Realising the Water Security of the Nile River Basin States: Critical analysis of Article 14(b) on the Water Security of the Nile River Basin Cooperative Framework Agreement 2010

Ph.D Thesis

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DECLARATION

I John Rao Nyaoro do hereby declare that this is my original work and that it has not been submitted and is not being submitted for the research and subsequent award of a degree or any other academic credit in any other University.

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Abstract

This PhD thesis treats the Nile River water resources as shared water resources by the eleven basin Statesnamely, Tanzania, Burundi, Egypt, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, South Sudan, Rwanda, Sudan, and Uganda. These water resources are key and central to the livelihood of the basin's 247 million people. The increasing demand on the Nile water resources and the new challenges on the availability and use of the Nile watersrequires cooperation by all Nile countries in the management, joint planning and equitable use of the basin's shared water resources to ensure the availability, accessibility and resolution of any conflict that might arise in order to realise the water security of the basin States.

The main problem in the Nile River basin today is the threat to the water security of the basin States as there is no permanent mechanism (legal and institutional) arrangement acceptable to Nile countries to enable cooperation and joint planning in the management and equitable use of the Nile waters. There is therefore need to develop a new Nile River Basin Regime based on the international water law to provide guiding principles, norms and rules to ensure cooperation, joint planning,equitable use of the basin's water resources and peaceful coexistence of the basin States. Lack of acceptable legal and institutional framework has lead to mistrust and tension among the basin States.

The new Nile River Basin Regime should enable the basin States to balance the existing water uses and potential uses, on one hand and the balance of the right to equitable useof Nile waters and prevention of harm on the other hand. The two balances would require the use of international water law and science to inform the policy and the development of the new Nile River Basin Regime to enables the basin States realize their water security.

The main objective of this study therefore, is to examine and critically analyse the unresolved Article 14(b) on the water security of the Signed Nile River Basin Cooperative Framework Agreement (CFA 2010) and to develop a new Nile River Basin Regime that would provide the way forward in solving article 14 (b) and to enable the basin States realise their water security.

The methodology used in this study was direct interviews with Nile Council of Ministers, their Technical Advisors and other representatives of institutions whose activities touches on the development and management of the basin's water resources from all basin States except Eritrea which acted as observer, analyzed the survey done by the Nile Basin Initiative Secretariat on the acceptability of the CFA 2010. This thesis also identified area of further research as use of NB DSS and international water law to determine the water allocation of the basin States.

This thesis therefore, concludes that **"The realization of the water security of the Nile basin States requires the cooperation of Nile countries, in the development and management of its waters to ensure the availability of its equitable use, joint planning and balancing of the current uses and potential uses to ensure peaceful accessibility of the Nile River waters, and early management and resolution of any conflict that might arise".**

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DEDICATION

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GLOSSARY

AU	African Union
CIDA	Canadian International Development Agency
CFA	Cooperative Framework Agreement
DSS	Decision Support System
EAC	East Africa Community
EU	European Union
EC	European Commission
ECE	Economic Commission for Europe
ICJ	International Court of Justice
ILC	International Law Commission
IDI	I'Institut de Droit International
IIL	Institute of International Law
ILA	International Law Association
FAO	Food and Agriculture Organisation
GEF	Global Environmental Facility
LBDA	Lake Basin Development Authority
LCBC	Lake Chad Basin Commission
NBI	Nile Basin Initiative
NB DSS	Nile River Basin Decision Support System
Nile-COM	Nile Council of Ministers in Charge of Water Affairs
OAU	Organisation of African Unity
OMVS	Organisation pour la Mise en Valeur du fleuve Senegal

PICJ	Permanent International Court of Justice
PDF	Project Development Formulation
WHO	World Health Organisation
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
USD	United States Dollar

Definition of Concepts

For the purpose of this thesis:

(a) "Transboundary water resources" means water resources shared by two or more Basin States.

(b) "Water Security in the context of transboundary water resources" means the legal entitlement and obligation of the Basin States in the use and development shared water resources.

(c) "Legal entitlement" means the right of the Basin States to equitable use of the shared water resources that is balance with the duty to prevent significant harm to other Basin States.

(d) "Article 14b of the Nile River Basin Cooperative Framework Agreement 2010 on water security "means the balancing of the existing water uses and potential water uses in accordance with the prevailing international water laws.

(e) "Shared Nile River water resources" means the 84 billion cubic metres (BCM) of the Nile River flows as measured at high Aswan dam that is today considered to have been developed by Egypt (55.5BCM) and Sudan (18.5 BCM) and 10 BCM reserved for evaporation at Aswan dam.

(f) "Nile Basin Regime " means the legal and Institutional framework that guides the use of the Nile River Basin shared water resources

(g) "Significant harm in a shared water resource" means reduction of volume or flow of shared water resources or altering its quality to a level that affect the existing uses of other basin States that can be established by evidence.

EXECUTIVE SUMMARY

The Nile River which is the longest river in the world traverses (drains) 10 percent of the Africa Continent (basin covers an area of 3.18 million square kilometres) is shared by eleven sovereign states namely, Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda. The Nile Basin states are today home to more than 437 million people and of these, an estimated 238 million (54%) of the basin population are expected befit from the use of the Nile waters. The current uses, development and management of the Nile River flows are based on the existing colonial agreements that form the current Nile River basin regime (principles, norms and rules). The current regime therefore, is no longer adequate to allow equitable use of the basin's water resources due to substantial changes as a result of the far reaching effect of climate change, population increase, and high level of poverty in the basin. In addition, lack of adequate infrastructure development to harness and regulate the Nile River flows in most of the basin states has made the states vulnerable and less resilient to climate change.

The absence of a permanent Nile River Basin Commission with clear mandates to regulate the use and development of the Nile River flows and to protect and conserve the basin's water sources to guard basin against adverse effects of the above three named challenges (drivers) cannot therefore, allow the basin states to realise their water security. There is therefore, immediate need for a new Nile River Basin Regime that will ensure the availability of the basin's water resources (through joint protection and conservations of basin water sources), the equitable accessibility of the Nile River flows (84 billion cubic metres annually), based on the agreed factors of equity and the principle of "*Not all for some but some for all*" byNile countries and the management of and speedy settlement of any dispute that might arise.

This study therefore analyzed the Nile Basin states water security that is at stake taking into consideration of the existing uses that Egypt claim to be based on historical rights, the potential uses and the new emerging issues as climate change, population growth, poverty and the drive for clean energy as the hydropower as part of the envisaged green economy. In this respect the study concluded that the water security of the basin states is about the availability of the water resources, the equitable accessibility of the shared basin water resources by Nile countries and managing any conflict that might occur.

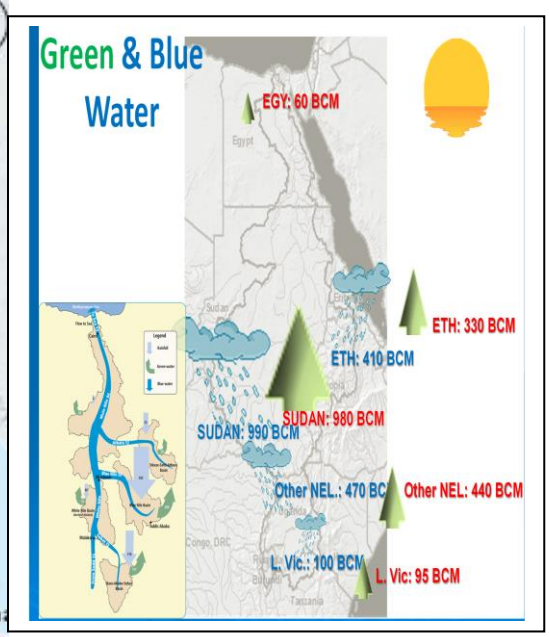
This study further analyzed the unresolved article 14(b) of the CFA 2010 and concluded that the negotiated CFA 2010 in its present status cannot be accepted by Nile countries and hence require additional instrument calling for joint planning of the use and development of the shared basin's water resources as an addendum to the CFA. Such an addendum should include a new Nile River Basin regime comprising principles, norms and rules.

This will enable Nile countries to accept the CFA 2010 and further enable the established of the Nile River Basin Commission as provided by article 15 of the CFA. The established Commission will in return use the already developed Nile River Basin Decision Support System (NB DSS) to balance the existing water uses and the potential water uses to ensure causing no significant harm to any basin states and also to allow sustainable and equitable use of the basin's shared water resources that will make the basin states to be sure and realize their water security.

Figure 1

Nile River Basin Map

Source: State of the River Basin Report, 2012



CHAPTER ONE

1. INTRODUCTION

1.1 Background

The Nile River from its furthest source in Burundi to its outfall in the Mediterranean Sea in Egypt has a length of 6,695 kilometers, hence the longest river in the world with a basin populationconstituting 40% of the Africa population.[1] The Nile River therefore from its source in Burundi drainsa sizable area of the Republic of Rwanda through the Kagera River Basin to Lake Victoria, with its final journey to Mediterranean Sea through Alexandria in Egypt. The Nile River Basin traverses eleven African States of Kenya, Uganda, Tanzania, Burundi, Rwanda,D.R Congo, South Sudan, The Sudan,Ethiopia,Egypt andEritrea.The Nile River basin covers over3 million square kilometerswhich is 10 percent of Africa's total land area.[2] All the eleven Nile Basin States are therefore claiming a share of the Nile's waters. Resulting from such claim, the key issues to consider are the availability of the Nile River waters, the accessibility of its shared water resources by all the eleven basin States and addressing any conflict that might arise in the use and management of the NileRiver water resources.

The Nile Basin States have a combined population of 437 million people of which 238 million people(54%) live within the Nile River Basin hence have the right to use the shared Nile River

[1] Ibrahim, Abadir M. "The Nile Basin Cooperative Framework Agreement: The Beginning of the End of Egyptian Hydro-Political Hegemony", (Missouri Environmental Law and Policy Review (MELPR), Vol. 18 No. 2, 2011,P.285

[2] Figure 1 Map of the Nile River Basin: "The State of the Nile River Basin 2012", " Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2012), P. 13

basin water resources.[3]

The Nile Riverhas several historical bilateral agreements in a multilateral basin shared by eleven Basin States. The key historical Nile agreements analysed below in chapter three of this thesis include the 1929 Nile River agreement between the United Kingdom and Egypt on behalf of the Basin States of Uganda, Sudan, Kenya, and Tanzania that were under the British administration. The other key Nile River historical agreement is the 1959 Nile River agreement between Sudanand Egypt. This 1959 Nile agreement allocated all the Nile River shared water resources to Egypt and Sudan leaving only 10 BCM annually for evaporation in Aswan dam.

Today there is a legal framework gap in the basin, as it has no agreement acceptable to the all the countries traversed by the Nile River as the historical NileRiver agreements were not negotiated by the independent Nile River Basin sovereign States but were negotiated by their colonial masters[4].

The Nile River Basin Cooperative Framework Agreement 2010 (thereafter referred as CFA 2010) that was negotiated by all the countries of the Nile River with exception of Eritrea that acted as observer and the unborn South Sudan by then that is analysed in chapter four of this thesis to fill the legal framework gap in the Nile basin with only six Nile countries having appended their signatures and only fully ratified by three basin States of Ethiopia, Tanzania and

[3]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012),P.100

[4]Owiro, Arthur Okoth,"State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN 1681-5890,P.14

Rwanda might also join the queue of the unaccepted Nile River agreements if article 14(b) on the water security is not resolved. The upper Nile Basin States have stated categorically that they are not parties to the Nile River historical agreements signed by their former colonial masters and hence are not bound by such colonial agreements while Egypt and Sudan insists that the historical Nile agreements are binding on these Nile River Basin States. Egypt further argues that failure by the basin States to accept and recognize these historical agreements could lead to these States losing their territorial boundaries in that these agreements are territorial agreements. In this thesis it has been argued that the historical Nile River agreements are not territorial agreements but are agreementsfor the utilization of the Nile waters.

This situation necessitated the Nile River countriesto search for a new Nile River agreement that would be all inclusive, acceptable to the Nile basin States and in harmony with the prevailing International water law that has been assembled, analysed and put together in this thesis from a number of international legal instruments, namely International treaties (conventions), International Court of Justice rulings and arbitral awards of transboundary/international waters cases, declarations of principles and resolutionsof international organization namelyEconomic Commission of Europe declarations and code of conducts, UNGA resolutions, UNEP Governing Council Decisions, and principles, UNCED Agenda 21, a number of books published by renounced Scholars of international water law such as McCaffrey,Stephen C. of Pacific University, USA, Okidi, Charles Odidi of School of Law, University of Nairobi, Wouters, Patricia of Dundee University, Scotland, UK, the late Bonaya A. Godanaof Kenya and articles of Kameri, Patricia Mbote of School of Law,University of Nairobi, Wolf,Aaron.T of Oregon State University of United States among others. The prevailing international water law today as

demonstrated in this thesis from such works can be summarized as the principle of 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the transboundary waters balanced with the precautionary principle of prevention of harm. The basin States thereforehave a right to use the transboundary water resources within their territory with a duty to prevent harm to other Nile basin States. Harm can be caused by significantly reducing the quantity of Nile basin common flows or by altering the quality of the Nile common flowsnegatively.

The negotiated CFA 2010 is based on the principles of equitable use of the common water resources and the precautionary principle of prevention of harm. The two principles would give the required balance by both the downstream States who have already developed the Nile River shared water resources to some extent more that the upstream States who are just beginning to develop the shared Nile River water resources. In this context the downstream Basin States would want to ensure that the precautionary principle of Prevention of harm is applied while on the same vein the upper basin States would like the principle of equitable use to be applied. This situation requires the countries of Nile River to cooperate in the Development and management of the Nile basin shared water resources in order to achieve this balance that would finally enable the realisation of the water security of the of the Nile Basin States.[5]

Despite of the Nile River basin's being endowed with rich historical culture, sound environmental and natural resources, its people still face considerable challenges including poverty with a number of its people living on less than one dollar per day. This situation is

[5]Articles 3, 4 and 5 of the Nile River Basin Cooperative Framework Agreement, 2010, (Nile Basin Initiative, Secretariat, Entebbe Uganda), at www.nilebasin.org, accessed on 24th June 2015.

worsened with the occurrence of extreme weather events associated with effects of climate change that either brings floodsor prolonged droughts.The Nile basin is also suffering from under development especially in the upper basin States that today have low water and sanitation coverage, degraded catchments resulting into reduced and poor water quality and low electricity coverage which are below 20 per cent in the upper basin States.[6]

Despite of all these challenges, the Nile River basin still has numerous opportunities to spur economic growth and development of its basin States.The required anticipated development in the Nile basin therefore, can only be achieved if the Nile Basin States agree to cooperate in the conservation and protection of the basin water sources to increase yield and ensure availability, cooperate in the development of its shared water resources to ensure equity, cooperate in benefit sharing accruing from projects with transboundary benefits such as inter power connection, environmental protection, food production and knowledge based capacity building.

The Nile River waters have been used as sources of fresh water for its citizen, water for irrigation, water for fishing and recreation, water for hydropower generation andwater for navigation among others. Due to population increase and increased development to alleviate its people from poverty, there has been a lot of competition in the development of Nile River waters among the Nile countries and even within the different sectors of the same State as the water resources become scarce and the sources are degraded further reducing the yield. The Nile River historical agreements that were agreed upon during the colonial reign with an attempt to defuse conflicts over the use of Nile River watershave offered very little assistance if any in the

[6] Supra Note 3 P. 164

equitable use, protection and conservation of such resources as these historical agreements were only focused on water allocation rather than equitable use and benefit sharing.

Having in place acceptable basin agreementswhich are further domesticated to form part of the Basin States' national water laws for ease of enforcement would play a great role in guiding the activities of individual basin States sharing a river basin.[7]

Though there are several agreements on the Nile River that dates back to the Anglo-Italian protocol of 1891[8], the 1929 Nile River Agreement between Britainand the Republic of Egypt and the 1959[9] Nile River agreement between Egypt and Sudan whichare perceived as the most important agreements in the Nile River basin today as these historical Nile River agreements governs the present Nile River water allocations hence forms the current Nile River Basin Regime.

These two agreements have been interpreted by the Nile River upper basin States to favour Egypt and to some extent Sudan[10] and are therefore not acceptable to the upper basin States. This interpretation is the main cause of tension, potential conflicts and war among the basin states. To Sudan and Egypt, it is thesehistorical agreements that provide them with water security. The other riparian States are not accepting this stand of Egypt and the Sudan.

[7]Wouters, Patricia. "The legal response to international water conflicts: The UN Watercourses Conventionand beyond", (German Yearbook International Law, 1999, Vol. 42, P. 293-336))

[8]Abdo, M. "The Nile Question: The Accords on the Water of the Nile and Their Implications on Cooperative Schemes in the Basin*Perceptions" (Journal Of International Affairs*,*9*(2), 2004). P. 47–57.

[9] The 1929, Nile Agreement between United Kingdom and Egypt, LTT, No..7, UNTS and, the 1959 Nile agreement between Egypt and Sudan, P.100

[10]Wolf, A. T., & Newton, J. T. (2007). Case study of transboundary dispute resolution: the Nile Waters Agreement. Oregon State University, Corvallis, P. 5

It is the difference positions taken by the upper basin States and the lower basin States on the historical Nile River agreements of 1929 and the 1959 stated above in this thesis that necessitated the Nile Basin States' Council of Ministers responsible of water affairs (thereafter referred as Nile-COM) to agreeto establish Nile Basin Initiative (NBI) with the following Shared Vision Objective that introduced the principle of equitableuse of the Nile River waters that is opposed to the historical agreements that were only focused on the water allocation to Egypt and Sudan.

The vision was further translated into *Multi Track Strategynamely,* development with focus on Shared vision and investment programs, development of legal and permanent institutional framework to come up with a new Cooperative Framework Agreement (CFA) and Cooperation with international community to mobilize resources for investments.[11]

It is on this undertaking that the Nile-COM gave instruction to the NBI Technical Advisory Committee (thereafter referred as Nile-TAC) the Technical wing of NBI to facilitate the negotiation of a new CFA informed by the prevailing international water law. The prevailing international water law today as analysed and discussed in this thesis at various chapters and paragraphs are the principles of equitable useof the common basin water resources and the precautionary principle of prevention of harm to other riparian countriesand the principle of cooperation.

This directive was driven by the fact that the main challenge in the Nile River Basin is the lack of a comprehensive legal agreement to pave way for the establishment of Nile basin Commission

[11] Nile Cooperation: Lessons for the World and Lessons from the World from the Nile Basin, (Nile Basin Initiative Secretariat, Entebbe, Uganda, 2014), P. 7

and provide a regulatory instrument to guide the management anddevelopment of the Nile basin water resources. The CFA 2010 when ratified and entered into force wouldpave way for the establishment of the Nile Basin Commission as NBI was established as transitional institution. Although it is consensual that a new framework is needed in order to move the cooperation a notch higher and forwardto date the CFA has not entered inforce since it was opened for signature in Entebbe, Uganda on 14th May 2010. The delay is due to the unresolved issues of historical water rights, and existing water uses as reflected in article 14 (b) of the CFA 2010 on the water security that Egypt and Sudan who were the initial initiator of the term water security to replace the terms existing agreements (1929 and 1959 stated above) which they were not comfortable in discussinglater changed their mindand rejected thephrase on article 14(b) that was acceptable to the seven Nile countries namely Kenya, Uganda, Tanzania,Burundi, Ethiopia,DR Congo, and Rwanda. This scenario resulted into two phrases one preferred by the sevenupper basin States named above and the otherby Egypt and Sudan respectively as follows:

a) *"to work together to ensure that all states achieve and sustain water security";*
b) *"not to significantly affect the water security of any other Nile Basin State"*[12]

Article 14(b) was therefore, annexed unresolved with the agreement that it would be resolved within the first six month by the Nile River Commission on its establishment.

A number of Scholars has argued that Water security is not a legal issue that is why it was brought in the CFA to stall the process. In this thesis this thinkinghas been proved wrong as demonstrated in various paragraphs of this thesis citing the various Scholarly works of

[12]*Article 14(b) was annexed to be resolved by the Nile River Commission when established, at WWW.nilebasin.org accessed on 24th April, 2015.*

PatriciaWouters of Dundee University, Scotland, and Stephen, C.McCaffrey of Catholic University, USA.

Due to this challenge, on 30th June 2010, during the press briefing after the 18th Nile-COM meeting in Addis Ababa Ethiopia, the then Minister for Water Resources and Irrigation for Ethiopia informed the International Press that "Ethiopia is not begging any country to be a party to the negotiated CFA 2010, but only asking the Nile basin States to cooperate in the utilization of the Nile River water resources".[13] On this understanding, Ethiopia will therefore not allow any guard from any country to be stationed on the bank of River Nile within their territory to monitor how Ethiopia is using the Nile River water resources within its territory.[14] The Nile River basin countries have therefore, been in search of an acceptable Nile River Basin Agreement that would allow cooperation among the basin states and offer a peaceful and sustainable utilization of the basin's water resources that would ensure their water security. Article 14(b) of the signed CFA 2010 on the water security that is not resolved to date replaced the earlier existing phrase on the Existing colonial Agreements that were to be rendered null and void to the extent of their inconsistency with the entry into force of the CFA 2010.

It is therefore hypothesized in this thesis that article 14(b) is more about the balancing of the existing water uses and the potential water uses of the shared Nile River basin water resources.[15]

The balancing here calls for the cooperation of the Nile countries in the utilization of the Nile waters with the use of science to ensure the water resources are available and sustainably

[13] Herald Newspaper, (Addis Ababa, Ethiopia, 1st July, 2010,)
[14] Ibid
[15] Paragraph 1.8 of this thesis

developed. Science therefore in this study has been used to inform the policy. In addition policy requires laws as a management tool for its implementation. Simply put "Law is a set of rules backed by the State". The solution to article 14(b) therefore, lies on clear and well defined Nile River Basin Regime comprising of (principles of equity, fairness and human right to basic water needs and economic development), norms (conducts and behaviours expected of the basin states), substantive rules (rights, obligations and responsibility of the basin states), procedural rules (to ensure enforceability of the prevailing laws and regulation of the development of the Nile shared water resources). The solution to this article is therefore, the making or breaking point of the cooperation of Nile River Countries.

The knowledge of the general characteristics of the basin's water system is necessary to the understanding of the ecosystems approach and the legal rules governing use of freshwater in the basin.[16] For examples information on the available water resources is essential in the planning for the development of the basin water resources, the current uses and potential uses gives the way forward for equitable use of the Nile River waters, giving information on planned measures gives the basin states a chance to analyse its significant effects on them. In addition the increase of demand for additional water in the Nile basin by a population of 248 million people that is projected to double by 2050[17] against the finite Nile River stream flows that is today estimated to be 84 billion cubic metres annually is unsustainable and hence is a threat to the water security of the basin states. Water security was introduced in the Nile Basin negotiation purely because of the difficulty of assuring each state of a given quantity of water in the face of increasing population, uncertainty of world's freshwater per capita and a sharp decline in water quality.[18]

[16]McCaffrey, C.Stephen , "The law of International watercourses", (Oxford University Press, 2001),P. 22-23
[17]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012). P. 105
[18]McCaffrey, Stephen C. , "The law of International watercourses"(Oxford University Press, 2001), P. 23

Introducing the water security term in the CFA 2010 was an innovation. Gleik, (1999) and McCaffrey (2003) in separate analysis have concluded that the "basic water requirement" (BWR) for domestic human needs for drinking water, sanitation services, bathing, and food preparation is 50 litres per day[19]. Gleick further reported that in 1990 fifty five countries mainly in Africa and Asia, whose population totaled nearly a billion people, failed to provide this minimum amount.[20]

The main problem in this thesistherefore,is the unresolved issueof article 14b of the negotiated CFA 2010 and how to guarantee the continuous flow of water to Egypt and the Sudan without heeding to the demand for historical rights which has never been elaborated or defined in international water law. The answer to article 14b cantherefore be only achieved by balancing the existing water uses and potential water uses in the Nile basin based on the prevailing international water law as demonstrated in various paragraphs of this thesis.

Therefore, the main objective of this study isto examine and critically analyse the unresolved Article 14(b) on the water security of the Signed Nile River Basin Cooperative Framework Agreement 2010 that if opened up is all about the balancing of the existing water uses and potential water uses in the Nile basin. It is this balancing based on the prevailing international water law and use of analytical tools (science) to inform on the appropriate Nile Basin policies and planning on the use of the Nile River watersthat would offer the way forward on how the

[19]Gleick, P. H. (1999). The World's Water 1998–1999: The Biennial Report on Freshwater Resources. *Climatic Change*,*45*(2), P. 379–382.
[20] Ibid

Nile basin States can realise their water security without heeding to the so called historical rights provided by the historical Agreements.[21] The key outstanding issues in article 14(b) is the historical rights of Egypt provided by the 1929 Nile agreement between Egypt and United Kingdom, and the guaranteeing of the existing water use by Egypt and Sudan allocated under the 1959 Nile agreement after Sudan rejected the 1959 Nile agreement siting substantial change after attaining independence.

Additionally, a conclusive study and analysis of Article 14(b) may not be successful without having a clear and explicit understanding of Articles 4 and 5 of the Cooperative Framework Agreement (CFA) 2010 or articles 5 and 7 of the 1997 UN Watercourses Convention. Whereas Article 4 on which Article 14 makes reference provides for the principle of equitable use of the shared water resource, Article 5 of the CFA 2010 provides the precautionary principle for prevention of harm.

It is therefore understood by all the Nile Basin States thatfailure to come up with an optimal phrase acceptable to all the Countries of the Nile River and seen by them to guarantee the water security of all the Countries of the Nile River including the two downstream States of Egypt and Sudan article 14(b) on the water security would remain unresolved leading to the rejection of the CFA 2010 by Egypt and Sudan hence the continued tension over the use of the Nile River water resources.[22] Therefore, providing a solution to article 14(b) on the water security would enable Nile countries to sign, ratify and be parties to the CFA, 2010[23]. On entry into force The CFA 2010 would enable the establishment of the new Nile River Commission as provided by article

[21]. Supra note 12 of this thesis

[22] Egypt and Sudan Position letter dated 1st June, 2009 , (Nile Basin Initiative Secretariat, Entebbe, Uganda, 16th Nile-COM Minutes, 2009)

[23] The CFA 2010 that has been negotiated by the nine basin states since 1999 with Eritrea only attending as an observer and has been signed by six basin states namely Tanzania, Uganda, Ethiopia, Rwanda, Burundi and Kenya after it was opened for signature for one year on 14th May 2010 in Entebbe, Uganda found at www.nilebasin.org on 24th April 2015.

15 of the CFA 2010. The Commission in return shall provide the mechanism for the protection and conservation of the sources of the Nile River waters, acts as the clearing house for the planned measures and a forum for conflict management and pave way for dispute resolution.

