Baldwin, D.A., "Security Studies and the End of the Cold War" in World Politics, Vol. 48, Iss, 1, 1996, p.117

[15] Katz, D., Hydro-Political Hyperbole: Examining Incentives for Overemphasizing the Risk of Water Wars in Global Environmental Politics, Vol. 11 Iss.1, February 2011, p. 12

[16] Ibid pp. 19-20. For Katz, the debate concerning the water wars-hypothesis concerns multiple actors within the international system that have their own motives for either supporting or critising the possibility of Water Wars. In some cases these incentives are shared

[17] Baylis, J and Wirtz., " Introduction" in Baylis, J., Cohen, E., Gray, C.S., and Wirtz, J, (eds) Strategy in the Contemporary World Oxford University Press, Oxford 2007, pp. 2-13

[18] Loc.Cit.

continuation of politics by other means.[19] For this reason, Katz concedes that "water wars" refers to water based conflict rather than war in a traditional sense and therefore highlights a variety of state interactions that qualify as "water wars".[20] However, this is perhaps less analytically useful than it initially seems, since it now allows for any skirmish or disagreement to be labeled as conflict. In essence it provides those in favor of the water wars hypothesis with the empirical validation that they are accused of not having. For this reason, it is necessary to determine the scope of the term "conflict". Wolf suggests that determining the scope of "conflict" is what drives the lack of consensus on the water wars hypothesis.[21] Katz for example uses a definition that encompasses the most common understanding of conflict by both those who support and oppose the water wars hypothesis, which takes "the potential for use of armed force or armed conflict" into account.[22] However, this is problematic for two reasons. One is that "armed" needs to be specified such that it is clear whether or not by armed one means traditional military arms or whether or not "armed" could include the use of non-traditional weaponry such as biochemical agents, such as Anthrax or technology-based weapons such as computer viruses. The other reason is that it provides little insight into exactly who the combatants for these conflicts would be. In terms of applying the human-centric approach to water conflict, the process is made redundant if the definition of conflict falls outside the scope of the human-centric approach, which would be case if armed were defined in the traditional sense, since traditional military forces fit within the scope of the state-centric approach. For the purpose of this dissertation, the term conflict will refer to a dispute in relation to the use and/or allocation of water resources between two parties regardless of being state or not state actors. In addition, a case of conflict would also need to meet the requirement of 25 conflict related deaths per calendar year in order to qualify as a conflict.[23] With this definition in hand, the potential combatant in "war wars" is not restricted to the state nor is the way in which the conflict is fought restricted to traditional means. The addition of a limitation on deaths arising out of such a dispute lends itself to eliminating trivial conflicts from being considered.

[19] For a discussion on Clauswitzean thought see: Paret, P., " Clausewitz Life and Thought", Chapter 7 in Understanding War: Essays on Clausewitz and the History of Military Power Princeton University Press, Princeton, New Jersey 1992, pp. 95-122
[20] Katz, D. Op.Cit, pp. 13-14
[21] Wolf, A., Giordano, M., and Yoffe, S "International Waters: Identifying Basins at Risk" Water Policy, Vol. 5, Iss 1, 2003, pp. 29–60
[22] Katz, D., Op.Cit. pp.13-14
[23] See Section 1.6 under the term conflict for a brief discussion concerning this use of the term "Conflict"

The positions for and against the water wars hypothesis will be presented in order to highlight the literature, as well as to provide preliminary insights into the contribution of this dissertation to that literature, the arguments are considered next.

1.4.1 Arguments in Favour of the water wars hypothesis

Arguments in favour of the water wars hypothesis can be viewed in three different categories. The first category are the statements made by politicians, which demonstrate the "political rhetoric" argument, the second is that water is increasingly becoming a strategic tool that can be used to achieve other political ends, especially within the international community, and the final category looks at water wars forming part of the larger "Resource Wars" argument for war.

The political rhetoric of the potential for conflict over water is evident in comments made by political figures both within state and non-state organizations. These include the often cited former Secretary General of the UN (UNSG) Boutros Boutros Ghali and former World Bank Vice-President Ismail Seragaldin as prominent political figures of their time.[24] Katz in particular agrees with a sentiment stated previously that cases in support of the water wars hypothesis tend to be anecdotal and are often selective.[25] Many of the cited conflicts that fall within this category include conflicts in the Middle East and parts of Asia in which water is often peripheral to other broader political issues; this is the case with the Middle East in terms of the Israel-Palestine conflict.[26] The legitimacy of the political rhetoric argument is evident in that those directly involved in state policy making-or at the very least have a strong influence on state policy, such as former Egyptian Deputy Prime Minister and UNSG Boutros Ghali, are the very ones that are warning of the likelihood of water wars between states.

The second argument for the water wars hypothesis is that water will increasingly become a strategic tool that will be used to further some other political end.[27] The historical importance

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[24] Crossette, B., "Severe Water Crisis Ahead for the Poorest Nations in the Next 2 Decades", New York Times, http://www.nytimes.com/1995/08/10/world/severe-water-crisis-ahead-for-poorest-nations-in-next-2-decades.html (date accessed: 2012-05-10) ***note*:** this article is cited by others, including Katz, as the basis for political rhetoric in support of the water wars hypothesis.

[25] Katz specifically discusses how writing on water-wars uses Null Hypothesis testing to "keep the issue alive" Katz., D., Op.Cit. p. 28

[26] Ibid. pp.14-15

[27] Gleditsch, N.P., "Environmental Change, Security and Conflict" in Aall, P, Crocker, C.A., and Hampson F.O. (eds.) Unleashing the Dogs of War: Conflict Management in a Divided World, University of Peace Press, Washington D.C. 2008 p. 190

of water is most evident in regions of water scarcity such as the Middle East and North Africa (MENA).[28] Water that lends itself to water wars in terms of the relationship between riparian countries and the access to the supply of water. The strategic nature of water is explained succinctly in the relationship between up-stream and down-stream riparian countries where the former has the ability to control the supply that the latter receives. When related to the concept of strategy, up-stream riparian countries can easily coerce their down-stream counterparts into making decisions that they otherwise would not have by influencing either the quantity or the quality of supply. The relationship between adequate supply or quality of water and riparian countries using water as a strategic tool is further evident in the increasing pressures that climate change is placing on the supply of global waters.[29] Water as a strategic tool is therefore seen in riparian countries responses to the increasing water-deficit, where the water that is supplied does not meet water demanded.[30] An example of which would be a country that has a higher per capita withdrawal rate of water resources relative to its renewal rate of those resources-such as Egypt and other MENA countries[31]

The Lesotho Highlands Water Project (LHWP) is an example of how water is a strategic tool, as well as target in times of war, in the context of bilateral inter-state relations. The LHWP in principle is meant to reroute 2986 million cubic meters of water per year from the Katse and Mohale dams within the Lesotho Mountains to South Africa's Vaal dam.[32] The project is designed to improve the economy of Lesotho in terms of Foreign Direct Investment (FDI) while at the same time providing the South African economy with a much-needed water supply. The South African government uses the water from the LHWP to offset shortages in domestic supply as well as to provide water for hydroelectric ventures.[33] The LHWP demonstrates a correlation in water as a strategic interest if one considers the 1998 incursion. Although water plays an important role in the relationship between South Africa and

[28] Allan, T., "Water resources in semi-arid regions: Real deficits and economically invisible and politically silent solutions" in Henwood, R., and Turton A. (eds.), Hydropolitics in the Developing World: A Southern African Perspective, African Water Research Unit, 2002, p. 23
[29] Turton, A., "Hydropolitics: The Concept and its Limitations" Op.Cit. p. 14, see also Homer-Dixon, T.F., "On the Threshold: Environmental Changes as Causes of Acute Conflict" International Security, Vol. 16, Iss. 2, 1991, pp. 77-78
[30] Allan, T., Op.Cit. pp.26-27
[31] The assumption here is that per capita withdrawal indicates demand while per capita renewal indicates supply. The argument could possibly be extended to countries whose withdrawal is disproportionate to their contribution in the case of transboundary watercourses, see withdrawal relative to contribution for Egypt in Chapter 4
[32] Pretorius, L., "Lesotho Highlands Water Project in numbers", Financial Mail 3 May 2012, http://www.fm.co.za/Article.aspx?id=170867 (date accessed: 2012-05-19)
[33] Loc.Cit.

Lesotho, its role is indeed one of strategic value.[34] From this it is argued that the South African Military's defense of the Katse Dam can be seen as an example of exactly how water has strategic value within the context of Southern African geo-politics.[35] It is actions similar to this one on the part of governments that gives validity to the argument that water is forming an increasingly larger proportion of national interest.

The final way in which the water wars hypothesis can be defended is by demonstrating water wars to be a form of "Resource Wars". The term refers to wars that are and will be fought over access to valuable commodities such as gold, oil and other valuable minerals.[36] One argument that is presented in principle by those such as Sadat, Ghali and current Egyptian politicians, who believe in the possibility of water wars, is that water is one of these valuable resources. This is because Egypt has traditionally closely linked its national interest to water, primarily because of Cairo's dependence on the Nile for various water-dependent industries, such as agriculture.[37] As a result of this close link to national security, in 1979 upon signing a peace treaty with Israel, Anwar Sadat suggested that water was the only resource Egypt would protect through the conduct of war if necessary.[38] The analysis of water as a resource over which states will go to war suggests that water has intrinsic value; the question however is what exactly makes water valuable and why should one consider water wars as a form of resource wars?

Klare argues that water, like oil, is increasingly vulnerable to shortages given that supply is rapidly diminishing. In addition, the ability to renew supplies of water is also strained given that population increases and climate change impact both distribution and structural availability.[39]Water therefore faces problems of both demand-induced and supply-induced scarcity. Water is important since it, like oil, is instrumental for the functioning of modern society, but water is unique in that there is no substitute for it[40] At its very essence, water is essential for both human health and survival. It is used for drinking, sanitation and the

[34] Meissner, R., "Water and South Africa's involvement in Lesotho" African Water Issues Research Unit, Occasional Paper, http://www.awiru.co.za/OccasionalP.asp#m (date verified: 2012-09-15)
[35] Loc.Cit.
[36] Klare, M.T., Resource Wars: The New Landscape of Global Conflict, Owl Books, New York, 2001 pp.12-13(e-book Loc. 435)
[37] Darwish A, "Water Wars: The next major conflict in the Middle East" MidEastNews.com www.mideastnews.com/WaterWars.htm (date verified: 2012-12-21)- the article as it appears on MidEast News is an extract of a lecture present by Darwish at the Geneva Conference on Environment and the Quality of Life in June 1994.
[38] Loc.Cit.
[39] Klare, M.T., Op.Cit. p. 20 (e-book 466)
[40] Ibid. pp. 20-21

production of food.[41] According to World Bank (WB), the minimum requirement for water supply is 25 liters per day (10cm^3 per annum). A "reasonable supply" for maintaining health is around 100-200 liters per day (40-80cm^3), per capita.[42] The supply for the maintenance of health fits well with the understanding of domestic uses of water, where people use water on a day-to-day basis for the purpose of cooking, cleaning and sanitation. This however is only a fraction of the uses of water, when one adds the demands of agriculture, industry and energy production (all of which are essential in their own right for human survival) the minimum requirement is closer to 1000 cm^3 per capita, per year.[43] Of all the uses of water, irrigation (used predominately in agriculture) accounts for roughly 70 percent of global freshwater water consumption.[44] This in turn means that the food production required to sustain the current global population is vulnerable to both increases in demand.

In addition to the strain on demand, the potential for supply-induced water scarcity has become equally contested. In section 1.4.3, which discusses water-related rather than supporting the water wars hypothesis directly, Thomas Homer-Dixon presents the argument that increased environmental pressures, the most notable of which is climate change, will lead to problems in the structural supply of water.[45] While Homer-Dixon's analysis will be explicated further at a later stage, he makes an important contribution to how one might view water as a valuable resource. He demonstrates that demand is only one side of water a valuable resource and that even if demand was stabilised, potential problems in supply could also lead to a situation in which demand cannot be met. In addition, Homer-Dixon also suggests that structural availability of water when threatened could have an impact on the production of food crops.[46] Subsequently one can draw a connection between the supply of water needed for human survival and the potential for conflict in which people (or states) will fight to either maintain or gain access to water for their survival.

The arguments in favour of the water- wars hypothesis hinge on the relationship between supply deficits and the extent to which states will engage in conflict to correct those deficits. While the water wars hypothesis lacks empirical validity, in that it is not clear that water has

[41] Ibid. p. 140 (e-book Loc. 2460)
[42] World Bank, A Strategy for Managing Water in the Middle-East and North Africa, World Bank, Washington D.C., 1994, p. 11
[43] Klare, M.T., Op.Cit. p. 140 (e-book 2460)
[44] Ibid.p.143 (e-book 2527)
[45] Homer-Dixon, T.F., "On the Threshold: Environmental Changes as Causes of Acute Conflict" International Security, Vol. 16, Iss. 2, 1991, p.77
[46] Loc.Cit.

been the focal point of any conflict, it is very clear that an incentive for conflict over water does exist. This potential for conflict is evident in the multiple uses of water and dependence that human life has on the availability of water. However, those in favour of the possibility of water wars in the future are met with criticism. This criticism pivots on the co-operational nature of hydropolitics as well as the incentives for over-emphasizing the water wars hypothesis within the political arena and the media.

1.4.2Arguments against the Water Wars Hypothesis:

Arguments against the Water Wars Hypothesis can be seen in two categories. The first is in direct contrast to the arguments for Water Wars in that water is likely to be a catalyst for cooperation rather than conflict. The second category argues that water has at best only been a catalyst for conflict and Boutrous Boutrous Ghali and Ismail Seragaldin have therefore mistaken water as a direct cause of conflict.

Over the last 50 years, roughly 105 water- related Treaties have been ratified, or at the very least are in the process of being ratified world-wide, while during the same time only 37 "acute disputes involving violence" over water were recorded. [47] Moreover, in many cases such as Lake Titicaca, shared by Chile and Bolivia, water has proven to be a central part of historical cooperation rather than motivate conflict.[48] The response from the international community has been even more impressive. It has seen the formation of various policy documents, awareness campaigns and inter-organizational collaboration on water-related issues.[49] So from what can be seen within the literature there is an acknowledgement that water-related issues have become important within the context of the international arena and that it continues to form part of many inter-state relationships, as is the case with Lake Titicaca.

Jagerskog argues that water regimes are an important element of co-operation over water resources, since they promote norms and values that are conducive to the convergence of

[47] Giordano, M.A., and Wolff, A.T., "Sharing the Waters: Post-Rio International water management" in New Resources Forum, 27, 2003, pp. 163-164

[48] Newtown, J.T., "Case Study of Transboundary Dispute Resolution: Lake Titicaca" Oregon State University Program in Water Conflict Management and Transformation, http://www.transboundarywaters.orst.edu/research/case_studies/Lake_Titicaca_New.htm (date accessed 2012-05-19)

[49] An example of which is United Nations Water Week, see UN Water www.unwater.org (date accessed (2012-05-19)

interests.[50] So co-operation then can be explained by appealing to an interdependent nature of the international community. However, Jageskog concedes that cooperation within the context of a water regime does not occur in isolation from other issues.[51] Water co-operation is therefore more a function of historical agreement and interdependence than an agreement in its own right. This analysis would seemingly explain the co-operation between Chile and Bolivia as one in which both States have had historical converging interests and have acknowledged those interests. It also explains the lack of co-operation over water within the Middle East as something that is not historically grounded. In this way water within the Middle East is best seen as a policy area that lacks historical convergence, but is not deprived on convergence altogether.[52] An example of convergence within the Middle East can be seen in Article 6 of the Israel-Jordan Peace Treaty, which specifically addressed equitable sharing of water from the Yarmouk and Jordan Rivers.[53] In both the original Treaty and various annexures the concept of cooperation over water is given specific attention, which suggests that water is not as peripheral to conflict (armed or otherwise) as Gleditsch suggests. The point here is that if water does in fact form an important part of political relationships such that it is enshrined in Treaties, then it seems difficult to suggest that co-operation over water is unlikely even in the Middle East in spite of its structural as well as supply-induced deficiency. In terms of water regimes, Jagerskog could argue that even in regions where cooperation is difficult to achieve and distrust is rife, water-related cooperation is still possible. Therefore any lack of cooperation over water in the Middle East could be seen as relatively acute, and should not be taken as a reflection of the history of cooperation and securing common interests in the Middle East.

The importance of co-operation over water and the need to enforce it has also not gone unnoticed by the international community. The United Nations General Assembly (UNGA) adopted *The Convention on the Law of the Non-Navigational Uses of International Watercourses* (The Water Courses Convention) on the 21 May 1997.[54] The Convention is

[50] Jagerskog, A., "Contributions of Regime Theory in understanding inter-state water cooperation: Lessons learnt from the Jordan River Basin" in Henwood, R., and Turton A. (eds.), Hydropolitics in the Developing World: A Southern African Perspective, African Water Research Unit, 2002, p.
[51] Jagerskog, A., Op.Cit p. 76
[52] Gleditsch, N.P., Op.Cit. p. 182
[53] Various copies of the Treaty are available. A copy is available in html format from the Cyber Library of Jordan, see Treaty of Peace between The Hashemite Kingdom of Jordan and The State of Israel, 26 October 1994, www.kinghussein.gov.jo/documents.html (date verified: 2012-12-21)
[54] Eckstein, G.E., "Development of international water law and the UN Watercourse Convention" in Henwood, R., and Turton A. (eds.), Hydropolitics in the Developing World: A Southern African Perspective, African Water Research Unit, 2002, p 81

meant to provide structure in the process of drafting bi-lateral agreements and disputes on the use of water.[55] The Convention is often credited to have succeeded the Helsinki rules adopted in 1966, since the latter had become known for its appeal to non-navigational uses of water despite containing clauses that were aimed at navigational use as well.[56] The importance of managing water within the context of bi-lateral relations is demonstrated even further by The Harmon Doctrine, which seeks to set precedent for historical claims to the access of water, as was the case between Mexico and the U.S. in 1984 and 1985.[57]It is clear based on the progression from the Harmon Doctrine to the Helsinki Rules to the Watercourses Convention that water management is important within the context of developing acceptable practices in terms of the uses and distribution of water supply amongst riparian countries. However, the process itself casts doubt on the sustainability of co-operation. The level of disagreement amongst riparian countries is evident in the fact that it took 25 years, 13 separate reports and five rapporteurs to finalize the text of the convention.[58] Moreover, the process of adopting the Water Courses Convention seemingly divided riparian countries into two groups; namely, up-stream versus down-stream riparian countries. It can be argued on this basis that in spite of the increased attention that is given to water management through the adoption of the Water Courses Convention, international law itself does not necessarily guarantee the co-operation of States within the international community. So while co-operation in a historical sense negates the water wars hypothesis, it is not clear how co-operation is feasible when the historic context is absent from the bi-lateral relationship, as is the case for many of the MENA riparian countries.

The statements and assertions of politicians that have been associated with tendencies to confirm the likelihood of the water wars hypothesis have not escaped scrutiny either. In his explanation of the critique of the hypothesis, Katz notes that there is no statistical correlation between the statements of politicians showing their willingness to go to war and the onset of the related conflict.[59] Based on this it is not clear that one ought to place much emphasis on the political rhetoric of politicians, since their words are not always followed by the

[55] Ibid. pp. 81-82
[56] Ibid. p. 83
[57] Akweenda, S., "From Harmon to Helsinki: The Evolution of Key Principles in International Water Law" in Henwood, R., and Turton A. (eds.), Hydropolitics in the Developing World: A Southern African Perspective, African Water Research Unit, 2002
[58] Ekstein, G.E., Op. Cit. p. 83
[59] Katz, D., Op.Cit pp. 24-25 see Leng, R. "Influence Strategies and Interstate Conflict", in J. David Singer(ed) The Correlates of War II: Testing Some Realpolitik Models, Free Press, New York 1980, 124–157 for the analysis to which Katz refers.

mentioned action. In addition, Katz's article focuses on the incentives for what he calls over-emphasizing the possibility of water wars.[60] He argues that both politicians and the media benefit from over-playing the potential that water wars are likely. In the case of politicians, the utility behind emphasizing the risk of water wars rests in its ability to garner public support for such a war as well as serve as a negotiating tactic when there is a feeling that water resources are no longer sufficient to maintain demand. Regardless of the intention of politicians and policy-makers, there is an indication that emphasizing the ties between national security and water wars is not without merit. It is a fundamental part of co-riparian relations in the case of a shared water source, since it serves as a negotiating tactic where a disagreement over repatriation arises.[61] The threat of war over water is therefore essentially a leveraging tactic. In spite of the appeal of using water as a leveraging tactic, it has traditionally been a means to an end. For example the use of water in the form of the Southeastern Anatolia Project (GAP) and the extended political distrust between Turkey and Syria indicates water's peripheral nature in political discourse. The so-called Arab refusal of Turkey's gesture to provide drinking water to water poor countries by laying a pipe from Anatolia to the Arab Peninsula can be seen as a fear of water being used as a tool for Turkey to gain political leverage, which is very much seen as a threat to Arab national security.[62] The role of water as a leveraging-card has historically been used by Syria when it perceived a threat to its water supply supporting the Kurdish separatist movement.[63] The support of the Kurdish separatist movement has at times also generated increased military tensions, when in 1998 Turkey deployed 10, 000 troops and coordinated various low-altitude flights on the Syrian border in response to the October Crisis of 1998.[64] In this case water had a peripheral role in the militarized approach adopted by Turkey, so much so that Damascus agreed to discuss the "security question without reaching political compromise on the water problem".[65] Regardless one might argue that the GAP project and Syria's support of the Kurds when it felt threatened in terms of water access did play an indirect role in the October Crisis of 1998. Therefore even if one were to concede that there is a correlation between the statements of policy-makers and politicians and the occurrence of war over water as a form of political leverage, it remains difficult to see how water is the focal point of such leverage.

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[60] Ibid p. 24
[61] Katz, D., Op.Cit, pp. 24-25
[62] Oktav, O.Z., "Water Dispute and Kurdish Separatism in Turkish Syrian Relations" in The Turkish Yearbook, Vol.34, 2003, pp. 99-100
[63] Ibid p. 102
[64] Ibid. p. 106
[65] Ibid. p. 107

The media plays a slightly more perplexing role in the public debate concerning the water wars hypothesis. For the media, the possibility of war over water serves as a marketing strategy to sell more papers and in so doing increase profits, which is not problematic in its own right. What is problematic, however, is that the very nature of reporting does not lend itself well to the type of analysis needed to support the water wars hypothesis. This can be seen in two ways: the first is that the media often have to process very complex issues in "bite size" information that can be understood easily by readers; the second is that the media tend to focus on elements of coverage that are most likely to get attention.[66] The former is problematic in that the finer details concerning the possibility of water wars are not easily explained or examined appropriately within the constraints placed on reporters. The reality is that issues concerning hydro-politics, including the possibility of water wars whether referring to water related conflict or otherwise, are often the focus of entire dissertations by higher degree candidates, where the scope of debate is much larger. It is important to notice that the scope of reporting does not allow for fleshing out of issues to the extent that clear connections between water and war can be drawn. Ultimately this means that the media do not portray a competently balanced picture on the possibility of water wars, as the reporting does not present the complex issue in its entirety.

The second in which the media is inadequate in reporting the complexities and by extension on the possibility of water wars is that media reports are written in such a way that they get more attention, rather than out of responsibility for reporting all elements of complex political issues. This seems to link fairly well with the contention that, in some cases, the media reports are written to generate mass hysteria a sensationalist notion of water wars. Katz argues an additional factor could be that these reports are written to appeal to sensation rather than speak to any causal factor that water might have on the outbreak of war. In summation then, the media ought not to be seen as a credible source of viewing water wars as a reality, since the issues relating to water wars are not fleshed out properly nor is it particularly evident that such media reports intend to make broad-sweeping statements about the causal relationship between water and war.

In summary, the first category of arguments against the water- wars hypothesis concerns the lack of empirical evidence for such a war, as was noted through the absence of a war that has been fought where water was the direct cause of the onset of war. The appeal to historical co-

[66] Katz, Op.Cit. p.27

operation and intentional law does not only seek to curtail the water wars hypothesis, but also directly opposes it. The second category concerns showing that the reliability of the media in reporting on the possibility of such wars, since it is not clear that the media can present the complexities of waters wars as it would be in academia for example. Moreover, the motive behind the media's portrayal of the possibility of such wars cannot be separated clearly from the lucrative financial benefits of selling newspapers.

1.4.3 Water-Related Rather than Water Wars

Despite the reasons given to doubt the validity of the water wars hypothesis, particularly the lack of empirical evidence for such a war, there is still seemingly something counter-intuitive about claiming that water would not lead to conflict. Pieter Gleick and Thomas Homer Dixon argue that this is because there are clear connections between water and security, such as the dependence on water for agriculture, and subsequently food security.[67] The crux of the claim, at least on the part of Gleick and Homer-Dixon is that environmental factors such as the access to water have an increasing influence on the likelihood of conflict. In Homer-Dixon's view the onset of violent conflict can often not be separated from issues that concern the environment such as the access to water that is used for agriculture could lead to violent conflict if indeed food supply is less than demand from increasing populations.[68] Homer-Dixon even further argues, at least implicitly, that environmental concerns such as climate change ought to form part of already established literature that seeks to redefine the scope of security.[69] This leads Homer-Dixon to posit that if acute conflict can be related to environmental concerns, then it stands to reason to suggest that it is feasible to consider the possibility of widespread conflict over inter alia water. Gleick argues conflict of the future is likely to be exacerbated by factors such as the access to water in achieving political goals.[70]This would seemingly find favour with those who seek to defend the validity of the water wars hypothesis, since Gleick argues that water is one resource that will increasingly become the focus of strategic political maneuvering, particularly amongst States in the conduct of warfare.[71] The indirect relation to water in the onset of conflict gives some validity to the water wars hypothesis. It does so by giving empirical validation to the

[67] Gleick, P.H, "Environment and Security: The Clear Connections" Bulletin of Atomic Scientists vol. 47, Iss.3, 17-21 *see also* Gleick, P.H, "Water and Conflict: Freshwater Resources and International Security", International Security Vol. 18, Iss. 1, 1993, pp. 79-112

[68] Homer-Dixon, T.F., Op.Cit. pp. 77-78

[69] Homer-Dixon invites the reader of the article cited above to read: Ullman, R.H., "Redefining International Security" International Security, Vol 8, No.1, 1983 pp. 129-153

[70] Gleick, P.H., Op.Cit. pp. 83-86

[71] Ibid. pp.86-89

hypothesis, albeit a weaker version of it. Gleick for example uses water as the main catalyst in the 1967 war between Egypt and Syria as an instance in which water can be linked to conflict even if one cannot separate the war from broader political issues.[72] The focus of the water wars hypothesis is therefore less about predicting a war over water and more about showing how water can act as a catalyst to the onset of conflict. Homer-Dixon would also defend a watered-down version of the hypothesis such as this one. What is important to take notice of is that Gleick and Homer-Dixon are not suggesting that conflict over water is completely unlikely, as those who argue that water is more a means for cooperation would. The argument is rather that the relationship is not a direct one and would need to be specified more accurately.

Opposition most notably from Jon Barnett, Nils Gleditsch and Marc Levy has also evident in the literature for the argument presented for water-related rather than water wars. The most noteworthy of the former in the context of this debate is Marc Levy, owing to his part in what has become known as the Homer-Dixon-Levy Debate. In essence Levy suggests that the link that Homer-Dixon and others who support the environment-security nexus is fundamentally flawed and that the issues raised within the nexus' debate forms part of the debate in the context of high politics.[73] Levy specifically claims that the cases chosen by Homer-Dixon were done rather selectively as Homer-Dixon studied cases where conflict has already been evident and simply identified what environmental factors were involved. Levy claims that this cannot speak to the validity of environmental factors as a causal mechanism for explaining why conflict occurs, given the importance of variables such as population growth and decreasing water supply.[74] By taking this view Levy supports the efforts of Deudney and Barnett in establishing opposition to the notion that the environment and by extension water can be linked to national security.[75]

Jon Barnett claims that the link that Homer-Dixon and others who seek to defend the environment-security nexus do so from a theoretical rather than empirical perspective. In so doing Barnett not only refutes the water wars hypothesis but claims that it is a case of North-South relations and that the media in particular over-emphasize the importance of the link between the environment and security. He claims that the connection is more political in

[72] Ibid, pp.85-86
[73] Levy, M.A., "Is the Environment a Security Issue?" International Security Vol 20, No, 2, 1995, pp. 35-62
[74] Levy, M.A., Ibid. pp.56-57
[75] Deudney, D., "The Case Against Linking Environmental Degradation and National Security", Millennium Journal of International Studies, 1990, pp. 461-476

nature and is therefore not worthy of examination as a risk to national security.[76] Whether or not Barnett's argument is suitable in this context is unclear. It seems that Barnett is rejecting the movement of redefining security altogether rather than refuting the possibility of water related conflict as such.

Gleditsch offers an objection to Gleick's analysis of the importance of water in the context of Middle East relations-which forms an integral part of Gleick's analysis as presented here. Gleditsch argues that Gleick's analysis that identifies 51 water related conflict events cannot be taken out of context. The events themselves were attacks on water installations (or at the very least threats of such attacks) in the conduct of warfare.[77] Therefore, he claims that these cases cannot be used to show that the conflicts cited "arose out of a disagreement over scarce resources".[78]

The argument for water-related conflict perhaps has more empirical appeal and would be easier to defend as a potential cause of conflict. However, the criticisms raised by Levy, Barnett and Gleditsch show that the argument would need to specify more deeply how water related issues are likely to lead to conflict. By showing that water-related conflict offers insight into both state-centric and human-centric approaches to water conflict, this dissertation can bridge the gap between those who are for and those who are against the water wars hypothesis.

1.5 Methodology

In what has preceded the argument for the validity of the water wars hypothesis is seemingly split by either those who believe that conflict over the access to and use of water is an inter-state matter (Jon Barnett, Marc Levy and David Deudney) or those who believe that conflict over water is a more likely to occur occur between local populations (Thomas Homer-Dixon and Pieter Gleick). Interestingly very few have applied the merits of both arguments to a single case that concerns conflict over water. In the cases that follow, namely Lake Chad and the Suez Crisis of 1956, the merits of both sides will be argued to see in what way the human-centric approach offers a better explanation for conflict over water in spite of the

[76] Barnett, J., "Destabilizing the Environment Conflict Hypothesis" Review of International Studies no 26, 2000, p. 271
[77] Gleditsch, N.P., "Environmental Change, Security and Conflict" in Aall, P, Crocker, C.A., and Hampson F.O. (eds.) Unleashing the Dogs of War: Conflict Management in a Divided World, University of Peace Press, Washington D.C. 2008, p.183
[78] Loc.Cit.

merits of the state-centric view. In this way the focus is not to be ignorant of the value of the state-centric approach but rather it is to show how in the scope of redefining security, it has become inadequate. This inadequacy is based in part on the increasing negative effects that climate change and the corresponding lack in supply of water has on the populations that rely on such a water supply.

The cases used to discuss the relationship between state-centered and human centered security, in this thesis, focus on the use of transboundary watercourses on the African continent. The majority of literature that examines water and its impact on security agree that Africa is likely to be the most adversely affected by climate change and its subsequent contribution to water scarcity within Africa. Through using Africa, the threat that water poses to security can be seen from both of the aforementioned perspectives. From the state-centered perspective, it threatens the survival of downstream states dependent almost exclusively on waters originating outside their borders. In addition, access to water even questions the legitimacy of political borders. From a human-centered perspective, the threat is more evident in the form of an increasingly poor and uneducated population to maintain food security; but also at a more fundamental level how access to water is instrumental to life.

1.6 Clarification and Scope of Terms

Conflict: The International Red Cross Committee (IRCC) distinguishes between two types of armed conflict. The first is between one two or more States. The second concerns armed conflict between non-state actors and the State, or a conflict between two of the former only.[79] This definition focuses on the character of conflict within the framework of international law. However, it does not provide an empirical way for one to determine how an armed conflict differs from other forms of conflict or even a regular dispute (which does not necessarily entail violence). Uppsala University's Department of Peace and Conflict Research aims to address this problem by restricting use of the term "armed conflict" by defining an armed conflict to be "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year"[80] In

[79] How is the term "Armed Conflict Defined in International Humanitarian Law", International Red Cross Committee, Occasion Paper, March 2008, http://www.icrc.org/eng/assets/files/other/opinion-paper-armed-conflict.pdf (date verified: 2012-09-15) p. 1

[80] "Definitions" Department of Peace and Conflict Research, Uppsala University, s.v. "Armed Conflict", http://www.pcr.uu.se/research/ucdp/definitions (date accessed: 2012-09-07)

consideration of the former, cases that qualify as conflict within the Chad and Nile Basins will need to meet the three criteria as defined by Upsalla University. It is acknowledged as Goldstein does that the Upsalla definition is not perfect.[81] However, given its strong empirical method of validation, that is observing 25 conflict-related deaths it is one of the only credible ways to examine possible cases of conflict. In addition because it does not discriminate between conflict as something that exists exclusvely between states, it lends itself well to a human-centered analysis.[82]

Demand-Induced and Supply-Induced Scarcity: The introduction of the terms demand-induced and supply-induced scarcity is credited to Thomas Homer-Dixon, a member of the so-called Toronto group. The group is very closely associated with understanding environmental concerns as causes for conflict.[83] Both concepts form part of a three-pronged understanding of environmental scarcity. Demand-induced scarcity exists when there is an increase in per capita consumption water, while Supply-induced scarcity when resources are used at faster rate than what they can be replenished.[84] A third element is structural scarcity which refers to the distribution of the resource, specifically where the ability to control appropriation of a water source is concentrated in the hands of one power. It therefore fits well in the analysis of River basins in which multiple parties have an interest. In this thesis, structural scarcity and distributional scarcity are used inter-changeably. In addition, the reader is cautioned that structural supply refers to the amount of water in a water course and is not considered inter-changeable with structural scarcity.

Hydropolitics: In the most basic of terms, hydropolitics concerns the political dimensions of water. It is therefore an umbrella term that is used to describe various other concepts that relate to water. These include, water security, water scarcity and the relationship between water and conflict (i.e. water wars).[85] More narrow definitions concern issues related to issues conflict and cooperation, involve states as the principle actors, and take place in international river basins.[86] More broad definitions tend to include the interaction between state and people vis-à-vis water, they consider individuals and other non-state actors in debates concerning water issues and also consider issues regarding authoritative

[81] Goldstein, J.S., Winning the War On War: The Decline of Armed Conflict Worldwide, Plume, New York, 2012, pp.233-234
[82] Ibid. p.234
[83] Ellingsen, T., and Hauge, W., "Beyond Environmental Scarcity: Causal Pathways to Conflict" in Journal of Peace Research, Vol. 30, No.3, p. 301
[84] Ibid. p. 301
[85] Turton, A., "Hydropolitics: The Concept and its Limitations" in Henwood, R., and Turton A. (eds.), Hydro politics in the Developing World: A Southern African Perspective, African Water Resarch Unit, 2002, p. 13
[86] Ibid. p. 15

use.[87] In this thesis, the more broad definition is used to provide for a human-centered analysis, with individuals as well as the state being party to issues regarding water. In a broad sense hydropolitics refers to the political dimensions that concern water and its various uses.[88] In the current literature, it is debated who ought to be party to political discourse on water.[89] Both state-centric and human-centric writings contest what "hydropolitics" refers to as well as who the relevant actors in hydropolitics are.[90] For the former the state-level of analysis is sufficient to explain who relevant actors to hydropolitics are. The latter however believe that those who are affected, in terms of their daily living conditions need to be more legitimacy within this debate.[91]

Renewable Water Resources: One of the challenges with establishing the numeric value of renewable water resources is that water exists in various forms of the water cycle. Renewable Water Resources will refer primarily to freshwater, which is roughly 2.5 percent of the earth's total water supply.[92] 68.9 percent of that freshwater supply (equating to 1.72 percent of global supply) is glaciers and permanent snow cover. The remaining 31.1 percent is divided between fresh ground water 29.9 percent of freshwater (equating to 0.75 percent of global supply), 0.3 percent is freshwater Rivers and lakes storage and 0.9 percent is located in swamps and soil moisture.[93] In essence, only 0.025 of the global water supply is available for human consumption. In this thesis renewable water resources (also abbreviated to TRWR) will refer to the 0.025 percent of global water supply found in lakes, Rivers and reservoirs.

Water Scarcity: Malin Falkenmark has presented one of the most succinct ways in which to understand the concept of water security. This is especially true in terms of understanding one state's water scarcity relative to another. The *Falkenmark Indicator* or *Water-Stress Indicator* essentially examines whether or not the water supply in a given region has the

[87] Ibid. p. 16
[88] Turton, A., "Hydropolitics: The Concept and its Limitations" in Henwood, R., and Turton A. (eds.), Hydropolitics in the Developing World: A Southern African Perspective, African Water Research Unit, 2002, pp. 13-17
[89] Here Mutimer discusses the shift and debate with regard to the referent object of security. Mutimer, D., "Critical Security Studies: A Schematic History" in Collins, A., Contemporary Security Studies *(2nd Edition)* Oxford University Press, London, 2011, pp.85-87
[90] Turton, A., "Hydropolitics: The Concept and its Limitations" Op.Cit. p.
[91] Kerr argues that the condition has given legitimacy to the individual level of analysis within the context of the international community Kerr, P. "Human Security" in Collins, A., Contemporary Security Studies *(2nd Edition)* Oxford University Press, London, 2010, pp.
[92] Shiklomanov, I.A., World Water Resources: A New Appraisal and Assessment for the 21st Century, United Nations Educational, Cultural and Scientific Organisation, Paris, 1998, p.4
[93] Loc.Cit.

ability to satisfy the needs of a person.[94] In essence, the indictor proposes 1700m^3 of renewable resources per person, per year as a threshold. This threshold is based on estimates of water requirements across all sectors of use, including domestic use. In addition, it takes into account the needs of the environment. Countries that cannot meet this threshold experience *water stress*. When water supply falls below 1000m^3 the country is said to experience *water-scarcity*, and a country that falls below 500m^3 is said to experience absolute scarcity.[95]

Falkenmark also developed a method to test the ability of renewable water resources to meet the demands of agricultural yields needed in terms of projected population growth:

Figure 1: Water-Stress Indicator versus Yields needed to sustain population growth [96]

Water Indicator and per capita m^3		**Agricultural Yield Indicator**	
1-2 **1000-1700m^3 per capita, per annum**	Water Quality and Dry Season Problems	**1**	Yields will be enough
3 **500-1000m^3**	Water Stress	**2**	Minimum Increase in Yields
4-5 **< 500m^3**	Absolute Scarcity	**3**	High Increase in Yields
		4	Even High Increase will not be enough

(Source: M. Falkenmark, 1990)

Based on this countries that score within the high ranges of both indicators are likely to experience tension over access to water, since water is not available to increase to increase agricultural yields needed to sustain growing populations. Using this analysis, Falkenmark suggests that by 2025, 1.1 billion people (representing two thirds of the African continent)

[94] Rijsberman, F.R., "Water Scarcity: Fact or Fiction" taken from the proceedings of "New Directions of a diverse planet", 4th International Crop Science Congress, 26 September 2004 to 1 October 2004, Brisbane, Australia, 2004, p. 2 accessed online at www.cropscience.org.au (date accessed: 2013-01-03)
[95] Loc.Cit.
[96] Falkenmark, M, "Rapid Population Growth and Water Scarcity: The Predicament of Tomorrow's Africa" in Population and Development Review, Supplement: Resources, Environment and Population: Present Knowledge, Future Options, 1990, Vol.16 p. 84

will experience severe water scarcity.[97] This thesis will use Falkenmark's indicator to determine water scarcity of the units within the case studies to follow.

