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An exercise in State Sovereignty: The use of Transboundary Aquifers

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ABSTRACT

This dissertation analyses the way in which States in the Lake Chad Basin have attempted to balance their State sovereignty and the human right to water when making use of the underground water resources in the Lake Chad Basin. The Lake Chad Basin is a basin of water consisting of not only surface water, such as the Lake Chad and its various tributaries but also four underground aquifers. The States that share the Basin face socio-economic, political and environmental challenges which must be addressed to ensure that the people in the Basin States can exercise their right to water as well as ensure that States can facilitate national development.

When balancing State sovereignty and human rights, States must meet various international obligations. Some obligations are owed to the people of the State and some are owed to other States. This dissertation shows the various obligations in question and showcases the problems faced by States in the implementation of the various obligations. Finally, the dissertation suggests measures that can be taken by States to ease the difficulty of balancing the various obligations.

LIST OF ACRONYMS

CESCR	Committee on Economic, Social and Cultural Rights
DATA	Draft Articles on Transboundary Aquifers
DATH	Draft Articles on Prevention of Harm from Hazardous Activities
ICESCR	International Covenant on Economic Social and Cultural Rights
ICCPR	International Covenant on Civil and Political Rights
ICRC	International Committee of the Red Cross
ILA	International Law Association
ILC	International Law Commission
LCBC	Lake Chad Basin Commission
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGAR	United Nations General Assembly Resolution

KEYWORDS

Aquifers, Lake Chad, Water, Human rights, Sovereignty

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CHAPTER 1: INTRODUCTION

1.1. INTRODUCTION

It has been said that the next world war will not be fought over land or political ideologies but over water.¹ Water is a precious resource. 97% of the world's freshwater can be found underground.² However, due to poor management, the quality and quantity of available freshwater are decreasing.³ The poor management of underground water resources has caused a rapid depletion of many aquifers across the world which threatens the world's drinking water supplies. The use of aquifers as an underground resource must be managed in a more sustainable manner, in order to ensure that the water lasts as long as possible in order to ensure that there are water reserves for future generations. Many countries are dependent on water from various aquifers for their drinking water and irrigation needs, such as India⁴ and Europe.⁵

Himanshu Kulkarni and P.S. Vijay Shankar argue that an aquifer management framework should be used in order to determine how much water should be drawn from an aquifer.⁶ This type of management system requires an equitable distribution of the groundwater reserves, which can have various problems.⁷ Although Kulkarni and Shankar make the arguments for this type of management system for India specifically,⁸ a system of equitable use and distribution can be useful in the international law sphere in order to address the use of transboundary aquifers. In order to do so, however, States will have to come to some sort of compromise regarding the sovereignty over these waters. This study will address some of the problems

¹ Amrita Gupta, "The Third World War Will Be About Water," Carnegie Council for Ethics in International Affairs. www.carnegiecouncil.org/publications/archive/policy_innovations/innovations/00308 [accessed 1 November 2017]; See also: Peter Engelke, "Will the World's Next Wars Be Fought over Water?," *Los Angeles Times* 2016. www.latimes.com/world/global-development/op-ed/la-fg-global-water-op-ed-story.html [Accessed: 1 November 2017].

² Thomas Wintgens and Peter Dillon Christian Kazner, *Water Reclamation Technologies for Safe Managed Aquifer Recharge* (London: IWA Publishing, 2012), 1.

³ Wintgens *et al* 2012 (note 2 above) 1.

⁴ Himanshu Kulkarni and P.S. Vijay Shankar, "Groundwater: Towards an Aquifer Management Framework," *Economic and Political Weekly* 44, no. 6 (2009): 13.

⁵ Wintgens *et al* 2012 (note 2 above) 1.

⁶ Kulkarni and Shankar 2009 (note 4 above) 14.

⁷ Kulkarni and Shankar 2009 (note 4 above) 14.

⁸ Kulkarni and Shankar 2009 (note 4 above) 14.

associated with this concept as well as whether or not this concept has been applied in international law.

1.2. AIMS AND OBJECTIVES

The aim of this study is to analyse international jurisprudence relating to the use of transboundary aquifers in order to determine what a framework might look like that attempts to strike a balance between the all-important State sovereignty over the vital natural resource with the interest of all mankind and the environment.

1.3. RESEARCH QUESTIONS

1.3.1. Primary Question

1. How do we strike a balance between a State's right to sovereignty and the right of its people to have access to water?

1.1.1. Secondary Questions

- 1.1. Do people have a right to water under international law?
- 1.2. Do States have obligations to their people and to each other in the use of transboundary underground water resources?
- 1.3. How have the States in the Lake Chad Basin managed the shared underground water resources?

1.2. PROPOSED METHODOLOGY

1.2.1. Methodology

This study will take the form of a desktop study focussing on the analysis of jurisprudence surrounding the use of transboundary aquifers. The research will use the Chad Basin aquifer system, which is shared by eight countries and is suffering as a result of poor management,⁹ as an illustration of how factors could be used to strike a balance between the sovereignty of the States who share the basin and the interests of mankind in the water.

⁹ Fanny Bontemps, "Transboundary Groundwater Fact Sheet: The Lake Chad Basin Aquifer System", (2013) 3.

1.2.2. *Limitations and Parameters*

This study will take the most relevant and most recent statistics and information into consideration. Notwithstanding this, there is a lack of updated information regarding the statistics for population and water use. In order to combat this, however, the study will consider statistics from various States in order to get an overall picture of the statistics and information.

1.2.3. *Introduction of the Case-Study*

This study will use the Chad basin aquifer in order to show how various factors interact in the balancing of various States' sovereignty with respect to a finite water resource. This particular basin is useful for illustration purposes because many States surround the Basin and each has their own interest in the Basin.¹⁰ What is also important about this Basin as a case study is that attempts have been made by the States to regulate and control the use of the Basin, however, these have been unsuccessful for a number of reasons,¹¹ which will be explored in this study.

1.3. RELEVANCE OF THE STUDY

Water is a scarce resource that is of the utmost importance in the world today.¹² Fadia Daibes-Murad is of the opinion that the world's water problems can be solved using groundwater.¹³ She opines that the regulation of groundwater is essential in international law because of the fact that a number of countries across the world are dependent, in whole or in part, on groundwater supplies.¹⁴ This study will hopefully, shed some light on what the regulation of these precious resources will have to take into account.

1.4. CHAPTER OVERVIEW:

Chapter 2 will discuss the interest of mankind in the use of transboundary aquifers. It will explain why underground water is so necessary to mankind. In ascertaining what this

¹⁰ Bontemps 2013 (note 9 above) 4-6.

¹¹ Bontemps 2013 (note 1 above) 7-8.

¹² Fadia Daibes-Murad, *A New Legal Framework for Managing the World's Shared Groundwaters: A Case-Study from the Middle East*, ed. Sergei Vinogradov Patricia Wouters, Water Law and Policy (London: IWA Publishing, 2005), 1-4.

¹³ Murad 2005 (note 12 above) 1.

¹⁴ Murad 2005 (note 12 above) 2.

interest entails, the study will delve into the uses of the water as well as whether people have an obligation to use the water in a certain way. This deals with water as a human right under international law. In ascertaining whether or not mankind has a right to water, the study will also look at the right to the environment under international law.

Chapter 3 will deal with the other side of the coin, the interest of the State. This part will focus on how States exercise their sovereignty, which is one of the most fundamental rights of States under international law.¹⁵ The definition of State sovereignty in relation to the water will be discussed in order to determine how much sovereignty a particular State will have over a transboundary aquifer and how this sovereignty should be exercised in relation to international environmental law. This study will differentiate between the ways in which States have defined their sovereignty in the past.¹⁶ The differentiation is necessary to evaluate how State's should exercise their sovereignty over these valuable, finite resources.

Chapter 4 will discuss the case study and determine how the international law principles relating to the use of transboundary aquifers applies to a Basin such as the Chad Basin. The chapter will also discuss possible challenges relating to the application of these principles as well as whether or not the application of these principles will be effective in an African, context.

Chapter 5 will summarise the study and give final remarks regarding the research.

¹⁵ Werner Scholtz, "Custodial Sovereignty: Reconciling Sovereignty and Global Environmental Challenges Amongst the Vestiges of Colonialism," *Netherlands International Law Review* 55, no. 3 (2008): 324.

¹⁶ Murad 2005 (note 12 above) 65-67.

CHAPTER 2: THE HUMAN RIGHT TO WATER

Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land.

Luna Leopold

2.1 INTRODUCTION

In order to see why underground water resources such as aquifers are vital to the survival of the human race, one must understand what the right to water entails. This chapter will discuss the content of the right to water under international law. The discussion will show the development of the right to water and how its interpretation differs when we define it as a right on its own and when we define it as an auxiliary right. The various entitlements and obligations of the right to water will be analysed in order to see how far the right to water should go.