The water security of a country like the food security would first require that food is available and affordable to the citizens and within the reach of accessibility that meets the obligation of the right to food. Likewise the water security of the basin States would require the water resources is *available*, can be accessed, and have means to resolve conflict. In order to understand the functioning of the watercourses (Nile River flows), one needs to know the sources of basin's waters to ensure of their protection to continue yielding water, and its uses based on the governing law for such uses(in the case of the Nile River the allocations of 55.5 BCM and 18.5 BCM of the Nile River flows for Egypt and Sudan respectively)that are taken by Egypt and Sudan to have been provided by the 1959 Nile River Agreement that are disputed and not acceptable to the Nile River upstream countries ofand future potential uses (the Ethiopian Grand Renaissance Dam, the Ugandan Bujagari Hydroelectric Dam, the Kenyan Sondu Mirui Hydroelectric Dam, The Burundi Rwanda and Tanzania Rusumo Hydroelectric Dam) and the cooperation among the basin states.[24]

Today the world is faced with high demand of water as a result of population increase and economicgrowthleading to rising per capita water consumption. This is made worse with the effects of climate change hence man is reaching the limits of the renewable water resources. Technical and engineering solutions that were the panacea of growth and development in the

[24] Strategic Water resources analysis report, 2015, (Nile Basin Initiate Secretariat, 2015, Entebbe, Uganda)

20th century can no longer be depended upon alone to meet the high demand of water being witnessed today for the improvements of the livelihood of the billions of people on the face of the earth. This thesis therefore, presents conceptual theoretical framework that has the potential to ensure that the Nile River flows are available through cooperation, participatory planning and management and sustainable development in an equitable manner.

1.2 Theoretical Framework

The introduction of the water security concept in the legal parlance was an innovation to enable the basin States understand what it takes to provide its citizens with water to meet their basic needs. Gleik, Peter, H. (1999) and McCaffrey, Stephen, C. (2003) in separate analysis have concluded that the "basic water requirement" (BWR) for domestic human needs for drinking water, sanitation services, bathing, and food preparation is 50 litres per day[25]. In the same report Gleick, Peter, H. further reported that in 1990 fifty five countries mainly in Africa and Asia, whose population totaled nearly a billion people, failed to provide this minimum amount.[26]

This thesistherefore treats transboundary water resources as shared water resources hence advances five theories namely absolute territorial sovereignty, absolute territorial integrity, equitable use as a subset of limited territorial sovereignty, common management and duty to prevention harm.

[25]Gleick, Peter. H. (1999). The World's Water 1998–1999: The Biennial Report on Freshwater Resources. Climatic Change, 45(2), 379–382
[26] Ibid

1.2.1 Absolute Territorial Sovereignty

Territorial Sovereigntyis the theory that advances the State's strengthin the utilization of the trasboundary waters within its borders or divert water resources as they so wish. This theory is better known as Harmon Doctrines of 1895. The basis of the Harmon Doctrines stemmed from the controversy over the diversion of the water of Rio Grande by the farmers in New Mexico and Colorado in the United States of America that resulted into significant reduction of water flows to Mexican communities. In return Mexico protested the diversions in October 1895[27] by sending a protest note to the Secretary of State of the USA declaring that the legal claim by the Mexican community living on its side of the Rio Grande "that the use of the water by the United States violated the rights of the Mexican as the Mexican use prior use to that of the rangers and farmers of Colorado by hundreds of years." When the Mexican protest was referred to Judson Harmon who by then was the Attorney General of the United States for legal opinion "as to whether the diversions in the United States violated Mexican rights under the principle of international law". Harmon response in an opinion dated 12th December, 1895 is what is today referred to as the Harmon Doctrine. The Attorney General, Judson Harmon rejected the opinion that "the general rules of international law imposed an obligation on the USA to refrain its people the use of the potion of water of the Rio Grande within United States territory even if that use would cause significant harm in Mexico". Specifically, Harmon invoked "the absolute sovereignty right of a State within its territory over the use of water resources within its territory under the as provided by the fundamental principal of international law against all others, and therefore the right asserted by Mexico cannot be recognized hence inconsistent with the

[27]Degefu, G. T. The Nile: Historical, Legal and Developmental Perspectives, (Trafford Publishing2003) P. 321

sovereignty of a States within its territory[28]." Harmon advise was that the United States had no dutyfor the substantial reductions in Rio Grande water available to Mexico. This opinion has been taken as standing for the proposition that international law allows an upstream Statesfullfreedom of usewith regards to equitable usewithin its territory, despiteof any harmthat might be causedcountries. This doctrine as of today has beendismissed by many Scholars.[29]

Besides the bias of the decision in favour of upstream States"it has little support in state practice and does not seem to represent international law".[30] Even United States itself quickly retreated from the full Harmon doctrine in its treaties with Mexico.[31] The first of such treaties is the 1906 agreementbetween United States and Mexico onthe 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the waters of Rio Grande River for irrigation.[32] The second agreementis the 1944 agreementbetween Mexico and United States of America on the useof waters of Tijuana,Colorado, andRio Grande and Rivers.[33] The other Agreement is the 1973 Agreement onthe permanent solution to the problem of the salinity of RiverColorado.[34] In this latter agreement the problems were very interesting in that, the United States was sending salty waters to Mexico while Mexico was sending sewage to United States.[35] The Harmon Doctrine was applied when India unsuccessfully asserted 'full freedom to draw off waters as it

[28] Supra note 27
[29]Wouters, Patricia of Dundee University, Scotland (2005), McCaffrey, Stephen, C.(2001 and 2007)
[30]Birnie, P. W., & Boyle, A. E. (1995)."Basic documents on international law and the environment".(Clarendon Press, 1995), P. 363
[31]Note 27 of this thesis.
[32]Paddock, W. A. "Rio Grande Convention of 1906: A Brief History of an International and Interstate Apportionment of the Rio Grande", (The. Denv. UL Rev., 77, 1999,P. 287
[33]UN Treaty Series No 314.(1944). Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande. Retrieved from http://www.ibwc.state.gov/Files/1944Treaty.pdf Accessed on 22 April 2015
[34]Furnish, D. B., &Ladman, J. R. (1975). Colorado River Salinity Agreement of 1973 and the Mexacali Valley, The. *Nat. Resources J.*, *15*, P.83
[35] Los Angeles Times, p. A23, 16th March, 1991.

needed from the Indus River.[36] The Indus River water dispute was settled only when the 1960 Indus water treaty that applied equitable apportionment of waters was signed.[37] In Europe Harmon doctrine was not applied due to its inconsistency with the freedom of navigation which characterizes major European rivers after 1815.[38] In conclusion it is clear that absolute State sovereignty must bowbefore international obligations, irrespective oftheir origin.[39]

1.2.2 Absolute Territorial Integrity

Territorial integrity is the theory of riparian right or absolute territorial integrity. It is interpreted as the obverse (opposite) of the Harmon Doctrine. Its interpretation gives the lower riparian the right to completely use the full flow of water to a natural quantity and quality hence abstraction by an upstream Statewould require the consent of the downstream State. This is the case of 1929 Nile River Agreement (Article 4b).[40] This doctrine is devoid and has limited support in state practice, jurisprudence or the writings from commentators.[41] This theory should not be confused with theory of "causing no significant harm" as causing significant harm has to be balanced with the right of the basin states to access basin water resources. This theory could have much devastating effects upon upstream States that develop their waters more slowly than their downstream Statesfor it would effectively prohibit any development in an upstream Stateswith potential harm to the downstream States without considering their equitable use. It is believed by many authorities that such a right of veto by the downstream Stateswas the cause of failure of the

[36]Birnie, P.W. and A.E. Boyle (1992), International Law and the Environment, Oxford: Clarendon Press, P.219
[37] Ibid.
[38]Wouters, Patricia. "(ed.) International Water Law on the Writings of Bourne, Charles (London Kluwer, 1997)
[39] Lac Lanoux Arbitral award between France and Spain, International law Report , 1957, p. 101
[40] The 1929 Nile River Agreement is analysed in detail in chapter 3 of this thesis.
[41]McCaffrey,Stephen C. 2001 "The law of International waters" (Oxford University Press,), P.22-23

Geneva Convention of 1923on the Hydraulic Power development on a shared water resources.[42] The Statesequated the 1923 Geneva Convention to the principle of territorial integrity that would not only have denied the upstream states the consumptive use of the transboundary watercourses but also for the development of dams that regulate the river flows for hydropower and flood protection.

The Trail Smelter Arbitration case between United States of America and Canada demonstrate the theory of territorial integrity as the United States contested the adverse effect of air pollution from Trail Smelter in Canada that was causing harm to Washington in United States.[43] The tribunal allowed the continuation of smelter to operation but under strident emission regime designed to avoid unreasonable harm to Washington and duty to provide compensation for thedamage caused despite compliance with the regime. This award places duty on the Nile Basin States to prevent harm to other Nile Basin States in the cause of utilization of the Nile shared water resources. The decision based on this award further point to the fact that the right of the riparian countries to use the shared waters with their borders may be equated to the duty to prevent harm to other riparian countries. In the arbitral award in the case of Lake Lanoux between France and Spain was very clear and equivocal with regards to the principle of territorial integrity.[44] In this case Spain had claimed that France without the consent of Spain was carrying out a water diversion project on Lake Lanoux which though was whole located in France territory its water finally flows to Spain hence a shared water resource. In its argument

[42]Salman, S. M. A. (2007). "The Helsinki Rules, the UN Watercourses Convention and the Berlin Rules: Perspectives on International Water Law". (International Journal of Water Resources Development), 23(4), P. 625–640. http://doi.org/10.1080/07900620701488562accessed on 23 January, 2015.
[43]Murray, K. A. (1972). The Trail Smelter Case: International Air Pollution in the Columbia Valley. *BC Studies: The British Columbian Quarterly*, (15),P. 68–85
[44] Lake Lanoux Case – Award of 16th November, 1957, International Law Reports , 1957, p.101

Spain had referred to the violation of rights in a shared community grazing landor to the accepted generally international lawprinciples.

In the ruling, the Tribunal stated that "… the rule that only allow the Statestouse international watercourses only with an agreement signed by interested Statescannot be established either as international customary law or, even justas a principle of international law.[45]" In this award it is clear that no Statecan have veto power over the other with regards to the utilization of the shared water resources within one state territory. In the case of the Trail Smelter the development was also not stopped but on coffered duty of the developing states to ensure they do not cause significant harm to other riparian states.

1.2.3 Equitable use

This is the key principle in this thesis hence the thesis looks at the State practices from the Code of Hammurabi (developed during the ruler's reign, 1792-1750 BC),1966 when Helsinki Rules were developed, to 1997 when the UN Watercourses Convention was adopted by UNGA and to the 2004 Berlin Rules, the factors of equitable use, the comparison of this principle and that of causing no significant harm and finally the status of this principle to date under international water law.

The principle of equitable use is a subset of the principle of limited territorial sovereignty. This is so because the State sovereignty over use of shared resources within its territory is said to be limited by the obligation to prevent harm to other countries in the use the shared water resources within its territory.[46] The selection and combination of factors of equitable use in both the

[45] Ibid
[46] McCaffrey, Stephen, C. "The law of international watercourses" (Oxford University Press, 2001), P 137

Helsinki Rules and UN-Watercourses Convention is clear testimony to the fact that this principle is a subset of limited territorial sovereignty. This is further confirmed by the basis of States conduct and statements that "there is a principle of international law to the effect that States may not undertake or permit within their territory activities which would reduce significantly the volumes of the shared water resources currently arriving in other basin States or alter their chemistryas to the level that affects the other basin States."

The idea behind the doctrine of limited territorial sovereignty is a fundamental one that is necessary for the smooth functioning of any society. This theory is further recognized in national legal systems in the form of such rules as those concerning nuisance and battery, rules that reconcile the value of freedom of action.. It may be expressed simply and metaphorically as the freedom of one to swing his fist ends where his friend's nose begins.

In the use of shared fresh waters, experience has proved the strict theory of riparian rights that is the doctrine of absolute territorial integrity to be an obstacle to the proper organization of modern community, and the doctrine of the absolute right each land owner to do what he pleases with the water on his land is so obviously absurd that it has never even been tried.

The weights of state practice, as well as most modern commentators[47] and decisionssupport the proposition that states sharing international watercourse have rights to the use of its waters and that those rights are, in principle, equal, and that accordingly each state must respect the rights of the other.

[47] McCaffrey, Stephen, C., "The law of International Waters, (Oxford University Press, 2001), P. 127-129

The practical implications of the concept of "equality of right" are perhaps more obvious in the case of contiguous watercourses than in relation to successive ones. Though a number of Scholar whose works have been reviewed in paragraph 1.6 in this thesis do not draw a distinction between the two kinds of watercourses, in this regard Lipper for example, explains that "equality of right" in the context of international watercourses "means in the first place that all countries riparian to international water have equal right as far as to utilization of the water is concerned.
It is therefore only by an objective appreciation of the facts that it will be possible to discover the fair extent to which the various riparian states must take their reciprocal interests into consideration.

A look at illustrations of state practice reveals that states have taken those interests into consideration from the earliest times. Though most of the state actions might not qualify as "state" practice per se, it is of interest that early legal codes demonstrate an awareness of the need for upkeep of such works as dams and canals to protect lower-lying land against inundation. Thus the Code of Hammurabi (developed during the ruler's reign, 1792-1750 BC)[48] provides that flooding damage to the fields resulting from failure to maintain irrigation ditches is punishable by a fine equal to the value of crop lost.

Similarly the Liki of the Chou Dynasty (1027-256 BC) recognized the importance of the upkeep of water works and of preventing interference with maintenance activities[49]. In 1856, Holland made what has been characterized as "the first diplomatic assertion of any rule of international law" concerning the uses of international watercourses other for navigation.

[48]McCaffrey,Stephen, C. "The law of International watercourses", (Oxford University Press 2001), P. 127-129
[49]Teclaff, L.A, "The River Basin in History and Law", (The Hague: MartinusNijhoff, 1967), P. 18

In 1856 the Dutch Government protested against the Belgian diversion of water from the Meuse River into the Campine Canal reducing the navigability of the Meuse, increased velocity from a related watercourse, and flooding of land (letter of 30th May, 1862 by the Government of the Netherlands to the Dutch Ministers in London and Paris).[50]

The position of the Dutch Government was that the Meuse was a shared hence common to both Belgium and Netherlands hen both parties has a right natural use of the river and bound by the internal law principles from causing harm to the other.

So the riparian countries cannot make themselves masters of the water use it as they so wish for any purpose

This issue was settled in the treaties of 1863 and 1873 by the two governments.[51]

With regards to the balance between Equitable use and causing No Significant Harm many Scholars[52] have concluded that both the 1966 Helsinki Rule and the 1997 UN-Watercourses Conventions have affirmed the notion that the principle of equitable use is superior to the precautionary principle of prevention of harm in the use of the international waters. This conformation further shows that the principle of equitable use is really a subject of the principle theory of limited territorial sovereignty.

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[50] McCaffrey, Stephen C. "The law of International watercourses", (Oxford University Press, 2001) stating that the original text is in the state archives at The Hague, P.207

[51] The 1863 treaty is entitled "Treaty to Establish the Regime of Diversions of water from The Meuse)."(Permanent Court of International Justice Publication, 16), P.84

[52] Zaclin, R., &Caflisch, L. (eds.),"The Legal Regime of International Rivers and Lakes", (The Hague: MartinusNijhoff, 1981). P. 177-202

This is further affirmed in articles 5, 6 and 7 of the 1997 UN-Watercourses Convention. Article 6 of the Convention provides factors for determining equitable use. Theeffects of use of international waters by one basin States to other BasinState and Potential and existing wateruses are the key factors that must be considered in the balancing of 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively and prevention of harm.

The same factors are used together with the factors that determine if harm is caused to another basin State, because harm can be caused by denying other basin states of the water flow (significantly reducing the flow or altering the chemistry of the river flow) and thereby affecting their existing use. Harm can also be caused by having basin agreements or laws that denies other basin States access to the shared water resources.

In this thesis it has been reasoned that, for the case of Nile River flows where it is considered that all its known annual flows of 84 billion cubic metres measured at Aswan dam has been developed by the two lower basin states namely Egypt and Sudan, it is necessary to use NB-DSS as illustrated and discussed in section 1.6 to balance the existing water uses and the potential uses together with prevailing international water law identified in this thesis as the principles of equitable use of the basin water resources and that of prevention of harm.

Since reading Articles, 5, and 7 together with article 6 of the 1997 UN-Watercourses convention leads to the conclusion that the duty prevent harmto other basin States is subordinated to the principle of equitable use of the shared water resources. The same rating of the two principlesis confirmed by the provisions of the 1966 Helsinki Rules.In this thesis it has therefore been

concluded that equitable use is the fundamental principle of both the Helsinki Rules of 1966 and the 1997 UN-Watercourses Convention hence the key prevailing principle of the international water law.

The view was also endorsed in the Danube case[53] where the ICJ preferred the concept of equitable use when it directed that "such a multi-purpose canal in reference to the variance canal on the Danube River, in the form of a co-ordinate single unit for the management of the watercourse is implemented in an equitable manner."

In this case, the ICJ did not refer to the principle of prevention of harm or duty not to cause harm. It is also worth to take note of other basic obligations under the 1997 UN- Watercourses Convention that should be used to test the negotiated Nile River Basin Cooperative Framework Agreement (CFA 2010).

These basic obligations are:

i) Cooperation through the establishment Nile River basin Commission

In this respect, the preamble and Article 3 (i) of the Nile River Basin CFA 2010 calls upon the Nile countriesto cooperate in the equitable use of the Nile waters. The CFA 2010 provides for the establishment of a permanent Commission[54]for the Nile Basin as a forum for cooperation and conflict resolution.

[53]Case concerning Gabcikobo- Nagomaros, Project (Hungary v. Slovak.), 37 I.L.M. 162(1998), (September, 25, 1997).

[54] Article 15 of the CFA 2010

ii) Information anddata exchange.

In this regard, Article 7 of the CFA 2010 provides for the regular exchange of information and data.

iii) Notification of other basin states of planned measures which could have e adverse effects.

With regard to this basic obligation, Article 8 of the CFA 2010 provides that the Nile River Basin States agree to exchange information on planned measures.

This is another contentious issue apart from the unresolved Article 14(b) on the water security. Though this issue was agreed upon as provided above, Egypt is not fully convinced that Article 8 of the CFA 2010 will provide the required notification as required under International Water Law (as provided by 1997 UN-Watercourse Convention). The use of the wordings "giving notification on planned measures" was rejected by the upper basins States especially Ethiopia during the negotiation on the ground that the word "notification" in itself calls for consent and consent is nothing but giving veto power to other basin Sates over the others.

On this understanding, it was finally agreed that giving information on planned measures would be considered along with a timed feedback mechanisms with sixth month as time given to the basin States with any issue on the planned measures to raise within the stated six months and the basin State planning the measures to come up with mitigation/response on the issues raised before proceeding with the planned measures. In this thesis, use of NB-DSS to analyse the

effects of planned measures has been recommended as NB-DSS has proved to be a very powerful tool in such analysis.

As stated above both the 1966 Helsinki Rules and the 1997 UN-Watercourse Convention embraces the principle of equitable use and provides factors and circumstances that should be taken into consideration in determining such equitable use[55].

Article 6 (i) of the UN-Watercourse Convention states that utilization of shared water resources be in an equitable manner that relates to Article 5 of the Convention on"the use and development of same shared water resources. The basin States shall therefore hold the view of attaining sustainable use and benefit sharing to other basin States. Such optimal and sustainable use can only be achieved if all relevant factors of equity and the prevailing circumstances" including all the factor listed in article 4(2) of the CFA 2010 and in article 6 of the 1997 UN Watercourse Convention as appended below:

(i) Hydro geographical and other natural factors. In the negotiated CFA 2010, all these factors have been taken into consideration.

(ii) The social and economic requirement, of the States sharing the basin. These factors are also considered in the CFA 2010.

(iii) The population dependent on the watercourse in the basin states concerned.

(iv) The development and management the basin waters and the cost of actions taken.

[55] Article 6 of The 1997 UN Watercourse Convention on the Law of Non-Navigational Uses of International Watercourses, reprinted in 36 ILM 700 (1997), (entered into force 17th August 2014).

(v) Consideration of other alternatives sources of comparable value to existing or planned use.

These factors are analysed in the above paragraph.

The Article 12 of the 2004 Berlin Rules however used the word “manage” as opposed to the words used in the 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively.

Article 12 of the Berlin Rules by the ILA provides that:

“The countriesshall within their territories use the equitable use in an equitable manner with obligation to prevent harm to other countries”

While Article V of the Helsinki Rules states that;

“The basinStates are entitled, within theirs territories, to an equitable share in the beneficial uses of the equitable use.”

Similarly Article 5 of the 1997 UN-watercourse states that:

“Basin States shall within their territories utilize shared watercourse in an equitable manner – taking into account the interests of basin.”

The main difference between the Helsinki Rules of 1966 and the 1997 UN-Watercourses Convention put together and the 2004 Berlin Rules on the other hand is that both the 1966 Helsinki Rules and the 1997 UN Watercourses Convention recognized and emphasized the right of the Basin Statesto a reasonable share. This is based on the concept of equality of Nile countriesin the use and development of the water resources.

On the other hand, the Berlin Rules gives emphasis to the "management of water".The management here is defined to include "protection, regulation, development, use, , allocation, and control of waters."

The Berlin rules hence erodes the right to 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of basin states established in the Helsinki Rules and the UN Watercourses to the obligation to manage the shared water resources in an equitable manner which literary takes away the right of the basin States to use the water resources.

The 2004 Berlin Rules also equaled the two principles of equitable useto that of prevention of harm.

This equal treatment of the two principles has been rejected by a number of scholars including the discussion in this thesis that subordinated causing no significant harm to equitable use of the shared water resources.

The doctrine of equitable use is the most widely accepted principlewith regards to allocation of shared water resources.[56] From the Helsinki Rules of 1966 to the 1997 Watercourses Convention the theory of equitable use of the shared water resources has had almost no challenge and today forms the basis of Statepractice with regards to use and development of the shared water resources. Article 6 of the 1997 UN Watercourses Convention as discussed above further identified factors that are relevant to the determining of what is equitable use.[57]Though the factors listed under Article 6 of the UN Watercourses Convention are not exhaustive and therefore consideration could be given to all the interests that could affected by the new use.

The attempt by the Nile Basin States to add additional factors to take care of the Nile River Basin situation as discussed above might not reflect the true interest of the Basin States but as a means to get more water if the Nile River flow was to be allocated. This principle was first hatched in 1966 by the ILA that assembled the 1966 Helsinki Rules. Equitable use of the shared water resources rest on the foundation of shared sovereignty is not to be confused with equal division[58], the latter meaning of equitable is that it accommodates the balance of interests which accommodates the needs, and uses of each Basin State. This theory enjoys substantial support in judicial decisions, Statepractice, and international codification.[59] In the Lac Lanoux arbitration the tribunal recognized that in carrying out diversion works entirely within its own territory, France nevertheless had an obligation to consult Spain, the other riparian, and to safeguard her rights in the watercourse.[60] This in itself does not give veto power to one basin state over the

[56] McCaffrey, Stephen, C. , "The Law of International Waters, (Oxford University Press, 2001), P 127-129
[57] One need to compare, ILA Berlin Rules (2004) Article 12. ILA Helsinki Rules (1966) Article 5 and the report of the African-Asia Consultative Committee provided in II YbILC(1982)Pt.1,87 .P. 94-8.
[58]BirniePatricia, at all, " International Law and Environment " third Edition, (Oxford University Press, 2009), P.542
[59] ibid
[60] Lac Lanoux Arbitration, Report 24, (International Law Reform, 1957).P.101

other BasinStates. Or donot, however, saythat any use of an international watercourse affecting other Staterequires their consent, but it does indicate that the sovereignty of a Stateover rivers within its territoryis qualified by duty to correlative rights of the other State.[61] The Statepractice such as the settlements of river disputes in North America and the India subcontinent listed in the International Law Commission reports tend to confirm this conclusion.[62]

This is the doctrine that survived to form the part of the International Customary water law. Therefore, it is today the international water law.

1.2.4 Common Management

Common management advances the Dublin principles that water resources be managed on an integrated whole and the need for cooperation and to have Commission that manages the whole basin. It goes beyond just water allocation but also the responsibility of all the Basin Stateto contribute to the management of the basin and adhere to the international rule of law. Article 15 of CFA 2010 provides for the establishment of the Nile Commission to bring the BasinStatestogether to cooperate in the development and implementation of the policies, and strategies for the development and use of the watercourse. Such Commissions have been established in the Niger River Basin, Lake Chad Basin and the Tennessee valley in the USA where the states contributes to the common management of the basin and charging water use fees

[61]BirniePatricia, Boyle Alan and RedgwellCatherine, " International Law and the Environment " third Edition, (Oxford University Press, 2009)P.542
[62] McCaffreyC. Stephen, "International Law Year book Bibliography" (1986) Pt.1, P. 103-5

has turned around the basin water resources management and today is the most sustainably managed and peacefully shared basin in the world.[63] Common management or Joint management institutions have become the basis for environmental regulation and sustainable development and use of a number of international watercourses. Common management approach has been endorsed by international political institutions such as the UN Committee on Natural resources[64], Economic Commission for Europe, Committee on water problem 1971[65], and by Codification bodies as the ILC.[66]

To maintain the continuance of the enjoyment of services andgoods provided by ecosystems, water resource needs to be managed as an integral part of ecosystems.[67] The implication of such a management regime is that water resources is viewed as ascarce resource witheconomic,social and environmental value whose quality and quantity determine the nature of its availability for continued use. Such an approach mainly has two requirements: (i)the management of river basins as an integrated ecosystem, and (ii) application of participatory planning andmanagement. This therefore calls for basin wide policies and planning for the common water resources that ensures its sustainability and building trust among the basin States.

The selected basin management donot only addresses the issues of management and conservation of the resources, the pollution control and sustainable agriculture, but also raises concerns of

[63] Tennessee-valley- Authority Act, 1933 at www.tva.gov accessed on 22nd February, 2013.
[64] UN Doc E/C7/2 Add 6, 1-7
[65] UN Economic Commission for Europe, Committee on water problem, UN Doc //ECE/water/9 annex II,1971
[66] 1997 UN Watercourses Convention on the law of Non-Navigational Uses of International Watercourses, reprinted in 36 ILM 700 (1997)
[67] Nile Basin Cooperative Framework Agreement, 2010, at www.nilebasin.org accessed on 24th April 2015; The 1997 UN Watercourse Convention on the Law of Non-Navigational Uses of International Watercourses, reprinted in 36 ILM 700 (1997), (entered into force 17th August 2014).

governments, local populations, and water governance. Absence of these democratic,participatory planning and management and conventional top-down and sectoral approaches, catchments/river drainage basins fail to achieve the desired results and often lead to further environmental degradation. In all respects a call for the participatory management of the Nile River basin as a unit basin and for the basin States to cooperate and participate in its water resources management as provided in the signed CFA 2010 by the six basin States.[68]

The thesis contends that the Nile River Basin States should cooperate by tabling their national water resources development master plans and consequently determine the use and development of the entire shared water resources in the basin. This suggested approach has the advantage that it fulfills the present gap created by absence of participatory planning of many river basins including the basin of the Nile River. The Nile Basin's shared water resources consequently will be managed as one a hydrologic unit with a continued and an aim of maintaining and restoringits ecosystem.