Water Security: There is relative agreement on the concept of water security. It is generally defined 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"[98] There are three things that determine water security: (1) hydrologic environment, which essentially speaks to the structural availability; (2) is the socio-economic environment, which is essentially the economy and its actors, and (3) is changes in the future environment in either (1) or (2) above.[99]

[97] Ibid. p. 85
[98] Grey, D., and Sadoff, C.W., "Sink or Swim? Water Security for growth and development" in Water Policy, Vol.9, 2007, p. 548
[99] Loc.Cit.

Chapter 2

The State-Centric and Human-Centric Approaches to Security

2.1 Introduction

The referent object of security can be explained in terms of either the State or in terms of the individual. The rationale of this thesis relies on a movement within the field of Security Studies that seeks to move the referent object of security from being defined exclusively within the context of the State to focusing on emerging issues within the international arena. The increased attention given to water as an emerging security issue is a validation of this trend. However, it remains largely debatable exactly to whom water is a security threat. Those who argue in favor of the water wars hypothesis argue that the State remains sufficient as the referent object. By contrast those who defend a weaker version of the hypothesis, such as the one defended by Homer-Dixon, beg to differ. If Homer-Dixon is correct then the concept of security cannot be restricted to the State since there are ostensible ways in which security applies to individuals as well.[100] However to say that security applies to an individual pre-supposes an understanding of exactly how security is applicable to the individual. The critics of Human Security, which seeks to put the individual at the focal of analysis argue that a lack of specification in terms of how security applies to individuals render the concept analytically useless.[101] It follows from this that if the alternative offered to the State as the referent object of security is analytically useless, and then it seems fitting to conclude that the State remains sufficient in the analysis of water security and the potential for conflict over the use and allocation of it.

In this chapter the thesis defends the view that the concept of Human Security (and by extension the human-centric view of security) can be refined to make it more analytically sound. It begins by providing an explication of the state-centric approach to security. The chapter then moves on to analyze the concept of human-centric security. This will include placing human-centric security within the broader framework of Critical Security Studies (CSS) as well as a critical analysis of Human Security as its foundation. The chapter concludes by providing an explanation for the importance of the concepts discussed for the chapters that follow.

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[100] Homer-Dixon, T.F., "On the Threshold: Environmental Changes as Causes of Acute Conflict" International Security, Vol. 16, Iss. 2, 1991

[101] Paris, R., "Human Security: Paradigm Shift or Hot Air?" International Security Vol., 28, No, 2, 2001, pp.68-93

2.2 The State-Centered Approach to Security

2.2.1 Theoretical Background

The state-centric approach is traditional in its understanding of security. The understanding that the state-centered view brings to security is generally considered to be one where it is the security of the state that needs to be protected. This understanding applies to both what is deemed to be relevant to security policy and what the appropriate response to threats toward such a security policy might be. The concept of the state being the center of security policy is rooted in positivist thinking, but is not necessarily a result of it. The notion of state-centered security stems from a complex interaction between States within the context of the Second World War (WWII) and the Cold War-as a war of ideology between the United States (U.S.) and the Union of Soviet Socialist Republics (U.S.S.R).[102] Most of the literature that seeks defends the state-centered approach to security appeals to the use of military means in order to protect national interest and the political goals of the State.[103] The underlying logic is that as the military is a tool of statecraft, the functions and scope of its interaction with other States and society can only be a matter of State interaction. It is this focus on state-level analysis that gives the concept its positivist background.

Those who defend the traditional approach to security argue that the referent object of security has not really changed. The most prominent of these defenders are Barry Buzan and Stephan Walt. The argument presented by Buzan is that although the focus on the individual or even human kind is appealing, the concept of agency is problematic. His argument is contingent on the view that a focus on individual security is reductive a bypassing of state security which is a necessary condition for each individual's security.[104] The argument therefore is that the concept of individual security is already contained in the concept of state security, since the security of people depends on the security of the State. On this basis, moving the referent object of security is not only unfounded it is also completely unnecessary.

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[102] As will be shown in the discussion regarding the movement of the focus of Security Studies to "emerging threats" at the end of the Cold War relied heavily on the militarised activity of both WWII and the CW. In the discussion that follows, the reader will be invited to notice the strong correlation between the peak of the CW and the emergence of the so-called Golden Era.

[103] For example see Buzan, B., "Human Security: What it means and what it entails" paper presented at the 14th Asia-Pacific, Kuala Lumpur, 3-7 June 2000

[104] The article that is cited for Buzan is not readily available. I therefore borrow the analysis of Buzan's article from Pauline Kerr, who similarly presents arguments for the state-centered approach to security. See: Kerr, P., "The evolving dialectic between state-centric and human-centric security", Working Paper 2003/2, Department of International Relations-Australian National University, Canberra, 2003, p.1

The focus on state-centered security that Buzan argues for is evident in the motivation for the development of international security studies (ISS). As Nye and Lynn-Jones argue, the development of ISS came as a result of "twin revolutions" in both U.S. foreign policy and advances in military technology. These revolutions were characterized by the emergence of the cold war and the initiation of atomic weapons into the conduct of warfare.[105] The focus on the state in terms of security is further evident in the universal acceptance of the realist paradigm, which purported the meticulous attention to power politics and national interest.[106] In accepting the realist paradigm of international security, Nye and Lynn-Jones argue that the concepts of nuclear strategy and deterrence are simplified. This simplification (or the removal of fuzziness which is best suited for creative works) of security is useful in the context of co-operation versus conflict within strategic partnerships, since decision-making takes fewer variables into account.[107] Thought of differently, the simplification of concepts related state security means that decision-making does not get "bogged down" by considering concepts that are either difficult to reach consensus on (such as the allocation of water rights) or that are ultimately reductive into issues of state security and therefore are redundant in the security decision-making process (such as the use of water for agriculture for agricultural dependent economies). The contributions of Buzan, Nye and Lynn-Jones are indicative of an emphasis on military and strategic interaction in how one ought to understand the subject matter of ISS. In the proverbial nutshell, security is a matter of militaristic and strategic interaction between actors in the international community. These "actors" through the underpinning of realist thinking are taken to be States rather than individuals.

Stephen Walt offers insight into the trend that questions the traditional understanding of security studies. In what he calls the Golden Era of security studies, the focus on "the study of the threat, use and control of military force" is examined.[108] The notion of the state as the focal point of analysis during the Golden Era is also evident in the focus on tools of state craft within the framework of security studies. These "tools" include diplomacy, arms control

[105] Nye, J.S., and Lynn-Jones, S.M., "International Security Studies: A Report of a Conference on the State of the Field", International Security, Vol.12, No 4, 1988, p. 8
[106] Loc.Cit.
[107] Ibid. p. 20 the discussion at this point forms part of a larger discussion which seeks to propose a very lineated, almost mathematical way of understanding security. An indication of this is the discussion that identifies Game Theory as a possible mechanism by which theory in the field of security studies can be developed.
[108] Walt, S.M., "The Renaissance of Security Studies" in International Studies Quarterly, Vol.32, No. 2, 1991 p. 212; Although the quote appears in Walt's article, it is taken from Nye and Lynn-Jones as cited above.

and crisis management.[109] In this way, Walt does not challenge Nye and Lynn-Jones but adds a sophisticated analysis of the foundations of security studies within academia. In response to the inclination of Critical Theorists who deem the Golden Era focus outdated, Walt suggests that their inclination is founded more on anti-war sentiment during the 1960's and 1970's than it is with the notion of the state being the focal point of security studies itself.[110] Therefore the so-called inadequacy of state-centered approaches to security remains a matter of public perception (most notably those with very little or no military background) and is not a methodological flaw within the positivist nature of the Golden Era. The most influential of these perceptions are those found in anti-war campaigns during the Vietnam War, which is largely considered to be a failure of military means as a form of state-craft.[111] However, Walt argues that even if the military or military engagement, as the referent object of security studies, is unpopular; the emergence of security studies would still need to focus "security" on potential threats to national interest.[112] Therefore it is evident that Walt sees security studies as entailing more than just the use of the military in state-craft. The political concepts such as "arms control, diplomacy and crisis management" are also features of state security and are therefore equally relevant to national interest.[113]

An interesting trend in terms of the state being the focus of security studies also developed as a result of the "twin-revolution". Jonathan Kirshner argues that the focus on military engagement of ISS, forced political economy and security to be viewed in isolation from one another.[114] He further argues, like Walt does, that this was possibly a result of the over-emphasis of military containment on the part of the Cold-War superpowers-an example of which is the Cuban Missile Crisis of 1963.[115] While this trend is understandable in his view, it remains one that makes very little sense since there are clear connections between economic activity and the traditional subject matter, being the use of military force of ISS.[116] Therefore he argues that there are connections between I.P.E and motivation to enter into

[109] Loc.Cit.
[110] Loc.Cit.
[111] Langdon, J.W., and Judge, E.H., A Hard and Bitter Peace: A Global History of the Cold War, Prentice-Hall, Upper Saddle River, New Jersey, 1996, pp.179-201 In the book, the authors discuss the rising unpopular perception of the war particularly within the United States. For more information see: Powers, T.A., Vietnam, the War at Home, the Antiwar Movement 1964-1968., New York-Grossman Publishers, 1973(for further reading not used as citation)
[112] Walt, S.M., Op.Cit., pp. 213
[113] Loc.CIt.
[114] Kirshner, J., "Political Economy of Security Studies After the Cold War" in Review of International Political Economy, Vol. 5, No 1, 1998, p. 64
[115] Langdon, J.W., and Judge, E.H., Op.Cit. pp. 169-173
[116] Kirshner, J.,Op.Cit pp. 64-65

military conflict. For Kirshner this connection is seen within the context of economic causes of war. He specifically appeals to "military Keynesianism" in which expand military spending and in so doing heighten the security dilemma.[117] Other scholars on post-CW security studies also contend that there is a close relationship between the end of the CW and military arms races. Michael Klare, for example, draws strong correlations between arms races within the Pacific Rim in which states sought to fill the vacuum left by the collapse of the USSR.[118] In so doing, he demonstrates a need for the field to maintain its focus on military-centered issues and how the heightening of the security dilemma (as observed by Kirshner) can be applied to rising powers as well.

The arguments in favour of the state-centered view of security place emphasis on military history and the use of arms in the process of statecraft. This is most evident in Walt's analysis as presented above. If viewed in terms of methodology, the emphasis on the use of military force in achieving the objectives of the state makes sense. This is because the assumptions that the state-centered view of security studies makes are relative to the conclusions it draws. It is clear from Nye and Lynn-Jones' definition of security studies Walt's analysis that the focal point of security threats are *militaristic* in nature and it is even more clear that they believe the use of *military* force ought to be the proverbial omega of security analysis. Anything beyond the scope of the military therefore becomes irrelevant to security studies and is therefore not considered a threat to national security. However, this view of security studies seems to eliminate other essential elements of the state from the realist paradigm, upon which Nye, Lynn-Jones and Walt base their arguments. An example of this is the close relationship between wealth and national interest, a relationship characterized by the importance of the state economy and economic performance. To this end, Kirshner offers insight into the economy-security studies nexus, which to some degree posits the importance of the economy and economic activity within the context of state-centered security.

2.2.2 State-Cantered Security in the Context of Water

The state-centered approach to security has been argued to have its foundation in the political engagement of the Cold War. However, the foundations of the approach demonstrate very little if any connection to water as an issue of "state security". This is possibly a result of research such as that of Gleditsch, which suggests that water forms part of larger political

[117] Ibid. p. 67
[118] Klare, M.T., "The Next Great Arms Race" in Foreign Affairs, Vol. 72, No, 3, 1993, pp. 141-142

goals and is rarely the focal point political goal.[119] The lack of connection is even further demonstrated by the lack of conflict over water between states, as suggested in the previous chapter. The connection between national interest as an objective of state security and water needs to be specified further. This is especially true if water security is to be considered part of state security.

The first connection between the state and water in terms of security is that water can be considered part of broader political goals. While this was mentioned earlier as part of a critique of the water-wars hypothesis, it remains a very powerful assertion in the argument for a state-centered approach to understanding security.

While the 1967 War between Egypt and Syria did have water as a major driving factor behind militarized conflict between the two states, the bombing was a strategic tool to further other political objectives, since water was declared to be a "question of life for Israel" by Levi Eshkol.[120] This is of course not to say that water might not have formed an important part of those objectives, but it does imply that water was not the focal point of those objectives. The relationship between water structures and military force in this case gives the notion of state security objectives as the primary focus of security studies some intuitive appeal, which accordingly makes the state-centered security analysis very plausible. Thus there is a clear connection between those who seek to reject the water wars hypothesis and those who seek to defend the use and threat of military force as the referent object of security studies.

Kirshner's analysis of the economic variable to security studies also creates a connection between the validity water wars hypothesis and the referent object of security studies. The clearest relationship between water and the possibility of conflict is seen through the lens of "Resource Wars". The concept of resource wars establishes connections between resources of economic value to conflict. The common understanding of these resources is that they are mineral resources such as oil and gold. Based on Shiklomanov's analysis, only a very small portion of global water supplies are available for human consumption.[121] When combined with Klare's argument that, proportionately, irrigation is the single largest sector of water use

[119] Gleditsch, N.P., "Environmental Change, Security and Conflict" in Aall, P, Crocker, C.A., and Hampson F.O. (eds.) Unleashing the Dogs of War: Conflict Management in a Divided World, University of Peace Press, Washington D.C. 2008 p. 178
[120] Gleick, P.H, "Water and Conflict: Freshwater Resources and International Security", International Security Vol. 18, Iss. 1, 1993, pp.85-86
[121] Shiklomanov, I.A., Op.Cit. p. 4

one can at best determine water to be an indirect economic resource. Regardless of the water's indirect economic value, it is likely that its absence would be a potential cause of conflict because of its importance to sustaining human life, as was discussed in the first chapter. From this one can deduce that water becomes vulnerable to a resource war based on either distributional or structural scarcity (see section 1.6). It is distributional because increasing populations are likely to threaten access to water because per capita availability will drop.[122] It is structural because in order to meet the demands of their population some states might dictate or even control water allocation, as is the case with Egypt in the Nile Basin (see chapter 4).

Water makes an important contribution to rising economies, specifically in Asia, Africa and South America.[123] An important part of the resource wars analytical framework is the ability of rising powers within the global economy to meet the demands of both domestic and industrial energy needs.[124] Resource wars as a theoretical concept therefore focuses on the use of energy in its predictions about the possibility of war over natural resources. The emphasis on the use natural resources for energy therefore raises questions about the connection between water and the potential for resource wars. Water can be connected to the increasing need for energy, as an important component of Resource Wars, through the development of hydroelectricity.[125] The utility of developing alternative energy resources stems from increasing climate change debates within policy making circles, but is not what motivates states to consider alternative energy use.[126] The development of alternative energy sources forms part of technological, economic and ideological shifts within state policy making that is cognizant of the finite nature of fossil fuels such as coal. More importantly these shifts are cognizant of the need to stimulate demand for energy in the absence of these fossil fuels.[127] The tendency has therefore been to seek sustainable forms of energy, hydroelectricity being one of these forms.[128] What one therefore sees is that an appeal to

[122] Klare, M.T., "Resource Wars" (e-book Loc. 402)
[123] Schiffer, M., "The U.S. and Rising Powers" in Great Decisions, 2009, p.8
[124] Klare, M.T., "The Next Arms Race", (e-book Loc. 435)
[125] Klare, M.T., "Resource Wars", (e-book Loc. 466)
[126] Briscoe, J. "The financing of Hydropower, Irrigation and Water Supply Infrastructure in Developing Countries" in Water Resources Development, Vol. 15, No. 4, 1999, pp. see also Boyer, J.C., Conners S.R., and Hammons, T.J., (et.al.), "Renewable Energy Alternatives for Developed Countries" in IEEE-Transactions on Energy Conversion, Vol. 15, No. 4, 2000, pp. 481-482
[127] Boyer, J.C., Conners S.R., and Hammons, T.J., (et.al.), "Renewable Energy Alternatives for Developed Countries", pp. 481-483
[128] This in part refers to particular efforts of the European Union and the United States

alternative energy resources by states as a feature of securing power and national interest in light of a perceived inadequate supply of finite resources.

The ability for states to secure a water supply that is capable of maintaining demand for current industrial and domestic uses, in combination with ambitions to maintain sustainable energy supplies through hydro-electric schemes become hotspots for many transboundary riparian countries. These hotspots usually refer to either appropriation of the total water supply amongst riparian countries or the negative effects suffered by down-stream riparian countries when an up-stream partner embarks on a hydro-electric project.[129] In the Middle East for example, both Iraq and Syria claim that Turkey is using disproportionate water allocations from the Tigris and Euphrates for the use of the Ataturk Dam.[130] Turkey's use of water in its hydro-electric policy has also sparked debates on the environmental hazards of using water as a sustainable form of energy. These so-called hazards are specifically directed at the possibility of contamination for the supplies of the Tigris and Euphrates used by Egypt and Syria as well as populations that live in the surrounding regions of hydroelectric dams.[131] In Africa, particularly in the Nile River Basin, the relationship between up-stream and down-stream riparian countries has been a point of disagreement. This is specifically true of cases where down-stream countries, such as Egypt, adopt fundamentally different views to their up-stream counterparts, which in this case is Ethiopia. The crux of the contention between the two is the appropriation and use of the resources of the Nile River.[132] The issue of access to water resources is even further exacerbated in the Nile River Basin with the emergence of South Sudan as an independent state.[133] This is particularly true in terms of how South Sudan will access and use water, and more importantly what this means for Sudan in terms of its use of the Nile Basin's resources.

The connection between water and state security is therefore more evident in water's value to the economic performance of the state as well as the legitimacy of the government within the

[129] Oktav, O.Z., "Water Dispute and Kurdish Separatism in Turkish Syrian Relations" in The Turkish Yearbook, Vol.34, 2003, p.92
[130] Gurcanli, Z., "Turkey-Iraq-Syria to form water institution" Hurriyet Daily News http://www.hurriyet.com.tr/english/turkey/8447636.asp?gid=231&sz=47722
[131] "Turkey: Environmental Issues" United States Energy Information Administration http://www.nuce.boun.edu.tr/turkey.html
[132] Luzi, S., Double-Edged Hydropolitics on the Nile: Linkages between Domestic water policy-making and Transboundary Conflict and Cooperation, Doctor of Science Thesis submitted to The Swiss Federal Institute for Technology, Zurich, 2007, http://www.css.ethz.ch/publications/pdfs/Hydropolitics-Nile.pdf pp. 45-
[133] "South Sudan and the Hydro politics of the Nile Basin" in Water Politics, 7 May 2011, http://www.waterpolitics.com/2011/05/07/south-sudan-and-the-hydro-politics-of-the-nile-basin

state. This principle is known as the Hydro social Contract[134] The economic importance of water is seen both in terms of its value for energy resources and the ability of agrarian industries to maintain their contribution to Gross Domestic Product (G.D.P.), specifically in developing countries. While water is often part-and-parcel of larger political differences amongst co-riparian countries, its value as a strategic resource has increasingly taken on an economic character because of the dependence on water related industries, for example farming, in places where conflict over water has been evident.[135] For this reason, the state-centric approach to water security (as it applies to this thesis) will examine water as a threat to the economic performance of the states in the case studies that follow.

2.3 The Human-Centric Approach to Security

2.3.1Theoretical Background

The human centric approach to security, or human-centered security developed as a part of the Critical Security Studies (C.S.S.) School of security studies. An essential part of the C.S.S research agenda was the impact of emerging threats to the state-security nexus. In addition, the C.S.S. movement questioned the origins and assumptions of the dominant school in security studies, namely state-centered security.[136] This was marked by a fundamental shift in the understanding of security in the post- Cold War era. Importantly, this shift marked more than just a decline in the understanding of the "Golden Era" since it introduced a notably "demilitarized" international community. It was not demilitarized in the sense that no states had military forces, but it was in the sense that the threat let alone the use of military force had become unpopular. The "unpopular" nature of military force was marked by a re-invigoration of the concept of an interdependent international community. While some such as Kerr argue that the post-Cold War international community introduced the concept of interdependent security, it must be stressed that the concept was hardly new within the context of international relations.[137] An example of the interdependent security framework

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[134] The principle particularly refers to the unwritten contract between people and the government. It specifically places the onus on the government to supply water if or when people are unable to do so. A break in this obligation, on the Hobbsian form of the contract, would imply a break in the bi-polar relationship between State and people, see Meissner, R., and Turton, A., The Hydrosocial Contract and its Manifestation in Society: A South African Case Study, African Water Issues Research Unit, Centre for International Political Studies, University of Pretoria, p.2

[135] Klare, M.T., "Resource Wars" p. (e-book Loc. 495,525, 557)

[136] McSweeney, B., "Identity and Security: Buzan and the Copenhagen School" in Review of International Studies, Vol.21, Iss, 1, January 1996, p.82,85,86 and 90

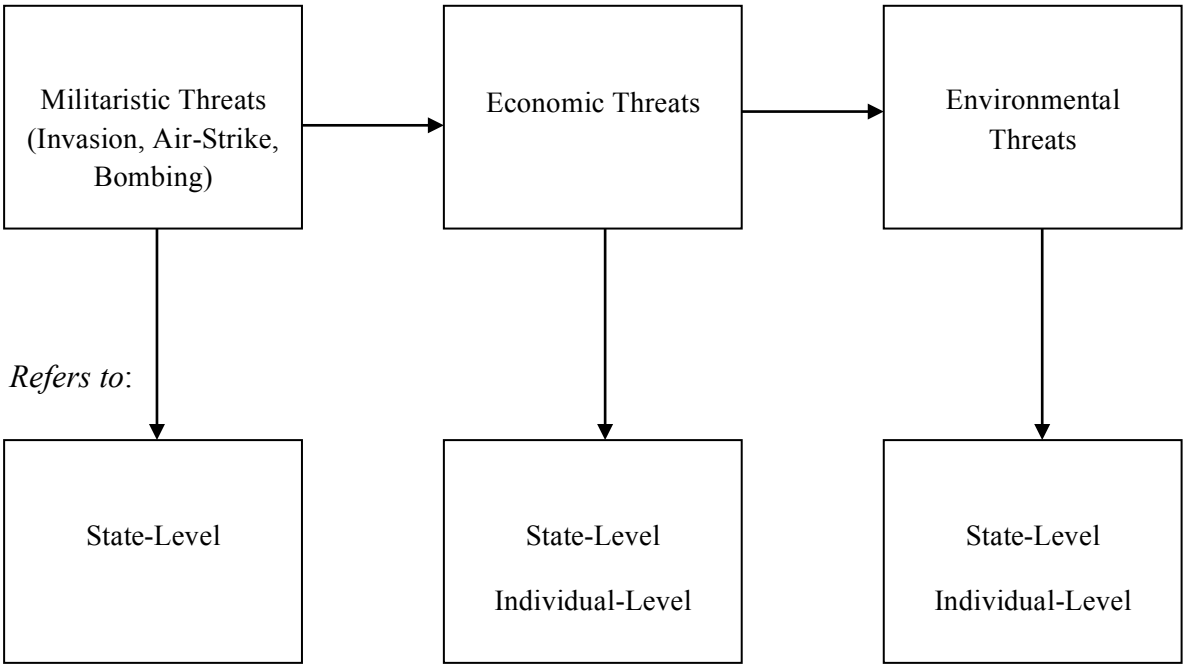
[137] The establishment of the ECSC was the first to found its agenda on the concept of interdependentness; however, the U.N. was established for creating a forum in which the interdependent nature of the international community would become apparent. See Basic information on the European Union, Europa, http://europa.eu/about-eu/basic-information/index_en.htm (date accessed: 2013-01-03)

was the European Coal and Steel Community (E.C.S.C), which sought to eliminate the possibility for using military force by making, Belgium, Germany, France, Italy Luxembourg and the Netherlands economically interdependent.[138] Through various extensions of this concept during the 1950's and 1960's the European Union as it known today came into existence. What the end of the Cold War brought to the concept was that it was not confined to one geo-political setting. It more importantly allowed for non-military issues to gain more prominence on the security agenda of the international community.

From a theoretical perspective, the human-centered approach to security represents a shifting of the boundaries by C.S.S.[139] Krause particularly suggests that shifts in the security paradigm can be viewed within the framework of three axes. The first he claims is the broadening of the 'orthodox' understanding of security as presented by Jessica Tuchman Matthews and Richard Ullman.[140] So in this way he argues that the security of the state ought not to be reductive to military engagement, and should include economic and environmental potential threats as well. The second axis concerns to deepening "the- who" to which security refers.[141] This is commonly understood, as suggested by Kerr, to mean applies the concept of security to different levels of analysis. In this case those levels refer to moving from state level to individual level. [142] A final axis incorporates the state's interaction with other factors to test and evaluate the relationships between collective or cooperative security and the state.[143] The final axis is therefore an explication of state responses to threats rather than a movement or evaluation the referent object of security. What is apparent then is that the traditional view of security is challenged both in terms of its scope and the referent object of security as a result of moving that scope.

[138] Loc.Cit.
[139] Krause, K., "Theorizing Security, State Formation and the 'Third World' in the post-Cold War World" in Review of International Studies Vol.24, No. 1, pp.125-126 see also Kerr, P., "The evolving dialectic between state-centric and human-centric security", Working Paper 2003/2, Department of International Relations-Australian National University, Canberra, 2003, pp.4-5
[140] Loc.Cit
[141] Loc.Cit.
[142] Kerr, P., "The evolving dialectic between state-centric and human-centric security", Working Paper 2003/2, Department of International Relations-Australian National University, Canberra, 2003, p. 7
[143] Krause, "Theorizing Security: State Formation and the 'Third World' in the post-Cold War World", p.128

Figure 2: The Project of Critical Security Studies[144]



In the graph, the arrows moving right represent the first axis (broadening) of security. The arrows moving down represent the second axis, changing or deepening of "the who" of security from being exclusively states to individuals as well.

2.3.2 Human Security: The Epitome of non-militarized security

The emergence of new security threats, in the absence of military threats needed to alter the referent object or the "who" of security. The trend to establish a new referent object in the field was partly a result of the narrow analysis taken by those who argued in favour of the state-centered approach no longer being applicable. Walt's narrow definition of the field as the "*study of the threat, use and control of military force*" is met with disagreement by Kolodziej. He claims that Walt has insufficiently explored different definitions of security and that his analysis is accordingly flawed.[145] In essence, the objection to Walt rests on an

[144] Krause, K. "Theorizing Security: State Formation and the 'Third World' in the post-Cold War World" pp.126-129
[145] Kolodziej, E.A., "Renaissance is Security Studies: Caveat Lector!" in International Studies Quarterly, Vol. 36, No. 4, 1991, pp. 421-422

objection to Walt's normative program in his own article. The objection states that Walt does not ask enough questions about what security ought to mean and as such arrives at a rather limited understanding of security.[146] Interestingly, it is also this limited understanding that drives the support for those against the water wars hypothesis. They argue specifically because states have not used military force that water wars are unlikely. Those in C.S.S schools will argue that once these normative questions(as suggested by Kolodziej) are asked one will realize that the state-centered analysis is insufficient to explain water as a security threat in the contemporary international system.

One of the most remarkable changes in the perception of the referent object of security has been the emergence of the concept of Human Security. Scholars, such as Kerr argue that human security has appeal precisely because it asks these normative questions and accordingly identifies a more suitable referent object of security. In this way Human Security is considered to be the most analytically sound way in which to connect the individual level of analysis to the concept of security.[147] However, it has been met with criticism as the appeal it provides is too broad for it to be analytically useful in policy-making.[148] Before a reply to this objection is offered, the concept will be explicated more carefully.

2.3.3 Human Security in the International System

Human Security is often credited to have come to the attention of the international community through the *Human Development Report (The Report of '94)* of 1994.[149] The Report specifically articulated the notion that conflicts had come to be fought within countries rather between them.[150] One of the most powerful and explicit links to the concept of human security is that a "…profound transition in thinking-from nuclear security to human security" was called for within *The Report*.[151] In this way the tradition of a militaristic focus on threats to the security of the international system was challenged to the extent that the stability of people's daily lives also formed an important part of security.

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[146] Loc.Cit.
[147] Kerr, P. Op.Cit. 9
[148] Paris, R., "Human Security: Paradigm Shift or Hot Air?" International Security Vol., 28, No, 2, 2001, pp.68-93
[149] "Human Security Backgrounder", Human Security Report Project http://www.hsrgroup.org/press-room/human-security-backgrounder.aspx (date accessed: 2013-01-03)
[150] "New Dimesions of Human Security" in Human Development Report 1994 ,United Nations Human Development Programme (UNDP), 1994, p. 22. A full copy of the report, as well as others is available from http://hdr.undp.org/en/reports/global/hdr1994/chapters
[151] Loc.Cit.

The definition of human security is often considered to be a starting point of its analysis within security studies. The concern of human security, as the break with tradition would suggest, is on human life and dignity. In *The Report of '94* human security refers to "… that people can exercise… choices safely freely-and that they can be relatively confident that the opportunities that they have today, are not totally lost by tomorrow".[152] The literature on human security often takes this understanding of its meaning as a starting point, although some prefer to extend the concept slightly. Acharya for example picks out the notion that human security is double-edged in that it calls for freedom of want and fear forming an important part the human security paradigm. The double edged-nature seemingly dichotomizes the developed and developing world in terms of their security needs, by suggesting that for the developed world the former applies, while the developing world the latter applies.[153] The problem with human security therefore is that although it is meant to have universal appeal, the concept can hardly be applied in the same way. This could partly be a result of broad concepts such as "an acceptable standard of living" meaning different things for developed versus developing countries.[154] However this does not mean that one cannot use a definition of human security that attempts to be all inclusive. Human Security, as it will be used in this discussion, refers to the phenomenon that seeks to balance the freedom of want and the freedom of fear, from those things which interrupt the daily, well-adjusted functioning of any given population or community. This definition will be reconsidered once criticisms and its potential application to water security have been considered.

2.3.4Criticisms of Human-Security

Criticisms of Human Security focus on two broad elements of the concept. One is that the concept itself is too broad to be analytically useful, as Roland Paris suggests. The other is that the concept is not really distinct from state-centered security, since human security is dependent on the state and in turns its security. One of the most cited arguments from this perspective is presented by David Chandler.[155]

[152] Loc.Cit.
[153] Acharya, A., "Human Security: East Versus West" in International Journal vol.56, No 3, Summer 2001 pp. 442-443
[154] Ibid. p. 443
[155] Chandler, D., "Human Security: The Dog That Didn't Bark", Security Dialogue, Vol. 39, Iss. 4, 2008, pp. 427-438

2.3.5Broad versus Narrow Definitions

Taylor Owen offers a different critique and claims that a significant amount of the apprehension towards the concept of human security is based on broad versus narrow interpretations.[156] His claim is that rather than viewing the concept of human-security as one that is reductive to state-centered security that one needs to define the parameters of the concept more closely.[157] Some such as Krause, Mack and Macfarlane, according to Owen, believe the concept is pragmatic and indeed does have the analytic rigor that those such as Paris claim it lacks, but they believe that the concept needs to be more detailed in its link to security. [158]Archarya proposes that the broadness of the concept is precisely what provides the analytic rigor that Krause, Mack and Macfarlane argue for. However, his analysis is focused very much on the utility of human security to established theories, such as Realism, Liberalism and Liberal-Internationalism.[159] This is a very limited approach and does not really clarify a normative approach to one's understanding of human security. None the less Archarya's argument is that the UNDP Report deliberately left the concept open-ended and analysts should do the same.

Archarya is seemingly ignorant of the intuitive appeal that comes with specifying what human security is and what it is not. If he is basing his argument, as many do, solely on the all-inclusive nature of the UNDP Report then one could suggest that his position is fallacious. He seems to take the UNDP Report for more than it was intended and in so doing commits the report to a position it does not take. When reading the report one does not get a feeling that the conceptualization of human security was cast-in-stone, if anything the report was a foundation-meant for further exploration. So to claim the report as the only authority from which to argue against narrowing the scope of human security becomes problematic.

Krause, Mack and Macfarlane amongst others pick out the problematic nature of a vague human-security conceptualization, which is seen as a consequence of it being too broad. They do so by arguing that human-security, in its universal form, trivializes security which in turn renders it "analytically useless"-as Roland Paris suggests. Accordingly, they do not disagree with Paris per se, but would suggest that the specification of the concept lends itself

[156] Owen, T., "Human Security-Conflict, Critique and Consensus Colloquial and a Proposal for a Threshold-Based Definition" in Security Dialogue, Vol. 35, No. 3, 2004, pp. 374-375

[157] Owen does not make this claim explicitly. However, I take it that the assumption is justified given that his article considers the application of various definitions to the validity of the human-security concept. See Owen, T., "Human Security-Conflict, Critique and Consensus Colloquial and a Proposal for a Threshold-Based Definition", p. 374

[158] Ibid. p. 375

[159] Acharya, A., "A Holistic Paradigm" in Security Dialogue, Vol. 35, No. 3, 2004, p.355-356

to better analytical rigor thus nullifying his analysis. Of course, this presupposes that Krause, Mack and Macfarlane, in addition to others with similar objectives, have established ways in which to do so.

Andrew Mack argues that the reason the human-centered approach to security has appeal is because it tests the extent to which states pose a threat to their own citizens. In so doing it breaks with the state-centered assumption that states automatically seek to safeguard the interests of its people.[160] What is problematic is that Mack does not take a position on what human security ought to refer to. He simply points out how proving a causal relationship is complicated since the concept as it stands requires too many independent variables for its analysis to be effective.[161]Krause however takes a far more definitive approach. He rejects the "shopping list" approach to human security and claims that human security ought not to refer to "any bad things that could happen…, [which] have no necessary link [to one another]".[162] He argues against the freedom of "want" approach claiming that this is what makes the human security approach analytically useless. He therefore argues for the "…'freedom of fear'…" interpretation that posits the freedom…"from the threat or use of violence" as the focal point of human security.[163] He claims that human security can be linked with organized violence as well as the eradication of force from political, economic and social life-all of which have been crucial to the understanding of modern politics and the institutions created through it.[164] He is therefore seemingly arguing for a definition that sees human security as focusing on the interaction between the use of violence and how people interact within the political, economic and social spheres of existence. This is closely linked to the idea that opportunities for people will not be removed or created through violent means; and as such anything which does so is a human security threat. It seems then that the former support the notion of narrowing the concept of human security to be more reflective of the use of violence in creating or impeding opportunities for people, which is an interpretation that Owen supports.[165]

Conversely, others suggest that human security means more than just the safety from the threat and use of violence-appealing to the use of violence exclusively dilutes the intention of

[160] Mack, A., "A Signifier of Shared Values" in Security Dialogue, Vol. 35, No. 3, 2004, pp 366-367
[161] Loc.Cit..
[162] Krause, K., "A Key to a Powerful Agenda, if Properly Delimited" in Security Dialogue, Vol. 35, No. 3, 2004, pp.367-368
[163] Loc.Cit.
[164] Loc.Cit.
[165] Owen, T., Op.Cit. pp.379-380,382-383

human security within the context of C.S.S.[166] Axworthy for example believes that an acceptable project of human security would include "[a] bridge [to close] the divide between the social and natural sciences"[167] The common thread in the literature on keeping the concept broad suggests that economic and environmental threats necessarily form part of the agenda of shifting the referent object of security. The objection therefore is that if the concept of human security is reduced to dealing exclusively with the use of violence, defending its validity as an analytical tool becomes self-serving.[168] This effectively suggests that human security when restricted to violence is only appealing because it would be met with agreement by most realist interpretations of security-relatively speaking. The assumption that is made by those who support the broad definition is that violence is chosen to operationalize the human security variable simply because it fits with intuitive understandings of conflict-something which the concept of human security is meant to challenge in the first place. Thus is because as Buzan puts it " [human security] drives towards a reductionist understanding of international security and reinforces a mistaken tendency to idealize security as end goal"[169] In addition, Buzan argues that if collective security is indeed the object of security then its interests are best served by "societal or identity security".[170] One must be cautious however of claiming that the broad interpretation of human security makes no attempt to narrow application of the concept. Thakur particularly restricts the analysis of the broad approach to concerns, which have a "crisis" undertone.[171] This would include floods, famine and refugee movement, but only once it reaches a certain point, crucially there is no pre-condition of violence for the former to be considered security threats according to Thakur. This however brings one back to the concept of human security having no clear demarcation for security threats versus none security threats.

The arguments for both narrow and broad applications of human security have merit in the context of water. There is an intuitive appeal behind restricting the concept to violence because it specifies case selection where violence is used to obtain water and results in at least 25 related deaths, thus qualifying the case as water related conflict. On the other hand the broad interpretation has equal appeal since the impact of floods on arable land for

[166] McSweeney, B., "Identity and Security: Buzan and the Copenhagen School" in Review of International Studies, Vol.21, Iss, 1, January 1996, p.82,85,86 and 90
[167] Axworthy, L., "A New Scientific Field and Policy Lens" in Security Dialogue, Vol. 35, No. 3, 2004, p. 349
[168] Owen, T. Op.Cit, pp.375
[169] Buzan B., "A Reductionist, Idealistic Notion that Adds Little Analytic Value" in Security Dialogue, Vol. 35, No. 3, 2004, p.379
[170] Loc.Cit.
[171] Owen T., Op.Cit. p. 376

example also is seemingly important in understanding non-military threats for security, which fits in well with Thakur's analysis. In summary, this criticism is not leveled against the concept of human security, but is leveled against the lack of specification of its meaning.

An adequate definition of human security therefore needs to take into account the merits of both narrowing and broadening the concept because this will have an impact on how the validity of human security as a lens through which to view water wars. Therefore, this thesis will refer to the human-centered approach as one which sees the potential for violent interaction amongst both the state and its people as well as violence amongst the people themselves over issues related to the use of water, specifically when the use of water is threatened. This threat could be access to water itself or a threat to the viability of an industry dependent on water for its functionality.

2.3.6 No Distinction between Human Security and State Security?

A final criticism that needs to be addressed, since it challenges the entire rationale from which this thesis is written, is that the two perspectives presented here are not really distinct. In *Security Dialogue* David Chandler presents an article that is aimed at questioning the role of human security, or as it has been labelled here human-centric approaches to security threats.[172] His primary purpose was to question the extent to which human-centric approaches offer an explanation for how threats of this kind are perceived as different from others.[173] Put differently, Chandler questions the extent to which issues of human-centric approaches are reductive to power and as such can be explained in terms of state security preferences. The core of Chandler's argument, according to Owen, is that the clash between human-centric and state-centric security has less to do with challenging traditional security paradigms, and more to do with a disjuncture between critical theory and policy academia (which is academia that seeks to shape state policy on issues such as human security)[174]

From what has been discussed this far, Chandler's view represents an objection to the role of critical theory in traditionally realist fields simply because he finds no explicit distinction between the issues of human-centric security and state-centric security, but on what assumptions is this view purported and defended?