2.2 HISTORICAL DEVELOPMENT OF THE HUMAN RIGHT TO WATER

International law instruments have been codifying human rights as early as 1948 when the United Nations General Assembly adopted the Universal declaration on Human Rights.¹⁷ Human rights instruments have always prioritised civil and economic rights over the right to water.¹⁸ Neither the ICCPR, nor the ICESCR contains a right to water. Some instruments did contain provision that gave the right to water but various things such as age,¹⁹ gender²⁰ and status have

¹⁷ *Universal Declaration of Human Rights* UN General Assembly Resolution 217 A(III).

¹⁸ United Nations, *International Covenant on Civil and Political Rights* Treaty Series, vol. 993, p. 3, (ICCPR). United Nations, *International Covenant on Economic, Social and Cultural Rights* Treaty Series, vol. 993, p. 3, United Nations, *International Covenant on Economic, Social and Cultural Rights*, which are the two large human rights instruments that are in place to ensure that States protect the human rights of their peoples. See also the discussion in Stephen C. McCaffrey, "The Human Right to Water," in *Fresh Water and Economic Law*, ed. Laurence Boisson de Chazournes Edith Brown-Weiss, Natahalie bernasconi-Osterwalder (New York: Oxford, 2005).

¹⁹ United Nations, *United Nations Convention on the Rights of the Child* Treaty Series, vol. 1577, p. 3, Article 24(2)(c) which provides that States must take measures to ensure that children have access to an adequate standard of living particularly by providing clean drinking water to them. This right is limited to children and exclude women and men.

²⁰ United Nations, *United Nations Convention on the Elimination of All Forms of Discrimination against Women* A/RES/34/180, Article 14(12)(h), which compels States to ensure that women enjoy access to

limited this right.²¹ There was therefore not a general codified right to water prior to 2002, when the Committee on Economic, Social and Cultural rights issued a general comment on the right to an adequate standard of living²² and the right to health,²³ in which the Committee said that the right to water forms an integral part in the realisation of these rights.²⁴

The Committee's acknowledgement however did not give rise to anything substantive until 2009 when the United Nations Educational, Scientific and Cultural Organisation (UNESCO) held a meeting of experts who discussed the right to water in international law.²⁵ Even that, was the extent to which this right was addressed until 2010 when the United Nations General Assembly adopted a resolution that recognised the right to water as a right under international law.²⁶ The position as it stands now is that States and International Organisations recognise that water is necessary to achieve the realisation of other human rights but recognition of water as a right that stands alone has been slow to occur under international law.²⁷

2.3 THE CONTENT OF THE HUMAN RIGHT TO WATER

2.3.1. *The definition of the right to water*

Water as a human right deals largely with what the content of the right is because, the right, although not as widely recognised in international law has been domestically recognised

adequate living standards taking particular consideration of access to water supply. This right however is limited to women and excludes men and children.

²¹ International Committee on the Red Cross, *Geneva Convention Relative to the Treatment of Prisoners of War (Third Geneva Convention)* 75 UNTS 135, Articles 20, 26, 29 and 46 which give prisoners of war the right to potable water for drinking and bathing. This right is only enforceable upon becoming a prisoner of war.

²² ICESCR (note 18 above), Article 11.

²³ ICESCR (note 18 above), Article 12.

²⁴ UN Committee on Economic Social and Cultural Rights *General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant)* E/C.12/2002/11, para. 1.

²⁵ Scientific and Cultural Organisation United Nations Educational, *Outcome of the International Experts' Meeting on the Right to Water*. Available at: <http://unesdoc.unesco.org/images/0018/001854/185432e.pdf>.

²⁶ United Nations General Assembly, *The Human Right to Water and Sanitation* UN General Assembly Resolution A/RES/64/29, (UNGAR 64/292) Operative paragraph 291.

²⁷ UNGAR 64/292 (note 26 above) at operative paragraph 1 which recognises that the right to safe drinking water is necessary to achieve full realisation of human rights; UNESCO Expert Report (note 25 above), p 2 which states that the legal basis for the right to water is that water is required to achieve the realisation of other rights.

in countries such as South Africa,²⁸ France,²⁹ Ecuador³⁰ and Algeria.³¹ There are other jurisdictions where water, although not expressly recognised in the law have been included in the interpretation of other rights such as the right to life.³²

The right to water generally entails access to sufficient water.³³ The UN CESCR argues that has found that people have the right to sufficient water for their personal and domestic uses.³⁴ This right can be interpreted as a standalone right, as is done in the jurisdictions that have recognised the right to water as a separate right. It can also be interpreted as an auxiliary right as the UN CESCR did in General Comment no. 15 and in jurisdictions where the right to water is recognised as an auxiliary right.³⁵ The different interpretations give the right to water different content. The right to water, whether as a standalone right or as an auxiliary right contains entitlements and obligations that are in place to ensure that the right to water is realised for everyone rather than a select part of the world.³⁶

2.3.1. *The entitlements*

The UN CESCR has found that the right to water contains four entitlements. The first is that people are entitled to sufficient water.³⁷ The second is that people have the right to safe and acceptable water. The third is that people have the right to water that is physically accessible and lastly that people have the right to water that is affordable. These issues, although defined individually each relate to a separate part of the right to water and its various connections.

²⁸ *Constitution of the Republic of South Africa 1996*, Section 27(21)(b).

²⁹ *French Bill No. 2715*, Article 1.

³⁰ *Constitución Política De La República Del Ecuador 20 October 2008*, Article 23.

³¹ *Water Law No. 05-12, 2005*, Article 3.

³² For Example: in *A.P. Pollution Control Board li V Prof. M.V. Naidu and Others*, Civil Appeal Nos. 368-373 (1999), the Indian Supreme Court found that the right to water is included in the right to life.

³³ Expert Report (note 25 above), 4; General Comment no. 15 (note 24 above), para 2.

³⁴ General Comment no. 15 (note 24 above), para 2.

³⁵ General Comment no. 15 (note 24 above) para 2.

³⁶ General Comment no. 15 (note 24 above), para 10.

³⁷ General Comment no. 15 (note 24 above), para 2; Celine Dubreuil, "The Right to Water: From Concept to Implementation", (2006) 8.

The right to sufficient water

This entitlement relates to the quantity of water to which people are entitled. Determining what quantity of water one is entitled to relates to whether or not we are interpreting the right to water as a standalone right or as an auxiliary right. When interpreted as a standalone right; sufficient water can refer to having access to the amount of water to meet one's basic needs.³⁸ McCaffrey argues that sufficient water is 5 litres per day for drinking, 20 litres per day for sanitation, 15 litres per day for bathing and 10 litres per day for food preparation.³⁹ In France, the right to water gives people the right to drinking water for nutrition and hygiene at an affordable price.⁴⁰ The South African right to water requires that everyone have access to enough water for his or her basic needs.⁴¹

When we interpret the right to water as an auxiliary right the amount of water that is sufficient, will change based on the right to which water is attached. When interpreted in light of the right to life, sufficient water requires the minimum amount of water a person needs to stay alive.⁴² If we interpret the right to water as auxiliary to the right to health, the amount of water will increase and be closer to that which is required under the standalone right. The World Water Council has found that 'sufficient' water refers to a minimum of 20 litres per person per day.⁴³

The right to safe and acceptable water

This entitlement relates to the quality rather than quantity of the water to which people are entitled. This means that the water must be safe to drink and be clear and odourless.⁴⁴ The UN CESCR interprets the safe and acceptable water as water that is free from microorganisms, chemical substances and radiological hazards.⁴⁵ The WHO argues that in

³⁸ South African Human Rights' Council, "3rd Economic and Social Rights Report".

³⁹ McCaffrey 2005 (note 18 above), 108.

⁴⁰ Henri Smets, "Implementing the Right to Water in France," in *Legal Aspects of Water Reform* (Geneva 2007), 3.

⁴¹ *Economic and Social Rights report* (note 38 above).

⁴² If we look at the WHO's guidelines, this means that people need access to 15 litres per day as they only need food and drink for this right to be realised.

⁴³ Dubreil 2006 (note 37 above), 8.

⁴⁴ Dubreil 2006 (note 37 above), 8.