1.2.5 Causing No Significant Harm

The application of this principle "prevent harm" to international watercourses is seen to promote the interest of the future generations to ensure that fresh waters is not wasted and thequality will remain good. Article 7, paragraph 1, of the 1997 UN Watercourses Convention states that: "Watercourse States shall exercise due diligence in the use of an international watercourse in

[68] Articles 3 and 6, Nile Basin Cooperative Framework Agreement 2010, (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2010)

such a manner not to cause harm to other basin States. This principle balances the right of the basin States to use and develop the shared water resources with a duty not to cause harm to other basin States.[69]This theory was applied in the Trail Smelter case between Canada and United States . This is the case where the flumes from the trail smelter company was carried aloft by wind to Canada and caused damage to their farms. The ruling in this case balanced the right of states to use and develop the resources within its territory but they have a duty to prevent harm to other basin states. Despite of the harm caused to the farms in Canada the production was not stopped as prayed for by Canada. Hence the court did not give veto powers Canada over the United States in the developing of the resources with its territory but directed United States to compensate Canada for the damage caused and to ensure not to cause further harm to other states.

This ruling together with the Lac Lanoux case between Spain and France are clear testimonies that though causing significant harm to other basin Statesis punishable and calls for compensation it does not confer veto powers to other basin Statesover the others.

1.3 The Problem Statement

The main challenge in the development and management of the Nile River basin water resources is the threat to water security of the basin States. The development of the basin water resources to date is done unregulated, and without acceptable legal framework and permanent basin Institution to provide guiding principles, norms and rules to the basin States to ensure equitable use of the shared basin water resources and prevention of harm. This situation has left the basin States desperate as they are not sure of their water security as the new developments are being planned by each basin States separately and in isolation. This has led to mistrust and tension

[69]Articles 5 and 7of 1997 UN Watercourses Convention, UN.36 ILM 700 (1997)

among the basin States. Today the historical agreements on the Nile River basin including the newly negotiated CFA 2010 are not acceptable to Nile countries. The new and additional water demands by the upstream and downstream Nile basin States are seen as a threat to both the water security and the security of the basin States. There is therefore need to develop a new Nile River Basin regime[70]that would enable the basin States to balance the existing and potential water uses, ensure equitable usewithout causing no significant harm to enables the basin States to realize their water security. The disputed historical agreements on the Nile River, namely the 1929 Nile Agreement and the 1959 Nile River agreement between Sudan and Egypt that are still considered as the governing law in the use of the Nile River water resources that forms the present Nile River basin regime needs to be superseded with a new Nile River Basin regime. These historical agreements are not in harmony with the prevailing international water law that today is equitable use of the shared water resources that is balanced with the precautionary principle of prevention of harm. There is there need to usher in a new Nile River Basin regime to enable the balancing of existing uses and potential uses in order to enable all the Nile basin States realize their water security. This thesis therefore examines and critically analyses the unresolved article 14(b) on the water security and provide additional legal instrumentsand analytical tools to be added as addendum to the CFA 2010 to enable the Basin State to resolve article 14(b) and to realize their water security. It is therefore, the accepted CFA 2010 together with an addendum of the resolved article 14(b) that would form the new Nile River Basin regime.

[70] The Basin regime in this case is defined as legal framework governing the development and management of basin shared water resources.

1.4 Research objectives

1.4.1 Overall objectives

The main objective of this study is to critically analyse article 14(b) of the CFA 2010 on the water security and propose a legal regime based on the prevailing international water law and analytical tool as a decision support system to enable the Nile River Basin States to resolve article 14(b) and to realise their water security.

1.4.2 The specific objectives

i. To critically analyse the unresolved basin States' rights with regards to existing water uses and potential water uses in article 14(b) on the water security

ii. To examine the advantages and disadvantages of the signed Nile River Basin Cooperative Framework Agreement 2010 and test its effectiveness and efficiency in ensuring the achievement of the water security of the basin States.

iii. To examine and analyse the principles, norms and rules governing the existing water uses and the potential water uses in the Nile River basin and recommend the way forward for consideration in resolving article 14(b).

iv. To propose how to balance the existing water uses and the potential water uses in the Nile River basin to ensure accessibility by Nile countriesand peaceful coexistence

v. Propose how the prevailing international water law present in this thesis and the use of the analytical tool (Nile Basin Decision Support System (NB DSS)) will enable the Basin States to reach consensus on Article 14(b).

vi. To offer guidance on the required new Nile River Basin Regime that would guide the Basin States in the management and use of the basin water resources to ensure its availability, equitable use and in resolving any conflict that might arise including the unresolved article 14(b) and finally

vii. To offer the way forward on how the Nile Basin States can realise their water security

1.5 Justification of the Study

The resolution of article 14(b) would enable the CFA 2010 to be acceptable to all the Nile Basin States. Failure to which means the legal and intuitional gap[71] in the Nile River Basin remains and the conflict in the development and management of the Nile waters continues hence the justification of this thesis that has found the way forward in resolving article 14(b) that can now be simply understood to mean the balancing of existing Nile water resources use by Egypt and the Sudan and the potential use by mainly Ethiopia as the use of the Nile water resources by the other Nile Equatorial Lakes Basin States by up to 10 BCM as demonstrated in paragraph 6.4 of this thesis would cause no significant harm to both Egypt and Sudan as the water released annually from Lake victoria at Jinja, Uganda today totals 40 BCM and only 15 BCM reaches Sudan at the confluence of the Blue Nile and the white Nile. This means closer to 25 BCM of the White Nile River flows are lost in the lakes Edward and Albert in Uganda and DR. Congo and in the Sudd swamp in South Sudan. In this thesis at various chapters and paragraphs it has been demonstrated that through cooperation by the Nile countries and having in place an effective

[71] The 1st Minutes of the Nile Council of Ministers meeting, of 22nd February 1999, (Nile Basin Imitative Secretariat, Entebbe, Uganda, 1999)

legal and institutional framework would in addition to the use of sciences (analytical tool for this case NB DSS) would enable the Nile basin States to resolve article 14(b) and realise their water security.

A number of authors[72] have stated that the sustainability of fresh water supply is fundamental to environmental protection, biodiversity, and human survival. More than billion people lack adequate access to potable water or basic sanitation[73]. In both the UN's Millennium Development goals and the 2002 World Summit on Sustainable Development, access to clean water was a priority. Further the reports for the Stockholm Water Conference in 2001 and the UN World water report in 2006 have shown that severe water shortages could affect one third of global population by 2050 and will extend well beyond existing arid and semi-arid countries such as Egypt in the Nile basin and to the upper Nile River Basin states of Kenya, Ethiopia and Tanzania as witnessed in 2009 droughts in Kenya and Tanzania. So the proper management of the basin's water resources is mandatory to ensure availability of the water resources. Equitable utilisations of the basin water resources will ensure accessibility and cooperation and joint planning will enable settlement of any dispute that might occur.

Since the use of water by one country in a shared river basin can influence users in other States, it is essential that water use should be regulated to prevent unintentional hardship or conflict.[74] In

[72] Namely: McCaffrey, Stephen C., Birnie, Patricia, Gleick whose works are reviewed in this thesis, paragraph 1.6
[73]Birnie, Patricia et al, " International Law and the Environment" third Edition, (Oxford University Press, 2009) P. 137
[74]Wouters,Patricia., *The Relevance and the Role of Water Law in the Sustainable Development of Freshwater. Replacing "Hydro-sovereignty" and Vertical Proposal with " Hydro-solidarity" and Horizontal Solutions(*Water international volume 25, 1999)

this respect, international water law, as well as treaties, protocols and specific national-level policies and legislations, provide critical cornerstones for the effective and efficient management of shared water resources. However, whilst legal regulation of the interests and sovereignties of individual basin states may be necessary, this presents challenges that are both technical and judicial in nature as Basin States have varying interest that are harmonized with an acceptable basin legal regime. It is therefore appropriate to analyse how the Nile River Basin Cooperative Framework Agreement, 2010 will apply to the Nile River Basin in the context in which international water law require.

The astonishing facts about the treaties concerning international watercourses are their sheer number. There are more than 2,000 instruments relating to international watercourses[75] some of which date as early as the first and second centuries.[76] Most of these agreements concerning shared water resources are bilateral even in a multilateral water basin situation, and relate to specific rivers that form or cross boundaries, or lakes that straddle them. Despite the fact that there are still few that bilateral agreements, the riparian countries still recognise water basins as a unit basin hence the need of the participation of all riparian states is growing steadily resulting into the increase of multilateral agreements.[77] Of the multilateral agreements there are three that lays down principles of general applicability of which two of these agreements are not currently significant.[78] In addition there is the 1997 UN Watercourse Convention that is now in force

[75] Food and Agricultural Organization of the United Nations 1978 (updated), *systematic index of International water resources Treaties, declarations, Acts and cases by Basin* Legislative Study No. 15 (FAO Rome).

[76] The example of such agreement are the grant of freedom of navigation to a monastery of the year 805 and a bilateral treaty concerning the Waser River basin of October 2, 1221, FAO Treaty series,Ibid

[77] There are twenty multilateral agreements concerning international watercourses excluding the Barcelona Convention that deals with navigation..

andcontains significant provisions such as equitable use that is now being recognized as part of the international customary law and hence its recognition by the basin states is mandatory.

The same is in Africa with over 50 international watercourses agreements that are in force as having been ratified by African States. In this respect, therefore, there is urgent need to have multilateral Nile River Basin Cooperative Agreement that is acceptable to Nile countrieswith clear principle, norms, rules and provides for the establishment of an effective Nile Basin Commission that will act as a forum for conflict resolution and a clearing house for planned measures and ensures that the rules are enforced.

What makes this study distinct (different) is the fact that this study for the first time connects science and law to ensure the availability and accessibility of the basin water resourcesby proving a new Nile Basin legal Regime that paves the way for the establishment of a permanent Nile River Basin Commissionthat will act as a clearing house for new uses of Nile basin shared resources and a forum for conflict resolution. The use of science to inform policy will enable the sustainable use of the basin waters and ensure the availability of the basin's water resources and support the balancing of the existing water uses and potential water uses. When good harmonised policies are in place, law as a management tool then provides the required legal instruments to implement the policies. Ones the rule of the law based on good practices and prevailing international water law is in place then the behaviours of the basin States are shaped. Law provided by the agreed basin cooperative framework agreement as the negotiated CFA 2010 further provides a forum for conflict management and resolution, Such a forum would enable the

[78] The two older agreements are the Convention relating to the Development of Hydraulic power Affecting More than one State, and Protocol of Signature, Geneva, 9 December 1923, 36 L.N.T.S at 77

application of theNB-DSS to balance the existing water uses and the potential water uses and acts as a clearing house for planned measures, a forum that ensures that the prevailing international water law presented above in this thesis is enforced. Therefore this unique way of combining science and law will open the eyes of Nile countriesto see clearly the benefits they will get by being parties to the Nile River Basin Cooperative Framework Agreement 2010 and hence assure way of the basin States realising their water security.

Africa as stated above has a number of shared waters besides the Nile River basin. In an attempt to utilize and manage these shared resources in a sustainable manner, African states have negotiated over fifty agreements with some basins having two or more agreements.[79]

These commonwater resources in Africa have been used for various purposes that includes water for domestic, irrigation,navigation, power generation andfishing activities,.The development of these scares resources has witnessed stiff competition among the basin States and even with various sectors of the same State. This is due to population increase and the degradation of the sources. The existing or historical water agreements that were negotiated with an attempt to defuse conflicts over the use of such shared resources has offered very little assistance if any in the equitable use, protection and preservation of such water resources.

Despite of the absence of an accepted agreement on the Nile River basin, unregulated development of the Nile River Basin water resources are going on unabated which are further great potential for war.

[79] www.**au**.int/en/**treaties accessed** ***on 6th January, 2014***

The effective management of the Nile Basin water resources will only be achieved if the Nile countries cooperate and agree to adopt a new Nile Basin legal regime that rides on the prevailing international water law presented of equitable use that is balanced with the precautionary principle of prevention of harm.The new Nile legal regime would offer anumber of solutions to the challenges facing the basin including the historical Nile River bilateral agreements in a multilateral basin, the historical rights that has never been defined in international water law, the demands of natural flow as in the Lake Victoria Owen falls agreement of 1954. There is therefore urgent need to resolve article 14(b) on water security by balancing existing Nile water uses by Egypt and Sudan and the potential Nile Water Resources uses by Ethiopia as demonstrated in the this paragraph above to enable acceptance of the signed CFA 2010 by all basin States. This requires new Nile River Basin Regime based on the prevailing International water law in order to resolve article 14(b) and to enable the Nile Basin States to realise the water security of the basin States.

1.6 Literature Review

1.6.1 The State of the River Nile Basin 2012[80]

The state of the River Nile Basin 2012 is the first report of its kind that targets the Nile River basin policy makers, parliamentarian and senior government officials, the International development community and the general public. Its primary purpose is to support informed decision making through presentation of facts and expert analyses. It is therefore intended to inform, educate and empower basin communities to exercise better stewardship of the common

[80]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2012)

Nile River water and environment. The report has a number of similarities to this thesis as the report draws attention to emerging issues or new drivers in the Nile basin including population increase with its effect on catchment degradation and additional water demand, the effect of climate change that either brings prolonged drought or high rainfall intensities resulting into floods. On these challenges, the report calls for the need for appropriate management responses before the issues become critical. In addition the report provides facts on the growing demand of the Nile basin water resources.

Despite of calling for the proper management of the Nile Basin water resources, the report does not provide for how the basin States should cooperate and do this. In its call the report does not give legal analyses on the right and duties of the Nile countries in the management and useof the Nile Basin water resources which has been given thorough analyses in this thesis.

1.6.2 Source-Book on Enhanced Negotiation skills and Dispute Resolution in International Water Resources.[81]

The Source-Book under review is being used in trainings organized by UNESCO for Policy makers in the negotiation of International Water Resources Agreements. The candidate presenting this thesis as the Kenyan Chief Negotiator on Transboundary water resources up to end of September, 2014 when he was appointed the Executive Director of the Nile Basin Initiative Secretariat was privileged to attend one such training in Entebbe, Uganda in March 2013.

[81]Trondalen, Jon Martin, "Source-Book on Enhanced Negotiation skills and Dispute Resolution in International Water Resources" (UNESCO Publication, 2011).

The Source-Book has similarities to this thesis as the report targets senior international civil servants and senior government officials (in this thesis these are Nile-COM members and Nile-TAC members) who are increasing phased with complex and conflicting choices in the management of international water resources which are leading to difficult negotiations towards the sound management strategies and agreements. Hence both the Source-Book and this thesis provide the prerequisite knowledge required in negating a transboundary water agreement.

The Source-Book being more of a scholarly does not give specific analyze the problems facing the Nile Basin with respect to the balancing of the exiting water use and potential water use of the Nile Basin that today is a big challenge to the water security of the Nile Basin States. This thesis on the other hand provides both legal and technical solutions to the balancing of the existing and potential water uses the Nile Basin.

1.6.3 Global Water Challenges in Trans-boundary River Basins Management: The Class of Perceptions versus Facts.[82]

The article was written by Don Blackmore after his fifteen years research on conflict on transboundary waters. In his research Don Blackmore in 2013 found that most of the tensions and conflict in use of transboundary water resources are due to perceptions that are not based on actual facts. The research covers the river basins of Murray- darling in Australia, the Euphrates and Tigris Rivers shared with Turkey, Iraq and Syria, the Indus river shared between India and Pakistan under the 1960 agreementbetween Pakistan and India , Ganges river Shared by India,

[82] BlackmoreDon, "Global Water Challenges in Trans-boundary River Basins Management: The Class of Perceptions versus Facts", (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2013)

Nepal and Bangladesh, and the Mekong River shared by China, Lao PDR, Cambodia, Myanmar, Thailand and Vietnam. In his article, Don compares the perceptions of the major River Basin States and the actual facts based on his 15 years research in six river basins named above. This article has some similarity to this thesis in that the thesis seek to find the solution to the water security of the Nile basin States based on facts, law and science. This thesis therefore differs with this article in many ways as the article stops at the comparison between perceptions and facts while this thesis goes beyond this comparison and dealt more on international water law and how science can be useful in informing the policy especially in the balancing of existing water uses and potential water uses to enable the Nile basin States to exercise their equitable right in the use of transboundary waters with a duty to prevent harm to other basin Countries.[83]

1.6.4 Applications of the Nile Basin Decision Support System (NB DSS)[84]

The paper gives reasons why Nile Basin Initiative (NBI) was established. That NBI an intergovernmental organization established by the Nile countries with the goal of developing the waters of the basin in a cooperative manner in order to achieveequitable use without harm to other basin Statesand sharing of benefitsto promote regional peace and security. This is the main reason why Nile Basin Decision Support System (NB DSS) was developed for several years to support water resources planning and as decision supportto investment in the Nile Basin, for shared waters with significant effects. The NB DSS was therefore developed to give best scenarios with more benefits and less effects on planned projects to minimize conflicts and for efficient use and sustainable development of the Nile Basin water resources. In addition the

[83] See paragraph 1.2 of this thesis above.
[84]Seid, Abdulkarim, H. , and. Jonkar, V, "Applications of the Nile Basin Decision Support System" , (Nile Basin Initiative, Secretariat, Entebbe, Uganda 2013)

paper presents the outcome of some of the initial analysis of the integrated water resources planning within the Nile basin using the NB DSS.

The similarities of the paper and this thesis is that both seek to find ways on how the existing water uses and potential water uses can be balanced in addition to providing the required science to inform the policy on joint planning that would enable the basin States to achieve their water security. The NB DSS has therefore been considered as an important tool in the development of the joint Nile River basin water resources development plans and balancing the existing uses and potential water uses. This tool therefore contribute significantly in solving article 14(b) of the CFA 2010 a lead question analysed in this thesis and a way forward offered for its solution.

The difference of the paper and this thesis is that the paper only considers scientific tool (NB DSS) as enough tool in solving the water security of the Nile basin States while this thesis brings on board prevailing legal instruments (tool) of international water law that includes the principle of equitable use and the precautionary principle to prevent harm in the development of the shared Nile River Basin water resources and the geo-politics of the Nile River Basin.This thesis further analyses the contentious issues of historical Nile River agreements, the historical rights and the demand of natural flowsby the lower Basin States.

1.6.5 Impacts of Global Change on the Nile Basin: Options for Hydropolitical Reform in Egypt and Ethiopia.[85]

The paper distinguished the basin States by dividing them into upstream and downstream countries as the paper's argument is based on upper basin verses the lower basin approach in the use of common water resources is along the upper basin States versus the lower basin States. In this regard the paper distinguishes between two forms of water scarcity, one scarcity as described by IWMI. The definition based on lack of adequate water to meet basic needs and economic needs of the basin States. The other water scarcity is a situation whereby water availability in rivers, wetlands, and aquifers are ample but access is difficult due to lack of development of the resource due to economic reasons and the prevailing basin regime does not allow other basin States to access both resources for development or having a hostile condition and rules that bar other basin Statesfrom accessing the available water resources. This paper therefore has similarity with this thesis that calls for the need to have a new Nile River Basin Regime that would provideconducive atmosphere for equitable use of the Nile Basin water resources

The difference between the paper under review and this thesis is that the paper stops at economic reasons and approaches the issues based on the upper basin States verses the lower Basin States while this thesis goes beyond economic issues and analyses the hydro-politics in the Nile River basin that is a big factor today and has been seen to denyother Basin States access to resources for developments and considers cooperation of all the Nile Basin States as a major solution to the basin problems. The issues at hand are the current Nile River Basin Regime that are based on the historical agreement of 1929 and 1959 Nile River Agreements and the World Bank (WB)

[85]Martens,Anja Kristina**,** "Impacts of Global Change on the Nile Basin: Options for Hydropolitical Reform in Egypt and Ethiopia", (International Food Programme Research Institute Discussion Paper No. 01052, January, 2011)

Operational Policy (OP 7.5) that requires the basin States who seeks loan or grant from the WB to develop the shared basin water resources to first give notification to other basin States and get consent from those other basin States before accessing resources for development. The same policy applies to African Development Bank.

1.6.6. The Helsinki Rules, the 1997 UN Watercourses Convention and the Berlin Rules: Perspective of international water law.[86]

The paper analyses the best practices under international water law rules and the 1997 UN Watercourse convention and compares their similarities and the areas of departure and examines the basic challenges facing transboundary water resources. This paper was before the entry into force of the 1997 UN Watercourses Convention hence argues that the shared water resources remain the next important area without a universal agreement regulating the protection and uses of the resources. The 1997 UN-Watercourses convention which was adopted by the UNGA on 21st May, 1997 after 30years from 1966 to 1997 of preparations work by the International Law Commission (ILC). The scenario has changed today as the 1997 UN Watercourses Convention finally entered into force on 20th August 2014 filling the lacuna in the international water law.

The similarities of this paper and this thesis is how to balance the principle of equitable use and causing no significant harm to other basin States on the use of shares water resources.

The main difference between the paper and this thesis is that the paper concurred with the Berlin Rules 2004 that equals the principle of equitable uses and the principle of causing no significant harm while in this thesis the superiority of the principle of equitable use over the principle of

[86]Salman M. Salman, "The Helsinki Rules, the 1997 UN Watercourses Convention and the Berlin Rules: Perspective of international water law", (World Bank, Washington DC, USA, 2007).

causing no significant harm has been upheld as provided by the 1966 Helsinki Rules and the 1997 UN Watercourses Convention that subordinated no cause harm to reasonable and equitable use. Further a number of Berlin Principles are applicable to the management of all waters, both national and shared water resources which is a deviation of ILA from its earlier entire work. The 2004 Berlin Rules has been rejectedby a number of scholars who intern calls on the basin States to give more consideration to the 1966 Helsinki Rules and the 1997 UN-Watercourses convention.

1.6.7 Blue Peace for the Nile Report[87]

The report advocates for achieving cooperation in utilization of transboundary waters as in the case of the Nile River. In this regards the report commends the achievement so far made in under the Nile NBI.

The report has a number of similarities to this thesis in that it recognized the achievements so far made by the Nile Basin States through cooperation under the NBI. The key achievements identified in the report that are confirmed by this thesis are the negotiated CFA 2010 that has been signed by six basin States as stated above that is only one step below the realization of a full cooperative framework due to unresolved article 14(b) on the Water Security. The report argues that the unresolved article 14(b) is due to the differences of opinion on some of the key legal and political issues. It is the hope of the Blue Peace for the Nile report that, the

[87] EktaTalmar et al, "Blue Peace for the Nile", (Strategic Foresight Group, Mumbai, India, 2013)

recommendations made in this report would help strengthen institutional cooperation, overcome political and legal hurdles and build on technical cooperation.

The similarity of this report to this thesis is that the report confirms the research finding in this thesis that article 14(b) of the CFA 2010 on the Water Security is about the current Nile River Regime that is based on the historical Nile River Agreements of 1929 and 1959 discussed above. These historical Nile Agreements are political agreements that gave the Arab Republic of Egypt veto powers over other basin States as in the case of 1929 Nile Agreement. The 1959 Nile Agreement for the exclusive use of the Nile River flows that Egypt shared with Sudan on 55.5 billion and 18.5 billion cubic metres annually respectively out of a total Nile River annual flow of 84 billion cubic metres.

The main difference of this report and this thesis is that it gives more weight to political solution that legal solution that is emphasized in this this in solving article 14(b) of the CFA 2010 on water security as the report recommends a political pronouncement by the head of States of the Nile Basin Countries. In this thesis it has been found that such political pronouncement had failed in the past as the one proposed in 2009 during the negotiation never took off as most of the Nile Basin States were not for it.

1.6.8 Geopolitics of the Nile River Basin [88]

The author of this article Rahman, Majeed A. is a professor of Africa Studies at the University of Wisnsin-Malawankee. The article starts with a clear message that in Africa,access to water is key and crucial to the human survival. This is a further testimony to the fact that access to water is

[88]Majeed A. Rahman, "Geopolitics of the Nile River basin" , (Centre for Research on globalization,, 2011)

one of the key pillars of the water security of the basin states as demonstrated above that the water security of the basin states revolves around three pillars that is the availability of the water resources, its accessibility and managing any conflicts that might arise.

The paper is about the geopolitics of the Nile River basin that in the past had been dominated by Egypt[89]. This led to the 1929 and 1959 Nile Rivers agreements discussed above. For many years Egypt developed the Nile's waters unilaterally. This situation was influenced a lot with the role played by Great Britain in the 19th century as Egypt was seen to be vulnerable to the low flows of the Nile River. This influenced the building of the first Aswan dam to harvest the flows during the rainy seasons to be used during the dry seasons for agricultural production, especially cotton and to protect Egypt from floods.. In 1892, United Kingdom occupied Egypt to serve its commercial interest by protecting its interest in Suez Canal[90] and to address shortage of cotton in the world market. Having adequate water during summer that is conducive for cotton made the change from the old traditional flood fed agriculture.. This shift increasedan intensive period of water development of the Nile that generated thedebate over the interests of upper and lower Nile countries on these developments. This made Britain to appoint four commissions to draw up regional development plans for exploitation of the Nile waters. Egypt rejected the commissions' plan because major structures would have been beyond Egypt's jurisdiction.[91]

The similarity of this paper and this thesis is that, both the paper and this thesis are concerned with Egypt dominance of the geopolitics of the Nile River basin and why Egypt would want to protect their lions share in the use of the Nile River flows based on the historical Nile River

[89] As evidenced by the historical Nile River Agreements of 1929 and 1959 analysed in chapter 3 of this thesis.
[90] Halfords L. Hoskins, "The Suez Canal as International waterway", 37 The American Journal of International Law 373 (July 1943)
[91] Ibid, P.373

agreements of 1929 and 1959. Both the paper and this thesis analysed the veto powers given to Egypt by the 1929 Nile River agreement between United Kingdom and Egypt.[92]

There is no much difference between this paper and this thesis save for the fact that this paper did call for anew Nile River Basin Regime which is emphasized in this thesis considering that up to date the hydro-political situation of the Nile Basin has been a legal-political deadlock for decades.[93] The new Regime would make the basin States willing to cooperate and willing to listen to the political concerns and national interest of other basin Statesthat would ensure joint planning on new use and development of the shared Nile basin water resources. The paper also did not see the role being played by the China as a new entry into the Hydro-politics of the Nile River Basin. In this thesis it has been argued that China's interest in Africa generally focuses on obtaining energy supplies and raw materials for industries and economic development, besides the impacts it can have on a countries' development[94]. This is evident in the exponential growth in foreign trade between China and African Countries since the end of the 1990s that has shocked the western public[95].

[92] Article 4(d) of 1929 Nile River agreement between Egypt and United Kingdom requires Kenya, Uganda and Tanzania and even Sudan to use the waters of Lake Victoria and the Nile with the acquiesce of Egypt that gave Egypt veto over the upper basin States that were under the British administration analysed in chapter 3 of this thesis.