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[172] Chandler, D., "Human Security: The Dog That Didn't Bark", Security Dialogue, Vol 39, Iss. 4, 2008, pp. 427-438

[173] Owen, T. The Critique That Doesn't Bite: A Response to David Chandler's Human Security: The Dog That Didn't Bark" Security Dialogue, Vol. 39 pp.445-447

[174] Ibid. p. 446

Owen suggests that one needs to evaluate Chandler's project in three claims: (1) Human Security exaggerates new Post-Cold War security threats; (2) Human Security advocates locate these new threats in the developing world, and (3) Human Security facilitates short term policy-making in the absence of clear strategic foreign policy objectives. Each of these claims has the potential to undermine the perspective from which this work takes its impetus.

The first claim is perhaps the *most* challenging, and is the one that will be focused on. The claim Chandler makes seems to misunderstand that human security emphasizes the consequences of threats, more than it does their origin. Chandler even further misses that most post-Cold War and post-9/11 threats have stemmed from traditional threats, such as weapons of mass destruction and terrorism. More human centred approaches, such as poverty and disease, have not seen much attention from states as security threats per se.[175]What this means is that the security framework sees threats themselves and their consequences as rooted in traditional threats, and a lack of either seems to gain banishment from the state security agenda. But what happens when the consequences of non-traditional threats outweighs that of more traditional ones such as the impact of 18 million deaths from HIV/AIDS in comparison to the 300,000 from conflict?[176] It seems rather absurd to suggest that the claims of human-centric approaches to security threats are over-exaggerated, and that their place within the security framework makes very little sense. Chandler even further claims that the only reason that issues of Human Security are in any way related to security threats at all is because of the absence of traditional enemies within the security framework, he claims that many issues such as health and the environment have taken the place traditional enemies and clearly defined battlefields. [177] Again here, Chandler misses that the source of the threat is just as important as its consequences and if even these consequences when they are grounded in human-centric approaches need to become important to the adaptation of the security policy-making framework.

While these challenges are not successful, particularly when the response of Chandler is considered, they still ought to be kept in mind. The response Chandler provides is that human security theorists and their critics speak past one another.[178] Whether or not these critics do so has very little bearing on the claims that can be extracted from Chandler's writing. Therefore, the roles of constructivist approaches to security have an important role to play in finding

[175] Loc.Cit.
[176] Loc. Cit.
[177] Ibid. p. 447
[178] Chandler, D. Op.Cit. 427-438

empirical evidence to support the elevation of human-centric issues in the security framework in the future.

2.4 Human Security Issues in the Context of Water

The discussion to this point has considered presenting and defending the concept of Human Security. Thus it has not been related to water. While in its foundation, human security is deliberately broad it should not be taken to mean that it cannot be applied in a specific context. The UNDP report lists 7 main categories of concern for human security:

1. Economic Security;
2. Food Security;
3. Health Security;
4. Environmental Security;
5. Personal Security;
6. Community Security, and
7. Political Security[179]

The report largely considers economic security to be synonymous with secure employment, which pays a wage commensurate with an acceptable standard of living.[180] So its applicability to water depends on the extent to which water is related to income. So in cases where people depend on water for their economic activity, such as in agriculturally dependent societies, water becomes a security concern. Since water is related to the opportunity of economic activity, threatening water equates to threatening the opportunity to engage in economic activity-which according to the freedom from fear interpretation equates to human security. As it will be used in this thesis, economic security becomes a security concern if violent conflict is a response to the threat of economic activity.

Food Security refers to both the physical and economic access to food. The notion of access to food in the context of human security goes further than just "having enough to go around", it speaks to an entitlement that people have to access to the food that they see fit. Food therefore is a necessary condition for security.[181] The report suggests that food security be considered as more important than economic security since people ought to have food even if

[179] New Dimensions of Human Security" in Human Development Report 1994, United Nations Human Development Programme (UNDP), 1994, p. 22. A full copy of the report, as well as others is available from http://hdr.undp.org/en/reports/global/hdr1994/chapters
[180] Ibid. p.25
[181] Ibid. p. 27

they are not economically active or earning an income. Food security can again be linked to agriculture in that if there is not enough water to sustain crops, the fear of not having a crop that is able to sustain food demand becomes evident. The UNDP report specifically points out the impact that "mother nature" can have an impact in creating a food shortage.[182] As it will be used in this thesis, food security becomes a security concern if violent conflict is a response to the threat of not being able to acquire food.

In the UNDP report, health security is not particularly well-defined-especially when considering the precise definition it provides for economic and food security. The report speaks of differences in the way in which health security differs amongst developed versus developing countries. In developing countries, health security is mostly at risk through infectious and parasitic diseases-these in turn are often related to poor nutrition and polluted water. In developed countries on the other hand, health security is mostly threatened by diseases linked to diet and lifestyle. The other element of health security that is addressed is the report is the Acquired Immune Deficiency Syndrome (AIDS). When related to water, it is significant to note that an estimated 3.4 million people die of water related diseases annually and that approximately 1billion people lack access to a safe water supply.[183] In addition, 40 per cent of states in the world have water that is not suitable for fishing, swimming and the support of aquatic life.[184]Health security relates very closely to the lack of opportunity to lead a healthy lifestyle, particularly when one's health is threatened by the poor quality of water within a given region. As it will be used in this thesis, health security becomes a security concern if violent conflict is a response to the threat of not being in a position that one's health is adequately protected.

Environmental Security is closely linked to the degradation of global and local ecosystems.[185] The UNDP report of 1994 specifically links water to the concept of security-thus making it an emerging threat. The largest threat within developing countries in particular is the extent to which pollution influences both healthcare systems and food production. In Africa, desertification if often claimed to be an increasing concern for security. The UNDP report claims that in 1994, when it was written, 65 million acres of land had been lost within the last

[182] See Box 2.2 in the UNDP report. Through the use of the Bengal Famine of 1943, the report indicates that although in this case the shortage was created by economic isolation, it is one of many factors that lead to food insecurity. See p. 27
[183] Ibid. pp. 27-28
[184] Ibid. p.28
[185] Loc.Cit.

50 years.[186] This when linked to other aspects of human security has an impact on economic security-through increased migration leading to fewer jobs hence less income. It is also linked to food security in terms of the availability of arable land. As far as a link to security is concerned, environmental factors are best explained through human security, a claim that as stated before this thesis aims to defend.

Personal security refers to the security to personal violence, be it from the state, others or other groups. It even has refers to the violence perpetrated against women and children. The majority of concerns for personal security are seen within the context of gender equality in the case of women, particularly in the workplace.[187] In the case of children, these personal securities tend to refer to the ability of children to obtain an education and even suggest a connection between personal security and child-headed households. It does so by explicitly stating the argument for child labor being a violation of personal security. In essence, the idea of personal security cannot be closely related to water. As such it will not form part of the human-centric analysis presented in the case studies that follow.

Community security refers to the safety that people derive from being within a particular group "that can offer practical support".[188] By extension the insecurity that arises from this form of security is the result of the membership to a particular group as well. An example of this cited by the UNDP report is ethnic violence.[189] The report speaks of the ethnic violence between the Tamils and Sinhalese. More cited examples of the Rwandan Genocide are an example of how membership of one group causes insecurity. The reasons for this insecurity amongst different ethnic groups tend to vary. In the case of South Africa's 2008 Xenophobic attacks on Zimbabwean immigrants, as unemployed South African's perceived the immigrants to be taking jobs meant for South Africans-as such the motivation tends to be more economically rooted. In other cases, such as the Rwandan Genocide and to certain extent the South African Apartheid system tends to represent a more deeply seeded ideological hatred of one group by another.[190] The connection to water can be seen in both the former since water could have economic value between different cultures, but could equally be the source of historical difference between cultures. Thus, community security

[186] Loc.Cit.
[187] Ibid p. 30
[188] Ibid. p. 32
[189] Loc.Cit.
[190] Loc.Cit.

will accurately be used to evaluate the extent to which culture, rather than national identity plays an important role in the understanding of conflict over water.

Lastly, political security speaks to the notion that people ought to live in a society where their basic rights are safeguarded.[191] This element of security, at least in the initial report refers to the violation (and in some cases adherence to) human rights. The link to political security and military spending is posited as important one to gauge the inclination to violate human rights. The UNDP report indicates that Iraq and Somalia have average of seven-to-one spending between their military and education budgets. While the report evaluates a limited time in its case selection, human rights have gained increased attention, specifically through the establishment of organizations such as Human Rights Watch and UN Human Rights Commission. Water when related to human rights, as the referent object of political security is problematic, since its lack of supply will constitute a human rights violation. This would not be useful if water was simply not available. The political security element will therefore only be applicable in the case where the state or any other organized group restricts access to water to another party, despites its structural availability.

2.4.1Does Universal Appeal imply Universal Application?

It is clear from this discussion that human security principles tend to overlap one another, but this should not be taken to mean that all of the former seven principles apply equally to a case of potential or existing conflict. It could case for example that in some cases food security outweighs health security in a particular place. Those who argue for human-centered approaches-to the peril of the concept- attempt to apply the concept in its entirety without acknowledging that some principles might not be evident in the particular case study. So if, for example, the human-centered approach only explains food security as an element of the approach, it would be misleading to posit that human security explains the case well. In this way although the concept has universal appeal, it might not be suitable to apply it in the same way-and as such one can steer away from making conclusions that are not supported empirically. The over-commitment of the explanatory power of human security as a result is what drives those like Roland Paris to suggest that human security is nothing but "hot air".

The question then becomes how one ought to rank these principles if they are not to be applied universally. In the Philosophy of Ethics, Jeremy Bentham introduces what he calls the hedonic calculus. The calculus is meant to rank certain things in terms of how they

[191] Ibid. p. 32-33

promote pleasure or pain.[192] Transferring the concept to water requires principles that could be quantitatively measured. Michael Smith provides a feasible way of linking human-centric threats to threats in the larger context of security. He provides the following list of criteria for ranking threats to security[193]:

1. Destructive Scale;
2. Geographic and Temporal Change;
3. Likelihood, and
4. Recovery

By Destructive Scale, Smith posits that the extent to which the particular phenomenon causes injury or death within the context of the threat being evaluated would have an impact on how serious the threat is.[194] By Smith claims that Geographic and Temporal Change, the extent to which the threat is cross border or international in nature could have an impact in how serious the threat is.[195] In terms of Likelihood Smith argues that one needs to take into account the extent to which conflict will materialize if measures are not taken to understand and mitigate the threat.[196] Lastly, Smith argues that more serious threats to human security are likely to be more catastrophic than others.[197] This in part would depend on how "serious" each of the former criteria are in evaluating the extent to which a human threat outweighs another. The idea for using a scale like this is that it gives one reasonable grounds upon which to argue for the raking of one of the seven principles above another within a particular case. It could also for example be used to quantitatively measure the state-centric and human predictions against one another. So if for example food shortages cause more deaths than the use of military force, the food shortages could be said to have a larger destructive scale and as such explain the lack of security within the examined case better.

2.5 Conclusion

This chapter aimed to present the state centric and human centric views of security. They have been shown to be reductive to traditional versus critical approaches to the field of security studies. While the former focuses on the use of military force in achieving the

[192] Worke, T., "A Reconstruction of Classical Utilitarianism" in Journal of Bentham Studies, Vol 3, 2000, p. 2 and 4
[193] Smith, M.E., International Security: Politics, Policy and Prospects Palgrave, McMilllan, London, 2010, pp. 53-57
[194] Ibid. pp. 53-54
[195] Ibid, pp.54-55
[196] Ibid pp. 55-56
[197] Ibid pp.56-57

interests of the state, the latter seeks a more individual level analysis. Both of the former have been critically analyzed in terms of their assumptions.

In addition, each has been located within the context of literature on the water wars hypothesis. The state-centric view fits most adequately with those who are against the water wars hypothesis, while the human centric approach fits in with the "water related conflict hypothesis" as explained in the previous chapter. In what follows the two approaches will be applied to cases to test the extent to which they explain the conflict

Chapter 3

Water Wars in West Africa? The Case of Hydropolitical tension in the Chad River Basin [198]

3.1Introduction:

Lake Chad, within the Lake Chad Basin, is a quintessential case-in-point for the effects of climate change on water resources in Africa. It has even further raised questions about how security over water ought to be perceived and who would be the worst affected. Majeed Rahman argues that the access to water remains a crucial element of survival in Africa.[199] So if the lack of water supply threatens survival, then neither the state nor human centered approach would object to seeing it as a security concern. The questions still remain, however, to whom this lack of water is a security concern and how is it a threat to them. In addition, an important relationship between the threat and the "who" of the threat, is the extent to which "the who" is willing to protect themselves from it.

In this chapter, the case of the Nigerian conflict with Cameroon over the Bakassi Peninsula will be analyzed as a conflict over water to determine which of the state-centered or human-centered approaches best explains the conflict. In order to do so, this chapter will consider a background to the Chad River Basin. It will also consider the case of Lake Chad and the Bakassi Peninsula in terms of the potential characteristics that could possibility promotes conflict from either a state-centric or human-centric approach. The chapter will carefully consider the dispute between Nigeria and Cameroon, tracing its origins, incidents of violence, resolution and the political climate following the resolution. The chapter will then move to explaining the origins and the incidents of violence in terms of both state-centered and human-centered approaches to determine which, if any can best explain water's role in the onset of violence. The chapter concludes by providing a conclusion regarding the ability of the approaches to explain the Nigeria-Cameroon dispute over the Bakassi and Lake Chad.

[198] For the purpose of clarity, the Lake Chad refers to the water structure while the Lake Chad River Basin refers to a network of water sources, inclusive of Lake Chad. It is sometimes also referred to as the Chad River Basin
[199] Raman, M.A., "The Geopolitics of Water the Nile River Bain", Centre for Research on Globalization, http://globalresearch.ca/index.php?context=va&aid=25746 (date: 2012-06-08)

3.2 Background: Water Resources of the Chad River Basin

Figure 3: Lake Chad River Basin



(Source: WWF[200])

3.2.1Geographical location and attributes

The Chad River Basin is the largest inland drainage basin in Africa, situated in West and Central Africa. It covers eight percent of the total surface area of the African continent at 2,500,000 km^2 and spans over the political borders of Algeria, Cameroon, Central African Republic (CAR), Chad, Libya, Niger, Nigeria, Sudan and South Sudan. [201] The water

[200] "Case Study on River Management", World Wildlife Fund, http://wwf.panda.org/about_our_earth/about_freshwater/Rivers/irbm/cases/lake_chad_River_case_study/ (date accessed: 2013-01-04)

[201] Bloxom, M., and Bdlyia, H.H. Transboundary Diagnostic Analysis of the Lake Chad Basin, LCBC- GEF Project on the Reversal of Land and Water Resources Degradation, p 18, available from http://www.lakechadbasin.net Note: The information in the Report is written before South Sudan become an independent State from Sudan-the references to North and South Sudan are therefore my own through consulting of political maps the former in combination with maps of the region. For a map of the new political borders see: "East Africa: South Sudan Accuses Sudan of 'Deliberately' Keeping Troops in Abyei" Gender Concerns, http://www.genderconcerns.org/article.php?id_nr=3591&id=East%20Africa:%20South%20Sudan%20Accuses%20Sudan%20of%20%27Deliberately%27%20Keeping%20Troops%20in%20Abyei (date accessed: 2013-01-04)

resources of the Basin form an important role in the access to freshwater of riparian countries. As a result, it is central the livelihoods of a vast population.[202] The Basin provides valuable insight into the nexus between environmental security and water given its importance to freshwater resources of the riparian countries above. Considering that empirical data on the Chad River basin is problematic to source, the analysis below is taken from a report presented to the Lake Chad Basin Community (LCBC).

Figure 4 Surface of Basin Amongst LCBC			
State	*Size of Basin ($km^{2)}$*	*Percentage of Conventional Basin*	*Percentage of National Territory*
CAR	197, 800	22.00	31.75
Cameroon	56, 800	6	12.12
Chad	361,980	36.0	28.42
Nigeria	188,000	19.0	22.15
Niger	162,375	17.0	12.70
TOTAL	967, 000	100	-

The impact of continuous droughts, a decline in rainfall as well as the degradation of vegetation have an increasing impact on the ability of riparian countries to interact peacefully with one another. More importantly, it has seemingly left populations that are dependent on these resources for their livelihoods in a perilous situation. The most profound impact is seen in desertification, which impacts on the economic viability of over 15 million people through the loss of arable farming land, livestock grazing land and fisheries within the Lake Chad and its tributary Rivers.[203] The analysis of the impact that environmental concerns have however proven to be problematic, since the bulk of empirical evidence that supports the conclusions above was taken from a smaller "initial" conventional basin rather than the basin in its entirety as presented above.204 The initial conventional basin consisted of roughly 20 per cent of the total Basin's area at 427, 500 km2. It excluded a large area that is considered to have very little or no impact on the hydrology of the conventional basin.205 In 1983 a summit of the Lake Chad Basin Community (LCBC), the initial basin was "expanded to

[202] Bloxom, M., and Bdalyia H.H., Op.Cit. p. 18
[203] Ibid. pp. 18-20
[204] Ibid p. 20
[205] Loc.Cit.

include... watersheds in northern Nigeria, southern Chad, and northern C.A.R.".206 This meant that the Basin's area increased from 427,500 km2 to 967, 000 km2.

A matter that often raises confusion is the distinction between the Chad River Basin and the Lake Chad as the transboundary water body. This confusion is perhaps to be expected since the conventional basin listed above is remarkably similar to the Lake Chad's riparian countries. The Chad River Basin refers to a larger network of lakes and Rivers of which the Lake Chad is one.[207] For the purpose of this thesis, the Lake Chad will refer to this transboundary resource rather than the basin in its entirety. In terms of the analysis of water and its relationship to conflict Lake Chad is used as an example within the Chad River Basin. The analysis of the Lake Chad case and subsequent conclusion that is made from it ought, therefore, not to be considered exhaustive in terms of the Chad River Basin.

3.2.2 The Lake Chad: A focus on Water Depletion and its impact on Foreign Relations

Lake Chad is a transboundary water resource, within the Chad River Basin on the borders of Chad, Cameroon, Nigeria and Niger.[208] In terms of supply, the Chari-Lagone River, which originates in the Mongos Hills of the CAR system, contributes 95 percent of the Lake Chad's annual flow. The Komadougou- Yobe subsystem contributes the other 5 percent of the Lake's annual flow.[209] The transboundary management of the Lake Chad falls under the auspices of the Chad River Basin Commission (LCBC). Although CAR is not a riparian country of the lake, the contribution of the Chari-Lagone to the flow of the lake makes it important within the context of decisions that are made concerning the lake through the LCBC. This is because of this significant contribution to the flow of the lake that CAR was invited to join the LCBC in 1994, in recognition of the fact that 95 per cent of the Lake Chad's waters have their origin within the borders of the CAR.[210] The effectiveness of the LCBC has however been questioned, specifically in terms of its ability to manage the interests of different riparian groups within the context of the "vanishing Lake Chad". These

[206] Transboundary River/Lake Basin Water Development in Africa: Prospects, Problems and Achievements" United Nations Economic Commission for Africa, Addis Ababa, Ethiopia, December, 2000, p. 40
[207] Various maps of the Lake Chad Basin, including the one used for illustration above show the area of the River Basin to be larger than that of the Lake Chad, see map at the beginning of the background.
[208] Odada, E.O., Oguntula, J., and Obyebande, Lake Chad: Experience and Lessons Learnt in Brief, pp. 75-77 http://www.ilec.or.jp/eg/lbmi/pdf/06_Lake_Chad_27February2006.pdf (date accessed: 2012-03-04)
[209] Bila, M., "Statement of Requirements for Establishing Lake Chad Basin Decision Support System", Reversal of Land and Water Degradation Trends in the Lake Chad Basin Ecosystem Establishment of Mechanism for Land and Water Management, Lake Chad Basin Community, February 2005,p. 4
[210] "Transboundary River/Lake Basin Water Development in Africa: Prospects, Problems and Achievements" United Nations Economic Commission for Africa, Addis Ababa, Ethiopia, December, 2000, p. 40

questions are often based on the lack of the LCBC to manage the resources of the Chad River Basin, but importantly point to the inability of the LCBC to curb mismanagement of the Lake's resources by riparian communities.[211]

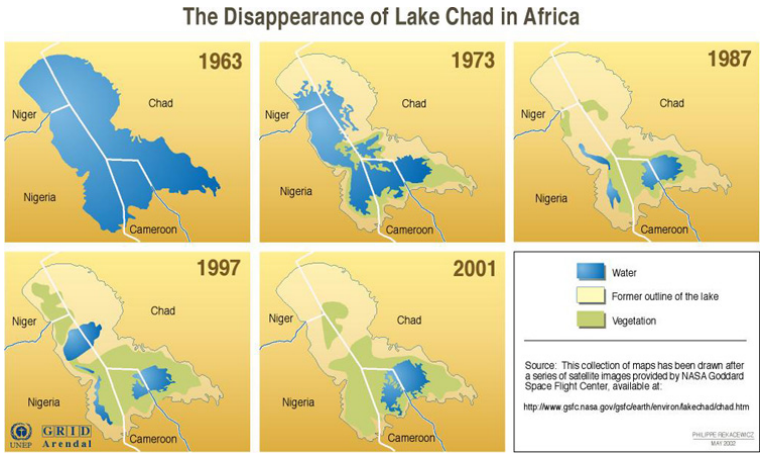
The "vanishing Lake Chad" has come to represent a quintessential token of environmental issues as a concern for security. The various riparian groups in combination with poor management on the part of the LCBC and shrinking water resources of the Lake have come to represent a noteworthy threat to the security of livelihoods. The issue made more complex in terms of the referent object of this threat since it is not clear that the threat can be classified as a state-centric or human-centric threat exclusively. It is clear through various cross-border occupations that the diminished volume of water within the Lake poses a threat for state-centred security.[212] On the other hand, the diminished capacity points to a concern from the human-centred perspective as diminished waters have led to diminished fishing opportunities along with marginalised economic activity for communities dependent on the Lake's resources as a means of income; as a result wealth is stratified by pastoral activities such as farming.[213] As it stands the increased desertification of the Lake Chad raises concerns over sustainability of peace along the banks amongst riparian communities.

In 2006, the *Human Development Report* suggested that the Lake had been reduced to roughly one-tenth of its size in 1964. The rapid decline is structural capacity of the Lake was an inverse relationship between supply and demand, in which demand exceeded an increasingly diminished supply.[214] Over the last fifty years, the Lake's structural capacity has been reduced from 25,000 km^3 to only 1, 350km^3.[215] The reasons for the over-extension of demand are multi-faceted. These concern three major issues: first is that human consumption has become largely disproportionate to the replenishment of the flow of the Lake; second, is that over-extension of grazing of livestock in the region has led to vegetation degradation and lastly, the decrease in annual rainfall and its subsequent impact on the annual flow of both the Lake and its tributaries.[216] The figure below shows the gradual depletion of the Lake Chad.

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[211] "Beyond Scarcity: Power, Poverty and the Global Water Crisis" in Human Development Report 2006, United Nations Development Programme, New York 2006, p. 212
[212] Bene., C. (et.al.) "Inland Fisheries, Poverty and Rural Livelihoods in the Lake Chad River Basin", Journal of African and Asian Studies Vol. 38, No. 17, 2003, pp. 19-20
[213] Ibid. pp.28,40
[214] "Beyond Scarcity: Power, Poverty and the Global Water Crisis" Op,Cit. pp.212
[215] "Lake Chad: Almost Gone", Vital Water Graphics: An Overview of the State of the World's Fresh and Marine Waters (2nd ed), United Nations Environmental Programme, 2008 available online at http://www.unep.org/dewa/vitalwater/article116.html (date accessed: 2012-06-18)
[216] Loc.Cit

Figure 5: The Vanishing Lake Chad



Source: UNEP

The lake is bisected into north and south by the "Great Barrier", with a rise in the lake bed running from east to west. The vast depletion of the lake's structural supply has left three main ecological zones. Sarch and Birkett suggest that they are the following:

(1) The areas of open waters which have persisted in the southern basin, frequently only in the only in the vicinity of the inflowing Chari River;
(2) The Archipelago zones where water surrounds the dunes along the north-eastern coast of the lake, and
(3) The swamps to the west of the open water, some parts of which are seasonally inundated.[217]

The variation in vegetation and access to water within these ecological zones has left some with very little option other than to live almost nomadic lifestyles in search of resources to sustain a living. This is particularly true of societies that are dependent on pastoral activities to maintain a living, in that they often need to balance the access to suitable land for grazing and farming with access to water. In addition, because wealth and access to the economy, albeit informal, is defined by pastoral activities access to water becomes essential beyond just the standard domestic sector uses.[218] One could argue, on this basis, that for some riparian communities this means crossing national borders or at the very least entering the traditional lands of other ethnic groups. The variation in ecology of the lake lends itself to pressures of adequate resource supply-specifically within the context of inter-ethnic relations amongst

[217] Sarch M.T. and Birkett, C., "Fishing and Farming at Lake Chad: Responses to Lake-Level Fluctuations" The Geographical Journal, Vol. 156, No. 2, 2002, pp.156-158
[218] Bene., C. (et.al.), Op.Cit. pp. 18-20. To clarify Bene does not argue for this interpretation explicitly, however given that he sees access to water as well as grazing land as a key feature of social interaction within the Chad Basin.

these communities since groups might need to relocate to find land that is suitable for both their capabilities and needs.[219]

3.2.3 Riparian Countries of the Lake Chad River Basin

An important element in understanding the crisis of Lake Chad's waters is unpacking the issue of demand-side management within the context of its use. The issue itself can be seen in two broad concepts: The first asks who is using the Lake Chad's resources, while the second asks what they are using it for. The issue of demand side management therefore sets aside the inadequacy of supply-side impact, in this case the decrease in rainfall, and focuses on how the demand for water shapes water insecurity.

As has been established Cameroon, Chad, Niger and Nigeria are the most dependent on the resources of the Lake Chad. However, given that the structural capacity of the Lake has diminished to the extent that it only falls within Cameroon and Chad, it seems fitting to question the extent to which its resources make a discernible difference to the riparian group's livelihood. The Lake is important from a social perspective in that 30 million people, most of whom are farmers, fisherman and livestock breeders depend on the resources of the lake.[220]

The use of the water resources of the Lake Chad cannot be restricted to the lake itself, since the annual inflow from the Chari-Lagone and the Komadougou- Yobe is largely dependent on the usage of the feeding Rivers. Thus, the upstream use of the waters within the Chad River Basin becomes important in understanding how usage adds to water insecurity within the basin. However, in terms of relating the water within the Lake to conflict over water becomes problematic precisely because usage data tends to focus on the resources of the Lake Basin as whole rather than just the Lake. Thus it becomes difficult to determine the extent to which conflict between transboundary riparian countries is a function of the Lake's water, which is important for understanding Lake Chad as a case for the water wars hypothesis. However, this does not mean that the data on the Chad River Basin is not useful, it allows one the opportunity for to examine which countries withdraw more water and as such are more likely to view restricted access to water as a threat to security.

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[219] Sarch M.T. and Birkett, C., Op.Cit. p. 158, 162

[220] Musa, E.I.K., Saving Lake Chad, Lake Chad Basin Community and the International Commission on Irrigation and Drainage, December 17th, 2008,p. 6

The table below describes the total water withdrawal in cubic-metres for each riparian country by sector. The table shows that Nigeria withdraws the most water from freshwater resources while CAR withdraws the least. According to figure 4 (above), CAR has the largest surface area of the basin; it has the second largest proportion of national territory situated within the basin, yet it withdraws up to a quarter less freshwater than Chad does. Furthermore Chad, which has the largest surface area as well as proportion of natural territory within the basin, withdraws twenty-nine times less water than Nigeria, which is third in terms of its proportion and size of the natural basin.

3.2.4 The use of Water Withdrawals by Riparian Countries

Figure 6: Water Withdrawals by Sector in the Chad Basin-LCBC Countries					
	CAR	***Cameroon***	***Chad***	***Niger***	***Nigeria***
Agriculture	0,001	2,73	0,19	2,08	5,51
Domestic	0,0601	0,2468	0,1037	0,2944	4,099
Industry	0,012	0,0146	0,1037	0,327	1,965
TOTAL	**0,0731**	**2,9914**	**0,3974**	**2,7014**	**11,574**

Source: FAO[221]

Taking into the account, the percentage of national territory that the basin occupies in each of the riparian countries it is evident that withdrawal is disproportionate to contribution. Referring to Figure 4, which details surface area of the basin, the CAR which has the largest national territory within the basin; it withdraws significantly less than any other riparian. Nigeria, which ranks third in Figure 4, withdraws almost four times the resources of its closest riparian: Cameroon.

The disparity between withdrawal and contribution can be explained in at least two ways. The first is to appeal to the fact that larger populations are likely to withdraw more water since larger populations are likely to demand, or in this case withdraw, more water. Taking into account the population statistics presented in Figure 8, Nigeria's disproportionate withdrawal can be explained by the fact that its population is almost nine times larger than that of Cameroon. Therefore, the fact that it withdraws only four times more is easily defendable and is hardly surprising. The second way in which this disproportionate

[221] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)

relationship can be explained is in terms of economic need, in which larger economies, more developed economies, will require to use more water.[222] Taking into account the figures in Figure 7 below, tend to correlate more closely with economic power, in the form of GDP and GDP per capita, it is evident that more economically powerful states tend to demand and subsequently withdraw more water. When viewed in this way Nigeria's per capita GDP explains, in addition to having a larger population why it uses more water.

Figure 7: GDP and GDP per capita LCBC Countries 2010 (Sources: FAO and World Bank)

Country	***GDP Per Capita (US$)***	***GDP Total(Million US$)***
CAR	0,457	2006
Chad	0,676	6839
Cameroon	1, 147	22,816
Niger	0,358	5383
Nigeria	1, 278	173,004

Source: FAO (GDP total) and World Bank (GDP per capita[223])

The withdrawal of water is therefore subject to two of the driving forces behind the need for resources as explicated my Michael Klare.[224] In the case of the Chad Basin, both population and economic power drives riparian countries to use more water. One this basis one might even be inclined to suggest that "over withdrawal" is justified. However, it does not follow from the fact that if states can justify over withdrawal, that such withdrawal will not be met with animosity and distrust; both of which have the ability to be pressure points for conflict.

3.2.4.1 Industrial use of Water in the Lake Chad River Basin

As indicated by Figure 4 above, it is clear that industrial use of water is rather limited. Industrial activities with regard to water mainly form part the primary and tertiary sectors.[225]Agro-industries tend to be dominant in the region, with textiles and tanneries following in terms of production. Odada (et.al.) argues that this is possibly a by-product of the basin being less industrialized than the rest of the region.[226] However, industrialization is believed to be on the rise, given that oil exploration and extraction is rapidly increasing within the region.[227] Based on this, it is evident that water plays a marginal role in industry and development within riparian states. A possible explanation for this, as will be argued

[222] Klare, M.T., Resource Wars: The New Landscape of Global Conflict, Owl Books, New York, 2001, (e-book loc 372, 435)
[223] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)
[224] Klare, M.T., Op.Cit. p. (e-book loc 372, 435)
[225] Odada, E.O., Oyebande., L., and Oguntola, J.A., "Lake Chad: Lessons Learnt" p. 78
[226] Loc.Cit.
[227] Loc.Cit.

below, it that it is increasingly difficult to separate agro-industries from domestic use, since the majority of agriculture within the basin is used as a form of either sustenance or is used to buy status within traditional communities and as a result does not really form part of national industrial development. Thus the emphasis on the use of water is perhaps best focused on the uses of water within a domestic and agricultural context.

However, this is not to say that the relationship between industry, development and water has not expanded. The expansion of water's role in industry is best seen through the lens of irrigation and hydroelectricity. Of a potential 1.16 million hectares that are suitable for irrigation less than 115,000 hectares or less than 10 percent is actually irrigated.[228] While attempts have been made at irrigating the land that is suitable, irrigation projects have been met with very little, if any success. The lack of success can be explained in two possible ways. The first is that weak institutional cooperation through the LCBC, which ought to oversee the implementation of intra-basin irrigation projects, has left much to be desired.[229] Irrigation projects within Nigeria have, in some cases, fueled tension amongst other riparian countries in the belief that the irrigation schemes are withdrawing more than they ought to.[230]

As such irrigation projects tend to promote tensions amongst up-stream versus down-stream riparian countries, which ultimately hinders cooperation in other issues over the use of water within the Lake Chad River Basin. Another, and perhaps more plausible explanation, is that the receding water levels of the Lake Chad and its feeding rivers have ultimately made irrigation less viable. A U.N. study conducted in the 1980's suggests that the total amount of land suitable for irrigation development is less than 400 000 hectares, which in the light of further decreasing water levels of the lake has in all probability dropped even further.[231] At best, it can be suggested that irrigation ultimately lends itself well to increased arable land for farming, which in turn results in water surpluses that can be used elsewhere, an example of which is hydroelectric schemes.

In terms of industrial use, hydroelectric schemes, which ultimately aim to boost the energy supplies of both developed and developing nations, is perhaps the most clear-cut connection water has to industry. Lazenby and Jones argue that power generation does not account for a

[228] Loc.Cit.
[229] Metz, F.A., The Cameroonian-Nigerian Border Conflict in the Lake Chad Region: Assessment of the Resource and Conflict Management Capacities of the Lake Chad Basin Community http://www.nai.uu.se/ecas-4/panels/21-40/panel-28/Metz-Warner-Brzoska-Full-paper.pdf (date verified: 2013-01-04)
[230] Beyond Scarcity: Power, Poverty and the Global Water Crisis" Op,Cit. pp.212
[231] Odada (et.al.) Op.Cit. p. 78

large proportion of energy consumption in the region and explain that commercial energy itself only represents a small proportion of total energy consumption within West Africa.[232] This seems to support Odada's finding that industry does not form a big part of energy consumption and as such water's role in industry is rather marginal at best. However, this is not to say that industry will not play an important role within the Lake Chad River Basin and the Lake Chad region in the future, since oil deposits discovered in both the Lake Chad region and in Chad itself.[233] It could argued that both the refining process and energy consumed through the refining process of the oil will lend itself well to water being an instrumental part in industry within the near future.

3.2.4.2 Agricultural and Domestic: Water and the sustenance of life in the Chad River Basin

In the Chad River Basin, water has *instrumental value* in the daily functioning of riparian communities. Water has instrumental value specifically in so far in that has value to activities that sustain human life.[234] Therefore water has indirect value in that it is needed toward an element of security, rather than being the "bottom line". A good example of this indirect value is water's importance for agriculture, or in the terms of human security its importance for food security.[235] Put differently, water has contributory value to agriculture and by extension food security. One of the most prolific examples of water's role in food security is that it provides fish to poor communities, with very little (if any) other sources of nutrition. In 1974, the FAO made an observation that those families that engage in these activities continue to "…live at the margin of sustenance and human dignity".[236] The popularity of fishing within the Chad River Basin suggests that as open-access resource, it provides those with this marginalized sustenance and human dignity the opportunity to enter into the economy as well as provide for the needs of their families and communities.

The importance of fishing in the context of the economic activity of riparian communities is indicative of a wealth stratification that intertwines various activities by which wealth is

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[232] Lazenby, J.B.C., and Jones, P.M.S., "Hydroelectricity in West Africa: its Future role" in Energy Policy. October 1987, pp.441-446

[233] Odada (et.al.) Op.Cit. p. 78 see also Ozoedmena, C., "Nigeria Government Rejects World Court Verdict on Bakassi", Vangaurd, 24 October 2002, http://allafrica.com/stories/printanble/200210240629.html (date accessed: 26-06-2012)

[234] "Intrisic vs Extrinsic" in The Stanford Encyclopaedia of Philosophy, 17 December 2010, plato.standford.edu/entries/value-intrinsic-extrinsic/ (date accessed: 2013-01-04)

[235] New Dimensions of Human Security" in Human Development Report 1994, United Nations Human Development Programme (UNDP), 1994, p. 27

[236] Food and Agricultural Organisation as cited by : Bene., C. (et.al.) "Inland Fisheries, Poverty and Rural Livelihoods in the Lake Chad River Basin", Journal of African and Asian Studies Vol. 38, No. 17, 2003, pp. 19-20

metered. For the communities that live within the Chad River Basin and within the Lake Chad region, wealth in not restricted to income alone, but is also closely related to access to various forms of pastoral activity. One could go even further to say that the diversity of pastoral activity such as fishing, farming and herding of cattle is indicative of wealth.[237] From this it is evident that the resources of the Lake Chad form an important part of income generation as well as social standing within the traditional communities that are dependent on the resources of the lake.

In a survey conducted in 2003, Bene (et al) concluded that 128 villages are dependent on the water bodies of the Lake Chad River Basin. Of these 22 villages (17 percent) are dependent on the Lake Chad's open waters and a further 39 villages (30 percent) are dependent on seasonal ponds, and receding channels-some of which are created by seasonal fluctuations in the open water levels of the Lake Chad.[238] Furthermore, the importance of tributaries is accentuated since 30 villages (23 percent) are dependent on "main river" (defined as the Chari or Lagone) water bodies for their access to the fishing supply of the River Basin.[239] Since the former have an influence on the supply of fish that reaches the open waters of the Lake Chad, it is evident that an analysis of threats to the livelihoods of people cannot be examined in isolation from these "main river" dependent villages. It stands to reason to suggest that water's importance to human security within the Lake Chad River Basin as well as the Lake Chad region is multidimensional and therefore the threats to security that arise from its use cannot be limited to one type of activity related to water. One ought to rather examine threats to human security arising from the use of water within the context of a network of activities.

Given that the use of water is closely related to the production of food sources, through the herding of livestock, agriculture and fishing it would also stand to reason that one considers the importance to food security. Food security in the Chad River Basin as well as Lake Chad region is most affected by the fluctuations in rainfall and varying access to the open waters of the lake. Depending on their location riparian communities tend to experience differing levels of food security in terms of availability throughout the year. What this means is that those with less certainty over the continuity of food supply are often forced to borrow food, in the form of millet, from richer more affluent households within the community to ensure the

[237] Ibid. pp. 28-29
[238] Ibid. p. 25
[239] Loc.Cit.

continuity of food supply.[240] This once more is indicative of the influence of tribal leadership within the Lake Chad River Basin community; in that security is seen as a collective objective since there is very little if any indication that interest is levied on the borrowing of food from the affluent households.

The reliance on more affluent households by poorer ones, given the variation in methods of food production within the Lake Chad River Basin, to some extent raises the question of how food production is reliant on the use and availability of water. The answer depends on the location of any given riparian community within the River Basin. The communities within the Yaéré floodplain have demonstrated that the wealthier households within communities tend to focus a lot more of the labour forces (proportionally) towards fishing.[241] Moreover, the wealthier households are also considered to have a wider variation of fishing methods at their disposal. Subsequently, the ability to utilise the resources of the River basin is closely related to wealth stratification in the region.[242] The situation within Chari delta along the western shores of the lake suggests that fishing is relatively inaccessible to the poorest households within the community, often meaning that these households are forced to consider alternative means of providing an income. The ability to provide for households dependent on the lake is complicated even further by the fact that marshlands and ponds, created by the receding water levels of the lake have left some of these households with inadequate fishing instruments for the water body from which they are extracting their fishing supply. Bene refers to this as a technical restriction to the fishing grounds within which certain communities find themselves.[243] From this one can deduce that water impacts on the continuity of food sources depending on the location of a given community and their ability to utilise the methods and instruments at their disposal to harvest or make the food source available for consumption.