⁴⁵ General Comment no. 15 (note 24 above), para 12(b).

order for water to be safe and acceptable, not only does it need to be free of microorganisms and hazards but must be preferable to other, polluted alternatives.⁴⁶

This is important because it shows that people are not entitled to water that is pure but that it must be cleaner than the alternative, which is often polluted.⁴⁷ This more prevalent in the poorer developing countries such as Ghana and Kenya where the majority of the population depend on water sources that have been contaminated by various substances.⁴⁸

The right to accessible water

It does not help if there is enough; safe, potable water but the population of a State cannot access the water. The right to accessible water has four facets.⁴⁹ The first is that the water must be physically accessible.⁵⁰ This does not necessarily mean indoor plumbing but gives people the right to have water that is in the near vicinity of their homes or educational facilities.⁵¹ The lack of physical accessibility is one of the largest obstacles to the realisation of the right to water because physical accessibility has an impact on the safety of the water as well as the amount of water that people receive.⁵²

The further people have to go in order to get water the more health risks people are exposed to and the less water they receive. The health risks involved in the transport of water include the physical effects of carrying the heavy loads of water over long distances such as spinal injuries.⁵³ Other risks arise from the storing of water in unsafe ways when it is brought from far away such as mosquitoes that cause Dengue fever.⁵⁴ Thus, in order to fully enjoy the right to water, whether as a standalone right or as an auxiliary right, water must be easily accessible to the people.

⁴⁶ World Health Organisation, "The Right to Water", *Health and Human Rights publication series*, (2003) 15.

⁴⁷ World Health Organisation 2003 (note 46 above), 15.

⁴⁸ World Health Organisation 2003 (note 46 above), 15.

⁴⁹ General Comment no. 15 (note 24 above), para 12(c).

⁵⁰ General Comment no. 15 (note 24 above), para 12(c)(i).

⁵¹ General Comment no. 15 (note 24 above), para 12(c)(i).

⁵² World Health Organisation 2003 (note 46 above), 13.

⁵³ World Health Organisation 2003 (note 46 above), 12.

⁵⁴ World Health Organisation 2003 (note 46 above), 15.

The second facet of the right to accessible water is non-discriminatory access. This means that water must be accessible to everyone on an equitable basis rather than only being accessible to some people in the State or accessible only to a certain class or group of people.⁵⁵ This facet is connected to rights enunciated in various international instruments relating to discrimination.⁵⁶ The third facet of the right to accessible water is the right to information relating to water.⁵⁷ This facet gives people the right to seek advice on water related issues as well as receive information on such water issues. The final facet is the economic access that is integral to the final element of the right to water. It gives people the right to water that is affordable.⁵⁸

The right to affordable water

This element of the right to water does not only require that the direct cost of water i.e. the amount a person pays per litre of water, but also the indirect cost of water.⁵⁹ The poor groups of the population are often disproportionately burdened with the cost of water. Particularly if they want access to better quality water that they often purchase from vendors at 12 times the price those richer households, pay the State.⁶⁰

The right to affordable water does not require that everyone has access to free water but rather that the compensation they pay for water is proportionate to their income levels.⁶¹ This means that States cannot implement the same costing system for households whose monthly income is \$1000 as what they use for households whose monthly income is \$200.

2.3.2. The obligations

The right to water, like all rights, do not exist without some responsibilities. The first and largest obligation that people have is to contribute financially to their water supply.⁶² People

⁵⁵ General Comment no. 15 (note 24 above), para 12(c)(iii).

⁵⁶ ICESCR (note 18 above), Article 3 that prohibits discrimination between men and women. See also the Convention on Racial Discrimination (note 20 above).

⁵⁷ General Comment no. 15 (note 24 above), para 12(c)(iv).

⁵⁸ General Comment no. 15 (note 24 above), para 12(c)(ii).

⁵⁹ General Comment no. 15 (note 24 above), para 12(c)(ii).

⁶⁰ World Health Organisation 2003 (note 46 above), 15.

⁶¹ World Health Organisation 2003 (note 46 above), 15.

⁶² World Health Organisation 2003 (note 46 above), 32.

cannot have free access to a finite resource because that would undermine the ability of the State to ensure equitable access to water for their peoples.

States have an obligation to ensure that people have access to water but this access does not need to be free.⁶³ This means that people have an obligation to pay for water. The issue that many face is that the cost of water is too high.⁶⁴ The payment for water includes the direct costs of the water but also the indirect costs such as maintenance fees and taxes that enables the State to continue to realise the people's right to water.⁶⁵

Further obligations include reporting problems with the water supply to the appropriate authorities,⁶⁶ the obligation not to waste or pollute the water that they are given and cooperate with the water services of their country when required.⁶⁷

2.4 CONCLUSION

The right to water is a fundamental right without which the human population cannot survive because, as a standalone right and as an auxiliary right because it is vital to the realisation of other rights such as the right to food, health and life. People have the right to water that meets their basic needs that is accessible and of good quality. In return for receiving this right, people must ensure that they use only what they need in such a way that they do not waste nor do they pollute the water. People must also ensure that they cooperate with the authorities when making use of the water in order to ensure that the State can realise the right to water for everyone in a safe and sustainable manner

⁶³ General Comment no. 15 (note 24 above), para 27.

⁶⁴ World Health Organisation 2003 (note 46 above), 32.

⁶⁵ Debreuil 2006 (note 37 above), 11.

⁶⁶ World Health Organisation 2003 (note 46 above), 32.

⁶⁷ Debreuil 2006 (note 37 above), 11.

CHAPTER 3: THE BOUNDARIES OF STATE SOVEREIGNTY

*Sovereignty is the most extensive form of jurisdiction under international law. In general terms, it denotes full and unchallengeable power over a piece of territory and all the persons from time to time therein.*⁶⁸

3.1. INTRODUCTION

State sovereignty is a principle under international law that gives States supreme power within its borders.⁶⁹ In the *Island of Palmas Arbitration*,⁷⁰ the Arbitration tribunal found that the independence and sovereignty of a State is the State's right to exercise the functions of the States to the exclusion of other States.⁷¹ This chapter will discuss the definition of State sovereignty over natural resources under international law, specifically discussing the duties of the State towards its people when it exercises its sovereignty as well as its duties to other States and the legal problems that arise from these duties.

Territorial sovereignty refers to a State's ability to use its territory in any way in which it sees fit,⁷² within the boundaries of international law.⁷³ This principle forms that basis upon which States have exploited the natural resources in their territories for centuries.⁷⁴ States have sovereignty over different objects, such as natural resources and people. States must exercise

⁶⁸ Anne Bodely, "Weakening the Principle of Sovereignty in International Law: The International Tribunal for the Former Yugoslavia," *New York University Journal of International Law and Politics* 31 (1993): 417.

⁶⁹ James Crawford, "Sovereignty as a Legal Value," in *The Cambridge Companion to International Law*, ed. Martti Koskenniemi James Crawford, Surabhi Ranganathan (Cambridge: Cambridge University Press, 2012), 118.

⁷⁰ *Island of Palmas*, 11 RIAA 831(1928).

⁷¹ *Island of Palmas* 1928 (Note 70 above), 838.

⁷² Leo-Felix Lee, *Sovereignty, Ownership of and Access to Natural Resources*, vol. II, Environmental Laws and Their Enforcement, par 2.1.

⁷³ International Law Commission, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities* UN Doc A/56/10, Preamble; *Trail Smelter (United States of America V Canada)*, 3 RIAA 1905(1938), 1965.

⁷⁴ Nico Schrijver, *Sovereignty over Natural Resources*, ed. David Johnston James Crawford, Cambridge Studies in International Comparative Law (Cambridge: Cambridge University Press, 1997), 7. Where Schrijver argues that State sovereignty over natural resources gives States the legal capacity to freely dispose of natural resources.

their sovereignty over the different objects within different limitations.⁷⁵ States' sovereignty consists of various rights including the right to freely dispose of natural resources,⁷⁶ the right to expropriate these resources and the right to claim compensation from third parties who have caused damage to them.⁷⁷

These rights cannot be exercised in a vacuum, this chapter will analyse the extent to which these rights can be exercised, focussing on a State's right to freely dispose of its resources. It will also analyse the limitations within which these rights must be exercised.

In order to assess this, I will discuss a State's sovereignty under international law and how it applies to transboundary water resources as well as the obligations States have when exercising this sovereignty. The State has two types of obligations in relation to its sovereignty over natural resources: the first type consists of the obligations a State has to its people, i.e. the internal obligations that a State must comply with when it exercises its sovereignty. In this paper, I will focus on the two main rights identified as problematic in Chapter Two. The second type of obligations are the obligations a State owes to other States in the exercise of its sovereignty over transboundary underground water resources. These are external obligations, most often owed to the States who share the transboundary aquifer but will inevitably also extend to States that do not share the water resources due to the nature of water.

3.2. STATE SOVEREIGNTY UNDER INTERNATIONAL LAW

3.2.1. Sovereignty over natural resources

Discussions regarding State sovereignty over natural resources started after World War II as newly independent States attempted to develop principles and rules that would strengthen their economic positions.⁷⁸ The 1962 Declaration on Permanent Sovereignty

⁷⁵ ICCPR (note 18 above), which creates obligations on States to maintain certain minimum standards when exercising their sovereignty in their territories.