[93] Arsano. Y. "Ethiopia and dilemmas of national and regional hydro-politics", (Centre for Security Studies, Swiss federal Institute of Technology, Zurich, Switzerland, 2007).

[94] Martens Anja Kristina, Impacts of the Global change on the Nile Basin: Options for Hydropolitical Reform in Egypt and Ethiopia, (International Food Policy Research Institute, January, 2011)

[95] Schuller, M. and AscheH., "China engagement in Africa –Opportunities and Risk in Development" (GTZ, 2008)

1.6.9 The Nile Treaty: State Succession and International Treaty Commitments: A case study of the Nile Water Treaties[96]

This book by Owiro,Arthur Okothcame 19 years after a similar book by Bonaya,Godanaon the same topic in 1985. In this thesis, I preferred to carry out literature Review on the 2004 book by Owiro, ArthurOkoththan the 1985 book by Godana, Bonayaas the 2004 book was written after a lot of development in the International Water Law had been achieved. Such developments includes, 1997 UN-Watercourses Convention, the 1997 ICJ ruling on the case between Hungary and Slovak on the Danube River in Europe, the 2004 Berlin Rules by the ILA on use, development, protection, management of both national and international waters.

The book analyses a number of Nile agreements that were madebetween Britain,Egypt, and other colonial mastersbetween 1895 and the Second World War (1945) that regulated the utilization of the waters of the Nile River. During this period, the entire Nile River Basin was under the sovereignty of foreign, mainly European powers.[97]

The book gave an account on how through these bilateral treaties, there were commitment to Egypt and Britain to respect prior rights to, and the claims of "natural and historic" rights to Nile Waters, which Egypt still claim today. The book goes ahead to confirm that the current Nile Regime based on these treaties was established. The book further clarify that these treaties are no longer binding on the independent Nile Basin States after acquiring full Statehood. Reasoning

[96]OwiroArthur, Okoth, "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN 1681-5890.

[97] Historical Nile Agreements 1929 and 1959 analysed in detail in chapter 3 of this thesis.

that “it is obvious that the treaties can no longer reflect the priorities and the strategic interests of these “new” States.” In this thesis these historical Nile River agreements have been analysed and concluded that, they are not binding on the new born States siting the doctrine of a clean slate as provided by the 1978 UN-Convention articles 17 and 18 on the doctrine of a clean slate that reflects substantial change. In addition these historical Nile River agreements cannot past the test of the prevailing international water law that today is based on the principle of equitable use of the of the shared water resources that is balanced with the precautionary principle of prevention of harm. The conclusion by both this book and this thesis that these historical Nile agreements are not binding on the independent Nile Basin States presents their similarities. What differs is the reasoning as in this thesis the reasoning goes beyond Sovereignty as presented below:

i) The 1978 Vienna Convention on the Doctrine of a Clean slate (articles 17 and 18) gives the new born States a clean slate and can only be bound by colonial agreements if they are will to do so. This is not the case as demonstrated in Chapters three and four of this thesis that these historical agreements were rejected by Kenya, Tanzania and Uganda with Tanzania siting the 1961 Dr. Julius Nyerere doctrine and Kenya following suit with Mzee. Jomo Kenya declaration in 1963.

ii) Substantial change on the States attaining independence and

iii) Giving veto powers over the use of shared water resources to some basin States over the others (Lac Lanoux case between France and Spain arbitral award did not allow such veto powers).

iv) The historical Nile River agreements are not in harmony with the prevailing international water law as presented above in this thesis.

1.6.10 From conflict to cooperation in the management of transboundary waters: The Nile Basin experience.[98]

According to Patricia in this paper, there is a big challenge in the management of trans-boundary waters as they traverse different States with different needs. There is therefore a potential for conflict that requires cooperation of the basin States which shares these water resources. In her analysis the situation is made worse by the fact that different basin States have varying capacities to negotiate because their political-economic conditions are different. In her analyses the paper further states that the international law also favours some States at the expense of others.[99]
The international water law referred here especially in the Nile River Basin is the current Nile River Basin Regime based on the historical Nile River agreement of 1929 and 1959 Nile River agreements that gave Egypt veto powers over the upper basin States which were under the United Kingdom administration. The 1959 Nile Agreement between Egypt and Sudan, whereby the two basin States agreed to share all Nile River flows without consideration of the other basin states.

The similarity of this paper and this thesis is the biasness of the historical Nile River agreements that favours the lower basin States and the eminent conflict in the use of the scarce Nile River water resources.

[98]Kameri-Mbote, Patricia, "From conflict to cooperation in the management of trans-boundary waters: The Nile Basin Experience" , (Heinrich Buell Foundation, Washington, DC, 2005)
[99] 1929 Nile River Agreement between United Kingdom and Egypt anlysed in this paper and in chapter 3 of this thesis. Article 4d of this agreement gives veto powers to Egypt over the upper Nile Basin States which were under the British administration before they attained independence.

The difference of this paper and this thesis is that this thesis goes ahead to call for the development of a new Nile River Basin Regime based on the prevailing international water law that is equitable use of the shared basin water resources and the precautionary principle of prevention of harm. All these call for a new Nile River basin Regime that will ensure the water security of Nile countries. This is the gap this thesis has filled by proposing a new Nile River Basin Regime that would enable the Nile Basin States to achieve their water security and to resolve article 14(b) on the water security in the CFA 2010.

1.6.11 Water Security: What Role for International Water Law?[100]

The paper starts in its introduction by quoting the then UN Secretary – General Kofi Annan in March, 2005 saying that "The International Community recognizes the need to improve the management of its global water resources". This demonstrates the increased focus on issues related to water security and water resources[101]. According to Wouters, Patricia in this paper, the notion of "Water Security" is not a new one, but is being reconsidered in current global discourse a reinvigorated concept inviting closer study. This is one of the reasons why the water security was introduced in the Nile River Basin Cooperative Framework Agreement, 2010 negotiations[102]

The paper is therefore on the Water security its legality and the role of international in achieving the water security. According to this paper under review, maintaining environmental quality and

[100]Wouters, Patricia, "Water Security: What Role for International Water?" (Earthscan Publication, 2005)
[101] Ibid
[102] Article 14, CFA, 2010

improving degraded environments are preconditions for achieving sustainable development goals and meeting the millennium development (Klaus Toepfer, UNEP, Executive Director, 2004).[103]

The similarity of the paper and this thesis is in both the definition of water security and the role of the Basin States in the management of the shared water resources as in this it has been argued in that to ensure availability of the water resources Nile countries has a responsibility in the conservation and protection of the water sources in line with the principle of subsidiary and joint planning in the development of the basin's shared water resources a duty that is held in this paper.

The main difference of this paper and this thesis is that the paper gives more emphasis to fundamental individual rights and national sovereignty rights over access to shared water resources while State sovereignty in this respect has been analysed in this thesis in paragraph 1.2 above and concluded that State sovereignty has to bow before the international water law as all basin States have an interest in access to the shared water resources and these varying interest can lead to water conflict if the prevailing international water law presented here above is not adhered to.

[103]Dadde, Felix (Editor), "Human and Environmental Security: An Agenda for change, London". (GBR: Earthscan publications, limited 2005), P.166

1.6.12 The Nile Basin Cooperative Frame Agreement Negotiations and the Adoption of "Water Security" paradigm: Flight into obscurity or a logical Cul-de-Sac?[104]

The article introduces challenges of the increasing use of fresh water which is finite and constant by the world ever-expanding population.[105] This description is more appropriate to the Nile Basin than any other basin today. The article further describes the Nile River as a giant in terms of length, and a dwarf in terms of volume of water it carries, as its annual flows is only 84 BCM which is just 6% of that of the Congo River. The articles goes ahead to reveal the gloomy picture of the Nile River basin where by the upper Nile Basin States are yet to develop its waters and are in dear need of the development of the Nile basin water resources. In this regard Ethiopia that contributes 85% of the Nile River flow has only water service coverage of 17%. The same low water coverage is the order of the day in all the Nile upper Basin states. The paper goes ahead to state that this grim reality is made worse by the absence of an inclusive legal and institutional framework to ensure equitableequitable utilization of the Nile Basin waters. This description concurs with the finding in this study as the key gap in the Nile River Basin today. This gap is finally filled in this thesis with the proposed new Nile River Basin Regime.[106] This new Nile River Basin Regime that is a combination of the negotiated Nile River Basin CFA 2010, the introduction of joint planning, the use of science (NB-DSS) and key principles of the International Water Law namely equitable use of the shared water resources and the precautionary principle of prevention of harm to balance the existing water uses and potential uses, and ensure joint management of the sources of the Nile River Basin water resources to

[104]Mekonnen, DerejeZeleke, "The Nile Basin Cooperative Frame Agreement Negotiations and the Adoption of "Water Security" paradigm: Flight into obscurity or a logical Cul-de-Sac?", (The European Journal of International Law (EJIL) 2010 Vol.21 no.2p. 421-440

[105]McCaffrey, Stephen, C." The Evolution of the Law of International Watercourse", (45 Austrian Journal Public and International Law (1993), P.88

[106]A new Nile Basin Regime based on the prevailing International water law presented in chapter 6 of this thesis.

ensure availability of the Nile River flows, accessibility of the Nile River flows by Nile countries and managing any conflict that might arise.

The similarity of this article and this thesis is the varying development of the Nile basin water resources between the upper and the lower basin States and the unregulated development of the basin water resources in the absence of acceptedlegal framework and permanent Nile basin Institution.

The main difference between this article and this thesis is that this article considers the introduction of the water security in the CFA 2010 during negotiation as a killer non legal instrument that was forced in by some basin States to stall the negotiation. Thesis has a contrary opinion on this that water Security is a legal instrument and can only be achieved through the application of international water law in a transboundary basin. As demonstrated in chapter 5 and six of this thesis.

1.6.13 Case Study on Water Security: Analysis of System Complexity and the Role of Institutions [107]

The article starts by stating that water security is a big challenge facing many trans-boundary rivers. Therefore, knowing the key factors within a system will reduce water security problemsand promotecooperation. In this thesis cooperation of the basin States has been described as key and mandatory in the conservation of the water sources to ensure availability of water resources, joint planning and giving information on planned measures to ensure

[107]Perlman, Petersen, -J. D., Veilleux, J. C., Zentner, M. and Wolf, A. T. "Case Studies on Water Security: Analysis of System Complexity and the Role of Institutions", (Journal of Contemporary Water Research & Education, 149: , 2012). P. 4–12

accessibility of basin shared water resources without much conflict. The 1997 UN Watercourses Convention on use of shared water resources call upon the basin States to cooperate and be part of construction and maintenance in an equitable basis and or to defray the cost of the regulation of such uses as could have been earlier agreed.[108]

In this article under review water security is defined as the access of freshwater in the right quality andquantity, at the right times, for dependent systems. This definition concurs with the definition provided in this thesis.[109] Both the definitions see the availability of freshwater as a prerequisite for human and environmental security, as well as economic growth to eradicate poverty. Further similarity of this article to this thesis is the demonstration by both this article and this thesis that freshwater as a limited resource is influenced by geopolitical geophysical conditions, and social and cultural dynamics on several scales. Therefore, the relationship between changes to the physical environment and political and social instability has been statedby numerous scholars, with shifts in freshwater resource access, quality, and quantity often noted as being a key change and influence on societal and political stability.[110] The article also confirms the fact that global freshwater is increasingly under pressure due to direct human use and catchment degradation, pollution, and due to environmental issues such as climate changes a factor that has been identified in this thesis as one of the drivers affecting the availability of water resources in the Nile River basin. The impact of freshwater stress is of concern for all sectors of society, sometimes indirectly, with consequences that are largely unpredictable.[111] The

[108] Article 25 of the1997 UN Watercourses Convention analysed in chapter 4, paragraph 4.7 of this thesis.
[109] Paragraph 5.1 of this thesis
[110]Eckstein, G., "Water scarcity, conflict, and security in a climate change world: Challenges and opportunities for international law and policy", Wisconsin International Law Journal **27**(3), 2010, P. 411–424
[111]Veilleux, J. C., Zentner, M., & Wolf, A. T. "Relationship Between Freshwater Resources, Socio-Cultural Dynamics, and Geopolitical Stability" Oregon State University2013),P. 7.

article therefore, examines the key role that State institutions take at international level in regard to water security. To this effect the article suggests that there is a relationship between change, institutions, and scale. The conflicts therefore occur where the rate of change within a basin exceeds its institutional capacity. The institutional capacity goes beyond water institutions and includes all factors that contribute to water governance that includes economy, military and infrastructure. The institutional analyses in this article concurs with that of Wouters, Patricia, in 2005 on the role of international and national laws in providing effective institutions that ensure the 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of water resources. The same analogy has been presented in this thesis at various paragraphs and chapters that, the basin States can only cooperate effectively in the management and equitable development of the basin's shared water resources if they establish a joint Basin Commission that would act as clearing house for planned measures and a forum for conflict resolution. Analyses of past conflicts also suggest that sudden change within a basin in terms of high population growth, development of dams, new governments and economic growth are more hazardous to the basin's instability than water quality decline, aspects of climate change save for severe droughts and floods. All these factors have been identified in this thesis as factors that affect the availability and accessibility of water resources hence the sources of conflict in the basin. Mitigation against these changes requires an efficient and effective institution. The absence of which is the greatest potential of political tension. The CFA 2010 provides for the establishment of Nile River Basin Commission that will act as a forum for conflict resolution, a clearing house for new projects as case of the Ethiopian Grand Renaissance dam on the Blue Nile that is now causing tension

between Ethiopia and Egypt.[112] There is therefore need of all the Nile River Basin States to ratify the CFA 2010 and establish the required Nile River Basin Commission.

The main difference between the article and this thesis is the strong presentation in this thesis that the ratification of CFA 2010 by Nile countries can only be realized if the unresolved article 14(b) is resolved. This thesis has gone ahead and filled this gap by providing the way forward how this article can be resolved.

1.6.14 A long Term view of Water and International Security[113]

The paperstarts by quoting Postel (1999) by stating that t water management nothing but conflict management.[114] Water is not like other scarcecommodities or resourcesas it is for the livelihood of the people and fuels all facts of production and ecosystem. This has resulted into the management of water resources being fragmented, and is often subject to vague course, orparallellegal principles. Therefore water cannot be managed for a single purpose but for multi-objective and for competing needs/or interest. This analyses concur with the finding in this thesis that, water resources is finite and its demand is increasing with population growth, demand for hydropower, industry and irrigated agriculture and environmental concerns. Any two of these needs are always at odds and the chances of finding acceptable solutions decline as more stakeholders come in. Wolf in this paper adds that the competing needs become worse in trans-boundary water resources due to other political considerations. This situation has led to a

[112] Article 15 of the CFA 2010 analysed in chapter 4 of this thesis
[113] Wolf A. T. "A long term view of Water and International Security", (Journal of contemporary Water Research and Education, 142:2009), P. 67-75)
[114]United Nations Environment Programme (Ed.),"Hydropolitical vulnerability and resilience along international waters" (United Nations Environment Programme,Nairobi, 2009). P. 1

number scholars writing on the hydro-politics of the basins. In this thesis such articles/or papers has been analyzed and the finding do concur with this descriptions.[115]

On the same veinthe paper concludes that water can increasedialogue and cooperation, even between warring factions of basin States. In the map of International/or trans-boundary waters[116] developed by Wolf provides, "that there are 263 rivers around the world that cross the boundaries of two or more nations and a number of unknown International groundwater aquifers. The catchment areas that contribute to the 263 rivers covers 47 percent of the land surface of the earth[117] that includes 40 percent of the world's population, and contribute 80 percent of fresh water."[118]

Whether water resources requires management Wolf in his paper of 2009[119] reported that in order to understand the history of water conflicts, scholars at University of Oregon State through their three year research project had found that every reported water conflicts or cooperation between two or more States over the past 50 years a total of 1,800 such interactions that involves water as a scarce resource or a quantity to be managed were recorded. This research by Oregon State University does confirm the finding in this thesis that, freshwater resources are scarce, finite and requires management. In this thesis it has further been demonstrated at various chapters that, shared water resources required cooperation of Nile countries for protection of water sources, and joint planning for equitable use of the shared water resources.

[115] Supra, paragraph 1.6 literature review in this thesis.
[116] Supra Note 112.
[117] Ibid
[118] McCaffrey, Stephen C. "The law of International watercourses" (Oxford University Press, 2001), P.23
[119] Wolf,Aron. T.,"A long term view of Water and International Security", (Journal of contemporary Water Research and Education, USA, 2009). P.67-75

The finding by Oregon State University further concluded that:

First, through there is high potential for dispute in international basins, the records of cooperationstilloverwhelm that of a cute conflict over the shared or international water resources. During the 50 years under review, 157 treaties were negotiated and signed, against only 37 a cute disputes and the only true "Water war" between nations in the history record occurred over 4,500 years agoin the Tigris-Euphrates basin.[120]

Second, that most activities taken over the water are valid despite of highrhetoric of politicians which often targets their own areasrather than the enemy. This is also true in the Nile Basin overthe ongoing tension between Egypt and Ethiopia over the Grand Reconnaissance dam on the Blue Nile being developed byEthiopia.

Third, rather than conflicts the Basin States still find alot of issues overwhich to cooperate with regards to water resources than to fight over. This situation cannot be taken for granted in the Nile River Basin that is unique and more challenging in that, as all the total annual Nile River flow of 84 Billion cubic metres is considered developed by two lower basin States of Egypt and Sudan following their 1959 Nile River Agreement.[121] The upper Nile basin States are just starting the development of the Nile River flows as demonstrated in this thesis in various chapters.

Fourth, water is both a unifier and conflict trigger. As conflict trigger, water can make good relations bad and bad relations worse. But international or equitable use can also unify basins

[120] Ibid

[121]Under the 1959 Nile River Agreement between Egypt and Sudan, the two countries allocated themselves 55.5 and 18.5 Billion cubic metres annually respectively with the balance of 10 Billion cubic metres was left for evaporation in Aswan dam, analysed in Chapter 3 of this thesis.

where relatively strong institutions are in place. This fourth conclusion also concur with the findings in this thesis on the call for a new Nile River Basin Regime that would enable the establishment of an effective and efficient Nile River Basin Commission that is neutral and would act as a forum for conflict resolution, a clearing house for planned measures and a coordinator of joint planning for both the management of the Nile River Basin Water resources and equitable use of the shared water resources.[122] The paper further states that historical record indicatesthat international water disputes hardlyget resolved, even in the cases of bitter enemies. This is why in this thesis, it is being emphasized that, all the Nile Basin States should agree to be a party to the negotiated CFA 2010 and establish the proposed Nile River Basin Commission where they will have a forum to discuss all the unresolved issues in the CFA 2010 as that of Article 14(b) that is analyzed and discussed at length in Chapter six of this thesis. The paper under review affirms this fact by stating that, the institutions created by the basin States have frequently proven to be resilient withtime and during periods of strained relations. The example is the Mekong Committee that continuedsince 1957, exchanging data duringthe Vietnam War. The other example is the secret "Picnic table" talks that have been held between Jordanand Israel since the unsuccessful Johnston negotiations of 1953-55, even though the two countries were stillin a legal state of war. The Indus River Commission also survived too. The same is much applicable to the Nile River where all the eleven basin states are involved in negotiations in order to create a conducive atmosphere for cooperationin development of the Nile waters under a neutral forum.

The paper goes ahead to give an account on the anatomy of water conflicts. The paper further identifies factors that lead to conflict in international waters. These are numerated as first, length

[122] Article 15 of the CFA 2010 analysed in Chapter 4 of this thesis

of time between when nations first start to impinge on each other's' water planning and when agreements are finally, arduously, reached. This analogy also concurs with the finding in this thesis that calls for the speeding up the finalization of the CFA 2010 and establishment of the Basin Commission. This paper further reveal what is happening in the Nile Basin by stating that, in most cases basin States that share access to a basin would want to development water projects unliterary within their territory, in order to avoid the political intricacies of joining managing the shared resources in the Nile River Basin this trend has been there with Egypt building the Aswan dam and Ethiopia developing the new Grand Renaissance dam on the Blue Nile.

The two countries are the most powerful countries in the Nile Basin. These attitudes have resulted in prolonging the negotiations of Basin agreements. For example treaties over the Indus took over ten years of negotiations and that of the Gauges took thirty years, and forty year in the case of Jordan River. [123] The difference between this paper and this thesis is that this thesis goes ahead and provides as to balance existing water uses and potential water uses using both science to inform policy and international water law as legal tools for the balance.

1.6.15 The Nile Basin Cooperative Framework Agreement: The Beginning of the End of Egyptian Hydro-Political Hegemony[124]

According to this article, Egyptians relied on the Herodotus' description as their hegemonic say and have always been vigorous to ensure a monopoly over the waters of the Nile River because

[123] Wolf, A.T. 2009, Supra Note 118 in this thesis
[124] Ibrahim, Abadir M. "The Nile Basin Cooperative Framework Agreement: The Beginning of the End of Egyptian Hydro-Political Hegemony" (Monthly Environmental Law. and Policy of law year book Revision., Vol. 18, No. 2, 2011)

of its dependence on the Nile waters. Despite of Egypt's domination over the use ofthe Nile waters, upperStates are progressivelychallenging such monopoly of Egypt. Beginning near the end of colonialism in Africa, Nile basin States have been slowly but surely mounting a challenge to Egyptian domination over the Nile. In seeking to answer the question on Egypt's dominance over the Nile, the article states that:

> *"...It the upper basin states, whose countries hold the sources of the Nile waters, are asking Herodotus that whose gift is the Nile?Is it the upper basin States that are the sources of the Nile waters or the lower States that are using the waters? On 14th May, 2010, the seven upper basin States intensified this question by opening the CFA 2010 for signature. This agreement announces the rights of upper basin states to the use of the waters of the Nile."*

The article also narrates how Nile River is important to Nile countries and with the over growing demand due to population increase and need for faster development to eradicate poverty the competition over the Nile waters will continue to increase and hence a potential for conflict over the use of the Nile waters. The main sources of the Nile waters are the Blue Nile from Ethiopia that contributes 85% and the White Nile that originates from the East African countries contributing 15%.The two downstream States Sudan and Egypt are the recipient of the Nile water after the White Nile and the Blue Nile joins in Khartoum. The Nile Countries uses its waters for irrigation, hydroelectric power generation, industrial purposes,domestic consumption andtransportation to some extent.[125]

[125] Supra Note 123

The similarities of this article to this thesis is that both the paper and this thesis have identified the importance of the Nile River waters to both the lowerand upper Basin States, the drivers impacting on the basin water resources, the eminently conflict over the use of the basin's water resources and the Egypt's domination in the use of the Nile waters.

The second part of the Article is a discussion on the geo-politics of the dominance of Egypt over the use of the Nile waters and the role played by the Britain and later independent Egypt in ensuring that their use of the Nile waters is protected. Further, the Article presents how the this dominance was extended to the international law in order to consolidate their hegemony powers and how the new born States of the Nile Basin have challenged this dominance

The main difference between the paper and this thesis is the argument in the paper that the upper basin States have introduced the CFA, 2010 for reasons other than the legal framework for the use of the Nile, but for the reason to counter the dominance over the use of the Nile waters by Egypt as this thesis argues that the CFA 2010was negotiated to fill the legal framework gap in the Nile basin and to have a new Nile basin legal regime based on the prevailing international water law.

1.6.16 The Concepts of Equitable use, No Significant Harm and Benefit Sharing Under the Nile River Basin Cooperative Framework Agreement: Some Highlights on Theory and Practice.[126]

[126] Musa, Mohammed Abseno, "The Concepts of Equitable use, No Significant Harm and Benefit Sharing Under the Nile River Basin Cooperative Framework Agreement: Some Highlights on Theory and Practice" (The Journal of Water Law, Vol.20 ISSUES 2/3 ISSN 1478-5277, 2010), P. 86-95

The article examines the historical Nile River agreements. The main purpose of such analyses was to find out why the two principles of equitable use and prevention of harm have never been introduced in the Nile basin and how they are incorporated in the negotiated CFA2010. The article further introduces the concept of benefit sharing which was part of the principle of equitable use. This article further confirms this relationship and concludes that the concept of benefit sharing and the principle of equitable use supplement each other.

One of the examples given by the articleis Article 4(d) of the historical 1929 Nile agreement treaty between Britain and Egypt and gave Egypt veto powers over the upper basin States which were under the British administration.

The paper has a number of similarities to this thesis. Key areas of similarities are that the historical Nile agreements favoured Egypt as they gives veto powers to Egypt over other Nile basin States and does not give any restriction to Egypt at all and only aims at protecting their so called natural and historical rights. In this thesis a thorough search has revealed that historical rights has no legal place in the international water law all the way from the Hammurabi the law giver days 0f 1802 BC to the Helsinki Rules of 1966 to the UN Watercourses Convention of 1997and to the 1997 ICJ Danube River case between Hungary and Slovakia.

The difference between this article and this thesis is that the article failed to offer a solution of the unresolved article 14(b) of the CFA 2010 that has been done in this thesis.

1.6.17 Introducing an Analytical Framework for Water Security: A Platform For The Refinement of International Water Law[127]

According to the article, the issue of global water security is highly complex and a big challenge when put together with forces surrounding it that needs to be considered. The summary of the studies on water security shows two different approaches with one on military security and the otherbased on international law context that focuses on state sovereignty and nationalism.

The similarity of this article to this thesis is that both the article and this thesis recognises the complexity of the water security of the basin States and its legal nature.

Both the article and this thesis therefore confirms that water security is legal and can only be achieved through international water law.

The difference in the article and this thesis is that this thesis goes beyond legal and calls for the use of science to inform transboundary policies to balance existing water uses and potential water uses in addition to giving emphasis on speedy settlement of disputes in the use of shared water resources.

1.7 The pertinent questions that emerged from the above problem statement and Literature Review

i) How can the Nile River basin States ensure the availability and accessibility of the basin'sshared water resources and manage any conflict that might arise?

[127]Bjorn-Oliver Magsig, "Introducing an Analytical Framework for Water Security: A Platform For The Refinement Of International Water Law" (The Journal of Water Law, Vol.20 ISSUES 2/3 ISSN 1478-5277), P. 272-278

ii) How can the Nile River Basin States balance the existing water uses and potential water uses to ensure causing no significant harm to other basin States

iii) What are the ingredients of the required new Nile River Basin Regime (analytical regime) that will ensure acceptability of article 14(b) on the water security of the Nile River Basin Cooperative Framework Agreement 2010 that can be resolved with the answer to questions (i) and (ii) above?

1.8 Study hypotheses

In this regard, the study hypotheses are derived from the theoretical analyses and literature review above. The study therefore hypotheses that:

H1 the water security of the basin States is determined using the principle of equitable use of the Nile River water resources taking into consideration all factors of equity as provided in article 4 of the signed CFA 2010.

H2 the right of the basin states to equitable use of the basin water resources is balanced with the duty of the basin States to prevention harm to other Basin States and to cooperate in the management (protection, monitoring, conservation and joint planning) of the basin water resources.