The dramatic loss of water of Lake Chad has presented another problem for communities within the region. As has been established, given that some communities have restricted access to fish as a form of sustenance either in terms of access to the open water resources to fish or the ability to yield sufficient amounts of fish, as they do not possess the correct equipment. However, the receding water levels of the Lake Chad resulted in restrictions to

[240] Ibid. p .29
[241] Ibid. p. 31
[242] Ibid. p. 37
[243] Ibid. pp.41-42

farming of "low water requirement crops", such as watermelons and cassava.[244] While maize was planted during the mid-1980's, the increasing variation in rainfall patterns made it exceedingly difficult to plant and harvest the crop successfully, since the crop benefits from the moisture of the soil and water from rainfall. Thus crops such as cowpeas are also influenced by the availability of soil moisture and rainfall, since the crop's success depends on the moisture of the soil left after the harvesting of maize crops.[245] So in the case of farming, the availability of water alters the desirability of particular crops as well as the probability with which it can be harvested. In terms of sustaining food supply and even economic activity within the lake area, water levels and supply dictate the viable income from farming-since some crops yield more money than others and are more valuable. Similar to the inadequacy of fishing instruments seen in the case of fishing as a source of food supply, crop cultivation presents a problem in that communities are in some cases forced to rely on crops which they either desire less or have very little if any experience in cultivating.

The impact of water on human security within the Chad River Basin can be located firmly within the context of people being able to feed themselves adequately, given that opportunities are often limited by factors beyond the control of these people, such as receding water lines and open access levels of the Lake Chad. In the literature on food security it is suggested that the improvement of agricultural schemes potentially holds the key to sustaining adequate food supplies in "pressure zones" such as the majority of Africa. However, this seems to be premised on the ability of communities involved in these schemes to adequately utilize their skills in combination with suitable land and supplies of resources. This is something that is seemingly absent in the case of the riparian communities of the Chad River Basin.

3.2.5 Population in the Chad River Basin and Lake Chad Region

One element that has not been analyzed thus far in detail is the threat to security posed by population density in the Chad River Basin and Lake Chad region. It is fairly clear from the preceding sections that water forms an instrumental part of agriculture, which is very closely related to the ability of riparian communities to nourish themselves. What is even clearer is that diminishing water supply, through changing rainfall patterns and over-extension of the

[244] Kolawole., A., "Cultivation of the Floor of the Lake Chad: A Response to Environmental Hazard in Eastern Borno, Nigeria" in The Geographical Journal, Vol. 154, No. 2, 1988, pp. 247-248
[245] Ibid. pp.246-249

little open water there is has an impact on the security of the human condition. However this tells only one side of the problem, the other concerns the amount of people who are dependent on the diminishing water resources of the Chad River Basin.

Figure 8: Population and Population Projection for LCBC States		
Riparian	***Total Population (2010)***	***Total Population (2025) est.***
Cameroon	19,599,000	27,424, 000
Chad	11,227,000	15,857,000
Central African Republic	4,401,000	6,064, 000
Niger	15,512,000	26, 928,000
Nigeria	158,423,000	237,115, 000

Source: FAO[246]

The population density of the riparian communities that are dependent on the water resources is evident in that the higher the population, the more demand will be placed on the water bodies of the Chad River Basin and the lake. The table above shows that those dependent on suitable water supply will increase by estimated 79 million over the next 15 years, as such it presents a potential problem of demand-induced scarcity[247] In doing so it appears that the Chad River Basin will experience a water deficit in that while demand is increasing, structural supply, particularly within the Lake Chad region itself, is likely to diminish.[248] In addition, various policy makers and think tanks have linked increasing populations with increased demand for energy that will create the pressure on governments within West Africa, as it has in other regions-most notably Asia and Europe. Given that hydroelectricity is considered a viable source of energy, one could argue that hydro-electric schemes, notwithstanding their lack of success within West Africa, as a result of poor policy implementation and monitoring, will become a pressure point in the relations amongst riparian countries of the Chad River Basin.[249]

The population density rising poses a particular problem since there is a large dependence on water based sources of agriculture for income. This dependence can in turn be closely linked to the level of human development of communities within the basin. In theory, the Human Development Index (HDI) is a way to measure how resources impact on the development of people rather than measuring just income *per se.* Therefore, it provides insight into the ability

[246] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)
[247] See Section 1.6 for clarification on the concept of demand-induced scarcity.
[248] This has been demonstrated by the concept of the "vanishing Lake Chad" see Figure 5
[249] Beyond Scarcity: Power, Poverty and the Global Water Crisis" Op,Cit. pp.212

of people to enter into formal employment, through access to education, should their access to agriculture and fishing, as primary forms of income be limited. Therefore, HDI offers insight into how the livelihoods of people are threatened in the context of competition over water resources.

Figure 9: HDI Rankings for LCBC Member States (UNEP2011)

	Cameroon	**Chad**	**CAR**	**Niger**	**Nigeria**	**World Statistics**
World Rank (out of 187)	150th	183rd	179th	186th	156th	***Low: 0.456***
HDI Value	0.482	0.328	0.343	0.295	0.489	***Average: 0.682***

Source: UNDP, 2011[250]

The HDI rankings for 2011 show that the riparian countries of the lake and its tributaries have significantly low human development figures. With the exception of Cameroon and Nigeria, riparian countries score well below the figure for low human development. To a certain extent, human development is dependent on per capita income; since there is a correlation between per capita income (Figure 7) and human development figures. In this case, higher per capita income riparian countries tend to have better development. However, this is not always the case since often GDP per capita rankings and HDI rankings also vary largely for some countries.

One of the prominent features of the index that might explain the dependency on agriculture is the measurement of access to education. As such, the index can suggest the extent to which entry into the formal labour market is restricted, through a lack of education thus leaving populations with no other alternative but to earn a living from farming or fishing

[250] "International Human Development Indicators" United Nations Development Programme, http://hdr.undp.org/en/data/profiles/ (date verified: 2013-01-04) (General Score and Ranking)

Figure 10 Education Index's for Chad Basin Countries			
	HDI Value	Rank	Mean Schooling Years
Cameroon	0.52	134th	5.9
CAR	0.321	173rd	3.5
Chad	0.219	185th	1.5
Niger	0.177	187th	1.4
Nigeria	0.442	147th	5

(Source UNDP, 2011[251])

Figure 10 above demonstrates that the countries that experience the highest mean years of schooling are Nigeria and Cameroon at 5.9 and 5 years of schooling respectively. Chad and Niger have substantially less than that at 1.5 and 1.4 years respectively. The mean years of schooling, and subsequently access to the formal labour market are seemingly dichotomized by the richer versus the poorer riparian countries. However, it is important to note that Cameroon and Nigeria, despite performing much better than the other riparian countries of the Lake Chad, have seemingly left much to be desired when compared to the rest of the world. Thus the dependence on other forms of income and sustenance becomes fairly obvious.

Given that access to education is fairly limited, it stands to reason that a large proportion of the population is dependent on agriculture as a form of income or wealth stratification.[252] One could argue that this dependence is largely a result of rural populations in the basin proportionately outweighing the urban populations. Effectively, this would suggest that the higher the proportion of the rural population in relation to the total population the lower mean years of schooling, which results in the dependency on agriculture (inclusive of livestock and fish) as a means of wealth stratification. The table below shows the percentage of the total population considered to be rural. The table shows that more developed countries tend to experience higher levels urbanization, thus leading to more jobs outside of rural areas and are less likely to be economically dependent on agriculture or the traditional rather than formal labor market for income.

[251] "International Human Development Indicators" United Nations Development Programme, http://hdr.undp.org/en/data/profiles/ (date verified: 2013-01-04) (Education Index Score and Ranking)
[252] Bene., C. (et.al.) "Inland Fisheries, Poverty and Rural Livelihoods in the Lake Chad River Basin", p. 28

Figure 11: Rural Population of LCBC States			
Country	**Total Population (1000)**	**Rural Population (1000)**	**Percentage**
Cameroon	19 599	8 154	42
Chad	11 227	8 125	72
CAR	4 401	2 678	61
Niger	15 512	12 858	83
Nigeria	158 423	79 523	50

(Source: FAO[253])

The population dependent on the Lake Chad as well as other resources in the River basin presents a number of issues for how one understands the potential for conflict over water. Firstly, increasing rural populations automatically increase the demand for water resources, especially because they depend on water resources for income and the sustenance of life in general. Even if one applies a ceteris paribus rule to the effect this would have on the value of water, the increase in demand is likely to increase the value of water resources and in so doing is likely to threaten water security. It would stand to reason that given water's increased value in light of increased demand, that any kind of threat to maintaining the status quo in terms of supply is likely to become a tension point for the riparian communities of the Lake Chad and the River basin. This situation is exacerbated even further in the case of Lake Chad because, as the evidence suggests, supply is diminishing. What one has then is the inability to maintain the status quo of supply, while at the same time having the pressure of increasing demand.

The populations of riparian countries are important to the understanding of water security in three ways. Firstly, the rising population density increases demand on already strained resources. Secondly, the low development of the population in terms of access to other forms of labour for income is limited as is demonstrated through poor school attendance. Lastly, the limitation of other labour as a source of income deepens the dependency of these populations on agriculture and other water based pastoral activities.

[253] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)

3.2.6 Water Management in the Chad Basin

As is seen in the background information above, the data presented shows the data for the member states of the LCBC. As this chapter focuses on the Lake Chad as an example of water conflict, the analysis of repatriation and uses of water is restricted to the member states of the LCBC primarily because one of its functions is to manage the repatriation of Lake Chad. This section aims to provide clarity regarding the foundation and operation of the LCBC as a water management mechanism regarding the lake.

In an effort to balance the needs of populations that are reside within the basin with the challenges that face these populations the riparian countries of the Chad River Basin established the Chad River Basin Community The establishment of the LCBC can be seen as an acknowledgement that the use of the resources of the basin does not affect only one country, but that cooperation for the equal appropriation of its resources requires an established framework for dialogue.[254] The LCBC was established on 22 May 1964, between Cameroon, Chad, Nigeria and Niger as an intergovernmental organization to act as the framework for dialogue amongst those with an interest in the resources of the Chad River Basin.[255] The obligation to the collective by each member state is clearly explicated in Article 5 of the LCBC Conventions and Statutes, it specifically states that:

> *The Member States undertake to refrain from adopting, without referring to the Commission beforehand, any measures likely to exert a marked influence either upon the extent of water losses, or upon the form of the annual hydrograph and limnograph and certain other characteristics of the Lake, upon the conditions of their exploitation by other bordering States, upon the sanitary condition of the water resources or upon the biological characteristics of the fauna and flora of the Basin.*
> *In particular, the Member States agree not to undertake in that part of the Basin falling within their jurisdiction any work in connection with the development of water resources or the soil likely to have a marked influence upon the system of the water courses and levels of the Basin without adequate notice and prior consultations with the Commission...*[256]

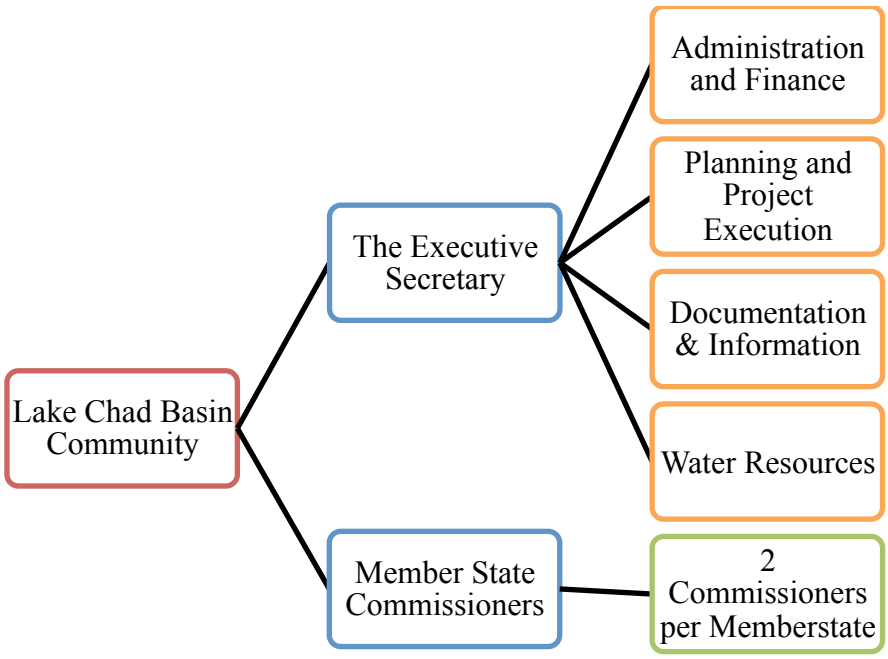
However, there have been numerous incidents in the past by member states that cast the feasibility of joint cooperation regarding water management in the lake region into doubt.[257]

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[254] Towne, B.O., "The Lake Chad Basin Commission" in Journal of African Law, Vol. 16, No. 2, 1972, p 343
[255] Agoro, I.O. ,"The Establishment of the Chad Basin Commission" in The International and Comparative Law Quarterly, Vol. 15, No. 2, 1966, p. 542
[256] Boge, V., and Wirkus., L., "Transboundary water management on Africa's international Rivers and Lakes: current state and experiences" in Transboundary Water Management in Africa: Challenges for Development Cooperation, German Development Institute, 2005 (English version), p.67
[257] Ibid. pp. 67-68

In terms of its functionality, the LCBC has independent legal status, with its membership consisting of Commissioners from the membership countries.[258] Ideally the contributions to the LCBC are meant to be equal for all member states, but provisions have been made to allow members to contribute at an agreed rate. This is especially true if the so-called equitable contribution forces a member state to spend "extraordinarily" within the context of their State budgets.[259] In addition, the Statue under Article 8 requires the body to meet at least once a year in which decisions are taken by consensus.[260] The day-to-day administration of the Commission is handled by the Executive Secretariat, which in combination with the member state Commissioners forms the organizational structure of the LCBC. The Secretariat's office includes an assistant executive secretary, a financial controller and four departments. Since the adoption of the Strategic Action Programme (SAP) the Commission has appointed a Steering Committee responsible for its implementation.[261]

Figure 12: The Organisational Structure of the LCBC



In terms of analyzing the projects of the LCBC has proven problematic. Periods of inactivity that out-lasted active periods have had an impact on the ability to forge any sort of

[258] Ibid. p.67
[259] Agoro, I.O., Op.Cit. pp. 545-546
[260] Boge, V., and Wirkus., L., Op.Cit. p. 68
[261] Ibid. p. 68

longitudinal analysis of cooperation in the basin.[262] For example in 1981 and 1982 the Commission faced problems in fulfilling its mandate, owing to political tensions in its host country (Chad) at the time. However, the headquarters moved back to Ndjamena in 1986 after being hosted in Cameroon for the duration of political unrest in Chad.[263] Ultimately, given that the LCBC's functions concern a region that has been rife with both civil and international unrest, Boge and Wirkus conclude its mere existence ought to be judged positively rather than seen as an indictment.[264]

The largest programme is the Global Environment Facility (GEF) with particular reference to the SAP adopted in 1998. The programme, titled the *Reversal of Land and Water Degradation Trends in the Chad River Basin Ecosystem*, aims to achieve coordinated, integrated and sustainable management of watercourses and natural resources within the basin.[265] In 2002 the LCBC signed a Memorandum of Understanding (MoU) with the Bureau of the Convention of Wetlands (Ramsar Convention) after declaring Lake Chad to be a Transboundary Ramsar Site of International Importance in July of 2000. The aim of the MoU was to create a platform for conservation areas, at both national and regional levels, with the purpose of fostering the sustainable management of water and other natural resources in the Chad basin.[266]

Given the constraints both in terms of political issues within member states and what can generally be described as an attitude of apathy, the LCBC has enjoyed limited success. Firstly, the LCBC Ministers, despite a clear mandate within the founding Statute of the Organization fail to meet at least once a year-Boge and Wirkus particularly point out how the annual meeting rarely occurs, as it should.[267]In addition, in an official report to World Bank as one of the "underwriters" of GEF programs, it was noted that although member states expressed willingness to get involved with projects related to the SAP, the commitment did not "translate as effective until the end of the project".[268] This lack of commitment, and at certain times the ability, has left the LCBC to be deemed a largely ineffective organisation. It would seem that the Commission, in particular, has adopted a reputation for "talking-the-

[262] Ibid. p 69
[263] "Transboundary River/Lake Basin Water Development in Africa: Prospects, Problems and Achievements" United Nations Economic Commission for Africa, Addis Ababa, Ethiopia, December, 2000, p. 40
[264] Boge, V., and Wirkus., L., Op.Cit. p. 69
[265] Ibid. p.70
[266] Ibid. p. 71
[267] Ibid. p. 68
[268] Implementation, Completion and Results Report to the Lake Chad Basin Commission, World Bank Report, May, 2009, p.5

talk" without "walking-the-walk. Based on this one can conclude that inter-basin management although present in principle, leaves much to be desired in practice. From the analysis of the LCBC's work (as presented by Boge and Wirkus) it seems very difficult to show how the Commission deals with issues regarding repatriation.

3.2.7 Conclusion

While this background is not intended to be exhaustive, it is meant to provide one with a wide overview of the issues relating to water and its usage in the Chad River basin. Using the Lake Chad as a focal point of the use of shared resources, it becomes evident that water as a security issue is extremely complex because a vast number of people depend on it to feed themselves.

3.3 Conflict over Water Resources in the Chad River Basin: Cameroon v Nigeria

3.3.1 Background: Two issues; one dispute

Past conflict over the resources of the Bakassi region as well as the border on the Lake Chad that is shared between the two are examples of potential water's contribution to international conflict. The history of armed conflict between Nigeria and Cameroon as one that is related to water, let alone being caused by water, is however problematic. This is because the Bakassi dispute is one which mainly concerns oil while the Lake Chad dispute is one that concerns fishing rights and access to arable land suitable for farming and the subsequent economic value of the fishing and agricultural produce. Therefore the disputes share no common ground other than that the same parties dispute them. Price's analysis, for example sees the history of skirmishes on the Lake Chad border dispute as peripheral to the larger, and what some argue to be the more important, dispute over entitlement to the Bakassi Peninsula's resources.[269] In Price's case, water's contribution to international conflict fits within the scope of those who argue in favour of water related wars.

However, it can be argued that the Lake Chad dispute and the Bakassi Peninsula dispute are intrinsically linked to one another. The argument for treating the Bakassi and Lake Chad cases as two issues within the same dispute is that the border delimitations as indicators of sovereignty were a function of colonial border agreements.[270] These agreements have, for various reasons, been challenged in the past. Subsequently these borders, as well as the resources that fall within them, have been a sticking point for the bi-lateral relations in post-colonial states. A central element of these bi-lateral tensions is the agreement to and adherence to the border demarcations contained in these colonial agreements. Essentially Nigeria believed that the agreements hold no validity in post-colonial rule and as such both the Bakassi Peninsula and Lake Chad border demarcations, which provide sovereignty to Cameroon, are questionable in terms of their legality under international law.[271]

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[269] Price, F., "The Bakassi Peninsula: The Border Dispute Between Nigeria and Cameroon" Inventory of Conflict and Environment 17 November 2005 http://www1.american.edu/ted/ice/nigeria-cameroon.htm (date accessed 2012-03-09)

[270] Babatola, J.E.T., "Nigeria-Cameroon Boundary Dispute: The Quest for the Bakassi Peninsular" in International Affairs and Global Strategy, Vol. 4, 2012, p. 82-83

[271] Ibid. pp.87-88 Nigeria has for example cited various issues with certain clauses of the colonial agreements, including that colonial powers had not made any attempt to consult traditional leaders that were resident in the Bakassi.

The impact of colonial borders on the resource allocation amongst African States remains evident within the context of the dispute over both regions. The Lake Chad River Basin fell under the "colonial conquest" of Germany, France and Great Britain.[272] The British controlled Nigeria, the French Chad and Germans Cameroon. The issue of delineating borders was negotiated by all of the former, with France and Great Britain continuing discussion in relative isolation after Germany's defeat in 1916.[273] The issue of boundaries drawn between water resources received particular attention during negotiations between the colonial powers. Germany, for example, both demanded and acquired access to "fluvial basins", particularly within the context of Lake Chad for its Cameroonian protectorate.[274] Water, at least within the context of border markings, was seen as (and still is) an entity that could serve as a border amongst nations. It was general practice amongst colonial powers to draw the border in the middle of the water structure, when the structure served as a border between two of their colonies. Issa argues that this recognizes both the strategic importance in terms of infrastructure and its indispensability for the survival of people that occupy the banks of the shared resource.[275] In the wake of the First World War Germany's defeat, reignited the debate of previously negotiated border delimitations in that both the British sought to extend its tenure of Nigeria to include Northern Cameroon such that its territory would end at the Shari.[276] This was seen as a way of acquiring a territory with vital resources, amongst which was more influential access to Lake Chad. The borders under dispute therefore were a function of colonial rule that has been a point of bilateral discourse amongst Nigeria and Cameroon. The discourse in terms of negotiating the border demarcations of the Lake Chad question the legitimacy of the agreement reached by colonial powers, especially in the context of independence. What one has then is that African Heads of State question the extent to which the border demarcations as they existed under colonial rule ought to be considered as legitimate in the context of independent rule.

The Bakassi Peninsula dispute, similar to the Lake Chad dispute, hinged on the legitimacy of border demarcations determined by colonial powers. Nigeria questioned the legitimacy of the sovereignty that Cameroon has over region, partly because of the borders agreed upon *by*

[272] Issa, S., "Access to Lake Chad and Cameroon-Nigeria Border Conflict: A Historical Perspective" in Conflict and Cooperation related to International Water Resources Selected Papers of the International Water History's Association Conference on *The Role of Water in History and Development*, Bergen, Norway, 10-12 August 2001, pp. 68-69
[273] Ibid. p.68
[274] Ibid. p 69
[275] Loc.Cit.
[276] Loc.Cit.

colonial powers and not necessarily the Nigerian people or its government.[277] The sovereignty of Cameroon with regard to the Bakassi Peninsula, is based on the agreements reached between the British as the colonial power of Nigeria and the Germans as the protectorate of Cameroon on the 11th of March 1913.[278] Further agreements, on more than one occasion, supported the sovereignty of Yaoundé over the Bakassi Peninsula. *The Milner-Simon Agreement of 1919*, for example, reaffirmed the sovereignty of Cameroon over the Bakassi. The defeat of the Germans in the First World War also suggested the entitlement of Cameroon to the Bakassi, specifically through Article 239 of the *Treaty of Versailles,* which sought to uphold any agreements made by the Germans prior to 1919. Reference to the Maritime border of the Bakassi between Cameroon and Nigeria is made in both the *Thomson-Marchard Agreement* and *Henderson-Fleurran Exchange of Notes* in 1929-1930.[279] What one sees is multitude of agreements formed under the basis of colonial rule, which ultimately recognize the sovereign right of Cameroon to the Bakassi. These agreements ultimately form the foundation of Cameroon's argument for the position of border demarcations. The relationship to the Lake Chad border therefore rests upon the influence that colonial powers had in the border demarcation process. However, what seemingly legitimizes the impression that the Lake Chad border dispute and the Bakassi Peninsula dispute be considered as the same dispute with two separate issues is the inclusion of the Lake Chad border dispute into the application to the International Court of Justice (ICJ) on the 6th of June 1994.[280] The Judgment indicates that:

> *On 6 June 1994 Cameroon filed in the Registry an Additional Application* ***"for the purpose of extending the subject of the dispute"*** *to a further dispute described in that Additional Application as "****relat[ing] essentially to the question of sovereignty over a part of the territory of Cameroon in the area of Lake Chad****". Cameroon also, requested the Court, in its Additional Application, "to specify definitively" the frontier between the two States from Lake Chad to the sea, and asked it to join the two Applications and* ***"to examine the whole in a single case"****. In order to found the jurisdiction of the Court, the Additional Application referred to the "basis of . . . jurisdiction . . . already . . . indicated" in the Application instituting proceedings of 29 March 1994.*[281]

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[277] Kirchner, S., "Water, Oil and Blood: The Cameroon-Nigeria Dispute Regarding the Bakassi Peninsula and Lake Chad and the Threat of War over Water Resources", Social Science Research Network, http://www.ssrn.com/author=343201 (date verified: 2013-01-04) p.8

[278] Ibid. p.12

[279] Check, N.A., "Bilateralism and Peaceful Resolution to Conflicts of Africa: Cameroon's Diplomacy During the Bakassi Peninsula dispute" in Policy Brief, Brief No. 45, Africa Institute of South Africa, March 2011, p.3

[280] Check, Issa and Kirchner make reference to this inclusion; more discussion on the application is to follow in an explication on the militarized conflict between Niger and Cameroon.

[281] The text that is indicated in bold(an addition made in this work only) is added for emphasizing the inclusion of the Lake Chad border to the application made to the ICJ by Cameroon see "Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea Intervening), Judgment I.C.J. Reports,

It is clear on the basis that Yaoundé sought to have the matter resolved as one matter, in a single filing, that the Lake Chad dispute and the Bakassi dispute cannot be separated. The sentiment expressed by Cameroon, as a party to the dispute, is that the colonially-determined borders have a profound impact on the legitimacy of the borders in both post-colonial states. This sentiment is also adopted by Nigeria. The ICJ ruling clearly states that "[the Nigerian] Government did not object to the [Lake Chad] Application being treated as an amendment to the initial [Bakassi] Application, so that the Court might examine the whole in a single case".[282] The dispute therefore becomes a matter of either one accepts the colonially-determined borders or one rejects them precisely because they are a legacy of the colonial master. The dichotomy represents the general views of both Cameroon and Nigeria respectively.

This dichotomy is particularly evident in the analysis of the ICJ's ruling on the matter concerning the *Land and Maritime Boundary between Cameroon and Nigeria*.[283] In his analysis, Bekker suggests that Nigeria did not consider the agreements of former colonial powers as binding on post-independence foreign affairs.[284] Nigeria sought to nullify the authority of the Anglo-German agreement of 1913, as the basis upon which agreements such as the *Milner-Simon Agreement of 1919* as well as the *Thomson-Marchard Agreement of 1929/1930* were signed. Nigeria's argument was that the British had no sovereignty over the Bakassi and as such agreements with the German Protectorate of Cameroon was null and void.[285] As far as the Lake Chad boundary is concerned, Nigeria argued that the *Milner-Simon Agreement*, *Thomson-Marhard* Agreement and the *Treaty of Versailles* were invalid in their cession of "trusteeship" of the German Protectorate (that is Cameroon) on the basis that they assumed the validity of the Anglo-German Agreement.[286] While Nigeria did not object to the Court reviewing the Bakassi Peninsula and the Lake Chad border demarcations as two issues within the same dispute, it is evident that Abuja did not see the agreements entered into by formal colonial powers as particularly valid. Abuja as a result, considered the access to the

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202, p 303 see p .312 for quote; available online from http://www.icj-cij.org/docket/files/94/13803.pdf (date accessed: 2012-06-11)

[282] Ibid. p 312

[283] The American Journal of International Law provides a summary of the ICJ's ruling, that specifically points out the Court's reasoning behind its decisions. When reading it's interpretation of the arguments presented by Pieter Bekker; See Bekker, P.H.F., "Land and Maritime Boundary between Nigeria (Cameroon v Nigeria: Equatorial Guinea Intervening), The American Journal of International Law, Vol. 97, No.2, 2003, pp.387-398

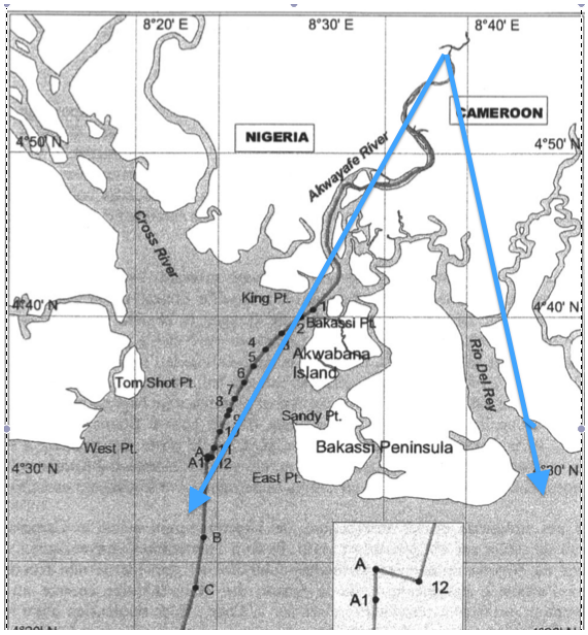
[284] Ibid. p. 390

[285] Ibid. pp. 390-391

[286] Ibid. pp.388-389 (while Bekker does not make this argument, given that his analysis suggests that the Lake Chad Agreements were dependent on the first Anglo-German Agreement of 1911.

mineral wealth and resources of the Lake Chad, afforded by these borders to Cameroon, as invalid as well.

Figure 13: Bakassi Dispute Demarcations



(Source: Bekker[287])

Cameroon's case for the validity of the agreements under international law was seemingly stronger than the counter-argument offered by Nigeria. The ICJ ultimately ruled that the sovereignty of the Bakassi Peninsula as well as the disputed Lake Chad lay with Cameroon. The Court, in addition, "fixed" the land boundaries from Lake Chad (North) to the Bakassi Peninsula (South) that is shared between Nigeria and Cameroon.[288] Once more the basis of Cameroon's argument for sovereignty over the Bakassi Peninsula and Lake Chad can be seen in the appeal to the validity of the Anglo-German Agreement, as well as those that followed, as formal international agreements under international law.[289] The basis of the border dispute itself therefore rests on how one interprets the validity of colonial agreements in post-colonial foreign affairs.

The arrows above indicate where Nigeria and Cameroon believe the border demarcation for the Bakassi Peninsula ought to be. The arrow on the right indicates the demarcation that Nigeria supports, while the arrow on the left is the demarcation Cameroon supports. It is also the one that is enforced by the ICJ ruling.

[287] Ibid. p.393
[288] For the full ruling see: Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea Intervening), Judgment I.C.J. Reports, 202, p 303; See also Bekker, P.H.F., Op.Cit. p.387
[289] Ibid. p. 387-389

For the purpose of this case analysis, conflict between Cameroon and Nigeria over the Bakassi and Lake Chad border disputes will be treated as the same conflict, even though the spatial location differs to a certain degree. Since both Cameroon and Nigeria acknowledge that the border disputes are intertwined, especially in terms of the natural resources and land that is at dispute, the treatment of conflict on the border points at dispute seems relative.

3.3.2 From Tension to Conflict on the borders of Cameroon and Nigeria

The Bakassi and the Lake Chad border disputes have resulted in tensions amongst Abuja and Yaoundé. The tensions rest specifically on the occupation of sovereign territory both in the context of the political climate leading to the ICJ application and the reception of the Court's finding.[290] The tension itself however, is a function of the discovery of oil in the Bakassi Region rather than one of bi-lateral relations amongst the States.[291] The tension therefore, as it relates to resources, is one that is explained well by Klare and his analysis on Resource Wars.

From this one can deduce the economic value of oil found within the Bakassi has highlighted the incentive for contesting colonial borders, which has led to a series of armed occupations and confrontations on the Bakassi border.[292] Similarly, the depletion of Lake Chad on the opposite border between Nigeria and Cameroon can provide incentive (and indeed has done) for cross-border occupations by Nigerian citizens, living in villages on the border, seeking access to the fishing resources the Lake has to offer.[293] The incentive for protesting the border demarcations either by the deployment of military personnel in the Bakassi Peninsula or cross border occupation by villagers on the Lake Chad is therefore intrinsically linked to the economic security of Nigeria and Cameroon as well as the riparian groups that reside on the banks of the Lake Chad.

In terms of locating the matter within Security Studies, the contested border demarcations essentially threaten access to an economically valuable resource, which is seen as essential

[290] Ozoemena, C., "Nigeira Government Rejects World Court Verdict on Bakassi" in Vangaurd, 24 October 2002, p.1
[291] Ngang, K., Understanding the Bakassi Conflict: A Showcase of Conflict Prevention in Practice, EPU Research Papers, Iss. 04\07 http://epu.ac.at/fileadmin/downloads/research/rp_0407.pdf, p. 10
[292] "Cameroon: Handover of Lake Chad Villages Begin", Humanitarian News and Analysis, 9 December 2003, http://allafrica.com/stories/printable200312090698.html (date accessed: 2012-06-26)
[293] Agbese, A., "Nigeria: Why Nigeria Not Appeal Bakassi Judgement-Elayo" Daily Trust, 04 October 2012, http://allafrica.com/stories/printable/201210050023.html (date accessed: 2012-10-17)

for the survival for both the State and its people. In what follows the events of May 1981 and February 1994 will be discussed as militarisation of the border dispute. The military occupations, in addition to the occupation of land, within Cameroonian territory in Bakassi Peninsula and on the Lake Chad by Nigeria's Armed Forces and citizens respectively, can therefore be seen as responses to the threat. If viewed from the words of Clausewitz, the conflict over border can be seen as an escalation of the dispute regarding colonial border delimitations, since it is apparent that the means of dialogue had failed to produce an amicable settlement.[294]

3.3.3 The Militarization of the Border Dispute

The border dispute between Abuja and Yaoundé reached its most critical point on the border shared within the Bakassi Peninsula. On the 16th of May 1981, a Cameroonian radio news programme announced that Nigerian military patrol boats had crossed the maritime border, travelled up the Rio del Ray River and opened fire on Cameroonian Navy vessels.[295] Thus Nigeria stood accused of violating Cameroon's national sovereignty within the Bakassi Peninsula. The issue had escalated even further since the Cameroonian Navy retaliated, killing five Nigerian soldiers in the process.[296] The event reveals an important ontological feature of the Bakassi Peninsula in relation to the bi-lateral foreign policy between Nigeria and Cameroon. The Bakassi and similarly the Lake Chad border delimitations have featured prominently on the agenda of bi-lateral meetings and negotiations since that day.

However, the attention the border delimitations received was largely disproportionate to its success. The 1990's in particular witnessed the rise of antagonism towards Nigerians residing within Cameroon's borders. A feature of this antagonism was tax drives that left some Nigerians with very little option other than to return back to their native land.[297] When viewed in the context of Lake Chad, given the fact that many Nigerian people had in fact resided within Cameroon's borders to ensure their economic security (which can be implied from the need to hand over 33 unlawfully occupied villages by Nigeria), the antagonism of

[294] Baye, F.M., "The Implications of the Bakassi conflict resolution for Cameroon" in African Journal of Conflict Resolution, Vol.10, No. 1, 2010, p.16
[295] Kgang, K, "Understanding The Bakassi Conflict: A Showcase of Conflict Prevention in Practice", EPU Research Papers, Issue 04/07, p. 8
[296] Ibid p. 9
[297] Loc.Cit.

the 1990's expressed by Cameroon points to a situation where increased competition is likely to have acted as a catalyst for conflict between Nigeria and Cameroon.

The catalytic nature of shared water resources is even further evident in the events of February 1994, in which 1000 Nigerian troops were deployed in the Bakassi in reaction to the exploitation of Nigerian fisherman by Cameroon through the imposition of arbitrary taxes.[298] The deployments of troops lead to even more shooting, which resulted in many soldier casualties and deaths being suffered by both sides. Ngang for example notes that Cameroon alone lost 34 soldiers by the time the dispute was lodged with the ICJ on the 26th of March 1994. By May of 1996, more than 50 Nigerian soldiers had lost their lives in the border dispute process.[299] In many ways this skirmish was the most influential in 13 years as it resulted in Cameroon lodging a complaint in the ICJ on the 26th of March 1994, which resulted in the matter being referred to The Court for arbitration and the matter became known as *The Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea Intervening)*.

The conflict over the Bakassi Peninsula that lead to the ICJ's arbitration only tells one side of the dispute. As noted previously, the Lake Chad border was similarly subject to cross occupations by Nigerian citizens in Cameroonian territory. The occupation of land within Cameroonian territory by Nigerians was seen largely as a direct impact that the diminishing water supply of Lake Chad has on the livelihoods of people living on the banks of the Lake and subsequently being dependent on its resources for income.[300] The *2006 UNDP Report* suggests that the depletion of Lake Chad along the Nigerian border, as seen in the difference in the Lake's levels between 1996 and 2001, forced many Nigerian villages particularly in Borno state to move closer to the resources they had become dependent on.[301] In doing so the villagers crossed national boundary demarcations as agreed by colonial powers and post-colonial governments. The issue of the Lake Chad villages is difficult to separate from the Bakassi issue in that Nigeria has transgressed international law by allowing villagers to settle

[298] Ngang, K., Op.Cit. p. 6
[299] Loc.Cit
[300] Oluwalana, S., "Nigeria's porous borders, entry point for illegal aliens" National Mirror, 30 December 2011, nationalmirroronline.net/index.php/insight/28060.html The need for settlement by Nigeria can be explained through a porous border created by the structural scarcity of the lake Chad. See Also Uyo, S., "West Africa: Border Porosity and Boko Haram As a Regional Security Threat" Institute for Security Studies, 28 May 2012, http://allafirca.com/stories/printable/201205281250.html for a discussion on security risks (and potential responses) arising from porous borders.
[301] Beyond Scarcity: Power, Poverty and the Global Water Crisis" Op,Cit. pp.212

within the borders of Cameroon along the Lake Chad, even incorporating these villages within the district governance of Borno state-which is a Nigerian province.[302] The Lake Chad side of the dispute therefore aggravated the dispute over the Bakassi Peninsula in that it could be seen as arrogant on the part of the Nigerian government to simply integrate cross-border villages into local government administrations, which very possibly was a reaction to the treatment of Nigerian citizens within Cameroonian territory in the Bakassi Peninsula. Based on findings in the ICJ Judgment, it is clear the Nigeria had in some cases sought to provide security in these villages to its citizens through policing and to some extent military forces, under the auspices of being under the administration of the Nigerian local government. Whether or not this can be considered a militarized occupation to the extent that is it an inter-state security threat is questionable, but should detract from the fact that the Nigerian government had no jurisdiction to deploy even policing forces across its own borders. Notwithstanding the former consideration, the link to competition over water-related resources, in the form of fishing rights of shared water resources is evident.

The conflict between Nigeria and Cameroon over the Bakassi Region and the Lake Chad's resources is not by stretch of the imagination one-dimensional. There are seemingly various issues that explain the conflict which cannot be attributed to the human-centered approach, such as the obvious benefit of oil deposits within the Bakassi. However, equally there are elements of the conflict that the state-centered approach cannot explain, an example of which is how access to fishing resources within the Lake Chad essentially provides villagers of both Nigerian and Cameroonian descent with the only opportunity to have economic security. More importantly in the context of understanding from which perspective *water security* ought to be understood, the state-centric approach lacks explanatory power in that one cannot attribute water as a resource as the focal point of the Bakassi Region of the inter-state resource conflict between Nigeria and Cameroon.