⁷⁶ Schrijver 1997 (note 74 above), 258; See also: ICCPR (note 18 above), Article I and ICESCR (note 18 above), Article 1(2) which gives people and by extension States the right to freely dispose of natural resources.

⁷⁷ Schrijver 1997 (note 74 above), 258.

⁷⁸ Schrijver 1997 (note 74 above), 1.

over Natural Resources give States sovereignty over all the natural resources found within its territory.⁷⁹

Natural resources have not been defined in international law, which increases the difficulty we face when determining the extent of a State's sovereignty.⁸⁰ Schrijver however argues that we must look to extra-legal sources to determine the definition of natural resources.⁸¹ Extra-legal literature defines natural resources as materials that naturally occur and are useful or could be useful to man.⁸²

Schrijver argues that the extra-legal focus placed on the definition of natural resources by various scientific disciplines is both a blessing and a curse.⁸³ It is a blessing because the more definitions there are the clearer and more defined the definition becomes and it is a curse because each definition will define natural resources within the discipline it operates.⁸⁴ Therefore, although there are many definitions available for natural resources, those definitions are not clear- or consistent enough to give us a definition to use across disciplines.⁸⁵

In order to exercise their sovereignty over natural resources, States identify the resources they deem valuable within their territories and make decisions on the use and exploitation of those resources. Territorial sovereignty is one of the fundamental elements of a State and forms the basis for the State's ability to exploit the resources it has.⁸⁶

3.2.2. *Sovereignty over transboundary water*

The sovereignty over natural resources, gives the State a right to freely dispose of the natural resources within the limits of its jurisdiction. When analysing natural resources such as land, forests and minerals, the question of whether it is found within the limits of a

⁷⁹ Schrijver 1997 (note 74 above), 12.

⁸⁰ Schrijver 1997 (note 74 above), 14-15.

⁸¹ Schrijver 1997 (note 74 above), 12.

⁸² Schrijver 1997 (note 74 above), 12.

⁸³ Schrijver 1997 (note 74 above), 13.

⁸⁴ Schrijver 1997 (note 74 above), 13.

⁸⁵ Schrijver 1997 (note 74 above), 13.

⁸⁶ Crawford 2012 (note 69 above) 120.

State's jurisdiction is easily answered because we can identify the trees and the rocks when they are found. Trees and rocks do also not move from their positions. When we determine sovereignty over water resources however, the determination is less cut and dry because water droplets continually shift, particularly when we start using water from aquifer basins.⁸⁷ The question that must be answered is whether or not States have sovereignty over the drops of water found in their territories or whether the State sovereignty is limited to the geological formations surrounding the water?

In analysing State sovereignty over water, the most important thing that must be considered is the fact that water is fluid and sovereignty cannot be identified over specific drops of water.⁸⁸ The International Law Commission (ILC) found that States have limited sovereignty over the transboundary aquifers in their territories.⁸⁹

The concept of sovereignty, although well-established in international law, is not always applicable to transboundary water resources, surface or underground. This can be seen from the ICJ's 1997 judgment in the *Gabčíkovo-Nagymaros Project* case,⁹⁰ where the majority of the court found that States do not have sovereignty over the part of an international river that flows within their territory but that there is rather a community interest in the river.⁹¹

International law, as it currently stands, recognises a limited sovereignty over transboundary water resources. This limited sovereignty allows States to utilise and dispose of water in a way they deem fit, with one *caveat*.⁹² This caveat is that States must utilise and dispose of their resources in such a way that it does not detriment the ability of other States

⁸⁷ Gabriel Ekstein and Yoram Eckstein, "A Hydrogeological Approach to Transboundary Ground Water Resources and International Law," *American University International Law Review*, no. 19 (2003): 219.

⁸⁸ Eckstein 2003 (note 87 above), 217.

⁸⁹ Draft Articles on Transboundary Aquifers, UN Doc A/Res/63/124, Article 3 and Article 4, which provide that States have sovereignty over the aquifer, aquifer system or aquifer basin found in their territories but must exercise this sovereignty in a reasonable and equitable manner.

⁹⁰ *Gabčíkovo-Nagymaros Project (Hungary V. Slovakia)*, Judgment, I. C. J. Reports 1997, p. 7.

⁹¹ *Gabčíkovo-Nagymaros* (note 90 above), para 85.

⁹² Draft Articles on Transboundary Aquifers (note 89 above), Article 3, *Trail Smelter* (note 73 above), 1965.

to use the resource,⁹³ or cause damage in any other way to the territories of other States.⁹⁴ This is especially important in respect of water because when water is incorrectly extracted or used, the consequences will be far-reaching and devastating.

3.2.3. *Conclusion*

State sovereignty has developed so that it is no longer an absolute doctrine in terms of which States can use its territories and the resources within those territories to the exclusion of the rest of the world. States now have various international obligations that they must comply with when using their territories, the most notable of which is the prohibition on causing harm to other States. With regards to transboundary water, the assessment of compliance is more difficult but also more important.

When determining whether or not States can exercise their sovereign right to use and dispose of resources within its territories, we must not only assess whether the resource is found in the territory of the State but also what effect the State's actions will have on other States.

3.3. THE DUTIES OF THE STATE IN THE EXERCISE OF ITS SOVEREIGNTY

3.3.1. *The duties of a State to its people*

When States exercise their right to sovereignty over natural resources, especially the right to use and the right to dispose of them, each State must ensure that its duties to its people is fulfilled. In 1952, the UN General assembly recommended that States must, as far as possible, dispose of their natural resources in the interest of the economic development of their people.⁹⁵ In 1962, with a vote of 87 to two, the UN General Assembly recognised

⁹³ *Gabčíkovo-Nagymaros* (note 91 above), para 85, where the ICJ found that a Hungary violated international law by diverting the waters of the River Danube and preventing Slovakia from being able to use them.

⁹⁴ *Trail Smelter* (note 73 above), 1965; *Case Concerning Pulp Mills on the River Uruguay (Argentina V Uruguay)*, *Separate Judgment of Judge Cancado Trindade*, 14 I.C.J.(2010); *Lake Lanoux Arbitration*, 12 R.I.A.A. 281(1957).

⁹⁵ United Nations General Assembly, *Right to Exploit Freely Natural Wealth and Resources* 21 December 1952 A/RES/626.

that States have an obligation to exercise their sovereignty in the interests of national development.⁹⁶

National development, as argued by Lawal and Oluwatoyin, is the material improvement of the lives of all the citizens in a State, in a sustainable manner.⁹⁷ This means that to comply with the Resolution on Permanent Sovereignty over Natural Resources, States must exercise their sovereignty in a way that ensures that the lives of all are improved. The problem that arises is that the improvement of the lives of all is not necessarily social but also economic.⁹⁸ This then means that States must develop in such a way to ensure that there is economic growth as well as social growth in a country.

The State has an obligation to ensure national development.⁹⁹ To do this, the State has an obligation to make sure that there is economic development to facilitate economic growth.¹⁰⁰ The facilitation of economic growth requires investment, both locally and foreign direct investment and often requires the use of natural resources such as water. An example is the use of water in the extraction of oil. When oil is produced, a large amount of water is used and that water is not available to the people because it is unsafe. This means that when a State gives companies and industry the right to use resources such as water, it reduces that amount of water available to the people. Finding a balance between the facilitation of economic growth to foster national development and ensuring adequate access to water for the people is a crucial obligation that States have.

The obligation to facilitate national development, has no binding force on States outside of the African Union because, although the right has been articulated and adopted by the

⁹⁶ United Nations General Assembly, *United Nations Declaration on Permanent Sovereignty over Natural Resources* UNGAR 1803(XVII), operative paragraph 1.

⁹⁷ Tolu Lawal and Abe Oluwatoyin, "National Development in Nigeria: Issues, Challenges and Prospects," *Journal of Public Administration and Policy Research* 3, no. 9 (2011): 237-238.

⁹⁸ Ministry of Economy and Development Planning, 'National Development Plan 2017-2021' 2017 para 25.

⁹⁹ United Nations General Assembly, *Declaration on the Right to Development* A/RES/41/128, Articles 2(3) and 3(1).

¹⁰⁰ A/RES/41/128 (note 99 above), Article 3(3).

General Assembly of the United Nations,¹⁰¹ the only binding instrument that has ever directly articulated this obligation is the African Charter on Human and People's Rights (Banjul Charter).¹⁰² Article 22 of the Banjul Charter obligates States to act, individually or collectively to ensure that people can exercise their right to development.¹⁰³

In 2009, the African Commission on Human and Peoples' Rights (ACHPR) found that the right to development is twofold.¹⁰⁴ There is a procedural element and a substantive element to the right.¹⁰⁵ The substantive element requires that a State take positive steps to improve the well-being of the people.¹⁰⁶ The procedural element requires that States ensure that the people participate in a meaningful way to their development.¹⁰⁷ What is important about the right to development when water use, the ACHPR's statement that States must not only ensure that there is food or housing but also ensure that there is a choice about where to live as well as that the people retain the ability to subsist.¹⁰⁸ States therefore have an obligation to ensure that their use of underground water resources, does not endanger the way of life and food sovereignty of the people who depend on the outflows of these water resources to survive.