H3 There is a balance between existing use or potential uses and equitable use of the shared water resources.

H4 The usefulness of NB-DSS to analyze the effects of planned measures and give scenarios on how best such plans should be implemented is recommendable as

NB-DSS has proved to be a very powerful analytical tool in the balancing of existing water uses and potential water uses.

1.9 Scope of the Study

Given the nature of this study that is aimed at realizing the water security of the Nile River Basin Statesand to critically analyse Article 14(b) on the water security, it is therefore important to specify the scope of this study.

Since the water security of the basin Statesis about:

i. The balancing of the existing and potential water uses in the Nile waters based on the prevailing international water law that is equitable of the Nile River waters that is balanced with the precautionary principle of prevention of harm in addition to use of analytical tools namely the Nile Basin Decision Support System to give scenarios of best water uses with more benefits and minimal effects to the Nile basin States. Such a balance would require:

ii. Cooperation of Nile countries in the management, protection and conservation of the sources of the Nile waters to ensure the availability of the Nile River water resources,

iii. Having in place legal instruments or a new Nile Basin River Regime that would allow accessibility of the shared Nile River water resources by Nile countries,

iv. Managing water conflicts that might occur and

v. establishmentof a permanent and efficient and effective Nile River basin organization (Commission) with enabling structure and clear mandates to ensure that the agreed policies, strategies, joint development plans are implemented and adhered to.

This thesis therefore identified the principles, norms, substantive and procedural rules that must be observed and adhered to by the basin States and the institutional framework mandates to ensure cooperation by the Nile River basin States in the utilization of the Nile wates. When such clear legal and institutional framework are in place, it is certain that "the acceptable principles, norms, rules and the institutional framework mandate in addition to the application of science analytical tools namely NB-DSS to balance the existing water uses and the potential water uses) that would inform policies and joint planning and development of the Nile River water resources.

It is the acceptable new Nile basin legal regime based on the finding of this thesis and critical analyses of article 14(b) of the CFA 2010 that would form the "new Nile River Basin Regime" whose implementation would ensure the water security of the basin States. These analyses involved the examination andanalysis of the prevailing international water law as provided by the 1997 UN Watercourses Convention, the signed CFA 2010, and the works of leading Scholars in international water law reviewed in paragraph 1.6 of this thesis.

In addition this thesis presents the analyses of other specific River Basins Agreements or Frameworks in this study in order to draw comparisons with and concluded that the balancing of the existing water uses and potential water uses in the development of the Nile River water resources is key and crucial to providing a conducive atmosphere for the basin's peace, sustainable development and realization of the basin states water security.

1.10 Methodology

1.10.1 Data Types and Sources

This study relied on treaties and cases as primary sources and authoritative texts and Journals as secondary sources. The literature review covered books, documents, Journals, articles and Published materials, unpublished academic papers, electric and print media, different archives, review of theory and conflict related literature as listed below.

Further the research was concentrated at the Nile Basin Initiative (NBI) Secretariat based in Entebbe, Uganda which is the Headquarter of the Nile Basin Initiative where a lot of information on the Nile River Basin has been collected, assembled and available for such research work since its inception in 1999.

Additional data and information were sourced through interviews with key Nile Basin Initiative Secretariat staff, members of the Nile River Basin Negotiation Committee, and from the Technical Advisory Committee members drawn from Nile countries.

In addition the surveys which were conducted by the Nile Basin Initiative under the "Nile Basin Discourse" (that was to bring the Civil Societies on board into the Nile River discussions) in the

ten Nile Basin States during the negotiations up to 2012 and were lying in the shelves unanalysed were analysed in this study and found to be very useful materials especially in the ranking of factors of equity to be used in giving weights to the factors of equity listed in article 4 of the signed CFA 2010 on the equitable utilisation of the basin's shared water resources (Annexures 1 and 2 of this thesis). In addition the survey revealed the acceptability of the signed CFA 2010 due to the role it would play in the Nile River basin.[128] That, its acceptability by the basin States is crucial and critical and therefore a way must be found to bring Nile countries on board to be parties to the new Nile River Basin agreement. The survey further revealed how the new agreement should relate to the existing agreements. These findings gave a clear direction as to what the Nile River Basin States should put in place as an addendum to the signed CFA 2010 to allow its acceptance by Nile countries that would result into the solution of article 14(b).

Additional information was obtained through revelation at the Nile River basin negotiations, strategic dialogue between the development partners and Nile Basin Initiative (NBI Secretariat, TAC-Members and NBD) that gave vital information for the research work.

Reasons for doing my fieldwork research during Nile Technical Advisory Committee (TAC) meetings, Nile Council of Ministers meetings, Negotiation Committee meetings and the Nile Day Forum celebrations and the Development Partners Forums were that these meetings and events brought together top government policy makers, scholars, key development partners who are key policy and decision makers in their countries and institutions and therefore, their words are almost law and are therefore, key stakeholders to this study. The Nile-COM for example revealed the countries' position on key unresolved issues from time to time as the negotiations

[128] CFA 2010,analysed in chapter 4 of this thesis.

went on. Such information cannot be revealed by individuals being interviewed for research purposes. The Nile-TAC, being Technical advisers to the Ministers holds key information that can only be revealed during the negotiations when a consensus has to be reached on a particular issue. During the Nile Day Forums, academicians/Scholars who did present their research work hence a further forum of excellence where Scholars were engaged and gave clarifications on key challenges to the Nile River basin.

1.10.2 Data Gathering Instruments

A questionnaire was formulated with key questions and emailed together with letters of introduction to the members of TAC, members of the Negotiation Committee, selected Nile-COM, NBI key staff, and other known scholars who are mentioned in this study. In addition face to face interviews were conducted during negotiations, TAC meetings and Council of ministers meetings. Such interviews were followed with telephones conversations that assisted in giving additional information and clarifications. The obtained data were finally analyzed using statistical tools (ranking and bar charts).

1.11 Chapters Breakdown

This thesis is divided into seven chapters. Chapter one gives a detailed introduction that starts with the background of the Nile River basin giving the importance of the river, he challanges, followed with the theoretical frameworks. The chapter then presents the problem of the basin as lack of acceptable legal and institutional framework due to unresolved article 14b of CFA 2010 that this thesis has resolved. The chapter further presents the overall objective, specific

objectives and the justification of the study. The introductory chapter further provides the research hypotheses, the scope of the study and ends up with the research methodology.

Chapter two provides the location, characteristics of the Nile River and traces the sources of the Nile basin water resources, its water resources potential, legal analyses of availability and accessibility of the basin water resources and identifies the shared water resources of the Nile River basin that should be under the governance (regulation) of the Nile River Basin Commission to be established by the Nile Basin States as provided in article 15 of the CFA 2010.[129]The chapter further provides an account of how the Nile water resources have been developed in the past and the challenges and opportunitiesof the Nile River basin. In addition the chapter analyses the Journey of the Nile Cooperation giving results, opportunities and Challenges of cooperation.

Chapter three analyses the Nile River historical agreements of 1929 between United Kingdom and the Arab Republic of Egypt and the 1959 between Sudan and Egypt The chapter further provides an account on how these historical Nile agreements were negotiated, who are the partiesto these agreements and which basin States are bound by these agreements. The chapter goes ahead to tests the legality of these Nile historical agreements visavis the prevailing international water law and concludes that these historical Nileagreements are today not binding the upper Nile basin States with the 1959 Nile agreements only binding on Egypt and Sudan and 1929 can no longer stands as an agreement as Sudan also rejected it by siting substantial changes on attaining independence. These historical Nile River agreements does not pass the test of the prevailing international water law that is today based on the principle equitable use of the Nile

[129] CFA 2010 is analysed in Chapter 4 of this thesis.

basin shared water resources and the precautionary principle of prevention of harm as these agreements were only based on water allocation between the two Nile basin States of Egypt and Sudan and did not consider the rights of other nine Nile basin States.

Chapter four analyses the CFA 2010 and gives an accounts on how the agreement was negotiated, its present status and what is required to bring all the Nile Basin States on board to accept the agreement and be party to this agreement. The chapter furthers compares the CFA 2010 and other modern international water agreements including the 1997 UN Watercourses Convention[130] and concludes that the CFA 2010 is modern river basin agreement that is based on the prevailing international water law. The CFA in its present status is not acceptable to Egypt and Sudan who today enjoys the status quo of the Nile River water allocation under the 1959 Nile River agreement and hence requires some assurance of their water security to be provided in the unresolved article 14(b) on water security on the issues of historical rights and their present water uses.

Chapter five analyses the water security in international water law. The chapter gives the legal definition of water security and demonstrates that water security is legal and the role of international water law in achieving the water security of the basin States.The chapter also analyses and presents the legal and institutional framework required to achieve the water security of the basin States. In this context the chapter identifies the roles and mandates of appropriate Nile River Basin organization (Commission) that would enable the Nile Basin States to achieve their water security. The chapter also demonstrates that in order for the basin States to achieve

[130] 1997 UN Watercourse Convention on the Law of Non-Navigational Uses of International Watercourses, reprinted in 36 ILM 700 (1997), (entered into force 17th August 2014).

their water security the basin States have to cooperate and that cooperation is no longer a choice but a must in the utilization Nile waters and conservation of its sources.

Chapter six critically analyses the historical rights, existing and potential water uses as presented in the unresolved article 14(b) on the water security. It discusses the unresolved article, presents what the article translate to, accounts for the basis on which the other basin states rejected the proposed Egypt and Sudan text to replace of the text provided in Article 14 (b) that was proposed and agreed to by other seven basin States. The chapter further demonstrates the use of prevailing international water law and science (analytical tool in this case the NB DSS) to balance the current water uses and the potential water uses. Finally the chapter analyses other drivers/challenges that affects the availability of water resources of the Nile River basin and how these challenges can mitigated in order to make the basin States more resilience and achieve their water security. Such drivers include the effects of climate change, high population growth, poverty and needs for faster development. The chapter finally presents the way forward in solving article 14(b) by using the prevailing international water law in balancing the existing water uses and the potential water uses and by demonstrating that the application of theprinciple of equitable use and the precautionary principle of prevention of harm as the prevailing international water law together with the appropriate analytical tool (NB DSS) holds the key in solving article 14(b) and it is the combination of these identifies prevailing international water law and the NB DSS that forms the new Nile River Basin regime.

Chapter seven gives the key research findings, draws research conclusion which is the answer to the problem statement presented in chapter one and finally presents this thesis recommendations

whose implementation would assure the basin States of their water security. The chapter concludes by presenting this thesis vision with clear way forward of resolving article 14(b).

1.12 Conclusion

Based on the theoretical framework above, it is clear that there is a convergence that sustainable development of the Nile River Basin requires cooperation and participation of Nile countries in order to have a joint planning, development and management of the Nile shared water resources. This calls for the basin states to declare all their Nile River Basin water resources development plans for the next 20 to 30 years. Such plans shall be consolidated, analysed with the use of the already developed Nile River Basin Decision Support System (DSS)[131] and cleared as sustainable and with no significant harm to other basin states. Since basins water resources must be conserved and monitored and this management of water resources requires resources the basin states should manage or contribute to the joint management of the Nile Basin water resources taking into consideration the principle of subsidiarity (that is which state is best placed to do what at what stage with regards catchment protection, river flow monitoring, curbing water pollution, enforcing agreed standards and set conditions).

It is further agreed that the principle of equitable use is now the pre-eminent legal rule applying to the use, development and protection of international freshwater resources. However, as a flexible principle which is not only applicable to the Nile River basin but can apply to any

[131] The Decision Support System (DSS) is a state of the art analytical framework that integrates (i) information management system (database, GIS, data processing tools among others), (ii) water resources modeling system, (iii) analytical tool (optimization, benefit cost analysis, multi-criteria analysis, downstream impacts of upstream developments among others).

watercourse in the utilization of their water resources, despite the diversity of such watercourses in terms of their physical geography, demographics or the socio-economic development of the riparian states, it is necessarily somewhat normatively indeterminate.[132] The cure to this is the application of the agreed factors of equity to determine each basin state's equitable allocation or equitable use that is regulated with an effective and permanent River Basin Authority as the Niger River Basin Commission or the proposed Nile River Basin Commission that shall be established when the negotiated CFA 2010 entered into force.

Further the territorial Sovereignty and territorial integrity must all bow before the principle of equitable use of the shared fresh water resources.

This is the doctrine that survived to form the International Customary water law. Therefore, it is today the international water law.

In addition, causing no significant harm in itself does not giver veto powers to other basin states over the others. That, in the rights to use the shared water resources basin States have a duty to prevent harm to other basin States. The precautionary principle of prevention of harm is still up to date subordinate to the doctrine of equitable use. Its balance with the right of the riparian coutries to use the shared waters with their borders does not confer veto powers to other basin states and must therefore be treated within the content of its subordinate.

[132] Owen McIntyre, "International Water Law, Historical Development and Conceptual bases", (2008), P.3

CHAPTER TWO

2. THE NILE RIVER BASIN

2.1 Introduction

The Nile River Basin with its diverse ecosystem is one of Africa's most important river and the longest river in the world. It is located in a region with varied geographical, topographical, climatological, hydrological, political and physical characteristics. It extends through 35°C of latitude of the north-eastern Africa quadrant as it flows from the south highlands through alluvial plains and desert sands into the eastern Mediterranean to the north.[133] The Nile River is the only notable Africa River that flows from south to north while all the Africa Rivers flow from north to south. This further makes the Nile River a unique and complex River.The Waters of the Nile basin originate from the upper Nile Basin countries of Ethiopia and Eritrea that forms the Blue Nile, The East Africa countries of Uganda,Kenya, Rwanda,Tanzania, Burundi, Democratic Republic of Congo, and South Sudan to form the White Nile. Sudan and Egypt are dependent upon waters that originate from the upper Nile Basin States.

The main tributaries of the Nile River are the White Nile, the Atbara and the Blue Nile. The Blue Nile is the main Tributary and starts in Lake Tana before it traverses the northwest joining the White Nile in Khartoum, Sudan. The Atbara also emanates from Ethiopia as Tekeeze before joining the main Nile about 300Km from Khartoum. The Ethiopian headwaters contribute about

[133]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012),P. 47

85% of the Nile River Water resources through the Blue Nile and Atbara and Baro-Akobo (Sabot) Rivers while the 15% is from the Lake Victoria basin.[134]

In comparison to other large trans-boundary rivers, the Nile River has little water and a water scarce basin. The Nile waters are only generated in the upper countries while the lower countries are arid countries that only depend on the water from the upper basin. Despite of being a water scarce basin the impact of climate change will increase the variability of its water supply and possibly reduce its quantity.

The Nile countries are at different stages of development of its waters hence the balancing of the existing uses and potential uses are a big challenge as the countries have varying interest. These challenges call for cooperation among the basin states to ensure equitable use of the Nile waters.

The Nile basin suffers from a high variability of rainfall intensities resulting in either floods and prolonged droughts in time and space. Currently there is lack of adequate water storage facilities to harness, store and regulate the basin flows especially in the upstream countries where the Nile basin waters originates. Therefore there is already urgent need, to build water storage infrastructures to harness flood flows, river training to increase the rivers carrying capacity in addition to other regulatory mechanisms in order to mitigate and adapt to the devastating effects of these impacts.

Unless a new Nile Basin regime is established the Nile countries will continue to disagree on which are the equitable use of the Nile River and how the countries can use the waters equitably.

[134] Supra note 133

The rejected historical agreements by the upper basin states have been used by the lower basin States to answer this question. These historical agreements are critically analyzed in chapter three of this thesis and concluded that they are not based on the prevailing international water law as they were based on allocation of Nile waters.

2.2 The Limited Water Resources of the Nile River Basin

The Nile Basin is has high climatic diversity and variability with a small percentage of rainfall reaching the main Nile watercourse hence the basin has an uneven distribution of its water resources.[135] This is worsened by high evaporation rates making the basin vulnerable to drought.

The source of the Nile basin waters are the humid highlands of East Africa and Ethiopia. This makes it possible to explain most of the variability in Nile flows by considering the Blue Nile and Atbara River that originates from Ethiopian highlands and the White Nile that originates from Lake Victoria in East Africa.

Rainfall over the catchments of the Blue Nile is typically monsoonal with most rain occurring between July and September whereas over Lake Victoria rainfall is equatorial with two wet seasons, one from March to May as long rains and the other from October to December as short rains.[136]

[135]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012), P. 26

[136] Declan Conway, "From headwater tributaries to international river: Observing and adapting to climate variability and change in the Nile basin" (Global Environmental Change 15, 2005.), P. 99–114

The sources of the Nile waters within the Nile Equatorial lakes can be divided into two, namely the Lake Victoria (water body mass with a surface area of 68,000 km^2)and the Nile Equatorial Lakes drainage basin (part of Land surface catchment area within Tanzania,Kenya, Burundi,Uganda, Rwanda, , and Democratic Republic of Congo draining into the Lake Victoria and the White Nile). The lake surface receives an annual rainfall of 100 Billion Cubic Metres (BCB) and loses 95 BCM through evaporation leaving a net balance of 5 BCM. The Nile Equatorial Lakes land surface receives annual rainfall amounting to 470 BCM and loses 440 BCM through evapotranspiration, leaving a net balance of 30 BCM that adds to the 5 BCM net balances from Lake Surface totaling 35 BCM that flows down to the Sudd swamp in South Sudan. The Sudd swamp itself loses another 15 BCM. Both the South Sudan and the Sudan receives annual rainfall of 990 BCM and loses 980 BCM through evaporation leaving a net balance of 10 BCM. Through the Blue Nile and part of the upper White Nile Ethiopia receives an annual rainfall of 410 BCM and loses 330 BCM through evapotranspiration leaving a balance of 80 BCM and further Channel loses of about 13 BCM. The net balance flows in the main Nile at Khartoum after the White Nile joins the Blue Nile is 84 BCM.[137] This is the flows that should arrive at Aswan Dam in Egypt. Aswan Dam again loses another 15 BCM through evaporation while it receives zero rainfall. The remaining balance of 75 BCM flows through Egypt which also receives almost zero rainfall.[138]

In terms of the Nile River potential water resources the Nile State report 2012,[139]provides a schematic diagram of the Nile Rivers flows, evaporation loses at interval stages. This situation therefore calls for regulation of the basin flows by putting in place physical infrastructures at

[137] Figure 1, Supra Note 2.
[138] Ibid
[139] Ibid

strategic locations such as dams in the upper head works of the basin that are the main sources of the basin water resources to harvest the flood flows during the rainy seasons and to confine the water resources to smaller areas in order to reduce the evaporations and to increase the Nile River base flows and hence increase the availability of water resources both in time and regions. The regulated flows will also ensure a continuous stream flows from the Nile River tributaries into the main watercourse hence increasing the annual average Nile River flows that is today estimated at 84 billion cubic metres at Aswan dam. Though the report provides that the Nile basin has substantive amount of groundwater, some of which are fossil (non-renewable groundwater) which are only exploited for rural domestic water supplies in small quantities there is still need for substantive groundwater investigations and findings to be made in terms of the actual location of these aquifers, their dynamics and safe yield in order to allow full and productive exploitation of these aquifers. The basins groundwater might only offer limited solution to the basins water security in that the leading demands of the basins water resources as revealed by both the survey by the NBI secretariat and the research findings under this study are irrigation water followed by energy water and thirdly water for environmental balance. It is because limited and variation of the Nile River shared water resources that has made a number of researchers quoted under the literature review in paragraph 1.6 above of this thesis have concluded that Nile River flows are now seen to be all utilized for agricultural, domestic, industrial and environmental purposes while the water demand continues to increase due to population growth and economic development. In this thesis it has been demonstrated at various paragraphs that the present uses are not equitableas 74 billion cubic metres of the Nile River total flows of 84 billion cubic metres are used by two downstream countries namely Egypt and Sudan as provided above in the 1959 Nile River Agreement between Egypt and Sudan. The remaining

10 billion cubic metres are for evaporation loses in the Aswan dam. Such high loses can first be reduced by having water harvesting and storage facilities in the cooler upper basin with less evaporation loses as it is predicted that the Ethiopia Grand Renaissance Dam with a capacity of 75 billion cubic metres out of the 50 billion cubic metres annual Blue Nile flows would reduce the evaporation loses significantly as the flows will be released gradually and continuously throughout the year as power is generated as opposed to the present situation whereby the massive flows in the Blue Nile rushes to the open Aswan dam with high evaporation rate in only three to four months. All these calls for the basin States' cooperation in the restoration of the basin water catchment areas and regulation of the use and development of the Nile River flows to ensure sustainable and equitable use of its water resources. From the Schematic diagram of the Nile River flows and channel loses (figure 1) it is clear that there is still substantial undeveloped Nile River flows that can still be developed by the upper basin states. This revelation dispels the speculation notion that all the Nile River flows is today fully developed as the true fact is that there is still good substantive Nile River flows undeveloped. This is within the Lake Victoria region of the East Africa Nile Basin States that can still develop consumptive 10 billion cubic metres of the Nile River flows with only net reduction of 1.0 to 1.5 billion cubic metres of the Nile River flows at Aswan dam.[140] This is far less of the 10 billion cubic metres annual evaporation loses at Aswan Dam.This finding under this study will help reduce tension between the upper and the lower basin States.

[140]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012), P. 37

The outflows from Lake Victoria form a significant part of the Nile flows, primarily as base flow.[141] The outflows or releases from Lake Victoria since the construction of Nalubaale (Owen Falls) hydropower station in 1954 at Jinja in Uganda have been made according to the Agreed Curve based on the natural flows prior to the construction of Nalubaale.[142] The natural outflow based on the Agreed Curve was satisfactory averaging 700 cubic metres per second up to the year 2000. After the year 2000, the releases were often exceeded with the releases going up to 1300 cubic metres per second resulting into the lowering of the Lake Victoria level by three (3) metres.[143] In response the East Africa Community Council of Ministers directed the Lake Victoria Commission (LVBC) to develop a new Lake Victoria water release policy that will restore the Lake Victoria level to a sustainable level taking into consideration of other factors such as climate change and increased basin abstraction.[144]

The effect of climate change is one of the contributing factors for the recent water resource decline in the Nile river basin. It is argued that high temperature resulting to high evaporation loses resulting intoover exploitation of groundwater in the Nile River valley especially in some parts of the basin. Due to scarcity of water the development has concentrated along the Nile River further resulting into water resource degradation.

[141] The Development of a new water release and abstraction policy for Lake Victoria basin, (Lake Victoria Basin Commission, Final Report, Vol. 2, 2012), P. 28-32
[142] Ibid
[143] The Development of a new water release and abstraction policy for Lake Victoria basin, (Lake Victoria Basin Commission, Final Report, Vol. 1, 2012), P.28-32
[144] Ibid

As discussed in Chapter one of this thesis, the f 96% of Egypt's renewable water resources comes from the Nile waters, with85% of the Sudan's population are in some way dependent on the river.[145]

2.3 Opportunities and Challenges of the Growing Nile River Basin Population

Though the population of the Nile River basin represents the numerical strength of its human resources, it however presents a two-faced development issue. On one hand, it is an asset, and vital factor in wealth creation and economic development. On the other hand, it is a driver of environmental degradation and unsustainable development.[146] In a river basin, population growth ultimately leads to increasing demands and compensation for scarce freshwater resources, and expanding degradation of watersheds. Good water resources management must therefore deal with population-poverty-environment nexus, and consider the broader implications of population growth on the sustainable development of freshwater resources.

The State of the Nile River report 2012, gives the Nile Basin States combined population of 437 million of which 54 per cent (238 million) resides in the Nile River Basin. The population distribution is determined by the water availability. In both Sudanand Egypt the population is largely concentrated along the Nile River course while in the in the upper basin the population follows the pattern of rainfall distribution.

[145]Ibrahim; Abadir M. " The Nile Basin Cooperative Framework Agreement: The beginning of the end of Egyptian Hydro-political Hegemony" (Missouri Environmental Law and Policy Year Revision, Vol. 18, No. 2, 2011), P. 287

[146] Supra note 140

Though high population in the development countries is taken positively as it provides the required workforce, the factors that enabled a big population to contributepositively to economic development are yet to be established in most of the Nile Basin States. Therefore, the challenges posed by the high population in the Nile countries still outstrips its benefits, hence the six the Nile countries are among the poorest countries of the world.

This therefore calls for strengthening of regional integration as a way of promoting general economic development. This will also ensure inter basin cooperation in agricultural trade, which can support food security while simultaneously fostering much needed rural development. Other areas of cooperation include trade in energy, interconnection of power grid,[147] infrastructure development, education and research, and creating large unified markets for goods and services.

2.4 Which are the equitable use of the Nile River Basin?

From the illustration above on the distribution of the sources of the Nile basin water resources it is clear that the shared water resources of the Nile River Basin are the waters within the Nile River system that amounts to 84 BCM.[148] This is the water that is called the blue water. It is separated from the green water that results from rainwater and is lost though evapotranspiration. In simple terms this is the surface water that flows from Upper Nile Basin States and the groundwater that contributes to such flows to the lower basin States.

[147] Nile Basin Initiative, Flagship report, "Nile Cooperation: Opportunities and Challenges"' (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2014), P.18-22

[148] The Nile River Basin Cooperative Framework Agreement 2010, define the Nile River System as the River Nile and the surface water and groundwater which are related to the River Nile; this term is used where there is reference to utilization of wateranalysed in Chapter 4 of this thesis

Arguably, the lack of agreementsover the use of the Nile waterswith regards to "water sharing" or "benefit sharing" can escalate to a trans-boundary water conflict. This already being witnessed I the case of Ethiopia and Egypt. Ethiopia is moving forward with her demand to develop water resources through hydropower projects on the Blue Nile by constructing the Grand Renaissance dam.

However, for several decades, Egypt has been seen to deny other Nile Basin States access to the Nile waters, byexercisingher hegemonic powers on the use of the Nile waters since colonial times. The Nile waters have been used by Egypt for many years and haveenable Egypt to build its economic hub, and political power and growth.The Nile waters have therefore served as political,economic, social and cultural achievements of Egypt's influence in the sub region. [149]

Lake Victoria is Africa's largest lake and the largest tropical lake in the world. The lake is also the world's second largest fresh water lake. Waters from the lake leave by the Victoria Nile (White Nile) to head north to join the Albert Nile in northern Uganda. The water is released from the lake at the Ripon Falls, also known as Owen Falls Dam, in Uganda. It then goes by the Victoria Nile to Lake Kyoga before joining the Lake Albert Nile. Lake Victoria itself is shared by three countries: Uganda, Tanzania, and Kenya. The headwaters for the streams that feed the lake, however, originate from Burundi andRwanda through Kagera River and from the rivers flowing from western part of Kenya.