[302] Bego, A., "Let's Take Back Our 33 Villages And…-Daggish" Weekly Trust, 20 March 2004, http://allafrica.com/stories/printable/200403220492.html (date accessed: 26-06-2012)

3.3.4 The End of the Bakassi Peninsula and Lake Chad Dispute

The end of the Bakassi Peninsula and Lake Chad dispute (in a legal context) came in the form of an ICJ ruling on the 10th of October 2002.[303] The ICJ found that the Treaties, Declarations and Exchange of Notes as entered into between colonial powers were valid under international law and therefore binding upon both Nigeria and Cameroon.[304] This meant that the border demarcations, along with the mineral rights that they afforded post-colonial Nigeria and Cameroon, were in fact valid. Therefore Nigerian villages within Cameroonian parts the Bakassi Peninsula and the Lake Chad region that were under Nigerian Government administration, were in violation of international law and Abuja subsequently ordered to return the occupied territories to the control of Yaoundé.

It would be fair to suggest that the finding was met with mixed reviews, which could be dichotomized by either Nigerian or Cameroonian interests. The Nigerian Federal Government for example argued that the ruling was prejudicial in that the President of the Court was French and that both English and German judges were active participants in the proceedings concerning the disputed regions. The claim of prejudice hinged on the fact that the matter brought before the ICJ was one in which the French, the Germans and the English were "parties to the action [and had] substantial stakes" in the outcome.[305] Essentially the argument purported was that the underlying interest that the former colonial powers had ought to have disqualified them from having any significant impact on the outcome of the matter brought before the ICJ by Cameroon. It is fairly difficult to determine whether or not this is a fair assessment, since it is not particularly clear that the French, German or English had a vested interest in the outcome of the case. Secondly, even if one were to grant that the former did indeed have an interest in handing the regions to Cameroon it is not clear exactly what that interest is (or might have been) and more importantly how awarding of the territory to Cameroon served those interests any better than they would have been served if the regions were handed to Nigeria. When viewed in the context of post-colonial Africa in combination with the fact that the ruling came at the height of the African Renaissance, it is not evident that Cameroon would be any more amenable to serving the interests of former colonial masters and other Western powers. This is particularly because independent States had become preoccupied with the idea of reclaiming Africa from colonial masters, while at the

[303] Ozoedmena, C., "Nigeria Government Rejects World Court Verdict on Bakassi", Vangaurd, 24 October 2002, http://allafrica.com/stories/printanble/200210240629.html (date accessed: 26-06-2012)
[304] Bekker, P.H.F., Op.Cit p. 390
[305] Loc.Cit.

same time molding an African identity for States on the continent-to serve their interests within the international arena. [306]

On the other hand, the Nigerian assessment is not entirely without merit. In addition to arguing for the prejudicial nature of the findings, the Nigerian government argued that the findings of the court were insensitive to the fact that these Nigerian villages had become vested in the territory that they occupied in that they "owned" land and had grown familial ties. So simply moving out of the occupied territories proved problematic, since neither issues of reparation nor how these villages (dependent on the resources within the territories they occupied, particularly those within the Lake Chad region) would be integrated into other communities within Nigeria had not been adequately addressed and settled.[307] This has been and will continue to be a potential pressure point for conflict between Nigeria and Cameroon, as will be explicated further in the next section.

Cameroon, while welcoming of a finding in its favor, immediately asked the Court to consider ordering Nigeria to pay reparations for the territory that it had occupied unlawfully.[308] Nigeria responded by stating that the occupations had occurred as a result of a "…reasonable mistake or honest belief" of entitlement and as such Nigeria had acted in self-defense at the time when all major altercations (which can be seen as escalating the conflict) occurred.[309] The Court essentially dismissed the claims made by both parties and ordered that both parties withdraw any and all forces, military or otherwise, from the other parties' territory as defined by the ruling.

While the issue of rightful sovereignty has been handled by the ICJ, its ruling has seemingly left many questions, such as the future of Nigerian villagers that resided within the occupied territories, unanswered. However, it remains to be seen to what extent water had a functional role in the dispute as one between two states.

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[306] For a detailed discussion on the pan-African movement and how it relates to both independent states within Africa as well as the Pan-African movement see: Maloka, E.T., "The South African 'African Renaissance' Debate: A Criritque" Polis, Vol.8 (Special Edition), 2001, p. 3 (available online at: http://polis.sciencespobordeaux.fr/vol8ns/maloka.pdf date verified: 2012-09-19)
[307] Bego, A., "Let's Take Back Our 33 Villages And…-Daggish" Weekly Trust, 20 March 2004, http://allafrica.com/stories/printable/200403220492.html (date accessed: 26-06-2012)
[308] Bekker, P.H.F., Op.Cit. pp. 396-397 see also paragraphs 310-311 of the ICJ ruling
[309] Bekker, P.H.F., Ibid. pp. 397

3.4 State-Centered versus Human Centered Approaches: The Bakassi and Lake Chad case

3.4.1 Analysing the State-Centred Approach

To explain conflict between Nigeria and Cameroon with regard to water as a function of state-centred security one would need to demonstrate how water is either a focal point of the conflict as a resource of value that is essential for the state's survival or how issues related to broader political goals, such as the need for water related sustainable energy supplies, in light of increasing demand, have led to threats to state security.

The state-centered view of security explains the Bakassi Peninsula and Lake Chad border dispute between Nigeria and Cameroon as a variant of the Resource Wars "hypothesis" introduced by Klare.[310] However, the Bakassi dispute is not particularly clear on what the focal point of this Resource War is and more importantly how the state-centered approach explains the resource conflict as one that is fought over water. So whether or not the state-centered approach explains the security threats that are related to water in the context of the relationship between Nigerian and Cameroon depends on what one considers to be the focal point of the "resource war". The position this dissertation takes is that despite the clear connections that exist between water and the dispute over the Bakassi Peninsula and Lake Chad, the evidence seems to suggest that water is a tangential issue to oil. One could argue for the former simply by pointing out that the Lake Chad issue, as one that concerns *only* water, was only added to the application three months after Cameroon appealed for the matter to be considered by the ICJ. Further, as a security issue between two states, the contention that the Lake Chad provides empirical validation for water being the focal point of state-centered security is problematic in that it is very difficult to find evidence of Nigerian and Cameroonian forces fighting along the borders of the Lake Chad, in territory rather than water seemed to be a driving force of conflict, particularly in February of 1994

The support for oil as the focal point of the dispute is evident in recent statements by both governments to jointly explore the oil reserves of the Bakassi. In an article published by *This Day* Addax Petroleum is identified as a potential candidate for joint exploration, given that it

[310] Klare, M.T., Resource Wars: The New Landscape of Global Conflict, Owl Books, New York, 2001,(e-book loc 2047)

has investments in both the Nigerian and Cameroonian oil sectors.[311] The article goes further to explain that the joint exploration marks an end to tensions over the Bakassi Peninsula between the Nigeria and Cameroon, which essentially questioned the ownership of the oil rich region. Cameroon's chief negotiator was quoted as saying "Work is complete on our maritime demarcation, but [this is] not the case [with regard to] exploring oil wells that cross the borders…"[312] As far as the Bakassi Peninsula and the Lake Chad are concerned it is not clear that water features as prominently in the territorial dispute as oil does. The Bakassi Peninsula and Lake Chad dispute therefore do not illustrate how water is the focal point of the territorial dispute between states, which lead to militarized conflict. In the context of inter-state conflict water has, at best, been a contributing factor in exacerbating the dispute. By logical deduction however, this is not the same as saying water or even water related issues lead states to engage in armed conflict. Thus the state-centered approach to understanding water as a security concern cannot explain the Bakassi Peninsula and Lake Chad cases adequately, since it is evident that the disputes are politically motivated through the questioning of colonial borders. Furthermore, even if one were to concede that resources drive this questioning of colonial borders it still seems evident that water has a peripheral role to that of oil.

As was established in the previous chapter, conflict over water as a resource depends on whether or not one sees water as a resource that can be linked to the broader political interests of states, for example where water becomes valuable in terms of hydroelectric schemes that seek to provide new alternatives for supply in times of increasing demand. The state's interests and broader political goals are evident in that hydroelectricity can provide energy to sustain growing economies.[313] The question becomes firstly to what extent is hydroelectricity used as an alternative to more conventional energy sources and if so, to what extent have these hydroelectric schemes lead to conflict within the Chad River Basin.

The examination of hydroelectric schemes in the Chad River Basin is best understood in the broader context of hydroelectric schemes within Africa, more specifically Central and West Africa. The notion of hydroelectricity within Africa can be seen as a function of a general

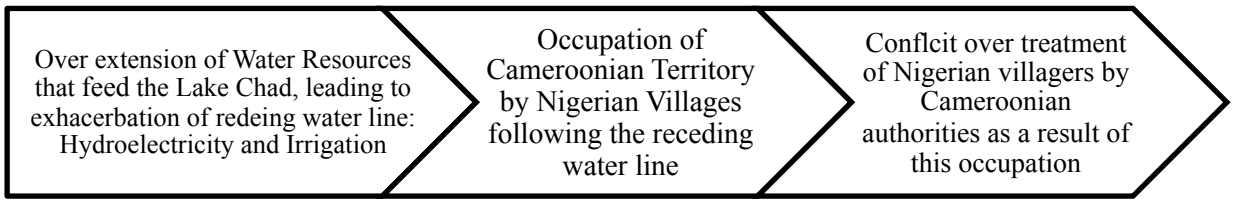
[311] Amanze-Nwachuku, C., "Nigeria and Cameroon Plan Joint Exploration in Bakassi" This Day Live, http://www.thisdaylive.com/articles/nigeria-cameroon-plan-joint-oil-exploration-in-bakassi/87812 , 14 March 2011 (date accessed: 2012-06-28)

[312] Loc.Cit.

[313] Nakano, J., "Rising Tensions Over China's Monopoly on Rare Earths?" Centre for Security Studies, (originally published by East-West Center) 29 June 2012 , http://www.isn.ethz.ch/isnSecurity-Watch/Articles/Detail/?lng=en&id=143981 (date retrieved: 2012-06-29)

movement towards cleaner energy sources globally, while at the same time maintaining the capacity for supply relative to demand. The maintenance of supply has gained even further importance given that population density and industrial growth has questioned the adequacy of energy supplies.[314] The appeal behind hydroelectricity is that it provides for the cheapest route to the expansion of energy supplies.[315] As a pressure point for international tension amongst riparian countries of the Chad River Basin, it is not particularly clear if hydroelectricity has indeed led to hostility. Wiseman suggests that it has become increasingly popular to define the over-extension of tributaries, marked by hydroelectric and other irrigation projects, of the Lake Chad as a prominent feature of the loss in its structural capacity.[316] From this it is suggested that the drive for alternative energy sources fundamentally altered replenishment cycles of the Lake Chad.[317] Given that the dramatic loss of the Lake's structural supply directly resulted in the cross-border occupation by Nigeria, one might argue that in this way, the use water resources in the realization of state goals that is a more sustainable energy supply can be attributed to the territorial dispute of Lake Chad. This view reduces the cause of the territorial occupation to the use of water resources by states. Put differently, this interpretation questions the causation of the territorial occupation, which indeed did lead to hostility amongst Nigeria and Cameroon by regression of the causal chain of conflict within the Lake Chad area of the Bakassi dispute. It does so specifically by questioning what had led to the territorial occupation by Nigerian villages in Cameroonian territory in the first place.

Figure 14: Water and State goals as a causal factor of conflict over water in Lake Chad Region



[314] Lazenby, J.B.C., and Jones, P.M.S., "Hydroelectricity in West Africa: its Future role" in Energy Policy. October 1987, pp.441-446
[315] Ibid. p. 442
[316] Wiseman G., "What is Causing Lake Chad and Other Lakes to Shrink?"Helium.Com. 08 January 2010, http://www.helium.com/items/1705669-what-is-causing-lake-chad-and-other-lakes-to-shrink (date accessed: 2012-07-05)
[317] Loc.Cit

Michael Klare once again supports the indirect nature of water as a driving force of conflict and is a significant "*feature"* of conflict in the past and today. An example of this that he himself uses is contested resources zones and allocation within the West Bank and Israel.[318] Klare's use of the word feature seems to suggest that water, while at times being a significant contributing factor to conflict it is still not a *cause* of conflict between states. More importantly it is only once water as a feature of tension between states threatens national security that one sees any significant form of militarised conflict, as was the case between Turkey and Syria.[319] Therefore hydropolicitical security focuses on understanding how water security impacts on national security, rather than focussing on water allocation and norms of use.[320] Therefore, because it is not clear that water is the driving force behind political tension between Nigeria and Cameroon it is difficult to see how conflict on the Lake Chad border is caused by water. What is clear is that water as a feature of the cross-border occupation does have, and in the case of February 1994 did have, an impact on national interest being threatened.

There are also notable correlations between climate and migration, which lends its self to cross-border occupations and ultimately threats to national interest and sovereignty. There is also consensus that climate change at times induces migration and very possibly challenges that status quo of resource allocation. One could argue that the Nigerian occupation of Cameroon's territory is one such case, since it is clear that the receding water levels did in fact have an influence on the movement of Nigerian villages. This essentially means that climate change and the receding waters of Lake Chad had an impact on the settlement of these villages, as it is clear people ignored political borders in search of water.[321] The migration is necessitated by those in need of arable and grazing land, as well access to water to maintain human life and is as a result a function of food security rather than national security.[322] A striking feature of these occupations, by Nigerian villages, is that they were not occupations by the military acting as agents of the state in the state's national interest. In this case the cross border to maintain access to water does not seem to have been a function of

[318] Klare, M.T., "The New Geography of Conflict" in Council on Foreign Relations, Vol. 80, No. 3, 2001, p. 49
[319] Oktav, O.Z., "Water Dispute and Kurdish Separatism in Turkish Syrian Relations" in The Turkish Yearbook, Vol.34, 2003, pp. 99-100
[320] Van Wyk, J., "Towards Water Security in Southern Africa" in African Security Review, Vol. 7, No. 2, p.61
[321] Issaka, M., and Ngundu, Y.K., Pacific Settlement of Border Disputes: Lessons from the Bakassi Affair and the Greentree Agreement, International Peace Institute, 2008, p. 2
[322] Toward a Food Secure Future, Human Development Report 2012, United Nations Development Programme, New York, 2012, pp. 50, 52, 56

strategic interest, as was arguably the case the 1998 incursion of the Katse dam in Lesotho.[323] So although water had an indirect role in the intervention by the South African Defence Force (SADF), which Meissner believes to be one of geopolitics and regional security, a state agency deployed troops at the Katse to protect an asset of national interest.[324] The state-centred approach to security can explain the South African Defence Force (SADF) intervention because water formed an important part of regional stability. More importantly though the use of the military as the only agents that are relevant to maintaining security for the state-centred approach was the party that the party that occupied and secured the Katse dam facility. The reason the state-centred approach cannot thoroughly explain the cross-border occupations from Nigeria into Cameroon is because the people crossing the border were military personnel acting on behalf of the state to secure national interest. They were simply moving to maintain access to a resource they deemed critical to their survival.

In the case of the Bakassi Peninsula and Lake Chad dispute, waters role in the onset of violence can at best be described as one related to territorial occupation. Furthermore, even the territorial occupation as it relates to securing water cannot be explained by state-centred security because those crossing the border were not soldiers acting to protect the national interest of Nigeria. On the basis that one cannot defend water as the focal point of the resource conflict between Nigeria and Cameroon, one cannot conclude that water can explain the motives behind the onset of conflict as far as state security is concerned. In fact, as far as literature on the dispute between Abuja and Yaoundé are concerned, oil has a much a larger impact as a catalyst for conflict than water does. As far as what can be seen in the literature, water's role as a catalyst in the conflict has been tangential at best. Secondly, evidence would suggest that as far as tensions within occupied and within other regions are territorial in nature and do not necessarily have as much to do with water as it does with the violation of international border demarcations. More to the point, the initial dispute was related to the disagreement of colonial territorial borders and had very little, if anything to do with water. Therefore one cannot claim that state-centred security adequately explains conflict over water in the context of the Bakassi and Lake Chad dispute.

[323] Meissner, R., "Water and South Africa's involvement in Lesotho" African Water Issues Research Unit, Occasional Paper, http://www.awiru.co.za/OccasionalP.asp#m (date verified: 2012-09-15), p. 2
[324] Ibid. pp.2-3

3.4.2 Analysing the Human-Centred Approach

The human-centred approach will attempt to explain conflict over water as a response to a threat in security concerning issues related to the "freedom of want" and "freedom of fear", as the broad scope of human-centred threats.[325] Also related to human-centred threats, is that the opportunity to have an acceptable standard of living is enshrined in the human condition. [326]Thus one need only examine how water creates a threat to the freedom of want or fear. The causal nature of water on this approach is weakened (when compared to that which would be required by the state-centred approach) to give credence to the belief that water still has a noteworthy impact on threats to security amongst people, in spite of the lack of credible impact it might have on conflict amongst states. Subsequently, the approach aims to demonstrate how issues not necessarily related to the state have exerted pressure on the tension points within the occupied territories between Nigeria and Cameroon. The analysis presented here will be limited to economic, food and health security, since they are the principles of human security that can most easily be related to issues regarding water.

The importance of food security, particularly with regard to agriculture and other food sources dependent on water continue to be of concern to populations around the world.[327] The impact in changing climate conditions and its subsequent impact on water scarcity has placed crop yields under considerable pressure to meet the demands of increasing population densities globally. The inability to meet these increasing demands on food supply is likely to see a persisting condition of undernourished children globally.[328] The riparian communities of the Chad River Basin are no exception.

The impact that the access to water has on communities that are dependent on the Lake Chad varies dependent on the dominant practice of traditional communities within the various riparian countries. In Niger for example, traditional villages are dependent on arable land for

[325] Acharya, A., "Human Security: East Versus West" in International Journal vol.56, No 3, Summer 2001 pp.
[326] "New Dimesions of Human Security" in Human Development Report 1994,United Nations Human Development Programme (UNDP), 1994, p. 22.
[327] Rosegrant, M.W., and Cline, S.A., "Global Food Security: Challenges and Policies" in Science Vol.302, December 2003, p. 1917
[328] Loc.Cit.

farming as well as land suitable for the grazing of livestock. In the case of Niger, livestock still acts as a form of currency and is still very popular amongst grooms-to-be as a form of payment to his prospective brides family. In other parts, specifically within Nigeria, Cameroon and to a certain extent Chad, the dependency on the fishing resources of the Lake has meant that the threat presents itself in the form: namely the access to a food source either for personal consumption or as Bene suggests, is used as an opportunity for villagers to enter into economic activity by selling more expensive fish and using the profits from the sale to buy cheaper fish and use the surplus towards other household needs.[329] Based on this it is evident that threats to security from water, when interpreted on the human-centred approach, fit well with interpretations that seek to examine how water is related to the lack of security. This is particularly true when the lack of security is characterised by things, such as access to food, that ultimately impact negatively on the human condition. Of course, the generic appeal presented here ought not be considered as reductive to claiming that the human-centric approach explains the Nigeria-Cameroon dispute in its entirety.

3.4.2.1The Human-Centred Approach: the case of Nigeria and Cameroon

It would seem that, from the discussion above that the state-centred approach security cannot adequately account for the conflict between Nigeria and Cameroon as one that had water as its focal point-it was argued to be territorial in nature. In addition, where a resource of value could clearly be identified it concerned oil more than it did water. However, to claim that water had no impact on the conflict between Abuja and Yaoundé would be misguided if not blatantly incorrect. For example, one of the initial outbreaks of violence in the Bakassi followed the killing of Nigerian fisherman, who in the search of fish for either their economic activity or in their own households, crossed into Cameroonian territory.[330] So in this case while the inter-state conflict can be attributed to a violation in sovereignty thus making the inter-state conflict territorial, the human-centred approach offers insight into the conditions that lead to the territorial violation in the first place.

[329] Bene., C. (et.al.) "Inland Fisheries, Poverty and Rural Livelihoods in the Lake Chad River Basin", p. 20; see also Bene, C, Friend, R.M., "Poverty in small-scaled fisheries: old issue, new analysis" in Progress in Development Studies, 11:119, 2011, p. 128

[330] Ngang, K., Op.Cit. p. 5 see also Issaka, M., and Ngundu, Y.K.,, Op.Cit. p. 2

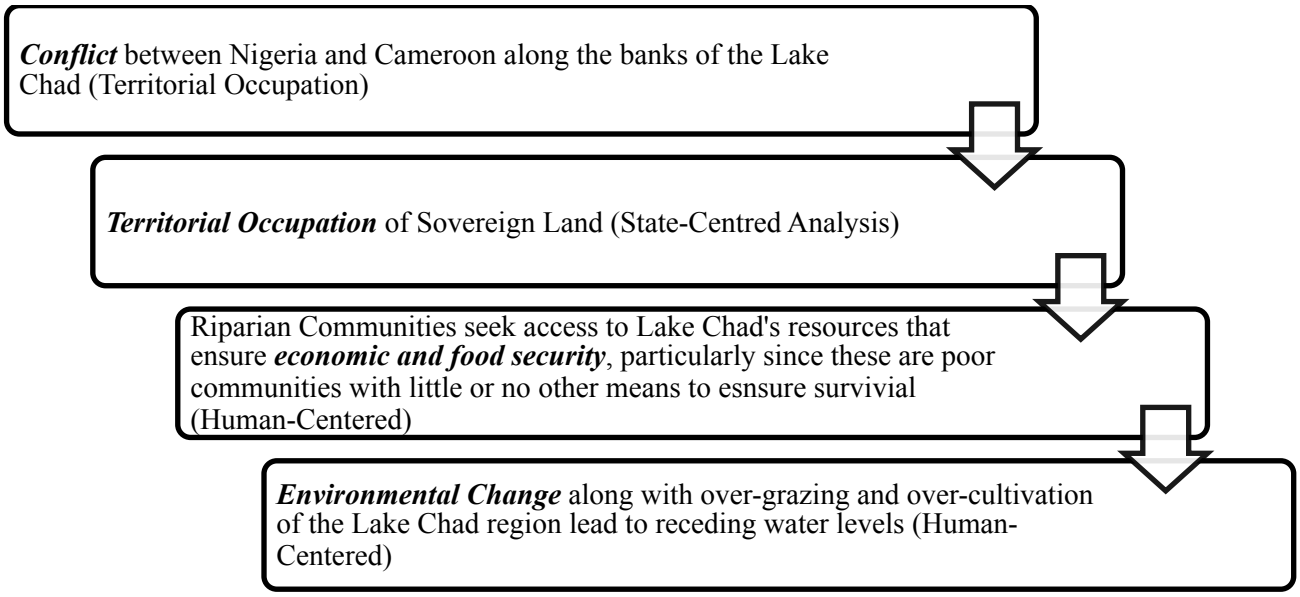
The evaluation of water as a security concern, through the human-centred lens gives validation to the notion that water often plays an important role in the factors leading to conflict even if the conflict itself cannot be attributed to water. The state-centred approach was particularly unable to explain the Lake Chad conflict between Nigeria and Cameroon as one that could be attributed to water, since it was clear that the animosity was directed more towards the occupation of sovereign land. More importantly, the aforementioned occupation was not even made by the Nigerian military, but by its citizens in search for water from the diminishing Lake Chad, upon which they depend for income and sustenance. Water played an instrumental role in the occupation of Cameroonian territory by Nigerian villages in the Lake Chad region. The receding water levels of Lake Chad had left villagers with very little choice other than to move closer to the banks of the lake in order to ensure access to the resources of the lake. The villagers that crossed border were essentially ensuring themselves of an opportunity to enjoy freedom from want in the form of food security.[331] Therefore the human-centred approach rejects the immediate causality that is explained by the state-centred approach and ultimately seeks to identify the immediate causes or instigating factors behind territorial conflicts that are related to water. Based on Figure 15 below, the human-centred approach would be able to explore the causal chain further that lead to the territorial occupation, thus being able to identify pressure points in other situations that have perhaps not lead to violent conflict, but seemingly present a threat to security regardless.

From previous discussion, it is evident that food security, economic security and health security are closely linked to one another in the onset of conflict between Nigeria and Cameroon. The link between food security and economic security is fairly obvious when taking into consideration that there is a large dependency on food for economic activity, particularly in light of the lack of access to other parts of the labour market. If one considers food security to be closely related to the availability and sustainability of food sources, the lack of food security automatically implies a lack in economic security since the relative certainty of sustaining an income is threatened. In terms of relating food security to health security the impact is fairly obvious since a lack of nourishment, which is gained by food, seems to be a fairly obvious indicator of health security. Seen in a different way, if food (in the case of the Chad Basin and Lake Chad in particular fish) is seen as a bartering tool and is often used to gain profit, the lack of food can be seen to compromise the access to healthcare.

[331] Toward a Food Secure Future, Human Development Report 2012, United Nations Development Programme, New York, 2012, pp. 50, 52, 56

Therefore there is a direct correlation between affording healthcare, or economic security, and food security. It would stand to reason that the three forms of security related to water are interdependent, however food security seems to be the focal point of the human-centred approach in this case.

Figure 15: Regression of Causal Chain to explain factors that impact on territorial occupation in the Lake Chad Region



3.4.2.2 Human-Centered Factors and their impact on the territorial occupation in the Lake Chad Region

One of the most striking features of the human-centred approach in this case is that it can explain the impact that non-state actors have on the occurrence or initiation of conflict between Nigeria and Cameroon.[332] The state-centred approach, as suggested before, assumes that the state is the principle actor in international relations and therefore cannot adequately predict or explain situations of conflict in which non-state actors had a fundamental role in shaping. While one cannot explicitly criticise the state-centred approach for this inadequacy, the human-centred approach might be able to provide valuable insight into how the interests of non-state actors ultimately impact on the relationships between states. It can be argued that the Nigerian occupation of Cameroon, which led to armed conflict, is indeed one of these

[332] Bego, A., "Let's Take Back Our 33 Villages And…-Daggish" Weekly Trust, 20 March 2004, http://allafrica.com/stories/printable/200403220492.html (date accessed: 26-06-2012)

cases. The cross-border occupation meant that Nigerian villages, now within Cameroon's sovereign territory were under the administration of the Nigerian Federal Government. This could be perceived as a pseudo-annexing of Cameroon's territory and resources by Nigeria. More importantly, if as mentioned earlier Nigerian citizens were being exploited in villages under Nigerian Federal Government rule it would plausible that militarised conflict, would be a function of the state ensuring its peoples security. So on this interpretation the Nigerian government would have otherwise had no reason to forcefully occupy Cameroonian territory.

There is sufficient evidence to suggest that non-state actors had an influential role in the escalation of tensions between Abuja and Yaoundé over both the Bakassi and Lake Chad regions. In both the Bakassi Peninsula and Lake Chad region, non-state actors in the form of local fisherman had an important role in the context of the larger dispute between the two nations. A quintessential part of the non-state actor within the context of this dispute is the role of traditional leadership or villages in the management and allocation of water based resources.

The role of traditional communities in the allocation of water-based resources is perhaps testament to the human-centred focus of resource management within the Chad River Basin. In what is known as a Traditional Management System (TMS), there seems to be three forms of water resource management taking on the roles of traditional, modern and mixed management schemes.[333] The table below shows the authority centers with regard to the allocation and management of water resources within the Chad River Basin

[333] Bene, C., Neiland, A., and Jolley., T (et al) "Natural Resource Institutions and the Property Rights in inland African Fisheries: the Case of the Lake Chad River Basin" International Journal of Social Economics" vol.30, Iss. 3, 2003, pp. 282-283

Figure 16: Resource Management Systems in the Chad Basin

Figure 16: Resource Management in the Chad Basin							
Management System	Authority Centre	Cameroon		Chad		Nigeria	
		n	*%*	*n*	*%*	*n*	*%*
Traditional	Traditional Leaders with riparian villages	14	70	11	38	3	33
Modern	Government Office Administered	-	-	5	17	1	11
Mixed	Partly Both. Requires interaction of both mechanisms	6	30	13	45	5	56
	Total	**20**	**100**	**29**	**100**	**9**	**100**

(Source: Bene et. al.)

The majority of effective management systems, according to Bene, Neiland and Jolley, are located within the traditional type, with an average of 47 percent out of 38 villages in three of the most fishing intensive riparian countries. The minority is represented in the form of modern systems, in that only 6 of the 38 villages or 16 percent of villages operate on this type of system. The 37 percent or 24 villages operate on a mixed system in which both the state and traditional he authorities regulate the activities of populations as far as extraction of water based resources is concerned. The table below indicates the findings of Bene et al.[334]

The findings of Bene in this article seem to suggest that traditional leadership and lifestyle seems to underpin community engagement in the Chad River Basin, but specifically seems to fit well with transboundary management of the Lake Chad. In addition to the dominance of traditional management systems depicted above it is evident from Bene's arguments elsewhere that traditional lifestyles dominate wealth stratification and social interaction. The

[334] Bene, C., Neiland, A., and Jolley., T Op.Cit.p. 282

human centered approach has been presented as one that is fundamentally in opposition to state-centered approaches, which are underpinned by the focus of the state as the focal point of security. If one takes the human-centered approach to be the opposite, which is focused on non-state actors as the focal point of security, then human-centered approach explains why Nigerian villages would have found it beneficial to move into Cameroonian territory. In the case of occupying the territory of the Lake Chad border, it could be argued that local leaders saw it as beneficial in maintaining the status quo both in terms of their own social status and that of their subjects. The fish of the Chad Basin is linked to the wealth and social standing of local village leaders.[335]Therefore moving in order to maintain social standing and wealth in this case can only be understood at community or human-centered level. This would fit well the third link in the causal chain presented above. Ultimately, the human-centered approach provides insight into the role of non-state actors and how they perceive water to be related to their security. A material fact of the cross-occupation is that villages rather than the military invaded Cameroonian territory, principally in search of maintaining food and economic security.

3.4.3 Current Day Affairs in the Bakassi and Lake Chad

In recent years, the relationship between Nigeria and Cameroon has taken a more cooperative nature, and even more nurturing one from the one witness during the time of the ICJ's hearing of the border dispute. The general consensus, at least from Nigeria is that cooperation is an essential element for both nations to realize their potential in many spheres of interaction.[336] The areas of focus for cooperation include the potential use of hydrocarbons along the border, which is indicative of water's increasingly prominent role in the evolution of the dispute.[337] However, to date the cooperative element of bilateral relations seem to be more ideologically than empirically grounded.

An essential factor related to real empirical evidence of cooperation amongst Abuja and Yaoundé, is the seemingly constant doubt over the legitimacy of the ICJ's ruling on the matter. Professor Anthony Asiwaju of the Society for International Relations Awareness (SIRA) in his analysis of Nigeria's grounds for applying to review the 2002 ICJ verdict, he

[335] "Nigeria and Cameroon to Partner on economy" The Nation 17 December 2012 http://thenationonlineeng.net/news-update/nigeria-cameroon-to-partner-on-economy/ (date accessed: 2013-01-06)
[336] "Nigeria: Jonathan, Cameroonian Deputy PM Discuss border Agreement", Actualité Information Afrique-Afriquejet, http://www.afriquejet.com/border-agreement-cameroon-nigeria-2011072719224.html
[337] Loc.Cit.

suggests there are three broad categories in which such an application would be possible.[338] The first is if there are any grounds and evidence of fraud at the time of judgment. The second is that if there are new facts to the case not considered at trial. Lastly, is that a body of law, such as a legal statute, was overlooked in the judgment process.[339] An example of the second category is the doubt (at least as Nigeria sees it) over the ratification of the 1913 Treaty. Asiwaju makes particular reference to research suggesting that the German Diplomat charged with signing the 1913 Treaty had not done so, thus casting into doubt the strength of the ICJ's judgment that relied heavily on various Treaties, which were supposedly ratified under international law.[340] Essentially if Abuja can provide grounds that a material fact, such as the ratification of a Treaty (or the lack thereof) had not been properly scrutinized, one might well conclude that Nigeria has sufficient grounds for applying for as review of the 2002 Judgment.

Cameroon has responded to Nigeria's ambition to have the judgment reviewed claiming that "Nigeria is…chasing shadows".[341]From Cameroon's perspective, the potential review of the Bakassi matter has other implications that reach far beyond the ICJ case. Currently, bilateral relations allow citizens of both countries to pass borders without visa's, even though neither Cameroon nor Nigeria are under any legal requirement to do since Cameroon is not a member of the Economic Community of West African States (ECOWAS).[342] Based on Nigeria's ambition to have the Bakassi matter reviewed, it is not clear whether the relationship between Abuja and Yaoundé will recover, with some likening the Bakassi to the on-going tensions over entitlement in the Falkland Islands and the South China Sea.[343] What is clear however is that Cameroon views the attempt to have the ICJ's initial ruling reviewed as an afterthought and essentially dubs it a money-making scheme. [344]

Once more, as was the case with the facts of the dispute presented to the ICJ and even the immediate climate after the ruling, the current state of affairs is sharply dichotomized by who the initial ruling favours. Nigeria, through the lack of a properly ratified Treaty which ceded the areas of dispute to Cameroon believe that they meet the second condition in that the lack

[338] Adebayo, I., "Nigeria: FG Ignored Our Advice on Bakassi-Prof Asiwaju" Daily Trust, 7 October 2012, http://allafrica.com/stories/printable/201200703l0.html (date accessed: 2012-10-08)
[339] Loc.Cit.
[340] Loc.CIt.
[341] "Bakassi: Nigeria Chasing Shadows-Cameroonian Diplomats" Osun Defender, 08 October 2012, http://www.osundefender.org/?p=39934 (date accessed: 2012-10-08)
[342] Loc.Cit
[343] Loc.Cit
[344] Loc.Cit.

of signature presents a new fact, which might have been significantly overlooked. Cameroon on the other hand seems to reject the claim by reducing the appeal to a matter of Nigeria constantly questioning the validity of Cameroon's entitlement to the Bakassi simply because Abuja is not happy with the outcome of the case once all the merits of International Law had been taken into account.

To date, Nigeria has indicated that it will not challenge the decision based on the fact that a negative result could be more harmful to Nigeria's diplomatic image.[345] A negative result is very likely since Nigeria would not be able to demonstrate sufficient cause for review before the review process becomes Statute-barred.[346] As such Nigeria does not see it as beneficial to national interest to have the 2002 judgment reviewed. However, one needs question whether or not the damage has already been done.[347] The review, or at least the potential thereof, has perhaps questioned the foundations of trust that has allowed the seamless passing through borders. When related to access to water, it is perhaps this seamless flow between borders that provides access to the waters of Lake Chad to Nigerian villages on the border. What the shaken trust potentially implies is that the seamless flow that ensured at least marginal access to the Lake Chad for Nigeria has been jeopardized.

[345] Cocks, T., "Nigeria says wont appeal award of oil-rich Bakassi to Cameroon", Reuters, 09 October 2012, http://af.reuters.com/article/worldNews/idAFBRE8980BK20121009?sp=true (date accessed: 2012-10-16)
[346] Loc.Cit.
[347] Loc.Cit

3.5 Conclusion

In this chapter the case of conflict within the Chad River Basin over water resources was presented. The aim of this chapter was to determine which of the state-centered or human-centered approaches explained the conflict between Nigeria and Cameroon as a conflict over water the best. Taking into account the discussion above, the following conclusions can be made.

It remains unclear exactly how water relates *directly* to the understanding of violent conflict. The case of the Bakassi seems to confirm a long-standing trend of water being a catalyst rather than an initiating cause of conflict between states. This case seemed to have oil rather than water as the focal point in terms of conflict. So as a state-centered resource war, water and water-related resources played a minor role in the onset of conflict.

From this the human-centered approach offers insight into questioning causal chains that lead to conflict, by demonstrating an indirect relationship between water and violent conflict. According to the human-centered approach the Nigeria-Cameroon conflict can be seen as one over water, since the livelihoods, which depend on the water, did in fact have a direct role in the onset of conflict. In the Bakassi Peninsula it was the "gunning" of Nigerian fisherman by Cameroonian soldiers in an apparent border violation and in the Lake Chad it was the occupation of Nigerian-governed villages in Cameroonian territory. The approaches therefore seem to dichotomise waters role as a conflict variable by direct and indirect causes of conflict. These causes are seemingly represented by state-centered and human-centered approaches respectively.

On this basis it stands to reason that water, at best has an indirect role in the onset of conflict and the prospect of water wars seems to fit well with "water related wars" rather than "water wars" as such.

Chapter 4

Conflict over Water in the Nile Basin: The Case of the Suez Canal Crisis of 1956

4.1 Introduction

Some innocents 'scape not the thunderbolt.
***Melt Egypt into Nile**, and kindly creatures*
Turn all to serpents…

Cleopatra (Act: 2 Scene: 5)
Anthony and Cleopatra

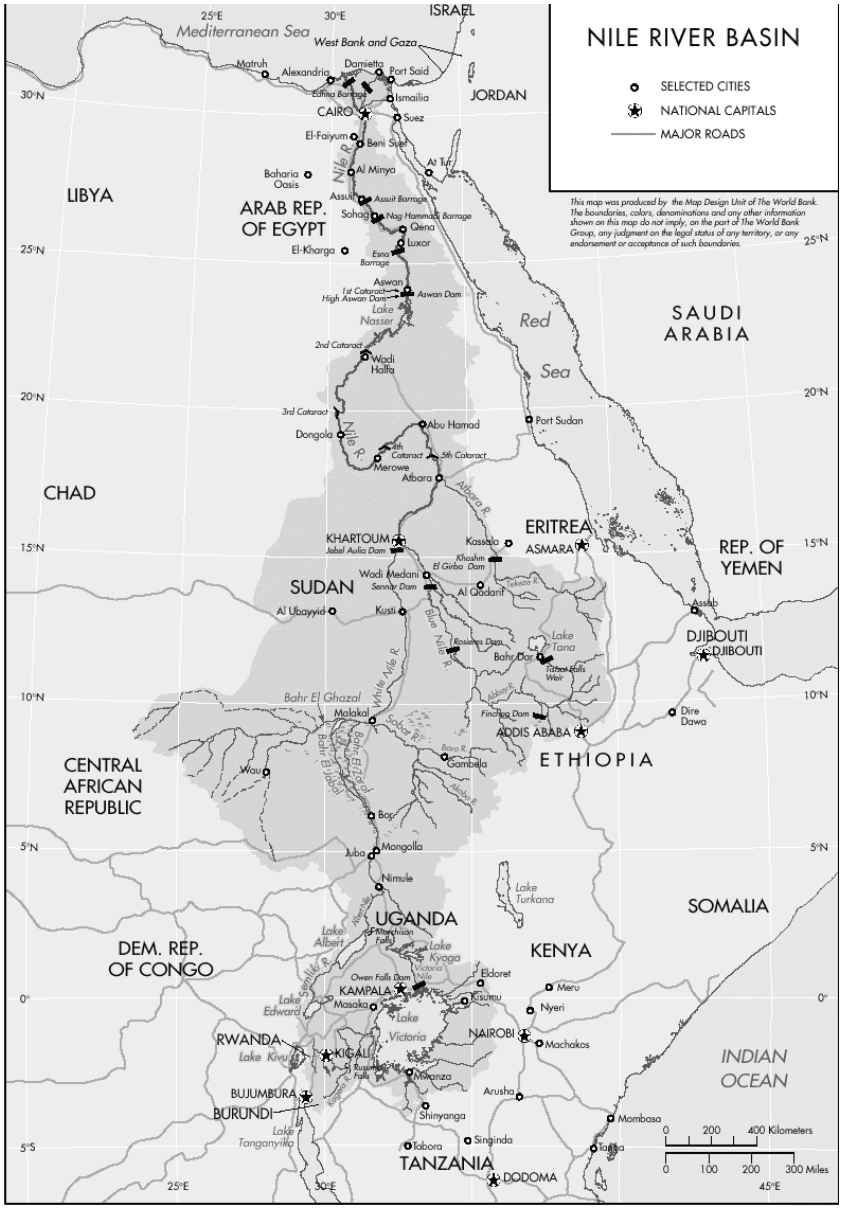
The flow of the Nile River has historically been linked to the survival and prosperity of the Egyptian people. In what can be termed an argument from historic access, the Egyptian Government believes the Nile to be pivotal in to its survival. At the most simple level, Cairo appeals to almost non-existent rainfall and very little, if any access, to other forms of water. However, given that Egypt is the most downstream riparian of the Nile, its access to water is underpinned by the needs and ambitions of other countries within the Nile Basin.