States have a further duty under the ICESCR to ensure that people have access to water.¹⁰⁹ This duty requires States to take active steps to ensure that people have access to water in a non-discriminate way and progressively realise the right to water.¹¹⁰ The duty of

¹⁰¹ *Declaration on the Right to Development* 1986; United Nations Office of the High Commissioner for Human Rights, "Frequently Asked Questions on the Right to Development," Fact Sheet (Geneva: United Nations, 2016), 5.

¹⁰² African Union, *African Charter on Human and Peoples' Rights* CAB/LEG/67/3, Article 22; Mesenbet Assefa Tadege, "Reflections on the Right to Development: Challenges and Prospects," *African Human Rights Law Journal* 10 (2010): 326-327.

¹⁰³ African Charter on Human and Peoples' Rights (note 102 above), Article 22.

¹⁰⁴ *Centre for Minority Rights Development and Others V Kenya*, African Human Rights Law Reports 75(2009), para. 277.

¹⁰⁵ *Enderois* case (note 104 above), para 277.

¹⁰⁶ *Enderois* case (note 104 above), para 278.

¹⁰⁷ *Enderois* case (note 104 above), para 277.

¹⁰⁸ *Enderois* case (note 104 above), para 279.

¹⁰⁹ General Comment no. 15 (note 24 above), para 17.

¹¹⁰ CESCR (note 109 above), para 17.

a State to its people is the progressive realisation of rights rather than the immediate realisation of rights due to the limitation of resources.¹¹¹

3.3.2. *The duties of a State to other States*

The duties of one State to another is governed by two main sources, treaty law and customary international law. Irrespective of what the moral and ethical obligations of a State are, it's legal obligations arise from these two sources. In respect of shared resources, the obligations that have been created and crystalised are resource-specific. Certain obligations have arisen in respect of marine resources such as fisheries,¹¹² and obligations with respect to freshwater resources have arisen separately from those related to the oceans.¹¹³ The freshwater obligations are further divided into obligations related to surface-water and obligations related to groundwater resources.¹¹⁴

Treaties are drafted and signed with regards to particular aquifer basins¹¹⁵ whereas the customary international law rules apply to all basins. In order to determine whether a customary international law framework governing the use of transboundary aquifers, the ILC decided to begin its work on the topic of shared natural resources, focussing specifically on shared groundwater resources in 2002. which led to the adoption of the Draft Articles on

¹¹¹ CESCR (note 109 above), para 17.

¹¹² See United Nations General Assembly, *United Nations Convention on the Law of the Sea* U.N. Treaty Series vol 1833, p.3.

¹¹³ United Nations, *United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses* 36 ILM 700; International Law Association, *Helsinki Rules on the Uses of the Waters of International Rivers* Report of the fifty-second conference p.477; International Law Association, *International Law Association Rules on International Groundwaters* Report of the Sixty-Second Conference, pp. 251-274.

¹¹⁴ UN Watercourse Convention (note 113 above), Article 1 and Article 2; Helsinki Rules (note 113 above), Article I and Article II; DATA (Note 89 above).

¹¹⁵ *Bamak Declaration of the Ministers in Charge of Water Resources of the Countries Sharing the lullemeden Aquifer System* found at: http://www.internationalwaterlaw.org/documents/regionaldocs/lullemeden_Bamako_Declaration-2009.pdf; *Acordo Sobre O Aquifero Guarani* found at: : http://www.itamaraty.gov.br/sala-de-imprensa/Management_and_Utilization_of_the_Ground_Waters_in_the_Al-Saq/Al-Disi_Layer found at: http://internationalwaterlaw.org/documents/regionaldocs/Disi_Aquifer_Agreement-English2015.pdf; *Regional Strategy for the Utilisation of the Nubian Sandstone Aquifer System* found at: <http://www.fao.org/docrep/008/y5739e/y5739e05.htm#bm05.2.1>; *Establishment of a Consultation Mechanism for the Northwestern Sahara Aquifer System* found at: <http://www.fao.org/docrep/008/y5739e/y5739e05.htm#fn4>.

Transboundary Aquifers in 2008.¹¹⁶ The Draft Articles contain 19 articles which attempts to codify the customary international law rules regulating transboundary aquifers as well as develop the law in areas where the existing framework is inadequate.¹¹⁷ The ILC Draft articles provides for three over-arching obligations that States have in respect of Aquifers.

The first is the obligation to share the groundwater resources in an equitable and reasonable manner.¹¹⁸ This obligation was first written in the Helsinki rules of 1966 on the use of underground water resources that connected to international watercourses.¹¹⁹ This was followed by the United Nations Convention on the Law of Non-Navigational uses of International Watercourses in 1997 which codified the customary international law position on the non-navigational uses of international surface waters.¹²⁰ These obligations however exclude the use of underground water resources.¹²¹ The ILC draft articles on Transboundary aquifers have extended the obligation of reasonable and equitable use to transboundary underground water resources.¹²² This is in support of the International Law Association's (ILA) non-binding declarations on the use of transboundary water resources.¹²³

Using a transboundary water resource in an equitable manner, require that States have due regard for the interests of their fellow aquifer States when making use of the water.¹²⁴ Equitable use does not necessitate an equal sharing of the water resource, nor does it necessitate a sharing in proportion to the size of the geological formation found within one State's territory but, rather various other factors such as the respective need of the States.¹²⁵ Article 5 of the DATA lays down some of these factors. These factors include the populations dependent on the water for, the recharge rate of the aquifer in question, the

¹¹⁶ DATA (note 89 above).

¹¹⁷ DATA (note 89 above), Preamble

¹¹⁸ DATA (note 89 above), Article 3.

¹¹⁹ Helsinki rules (note 113 above), Article I.

¹²⁰ Gabçkovo-Nagymaros, (note 90 above), para 85.

¹²¹ UN Watercourse Convention (note 113 above).

¹²² DATA (note 89 above), Article 4; Second Report on Transboundary Aquifers, para 21.

¹²³ Helsinki Rules (note 113 above) and Seoul Declaration (note 113 above).

¹²⁴ DATA (note 89 above), Article 5

¹²⁵ Second report, paragraph 20; where the Special Rapporteur argues that that the principle of equitable utilisation refers to the equitable distribution of the benefits derived from an aquifer and must be undertaken by means of agreement and cooperation among States.

discharge rates, etc.... The balance of these factors is a delicate exercise which must be done on a case by case basis.¹²⁶ In order for States to fulfil this obligation, they must not only cooperate with each other,¹²⁷ but they must also regularly share information regarding the Aquifer.¹²⁸

A pre-requisite for the fulfilment of this obligation according to Chusei Yamada, the ILS's Special Rapporteur on shared natural resources, is the obligation to protect and preserve the aquifer systems.¹²⁹ Article 10 of the DATA require States to take appropriate measures to protect and preserve the ecosystems that are within or dependent on the aquifer systems.¹³⁰ The obligation to protect the aquifer systems requires that States ensure that the quality of the water does not deteriorate below the levels required for the preservation of the ecosystems dependent on the aquifer.¹³¹

The second duty is the duty not to cause significant harm to the territories of other States.¹³² This requires that States not only take into consideration the interests of other States but also to take cognisance of and take mitigating measures against potential transboundary harm.¹³³ The measures that are to be taken must, if possible eliminate the harm caused to the interest of the other State.¹³⁴ The scope of this duty has a significant impact on how States are allowed to exercise their sovereignty over their natural water resources in particular because incorrect exploitation of aquifer systems have far-reaching consequences. These consequences include, land subsidence and water- and ground

¹²⁶ DATA (note 89 above), commentary to Article 5.

¹²⁷ DATA (note 89 above), Article 7 and Article 9.

¹²⁸ DATA (note 89 above), Article 8.

¹²⁹ Third report, Paragraph 32.

¹³⁰ DATA (note 89 above), Article 10.

¹³¹ Kerstin Mechlem, "Moving Ahead in Protecting Freshwater Resources: The International Law Commission's Draft Articles on Transboundary Aquifers," *Leiden Journal of International Law* 22 (2009): 817.

¹³² DATA (note 89 above), Article 6 and DATH (note 73 above), Article 2.

¹³³ DATH (note 73 above), Article 3.