The Kagera River forms part of the upper headwaters of the Nile and carrying water from its most distant source in Burundi. The Kagera River lies within the four countries of Burundi,

[149]Rahman, Majeed A., "Geopolitics of the Nile River basin" , (Centre for Research on globalization,, 2011), P. 25

Rwanda, Uganda and Tanzania. The section of the river named Kagera begins in Burundi, flowing out from Lake Rweru. From the lake, it flows east along the Rwanda-Burundi and Rwanda-Tanzania borders to a confluence with the Ruvubu River. The two main sopurces of waters of the Kagera River are the tributaries, of Nyabarongo of Rwanda, through Lake Rweru, and the Ruvubu of Burundi. From the confluence, the Kagera flows north along the Rwanda-Tanzania border, over Rusumu Falls and through Akagera National Park then through Tanzania-Ugandaborder and emptying its waters intoLake Victoria.

Due to population growth and needs for rapid development to alleviate the upper Nile countries from poverty and the new demand for green energy, have compelled the upper basin States to challengeEgypt's control of the Nile Waters in order to re-negotiate historical Nile River agreements in order to get their equitable shares as provided by the international water lawbased on equity.

The other sources of the shared Nile Basin Water resources are from Atbara River that rises in northwest Ethiopia. It flows about 805 km (500 miles) to the Nile in north-central Sudan, joining it at the city of Atbara. The Atbara is the last tributary of the Nile before it reaches the Mediterranean. Atbara only carries good volumes of water during the months of June to October.[150]

Despite of these sources of the Nile waters from the upper basin States mainly Ethiopia, Egypt has controlled the Nile River for many years and has emerged as the major country with complete access to the Nile. The low watercoverage in Ethiopia and the other upper Nile

[150] Supra note 149

countries has necessitated these countries to take a second look at Egypt's access to the Nile, most especially Ethiopia's attempt to confront Egypt in the Nile River. A number ofscholars whose works have been reviewed in this thesis in paragraph 1.6 concluded that the tension between Ethiopia and Egypt over the Nile could escalate to a war in the future if a new Nile legal regime is not put in place and the countries agree to cooperate in the use of the Nile basin water resources. Due to the need to eradicate poverty in Ethiopia and its rapidly population growth, resulting into high water demand, Ethiopia's water demand has doubled in the last decade.[151]

The Nile River provides the required waters for irrigation hence its waters is the major sources of livelihood for its people living along the Nile River. Due to ne drivers in the basin as demand for green energy, high population growth, effect of climate change, catchment degradation have impacted the water resources in the Nile River basin.

Before 1950s, the on the use of the Nile water resourcesby the upper basin States was little, however with the declining water resources, poverty, and diseases, the basin States decided to come together and negotiate a new Nile River Basin Agreementthat will enable Nile countriesto have access toNile water resources. Kenya together with Ethiopia are pioneering this process as seen in the cessionary address to parliament by the then Member of Parliament Paul Muite in 2004 who remarked "Kenyans are today importing agricultural produce from Egypt as a result of their use of the Nile water." In a similar statement, Moses Wetangula, the then assistant minister for foreign affairs[152] remarked "Kenya will not accept any restriction on use of Lake Victoria or

[151] Ibid
[152]Moses Wetangula is the current Senator of Bungoma County, Kenya, Kenya parliamentary Han surd, 2004

the river Nile" and stated," it however does not wish to be alone ranger in deciding how to use the waters, and has consequently sought the involvement of basin countries."

2.5 The Development of the Water Resources of Nile River Basin

The renewable shared Nile River water resources were fully allocated to Egypt and Sudan in the 1959 Nile Agreement for various uses.[153]In this agreement the Sudan and Egypt allocated themselves 55.5 BCM and 18.5 BCB respectively and the balance of 10 BCB was reserved for evaporation at Aswan Dam. Therefore, the dominant use of the Nile River flows is by the two downstream Basin States of Egypt and Sudan. This scenario is changing as the upper basin States have now Started developing the Nile River flows with a number of hydroelectric dams are either in their planning or implementation stages. Notably are theEthiopia Grand Renaissance Dam on the Blue Nile with a capacity of 75 BCB reservoir to generate 6,000MW electricity, the cascading hydroelectric dams in Uganda on the White Nile at Bujagari, a river runoff system generating 250 MW of electricity in addition to other cascading hydroelectric dams under planning.

Today irrigated agriculture in the Sudan and Egypt accounts for the bulk of the Nile water consumptive use. A total of 4.5 million hectares of irrigated land exist in the Nile Delta, along the Nile valley, in Egypt and Sudan and around the confluence of the Blue and the White Nile near Khartoum. Formal irrigation in the other Basin States is limited and only estimated at 50,000 hectares.[154]

[153] 1959 Nile River Agreement between Egypt and Sudan analysed in chapter 3 of this thesis.
[154]State of the River Nile Basin 2012 sited in several paragraphs in this thesis. 124-132

This scenariounder irrigated agriculture is also fast changing with Kenya and Ethiopia in advance stages of opening 200,000 hectares of irrigation land within the Lake Victoria basin[155] and Ethiopia 80,000 hectares of irrigation land.[156]

Though a number of hydropower facilities have been established, the total installed capacity is well below its potential. Hydropower is considered a non-consumptive water user but has a potential to alter the downstream flow regime though does not reduce flow volumes. However the loss of water through evaporation from various reservoirs in the Nile system as in the lakes Nasser, Merowe, Jebel Aulia, Kashm el Girba, and Roseires is very significant.[157]

The major use of the Nile waters still remains water for irrigation as water for other purposes such domestic and industrial purposes though increasing with population increase is relatively small. The water demand for the current estimated 242 million people living within the Nile basin, for domestic and industrial use is estimated to be 2.0 billion cubic metres (BCM) per year.

Today the Nile Basin States make concertedefforts to deal with the challenges of the utilization of the Nile waters through countries programs. Each country targets to develop and utilize the Nile waters for various needs stated above including flood and drought mitigation, Time has come where each country acts unilaterally to meet its development objectives is untenable. This has lead to un coordinated water resources development and lack of joint planning for the

[155] Kenya National Water Master Plan 2030, (Ministry of Water and Irrigation, Nairobi, 2012), P.48
[156] Member States and the Nile Basin Initiative on the Benefits of Cooperation, "Nile Basin Initiative Secretariat publication, Entebbe, 2012)
[157] State of the River Nile Basin 2012, , (Nile Basin Initiative Publication, Entebbe, Uganda, 2012), P.51

envisaged development agenda of Nilecountries, in1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the basin water resources and the benefits that accrues from the basin water resources, and escalation of tension in the region. As it stands today basin states cannot realize there water security due to uncoordinated development of the basin shared water resources. Therefore, cooperation is the use of the Nile waters is no longer a choice but a must. Cooperation in the use of the Nile water will build trust, promote peaceful coexistence, and can increase benefits from the Nile River to the Nile countries, and serve as a catalyst for greater regional integration, both economic and political, with potential benefits far exceeding those derived from the river itself. The anticipated cooperation requires Nile countries to know all the development plans in Nile countries. Each basin states should therefore as a part of the new Nile Basin regime table all their development plans touching on the use and development of the Nile Basin Water Resources for the next 20 to 30 years. Such development plans be analyzed in order to know their impact on the Nile Basin water resources in general and the water security of all basin states in particular. This will build trust among the basin states that is a prerequisite to cooperation.

Due to the limited Nile River water resources, there have been a lot of perceptions as opposed to facts on the Nile River basin.

Don in his research paper[158] on the class of perceptions versus the facts gives the perception in Nile River Basin as follows:

i. Agriculture remains the engine of the region's economy

[158] Don Blackmore, "Global Water Challenges in Transboundary River Basins Management: The Class of Perceptions versus Facts" (Nile basin Initiative, secretariat, Entebbe, Uganda, 2013), P. 2-4

ii. There is not enough water for all reasonable purposes

iii. The Aswan will run dry and

iv. Egypt has the lion's share of the Nile Basin water resources

In order to counter these perceptions Don gave the following as the facts on the Nile Basin.

a) Agriculture is declining as a share of the GDP in all Nile Basin States.
b) There is enough water for all reasonable purposes if carefully managed
c) Aswan will operate at a slightly lower level closer to its original design level as evaporation in the Lakes and Reservoirs far exceeds consumption use.
d) The total water available includes both the blue and green water.

In the analyses of the above perceptions and facts the literature review of the States of the River Nile Basin Report 2012 with more detailed facts that are acceptable to the basin States are that, though agriculture is declining in all the Nile Basins States it still contributes over 65% of Basin States GDP. The fact that there is enough water for all reasonable purposes if carefully managed, this fact is a part of the core of this study in that, careful management of the basins water resources requires the cooperation of Nile countries, it requires joint planning in the developmentof basin's shared water resources. Such developments require regulations based on rules provided by an accepted Nile River Basin Agreement that to date there is non-acceptable to all the Nile River Basin states. The two key existing Nile River Basin Agreements of 1929 and 1959 analyzed above and below are not modern River Basin Agreement as they are not based on the principle of 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectivelybut rather on state integrity as has been analyzed above and concluded that both state sovereignty and state integrity must all bow before the principle of equitable use of the basin shared water resources as in the 1997 case between Hungary and Slovakia on the Danube River

where the principle was used to determines the case. Further is has been analyzed and resolved above that equitable use of shared basin water resources today is part of international customary law. As presented in the Schematic diagram on the Nile River water balance, it is a fact that, there is still undeveloped Nile River flow. The Nile River Basin water balance reveals that, there is still undeveloped 10 billion cubic metres in the upper headwork of the White Nile that, Kenya, Uganda, Tanzania, Rwanda and Burundi can use for the next 50 to a 100 years with no significant harm to Sudan and Egypt. In the Blue Nile, it has also been revealed that Ethiopia Grand Renaissance Dam on the Blue Nile with a capacity of 75 billion cubic metres to generate 6,000MW of Hydropower will increase the Blue Nile base flow and provide substantive Blue Nile base flow throughout the year and reduce the evaporation loses in the Aswan dam. The dam will in turn give Aswan dam the much needed continuous flow to sustain the dam at predictable level just slightly below the design level.

2.5.1 Analyses of Existing Water Uses in the Nile Basin

Taking Egypt and Sudan as the downstream countries and Kenya and Ethiopia as the upstream countries for comparison for the purpose of this study, whereas Egypt and Sudan are the downstream States and depends heavily on the Nile River water resources and have not signed the negotiated CFA 2010 due to unresolved article 14(b) on the water security while Kenya and Ethiopia are upstream States and currently uses less than 1 percent of the Nile River water resources and have signed the CFA. In addition Kenya is a water scarce country with annual renewable fresh water potential of only 21 billion cubic metres (annual water per capita of only 647 cubic meters) of which 12 billion cubic metres forms part of upper headwork of the White

Nile through Lake Victoria. Ethiopia on the other hand is water rich country with annual renewable freshwater potential of 122 billion cubic metres (annual water per capita of 1,500 cubic meters) of which 97 percent is transboundary water resources and leaves Ethiopia to other neighbouring countries of which 54 billion cubic metres flows into the Nile River.

According to Egypt, the available Nile water resources should be based on the total rain waters that falls on the basin which amounts to 1,650 billion cubic metres and originate from the upper riparian states of which only 55.5 billion cubic metres is used by Egypt as per the 1959 Nile River Agreement between Egypt and Sudan. This is the quota that was provided for in the 1959 and that Egypt is increasingly determined to retain this amount in view of expectations of a possible water shortage. A 2009 report issued by the Egyptian Cabinet Information and Decision Support Centre predicted a deficit in Egyptian water resources by 2017, forecasting that Egypt's total available water resources will have shrunk to 71.4 billion cubic metres (this includes Egypt groundwater potential) while its annual rate of water consumption will have reached 86.2 billion cubic metres. The report also predicts a decline in the annual per capita share of water to 582 cubic metres in 2025, as opposed to 860 cubic metres in 2003, and, 1,138 cubic metres in 1986. In addition, according to the report, whereas the 55.5 billion cubic metres of Nile water that reaches Egypt per year accounted for 86.7 per cent of Egypt’s available water resources, this ratio is expected to drop to 80.5 per cent by 2017.

The estimated total of existing abstractions within the Lake Victoria basin in total is 1.235 billion cubic metres per year or 4.6% of the long-term mean outflow at Jinja. By 2040, these are anticipated to increase to at least 7.9% i.e. nearly double, driven by the growth in human

population. Should any large multi-purpose schemes be constructed, the increase could be of the order of 12.8% or more. This means from the equatorial lakes the water use will still remain minimal up to 2040 and within their equitable use.

With regards to rain water in the Nile Basin, it has been demonstrated earlier in this thesis that rain water over the basin is not shared water resources or trans-boundary water resources as the shared water resources is the surface water and groundwater that flows to a common terminus and in the Nile River basin is the 84 billion cubic metres annual Nile River flows. This is the flows that Egypt and Sudan allocated themselves 55.5 and 18.5 billion cubic meters annually respectively under the 1959 Nile River Agreement between Egypt and Sudan. This is a total of 74.0 billion m^3. Of these allocations Egypt and Sudan uses the bulk of these flows for irrigation purposes that takes over 80 percent and the remaining are used in industries, hydropower and water supply for both domestic and public use. To these uses other basin states feels that the water used for irrigation purposes in the two countries are not efficient as the technologies used are outdated hence wastes allot of water.

2.5.2 The Potential Uses of the Nile River Water Resources

The effects of climate Change (frequents floods and prolonged droughts) in addition to Population growth and poverty are the key drivers in socio-economic development. These add pressure to water resources as caused mainly by climate change and climate variability.[159] New water demand for irrigated agriculture to achieve food security as rain-fed agriculture has

[159]JaroslavMysiak et al, "Adaptative water resources management " , (Earthscan, UK and USA, 2010), p.158

become unreliable leading to crop failures year in year out, regulation of flood flows with new water harvesting infrastructures puts in place adaptive measures to make basin states more resilient and hence part and parcel of realising their water security. In addition, cheap and clean energy is pushing the Nile basin states more towards hydropower, unreliable stream flows further calls for additional water storage in the upper basin where the basin's water resources originates.[160]

As a result of these new emerging water uses and challenges present conflict in the Nile basin focus on water allocation, which is a source of debate and litigation rather than a forum for cooperation.

Sharing the Nile waters gives rise to debate among users with conflicting demand and management preferences. The control of the Nile River flows has been a cause of tension and conflict and an issue of absolute sovereignty, and territorial integrity which all today should bend before equitable utilisation of the basin shared water resources.

Asking the Nile basin states to come up with their development plans (under this research thesis the basin states development plans were not obtained hence not listed as joint planning is a new innovation that has been thought of for the first time under this research hence give a new idea for other research work that follows to list, analyse and use the DSS to balance them with the existing use). It is also understood that the call for joint planning in the developmentof the Nile River water resources can be challenged by other basin states as to loss of sovereignty or

[160]Assefa M. Melesse, " Nile River Basin: Hydrology Climate and water use",(Springer Science + Business Media at www.Springer.com), P.284 accessed on 3rd June 2011,

territorial integrity. Conceptual analysis on these principles as demonstrated above has concluded that there is general agreement that the principle of equitable use is now the pre-eminent legal rule applying to the use and protection of international freshwater resources. Therefore, the principles of sovereignty or territorial integrity must bow to the principle of equitable use of the shared water resources.

2.5.3 Accessibility of the Basin's Water Resources

As analyzed and discussed above the existing allocation of the Nile River flows are based on the 1929 and 1959 River Agreements. These Agreements are analyzed in detail in various chapters of this thesis and concluded that they are not binding on upper basin States for the several reasons appended there in. The key reasons are that the 1929 which is believed by Egypt to have given them the historical rights and veto powers of the use and development of the Nile River flows was rejected by the upper basin States after attaining their independents due to substantial change. Sudan for example after attaining their independence in 1956 rejected the 1929 Nile River Agreement despite of the same agreement allocating to them 4 billion cubic metres of the Nile River flows sighting substantial change. This forced Egypt to enter a new Nile River agreement with Sudan in 1959 increasing Sudan's allocation to 18.5 billion cubic metres of the Nile River flows. The other key reason for rejecting the 1929 Nile River agreement is the veto powers it gave to Egypt over the use and development of the shared water resources of the Nile River. Citing the Lac Lanoux case between Spain and France the arbitral award was very clear that no basin States can have veto power over another basin States. The same treatment was used in the Trail Smelter case between USA and Canada where the Trail Smelter in Canada that was

blowing toxic flumes into the farms in USA was not stopped completed but was only to compensate on the damage done to farms in USA. The two cases are clear demonstration that no basin State can have veto power of the other basin states.

Under the theoretical Analyses in paragraph 1.2 it has been demonstrated that both State sovereignty and State integrity did not survive to be part of the international customary lawand today has to bow before the principle of equitable use of the shared basin water resources as equitable use is today the international water law. Therefore, access to the Nile shared water resources must today be based on this prevailing international water law.

The so called historical rights that has neither been defined nor referred to by the ILA, ILC and IIL or ICJ from the 1815 treaty better known as the Act of Congress of Vienna (discussed in paragraph 1.6.6 in this thesis) to the Berlin Rules of 2004 by the ILA has no meaning in the international water law and can only be considered to the very best as existing use that is dealt withunder the factors of equitable use of the shared water resources.

2.6 Environmental Condition of the Nile River Basin

The Nile River and its ecosystem provide a wide various goods and services that contribute between 40 and 60 percent GDP of the Nile Basin States. This further reveals the importance of the Nile River basin to the basin States.[161] Despite of its importance the Nile waters are under increasing pressure from various economic activities such as farming, livestock production,

[161]RahmanMajeed A., "Geopolitics of the Nile River basin" , (Centre for Research on globalization,, 2011), P. 25

invasive weeds , such for fuel wood, mining, pollution from urbanization, effects of climate change. These are as a result of high population growth, poverty, civil insecurity, and week policies, legal and institutional frameworks in the Nile Basin States. In order to revert this trend and to restore the Nile River resource base, the report calls for the restoration of the degraded water catchments critical for sustaining the flow of the major Nile River tributaries, restoring badly degraded lands that exports large quantities of sediments that reduces both the capacity and the life of the much needed water storage dams and canals in the basin. The Nile Basin States therefore must cooperate and have harmonized policies and establish a permanent, effective and efficient Nile Basin Commission with clear mandates that are adhered to by the Basin States that will regulate the use and development of the Nile Basin water resources and to ensure the basin's resource base are conserved and protected.

2.7 The Impacts of Climate Change on the Water Security of the Nile River Basin States

Climate change in this thesis is treated as a substantial change in the development and Management of the Nile River waters. Climate change is altering weather and water patterns around the world, causing increased floods in some areas and prolonged drought and water shortages in other areas.[162] Therefore, there is urgent and growing need to improve resilience within the Nile River Basin and this resilience be made a part of the Nile River Basin joint development plans.

[162]OlufZeilundJessen, "Flood and Drought management Tools", (DHI, 2014), P.14

The United Nations framework Convention on Climate Change (UNFCCC), defines climate change as a "change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observe over comparable time periods". This definition deliberately takes cognizance of the fact that the climate system would, without human (anthropogenic) interference, balance itself without a problem. The hypothesis is that climate change is due to human influences through land degradation and other processes related to and use of land use change, additional greenhouse gas loads into the atmosphere, and ozone depletion, among others. Without this forcing, the climate would 'naturally adjust itself, albeit with fluctuations about the mean (normal) conditions.

Climate Change is therefore, what we experience when the climatic conditions permanently shift either upwards or downwards of the average. Shifts in the start or end of the rainfall season, the length of the season, the number of rainy days, the number, length and intensity of dry spells, or changes in the total seasonal rainfall, among others, can also signify climate change. Climate change is hence not always a shift in the mean climatic conditions but can also exhibit itself as a change in the intensity and frequency of extreme climate events, such as drought, floods, storms, and strong winds, among others. Climate change is closely related to global warming , the latter being the general increase in the earth's near-surface air and ocean temperatures due to rising greenhouse gas (GHG)emissions attributed to industrialization, fossil fuel consumption, land use conversion, deforestation and other human influences since the mid twentieth century.

While Climate Variability refers to time scales ranging from months to decades, falling between the extremes of daily weather and the long-term trends associated with climate change. Climate variability thus refers to fluctuations of the climate about the 'mean average conditions', with some periods experiencing 'normal 'climatic conditions, others experiencing below "normal" conditions and still others experiencing above 'normal' conditions. Climate variability is, therefore, indicative of the natural breathing rhythm of the climate and it is what we experience on an hour-to-hour, day-to-day, month-to month, season-to-season, hear-to-year basis, with one hour being more or less cloudy than the other, one day being either wetter or drier than the other, one season being either cooler or Warner than the other, and perhaps one year being either more or less rainy than the other.

From the onset therefore, we must acknowledge that, the experience in the world today that ranges from devastating floods and landslides caused by high rainfall intensities and typhoons and the prolonged drought in arid and semi-arid lands is a clear testimony that climate change is real and has devastating effects on mankind and the entire environment.

Climate change impact is therefore, a threatening factor for human security and it endangers large number of people both in developed and in the developing countries. Among a variety of impacts, water related fields are seriously affected as they flow into various sectors such as agriculture, industry, energy, and disaster management. Besides, and expanding population and rapid growing economy especially in Africa and Asia and in the Nile River basin in particular are hindering water resources development sustainability in the world.

Climate change will continue to have an enormous adverse effect on water resources, with disastrous environmental, social and economic consequences especially in the poorest nations.[163] Climate change will therefore, fuel the potential for water to become a source of serious conflicts within and between the countries.[164] In this case the most vulnerable countries are those with weak governance mechanism or none at all. On the other hand the developed countries though have developed robust watercourses agreements would not be spared either as they too would feel at home the effects of water conflicts in the vulnerable countries inform of migrants, social, economic and political disruption and rising food prices.

In terms of mitigation under the United Nation Framework Convention on Climate Change, it was agreed under the Kyoto protocol in 1997 (COP3) to reduce the greenhouse gas emission (especially the COP2) for the period 2008 to 2012. In addition, the Cancun 2010 (COP16) agreed to hold the increase of the global average temperature to below $2^{o}C$ above pre-industrial levels. The Durban Agreement in 2011 (COP17) further extended the Kyoto protocol beyond 2012 with an aim to launch a new framework in 2020 to be participated by all countries at the scheduled COP18 to be held in 2012. Since mitigation is not soon coming while the effects of climate change is already far reaching and taking recognition that people have to live today in order to be there to see the effect of mitigation tomorrow the immediate cure to climate change devastating effects is in adaptation.

[163]FlaviaLoures, AlistarRieu and Marie- Laue, "Everything you need to know about UN Watercourses Convention, 1997, (WWF Publication, 2008), P.18
[164] Ibid.

Climate change therefore, is impacting negatively on the availability as it either brings prolonged drought or high intensity rainfall causing floods which are destructive to people and their property.

In water resources management, climate change is therefore, linked to extreme hydrologic events, particularly in terms of more frequent, longer duration, and more intense floods and prolonged droughts - affecting the reliability of the Nile River Basin water resources[165]. Human activities and global warming is recognized as exacerbating these natural disasters, with the related consequences on people's quality of life and environment. Mitigation against the effects of climate change is critical to make them resilience and to achieve the required the economic development agendafor the livelihood of the most vulnerable communities in the Nile Basin. The predicted impact of climate change on access to water resources, high temperatures that exacerbates the spread of vector-borne diseases such as malaria has further implications for the achievements of the Millennium Development Goals. Concerted measures therefore, have to be taken to strengthen on the mitigation measures and tangible adaptive measures have to be put in place to increase the people resilience to this devastating phenomenon.

Lack of contingency plans to face disasters (floods and droughts), exacerbates social, economic and environmental consequences. Climate Change adaption is thus about managing extremes of naturally occurring variability.

[165]Olet, Emmanuel, "Adaptive water resources management in the context of Climate variability and Climate Change and Regional Cooperation (NELSAP Experience)', Paper Presented at the 3rdNile Basin Development Forum, October 27-28, 2011, Kigali-Rwanda, (Nile Basin Initiative, Secretariat, Entebbe, Uganda 2011), P.3

For example according to the Kenyan National Water Master Plan study 2030, the mean annual rainfall will increase by 70 mm/year and 120 mm/year for 2030 and 2055 climates, in the western part of the country that forms the upper headwork of the Nile River Basin respectively. In the long rainy season (March-May), the rainfall within the Lake Victoria Basin will increase. In the long dry season (June-August), the rainfall may be almost unchanged over the entire country and slightly decrease in the coastal area. The probable daily rainfall intensity for 50-year return period will increase in almost the whole country for 2030 and 2055.[166]

Climate change impacts will therefore, have significant effects on water infrastructure demand and investment as Climate Change adaptation is about regulating the flows to reduce its damaging effects and to ensure the availability and accessability of water resources for hydropower, irrigation, flood and drought mitigation, ecosystem services. Therefore, river flows regulations are key for water resources development interms of water storages by building new dams and interbasin water tranfers from areas with excess water to areas with water deficit[167]. The key issues to enable the basin states become more resilience to the effects of climate change therefore, are how to mitigate floods and droghts which calls for the balancing of existing water uses and new potential water uses that will impact on the water security of the basin states in order to adapt to climate change and how to balance long-term climate change impacts and short-term investment needs.

[166] Kenya National Water Master Plan 2030, (Ministry of Water and Irrigation, April, 2012)
[167]Seid, H.Abdulkarim , DSS Lead Specialist "The Nile Decision Support System (DSS):Uses for assessing Climate Change Impacts and Generation of Water Resources Development Options, (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2012), P. 3

The already developed Nile Basin Decision Support System (DSS) is capable of providing the scientific solutions for adaptation strategies for water related sector in the basin. As it stands today the core on the basin states water security is the balancing of the existing water use and the potential water use. The DSS that has been tested in the basin is capable of informing the basin states on how the potential water uses will affect the existing uses and offer options on how the potential uses can tailored to have minimal or negligible effects on the existing use in the case both has to co-exist. The DSS is also cable of informing the basin states if the existing use has to give way to the potential use hence giving a clear balance of the existing uses and the potential uses.

After science has informed the policy and the basin States have accepted and shared such decision the enforceability is still lucking. A policy therefore, in itself even if accepted by Nile countries are not binding on them hence requires a management tool for its implementation. Law which is simply defined above as asset of rules backed by the state becomes the required management tool to implement the accepted basin policies.

The new Nile Basin Regime developed in this thesis therefore, provides the required substantive rules (the rights and duties of the basin States) and procedural rules (that ensures the enforceability of the accepted policies), in addition to providing principles (based on best practices) and norms (the expected conducts of the Basin States that are guided by informed reasoning offered by the Nile River Basin DSS and the prevailing international water law analysed above in this thesis.

2.8 Funding of the Basins Water Resources Management

Through the basin States national polies that give the directions on how the basin water resources are managed and the national water legislations that act as management tool for the implementation of such policies, it is clear that Nile countries recognise the importance of sourcing of adequate and sustainable funding for water resources management. Today operational costs for water resources management are derived from three sources namely: (i) through the national budgets with the exchequer allocating funds to the Ministry responsible for water resources management, (ii) through Appropriation in Aids (AIA) the national water resources management Agencies charge and collect water use fees as in Kenya and Tanzania and use such revenue at source and (iii) donor and private sector support by funding specific water resources management projects for capacity building, environmental conservation and ecosystem sustainability.