In this chapter, the thesis explores how Egypt's quest for water security within the Nile Basin explains the Suez Crisis of 1956. The chapter explores the extent to which access to water drove the decision to nationalize the Suez, which ultimately led to militarized conflict between Egypt, Britain, France and Israel. In so doing, the chapter seeks to clarify to what extent the Crisis formed part of broader political issues (such as the ideological contestation of the Cold War) or alternatively to what extent the Crisis represented access to water as a political end in its own right. In addition, the chapter seeks to determine in what way, if any, the increased need for access to water is underpinned by concerns within the context of human-centered security.

The chapter begins by considering a background to the Nile River Basin, including background on its repatriation, uses and riparian population. The chapter then considers the Suez Crisis of 1956, providing background to what can be considered militarized conflict over water in the Nile basin. Following from this discussion, the chapter considers the extent to which both state-centered and human centered analysis (as presented in Chapter 2)

potentially explains the occurrence of the crisis. The chapter concludes by summarizing the findings of the chapter.

Figure 17: The Nile River Basin



(Source: Block[348])

[348] Block, P.J.,(et.al.) Integrated Management of the Blue Nile Basin in Ethiopia, International Food Policy Research Institute, Washington, 2007, p.3

4.2 Background

The Nile River is the longest River in the world, spanning a total of 6700 km. In combination with its vast size, its resources are shared by ten countries, making it one of the world's most precious resources.[349] The countries that are riparian to the resources of the Nile River Basin are Burundi, **Sudan[350],** South Sudan Rwanda, Zaire, Kenya, Uganda, Ethiopia and Egypt.[351] Poverty and underdevelopment in the basin is rife, which when coupled with population growth adds to an already tense political climate regarding the use of the Nile's waters.[352] Climate change, as with the Chad River Basin, has also had a profound impact on structural supplies of the Nile. So, as with the Chad River Basin, the inversed relationship between supply decreasing and general demand increasing adds strain on intra-basin relations in that riparian countries monitor uses more closely. For example, Ethiopia has begun to question Egypt's dominance in the use of the Nile's resources and why, despite its significant contribution to the Nile's flow, it receives a minuscule proportion of the resources.[353] Therefore, the Nile Basin's political tension is partly fueled by disparate withdrawals amongst co-riparian countries. Of the now riparian countries, eight are classified amongst the least developed countries in the world-with Kenya and Egypt being the exception.[354] In addition to the low levels of development, the Nile River Basin has also become increasingly vulnerable to the impact of climate change within the region. This impact is most notable within the context of food security since a large portion of the riparian population, owing to low levels of development, are dependent on agriculture for both sustenance and economic activity.[355] This is dependence on agriculture is what partly fuels the debate on the distribution and allocation of water resources, as is seen in the case of Egypt and Ethiopia.

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[349] El-Fadel, M., (et.al.) "The Nile River Basin: A Case Study in Surface Water Conflict Resolution" in Journal of Natural Resources, Life Sciences and Education, Vol. 32, 2003, p.108

[350] **In cases marked with an * I refer to Sudan prior to South Sudanese independence**

[351] Swain, A., "Mission Not Yet Accomplished: Managing Water Resources in The Nile River Basin" in Journal of International Affairs, Vol. 61, No. 2, 2008, p. 202

[352] Roest.,K, Schoumans, O., and Siderius, C., (et.al.) "The Nile River Basin", Chapter 10 in Mysiak, J., (ed) Adaptive Water Management pp. 158-159

[353] Fleishman, J., "The Nile, Egypt's lifeline comes under threat" in Los Angeles Times, 11 November 2012, http://articles.latimes.com/202/nov/11/la-fg-egypt-troubles-nile-20121111 (date accessed: 2013-01-06

[354] Swain, A., Op.Cit. pp. 202

[355] Ibid. pp.202-203 *For further reading see*: Taye, M.T., Ntegeka, V., and Ogiramoi, N.P., "Assessment of Climate Change Impact on hydrological extremes in two source Regions of the Nile River Basin" in Hydrology and Earth System Sciences, Vol. 15, 2011, pp.209-222

From a historical perspective, the political tension over water can evidently be seen from a multitude of perspectives. The most important distinction when examining the potential for conflict over the Nile, with regard to the current and potential future utilization of its water supply is that of the relationship between upstream and downstream riparian countries. This distinction is the most analytically useful in that it highlights the various opportunities and threats for different countries, particularly since the access to water determines the nature of opportunities that riparian countries have.

In recognition of the interdependent nature of water resource management between upstream and downstream riparian countries, various intergovernmental programs have emerged. The most notable of these is the Nile Basin Imitative (NBI), which is aimed at the "united common pursuit of sustainable development and management of [the] Nile waters" between countries of the Nile basin.[356] In addition, non-governmental organizations and Academic Institutions, such as the Global Water Project (GWP) and the Climate Change Research Group at Addis Ababa University respectively, have added to the debate around management of the Nile basin's resources by creating a forum for dialogue amongst specialists on the Nile.[357] One of its main focuses is to provide experts from various fields with a means to contribute to the information and data concerning the Nile basin, such that policy decisions made by riparian countries are not based on outdated or incorrect information.[358] While these programs are virtuous in principal one cannot comment on their efficacy without considering various important factors, such as repatriation of water resources as well as what those resources are used for.

[356] Karyabwite, D.R., "Water Sharing in the Nile River Valley" Using GIS/Remote Sensing for the Sustainable Use of Natural Resources, UNEP/DEWA/GRID, Geneva, January 2000, pp. 38-40
[357] Stakeholders of the Nile River Basin, United Nations Environmental Programme, October 2010, https://www.unep.org/climatechange/adaptation/Portals/133/documents/NileRiverBasin/ClimateChangeAdaptation_Stocktaking_Nile20%Basin.doc, p. 35
[358] Ibid. pp. 38-41 see also The Nile Basin Society (NBS) website http://nilebasin.com/index.html and The Nile Basin Dialogue website http://nilebasin.com/index.html (date accessed: 2012/08/15)

4.2.1 Distribution of the Nile River Basin Water Courses amongst riparian countries

The Nile flows from south to north and is fed by two main River systems, namely the White and Blue Nile.[359]The White Nile has its origins on the Equatorial Lake Plateau within the political borders of Burundi, Rwanda, Tanzania, Kenya, Zaire and Uganda, while the Blue Nile has its sources within the Ethiopian highlands. The sources for both feeding Rivers are located in humid regions with an average rainfall of 1000mm per year. The more arid regions start in Sudan, which experiences varying amounts of annual rainfall ranging from 1500mm to 20mm on average per year. In Egypt precipitation dwindles to less than 20mm per year.[360] Based on this, upstream versus downstream relations are underpinned by varying amounts of natural precipitation, which ultimately have an impact on withdrawal versus contribution disputes.

Figure 18 Share of the Nile Basin Amongst Riparian Countries

Country	***Area of Country within Basin (km^2)***	***Nile Basin within border (%)***	***Share of Nile Basin Area (%)***
Burundi	13,260	47.6	(%)
Rwanda	19,876	75.5	0.4
Tanzania	84, 200	8.9	0.6
Kenya	46, 229	8.0	2.7
Zaire	22, 143	0.9	1.5
Uganda	231, 336	98.1	0.7
Ethiopia	365, 117	33.2	7.4
Eritrea	24, 921	20.4	11.7
Sudan	1 978 506	79.0	0.8
Egypt	326, 751	32.6	63.6

(Source: Karyabwite, 2000[361])

[359] Frenken, K., and Faures, J.M. Irrigation Potential in Africa: A basin approach Food and Agricultural Organization, http://www.fao.org/docrep/W4347E/W4347e0k.htm (date accessed: 2012/08/11)
[360] Loc.Cit.
[361] Karyabwite, D.R., Op.Cit. p. 10

4.2.2.1: Watercourses of the Nile Basin: An Overview

The Nile basin consists of a number of structural water bodies. The basin can be divided into six regions: the Lake Plateau, the Sudd, the White Nile, the Blue Nile, the Ethiopian Plateau, the Main Nile and the Nile Delta.[362]Each of these contributes, in varying amounts, to the total flow and the repatriation of the Nile Basin.

Within the Lake Plateau, one finds the most upstream tributary of the Nile in the form of the River Kagera. As the main feeding basin of Lake Victoria, it is found in the territory of Burundi, Rwanda, Tanzania and Uganda. A principal feature of this basin is a series of interconnected lakes and swamps, which ultimately result in a low discharge.[363] This, to some extent, confirms the argument that structural water availability is higher within upstream countries. One could also suggest that the Lake Plateau, from the perspective of inter-basin management, is important since riparian countries within it have, on average, more than half their national territory forming part of the Nile basin. Therefore any action taken by these riparian countries individually that could influence the flow of water systems to downstream riparian countries such as Egypt, demonstrates the need for well-informed inter-basin management.

The Lake Plateau itself consists of various water bodies. These are Lake Victoria, the Upper Victoria Nile, Lake Kyoga, the Lower Victoria Nile, Lake Albert, the Semliki River, Lake Edward and Lake George.[364] On a small scale, the Lake Plateau demonstrates the interconnected nature of water resources and indicates the significance of a "domino effect" that a compromise in the flow of one of these water bodies might have on the network of water resources in the Nile Basin.[365] For example, the Semliki River connects Lake Edward to Lake Albert. Lake Edward is in turn also connected to Lake George through the Kazinga channel and is believed to be Lake George's only viable carrier of water.[366] From this it would stand to reason that any change in the structural flow of the water bodies within the Lake Plateau might have a profound impact on the withdrawals of the populations that reside within the Plateau countries. One could extrapolate this even further by suggesting that a change in withdrawal patterns of upstream riparian countries could have a severe impact on

[362] Ibid p.13
[363] Ibid. p. 14
[364] Loc.Cit
[365] Karyabwite, D.R., Ibid. pp. 14-15
[366] Karyabwite, D.R., Ibid. p.13; see also Mamdough, S. Hydrology of the Nile Basin, Elsie River Science Publishers, Amsterdam, 1985, pp. 15-29, 317-349

the ability of downstream riparian countries, such as Egypt and Sudan, to maintain their withdrawal status quo. Evidence for this suggestion could be seen in the extensive consultation required for projects on the watercourses of the Nile Basin.[367]

The Sudd and Central Sudan basin also has various water courses. They are the Upper White Nile (also known as the Bahr al Jebel), The Bahr al Zarhaf and The Bahr al Genzal. Similar to further upstream characteristics, the Upper White Nile or Bahr al Jebel has a broad and lethargic flow and has swaps as well as lagoons on its periphery. The flow between Nimule and Rejaf is believed to be 156 kilometers long and is particularly characterized by its flow through a rocky area-which creates fast moving rapids. Further downstream between Rejaf and Bor the flow tends to flatten, with channels across a swampy valley floor. From this point, the movement to the north of the Bor valley becomes particularly swampy and is known as the Sudd. The region is noted by its relative absence of dry land. The Bahr al Jabel joins the Bahr al Genzal at Lake No. This stream turns east under the name of the White Nile. At this point the swamps also cease.[368] On this basis it would seem that while structural capacity of water is evident, through the existence of swamps and lagoons, it is not particularly clear that the water is accessible or even suitable for consumption. In addition, it can suggest that the waters of the Bahr al Jebel are not particularly suitable for farming practices given the prevalence of swamps within the course of its flow.

The Bahr al Zarhaf has a course of roughly 280km with its mouth at the While Nile, roughly 80km from Lake No.[369] Similar to the Bahr al Jebel, the Bahr al Zarhaf flows through swamps and forms lagoons in its winding course. These swampy conditions are found as far as 100km from its mouth at the White Nile. The banks of the River elevate as it flows northward until the Zarhaf is limited to a narrow channel.

The Bahr al Ghazal flows from Meshra al Req to Lake No. Although its course does not exceed 160km, it is considered to be the largest sub-basin of all the Nile Basin's tributaries. Along the south and the east of the River are large areas of swamp, which are fed by streams within the sub-basin. The upper courses of the stream are covered by a savannah like forest, with the ravines forming a tropical rainforest, like those found within the Lake Plateau region. On the lower courses of the Bahr Ghazal, large areas of swamp deplete the majority

[367] Karyabwite., D.R., Op.Cit.
[368] Karyabwite, D.R., Ibid. p.17-18; see also Mamdough, S. Hydrology of the Nile Basin, Elsie River Science Publishers, Amsterdam, 1985, pp. 26-34, 361-378
[369] Karyabwite, D.R., Op. Cit. p.17

of the flow carried by the sub-basin tributaries. The Sudan-Democratic Republic of Congo (DRC) political border also marks the division between the Congo and Nile basins.[370] While most streams lose their definitive course along this demarcation the Jur preserves its course and joins the Bahr al Ghazal. The lower Ghazal has papyrus on its periphery, although it does not grow well and is of inferior quality to that on the Bahr al Jebel.

The White Nile is the stretch of watercourse from Lake No to the merging point with the Blue Nile. Within the upper 120km from Lake No, to the mouth of the Sobat River, the course of the River is marked by swamps, Khors and Lagoons. However, from Malakal to an area just upstream of Khartoum the channel of the River is almost free of swamps. The drainage of the White Nile is also extensive covering areas such as the Lake Plateau in the south, the junction point with the Blue Nile in the north, the Abyssian Plateau in the east up until the Nile-Congo basin division in the southwest and the Nuba Mountains in the west.[371]

The Ethiopian Plateau, like the Lake Plateau is made of various tributaries within the downstream segment of the Nile basin. The three most important of these are the Sobat, the Blue Nile and the Atbara.[372] The flow during the high season is estimated to be forty times the flow the flow of the low season. This is indicative of the importance of the flooding or rainy season within the discharge of the Ethiopian Plateau watercourses.

The Sobat River basin includes parts of the Abyssian Mountains and the Lake Plateau.[373] It also consists of the plain to the east of Bahr al Jebel and Zarhaf. Given the Sobat River basin's large area in combination with a high variation in topographic characteristics, rainfall varies as much as 1350mm between the most elevated parts of the basin and the River mouth. The River itself is formed through the junction of its main tributaries, the Baro and Pibor Rivers. From the junction point to the mouth of the River, the River course has been found to be intersected by swampy areas. These swamps are characteristic of temporary streams, which flow during and just after the rainy season.

The Blue Nile and its tributary watercourses all originate within the Ethiopian Plateau at an elevation of 2, 000 to 3000 meters.[374] The source of the Blue Nile is found at an elevation of 2900m and is roughly 100km south of Lake Tana. The majority of the Ethiopian Plateau is

[370] Ibid. p. 18
[371] Ibid. p. 19
[372] Ibid. p. 20
[373] Ibid. p. 21
[374] Loc.Cit.

grassy, with valleys and areas of scattered trees. The deep ravines and canyons in which the watercourses flow also characterize the upper parts of the Plateau. In some places the watercourse is believed to flow about 1,200m below *terra firma* on either side. Rocky outcrops are found within the Riverbed and are known as the Demzin Rapids. The River emerges from the Plateau within close proximity to the western border of Ethiopia. At this point it runs north-west at an altitude of 490m into Sudan. The River flows through a clayish plain before entering the joining point with the White Nile in Khartoum known as the Gezira Plain.

The Atbara River is a seasonal River, which enters the Main Nile at roughly 320km downstream of the Gezira Plain. The River is 880km long and the majority of its catchment is located within Ethiopia and Eritrea, in the Lake and Ethiopian Plateau. At its highest point the catchment reaches, 3,500m.[375] The River relies on a number of tributaries, of which the Setit (Takazze) is one. Above its junction with the Setit, the Atbara receives its flow from a number of tributaries. The Bahr al Salam is considered to be the principal tributary. The large sediment load as a proportion of flow volume is a result of a big elevation between the head and junction of the Salam River.

The Main Nile is found between the Gezira Plain and the Mediterranean Sea. The Main Nile, like other sub-basins has various watercourses and water structures. The Main Nile is most notable for its use of water for cultivated as well as water storage facilities. In the Nile Valley one finds the old Aswan Dam just below the Aswan Cataract, which was constructed in 1902. The Dam was heightened twice-in 1912 and 1934.[376] The construction of the storage works, in combination with the construction of Lake Nasser, has changed the flow of the Nile from Aswan to the sea. The flow has become almost completely regulated from being a free-flowing one. The Main Nile is agriculturally diverse, but water scarcity within some regions confines agricultural practice to parts of the Nile Valley and Nile Delta. Estimates suggest that 3 percent of the total surface area of Egypt is cultivated, while desserts occupy 23 and 74 percent respectively.

The Nile Basin can be divided into three general areas in terms of its flow. The first is the Plateau area, which consists of the majority of tributary sources for the Nile. The second is the joining or merging areas, such as those found in the Sudd and Central Chad Basin. Lastly,

[375] Loc.Cit.
[376] Ibid. p. 22

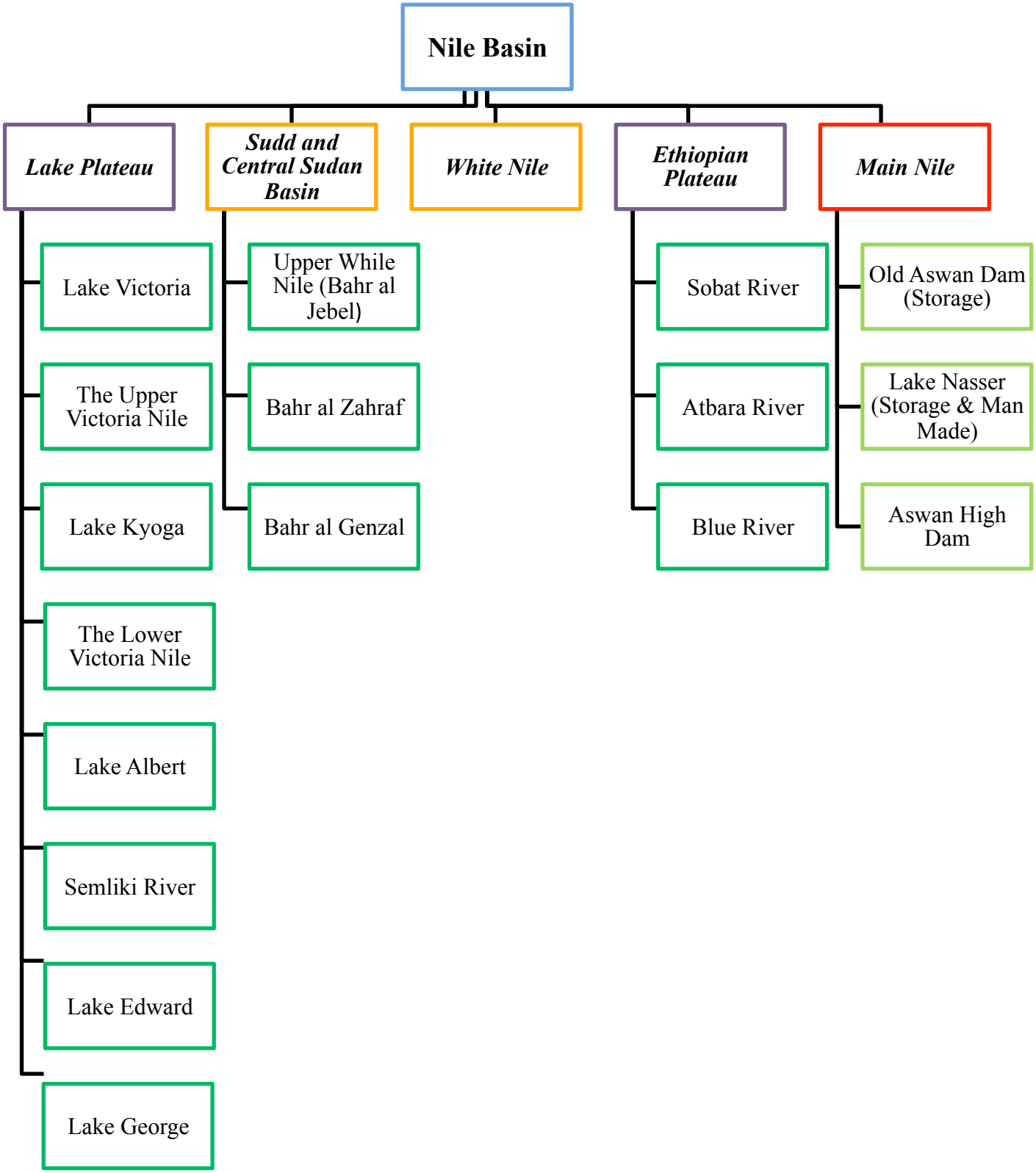
is the Main Basin area marked by the development of storage bodies and cultivation areas suitable for farming. The division of the Nile Bain into these areas coincides with the flow of the Nile Basin from upstream to downstream respectively

The watercourses of the Nile Basin accentuate an important part of geopolitics within the basin. In terms of its climate, upper parts of the Nile Basin receive *very* erratic. As a result, South Sudan, Sudan and Egypt rely heavily on the flow of the Nile for water supply. What the large variety of watercourses suggests is that the large number of riparian countries in the Nile basin is not the only relevant factor to take into account in the hydropolitics debate. When taking into consideration that the water supply of Egypt, South Sudan and Sudan originate from outside their national borders, it is clear why Egypt and Sudan* have historically exerted a lot of pressure on upstream riparian countries not to pursue water related projects.[377] In a lot of the literature, presumably for the sake of brevity, reduce the Nile to having tributaries. El-Fadel (et.al.) for example only, cites the Nile as having the White Nile, Blue Nile and Atbara rivers as tributaries.[378] By narrowing the analysis of the Nile Basin to these three rivers only one inevitably contaminates the analysis of geopolitics within the basin. For example, the White Nile is dependent almost exclusively on the Sudd and Central Chad Basin for its flow. The Bahr Gazal for example flows to Lake No, which in turn feeds the White Nile and yet receives very little attention in the explication of the Nile Basin's watercourses.[379] Therefore, it appears as if analysis of the Nile Basin treats watercourses of the basin as reductive to these three rivers, when it in fact is on. Through the overview above, the reader is invited to take note of the fact that hydropolitics of the Nile Basin is more complex than just the analysis of the three rivers listed by El-Fadel (et. al.)

In addition, the varying availability of arable land could also have an impact on migration of communities dependent on farming, and ultimately the waters of the Nile Basin. These migrations could specifically mimic the conditions seen in the dispute between Nigeria and Cameroon in the Lake Chad region. Therefore, understanding the interconnectedness of watercourses in the Nile Basin does have an impact on the understanding of structural availability, that is which watercourses can be used for the activities that sustain life.

[377] El-Fadel., M. (et. al.), Op.Cit. p. 108
[378] Loc.Cit.
[379] Karyabwite, D.R., Op. Cit. p.17

Figure 19: Overview of the Nile Basin's Watercourses



4.2.2 Uses of the Nile Basin amongst riparian countries

The uses of water in the Nile basin can be categorized into three parts: Agriculture, Industrial and Domestic or Municipal use. The most dominant of these in the Nile basin is Agriculture.[380] Given low levels of infrastructural development in the riparian countries of the Nile basin, in combination with dire socio-economic conditions of its population, agriculture forms an important part of sustenance. Furthermore, as with the Chad basin is the only opportunity that many have to participate in the economy.[381] Industrial use for water remains limited again as a result of underdeveloped infrastructure to utilize water for industry. Ethiopia has, for example, been identified to have enormous hydroelectric potential, but Egypt's over-exploitation of watercourses within the Nile basin and a lack of financial backing of has meant that this potential has remained largely untapped.[382] Domestic uses of water in the Nile basin are fairly insignificant when compared to the quantities used on agriculture and irrigation. However, domestic uses as the table below suggests are larger than uses for industry. This is mainly because domestic uses of water refer to household activities such as cooking and cleaning and do not take into consideration the uses of sustenance activities. The latter are included in agricultural uses given the large dependence on agriculture for sustenance of human life within the basin.

[380] See figure 18 below
[381] Krampe, F., and Swain F., "Transboundary Rivers and Climate Change: African and Asian Rivers" in Conflict Trends, Issue 2, 2011, p.19
[382] Waterbury, J., and Whittington, D., "Playing Chicken on the Nile? Implications of microdam development in the Ethiopian highlands and Egypt's New Valley Project" in Natural Resources Journal, Vol. 22, No. 3, 1998, p. 155

Figure 20: Water Uses by Riparian Country in the Basin (2011)				
Country	**Water Use (km^3/year)**			
	Total	*Industrial*	*Domestic*	*Agricultural*
Burundi	**0.288**	0.015	0.0431	0.222
DRC	**0.6222**	0.1468	0.4649	0.11
Egypt	**68.3**	4	5.3	59
Eritrea	**0.582**	0.001	0.031	0.55
Ethiopia	**5.558**	0.0511	0.81	5.204
Kenya	**2.735**	0.1	0.47	2.165
Rwanda	**0.15**	0.102	0.0614	0.102
Sudan*	**37.14**	0.3001	1.143	36.07
Tanzania	**5.184**	0.025	0.527	4.632
Uganda	**0.3174**	0.442	0.1149	0.12

(Source: FAO) [383]
*indicates data for what is now known as South Sudan as well

4.2.5.1 Agricultural and Domestic Use

The agriculture sector in the Nile basin is arguably the most important to any of the riparian countries. This is because agricultural use also includes those crops that are used for export, despite sustenance farming being more prevalent. In addition to the demand placed on agriculture from human and commercial demand, post-harvest losses add to the complexity of balancing supply with demand.[384] The majority of questions concerning the adequacy of water supply to meet demand stem from the burgeoning population that resides within the basin, which is speculated to have almost doubled between 1989 and 2010.[385] Production in the Nile basin is believed to have met up to 75 per cent of demand through local production with the shortfall being made up by imports. The FAO reported that one can dichotomise

[383] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)
[384] Appelgren, B., Alam, U and Klohn, W., Water and Agriculture in the Nile Basin, Food and Agriculture Organisation of the United Nations, Rome, 2000, p.11
[385] Loc.Cit.

agricultural activities among commercial-for-export versus subsistence-for-local crop productions.[386] Based on this one can deduce that an important element of meeting demand related to local populations, within riparian countries, is the ability to use water resources for farming. The problem is exacerbated even further for downstream countries considering that the stability of water supply becomes increasingly dependent on the flow of the Nile as one moves further downstream. This could explain Egypt's resistance to Ethiopia's aspirations for water-related development.[387] There are three main streams of agricultural activity in the Nile Basin: (1) crop farming; (2) fishing, and (3) livestock or herding. In recent years this diversification in farming practice has come to represent the phenomenon known as adaption methods in agriculture, specifically in response to climate change.[388]

The crops that are harvested tend to vary depending on the region of the Nile in question. Primary staple crops in the Eastern and Lower Nile sub-basins are wheat, millet and sorghum. In the Southern Nile, crops trend to vary from roots and tubers as primary staples. Maize is also consumed extensively within some regions of the Southern Nile sub-basin.[389] However, the question of which crop is produced within sub-basins is largely dependent on the availability of arable land and water supply to meet the demand of planting and harvesting any given crop. As was suggested already, such availability is largely dependent on the ability of riparian countries within sub-basins to effectively utilize the land and water supply within their borders.

Fisheries also contribute to the use of water from an agricultural perspective the Nile basin. The resources and production potential are believed to be proportional to the surface areas of open watercourses of the Nile basin.[390] The most significant contribution towards agricultural production from fisheries stems from the Lower Nile sub-basin, but the overall contribution is relatively insignificant.[391] However, this does not mean that fishing does not have potential within the context of alleviating food insecurity as well as economic security since it provides both a form of sustenance and a form of income, as is the case with the Chad basin.[392] However, the viability of developing this potential further is impeded by poor reporting

[386] Loc.Cit.
[387] Cascão, A.E., "Changing Power Relations in the Nile Basin: Unilateralism vs. Cooperation?" in Water Alternatives, Vol.2, Iss. 2, 2009, pp. 254
[388] Deressa, T.T., (et.al.) "Determinants of farmers' choice of adaptation methods to climate change in the Nile Basin of Ethiopia" in Global Environmental Change, Vol. 13, 2009, p. 248
[389] Appelgren, B., Alam, U and Klohn, W., Op.Cit., p. 12
[390] Ibid. p. 29
[391] Ibid. p.14
[392] Loc.Cit.

practices where in some cases fish yields are counted twice and exploitation remains rife.[393] This ultimately means that statistical data concerning the fishing industry within the basin does not make development of the industry desirable. Based on this, the fishing industry within the Nile basin seems to be largely underutilized and underdeveloped.

As a result, the use of fish for export is also problematic considering the various levels of quality required by the importing country. Taking into account the general underdevelopment of the Nile basin it stands to reason that the countries of the Nile basin, particularly within the Sudd basin as a result of sewage discharge, would find it challenging to meet the standards for certain markets as there is a possibility of contaminating the fish in those waters as well.[394] This could for example be true of exports to the European Union (EU), where the standards for import of animal product are stringent. The concern raised from a food safety perspective is that the handling of fish after it is caught is problematic for developing nations.[395] Essentially the concern hinge on the ability of developing nations within the Nile basin to adequately pursue quality control, such that fishing imports by developed nations (particularly within the EU) do not contaminate local food sources. The EU has banned fishing imports on three occasions during 1997 and 1999, citing the lack of quality control and poor hygiene standards amongst others. While the EU remains a preferred trade partner regarding Kenyan fishing exports. The ban however forced Nairobi's hand in exploring alternative markets, particularly within the Middle East. The most notable of these alternative markets is Israel.[396] Ultimately, the lack of development as well as the peripheral place of fishing within the agricultural sector deems it to be less desirable than harvesting of crops, both as a form of potential income and food security.

Livestock, like fishing and crop farming, can also be divided by the intended use for export or sustenance.[397] The uses of livestock as with other resources dependent on the secure access to water are dichotomized my upstream and downstream riparian countries. In the Upper Nile basins, cattle are used as a source of income and food security-similar to the way in which access to agriculture stratifies wealth within the Lake Chad region. The Lower Nile tends to

[393] Ibid. p. 16
[394] Awulachew, S., (et.al.) "The Nile Basin: tapping unmet agricultural potential of Nile Waters" in Water International, Vol. 35, Iss. 5, 2010, p. 634
[395] Abila, R.O., Food Safety in Food Security and Food Trade: Case Study Kenyan Fish Exports International Food Safety and Policy Institute, September 2003, p. 1
[396] Loc.Cit.
[397] Appelgren, B., Alam, U and Klohn, W., Op.Cit., pp. 16-17

herd cattle for the purpose of meat production.[398] The most effective way to herd cattle within the Nile basin is through transhumance farming, which effectively requires herders to move with their livestock in order to find suitable grazing land.[399] However this is problematic firstly because it is foreseeable that nomadic settlers could be involved with disputes with local herders, similar to the use of fishing resources within the Lake Chad region. In addition, climate change and potential overgrazing could heavily impact on the ability of herders to find suitable grazing land.[400] Ultimately, as with the case of fish the potential for contamination of local food sources to importing countries raises concerns regarding the viability of livestock as a source of income from exporting markets. The FAO has specifically stated that various issues concerning food safety and cattle products, such as meat, would need to be addressed for it to become a viable form of agricultural production for the export market.[401] So based on this, one could argue that livestock is used predominantly as a form of food security and wealth stratification within the Nile basin.[402]

In terms of domestic uses for water, very little data exists to accurately determine in what ways local population tend to use water within a domestic setting. The majority of the literature focuses on the appropriation of water within agriculture as well as that of industrial use-which is in turn focused very much on hydroelectricity. However, given its fairly insignificant proportion within the context of inter-basin relations, it is the assumption of this chapter that domestic uses included water for cooking, cleaning and personal hygiene. This assumption is made given that riparian countries have not expressed concern for the adequate supply of domestic water. The former can be defended by appealing to the increased drive for irrigation by Ethiopia, something it would not be able to do under the Ethiopian Civil Code of 1960.[403] In this way Ethiopia would not be able to develop irrigation schemes if domestic supply was inadequate.

4.2.5.2Industrial Uses

Industry consumes a fairly insignificant proportion of the Nile basin's water supply. Some argue that this is because the economies of the Nile's riparian countries are prohibited from developing the industrial potential of water. The underdevelopment of water's industrial

[398] Appelgren, B., Alam, U and Klohn, W., Op.Cit., p. 16
[399] Loc.Cit.
[400] Loc.Cit.
[401] Loc.Cit.
[402] Awulachew, S., (et.al.) Op.Cit. pp.632-633
[403] Arsano, Y., "Institutional Development and Water Management in the Nile Basin in Tvedt., T., The River Nile in the Post-Colonial Age, I.B. Tauris, London, 2010, p. 171

power can be attributed to at least three issues. The first is that the economies of the basin with the potential to do so are underdeveloped and are often plagued by various other political issues-such drought and even civil war in the case of Sudan* and Ethiopia[404]The second is that Egypt's dominance of the Nile basin means that any form of unilateral development, particularly on the part of Ethiopia for example is met with hostility.[405] Third and related to the second is that the development of industrial water capability has an impact on the *status quo* of the Nile basin's distribution, which given that upstream riparian countries are the most capable in terms of availability, could have severe consequences for the desired use of downstream riparian countries-most notably Sudan* and Egypt.[406]

Hydroelectricity as a form of industrial related water use remains fairly marginal on the development agendas of upstream riparian countries. Ethiopia has, for example, indicated a need to develop irrigation and the agricultural sector to feed its people and overcome what can only be described as a severe famine.[407] The seriousness of the "current regime" within Ethiopia concerning achieving self-sufficiency is driven by a need for irrigation and agricultural practice rather than it is about harnessing the energy potential of water within its borders. Ethiopia is not alone in the view that agriculture and irrigation ought to outweigh the ambitions of hydroelectric development. Rwanda for example also seeks to develop irrigation and agriculture before embarking on hydroelectric schemes. They ultimately see development of hydroelectricity as peripheral to the use of water in other sectors.[408] The evidence therefore supports the notion of water being used primarily for sustenance and food security, which ultimately affords local populations participation within their respective economies. However based on their analysis, Arsano, Baligira and Swain would suggest that the potential for developing water-based energy sources remains large, effectively deeming the hydroelectric potential of upper stream riparian countries to be severely under-utilized.[409]

[404] Loc.Cit.
[405] Cascão, A.E., Op.Cit, pp. 251
[406] Swain, A., "Challenges for Water Sharing in the Nile Basin: Changing geopolitics and Changing Climate" in Hydrological Sciences Journal, Vol. 56, Iss. 4., 2011, p.695
[407] Loc.Cit.
[408] Baligira, R., "Rwanda and the Nile: Water Plans and their Implementation" in Tvedt., T., The River Nile in the Post-Colonial Age, I.B. Tauris, London, 2010, pp.46-47
[409] Swain, A., Op.Cit. p. 688, 695

Figure 21 Hydroelectricity: Potential v Use in the Nile Basin		
Country	**Hydropower Potential (MW)**	**Hydropower Installed (MW**
Burundi	1, 366	36
DRC	530 000	2829
Egypt	3210	2825
Eritrea	-	-
Ethiopia	162 000	378
Kenya	30 000	611
Rwanda	3000	59
Sudan	1 900	225
Tanzania	20 000	339
Uganda	10 200	155

(Source: Swain, 2011[410])

Uganda, unlike its fellow upstream partners has focused a lot of its focus on the development of hydroelectricity as an integral part of social development.[411] Uganda as with other upper stream countries like Ethiopia and Rwanda have developed only a very small amount of a large potential. This effectively means that Uganda is in the position, at least in terms of capacity, to continue its development strategy. It is particularly able to harness the potential surplus from its hydroelectric generation to service the needs of other African countries, including South Africa.[412] Uganda is in a position of comparative advantage with regard to its hydropower energy with the potential to harness the power of nine different water courses. Of these at least five are in service, under construction or planned for construction.[413] As a result of this ambition, Uganda has remained fairly critical of the bilateral agreements of 1929 and 1959 as well as Nasser's decision to construct the Aswan High Dam, thus regulating and

[410] Loc.Cit.
[411] Mulira, J., "Independent Uganda and the Nile: Hydroelectric Projects and Plans" in Tvedt., T., The River Nile in the Post-Colonial Age, I.B. Tauris, London, 2010, p. 134
[412] Ibid. p. 136
[413] Ibid. p. 135

fully utilizing the annual flow of the Nile.[414] Post-colonial Uganda's has gone further and called Egypt's over exploitation of the Nile's watercourses "egoistic". The Minister of Water Resources even further claimed that Egypt had only been concerned for its own fate and not that of other basin countries.[415] In this way one can see that Uganda is dependent on the movement of the status quo regarding extraction of the Nile's water resources. Like Ethiopia, it needs to question and ultimately persuade Egypt to fundamentally alter its repatriation patterns, which given past evidence remains unlikely.