¹³⁴ DATH (note 73 above), Article 3; Pulp Mills (note 94 above), para 97; United Nations General Assembly, *United Nations Declaration of the United Nations Conference on the Human Environment* 15 December 1972 A/RES/2994, Principle 21.

pollution.¹³⁵ Subsidence occurs when water is pumped from an aquifer at a faster rate than the rate at which the aquifer recharges which causes the land mass above the aquifer to sink.

3.4. CONCLUSION

States have sovereignty over transboundary aquifers in a similar way than they have sovereignty over their international surface watercourses.¹³⁶ Although States have sovereignty over the aquifers found in their territories and over transboundary aquifers, the exercise of this sovereignty carries with it obligations which limits that sovereignty. Many of the obligations are contrary to one another and States have the difficult task of balancing the various competing internal interests, such as the need for development and the need to ensure that the people have sufficient water to survive. Not only must the States balance the internal competing interests, but they must also balance the external interests under international law. Whether it be bilateral, regional or international agreements, these interests must be balanced with each other as well as with the internal interests of the State. States have an obligation to ensure that its people develop, that they have sufficient water to survive and that they use the waters of transboundary aquifers in such a way so as to ensure that there is no significant harm to the interests of other States and that their use does not endanger the ecosystems which depend on the aquifer system for their survival.

¹³⁵ Steven M. Gorelick, Laure E. Urban, Howard A. Zebker and Scott Fendorf, "Release of Arsenic to Deep Groundwater in the Mekong Delta, Vietnam, Linked to Pumping-Induced Land Subsidence," *Proceedings of the National Academy of Sciences* 110, no. 34 (2013): 13751.

¹³⁶ Mechlem, "Moving Ahead in Protecting Freshwater Resources: The International Law Commission's Draft Articles on Transboundary Aquifers," 811.

CHAPTER 4: THE LAKE CHAD BASIN

4.1. INTRODUCTION

States are only bound by the obligations they choose or to which they acquiesce.¹³⁷ Therefore, although there are various obligations relating to the utilisation of aquifer resources, all States are not bound to fulfil all obligations. Knowing the obligations States have in general is necessary to establish the framework within which the needs of the individual aquifer systems and the ecosystems which depend on the aquifer systems can be determined. The needs of each aquifer system are different, some have more people who are dependent on it while others may have less human dependents but more animal or other environmental dependents.¹³⁸ These needs and the problems associated with these needs must not only be assessed within the context of the general international framework but also within the specific framework that States have created by means of consent to international treaties, acquiescence to the creation of customary international law or the implementation of regional and local means.

The eight States that share the Lake Chad Basin have varying needs.¹³⁹ Some States have larger populations who are dependent on the underground water resources because of their sporadic rainfall and low levels of surface water access,¹⁴⁰ other States have more access to surface water, such as the four States which border Lake Chad, the basin's largest natural discharge source.¹⁴¹ and are responsible for a large portion of the Basin's natural recharge which places certain obligations on them.¹⁴² Not all States in the Basin have obligations with

¹³⁷ Rüdiger Wolfrum, "Sources of International Law," *Max Planck Encyclopedia of Public International Law* 9 (2011): para. 4.

¹³⁸ M.T. Sarch, "Fishing and Farming at Lake Chad: Institutions for Access to Natural Resources," *Journal of Environmental Management* 62 (2001): 185.

¹³⁹ Bontemps 2013 (note 9 above), 5; Mahamat Salah Hachim Annadif Mahamat Ali Abdelkarim, Beatrice Ketchemen Tandia, Wilson Yetoh Fantong, Sanoussi Rabe, Ismaghil Bobadji, Christopher Madubuko Maduabuchi, Albert Adedeji Adegboyega, Eric Foto, Backo Sale, "Report of the I.A.E.A-Supported Regional Technical Cooperation Project", *Integrated and Sustainable Management of Shared Aquifer Systems and Basins of the Sahel Region*, RAF/7/011, (2017) 1.

¹⁴⁰ RAF/7/011 2017 (note 139 above), 1.

¹⁴¹ RAF/7/011 2017 (note 139 above), 1.

¹⁴² Bontemps 2013 (note 9 above), 5.

respect to natural discharge and recharge locations. Libya, has no natural recharge point for the aquifer basin and as such, its obligations differ from those of States such as the Central African Republic and Cameroon who collectively contribute 75% of the Basin's recharge.¹⁴³

This chapter will explain the current situation in the Chad basin, looking at the socio-economic and environmental needs. The current and future use of the underground water resources in the Lake Chad Basin will be discussed. The final aspect of the Lake Chad Basin that will be discussed is the work of the Lake Chad Basin Commission. This will give an overview of the problems surrounding the Lake Chad Basin.

4.2. THE LAKE CHAD BASIN

The Lake Chad basin spans 2 434 000km² of which the majority consists of the underground resources as the surface water area only spans 4 500km².¹⁴⁴ Lake Chad is one of the largest natural discharge zones of the Aquifer, although not the only one.¹⁴⁵ The basin is not confined which means that it recharges naturally and discharges naturally.¹⁴⁶ The recharge of the basin is very sporadic with an average of 750mm per year originating mostly from the Central African Republic (CAR) and Cameroon who contribute 75% of the annual recharge of the Basin. The Basin is home to between 30 million¹⁴⁷ and 47 million people.¹⁴⁸ Many of the Northern countries who have an interest in this basin are very arid States. The arid States depend on the Basin as their main source of water.¹⁴⁹

Although the Chad basin has natural recharge points, the rapid increase in the demand of both surface and ground water has led to over-exploitation of the water resources.¹⁵⁰ The majority of the population who live on the Lake Chad Basin, live in abject poverty.¹⁵¹ This means

¹⁴³ RAF/7/011 2017 (note 139 above), Table 1.

¹⁴⁴ Bontemps 2013 (note 9 above), 5; RAF/7/011 (note 139 above), 1.

¹⁴⁵ Marc Leblanc *et al.*, "Remote Sensing for Groundwater Modelling in Large Semiarid Areas: Lake Chad Basin, Africa," *Hydrogeology journal* 15, no. 1 (2007): 98.

¹⁴⁶ RAF/7/011 2017 (note 139 above), 2.

¹⁴⁷ Bontemps 2013 (note 9 above) 3.

¹⁴⁸ RAF/7/011 2017 (note 139 above) 16.

¹⁴⁹ Bontemps 2013 (note 9 above) 3.

¹⁵⁰ Bontemps 2013 (note 9 above) 4.

¹⁵¹ Bontemps 2013 (note 9 above) 4; United Nations Population Fund West and Central Africa Regional Office, "Demographic Dynamics and the Crisis of Countries around Lake Chad", (2017) 22. Where it was found

that not only are there millions of people who depend on the water, most of these people do not have access to the financial resources to ensure that their use of the water does not cause harm to the ecosystems dependent on the water, their neighbours or the other States who are dependent on the water. Most of the population only gain access to the water by using the ponds and streams where the Basin naturally discharges and only between 26% and 56% of the population has access to safe drinking water as a result of the way in which the people gain access to the water.¹⁵²

Although the use of groundwater has not yet become a major issue in the region, the Lake Chad Basin Commission (LCBC) and the Basin-States' apathy towards the protection and management of the aquifer resources, means that there will be problems in the future.¹⁵³ The LCBC is the body that was established in 1964 by Nigeria, Chad, Niger and Cameroon to facilitate management of the Lake Chad transboundary water resources in a sustainable and equitable manner.¹⁵⁴ In recognition of its inadequacies, the LCBC drafted the Water charter in 2011 which was intended to lay down more progressive and clear rules as to the use, conservation and preservation of the Basin and its ecosystems.¹⁵⁵ The Water Charter, which was adopted by the Council of Ministers, the highest authority in the LCBC, in 2012.¹⁵⁶ The Charter makes provision for the sustainable use of the waters of the aquifer basin connecting the Lake Chad Basin.¹⁵⁷

The Water Charter, is almost a carbon copy of the ILC's DATA as it provides for reasonable use of the water and lists factors and circumstances that must be taken into consideration when States make use of the waters of the Lake Chad Basin.¹⁵⁸ However, unlike DATA, the

that 49.1% of the population of the States that share the surface water of the Lake Chad Basin live on less than \$1.90 per day; .

¹⁵² Bontemps 2013 (note 9 above) 4.

¹⁵³ Bontemps 2013 (note 9 above), 8.

¹⁵⁴ Commission du Bassin du Lac Tchad, "La Commission Du Bassin Du Lac Tchad," www.cbilt.org/fr/la-commission-du-bassin-du-lac-tchad; "Mandate and Missions," www.cbilt.org/en/mandate-and-missions.

¹⁵⁵ Lake Chad Basin Commission, *Water Charter for the Lake Chad Basin*, Preamble.