In addition to these sources of funds basin states should explore other sources of funds as climate change mitigation and adaptation facilities funds as carbon credits.

In most basin states, lack of adequate resources has hindered the performance of several administrative, technical, and legal activities, as well as lack of funds to maintain hydrometric infrastructure for water resources monitoring to the required standards in order to provide required data and information for planning and 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively ofNile waters.

Today the Nile Basin Initiative that is a transition institution established in 1999 to that brought the Nile countries together in order to negotiate a new Nile Basin Cooperative Framework Agreement and to set the agenda for the sustainable development for Nile Basin states heavily rely on the development partners' funds. Such funds are given with a lot of conditions and biased towards political inclination. The basin states contribution only amount to ten percent of the budget.

In order to achieve sustainable funding, the Nile Basin water use and development must be regulated. Regulation of water use with regardsof trans-boundary water resources is crucial and critical as it serves as the basis for joint planning and optimising the utilisation of water resources. One of the keyareas for negotiation was how Nile waters could be allocated in order to achieve the principle objectives of 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the Nile waters, to achieve efficiency and sustainability. This is achieved through the granting of water rights for consumptive use, power generation and for disposal of wastewater into the water bodies. Through the principle of subsidiarity the established Basin Commission should delegates such regulation to the basin states Agencies to give such rights through issuance of water permits for use and development of the shared water resources especially for the economic projects with potential significant harm that have been analysed and agreed upon as part of the joint planning. Therefore, economic use and development of the basin water resources such as hydropower, industrial use and large irrigation projects should be charged water use fees. Such water use fees should be collected directly by the Basin

Commission or the basin states Agencies housing such use and remits the same or the equivalent amount to the Basin Commission for use in the joint management of the Nile waters

2.9 Conclusion

In theNile River Basin where it is considered that all the 84 billion cubic metres of the Nile River flows have been developed by the two lower basin States namely Egypt and Sudan, it is therefore, necessary to use the prevailing internal water law that today is the principle of equitable use and the principle of causing no significant harm and science (use of NB-DSS) to balance the existing use and the potential use to ensure sustainable use and peaceful coexistence of the Basin States that will lead to achieving water security of the Nile basin States.

In order to achieve sustainable use of the of the Nile River waters the Nile countries must cooperate in both the management and development of the Nile waters in an equitable manner and prevent harm to other basin States.

In the balancing of two principle of equitable use and causing no significant harm,it should be understood as demonstrated in this chapter that the principle of equitable use is a well-established principle in the international water law and supersedes that of causing no significant harm. That, the basin States have a right to develop the shared water resources in an equitable manner without causing significant harm to other basin States. That significant harm is measurable with regards to significant reduction of water quantityor altering the chemistry of waterquality that makes the shared water resources no longer safe for use by the other basin States.

The balancing of the two principle further calls for the balancing of the existing use and the potential use as both could affect each other and cause significant harm.

The Nile River Basin requires a permanent River Basin Commission as the proposed Nile River Basin Commission under the CFA 2010. The CFA 2010 has not entered into force as it requires the ratification of six Nile River Basin States to enable it enter into force.

Due to the limited Nile River Water Resources and the perception that all the Nile River shared water resources has been developed by the two downstream Nile basin States of Egypt and Sudan, it would not be in the best interest of the Nile basin States to once again allocate the Nile River Shared water resources as doing so would only renew the tension witnessed with the Nile River water allocation under the 1959 Nile agreement between Egypt and Sudan that brought mistrust and tension among the Nile Basin States as the upper basin States found it unfair for the two downstream States to agree to share the Nile River shared flows of 84 BCM between the two countries.

CHAPTER THREE

3.0 THE HISTORICAL NILE RIVER AGREEMENTS OF 1929 AND 1959

3.1 Introduction

A number of bilateralagreementswere establishedbetween Egypt, Britain and other colonial powers between 1891and the Second World War (1945) that regulated the utilization of the waters of the Nile River.[168] During this period, the entire Nile River Basin was under the administration of foreign powers, mainly Britain and other European powers.

In these bilateral treaties, the parties committed themselves to Egypt and Britain to respect prior rights to, and the so called "natural and historic" rights to Nile Waters, which Egypt still have claims to date. The Nile legal Regime based on these historical agreements was then established. It is the regime that the upper basin States have protested against that these historical agreements favours Egypt and to some extent gave Egypt veto powers over the other Basin States. In this thesis the veto being exercised by Egypt on basin over the other basin States has been demonstrated to be wrong and has no place inthe international water law as demonstrated by the arbitral ward in the Lac Lanoux case between France and Spain.

After the Second World War, most of the Nile Basin territories had changed sovereignty as majority acquired full statehood.[169]Anumber of Scholars including OkothOwiro have posed the question, "Are these successor States bound by these treaties which were concluded on their

[168]Owiro, Arthur Okoth , "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, Nairobi, Kenya), 2004, P. 6
[169] Ibid

behalf by the predecessors?" Okoth Owiro's answer in his book under review in this thesis is that "it is obvious that the historical agreements can no longer reflect the needs and the priority interests on these "new born States"." In this thesis these historical Nile Agreements have been analysed and concluded that, they are not binding on the new born States siting the doctrine of a clean slate as provided by Articles 17 and 18 of the 1978 UN-Convention on the doctrine of a clean slate. Okoth Owiro in 2004 reasoning is that the new States invoked the State sovereignty which was part of the argument in the Harmon Doctrine. This Harmon Doctrine is discussed at length in this thesis and concluded that, it is dead and buried and did not survive to be part of the international customary water law, while limited State sovereignty reflecting State interest in shared water resources is very still alive to date. It is therefore seen that though the verdict on the colonial Nile Agreement as analysed by Okoth Owiro in this book (2004) is the same with the findings in this thesis the reasoning are partly different but concurred on the notion that achieving independence by the newborn States was a substantive change in that made it not possible for continued validity of historical agreements under the colonial era tenable. Today the talk is on the high demand of the Nile River flows by the upper basin States and the threat by Egypt of war should the Upper Basin States divert waters of the Nile River. In this thesis such war threats have been discussed and concluded that, the war tone has gone down as the basin States now have means such as the NB-DSS to balance the existing water uses and the potential uses. This has been confirmed by the ongoing peace in the Nile Basin despite of Ethiopia developing the 75 Billion Ethiopia Grand Renaissance Dam on the Blue Nile and the fact that it is today not obvious which country would win the war if at all it is started as with time number of the Nile basin State have built their military power along their economic development.

Therefore the chances of any war over the Nile water resources today is very slim as there is more reasons to cooperate that to go into war.

Though there is stilla big challenge in the management of trans-boundary waters as they traverse different States with different needs.[170]The situation is made worse by the fact that different basin States have varying capacities to negotiate because their political-economic conditions are different.[171]According to this analysis the international law is seen to favours some States at the expense of others.[172] This statement is true in the case of the Nile River basin with respect to the 1929 Nile agreement signed between United kingdom as one party on behalf of Sudan, Kenya, Uganda and Tanzania which were under the British administration by then and the Egypt as another party.

The international water law referred here especially in the Nile River Basin is the existing regime that is governed by the so called historical Nile Agreement[173] that gave Egypt veto powers over the upper basin States which were under the United Kingdom administration. The 1959 Nile Agreement between Egypt and Sudan, whereby the two basin States agreed to share all Nile River flows without consideration of the other basin States. All these call for a new Nile River Regime that will ensure the water security of Nile countries. This is the gap this thesis has filled calling for the ratification of or accession to the new Nile River Basin Cooperative Framework 2010 (CFA 2010) with the proposed additional addendum to replace article 14(b) that was

[170]Kameri, Patricia Mbote, "From conflict to cooperation in the management of trans-boundary waters: The Nile Basin Experience" , (Heinrich Boell Foundation, Washington, DC, 2005), P.1
[171] Ibid
[172] 1929 Nile River Agreement between United Kingdom and Egypt anlysed in this thesis. Article 4d of this agreement gives veto powers to Egypt over the upper Nile Basin states which were under the British administration before they attained independence.
[173] The 1929 and 1959 Nile agreements analysed in paragraphs 3.2 and 3.3 of this chapter 3 of this this.

annexed to be resolved by the proposed Nile River Basin Commission to be established under article 15 of the CFA 2010.

3.2 The 1929 Nile River Agreement between United Kingdomand Egypt.

Despite of the scarcity of water resources that could also triggers conflict today there is more cooperation in the development and management of the water resources than conflict over the same hence this cancels the notion that the next world war will be fought over water[174]. A number of attempts have been made by the Nile basin States in trying to resolve the conflict in the Nile River Basin. These attempts have been analysed in chapter two of this thesis.

In this thesis it has been demonstrated that cooperation is the best way to ensure peace in the region. This is very true as the situation in the Nile basin where by the level of development of the water resources by the basin States are far apart. This situation requires a new Nile River Regime providing rights and obligation of the basin States to ensure cooperation in the management and equitable use of the Nile River shared water resources. The signed Nile River Cooperative Framework Agreement 2010 analysed in this thesis provides such rights and duties of the Nile basin States. The only gap is the additional rules such as joint planning in the development of the Nile River shared water resources and additional mechanism to balance the existing uses and potential uses. This is so because in the Nile River Basin it is perceived that all the known 84 billion cubic metres of annual Nile River flows have been developed by the two lower basin States of Egypt and Sudan.This is why the development of the Grand Ethiopia

[174]Yoffe, S., Wolf, A. T., & Giordano, M. "Conflict and cooperation over freshwater resources: Indicators of Basin at Risk", (The Journal of the American Water Resources Association October 2003), P.1119

Reconnaissance Dam (GERD) to generate 6,000 MW of hydropower which is a non-water consumptive is still not acceptable to Egypt to date. The Construction of the GERD forced the three Eastern Nile Countries of Ethiopia, Sudan and Egypt to sign declaration of Principles on equitable use of the shared Nile River water resources, causing no significant harm and the size of the dam and the filling and operation of the dam.

There were pressures extended by the lack of cotton in 1900s on the world market to Sudan and Egypt to grow more cotton which required irrigation water from the Nile River flows. To certify the irrigation water demands especially during the summer, there was a huge dialogue debate between the upper basin States and lower basin States of Egypt and Sudan[175] Because of the pressure of shortage of cotton a commission was formed in 1920 with the United Kingdom, India, and the USA. The Commission estimated that Egypt's water needs would be 58 billion cubic metres per year of the 84 billion cubic metres annual Nile River flows.[176] The commission also stated that Sudan's water need would come from the Blue Nile. In this thesis, it has been demonstrated that the construction of the Ethiopia Grand Renaissance Dam on the Blue Nile would maintain a high flow level in the Blue Nile downstream of the dam hence making more Blue Nile water available for Sudan to use especially during the summer. This could be the reason why Sudan does not oppose the construction of the Ethiopia's Grand Dam on the Blue Nile. Egypt on the other hand sees this as making more Blue Nile flows available to Sudan and hence would reduce the flows arriving at Aswan dam. It is therefore the interpretation in this thesis that the true problem of the Ethiopia Grand Dam is Sudan using the Blue Nile water and

[175]Wolf, AronT. "Middle East water conflicts and Directions for conflict resolution" IFPRI 2020 vision Brief 31April1996, P.1-2.
[176]Kameri,Patricia Mbote, "From conflict to cooperation in the management of trans-boundary waters: The Nile Basin Experience" , (Heinrich Boell Foundation, Washington, DC, 2005), P.2

not Ethiopia using the water of the Blue Nile for consumptive use as the dam is almost at the Ethiopia Sudan border. The cure to this problem therefore, is the establishment of the Nile River Basin Commission provided for in the Nile River Basin Cooperative Agreement 2010[177].The Nile River Basin Commission when established would act as a forum for conflict resolution, regulate the use and development of the Nile River flows and give independent technical advice to the conflicting parties. The joint planning in the use of Nile River flows advocated for in this thesis would build trust of the Nile basin States as joint planning would assure Nile countries that any development of the Nile River flows would have no significant harm to other Nile Basin States. State sovereignty should not be the hindrance to joint planning as State Sovereignty to day must bow before the international law for this case the international water law that is the balance between equitable use and not causing significant harm that has been demonstrated in paragraph 1.2 on theoretical analysis of this thesis.

Through the same Commission Britain had proposed the century storage facilities along the Nile. These included the storage along the Sudan and Uganda border (dam at Senwor) for Sudan to irrigation water demand South of Khartoum and to build a dam Egypt on the White Nile to hold summer flood water for Egypt. This plan was not acceptable to Egypt as to Egypt these dams were out of Egypt and beyond their control and authority that means the dam plans were the British ways of controlling Egypt after independence[178].

[177]Article 15 of the CFA 2010

[178] Wolf, Aron T. "Middle East water conflicts and Directions for conflict resolution" IFPRI 2020 vision Brief 31April1996, P.2

The second Commission of 1925 adapted the estimates of 1920 commission that resulted in the 1929 Nile River Agreement between Egypt and Britain. The veto powers given to Egypt under Article 4(d) of the 1929 Nile Agreement over the upper basin States in the use and development of the Nile River flows outside Egypt only with Egypt acceptance did not take into consideration of the water use needs by the upper basin States.[179]

In this thesis it has been demonstrated that this veto power is wrong under the international law. This thesis sites the Lac Lanoux cause between Spain and France where the arbitral award was clear and equivocal in that no BasinState can have veto power over another basin state in the use of shared water resources within its territory. This is in addition to article 17 and 18 of the 1978 UN Convention on the doctrine of a clean slate.

In the 1929 Nile agreement the Nile River flows was allocated to Egypt and Sudan with Egypt being allocated 48 BCM and Sudan allocated4 BCM to and the reserve of the dry flows to Egypt during January 20 to July 15.[180] In this thesis it has been demonstrated that this is no longer necessary after the building of Aswan dam. The allocation further changed in 1959 when Sudan got independence and sited substantive change and rejected the 1929 colonial agreement that gave Sudan only 4 BCM a year.

The 1929 Nile Agreement between Britain and Egypt had no binding on Ethiopia but were binding on the upper basin States that were under the British administration before these States

[179] Article 4(d) of 1929 Nile Agreement between Britain and Egypt analysed in paragraph 3.2 of this thesis
[180]Kameri-Patricia Mbote, "From conflict to cooperation in the management of trans-boundary waters: The Nile Basin Experience" , (Heinrich Boell Foundation, Washington, DC, 2005), P.3

obtained independence.[181] In this thesis it has been demonstrated that the 1929 Nile River Agreement was rejected by the upper basin States on attaining independence. This thesis refers to Nyerere doctrine of 1961 and the declaration by the late Jomo Kenyatta of Kenya in 1963 when Tanzania and Kenya attained their independence. On the 1929 Nile Agreement, the analysis in this thesis further refers to the doctrine of a clean slate of 1978 UN Convention. This thesis further demonstrates that the 1929 is not binding on the independent upper basin States which rejected them on attaining independence the same way Sudan rejected the 1929 Nile agreement and forced Egypt to enter into the 1959 Nile agreement between Sudan and Egypt that varies the River flows allocation to 55.5 BCM and 18.5 BCM to Egypt and Sudan respectively. Sudan had sited substantive change on attaining independence.

of the same interest is further demonstrated by the 1954Agreement for Owen Falls dam between Britain and Egypt where Egypt was to monitor power generation at the dam to ensure that the Egypt's 1929allocation of 48 BCM Nile flows was assured while Uganda through Uganda Electricity board was only to generate power. In this thesis it has been demonstrated that this control is no longer necessary after the construction of Aswan dam as this thesis further found out that under the East Africa Cooperation (EAC) the upper basin States of Tanzania, Kenya, Uganda, Rwanda and Burundi has develop a new Lake Victoria water release policy that will control the outflows of the lake waters to ensure the achievement of a sustainable Lake Victoria water level[182]. These revelations reflect the long term interest of British in securing for Egypt and Sudan Agreements to construct major water storage facilities in the upper head works of the Nile River Basin. In this thesis it has been further demonstrated that the British had such interest for

[181]Nyong'o A.P," The implication of crisis and conflict in the Upper Nile valley in conflict resolution in Africa", (Washington DC, Brookings's institution, 1991), P.113
[182] Lake Victoria Water Release and Abstraction Policy, (Lake Victoria Basin Commission, 2012)

Egypt because of the use and control of the Suez Canal. Such interest faded after Egypt denied the British the control of the Suez Canal. This further made the British to refuse the 1959 Nile River agreement between Egypt and Sudan.

In 1957, Ethiopia which was not even part of the hydropolitics of the Nile River at that time despite being the major contributor to the source of the Nile waters gave a notice that it would pursue unilateral development of the Nile waters within its territory.[183] Failure to achieve their interest with regard to the construction of the lower Aswan dam through negotiations Egypt sent an unsuccessful military mission into Sudan with an aim of turning negotiations into military conflicts in 1958[184]. On attaining independence in 1958, Sudan refused 1929 Nile water agreement that only allocated 4 BCM sitting substantial change as stated above in this thesis. Such change resulted into the signing of the 1959 Nile River Agreement between Egypt and Sudan.

3.3 The 1959 Nile Agreement between Egypt and Sudan

According to Kameri, Patricia Mbote,[185]under this 1959 Nile agreement, Sudanaccepted Egypt rights on the full use of Nile River natural flows. In this agreement the Sudan and Egypt further stated that the all the needs of other Nile countries would not exceed 1-2BCM with any additional need by the upper basin States would be discussed under a unified Egyptian-Sudanese position. This position is maintained to date even in the concluded Nile River basin cooperative

[183]Kameri, Patricia Mbote, , "From conflict to cooperation in the management of trans-boundary waters: The Nile Basin Experience" , (Heinrich Boell Foundation, Washington, DC, 2005), P.4
[184] History of the Nile Basin Initiative, (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 1999)
[185] Supra note 183

framework Agreement 2010 that is analysed in detailed in this thesis. Under the 1959 Nile agreement the two downstream States' allocations were 55.5 BCM to Egypt and 18.5 BCM to Sudan of the Nile River flows estimated to be 84 BCM per year. The remaining 10 BCM was left for evaporation losses.[186]Any increase in the Nile River flows would be shared equally between Egypt and Sudan.[187]

In this thesis it has been demonstrated that this 1959 Nile River Agreement which was signed between Egypt and Sudan has no binding force on the third parties as the upper Nile Basin States, had rejected them on attaining independence. The 1929 had also no binding force on Ethiopia from the word go as Ethiopia was not under the British administration. In this agreement of 1959, Egypt also agreed to pay Sudan 15 million Egyptian pounds for flooding and relocations[188]that would be caused by the construction of Aswan Dam. The 1959 Nile Agreement that favoured Egypt and to some extent Sudan as presented in this thesis at various chapters and their non-acceptance by the upper Nile Basin States especially Tanzania and Kenya that made declaration on attaining independence in 1961 and 1963 respectively is one of the main reasons that made the ten Nile basin States to start negotiating a new Nile River basin cooperative framework Agreement including both Egypt and Sudan.

In this thesis it is therefore very clear that the acceptance by both Egypt and Sudan to start negotiating a new Nile River agreement with other Nile Basin States in itself is acceptance that all the above Nile River agreements fall short of providing the required legal and institutional

[186]Wolf A.T. "Middle East water conflicts and Directions for conflict resolution" IFPRI 2020 vision Brief 31April 1996, P.1.
[187] Ibid
[188] Supra note 186

framework for the Nile basin States that would ensure sustainable development and management of the Nile River flows, peaceful coexistence and realizing the water security of the Nile basin States. It is therefore clear that there is agreement among the Nile basin States in principle that things should change. The gap therefore, today is how the rights to the water of the Nile River flows can be developed equitably by Nile countries without causing significant harm to other Nile Basin States. This is the gap that this thesis has filled through legal analysis to balance the two principles and the use of science in this case analytical tools (NB DSS) to balance of existing use and potential use of the Nile River shared flows.This is in addition to the suggestion of joint planning by Nile countries that has proved to be working very well in the Niger River basinas analysed in chapter 5 of this thesis. It is the combination of the balancing of the two principles and uses and joint planning that forms the new Nile River Regime that would ensure the availability of the Nile River flows by providing a mechanism for protectionand conservation of the sources the Nile River waters by all the Nile basin States based on the principles of subsidiarity, access to the Nile River flows by all the Nile basin States through joint planning and development of the Nile River flows in an equitable manner without consuming significant harm.[189]

according Kameri, Patricia Mbote, in her paper of 2005 under review in this thesis,on quoting Wolf A.T, 1998, the legal principles such as "equitable use" and "obligation to prevention harm" as provided in the 1997 UN Watercourses Convention have not help to achieve peaceful utilization of the transboundary waters hence have remain to place the upper and lower basin

[189] Articles 4 and 5 of the Nile River Basin Cooperative Framework Agreement, 2010 analysed and annexed in this thesis

States in diametrically opposing sides[190]. Since the source of this provision was in 1998 only one year after the 1997 UN watercourse convention was adopted and later enter into force in August 2014, much work as to the implementation of this Convention had not been done hence the same conclusion is not upheld in this thesis as this thesis has analysed the same articles 5 on the principle of equitable use and article 7 on causing no significant harm of the 1997 UN Watercourses Convention and the demonstration how the two are to be balanced together with the use of Science and law to balance existing uses and potential uses in addition to joint planning are enough provision to offer sustainable development and peaceful coexistence among the basin States. This thesis therefore, provides how this gap is to be filled by providing a mechanism for the balancing of 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively and causing no significant harm through the balancing of existing water uses and potential water uses. In addition to the legal analyses used in this balance, this thesis also calls for the use of science especially in the Nile River basin where today it is assumed that all the Nile River flows has been developed by two basin States of Egypt and Sudan as shared out in the 1959 Nile River agreement. In this thesis this perception has also been proved wrong as the use of the Nile River Basin Decision Support System analysed in this thesis in detail has revealed good amount of the undeveloped Nile River flows as in the White Nile to the tune of 10 BCM of annual flows. Further non consumptive water use for hydropower and flood mitigation is still available for development. The case in hand here is the building of the Ethiopia Grand Renaissance Dam on the Blue Nile to generate 6,000 MW of hydropower has been analysed by the Nile River basin decision support system and given a green card.

[190]Wolf, Aron T. "Conflicts and Cooperation along international waterways" (Water policy volume 1#2, 1998), P. 251.

The balancing theory advocated in this thesis would also help reduce tension adduced and agreed by a number of Scholars that conflict has been greatest potential to emerge when the downstream (most vulnerable) nation is military stronger than the upstream (water controlling) nation feels its interest is threatened sitting the Nile River case[191].

In this thesis it has been informed that with regards to the military capability of the Nile Basin States it is not obvious that the lower Nile Basin States are much military stronger than upper basin States. This is so because during the press conference in Addis Ababa after the negotiations by then Ethiopia Minister for Water and Energy on 30th June 2007 gave an indication that they are military capable to take on any Nile basin State stopping them from developing the Nile River water in their territory. The ongoing construction of Ethiopia Grand Renaissance dam is a case at hand[192].

International waters shred by more than one country has potential of creating both political tension and social and economic tensions resulting to disputes concerning the use of waters.[193] Any change in water use or development poses a challenge existing uses.[194] This gives big challenge to the basin states and curtails them from implementing their policies meant to offer good livelihood to its citizens[195]. According to Lowi, M.R 1999 States security involves the ability of States and societies to maintain and achieve right and independent identities as

[191]Gleick P. "Question of Equity at the Heart of water conflict management: Water and conflict prevention", (The second world water forum. The Hague. March 2001),P.17-22
[192] Supra paragraph 1.2 of this thesis
[193]Kameri,Patricia Mbote. "From Conflict to cooperation in the management of transboundary waters", (Washington, DC: Heinrich Boell Foundation, 2005).P. 5
[194] Ibid
[195] Ullman, Richard "Redefining security" International security 8 no. 1 (summer 1983,)P. 133

andtheir physical and functional integrity[196]. These factors cannot prevail where cooperation in the use of shared water are concerned. The States must therefore adjust to accommodate each other's needs in a win-win situationTherefore, the States must identify policies that reduces risk[197]. Despite the understanding today in the need for States to harmonize the policies it is still along away for them to accept policies that allow joint planning in order to reduce tensions and conflicts in the use of shared water resources This is another gap that this thesis has filled by developing a new Nile River Basin Regime that provides for joint planning in the development and management of Nile river water resources a policy that if adopted by the basin States would eliminate conflict in the use of the Nile River flows.

The Nile Basin Initiative (NBI) through its objectives listed above therefore, seeks to find cooperative solutions to a potentially conflict situation. Under the NBI the Nile Council of Ministers in charge of water affairs have agreed to jointly pursue the sustainable development and management of the Nile water through equitable use. That is why this thesis focuses on the balancing of equitable useand causing no significant harm a gap that exist today in the Nile River basin.

The paper under review in this thesis concludes that a coordinated approach to the use of the waters of the Nile can be adopted in different countries and sectors and contribute to the good cooperation on the water resources promoting peace. This conclusion concurs with the findings in this thesis that found out that cooperation in the use of shared water resources will enable joint

[196]Lowi M.R. "Water and conflict in the middle east and south Asia: An environmental issues and security issues linked?" (Journal of environment 8' No.4, December, 1999), p.376.
[197]Conca K et al, "conflict over resources " draft background paper for working group 5: Resources and environmental degradation as sources of conflict (50thpugwash conference on science and world affairs: 'Eliminating the causes of war,'Queens college ,' international security 8, no. 1 (summer 1983),P. 133

planning that will eliminate conflict. In this thesis it has further been found that cooperation requires rules which are provided in accepted Basin agreement by Nile countries. In this thesis both acceptable substantive and procedural rules have been identified and provided in the new proposed Nile River Basin Regime. These rules that includes joint planning, balancing of the exiting water uses and potential water uses will enable all the Nile basin states accept the negotiated Nile River Basin Cooperative framework 2010.

3.4 The legality of 1929 and 1959 Nile Agreements

In Africa,havingaccess to adequate water in good quantity and quality is a perquisite to human being survival.[198]This is a further testimony to the fact that access to water is one of the key pillars of the water security of the Nile Basin States as demonstrated above that the water security of the basin States revolves around three pillars that is the availability of the water resources, its accessibility and managing any conflicts that might arise.

In the past, the geopolitics of the Nile River basin had been dominated by Egypt[199]. This led to the 1929 and 1959 Nile Rivers agreements as discussed above. For many years Egypt developed the Nile's waters unilaterally. This situation was influenced a lot with the role played by Great Britain in the 19th century as Egypt was seen to be vulnerable to the low flows of the Nile River. This influenced the building of the first Aswan dam to cope with low flow seasons and years in order to harvest and store flood waters for agricultural production, especially cotton and to prevent harm from peak flows in Egypt. In 1892, United Kingdom occupied Egypt to serve its

[198]Majeed A. Rahman, "Geopolitics of the Nile River basin" , (Centre for Research on globalization,, 2011), P.46
[199] As evidenced by the Colonial Nile River Agreements of 1929 and 1959 analysed in paragraphs 3.2 and 3.3 of this thesis

commercial interest by protecting its interest in Suez Canal[200] and to pay attention and addressinglack of adequate cotton in the world market. This shift precipitated an intensive period of water development of the Nile that created a lot of debate over the interests of upper basin States verses lower basin States on use of the Nile waters. This made Britain to appoint four commissions to draw up regional development plans for exploitation of the Nile waters which was later rejected by Egypt as the planned structures would have been beyond Egypt's jurisdiction.[201]

In May 7, 1929 United Kingdom and Egypt signed the Nile Agreement for purposes of sharing the Nile waters through the exchange of notes between Egyptian Prime Minister and United Kingdom High Commissioner in Cairo Egypt.On the existing Agreements, under the 1929 Nile River agreement the key provision that requires Tanzania, Kenya, Uganda and even the Sudan to use the waters of Lake Victoria and the Nile with the consent of Egypt.