Swain interestingly notes that Egypt does not object to hydroelectric projects in upstream countries. This is because these projects do not necessarily impact on the flow of the Nile, but they do help remove sediments reaching Lake Nasser.[416] This could explain the hesitant nature of Egypt toward Ethiopia's claim (and need) for a larger share of the Nile basin's resources. The argument could be made that Egypt's success has come at the expense of others through the construction of various water storage facilities, such as Lake Nasser and the Aswan dams, which has essentially sought to regulate control of the firmly within Cairo's grasp.[417]

From a water wars perspective, especially between states, hydroelectricity seems to be of particular importance. The reason for this is two-fold: (1) is that the development of hydroelectricity as a form of energy is mainly to sustain increasing population growth, which has led to Ethiopia's increased efforts to secure a larger stake in the Nile's water allocation; and (2) that Egypt in wanting to maintain the status quo of water allocation, which it deems essential to national security, has excreted political pressure and historical influence to discourage any major construction on within the Nile Basin.[418]

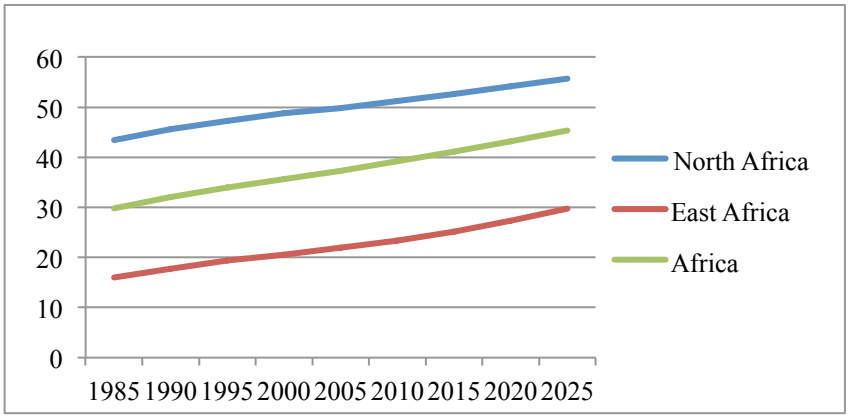
4.2.6 Population and Socioeconomic Data

[414] Ibid. p. 154
[415] Ibid. p.155
[416] Swain, A., Op.Cit, p.695
[417] Marans, N., "Egypt's Nile Monoply is Starving Ethiopia", Washington Times, 19 May 2010, http://www.washingtontimes.com/news/2010/may/19/egypts-nile-monopoly-is-starving-ethiopia/ (date accessed: 2013-01-07)
[418] Cascão, A.E., Op.Cit, pp. 249, 253

The population that resides within the Nile basin, as with the Chad basin, is diverse. Almost 40 per cent of Africa's population will reside within the Nile Basin. Some scholars project the population that resides within the basin to reach 600 million by the year 2025.[419]

The relationship between urban and rural population suggests that the majority of the population reside within rural locations. However, some scholars argue that this is changing and the Nile basin is witnessing a relatively quick rate of urbanization. For example in Burundi, Ethiopia, Rwanda and Uganda the urban population is projected to increase substantially as a proportion of the total population. As figure 22 demonstrates, the population of Nile Basin countries is expected to rise on average by almost ten per cent in the next ten years, from what it is now, see Figure 23.[420] This is problematic because the populations in urban areas tend to consume more water both domestically and industrially than those from rural areas.[421] This, in addition to increases in the population, will add even more pressure on distributional scarcity. Furthermore, since many urban centres within the basin lack proper treatment systems, the increase in urbanisation poses particular risks for health and even food security.[422]

Figure 22: Urbanisation Trend in Africa (1985-2025)



(Source: World Urbanisation Prospects, 2011[423])

[419] El-Fadel, M., (et.al.) Op.Cit, p.107
[420] World Urbanisation Prospects, United Nations Department of Economic and Social Affairs, New York, 2011, http://esa.un.org/unup/unup/index_panel3.html (2013-01-07)
[421] Klare, M.T., "Resource Wars" (e-book loc., 372)
[422] Ssebuyira, M., "Urbanisation affecting Nile-Report", Daily Mail, 17 October 2012, http://www.monitor.co.ug/News/National/Urbanisation-affecting-Nile-basin---report/-/688334/1535074/-/4dj6g1/-/index.html (date accessed: 2013-01-07)
[423] World Urbanisation Prospects, United Nations Department of Economic and Social Affairs, New York, 2011, http://esa.un.org/unup/unup/index_panel3.html (2013-01-07)

Figure 23:Rural versus Urban Population in the Nile Basin			
	People	Pop. living in rural areas	Pop. living in urban areas
Burundi	8,749, 387	89	11
DRC	69, 575, 394	66	34
Egypt	83, 958, 369	57	43
Eritrea	5, 580, 862	79	31
Ethiopia	86, 538, 534	83	17
Kenya	42, 749, 418	76	24
Rwanda	11, 271, 786	81	19
South Sudan	9, 614, 498	82	18
Sudan	36, 107, 585	67	33
Tanzania	47, 656, 367	73	27
Uganda	35, 620, 977	84	16

(Source: State of the Nile Basin, 2012[424])

Figure 24, below shows the withdrawal per capita of each riparian country. It also shows the per capita Total Renewable Water Resources (TRWR) per capita for each country. From the data one can see that the upstream riparian countries tend to withdraw far less per capita than is available. The country with the smallest disparity between what it contributes and what it draws Sudan*, which withdraws under a third of its total TWTR per capita.

While Ethiopia, when compared to other upstream countries, does not seem to be an outlier as far as the disparity between its withdrawal and its TWTR per capita its case for more equitable distribution of the Nile's resources becomes more evident. In so doing, it provides the objections to Egypt's over-exploitation of the Nile substantial merit. Ethiopia, according to FAO, withdraws only 80.5 cubic-metres of water while it has 1471 cubic-metres within its borders. Of course the argument could be made that it necessarily needs to withdraw significantly less to allow downstream to repatriate their share, especially because as part of the fact that the Ethiopian Plateau contributes 85 per cent to the Nile's flow. However, when one compares the figures for Egypt it becomes evident that Egypt is in fact withdrawing

[424] State of the Nile River Basin 2012, Nile Basin Initiate Secretariat, Entebbe, Uganda, 2012, p. 242

disparately to its contribution.[425] In fact Egypt is the only riparian country in which the withdrawal figure exceeds that of the TWTR per capita figure. As stated previously Egypt claims historical importance and a large population for its "excessive" withdrawal of the Nile's resources. But the validity of this premise to its argument is mitigated because the Ethiopia's population is in fact larger than that of Egypt's, yet it withdraws significantly less. The extent to which this has an impact on conflict over water will be discussed in the analysis after the Suez Crisis for this chapter has been explicated.

Figure 24: Per Capita Withdrawal v Per Capita TRWR (2011)		
Country	***Per Capita Water Withdrawal (m^3)***	***Per Capita Total Renewable Water Resources (m^3/year)***
Burundi	43.27	1496
DRC	11.85	19 449
Egypt	***973.3***	***706.4***
Eritrea	121.3	1 199
Ethiopia	***80.5***	***1471***
Kenya	72.96	757.8
Rwanda	17.25	894.2
Sudan	1037	1481
Tanzania	114.7	2147
Uganda	12.31	1975

Source: FAO[426]

Water Poverty Nexus Explained?

Thus far, the explication of the population within the Nile Basin has focused on explaining two features of water as they relate to the Basin's demography. The first feature has been to examine the different sectors of use, to identify particular sectors of activity that could be potential hot-spots or pressure points for conflict. The second was to explain spatial features of water's use, specifically as it relates to urban versus rural use. To this end, it appears that the majority of the water within the Basin is used by agriculture and the majority of its users are in fact located within rural parts of riparian countries.

[425] Riparian Counties AquaStat Profile- see: Food and Agriculture Organization http://www.fao.org/countryprofiles (date accessed: 2012-03-11)
[426] Loc.Cit.

This can be explained by the large proportion of the labour force employed within the agricultural sector. In their analysis, Swain and Krampe found that 60 percent of the population within the Nile Basin is reliant on the agricultural sector for income.[427] Furthermore others, such as Awulachew (et.al.) posit that there is a strong relationship between water, poverty and agriculture.[428] Thought of differently, one would need to explain in what why poor people experience risk in their livelihoods resulting from a lack of water security and threats to agricultural production differently from the rest of the population.

Awulachew (et.al) introduces the notion that in order to truly understand the relationship between poverty and water, one needs to separate the concepts of poverty and vulnerability, which is people's ability to respond to risks that they are confronted with in pursuit of an acceptable living, from the actual loss in well-being that the risk causes. [429] They see poverty as a measurable concept that is determined by economic well-being, while vulnerability speaks more to the ability to recover from an ad hoc loss of well-being from a particular event.[430] Therefore to argue that poor households within Basin are more vulnerable to water related risks, one would need to determine in what way people are unable to respond to risk in their lives and more importantly to identify what the risk itself might be. In the case of the Nile Basin, with the understanding that a large proportion of the population is dependent on agriculture for this livelihood, both in terms of sustenance and income one could safely argue that the risk to these populations is a risk in the loss of agricultural production through water scarcity. The risk therefore is that if the population does not have access to agriculture as a form of sustenance and income, then both food and economic security are threatened. The ability of this sector of the however to respond to this threat differs fundamentally from those in more urban areas, since they are more easily able to enter into the formal labor market and obtain formal employment. Formal schooling is used to predict a person's ability to learn-on-the-job as well as to gauge cognitive ability for a particular vocation in the first place.[431] In the Nile Basin specifically, people are unable to harness their potential cognitive ability

[427] Krampe, F., and Swain F., "Transboundary Rivers and Climate Change: African and Asian Rivers" in Conflict Trends, Issue 2, 2011, p.19
[428] Awulachew, S., (et.al.) Op.Cit. pp.624
[429] Loc.Cit.
[430] Loc.Cit.
[431] Hunter, A.A., "Formal Education And Initial Employment: Unravelling The Relationships Between Schooling And Skills Over Time" in American Sociological Review, Vol. 53, No, 5, 1988, p. 753

within a formal schooling environment because education within in the basin is comparatively low to that of the rest of the world.

Figure 24:Education Index for the Nile Basin

Country	***Education Index***	***Rank***	***Mean Years of Schooling***
Burundi	0.353	169	2.7
DRC	0.356	168	3.5
Egypt	***0.560***	***128***	***6.4***
Eritrea	0.271	179	3.4
Ethiopia	***0.237***	***183***	***1.5***
Kenya	0.582	121	7.0
Rwanda	0.407	157	3.3
Sudan	0.247	181	3.1
Tanzania	0.454	143	5.1
Uganda	0.475	141	4.7

(Source: UNDP[432])

The riparian countries of the Nile basin score consistently within the low education range. The most substantial difference with regard to human development in terms of other indexes is that Egypt does not score the highest in this index. Kenya places at least seven places higher than Egypt. Kenya and Egypt have a "Mean Years of Schooling" figure between 6.4 and 7.0, which represent index scores of 0.582 and 0.560 respectively. One needs to be careful of assuming that a higher index score and raking necessarily implies having more mean years of schooling, since although Tanzania is third in terms of years of schooling its index score is lower than that of Uganda, making it third on that basis.

Chimhowu and Prowse point out that development and agriculture do in fact impact on one another, since roads and other forms of infrastructure are used to generate an income from farming activities. This is particularly important considering that access to non-farming activities, as a form of income generation is a likely, and very possibly the only viable, way of exiting poverty. This is a case made particularly within the context of Ethiopia.[433] The

[432] *"Human Development Index Country Reports"* United Nations Development Programme, http://hdr.undp.org/en/countries/ date accessed: 2013-01-10

[433] Chimhowu, A., and Prowse M., "Making Agriculture Work for the Poor" in Natural Resource Perspectives, Overseas Development Institute, October 2007, p. 2

argument that can be made here is that the low levels of income suggest a lack of viable employment alternatives for the basin population, which in turn is correlated with insufficient education to make the majority of the population functional within the formal labour market.

Figure 25: Socio-Economic Indicators for the Nile Basin

	Gross National Income (Per Capita, 2011 PPP$)	*Living in Poverty (% Living on less than PPP $ 1.25 /day)*	*Human Development Index (2011)*	*Percentage of labour force economically active in agriculture. (FAO)****
Burundi	368	83.3	0.316	45
DR Congo	280	59.2	0.286	22
Egypt	5, 269	<2.0	0.644	8
Eritrea	536	-	0.349	29
Ethiopia	971	39.0	0.363	38
Kenya	1, 492	19.7	0.509	32
Rwanda	1, 364	76.8	0.429	41
South Sudan	-	51.0**	-	-
Sudan	1, 894*	-	0.408*	16.2*
Tanzania	1, 328	67.9	0.466	38
Uganda	1, 124	28.7	0.466	33

(Source: State of the Nile Basin, 2012[434])
*Represents Data for Both Sudan and South Sudan
** Represents available date for South Sudan
*** Taken from FAO Country Profile and not State of the Nile Basin

From Figure 26, above one can see that there is a correlation between development and poverty, in that the riparian countries with lower HDI indicators also receive far less than more developed riparian countries in terms of GNI per capita. There is also a correlation between those that are economically active in the agricultural sector and GNI per capita income, in that a higher percentage of those economically active in agriculture also receive less in terms of GNI per capita. This is indicative of urbanisation, as a precursor to the formal labour market, leading to higher income. Therefore, if the GNI per capita is taken in conjunction with Figure 23, there is a clear correlation between urbanisation and higher income.

If Awulachew is correct, the ability of the population within the Nile Basin to respond to changes in circumstance and eliminate threats to their survival, is very much dependent on

[434] State of the Nile River Basin 2012, Nile Basin Initiate Secretariat, Entebbe, Uganda, 2012, p. 242

having the ability to adapt to these changes.[435] If water security is threatened for those dependent agriculture for economic activity, then one might argue that to adapt or nullify the risk they ought to enter the formal labour market and urbanise. However, if education is an indication of the ability to enter the formal labour market, it is clear that more agriculturally dependent populations would not be able to do so. This is especially feasible when taking into account their poor education relative to that of the global population, and is based on the assumption that a formal education is more likely to teach people skills that are commensurate with higher income.[436]

The socio-economic variable is important to understanding potential threats to water security, specifically from the perspective of distributional scarcity, since it could explain why rural, agrarian dependent, populations might be more likely to cross national borders in search of water and suitable arable land. The motivation, on the basis of the data above, would be that these populations are left with no alternative form of income generation as a result of poor education and an inability to enter the formal labour market.

4.2.2 Inter-Basin Water Management in the Nile Basin

As with other Transboundary basins the need for cooperation is evident in the Nile Basin. This need is underpinned by the fact that upstream withdrawals will have an impact on the ability of downstream riparian countries or regions to withdraw an adequate supply to meet their needs. The argument could also be made that downstream withdrawals could impact on upstream withdrawals, particularly if the downstream withdrawals are considered to disproportionate or generally unfair when compared to the other riparian countries.[437]

Cooperation amongst countries within the Nile Basin was weak, if not practically non-existent until the 1960's.[438] The first body to be established was the Hydromet Survey Project. This was followed by a project called the Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin

[435] Awulachew, S., (et.al.) Op.Cit. pp.624-625
[436] Hunter, A.A., "Formal Education And Initial Employment: Unravelling The Relationships Between Schooling And Skills Over Time" in American Sociological Review, Vol. 53, No, 5, 1988, p. 753
[437] Krampe, F., and Swain F., "Transboundary Rivers and Climate Change: African and Asian Rivers" in Conflict Trends, Issue 2, 2011, p.19
[438] Metawie, A.F., "Lessons Learnt from cooperation in the Nile Basin" http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=8&ved=0CGIQFjAH&url=http%3A%2F%2Frosenberg.ucanr.org%2Fdocuments%2FLessons_Learnt_from_Cooperation_in_the_Nile_Basin.doc&ei=-3kzUJaNFcyzhAeqjoCQAQ&usg=AFQjCNFdrMCWdY47xtHK90n-M_oHMSd84Q

(TECCONILE). TECCONILE transitioned into the Nile Basin Imitative (NBI) in 1999.[439] The commitment of cooperation within the Nile Basin is an important element in the argument against the water wars hypothesis, since it confirms that cooperation projects do exist and to some extent confirms the notion that states are willing to cooperate rather than fight over water. However, if the Hydromet Survey, TECCONILE and the NBI are the chains that bind riparian countries within the basin, then the cooperation is only as strong as the weakest point of the cooperation mechanism.

The Hydromet Survey at its very essence was data collection collaboration. Burundi, Egypt, Rwanda, Sudan, Tanzania, Uganda, Zaire and Ethiopia (with observer status) agreed to collectively study Lakes Victoria, Kyoga and Albert to conduct a Hydrometeorological survey of their catchments. A mechanism of cooperation was established through the Hydromet Survey by way of a technical committee, which was periodically supported by UNDP, the World Meteorological Organisation (WMO) and UNEP.[440] The Hydromet Survey was conducted as a longitudinal study, with the data collection lasting almost thirty years. It was completed in 1992, shortly before the Water Ministries of the former met to form TECCONILE. TECCONILE was specifically seen as a way to minimize the impact of power politics within the Nile Basin.[441] It is evident on this basis that the Hydromet Survey laid the foundation from which future cooperational mechanisms could even begin to functional. Once information regarding catchment of feeding lakes had been obtained, discussions amongst the countries of Nile Basin concerning issues of repatriation (such as withdrawal versus contribution) could be meaningfully discussed and was in part recognition that the polarity of the Cold War also had an impact on the prospects for cooperation in the Nile Basin.[442] In addition, one can also suggest that the Hydromet established a historical validity to the level of cooperation given its thirty year existence.

TECCONILE can be seen as a "spill-over" of the Hydromet in that it is evident that TECCONILE extended its competencies. Its main objective as an organisation was to foster the development of the Nile Basin through the equitable use of water.[443] TECCONILE has launched a number of activities with both short and long term objectives included. These

[439] Loc.Cit.
[440] Karyabwite, D.R., Op.Cit. pp.38-39
[441] Swain, A., "Mission Not Yet Accomplished" pp. 202
[442] Waterbury, J., The Nile Basin: National Determinants of Collective Action, Yale University Press, New Haven, London, 2002,p.77-78
[443] Nieman, A., and Schmitter, P.C., "Neofuctionalism", Chapter 3 in Diez, T., and Weiner, A., (eds.) European Integration Theory, Oxford University Press, London, 2009, p. 46, 57

activities include a Water Resources Atlas of the Nile River Basin, the Nile River Basin Action Plan, the upgrading and reconditioning of its headquarters, training sessions on modeling programs used for statistical purposes and the Nile 2002 Conferences.[444] TECCONILE at its very essence was a lot more proactive both in encouraging dialogue as well as generating information to make dialogue more meaningful when it did occur. In terms of its long term ambitions, TECCONILE aimed to move basin countries away from assumption-led decision making to decisions based more on empirical data. More importantly however, is that TECCONILE encouraged collective decision making regarding the management of the Nile basin at an intergovernmental level.

The Nile Basin Initiative (NBI) was launched in Dar es Salaam, Tanzania in February of 1999.[445] As TECCONILE was to the Hydromet Survey, the NBI is an extension of the competencies of TECCONILE's functions and objectives. The NBI presents a regionally integrated approach to water course management within the Nile basin. Karyabwite claims that the NBI marks the first time in which a serious concern over the need for joint discourse over water management within the Nile basin, was explicitly articulated. However, it seems absurd to suggest that TECCONILE's objectives would not have marked the acknowledgment of the need for a shared discourse over the Nile's basins resources, even if it was implicit. Again, one could defend the notion of "spill-over" with regard to the competencies of inter-basin cooperation within the Nile basin. As it cannot be said that the Hydromet and TECCONILE's objectives were replaced by that of the NBI one could argue that the NBI marks the growth of inter basin management from inception in the form of the Hydromet to TECCONILE and subsequently the NBI as it stands today. Therefore, rather arguing that TECCONILE replaced the Hydromet one could argue that the former provided the foundation for the latter. Again one could make a similar a case for the NBI in that rather than replacing TECCONILE, the NBI built on the foundation of both the Hydromet and TECCONILE. Ultimately, the movement towards the Nile basin management recognizes the notion that as the conditions concerning structural capacity of the Nile changes; the way in which it is managed changes also.[446]

[444] Karyabwite, D.R., Op.Cit. pp. 40
[445] Karyabwite, D.R., Op.Cit. p. 40
[446] Brunee, T., and Toope, S.J., "The Changing Nile Basin Regime: Does Law Matter" in Harvard International Law Journal, Vol., 43, No., 1, 2002, p. 105

The integrated approach towards basin management fits well with the general trend of other regional integration attempts within Africa.[447] Twsfaye specifically uses the role SADC as regional success, and the motivation for its viability, in the negotiation between South Africa and Lesotho with regard to the Orange River.[448] Based on this there is seemingly an increased appeal to the use of regional approaches to the problems of distribution and allocation of resources in the Nile Basin.

Bi-lateral Water Agreements in the Nile Basin

Bilateral agreements regarding the Nile basin tend to have strong colonial undertones to them. The most prominent agreements regarding the Nile were ratified by African colonial powers, most notably Britain, and riparian countries of the Nile.[449] The increased bi-lateral mediation of the use of the Nile basin is suggestive of its economic importance within the context of development, sustainability and growth of riparian countries along the Nile. It is believed that this is particularly true for Egypt and Sudan because of their dependence on water from outside their national borders.[450] Allan also suggests that the majority of bilateral Nile agreements, particularly in the context of colonialism served the interests of the British since London controlled the majority of riparian countries (either directly or indirectly) other than Ethiopia, which was under the Italian protectorate. However, in terms of actual water management within the basin, Italy had marginal if any power at all.[451]

The most important bilateral agreements concerning the *Nile basin are the 1929 Nile Waters Agreement* and its successor the *1959 Nile Waters Agreement*. The Nile Waters Agreement of 1929 provided the impetus for British domination and is pre-occupation with the development of the Egyptian economy.[452] The Agreement prohibited any development or action by upstream riparian countries under the British protectorate that hindered or impacted negatively on the Egyptians repatriation of the Nile's resources.[453] Between 1956 and 1958

[447] Tesfaye, A., The Political Economy of the Nile Regime in the Twentieth Century, Edwin Mellen Press, Ontario, 2008, p. 26
[448] Ibid. p. 27
[449] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute", Journal of Modern African Studies, Vol. 35, No. 4, p 676
[450] Allan, J.A., "Evolving Approaches to Nile Waters Management" in Occasional Papers, SOAS Water Issues Group, 1999, p. 1
[451] Loc.Cit.
[452] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute", Op. Cit.p. 679
[453] Allan, J.A., "Evolving Approaches to Nile Waters Management" §Op. Cit. pp. 1-2

Egypt and Sudan as principal riparian countries of the Nile basin, had come into "serious disagreement" with regard to the sharing of the Nile.[454] These disagreements in essence concerned the construction of the Aswan (Egypt) and Roseires (Sudan) Dams.[455] Once more, the conflict over water courses and their repatriation within the Nile basin rested on the diverging interests of upstream and downstream riparian countries-in this case Sudan and Egypt respectively. The end of this "disagreement" was marked by the military junta rising to power in Sudan in 1959 and the subsequent ratification of a new water treaty with Egypt by its "pro-Egyptian government.[456] The agreement contained clauses concerning the allocation of water distribution amongst the two countries as well as solid regulations and compensation plans with regard to the Aswan High Dam and the Sudanese nationals displaced by the construction of Lake Nasser. In addition, Sudan was granted concession for the construction of the Roseires Dam. Egypt and Sudan also agreed to develop water resources lost through the Sudanese swamps. However, the most important development regarding management of water within the Nile basin is that Egypt and Sudan had agreed not to negotiate on water-related issues with third parties unless they had bilaterally agreed on a common position.[457] The 1959 agreement remained in place for almost thirty years, until the fall of Sudanese President Numayri.[458]

Egypt's dominance of the Nile basin had also stirred-up dissatisfaction by Ethiopia, largely considered one of its most important riparian countries, given its contribution as a principal feeder of the Nile basin. Ethiopia's population growth and subsequent increasing food demands placed pressure on its water supply, thus prompting is to seek a larger portion of the Nile basin's repatriation.[459] In the absence of any agreements prohibiting Addis Ababa from unilateral watercourse development, Ethiopia proceeded to divert Nile indicated in February of 2005 that it would be seeking to utilize the waters of the Nile more to avoid having to "beg" for food.[460] In combination with increased need for food, Ethiopia's emergence from a civil war and famine period saw considerable growth in economic promise and ultimately the

[454] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute", Op. Cit.p. 679
[455] Swain, A., "Challenges for sharing water in the Nile basin: changing geo-politics and changing climate" in Hydrological Sciences Journal, Vol. 56, No. 4, 2011, p. 690
[456] Loc.Cit.
[457] Loc.Cit.
[458] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute", p. 681
[459] Arsano, Y., "Institutional Development and Water Management in the Ethiopian Nile Basin" in Tvet, T., (ed) The Nile River In The Post-Colonial Age: Conflict and Cooperation Among Nile Basin Countries, I.B. Tauris, London New York, 2010, p. 162-163, see also Arsano, Y., "The Nile: A shared gift or subject of contention" in New Routes, Vol. 3, 2011, p. 13
[460] Awain., A., "Mission Not Yet Accomplished", Journal of International Affairs, Vol. 61, No. 2, 2008, pp. 206-207

backing of western powers. This newly found legitimacy meant that Ethiopia was more easily able to negotiate terms of the Nile's almost exclusive use by Egypt and Sudan. However, to date Ethiopia has not been able to harness its political stability in order to prepare more adequately and avoid severe distributional scarcity of water and food. This is specifically worrisome given that by 2025, as Swain suggests that Ethiopia could have as much people as Egypt if not more.[461]

While bilateral cooperation is evident in the Nile basin, it is not clear to what extent these agreements serve the needs of post-colonial Africa. More importantly, in the absence of a large power to underwrite any responses to potential threats to water security it is even less clear how these agreements serve the needs of the Nile riparian countries within the context of independence. Put differently, it is not clear how the power-politics of the Nile Basin one observes today is not a function of colonial water agreements of the past.[462] If one considers that independence essentially changed the legitimate actors within the context of water management in the Nile basin, then the intuitive appeal of larger multilateral management becomes more obvious.

In essence, the cooperation between riparian countries determines to what extent structural scarcity is present in the Nile Basin. In section 1.6, *structural scarcity* refers to one state having a center of power with regard to the allocation of water rights as well as the distribution that follows from having the aforementioned power. In essence, Egypt has been responsible for structural scarcity of water witnessed by Ethiopia, for example. This is because Egypt has on numerous occasions rail-roared its co-riparian countries into maintaining access to, and the dominance of, the Nile. In addition, given that Agreements regarding the use of water favour historically, one can conclude that structural scarcity within the Nile Basin is institutionalized within bilateral cooperation.

4.2.7 Conclusion to Background

The Nile Basin demonstrates the complexity of water-related issues and the political tensions witnessed between Egypt and Ethiopia. This is because the watercourses, the people that use them and what they are used for cannot be seen in isolation from one another. The dependency of Egypt and Sudan, for example, on water supplies originating from outside

[461] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute", Op. Cit. p. 689
[462] ibid. 676

their borders can also not be separated from tensions witnessed between upstream and downstream riparian countries with regard to the development of the watercourses within their national borders. The general weakness of cooperation in the Nile Basin is indicative of the mistrust between riparian countries and is seemingly a function of structural scarcity. In addition, the population of the Nile Basin, through relatively low development and dependence on agriculture, demonstrates the importance of distributional scarcity to understanding hydropolitics in the Nile Basin.

4.3 Conflict over Water in the Nile Basin: The Suez Crisis of 1956

There is not one particular conflict within the Nile basin *per se* that has been fought over water. However, the repatriation of the Nile along with the relationship between inter-basin countries has had a fundamental impact on the onset of water induced conflict elsewhere, particularly in the Middle East. Taking into account Egypt's dominance within the Nile basin and the substantial influence Cairo has in the context of the Arab-Israeli conflict, Gamal Abdel Nasser's decision to nationalize the Suez Canal in 1956 could be defended as an example of a Water War, and it generated one of the clearest historical cases of a Hydropolitical crisis seen to date.[463] This argument hinges on four principles: (1) is that the decision by Nasser to nationalize the Suez was a direct result of the refusal of the Eisenhower administration to fund the construction of the Aswan Dam; (2) that the Suez as an international water course was of fundamental strategic and economic interest to both Britain and France; (3) that the Aswan Dam as well as the Suez formed an important part of high politics both within the Nile basin, and by extension the Middle East, particularly for Egypt [464], and (4) that Egypt's dominance over the Nile had become both increasingly questioned and ultimately threatened by upstream countries, such as Sudan*.[465]

[463] Kitissou, M., "Hydropolitics and Geopoltics: Transforming Conflict and Reshaping Cooperation in Africa" in African Notes, November/December, 2004, p. 11
[464] McDermott, R., "The 1956 Suez Crisis" in Risk-Taking in International Politics", Prospect Theory in American Foreign Policy, University of Michigan Press, Ann Arbor, 2001, p. 135
[465] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute, p. 679

> "The Universal Company of the Suez Maritime Canal (Egyptian joint-stock company) is hereby nationalized. All its assets, rights and obligations are transferred to the Nation and all the organizations and committees that now operate its management are hereby dissolved" [466]
>
> *Article I of the Egyptian Decree*

On the 26th of July 1956, Nasser nationalized the waters of the Suez Canal. His intention was to finance the construction of the Aswan High Dam, since assistance from neither the United States nor the Soviet Union had been forthcoming.[467] Nasser believed that tolls generated from the use of the Suez would be in region of $100 million dollars per year, in contrast to the $ 3 million the Egyptian government had been receiving prior to the nationalisation.[468] While the Crisis is often used as an example of the contention for spheres of influence within the context of the Cold War, it provides valuable insight into the nature of water as a direct cause of militarized conflict.[469] Some argue that the nationalization of the Suez Canal was a response from the Egyptian Government to the sale of arms meant for NATO to the Israeli Government by the French.[470] Therefore the nationalization of the Suez was more a function of Arab-nationalism than it was of hydro politics.[471] On this view, the Suez as a water course is seen as more peripheral to the containment of Western influence, by way of Israel, within the Arab world. An analysis like this however, seems to reject that the Suez Canal was perceived to have enormous strategic importance. One could equally argue that the sale of the arms to Israel was equally peripheral given that the revenue generated from the Suez Canal through toll collection was intended for water related infrastructure and had very little if anything to do with a militarization of the Middle-East. This is particularly true, taking into account Egypt's concern over the use of the Nile following Sudan's intentions for hydroelectric development in 1954 and subsequent independence in 1956.[472]

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[466] Delson, R., "Nationalization of the Suez Canal Company: Issues of Public and Private International Law" in Columbia Law Review, Vol. 57, No. 6, 1957, p. 755
[467] McDermott, R., Op.Cit. p. 135
[468] Bowie, R.R., International Crisis and the Role of Law Suez 1956, Oxford University Press, London, 1974, p.2
[469] Judge, E.H., and Langdon J.W., A Hard And Bitter Peace: A Global History of the Cold War, Prentice Hall, Upper Saddle River New Jersey, 1996, p. 130
[470] Levey, Z., "Anglo-Israeli Strategic Relations, 1952-1956" in Middle Eastern Studies, Vol.31, No. 4, 1995, p.775, 778, 781
[471] Ibid. pp.131-132
[472] Kittssou, M., Op.Cit. p. 12

4.3.1Mediation Efforts

In response to the nationalization of the Suez, both the British and the French implicitly, if not explicitly, indicated that regaining control of the canal would be subject to military intervention of some sort. The two countries had decided that they would "persuade or force Egypt to accept their minimum demands"[473] The motive behind the militarized action was the substantial economic loss that would be suffered as a result of oil shortages, amongst other things.[474] The British therefore drew direct correlations between economic performance and national interest and the reclamation of the Suez waterway.[475] In a telegraph to President Eisenhower, Prime Minister Elm had said that the British would "use force to bring Nasser to his senses".[476] In response to this President Eisenhower attempted to establish an International Board that would govern the use of the Canal and essentially mediate the situation such that an amicable solution could be reached. The U.S., France, and Britain conferred in London between 1st and 3rd of August 1956 and decided to call a conference on the Suez.[477] On the 9th of August the efforts of the Eisenhower administration was dealt its first blow when Nasser formed the "Home National Army of Liberation" and was dealt its second and more substantial blow when Nasser announced he would not attend the Conference on the 12th of August 1956. In addition, it can be argued that Nasser even further antagonized the situation by declaring the starting day of the conference a national day of mourning-which to some extent signalled a failure for Eisenhower to contain the Crisis.[478]

The countries that met in London on the 16th of August 1956 included the original signatories to the Constantinople Convention, along with other maritime powers and frequent users of the Canal. The Constantinople Convention, under Article 1, sought to maintain

[473] Thomas, H., The Suez Affair, Weidenfeld and Nicolson, London, 1967, p.151
[474] Fletcher, M.E., "The Suez Canal and World Shipping 1869-1914" in Journal of Economic History, Vol. 18, No.4, 1958, pp.561-562 see also Barker, A.J., Suez: The Seven Day War, Faber and Faber Limited, London, 1964, p.20
The point of the British maintaining a dominant role within maritime transport is strongly accentuated in Fletcher's analysis. It is of specific importance since it adds credence to the claim of historical importance that access to the Canals waters had to the functionality of the British Economy
[475] McDermott, R., Op.Cit. p. 139
[476] Ibid. p. 137
[477] Bowie, R.R., International Crisis and the Role of Law Suez 1956, Oxford University Press, London, 1974, pp.48-49
[478] Barker, A.J., Op.Cit. p. 208

access to the canal even during times of war.[479] 18 of the 24 countries that met approved the proposal and on the 3rd September presented this proposal to Nasser, which he rejected six days later.[480] In response to this rejection, the countries that had met only 4 weeks earlier reconvened and suggested the creation of a Suez Canal User's Association on the 19th of September.[481] At roughly the same time, given the canal's economic importance, Britain and France, on the 23rd of September 1956, referred the matter to the United Nations Security Council since Eisenhower had been reluctant to do so.[482] The Secretary General at the time, Dag Hammarksjold, suggested that the establishment for such an Association would need to be guided by fundamental principles, which included:

(1) There should be free and open transit through the Canal without discrimination, overt or covert- this covers technical aspects;
(2) The Sovereignty of Egypt be respected;
(3) The operations of the Canal [ought] to be insulated from the politics of any country;
(4) The manner of fixing tolls and charges should be decided by agreement between Egypt and other users;
(5) A fair proportion of the dues should be allotted to the development, and
(6) In cases of dispute unresolved affairs between the Suez Canal Company and the Egyptian Government should be settled by arbitration with suitable terms of reference and suitable provisions for the payments found to be due.[483]

Nasser contended that the proposals presented to that point, particularly the one originating from the First London Conference, had not met these requirements.[484] Presumably Nasser would have contended that the second principle was violated in that the potential agreements, as well as management of the Canal stemming from them, would leave Egypt with very little control over a watercourse, which strictly speaking fell within its national territory. This ultimately resulted in a stalemate concerning the resolution of the Crisis.

4.3.2 From Mediation to Conflict

In response to this resolution, in combination with Eisenhower's reluctance to explicitly intervene in the situation, both Britain and France had ceased communication with the U.S.

[479] Bowie, R.R., Op.Cit. p. 4
[480] McDermott, R., Op.Cit. p. 139
[481] Ibid. pp. 48-49 see also McDermott, R., Op.Cit. p. 137
[482] Bowie, R.R. ,Ibid. p.47
[483] Bowie, R.R. ,Ibid. pp.49-50
[484]McDermott, R., Op.Cit. p. 137

regarding the seemingly imminent military solution to the crisis.[485] On the 29th of October 1956, in what is known as operation *Kadesh*, Israel attacked Egypt killing or capturing in the region of 30 000 Egyptians by November 3rd of that year.[486] It is believed that since Nasser had already withdrawn a large number of troops to protect the newly nationalised Suez from invasion as well as to regulate the access to it, the protection normally afforded in the Sanai dessert became a weak-link the Egyptian

In an attempt to invoke the Tripartite Agreement of 1950, Britain and France signal the intention for the occupation of Anglo-French forces within the Canal Zone, should the hostilities not have ceased. The ultimate goal of this ultimatum was to diffuse the situation and almost force the Egyptians and Israeli's into a truce.[487] Israel agreed to the ultimatum, while Egypt did not[488]. Thus on the 31st of October, Anglo-Saxon forces, motivated by Nasser's refusal of their ultimatum, invaded the Canal area.[489]

Given its historical context, the invasion of Egypt had not gone unnoticed by both the U.S. and the Soviet Union. The Eisenhower administration was enraged and the Soviet Union's Premier, Nikolai Bulganin, suggested the two superpowers joined forces against the allied (read Western) European powers. Eisenhower declined the invitation saying that "Those boys [France and Britain] are just scared… [Which,] makes for the most dangerous possible state of mind"?[490] Essentially this meant that Eisenhower saw no utility behind "fighting fire with fire" despite a clear indication of the Soviet Union's willingness to do so.

In spite of the Soviet Union's ambitions, a cease-fire was negotiated on November 7th 1956 after the UN intervened.[491] However, the British refused to withdraw until such time that a UN Peacekeeping Force would fill the vacuum left by London's departure. The Peacekeeping forces arrived on the 15th of November, slightly more than a week later. The arrival of UN forces was met with relief since the economic situation within Western Europe had deteriorated significantly. Eisenhower in turn forced the hand on the British by refusing to deliver any form of assistance until such time the British forces withdrew. This ultimately happened on the 22nd of December 1956. Eisenhower had been less stern with Israel, whose

[485] Loc.Cit.
[486] Loc.Cit.
[487] Shlaim, A., "The Protocol of Sevres, 1956: Anatomy of a War Plot" in International Affairs Vol. 73, No. 3,July., 1997, pp. 512-519
[488] Mc.Dermot, R., Op.Cit. p.141
[489] Bowie., R.R. Op.Cit. p.60
[490] Mc.Dermot, R., Op.Cit. p.141
[491] Ibid. p. 142

occupation of Gaza only ended on the 7th of March 1957.[492] The Canal was reopened on the 8th of April 1957, after the effects of Egypt's onslaught in the Canal had been cleaned up.

The Suez Canal crisis is a clear example of the potential for militarized conflict over the use of water resources. This is evident in that both France and Britain engaged in a militarised solution to the Suez Crisis, as it formed an important part of national security.[493] In addition, from Egypt's perspective, Nasser only nationalised the Suez for construction of the Aswan Dam, something which he deemed important to Egyptian national interest. His main objective was to ensure continued influence on Cairo's access to water within the Nile Basin, as well as to avoid issues of distributional scarcity.[494] Based on this one could very easily conclude that water wars are indeed very likely and that there is no need, as Homer-Dixon suggests, to defend the water wars hypothesis in the context of water related conflicts. However, this would be premature.

In the analysis section that follows, the thesis considers the extent to which the Suez Crisis can be explained by the state-centred or human security approach. The analysis will pay particular attention to the political climate at the time of nationalization of the Canal as well as the factors that lead to the need for the Aswan High Dam to begin with. The analysis will therefore defend the Suez Canal Crisis as a water conflict related to the repatriation of the Nile basin.

[492] Ibid. p142-143
[493] Bowie, R.R., Op.Cit. pp. 18, 25-26
[494] Ibid. p. 15-16, see also Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute, p. 679 for Egpyt's national interest in water.