¹⁵⁶ Lake Chad Basin Commission, "The Lake Chad Water Charter as a Vehicle for Sub-Regional Integration and Security," <https://www.cbilt.org/en/themes/lake-chad-water-charter-vehicle-sub-regional-integration-and-security>.

¹⁵⁷ Water Charter 2011 (note 155 above), Article 10.

¹⁵⁸ Water Charter 2011 (note 155 above), Article 10 and Article 13.

Water Charter has also made provision for minimum and maximum flows that States must maintain across the basin when making use of the water.¹⁵⁹ There are two main problems with the Water Charter. The first is that, irrespective of the fact that there is a minimum flow that must be maintained, it is still left to the discretion of the States to decide how much water they can use to maintain those flows. Some of the factors that States must take into consideration when using the water, States must consider the right to water that all people living on the Basin have.¹⁶⁰ The second major problem with the Water Charter is that fact that although it was adopted by the Council of Ministers in 2012, the Water Charter has still not come into force because of a lack of ratification by Member States.¹⁶¹

In addition to the factors that States must take into consideration the Water Charter also provides that the use of the water for the purpose of meeting the essential needs of the population living on the Basin takes preference over all other uses of the water, whether it is surface or underground water.¹⁶² This gives voice to the way in which States must ensure that the people's right to water is realised. However, while this system on paper is wonderful, the apathetic attitude of the governments who have an interest in the basin means that no substantive progress has been made in the sustainable use and conservation of the Lake Chad basin.

4.3. THE USE OF UNDERGROUND WATER RESOURCES IN THE LAKE CHAD BASIN

The waters in the Lake Chad Basin have been used through its natural discharge points for many years. Communities have been established on the banks of the lakes and rivers where the waters of the basin freely flow.¹⁶³ The surface area of the waters in the basin are being exploited at a rate exceeding the recharge. This is evidenced by the fact that Lake Chad, which was covered an area of 22000km² in the 1950's¹⁶⁴ to 4516km² in 2012.¹⁶⁵ The over exploitation of

¹⁵⁹ Water Charter 2011 (note 155 above), Article 12 which provides that State Parties must ensure that environmental flows are maintained at key points which are defined in Appendix 2 of the Charter.

¹⁶⁰ Water Charter 2011 (note 155 above), Article 13(o).

¹⁶¹ Lake Chad Basin Commission, "Lake Chad Development and Climate Resilience Action Plan", (2015) 19.

¹⁶² Water Charter 2011 (note 155 above), Article 14.

¹⁶³ Bontemps 2013 (note 9 above), 4.

¹⁶⁴ Lake Chad Development and Climate Resilience Action Plan (note 161 above), 1.

¹⁶⁵ Lake Chad Basin Commission, "Report on the State of the Lake Chad Basin Ecosystem", (2012) 25.

the surface waters means that the States will be forced to exploit the underground water resources more as it is a more reliable source of water in the long term.¹⁶⁶ Below, I will discuss the use of the Lake Chad Basin, both the surface- and underground resources after which I will discuss the problems associated with the current use of the water resources as well as the potential problems associated with the increase demand for groundwater.

4.3.1. *Use of the water resources in the Chad Basin*

The main activities of the population surrounding the Lake Chad basin are agriculture, animal husbandry and fisheries.¹⁶⁷ The surface waters of the Basin are subject to many different uses including sweet pepper cropping on the banks of the Komadugu Yobe river,¹⁶⁸ and fishing on the surface of Lake Chad,¹⁶⁹ the remaining surface waters are mainly used for irrigation of various crops as well as fishing.¹⁷⁰ The waters of the basin are also used for metal ore extraction,¹⁷¹ oil production,¹⁷² drinking water, water transport as well as other industries.¹⁷³

Drinking water is most often provided from the use of the underground water resources in the Chad Basin because its supply tends to be more stable than that of its surface counterparts.¹⁷⁴ In 2000, it was estimated that the States sharing the Lake Chad Basin required 80 million m³ of drinking water, most of which is sourced from groundwater.¹⁷⁵ The groundwater is extracted through 18694 boreholes across the Pilocene and Quaternay aquifers

¹⁶⁶ Ali Bakari, "Hydrochemical Assessment of Groundwater Quality in the Chad Basin around Maiduguri, Nigeria," *Journal of Geology and Mining Research* 6, no. 1 (2014): 1.

¹⁶⁷ RAF/7/011 2017 (note 139 above), 1.

¹⁶⁸ Basile Hector Pierre Genthon, A Luxereau, Marc Descloitres, H Abdou, Jacques Hinderer and Michel Bakalowicz, "Groundwater Recharge by Sahelian Rivers- Consequences for Agricultural Development: Example from the Lower Komadugu Yobe River (Eastern Niger, Lake Chad Basin)," *Environmental Earth Sciences* 74, no. 2 (2015): 1292.

¹⁶⁹ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 165.

¹⁷⁰ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 53.

¹⁷¹ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 80; See also Abu Hassan Onimisi and Ifatimehin Olanrewaju, "Environmental Impacts of Iron Ore Mining on Quality of Surface Water and Its Health Implication on the Inhabitants of Itakpe," *International Journal of Current Multidisciplinary Studies* 2, no. 6 (2016): 318. which describes how iron ore mining affects groundwater in Nigeria.

¹⁷² Lisa Henthorne, "Changing Water Needs in Offshore Oil Production," *Water and Wastewater International* 25, no. 6 (2011): 38. Where Henthorne explains the large quantities of underground water used in the production of oil.

¹⁷³ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 169 and 170.

¹⁷⁴ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 165.

¹⁷⁵ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 165.

which make up the majority of the Lake Chad Basin's underground network.¹⁷⁶ The agricultural needs of the Basin are largely met through the use of the surface waters such as Lake Chad, tributaries and dams.¹⁷⁷ The majority of the dams and reservoirs have been built as part of various irrigation projects in Nigeria, Cameroon and Chad.¹⁷⁸ The amount of water required by the various projects vary from 804000 m³ to 625 million m³ which places strain on the available resources in the basin.¹⁷⁹

4.5. PROBLEMS ASSOCIATED WITH THE USE OF THE LAKE CHAD WATER RESOURCES

The surface of the Chad basin has decreased at an alarming rate since the 1960's as a result of climate change and over exploitation.¹⁸⁰ So, the less surface water is available, the more groundwater will be needed to satisfy the needs of the various interest groups. In 2010, withdrawals from Lake Chad and its tributaries averaged at 2,5km³ for the year.¹⁸¹ The largest problem that the Chad Basin faces now and will continue to face in the future is the issue of competing interests. When the demand for the water exceeds the availability of the water the problem that will arise is: who gets priority in the use of the water? This argument will cause conflict, not only among States, but among the various population groups in the States. This is already occurring in various areas but will worsen as the water resources reduce.¹⁸²

The LCBC has also identified several problems they face from an environmental aspect.¹⁸³ The first of these is the issue of water pollution, which is a problem, particularly in the urban areas where people extract water from boreholes.¹⁸⁴ The pollution originates from unhygienic borehole conditions, such as those in N'Djamena, Chad's capital city.¹⁸⁵ In addition to the

¹⁷⁶ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 165; Bontemps 2013 (note 9 above), 5.

¹⁷⁷ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 166.

¹⁷⁸ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 166.

¹⁷⁹ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 166.

¹⁸⁰ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 28-29; See also: Lake Chad Development and Climate Resilience Action Plan (note 161 above), 1.

¹⁸¹ Report on the State of the Lake Chad Basin Ecosystem (note 165 above), 168.

¹⁸² Lake Chad Development and Climate Resilience Plan (note 161 above), iv.

¹⁸³ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 177.

¹⁸⁴ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 178.

¹⁸⁵ Lucas Kengni Hamit Abderamane, Ernest Sakamou Iddo and Kopa Adoua Njueya, "Assessment of the Vulnerability of Groundwater to Pollution in N'djamena (Chad) Using the Drastic Index Method," *International Journal of Current Research* 9, no. 10 (2017): 58912.

unhygienic borehole conditions, which directly exposes people to pollutants in the water, the industrial uses of the water also poses a pollution hazard.¹⁸⁶In the Chad Basin, oil spills pose a real danger as the oil exploration and production in the region increases.¹⁸⁷ The oil exploitation in the region has far reaching consequences, both good and bad. On the one hand, it has given the economies of the States in the region a boost, for example Nigeria, where oil production makes up 20% of GDP;¹⁸⁸ and on the other, it has had dire environmental consequences because of the oil spills caused by lack of care by the oil exploitation companies and a lack of oversight by the governments in question.¹⁸⁹

The second problem identified by the LCBC is climate variability in the region, as a result of climate change.¹⁹⁰ The variability in the climate means the rainfall is erratic and difficult to predict which has an effect on the agricultural activities in the region.¹⁹¹This has a double effect on the groundwater resources because not only does the erratic rainfall mean that the aquifers are not recharged at the rates they were in the past, but the demand for groundwater increases with the erratic rainfall because people who normally depend on the surface water now have to resort to using the underground water resources to meet their needs.

The third problem identified is population pressure.¹⁹² A population growth rate of between 1,5% and 3,7% in Libya and Niger coupled with the predictions that the population surrounding the lake is set to double by 2032 means increased demand and use of the water resources. It also means that the other natural resources, some of which is needed to support the water

¹⁸⁶ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 177; See also E. Peake and M.F. Mohtadi J.J. Duffy, "Oil Spills on Land as Potential Sources of Groundwater Contamination," *Environment International* 3, no. 2 (1980): for an analysis of the effect of oil spills on groundwater.

¹⁸⁷ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 180-182; Armand Mboutchouang Kountchou and Abdelkrim Araar Gadom Djal Gadom, "The Impact of Oil Exploitation on Wellbeing in Chad," in *African Economic Conference* (Addis Ababa, Ethiopia 2017), 2.

¹⁸⁸ Peter C Nwilo and Olusegun T Badejo, "Impacts and Management of Oil Spill Pollution Along the Nigerian Coastal Areas," *Administering Marine Spaces: International Issues* 119 (2006): 4.

¹⁸⁹ Nwilo and Badejo 2006 (note 188 above), 5 where the authors explain and detail the causes and consequences of the high rate of oil spills in Nigeria; See also: Kountchou *et al* 2017 (note 187 above), 2-3 where the presenters explain the effects of the 2010 oil spill in the Kome district.

¹⁹⁰ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 179.

¹⁹¹ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 179.

¹⁹² Report on the State of the Lake Chad Basin ecosystem (note 165 above), 197.

systems are over exploited.¹⁹³ The increased population leads to more conflict regarding the use of the natural resources in the basin, the water as well as the land.¹⁹⁴

4.6. CONCLUSION

The Lake Chad Basin was once a magnificently large source of life for the Sahel region, but time, human interference and nature's interference has rendered it a fraction of what it once was. The Basin is the lifeblood of the area, ensuring that millions of people survive annually but its mismanagement, particularly the mismanagement of underground components will mean the Basin will be unable to support the people who depend on it in the future. The largest problem the Basin States will face, from a regulatory perspective is the regulation of conflicting uses and being able to enforce the regulations when the population is so dense and remote.

The best solution available to the Basin States is international cooperation because it will give States the ability to meet all their international obligations. The international co-operation between the States will not be easy because only four of the States have a visible interest in the Basin.¹⁹⁵ The riparian States who share the surface of Lake Chad have a visible connection to the water which will likely make them more willing to cooperate in the use and extraction of the water.¹⁹⁶ One of the greatest barriers to the effective management and utilisation of the Lake Chad Basin is the fact that States with lesser interests or who are not as dependent as other on the water provided by the Basin, will be less willing to cooperate in the management of the Basin.¹⁹⁷

¹⁹³ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 197.

¹⁹⁴ Report on the State of the Lake Chad Basin ecosystem (note 165 above), 197-198.

¹⁹⁵ Bontemps 2013(note 9 above), 3.

¹⁹⁶ Bontemps 2013 (note 9 above), 8-9.

¹⁹⁷ Bontemps 2013 (note 9 above), 9.

CHAPTER 5: ANALYSIS

This study set out to analyse the importance of striking a balance between State sovereignty over its natural resources and the human right to water. It looked at what the content of the right to water entailed and the States' obligations in respect of the use of transboundary underground water resources. The study focussed on the Lake Chad Basin to show the relationship between the right water and State sovereignty by illustrating the problems that arise when too little attention is given to the balance between State sovereignty and the right to water. This chapter will summarise the contents of the dissertation and provide a brief recommendation of how the problem should be approached.

The second chapter assessed whether people have the right to water under international law and what the content and limitation of such a right is.¹⁹⁸ The human right to water is a multi-faceted right that forms the fundamental basis on which many other rights are based and without realising the right to water, many other rights cannot be realised, such as the right to food, hygiene and sanitation. This right is not without its obligations though, people must not waste the water given to them, not only because it detracts their neighbours and friends but also because it increases the precariousness of the position future generations will be in. If the people of today continue to waste water, the people of tomorrow will not survive because there will be no water left.

The third chapter addressed the State's rights and obligations in respect of groundwater resources and the obligations they have towards their people and fellow States.¹⁹⁹ State Sovereignty is one of the pillars upon which international law has developed. It comes in many

¹⁹⁸ See

Chapter 2: The human Right to Water above.

¹⁹⁹ See

Chapter 3: The boundaries of State Sovereignty above.

different forms, from being able to govern yourself,²⁰⁰ to being able to use your territory in any way you see fit.²⁰¹ States have sovereignty over transboundary aquifers in a similar way than they have sovereignty over any shared natural resource, such as a river, a lake or the ocean.²⁰² State sovereignty, although a very wide concept is not without limitation. Sovereignty exercised within the bounds of one's territory is limited by various international obligations including the obligation not to cause harm to your neighbour and the obligation to fulfil human rights obligations undertaken by the State.²⁰³ Sovereignty over shared natural resources, whether they be shared by two states or by all states, carry the additional limitation of the interests of the other states that share the resources.²⁰⁴ In other words, when States make use of shared natural resources, they must ensure they meet their human rights obligations, they must not cause harm to the territory of other States and they must act in a manner which does not detriment the interests of other States in the shared resource. Many of the obligations are contrary to one another and States have the difficult task of balancing the various competing internal interests, such as the need for development and the need to ensure that the people have sufficient water to survive as well as ensuring that the interests of their neighbours is not detrimented. States have an obligation to facilitate national development, progressively ensure that all people have access to water not only to drink but also for food security and industrial needs.

The fourth chapter discussed the context of the Lake Chad Basin States and analysed the way in which these States managed the underground water resources.²⁰⁵ The Lake Chad Basin was chosen as the case study to show the difficulty in balancing the various interests because the basin is shared by eight States, who do not cooperate in its management. Although the

²⁰⁰ United Nations, *Charter of the United Nations* 1 UNTS XVI, Article 2(7)., International Conference of American States, *Montevideo Convention on the Rights and Duties of States* 165 LNTS 19, Article 3 and Article 9.

²⁰¹ UN Declaration on Sovereignty over natural resource (note 96 above).

²⁰² Mechlem 2009 (note 131 above), 802.

²⁰³ Trail Smelter Arbitration (note 73 above), 1966.

²⁰⁴ DATA (note 89 above); The Water Charter 2011 (note 155 above), See also note 115 above for more examples of States agreements requiring special attention be given to States that share a resource.

²⁰⁵ See

LCBC was established as early as 1967,²⁰⁶ not all States with an interest in the Basin have are members which limits the extent to which the LCBC can regulate the Basin and ensure that its resources are managed in a way that takes all interests into consideration and in a manner that is sustainable.²⁰⁷ The LCBC's work with the States who are members has been unsuccessful in respect of the underground resources largely because of the States' and Commission's apathetic attitude towards its management.

The most prominent work that was done by the LCBC was the Water Charter in 2011 but the Charter, although among the first of its kind in the world, has not yet come into force because of a lack of ratification by the LCBC member States. This does not bode well for future cooperation when the States' reliance on the groundwater resources increases and some of the States become entirely dependent on the groundwater to meet their needs. In order to prevent conflict between the States, these States must cooperate with one another in managing the use of the groundwater resources in the Lake Chad Basin.

The Basin States need to decide and implement a regulatory framework that makes provision for the conflicting uses of the ground water resources in the Lake Chad Basin. The Water Charter, although a valiant effort by the LCBC does not clearly show where various uses will have priority.²⁰⁸ It is not sufficient to decide that human needs must be given preferential treatment over other uses because use of water for human needs, is not a defined term and as such, arguments on the use of water for hygiene and food security will abound.

Additionally, the States need to make provision for water use in the industrial and mining sectors in addition to making provision for human consumption and food security because the facilitation of industrial and mining activities ensure that these States will meet their obligations to ensure national development and assist in the upliftment of their people. The eight Basin States, Chad, Nigeria, Cameroon, Central African Republic, Niger, Algeria, Sudan and Libya must come together and decide how much water can be allocated to each country and then each

²⁰⁶ LCBC Convention (note 154 above).

²⁰⁷ Parties to Convention exclude Sudan and Algeria are not member States of the LCBC, although Sudan does have observer status.

²⁰⁸ Water Charter 2011 (note 155 above).

country must have a plan to allocate water to the various uses that are unique to its circumstances. They must ensure that food security and the human right to water is balanced with the people's right to national development and that the way in which their water is used, does not harm the territory of their neighbours nor does it negatively impact their fellow Basin States' access to this vital resource.

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