4.3.4Abbreviated Chronology of Events	
21 November 1955	Egypt, U.S. and Britain meet in Washington to discuss the possibility of Aswan High Dam Financing
19 July 1956	Dulles withdraws Aswan Dam Financing Offer
26 July 1956	Nasser Nationalises the Suez Canal to secure financing for the Aswan Dam, given the refusal of both the US and the Soviet Union
1-3 August 1956	Britain, France and U.S. agree to call Conference regarding the Suez in an attempt to diffuse the situation
12 August 1956	Nasser announces that he will not be attending Conference on the Suez.
16 August 1956	Start of Conference and Nasser declares start of Conference a day of national mourning in Egypt
3 September 1956	Australian Prime Minister Menzies presents the potential resolution to the Crisis to Nasser
9 September 1956	Nasser rejects proposal of London Conference started on 16 August 1956
19-21 September 1956	Second London Conference to adapt rejected proposal
23 September 1956	Britain and France refer the matter to the UNSC
13 October 1956	Security Council and Egypt accept six Principles for the Agreement on the use of the Canal.
22-24 October 1956	Britain, France and Israel meet secretly to form coalition as Moscow invades Budapest
29 October 1956	Israeli forces attack Egypt in Sinai Dessert given the absence of Egyptian troops
30 October 1956	Britain and France deliver ultimatum to Nasser and veto UNSC resolutions
31 October 1956	Anglo-French forces attack Egyptian airfields
4 November 1956	Egypt accepts ceasefire
7 November 1956	Anglo-French alliance accepts cease-fire
15 November 1956	UN Peacekeeping forces arrive in Egypt
7 December 1956	British troops withdraw from Egypt
7 March 1957	Israeli troops withdraw from Gaza
8 April 1957	Suez Canal reopens

4.4 Analysis of the Suez Crisis as a form a Water Wars

4.4.1The State-Centred Approach:

To defend the Suez Crisis of 1956 as a water conflict within the Nile basin, this section will consist of two themes. The first will be to defend of the nationalization of the Suez as water related rather than purely politically motivated conflict. The second would be to demonstrate how the Suez Crisis helped Nasser to achieve broader political goals through the use of the Nile basin water courses.

As stated earlier, many posit the Suez crisis to be a form of Arab-nationalism in that Nasser deliberately sought to place the Arab world in a position to severely influence, if not dictate, the geopolitics of the Middle East.[495] Peter Woodward suggests that the Suez Crisis in particular demonstrated the compatibility between a Pan-Arab movement and the ideology of Egyptian Nationalism.[496]It is clear, based on the substantial writing on the subject already that Nasser aimed to place Egypt as an active player in three over-lapping circles of interest-the Arab, Muslim and African worlds.[497] It could be suggested that the decision in 1951 to blockade the Gulf of Aqaba was a direct movement on the part of Egypt to test the compatibility of the Pan-Arab movement with Egyptian Nationalism. Based on the UNSC's instruction to Egypt in September 1951, one could argue that the blockade was directed towards Israel.[498] Be that as it may, there is not sufficient evidence to suggest that the nationalization of the Suez under Nasser politically motivated within the context of the Pan-Arab movement, at least not exclusively so.[499] Therefore, it stands to reason that the 1951 blockade (as an Egyptian political motivation) acted as a catalyst rather than a cause of the 1956 Crisis. Many scholars and historians who write on the 1956 Crisis posit the refusal of the US to fund the Aswan High Dam project as a more direct cause of Nasser's nationalization of the Suez and the subsequent war that ensued.[500] Moreover, given that the Crisis occurred during a delicate time of the Cold War, there is more evidence to suggest that if any ideological motivation would be attached to the issue of financing the Aswan High

[495] Judge, E.H., and Langdon J.W.,Op. Cit. p. 130
[496] Woodward, P., Nasser, Longman, New York, 1992, pp. 61-62
[497] Ibid. p. 37
[498] Bowie, R.R. ,Ibid. p. xv and pp.7-8
[499] Ibid. pp.7-8
[500] Little, T., High Dam At Aswan, Methuen and Company Limited, London, 1965, p. 47

Dam it would be the contestation between the US and the Soviet Union under the anti-communist versus the communist movement.[501] This is supported even further by between Washington and London, which expressed:

> We are afraid the Nasser, whether innocently or deliberately is dangerously committed to the Communists. Consequently we believe that it would be advantageous, in any event, to overthrow him if possible.[502]
> ***Harold Macmillan in a telegram to Washington on 28 November 1955***

The view taken here is that because the decision to nationalize the Suez was made fundamentally to secure a source of funding for the Aswan High Dam, it does not make sense to say that the decision was a function of anti-Israeli sentiments within the Arab world.

On this basis one would need to ask what the significance of the Aswan High Dam was, still with regard to broader goals related to water within Egypt. The claim of historical advantage from Egypt is premised on the fact that Egypt receives very little rainfall and therefore relies heavily on the flow of the Nile to feed its crops and meet its water demands. Nasser thought of the Dam as critical for both the independence and survival of Egypt.[503] Furthermore, Nasser believed that the Dam would provide a secure influx of water supply that could be harnessed for inter alia hydroelectric developments, which would in turn provide a platform for growth of the Egyptian economy.[504]The necessity of the Dam, at least in the mind of Nasser, could be encapsulated even further in the context of an independent Egypt, given the often uneasy nature of its relationship with Sudan to the south.[505] As Nasser's ambitions came well before the 1959 bilateral Agreement between Egypt and Sudan to not unilaterally obstruct the other's share of the Nile basin's supply, Nasser would not require Sudan's approval, even if he wanted it. Therefore, failure to find support for the construction of the Dam would see the notion of turning Egypt into Africa's proverbial bread basket severely compromised. This essentially meant that Egypt perceived its survival, not only as a formidable power both in Africa and the Arab, world but also as a self-sufficient state threatened.

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[501] Ibid. pp. 45-47
[502] Kyle, K., Suez, St. Martin's Press, New York, 1991, p. 62
[503] Woodward, P., Op.Cit. pp.46-47
[504] Ibid. pp. 47
[505] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute, p. 679 for Egypt's national interest in water and the Aswan Dam.

If one extrapolates the fear on the part of Nasser to the basic assumptions of the Realist theory, the principle of survival elevates the construction of the Aswan High Dam as one of high politics. This then creates an infallible connection between the intended purpose of the Dam, which was to secure an uninterrupted water supply for Egypt, and broader political goals of the Egyptian State. Based on this, the Dam would provide valuable resource for Egypt, essential for its survival. What this means is that the Suez Crisis can be construed as violent conflict initiated over the access to and use of water.

An objection that could be raised, however, is that the nationalization of the Suez had very little, if anything, to do with access to water itself as much as it did with access to the water way itself. McDermott and Bowie both explain that since the Suez was Britain and France to transport oil, the nationalization posed a threat the functioning of their economies. What this means is that rather than place value in water Britain and France placed value on the utility of the Canal as a transporting mechanism[506]. The route through the Suez Canal when transporting oil from OPEC countries within the Middle East is substantially more cost-effective in transporting oil. The only other alternative for shipping oil from the Middle East to Western Europe is to navigate around the Cape of Good Hope (South Africa) and essentially sail around the African continent moving from the Indian to Atlantic Ocean. Therefore within the context of the Suez Crisis Britain, France and Israel used the waters of the Canal as a means to an end rather than an end in itself. That end has nothing to do with water, but rather concerns the ability to secure a cost effective way to transport raw materials to each of the former countries. One can further argue that the given the compromising position Britain and France were put under by the nationalization of a water way they perceived to be vital to both their national interest and survival, it would stand to reason to say that the use of force to protect that interest fits well with the most basic of goals for the state.

The Suez Canal Crises of 1956 fits well within the broader framework of state-centered security. It is clear that both Egypt and Western powers in the form of France and Britain perceived the access or the lack thereof as vital to their broader political goals. However, one must be careful of claiming that the belligerents valued the access to the Canal in the same way. Indeed both sides, for and against nationalization, used the canal instrumentally to gain some other end. For Nasser it was funds to construct the Aswan Dam and for the western

[506] Bowie, R.R., Op.Cit. pp. 18, 25-26

European powers it was a cost effective way to transport raw materials needed for the survival of their economies. However what separates the two is that Egypt's end was in fact to secure more water, or at least a constant supply of water was directly linked to national security in an explicit way.[507] Water was central to the political goal behind the nationalization of the Suez. The evidence seems to suggest that Britain, France and to some extent Israel were motivated by economic growth, or the threat of stagnation as the case, to avoid this was there political goal. Whether this qualifies as a Water Wars case is hard to say simply because there was not a single political goal for the belligerents. However, given that securing water was Nasser's primary goal behind the Aswan High Dam, which in turn was an issue regarding the adequacy of water supply for Egypt, one needs to conclude that this case is the closest that state-centered security can explain the potential for conflict over water.

4.4.2The Human Security Approach

The main impetus behind the construction of the Aswan High Dam was the ability of Nasser to provide enough water to feed Lake Nasser. In addition the Aswan provided storage for excess water that could be released throughout the year. In so doing, the Aswan High Dam was Nasser's way of ensuring all year round irrigation of crops such that the population remained fed and economic growth became stable. In this way, the desire to build the dam can very clearly be linked to food security as an element of the human-centered approach.

The extent to which the human-centered approach can explain the Suez Crisis as one that is related to water rather than caused by water is not clear. One might on the basis of discussion on the state centered analysis above argue that Nasser's goal to secure water storage through the Aswan High Dam was essentially motivated by food security. This would mean that Nasser's goal was less about securing the survival and advancement of the Egyptian State and was more about maintaining the ability to feed its people. One might support this argument by claiming that Egypt's historic acquired rights argument-which is premised on the notion that the Egyptian people have been using the Nile as a source of sustenance for centuries and should be allowed to continue to do so.[508] Therefore Nasser was protecting a historic right, more than he was acting towards a broader inter-state political goal under the umbrella of Egyptian nationalism and the Pan-Arab movement. However, Egypt has defined

[507] The construction of the Aswan High Dam was a directly related to Egyptian national security, see Hefny, M. and El-Din Amer, S., "Egypt and the Nile Basin" in Aquatic Sciences, Vol. 67, 2005, p. 44
[508] Cascão, A.E. Op.Cit. pp. 247

the access to water as matter of national security on various occasions. For example Boutros Ghali once said that "national security of Egypt is a question of water" and on another occasion former President Mubarak stated, "Egypt's national security was closely related to water security".[509] For Nasser, it would seem that the access to water was characterized by this historic argument and was the ultimate motivation behind the construction of the Aswan High Dam. Therefore in asserting a historical right, it would seem that Nasser was acting in the interest of national security.

Given the close ties between national security and survival for the belligerents of the Suez Crisis one cannot claim that the human-centered approach explains the conflict over the Suez Canal between Egypt, Britain, France and Israel. This is because the need to it secure was in fact a matter of state-centered policy, even though the interest the policy sought to protect was characterized differently.

Cascão suggests that the status quo of repatriation remained largely unchecked until Sudan, amongst others achieved independence form the British and French.[510] Based on this one can argue even the potential threats from other riparian countries was based more on their broader goals, such as the development of irrigation and hydroelectric schemes, than it was on the need for human security as such. Sudan's disregard for the 1929 Water Agreement seems to be a particular function of the desire to change the status quo of the Niles's water repatriation in the post-colonial era.[511]

In summary, one cannot defend the Suez Crisis or any other conflict related to the Nile's repatriation within the context of human-centered security since there are various overlapping issues concerning the repatriation of water, such as historic access used by both Egypt and Ethiopia. The majority of these concern harnessing the use of water to gain as well as maintain economic growth and sustainability of the individual riparian states. Disputes related to water are therefore best examined in the context of state-centered security.

[509] Ibid p. 248
[510] Loc.Cit.
[511] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute, p. 679

4.2.1 If not the Suez the Suez Crisis, can Egypt's emphasis on water be explained through human centered security?

The single largest threat that stems from water within the Nile Basin is the ability to sustain its agricultural production. The FAO suggests that water management including irrigation, drainage, water conservation and control is imperative to manage the sustainability of crop yields.[512] This in turn has an impact on the ability to supply food to meet demand in already densely populated areas within the Nile Basin.

One could argue that a primary motive behind the intended construction of the Aswan High Dam was intricately linked to managing water supply from the Nile such that crop yields remained constant and ultimately that the population within Egypt dependent on agriculture had "security" under the human condition. In this way there is a clear connection between water and human security concerns. This connection is that without the "guaranteed" flow of the Nile to Egypt, which is (practically) its only source of water, taking into account very sparse rainfall, Egypt as a formidable nation within the Arab world and the African continent would severely compromised

The UN has also suggested that the conflict in Darfur has been partly driven by climate change and environmental degradation.[513] The reduction in rainfall had a profound impact on the clashes between herders and farmers regarding the equitable use of pastoral land and declining access to water holes. Therefore, there is a strong correlation between the lack of water security and the escalation of conflict within one of the Nile Basin's most important riparian countries.[514] These clashes, according to the UN, underpinned the "genesis" of the internationalized conflict in Darfur.[515] This demonstrates the vulnerability of the African continent, and in particular the Nile basin's countries to changes in their water supply. Therefore there is a correlation between the in security between human insecurity and the Nile basin in a context larger than Egypt's dominance of the Nile.

The majority of these vulnerabilities that African countries are subject to, according to the International Panel on Climate Change (IPCC), concern access to water and related issues

[512] Burke, J., Faures, J.M., and Turral H., Climate Change, Water and Food Security, Food and Agricultural Organisation, Rome, 2011, p. 5
[513] Brown, O., Hammill, A., and McLeman, "Climate Change as the 'new' security threat: implications for Africa" in International Affairs, Vol. 83, Iss. 6, 2007, p. 1144
[514] Gehring, J., "Humanity's diminishing water well: Everybody's need-everybody's right" in New Routes, Vol. 3, 2011, p. 3
[515] Ibid. pp. 1144-1145

such as agriculture.[516]The issue of climate change in Africa is securitized through the threats that a posed to populations within Africa regarding the income and sustenance where water-related activities form an important part of the ability provide income and sustenance. This is particularly because of concerns regarding the ability of the African population to adapt to the effects of climate change on agriculture.[517] This in turn places their ability to sustain the human condition, specifically in terms of maintaining adequate levels of income and sustenance under threat. Based on this, one can draw clear connections between income, agriculture and water.

The question remains, to what extent can Nasser's decision to build the Aswan High Dam be considered a function of, mitigating the influence of climate change on the ability of the Egyptian population to sustain and feed themselves? While the construction of the Aswan High Dam had clear importance to the development of a post-revolution economy under Nasser, its importance to agriculture and the continuous supply of water to Egypt is notable.[518] The Dam was constructed with the specific intention to ensure all-year-round water supplies from the Nile as well as create the possibility of newly irrigated land within Egypt. Moreover, one is not inclined to think that Nasser developed the High Dam project at the expense of human-security. The relocation of Nubian tribes on two occasions upon the heightening of the Old Aswan Dam demonstrates the historic human-centered focus of water-related development.[519] In addition, the relocation in light of the Aswan High Dam's construction witnessed villages of about 25, 000 homes in 33 villages, using the same village names as before demonstrates a particular attention to the identity of populations within the Nile Basin not being hampered by the development of the Dam.[520] From this, one can see that the construction of the Aswan High Dam was not intended to place the state-centered interests of Egypt above those of communities that would be affected, rather it was to balance the various needs of populations (particularly within Sudan and Egypt) with the ambitions of Nationalist Egypt under Nasser.

Through the construction of the High Dam, it is evident that the Egyptian Government (at least to some degree) sought to mitigate the impact that developments by up-stream riparian countries as well as to off-set the unreliable nature of "natural water supply" to Egypt-

[516] Ibid. p.1145
[517] Ibid. pp. 1150-1151
[518] Abu-Zeid, M.A., and El-Shibini, F.Z., " Egypt's Aswan High Dam" in Water Resources Development, Vol. 13, No.2, 1997, p. 217
[519] Ibid. p . 213
[520] Loc.Cit.

demonstrated through its low TRWR.[521] The historic importance argument is premised on the notion that the flow of the Nile had always been central to the survival of the Egyptian people. To some extent this is indicated in the literature regarding the Aswan High Dam. Over and above the need to regulate the flow of the Nile on an all-year-round basis, there are indications that the Aswan High Dam would be sensitive to the needs of the Egyptian people at any given time. One specific purpose of the Dam was to ensure "regulation of the discharge downstream of the dam to match the actual water needs for different requirements".[522] Another example can be found in terms of altering crop yields in the Nile basin from "change in the system of basin irrigation (one crop per year), to perennial irrigation (two or more crops per year)"[523] Based on the fact that wealth and access to the economy are both dependent on agriculture, it can argued that diversifying the crop yields as well as ensuring continuous flow ultimately provide local populations within the Nile basin (particularly in Egypt). It can further be argued that diversifying crops yield do not restrict the yields of farmers to seasonal income, but provide them with more of an opportunity to access income throughout the year.

Based on the fact that the Aswan High Dam was envisaged by the need to ensure a continuous flow of water to Egypt, for both the development of the state economy and the sustenance needs of the population, one can at best explain the motivation for the Suez Crisis as related to Human-Centered Security. Firstly, the need for the dam was closely related to food security-which has been presented as a potential motivation behind human-centered conflict. In addition, a need to protect the continuous flow or supply of the Nile was a direct factor in the nationalization of the Suez in 1956. One could make this argument by citing that the decision to nationalize the Suez only came after the refusal of the US to fund the Aswan High Dam project. Therefore there are clear connections between the Suez Crisis and the Egyptian government wanting to maintain food security-seen through water's importance to agriculture.

Importantly, the link to the human-centered approach for the Suez conflict is largely based on the Aswan High Dam and its construction being closely related to water security, which in turn is related to food-security of the Egyptian population. Thus the human-centered

[521] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute, p. 679
[522] Abu-Zeid, M.A., and El-Shibini, F.Z., Op,Cit. p. 210
[523] Loc.Cit.

approach allows insight into indirect causes for water conflict, in that one can explain the motivation for the Aswan High Dam as closely related to Egypt's food security.

4.5 Current State of Affairs in the Nile Basin

In terms of current affairs relations between Nile riparian countries are still sharply dichotomized by upstream versus downstream countries. In addition, Egypt's securitization of the Nile has also endured into the modern day political rhetoric regarding its own use of the Nile and by extension that of others.

The most crucial relationship is the one between Egypt and Sudan since collectively the two states account for 87 percent of the Nile's water use.[524] Some commentators, such as Dalia Moniem, point out several factors of common ground amongst Egypt and Sudan specifically in light of Hosni Mubarak's departure from power in the early stages of 2011.[525] The increased common ground amongst the two does reaffirm the general stability around issues concerning water and particularly allows one to conclude that the water agreements between the two are likely to solidify cooperation rather than fuel conflict. However, to some extent the expression of almost identical relationships between national security and water could prove to be problematic, specifically in terms of relationships with up-stream riparian countries.[526] While upstream countries have recently played a more active role in water related projects these roles are still largely underpinned by the consent of Egypt and Sudan as dominant powers within the Nile Basin.[527] Despite the dominance relative to their upstream partners, the emergence of South Sudan as an independent state is the most immediate concern for water distribution given that the Water Agreements signed in 1959 have less weight as a mechanism for cooperation, since it is not clear how the agreements are legally binding on South Sudan. However at this juncture it seems that upstream water developments pose a more immediate threat than South Sudan's emergence does.

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[524] Moniem, D., "The Nile River Egypt and Sudan firm up water alliance" Africa Review 18 September 2012, http://www.africareview.com/Special+Reports/Khartoum+and+Cairo+Nile+River+ties/-/979182/1510906/-/yttq5qz/-/index.html (date accessed: 2012-10-16)
[525] Loc.Cit.
[526] There is a continuous trend in the literature that examines the rights of upstream riparian countries and whether or not the dominant role of Egypt and Sudan are justified. See "Progress And Prospects Of Cooperation In The Nile Basin" http://www.dailyethiopia.com/index.php?aid=1278 (date: 2012-10-16)
[527] Moniem, D., Op.Cit.

In terms of upstream developments Ethiopia has been the most vocal and active in terms of utilising the Nile's resources as well as curbing the dominance of Egypt and Sudan. Within Ethiopia there is an increasing tendency to liken Ethiopia's Renaissance Dam with that of Egypt's Aswan dams. This tendency effectively makes the assertion that Ethiopia's ambition to develop her own water projects no less legitimate than that of Egypt's in relation to the Aswan dam projects.[528] The project perhaps has more appeal than previous proposals and ambitions in that Ethiopia has been able to demonstrate to Egypt that the development of the Renaissance Dam would have an impact on the amount of water reaching Egypt.[529]

Furthermore the construction of the Renaissance Dam has not taken place in isolation from its potential impact on other countries that share the Nile's water; in fact quite the opposite is true. In October 2012, the Nile Tripartite Committee named a Panel of Experts and visited the site of construction for the dam to investigate what the potential impact of such a dam might be on downstream riparian countries.[530] The Panel is seemingly aimed at the bridging the distrust that has historically divided upstream versus downstream ambitions for development of water courses in the Nile basin.[531] However despite this, various claims of Egypt and Sudan planning to attack the construction of the dam have tainted the objective of the Panel of Experts in that it is not clear to what extent various actors within downstream governments share the progressive views regarding upstream development.[532] Therefore the is a stark contrast between what is said openly vis-à-vis upstream development and what is said behind closed doors, which fuels the debate concerning Egypt's true policy regarding upstream water development. So while at face value there seems to be trust building mechanisms in place, reported disparities in confidential policy tend to erode the progress made in terms of mutual trust.

Essentially the Renaissance Dam will forge new possibilities for Ethiopian industrial capacity. This is specifically true of hydro-electricity and the expansion of agriculture through irrigation.[533] The increased production of electricity in combination with the

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[528] Awad, M., "Ethiopia wants end to Egypt, Sudan meddling over Nile dam" Bikyamasr http://www.bikyamasr.com/79842/ethiopia-wants-end-to-egypt-sudan-meddling-over-nile-dam (date accessed: 2012-10-16)
[529] Milas, S., "Ethiopia: Nile waters diplomacy and the Renaissance Dam" InDepthAfrica.com 03 October 2012, http://indepthafrica.com/ethiopia-nile-waters-diplomacy-and-the-renaissance-dam/#.UH02hq6njTo (date accessed: 2012-10-16)
[530] "Progress And Prospects Of Cooperation In The Nile Basin", Op.Cit
[531] Loc.Cit.
[532] Awad, M., Op.Cit.
[533] Milas, S., Op.Cit.

potential to increase livestock production in Ethiopia has the potential to place Addis Ababa on the proverbial map with regard to exporting to new markets, for example the E.U.[534] From what has been discussed however the most formidable challenge in this regard is balancing the ambitions or potential of water development for upstream riparian countries while safe guarding Egypt's access, which it has on numerous occasions claimed to be a matter of national interest.

4.6 Conclusion

This chapter has considered which approach explains conflict over water within the Nile basin better. With the use of the Suez Canal Crisis of 1956, it was demonstrated that water forms a very important part of national security within the basin. It also forms an important part of economic growth and sustainability. Based on this one can say that conflict over water, particularly within the context of the Suez Crisis, can be explained firmly within the context of state centered security. However, the human-centered approach explains the motivation behind the factors leading to the motivation behind the crisis as functions of security issues related to the use of water.

[534] Loc.Cit.

Chapter 5

Conclusion

5.1 Introduction

This thesis has attempted to explicate the understanding of "Water Wars" within the field of Security Studies. It has particularly aimed to determine if human-centered security is able to explain conflict over water, especially where state-centered security has failed to so. In this chapter the author discusses the conclusions that can be drawn regarding the theoretical explanation of water wars, based on the conflict witnessed in the Bakassi Peninsula and the Suez Canal. In addition, the author highlights similarities between the two cases presented in the preceding chapters. The chapter concludes with a discussion regarding the limitations of this research as well as potential relationships to explore in future research, based on the findings of this thesis.

5.2 Similarities and Differences between the Chad Basin and the Nile Basin

The most similarity that can be drawn from the two cases is one's understanding of water resource management in post-colonial Africa. In the Chad Basin, the right to utilize water resources hinged upon the validity of border delimitations instituted by former colonial powers, namely the British and the French. Within the context of post-colonial Africa, it was shown that Nigeria disagreed fundamentally with the legal character of the border agreements; essentially question their validity and ultimately the rights they succeeded to Cameroon in particular.[535] In the case of the Nile Basin while the Water Agreements (specifically the 1929 Water Agreement) held their validity, changes in leadership in Sudan altered the extent to which Egypt's repatriation further downstream was "guaranteed". In this way Egypt's uninterrupted repatriation was contingent on the Sudanese government's attitude towards Egypt-specifically whether or not the Sudanese government was pro-Egypt or anti-

[535]Issa, S., "Access to Lake Chad and Cameroon-Nigeria Border Conflict: A Historical Perspective" in Conflict and Cooperation related to International Water Resources Selected Papers of the International Water History's Association Conference on *The Role of Water in History and Development*, Bergen, Norway, 10-12 August 2001, pp. 68-69

Egypt.[536] What this demonstrates is that in both cases independent governments created tension points concerning the access to, and repatriation of water.

A fundamental difference between the Chad and Nile basin is the extent to which the effects of climate change as well as environmental degradation, illustrate the potential for conflict (and indeed wars that are fought) over water. In the Chad basin, the gradual depletion of water in the Lake Chad had an instrumental role in the cross-border occupation by Nigerian citizens into what was, under International Law through the colonial agreements, Cameroonian territory. If one were to subject the occupation of Nigerian villages to a counterfactual conditional, one could suggest that the Lake Chad region would not have formed part of the Bakassi dispute. As was argued in Chapter 3, the Lake Chad region (as a constituent part of the Bakassi dispute) only formed part of the dispute lodged with the ICJ as a result of Nigerian villagers following the receding water line of the lake. The changing nature of the lake's structural capacity had a fundamental role in the territorial dispute between Nigeria and Cameroon in the Lake Chad region.

By contrast, the Nile Basin at least as far as conflict or disputes over repatriation are concerned seem to be a function of equitable distribution. Ethiopia's claims for an increased share, as well as the claims of Egypt's exploitation of the Nile, hinge on distributions of current supply and do not seem be overly motivated by the impact that climate change has on the Nile's resources. Notwithstanding the increasing importance of climate change in forums such as the NBI, it is very difficult to equate the political tension concerning water management in the Nile basin solely with concerns regarding structural capacity. The fact that upstream countries question the disparity between withdrawals relative to contribution (measured through TRWR) seems to suggest water related disputes in the Nile Basin a more a function of inadequate distribution than they are of inadequate structural supply. Therefore the Chad Basin and Nile River Basin (at least as far as the cases presented are concerned) highlight the difference between structural and distributional scarcity can be applied and subsequently understood.

[536] Swain, A., "Ethiopia, the Sudan and Egypt: The Nile River Dispute," p. 679

5.3 Findings

Two important themes can be drawn from the discussion in the previous chapters. The first is that water, as a causal mechanism is context sensitive. The second is that the validity of colonial agreements, especially in the context of post-colonial Africa, has a fundamental impact on issues related to the repatriation of water resources.

5.3.1 What is Water's Causal Role?

When Aaron Wolf suggests that no *single* war has been fought over water, his argument is premised on the notion that water has not been a determinate cause of a war fought between two or more states. He therefore concludes that water has not had a direct role in the onset of violent conflict.[537] This can be taken to mean that there is not one *single* factor, concerning water that has been at the route of conflict. This is contrasted by conflict such as the witnessed in Afghanistan and Iraq. It can be argued that both of the former could be reduced to having single determinate causes. In the case of Afghanistan, one might argue that Washington saw the need to neutralize potential threats from Al-Qaeda and in the Iraq War it can be argued that Washington aimed to neutralize a potential arms race.[538] Each of these cases demonstrates a particular political objective that conflict was meant to reach. Based on this, Wolf argues, war cannot be seen as an end, but is rather a means to an end.

This begs the question how ought one to understand water's role in causing conflict amongst states? The answer to this firstly depends on understanding the multidimensional nature of water. One needs only to consider the differences in use of water amongst developed versus developing countries, or even urban versus rural areas, to understand that water is valued differently by different actors within the international system. Based on this it could be argued that States do not perceive water as equally valuable to their interests. This is perhaps best demonstrated through the disparate achievements of the LCBC and inter-governmental cooperation organizations such as TECCONILE in the Nile basin.

The varied level of success in inter-basin management between countries suggests that water management is not considered as much of a priority in one basin as it is in the other. The progression of multilateral cooperation in the Nile basin, marked by the growth of

[537] Wolf, A.T., "Conflict and cooperation along international waterways", in Water Policy I, 1998, p. 255
[538] Gouliang, G., "Redefine cooperative security, not pre-emption" in Washington Quarterly, Vol. 26, Iss. 2, 2003, p. 138

cooperation from the Hydromet Survey to the NBI, seems to suggest that the management of water within the basin forms part of central policy issues amongst the riparian countries. Moreover, there is most certainly an inclination that perceives sufficient water management as a collective problem rather than an individual one. By contrast, the LCBC as a multilateral water management mechanism has been less successful. Access to information regarding its functions, programs and policies is scarce and often outdated in cases where it is available. In addition, the lack of commitment, at least in the implementation of issues regarding management and repatriation of resources in an explicate way. This can be defended especially taking into account the lack of meetings between Commissioners as the principal Rivers of Organizational policy. From this, this thesis can recommend that the LCBC works more carefully in establishing a mandate that clearly, such that Programmes to reverse the impact of climate change and environmental degradation are considered alongside dialogue meant to consider how to deal with current repatriation issues. Considering repatriation issues related to access to water, such as one country's people crossing another's borders to maintain access to the water body could have proved vital as a dialogue mechanism in avoiding conflict between Nigeria and Cameroon in the Lake Chad region.

However despite the disparity between the effectiveness of the water management mechanisms, the conflict witnessed in both the Chad basin and the Nile basin hinge on maintaining access to water. In the Chad basin case the principal actors concerned with maintaining access to water were actors at individual level, namely Nigerian villagers. In the Nile basin case the principal actors concerned with maintaining access to water are seen at state level, specifically in the form of Egypt and its relationship with other riparian countries in the basin. The ability to predict water's role in conflict is therefore underpinned by the actor seeking to maintain access to water. In addition, their need to maintain access cannot be seen in isolation from their objective.

Based on the cases presented, it is evident that food security had a fundamental role in the onset of conflict over water and water related resources. In both cases the need to maintain water for agricultural produce was a motive that had a vital role in the onset of conflict over repatriation of water. In the Chad basin case, the food security motive is seen in Nigerian villagers wanting to maintain access to the lake watercourse since the fish within the lake provide a valuable source of sustenance and income. On the other hand, the Nile basin case the food security motive is seen in that the Aswan High Dam essentially sought to provide Egypt with an almost guaranteed all-year flow of the Nile River, which would ensure that it

could maintain current agricultural production as well as diversify crops. This in turn bolsters trade in the form of more diverse exports. In both cases it would seem that because food security through access to agriculture provides sustenance, income and in some cases stratifies wealth, the motivation can be strongly associated with human security. The access to water provides food, which essentially entails freedom of want as per Kerr's evaluation of the human condition. From this, this thesis concludes that conflict over water is motivated by food security even if, as with the Suez Crisis, the actual conflict can be explained by State-centered security. Human centered security therefore characterizes the indirect nature of water conflict. What this ultimately suggests is that conflict over water is likely to be motivated by water-related issues rather than water as such and therefore contributes to how one ought to characterize the concept of "Water Wars" within the field of Security Studies and ultimately policy-making fields.

5.3.2 Post-Colonial Africa and Water

In the cases presented, colonial agreements concerning the allocation of land, and by extension water rights, have had a fundamental impact on the onset of conflict. The impact is seen in one of two ways. On the one hand, independent governments question the validity of the agreements and in so doing also question the rights these agreements confer to former protectorates. On the other hand, independent governments potentially seek to alter the repatriation of water within a basin, depending on relations with other countries within the basin. Evidence for this is seen in the can be seen in the cases presented.

In the Chad basin evidence of the former is seen through the questioning of both the *Milner and Simon Agreement of 1919* and the *Thomson-Marhard Agreement of 1929/30*. The contestation of these agreements on the part of Nigeria, indicating that the colonial agreements had not taken into account consultation with local leaders, suggests that independent governments question why they ought to be bound by border delimitation and other aspects of colonial agreements if (at least as they perceive it) the agreements were ratified by illegitimate authorities. What this means is that if water repatriation and food security are dependent on the legitimacy of these agreements, for example in terms of arable land and water withdrawals within sovereign land, then questioning their legitimacy has the potential to alter the status quo of water withdrawal and the ability to use arable land for agriculture. Therefore there is a clear link between the legitimacy of colonial agreements

(under international law) and the ability maintain access to water, which as was argued above underpins motivation for conflict over water. Goldstein for example suggests that the ICJ's reinforcement of these colonial agreements has driven an even deeper rift between Nigeria and Cameroon, despite recent attempts at cooperation.[539]

The Nile basin demonstrates how relationships between riparian countries potentially alter after independence of a former colonial state. Although not extensively discussed in this thesis, tension between Egypt and Sudan (in light of changes in Sudanese leadership in the mid to late 1950's, which lead to the 1959 Water Agreement) is perhaps an example of this. There are clear connections between issues concerning repatriation and the relations between Egypt and Sudan in that the tension over the construction of the Aswan High Dam (Egypt) and the Roseries Dam (Sudan) hinged on the bilateral relations of the two States, such that the *Water Agreement* was only feasible after a pro-Egyptian government had taken over power in Sudan. This argument is made even stronger if one takes into account that the threat of military force in 1958 marked the height of disagreement concerning water course development within countries. Based on this one could argue that the relationship between riparian countries has an impact on the ability to maintain adequate access to water, which in turn as was argued above is a potential motivation for conflict related to water.

A conclusion that can be drawn from this is that water agreements and the access to water they confer are essentially subject to the authorities that ratify them. In addition, they are subject to the relationship between states that enforce the ratified agreements. Therefore in so far as they motivate water-related conflict, changes in power within governments are indictors of where water access might be impeded thus leading to a higher probability of conflict regarding the repatriation of a shared water course.

5.4 Limitations of this research

The first and perhaps most important limitation to this research is the formation of South Sudan as an independent State from Sudan. In January 2011 a referendum was passed after

[539] Goldstein, J.S., Winning the War On War: The Decline of Armed Conflict Worldwide, Plume, New York, 2012, p.191

and the South Sudanese voted to form Africa's newest State.[540] South Sudan forms the 10 most southern states of what is formally known as Sudan. In terms of geography it includes "expansive grassland, swamps and tropical forests and sand banks on both sides of the Nile".[541] It is also ethnically and culturally diverse and includes groups such as the Dinka, Nuer and Shilluk.[542] South Sudan declared independence on the 9th of July 2011.[543]

The reason the discussion regarding Sudan takes place in absence of this development is that many Organisations that collect data, such as UNEP and the UNDP, have either not had the data available at the time of writing or had not compiled any reliable data from which meaningful comparisons have been withdrawn. In addition given that many prominent sources used within the Nile basin chapter, in particular those that specifically focus on comparative data analysis, were written well before the referendum even took place. Therefore the reader is invited to note that the analysis concerning Sudan as it is discussed within this thesis does not make any reference to the repatriation of South Sudan.

Another limitation that warrants discussion is the availability of empirical data. In particular with the Chad basin, the data available was often very cumbersome and in some cases varied amongst different sources. From the research that had been done, the author was unable to find any extensive writing on the Chad basin especially when compared to the Nile basin. Writing and information regarding the LCBC was particularly thin and problematic in terms of current projects. In addition, the availability of data on the LCBC website as the principal organisation dealing with water related issues in the Lake Chad region, amongst others is rather outdated and relatively un-user friendly.

Thirdly, in some cases there is an almost over-reliance on some sources because the articles which they cite for important information were problematic to find. For example, the explication by McDermott relies on U.S. Congressional Library Papers and therefore it is difficult to cite the original text with accuracy. In addition, constraints within licensing of on-line Journal access were at times problematic.

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[540] "South Sudan Profile" BBC News, 22 February 2012, http://www.bbc.co.uk/news/world-africa-14069082 (date accessed: 2012-09-14)
[541] Ibid.
[542] Ibid.
[543] Carlstrohm G., "South Sudan Declares New Beginning" Al-Jazeera, 9 July 2011, http://www.aljazeera.com/indepth/spotlight/southsudanindependence/2011/07/201179161956305487.html (date accessed: 2013-01-08)

A limitation worth discussing is that this research is not intended to be exhaustive. It is not the case that other factors did not have an impact in the onset of conflict examined in the Chad and Nile Basin cases. In fact, the examination of both state-centered and human-centered factors within the same case lends itself well to the notion that other factors did have an instrumental impact with regard to the onset of conflict. What the thesis establishes is that if one were to consider water as one of those factors, its threat to security and subsequent catalytic nature vis-à-vis conflict is best explained by the human-centered approach. It is for example plausible that mineral rights related to oil also catalytic nature vis-à-vis conflict, which as argued in chapter 3 is best explained from the state-centered approach. Similarly, Arab Nationalism as a political, state-centered phenomenon also has catalytic within the context of the Suez Crisis, in chapter 4. Therefore, when this thesis speaks of "water wars" as being best described by the human-centered approach, it should only be seen as valid for water as a cause for conflict.

5.5 Suggestions for future research

From conclusions above, the author makes three recommendations for future study. The first concerns adding South Sudan to the analysis of repatriation in the Nile Basin. The second to explore the potential links between land tenure (as it relates to agriculture and access to water) and climate change. The third would be to extrapolate the model of analysis used within the case studies presented in this thesis to other regions that have been plagued by similar water-related tensions.

Given that this study isolates the independence of South Sudan from the empirical analysis of the Nile basin chapter in particular, future research could include the analysis of South Sudan as another riparian country within the basin. Questions regarding the changes in the status quo of repatriation, relations with other riparian countries and potential important water courses that fall within South Sudanese sovereign territory could raise questions regarding access to water, as was the case with Nigeria and Cameroon for example. In addition, one might ask to what extent South Sudan is in fact bound by the 1959 Water Agreement and more importantly to what extent its existence threatens the water supply of Egypt. One could even venture as far as to do a comparative study on states that have declared independence within the Nile basin and how their relative weakness impacts on their ability in asserting

their water rights-for this purpose one could use Eritrea's separation from Ethiopia as the other case study.

On the basis that land tenure is closely linked with repatriation of water, such as with the Lake Chad region, one might question the extent to which land tenure impacts on access to water and more specifically what land tenure's role in future conflicts might be. This could be especially useful considering the close relationship between land tenure, access to water and income. For example if wealth is stratified by access to land and agricultural produce one might want to investigate to what extent conflict is likely over remaining land. One could also using the case studies, perhaps the Chad basin in particular, investigate to what extent climate change impacts on the ability of populations to provide an income for their families and to what extent they would move across into other sovereign territory in order to secure the "freedom of want" for food security.

In the analysis of the cases presented in this thesis, the author made reference to water-related political tensions and objectives with regard to Turkey and the Southeastern Anatolia Project known as GAP.[544] In the past, as mentioned, Syrian and Turkish armed forces have had skirmishes on the border related to access and the use of shared watercourses. It would be interesting to determine in what way, if any the multi-level analysis could be replicated within water-related conflict cases within the Middle East.

5.4 General Conclusion

In the beginning of this thesis, the author set the aim of this work acting as a bridge between two seemingly incompatible approaches to Security Studies. What this work has shown is that the two approaches to Security Studies are not necessarily in opposition, they simply explain different kinds of motivations more effectively, depending on which element of any given conflict is under examination. In this thesis, water as an element of conflict proved to be best, and more consistently, explained in terms of human-centered security. Water as a conflict variable is therefore best understood as an issue of human-centric security.

[544] Harris, L.M., "Water and Conflict: Geographies of the Southeastern Anatolia Project" in Natural Resources, Vol. 15, 2002, p. 743

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