Article 4d of the 1929 Nile Agreement between Britain and Egypt gave Egypt veto powers over the other basin states in the use of the Nile waters. This provision required the upper basin States to seek consent of Egypt before developing the water of the Nile.

The 1959 Nile River agreement between Sudan and Egypt for full utilization of the Nile waters was bilateral between the two. In accordance with general rule of international law, such an agreement is not binding on third parties as it neither creates rights nor obligation for third party

[200] Halfords L. Hoskins, "The Suez Canal as International waterway", (The American Journal of International Law 373, July 1943),P. 37

[201] Halfords L. Hoskins, "The Suez Canal as International waterway", (The American Journal of International Law 373, July 1943)P. 37

States (i.e. states which are not parties to the agreement) as Tanzania, Uganda, Kenya,Burundi, Rwanda, D.R. Congo, and Ethiopia and even South Sudan that a new born State and has not expressed it willingness to be a party to the 1959 Nile agreement.

These agreements were concluded during the colonial eraand onattaining independence, following the Nyerere doctrine the Government of Kenya gave a notice through a declaration to the members of the United Nations on the matterof succession to Treaties that applied to Kenya by the Government of Britain and Northern Ireland prior to independence[202]. The declaration called upon all the nations who would want Kenya to be bound by the colonial agreements signed on its behalf when Kenya was under its administration to come for renegotiation. The notice was dated December, 12, 1963 for a period of two years and expired on December, 12, 1965.

At the expiry of the two years period the Government of Kenya was under liberty to consider those treaties which cannot be regarded as surviving according to the rules of international customary law as having been terminated as the new born state is not at liberty to be bound by colonial agreements if it not will to be party to such agreement.[203]

Today the Kenya declaration is supported by Articles 17 &18 of the Vienna Convention 1978, on the doctrine of a clean slate that gives a new born state formed as a result of decolonization a clean slate and is under no obligation to succeed to such an agreementif it is not willing to do so.

[202]Succession to Treaties extended or applied to Kenya by the Government of United Kingdom and Northern Ireland prior to independence, Ministry of Foreign Affairs, Kenya December, 1963.
[203]Emanuelli, C. "State Succession, Then and New, with Special Reference to the Louisiana Purchase (1803).(La. L. Rev., 63, 2002), P. 1279

A new born State can start life with a *"clean slate".* The doctrine of *"Clean slate"* is now a well-established customary international law.

The Nile Agreements has never been invoked or applied in any former British territories after their independence[204].

It is therefore, very clear that the 1929 Nile River Agreement has not been tested as its legality has never been formally challenged hence the question whether it is still in force.

This is a similar case with the Suda that on attaining independence, repudiated the 1929 Nile Agreement evoking the doctrine of *rebus sic stantibus*[205]. This doctrine allows a new born State as the Sudan to rescind a treaty if there is a material change of circumstances that transform rights and obligation of the treaty. The Sudan had obtained independence hence had argued that its accession to independence amounted to a substantial change of circumstances. Today Sudan's position has changed after signing the 1959 Nile River Agreement with Egypt[206].

Upon attaining independence in 1960 Tanzania formally invoked Nyerere Doctrine[207] by making a declaration to the Secretary General of the United Nation stating that Tanzania government would not be bound by the all bilateral treaties, which were signed by United Kingdom on her behalf. The same identical notes were issued by Tanzania to Great Britain, Egypt, and Sudan outlining her policy on the utilization of the Nile waters. In their note Tanzania further stated

[204]Okidi, Charles, "legal and Policy Regime of lake Victoria and the Nile basin", 20 Indian Journal of International Law (1980), P.395-420

[205]Godana, A. Bonaya A. "Africa's Shared Water Resources: Legal and Institutional aspects of Nile, Niger, and Senegal Rivers systems" , (Lynne Rienner publishers, 1985).P.142

[206] United Arab Republic of Egypt and Sudan, Agreement for the full utilization of the Nile waters, November, 8, 1959, United Arab Republic of Egypt – Sudan, 453 U.N.T.S 6519.

[207] Problem of State Succession in Africa: Statement of the Prime Minister of Tanganyika, 11 The International and Comparative Law Quarterly 1210 (1962)

that the Nile Agreement was not binding but agreed to negotiate with all riparian states to formulate a new framework based on just and equitable principles[208].

After the 1959 the Nile River Basin states have been using all means to bring them together. These efforts started in 1967 with Hydromet studies[209] on the Nile River Basin. Under the coming together of some African countries with an intension to serve as a platform for discussions onthe economic development of the Nile Basin region, additional two cooperative initiatives which grew out of this platform were the Undungu and the TECHNILE.[210] These are the notable previous efforts which paved the way for the establishment of Nile Basin Initiative (NBI) in1999. It is under the NBI that the negotiations for the Nile River basin Cooperative Framework Agreement 2010 have been organized.

The Nile River Basin States have therefore, been in search of an acceptable Nile River basin Agreement or Nile River Regime that would foster cooperation among the basin States and offer a peaceful and sustainable utilization of the basin's water resources.

Considering that up to date the hydro-political situation of the Nile Basin has been a legal-political deadlock for decades[211], there is therefore need to develop an accepted Nile River basin Regime outside the negotiated Nile River Basin Cooperative Framework Agreement 2010 that

[208]Owiro, Arthur Okoth, "The Nile Treaty: State Succession and International Treaty Commitments: A case study of the Nile waters Treaties", (Konrad Adenauer Foundation, 2004), P. 14
[209]Erlich, H. "The Cross and the River: Ethiopia , Egypt and the Nile" (2002), P 257-258
[210]Peichert, "The Nile Basin Initiative: A promising Hydrological Peace process",(Nile Basin Initiative, Secretariat, Entebbe, Uganda2000). P.3
[211]Arsano. Y. "Ethiopia and dilemmas of national and regional hydro-politics",(Centre for Security Studies, Swiss federal Institute of Technology, Zurich, Switzerland, 2007), P. 248

would make the basin states willing to cooperate and willing to listen to the political concerns and national interest of others by at least ready to accept selected projects in the partner states.

China is a new entry into the geo-politics of the Nile River with new interest focusing on Africa energydevelopment and supplies and raw materials for its industries and economic development, besides the impacts it can have on a countries' development[212]. This is evident in the exponential growth in foreign trade between China and African Countries since the end of the 1990s that has taken the western world by storm. [213]

Therefore, from the above arguments, it is clear that the legality of the 1929 Nile Agreementis a big issue. The agreement is problematic[214] because it gave Egypt veto powers over other Nile basin States. Both the 1929 and 1959 Nile Agreements have not been tested against the prevailing International water law that is todayis being guided by the 1997 UN Watercourses Conventionthat entered into force in August 2014. In the 1959 Nile agreement, Egypt claimed sixty five percent of the total annual Nile River flows measured at Aswan Dam[215] while almost 100 percent of that flow comes from the upper basin States. While the legality of the 1929 and 1959 Nile Agreements remain unsettled, they have never been legally challenged. Hence the legal basis for the water allocation in the Nile basin needs to be settled. The CFA 2010 provides for the balancing of equitable use of the basin water resources [216] and the duty of the basin States

[212] Martens, Anja Kristina, "Impacts of the Global change on the Nile Basin: Options for Hydropolitical Reform in Egypt and Ethiopia", (International Food Policy Research Institute, January, 2011), p. 14
[213]Schuller, M. and Asche, H., "China engagement in Africa –Opportunities and Risk in Development", (GTZ,2008), P. 10
[214] Exchange of Notes Regarding the Use of Waters of the Nile for Irrigation Purposes, May 7, 1929, Egypt-U.K., 93 L.N.T.S. 43
[215] United Arab Republic and Sudan, Agreement for Full Utilization of the Nile Waters, November 8, 1959, Nile River Agreement between Egypt and Sudan, (United Arab Republic-Sudan, 453 U.N.T.S. 6519).
[216] Article 4 of the CFA 2010

to prevention harm to other basin States.[217]Key leading international water lawyers namely McCaffrey Stephen C. of the University of the Pacific and McGeorge School of law of USAand Wouters, Patricia of Dundee law School, Scotland, U.K in a number books and journals analysed in this thesis have stated that in the balancing of existing use and potential use, existing use does not automatically enjoy priority over potential use as both uses have to face the same test and certify that the uses are equitableand does not cause significant harm hence both the Nile River water allocations under the 1929 and 1959 Nile River agreements have to face both the legal test and technical test in order for Egypt and Sudan to justify their retention. In this thesis it has been argued that most of the existing irrigation use in both Egypt and Sudan are not efficient and wasteful of water resources and hence cannot override modern efficient uses being proposed by the other Nile Basin States.

In testing the legality of the 1929 and 1959 Nile agreements one needs to take into consideration that, the Nile River is only a giant in terms of length, but a dwarf in terms of volume of water it carries, as its annual flows is only 84 BCM which is just 6% of that of the Congo River. The worst part in the Nile River basin today is that all the upper Nile Basin States are yet to develop its waters. Ethiopia that contributes 85% of the Nile River flow has only water service coverage of 17%. The same low water coverage is the order of the day in all the Nile upper Basin States.[218] This grim reality is worsened by lack of an acceptable legal framework by all the Nile basin States to ensure equitable use of the Nile waters. This is a key gap in the Nile River Basin today. This gap is finally filled in this thesis with the proposed new Nile River Basin Regime.[219] This new Nile River Basin Regime that is a combination of the negotiated Nile River Basin CFA

[217] Article 5 of the CFA 2010
[218] Kenya National Water Master Plan 2030, (Ministry of Water and Irrigation, 2013), P.106
[219]chapter 7 paragraph 7.1 of this thesis.

2010, the call for the introduction of joint planning in this thesis and the use of science (NB-DSS) and key principles of the International Water Law namely equitable use and causing no harm to balance the existing water uses and potential uses, and ensure joint management of the sources of the Nile River Basin water resources to ensure availability of the Nile River flows, accessibility of the Nile River flows by Nile countries and managing any conflict that might arise is the answer to the problem in the thesis.

The new Nile Basin Regime based on the acceptable principles, norms, rules and the balancing of rights and obligations taking into consideration, thedevelopment needs of the basin States and demonstrating the benefits that will accrue for each basin State from such arrangements will enable the basin States to be a party to the Nile Cooperation resulting into a conducive atmosphere for sustainable development and equitable use of the Nile basin water resources.

In this thesis the use of analytical tool such as the Nile Basin Decision Support System (NB-DSS) to inform the policy on the equitable use of the Nile shared water resources has been recommended. Use of the NB-DSS for example has revealed that the Nile Equatorial lakes (White Nile) Basin States of Burundi, DR-Congo, Kenya, Tanzania, Rwanda and Uganda can use up to 10BCM for irrigation purposes in the upper headwork of the white Nile without causing significant harm to Sudan and Egypt as out of the 40BCM being released from the Equatorial Lakes only 15BCM reaches the confluence of the White Nile and the Blue Nile in Khartoum. This means closer to 25BCM is lost in the Suds swamp of the Republic of South Sudan.[220]Based on this revelation one should not be seen to be wrong in proposing that in order to reduce tension and to make Egypt see that their need has been considered with the claim of the

[220]Seid, Abdulkarimet al, "Application of the Nile basin Decision Support system(NB DSS", (Nile Basin Initiative, Entebbe, Uganda, 2013), P.3

use of 55.5 BCM of the annual Nile River Flows,the White Nile Basin States named above should accept Egypt's claim of 55.5 BCMand Sudan's claim of 18.5 BCMas the white Nile today only contributes 15BCM of these total flows. On the other hand Egypt should also allow Ethiopia to go ahead with the Grand Renaissance Dam (GRD) on the Blue Nile for hydropower production which is non-water consumptive but will only regulates the Blue Nile flows. In addition Ethiopia does not have arable land for irrigation downstream of the Grand Renaissance Dam hence cannot turn the use of water in the dam to irrigation purposes. Today it is also understood that under the 1959 Nile agreement, Sudan is unable to use all their allocation of 18.5BCM as the Blue Nile flows is only available for a short period of July to September during the rainy seasons in the Ethiopian Highlands. This means that it is Sudan that poses the danger to Egypt in the use of the flows made available throughout the year by the GRD. In this regard the 1959 Nile agreement between Egypt and Sudan is the cure to this problem in that the two countries should stick to their water allocation under the 1959 agreement hence Egypt will be sure of their 55,5 BCM. Sudan also will benefit in this arrangement in that with the GRD,Sudan will be able to use their 18.5 water allocation and the GRD will also trap the silt loads that have been clogging their irrigation canals and significantly reduction of the annual floods from the unregulated Blue Nile.

In this proposal it must be understood that this thesis does not in any way legitimize the 1959 Nile agreements but only make use of it since it is an agreement between the two parties of Egypt and Sudan and therefore only binding on the two States and is not binding on theother Nile Basin States who are third partiesto this agreement.

The Nile River Basin is a transboundary river and therefore a shared water resource whose water use should be regulated by the international water law.[221] In this respect, article 38 of the ICJstatute is the source of such international law with 1997 UN Water Convention as the umbrella and the guiding convention on international water law. This 1997 Water Convention presents equitable use as the key principle on international water law.[222] This principle is balanced with the precautionary principle of prevention of harm (read causing no significant harm). Therefore, the international treaties or conventions concluded by the basin States should be the source of their rights and obligations over the utilization of the shared water resources.

According to Owiro, Arthur Okoth opinion in his book of 2004 reviewed in this thesis, today there is no such international treaty negotiate and accepted by all the Nile basin States that is applicable to the Nile River. This opinion concurs with the findings in this thesis that both the 1929 and the 1959 Nile agreements were not negotiated by independent Nile basin States and were rejected by them on attaining independence siting substantial change. The same opinion extends to call for the establishment of a permanent Nile River Basin Commission. This opinion also concurs with the findings in this thesis hence the need for a new Nile River Basin Regime.

Today the Nile Legal Regime for the utilization and management of the Nile River waters resources consists of the bilateral Nile Agreements of 1929 and 1959, and the 1993 all discussed at length in this thesis. Some authors have gone ahead to suggest that, these bilateral Nile agreements reflect customary law principles the arguments that has been highly rejected in this

[221]Owiro, Arthur Okoth, "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN 1681-5890, P. 13

[222] Article 5 of 1997 UN Watercourses Convention, analysed in chapter 4 of this thesis

thesis. In this thesis customary law principles have been discussed and concluded that, the bilateral Nile colonial agreements do not meet the basic requirements of customary law principles.

On testing the legality of the these two colonial Nile agreements one also need to extend the analyses to cover all the five colonial treaties entered by United Kingdom between 1891 and 1925 on utilization of the waters of the Nile River.

These colonial agreements includes:

(i) The 15th April, 1891 Protocol between United Kingdom and Italy on the demarcation of their areas of influence in East Africa. Article III of this protocol sought to protect the Egypt interest in the Nile waters coming from river Atbara (discussed at length in this study), the upper reaches fell within Eritrea which was newly acquired by Italy. The article provided that "the Government of Italy undertakes not to develop structureson the Atbara forirrigation which might reasonablymodify its flow into the Nile."[223] This is the same phrase used in the 1929 Nile Agreement(Article 4(b)). It appears United Kingdom had one phrase that gave Egypt veto over other basin states with regards to the use of the waters of the Nile River Basin.

(ii) The 15th May 1902 Treaty between United Kingdom (U.K) and Ethiopia with U.K acting on behalf of Egypt and the Anglo-Egyptian Sudan signed in Ethiopia. The treaty was on the frontiers between the Ethiopia,Anglo-Egyptian Sudan, and British Eritrea. The book

[223]Owiro, Arthur Okoth, "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN, P.6

further informs that, the treaty was not about the boundaries but with the Nile waters coming from Ethiopia.

The Article provides that "His Majesty the Emperor Menelik II, King of Kings of Ethiopia, agreed to the Government of His Britannic Majesty not to construct or allow the constructions of works across the Blue Nile, Lake Tana, or the Sobat, which would retainthe flow of their waters into the Nile except in agreement with his Britannic Majesty's Government and the Government of the Sudan." This Treaty also gave Egypt veto powers over the waters of the Nile River flows.

(iii) The May, 9, 1906 Treaty between United Kingdom and the Independent State of the Congo re-defined their areas of influence in Eastern and Central Africa.[224]

Article III of the Treaty provided that "The Government of the independent state of Congo undertakes not to construct or allow to be constructed any work over or weir on the Semiliki or Isango Rivers, which would diminish the volume of water entering Lake Albert, except in agreement with the Sudanese Government"

(iv) On April, 3, 1906, the United Kingdom, France and Italy signed a tripartite agreement in London with Article IV(a) providing that:

[224]Owiro, Arthur Okoth, "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN 1681-5890, P. 7

"In order to savethe integrity of Ethiopia and safeguard the interests of the Britain and Egypt in the Nile Basin, especially the use of the water of that river and its tributaries."

(v) Exchange of of notes between Britain and Italy in December 1925 whereby Italy acceptedthe prior hydraulic rights of Egypt and the Sudan in the upper Blue Nile and White Nile Rivers and their tributaries and agreednot to construct on the any works which might notablymodify their flow into the main Nile River. This Treaty also gave veto powers to Egypt over use of the Nile River flows.[225]

In this thesis it has been analysed, discussed, demonstrated and concluded that, any colonial treaty is not binding on the new born States or the successor if they are not willing to be bound by such agreement due to the following three reasons:

v) The 1978 Vienna Convention on the Doctrine of a Clean slate (Article 17 and 18) gives the new born States a clean slate and only be bound by colonial agreements on its acceptance to such agreement

vi) Substantial change on the States attaining independence. Sudan on attaining independence rejected the 1929 Nile agreement despite of the country being allocated 4BCM siting substantial change and hence could no longer be bound by such colonial agreement.

[225] Ibid

vii) Giving veto powers over the use of shared water resources to some basin States over the others (Lac Lanoux cause between France and Spain arbitral award did not allow such veto powers).

As stated above the 1929 is the most contentious of all the Nile River Water Agreements. According to Batstone (1959) This agreement is the controlling features of legal relationships concerning the utilization of the waters of Nile today. According to Godana, Bonaya,in 1985, the 1929 Agreement is the basis of all the subsequent water allocations in the Nile River. This thesis present a slightly different rating to the 1929 Nile agreement in that in the 1929 Nile River agreement some Nile River flows were left while in the 1959 Nile River Agreement all the Nile River flows was allocated to Egypt and Sudan save for only the 10 Billion cubic metres left for evaporation in Aswan Dam.

According to Owiro, Arthur Okoth in 2004[226]the 1929 Agreement also expressed recognition by the Great Britain, of Egypt's "natural and historical rights in the Nile waters." Okoth Owiro further elaborated that, the precise content of these rights was not be elaborated.

In this thesis the two rights are analyzed as follows:

The natural right is nothing but the State integrity that has been analyzed and discussed with a conclusion that State integrity did not survive to form part of international customary water law and therefore has to bow before the principle of equitable use of the shared water resources.[227]

[226]Supra note 224
[227] Paragraph 1.2 of this thesis

The historical rights have never been defined or elaborated in any International Agreements, Rules and Declarations all discussed above in the literature review and the selected modern agreements and works of the IIL, ILC and ILA. It is therefore concluded in this thesis that, "Historical right be equated to existing water use that must be equitable and further balanced with potential uses using analytical tools as the NB-DSS in case of the waters of the Nile river flows.

3.5 Conclusion

The Nile River Basin is a transboundary River and therefore a shared water resource by its eleven riparian countries or basin States whose water use should be regulated by the international water law.[228] In this respect, article 38 of the International Court of Justice statute is the source of such international law with 1997 UN Water Convention as the umbrella and the guiding convention on international water law. This 1997 Water Convention presents equitable use as the key principle on international water law.[229] This principle is balanced with the precautionary principle of prevention of harm (read causing no significant harm). Therefore, the international treaties or conventions concluded by the basin States and acceptable to them should be the primary sourcefor the establishment of rights and obligations of the basin states over the utilization of suchshared water resources.

[228]Owiro, Arthur Okoth, "State Succession and International Treaty Commitments: A case study of the Nile Water Treaties, "(Konrad Adenauer Stiftung and Law and Policy Research Foundation, 2004, Nairobi, Kenya); ISSN 1681-5890, P.13

[229] Article 5 of 1997 UN Watercourses Convention, analysed in chapter 4 of this thesis

Both the 1929 and the 1959 Nile agreements were not negotiated by independent Nile basin States and were rejected by them on attaining independence siting substantial change.

It is therefore unfortunate that, over 50 years after most of the Nile Basin States have obtained their independence, the Nile Legal Regime for the utilization and management of the Nile River waters resources are still being dictated by the bilateral Nile Agreements of 1929 and 1959, between United Kingdom and Egypt and between Sudan and Egypt respectively on a multilateral basin of eleven States. Though some authors have gone ahead to suggest that, these bilateral Nile agreements reflect customary law principles, an argument that has been rejected by a number known international water lawyers whose works have been analysed in this thesis. In this thesis customary law principles have been discussed and concluded that, the bilateral Nile colonial agreements do not meet the basic requirements of customary law principles and hence must be treated simply as bilateral agreement by the two States that are parties to them.

These two colonial agreements are therefore not binding on other Nile basin States. The continued use of the Nile River flows allocated under these colonial agreements has also to be subjected to the test of equitable use that is balanced with causing no significant harm.

Further the status quo on the current Nile River Regime has no legalbasis and its continuationwould only continue to bring tension and conflict hence the need for a new Nile legal regime based on the prevailing internal water law

CHAPTER FOUR

4. THE NILE RIVER BASIN COOPERATIVE FRAMEWORK AGREEMENT 2010

4.1 Introduction

The Nile River Basin Cooperative Framework Agreement (CFA) 2010[230]outlines philosophies, privileges and responsibilities for cooperative management and improvement of the Nile Basin water resources. The framework does not seek to quantify 'equitable rights' or water use apportionments but rather "promote integrated management, sustainable development, and harmony in the utilization of the water resources of the Nile River Basin, as well as their conservation and protection for the benefit of present and future generations". In this respect the agreement foresees the formation of a perpetual Nile River basin institution named as the Nile River Basin Commission (NRBC). The Commission role would be to uphold and enable the execution of the CFA, act as a clearing house for planned measures, and build the capacity of the Basin States and "facilitate cooperation among the Nile Basin States in the conservation, management and development of the Nile River Basin" water resources and act as a for a for resource mobilization and conflict resolution.

The legacy of the colonial past, that determined the basin's hydro-political arrangement and lack of inclusiveness of the collaboration ofall basin States, has placed the Nile basin as one of the "ten flashpoints in contemporary international relations", that is one fated to be unfortunate and the origin of forthcoming conflicts. This miserable statewas only reversed in the late 1990s with the establishment of the first all-encompassing collaborativeventureknown as the Nile Basin

[230]The Nile River Basin Cooperative Framework Agreement, 2010, (Nile Basin Initiative, Secretariat, Entebbe Uganda), at www.nilebasin.org on 24th June 2015.

Initiative – under a common dream "**to achieve sustainable socio-economic development through the equitable use of, and benefits from, the common Nile Basin water resources"**.[231]

The Nile Basin Initiative (NBI) is a regional intergovernmental partnership of the said countries seeking to improve the River Nile in a collaborative way, portion considerable socio-economic gains and encourage regional harmony and safety. NBI also provides the Nile Basin States with a platform for member states within the regionto have discussions, sharing of information, combined planning, improvement and running of the basin water resources and linked resources within the Nile Basin.

The panel of experts were under the guidance and advice of McCaffrey, Stephen C. of the University of the Pacific and McGeorge School of law of USA. The Panel of experts assembled 39 articles of the draft CFA based on the best practices. The draft CFA provides principles, the scope of the framework and privileges and responsibilities of the Nile basin States among other provisions.

The negotiation of new Nile River Agreement 2010commenced in 1997 in to develop a new Nile River Basin Agreement dubbed "*The Nile River Basin Cooperative Framework Agreement (CFA)*". The Negotiations started with the panel of experts drawn from the nine Nile Basin Countries namely Uganda, , Burundi,Tanzania, Democratic Republic of Congo,Rwanda,

[231]Mekonnen, DerejeZeleke, "The CFA 2010 negotiations and the water security", 21 Euro. Journal,International LawNo. 2., 2010)P. 421

Kenya,Ethiopia, Sudan, and Egypt with Eritrea only attending as observer while South Sudan was still in the womb of Sudan.

4.2 The Journey of the Nile Cooperationand the Negotiating a new Nile River Basin Cooperative Framework Agreement: Results, Opportunities and Challenges

The Nile Basin States has a short history of cooperation dating back to 1950s save for the colonial initiatives. Such cooperation was no concern for a prolonged period. The Ethiopian monarchs were well knowledgeable of the essence of the Nile waters as regards Egypt's well doing. As such the monarchs used to mount diplomatic pressure on Egypt in matters that were of great concern to them. The threat though empty has greatly affected the relations of the two countries so much that Ethiopia posed the utmost risk keeping alive "the fear that those who live upstream can command the lives of those downstream". This threat is still alive today with Ethiopia developing the Grand Renaissance Dam along the Blue Nile. The start of British colonialism in the basin led to a dominant strategy for controlling the whole basin with an aim of safeguarding the continuous flow of the river downstream, thereby producing "a new reality that would have profound implications for inter-basin States relation long after her departure". Meanwhile the territories in the basin thatwere subject to colonial conquest had first to, fight for their existence as subjects of the universal legal order, basin States collaboration in the Nile basin is fundamentally a post-colonial occurrence, hugely swayed and someway preset by the hydrological and hydro-political heritages of the colonial era.[232]

[232]Ibid.

The fateful decision for the relatively slow negotiations has been taken as a justified resourceful undertakingsteering the stagnant discussions to a point of"constructive ambiguity"that would usher the conflicting basin Stateperceptions to a concession. Evaluation of the current Nile treaty regime discloses that it is not in tandem with the elementary ideologies of international water law, that simply put is impartial and realistic utilization of the shared water resources that is poised with causing no substantial damage to other basin States. The perpetuation of the current colonial regime through the exiting treaties would also be a negation of the Shared Nile Basin Initiative Vision. The premise that the "status of existing treaties" characterizes an overwhelming obstacle which can only be gotten rid of by the introduction of the "water security" is not rather accurate as the lower basin States that introduced the word water security new that it would bring a stalemate in the negotiation as at that time very little was known about the water security and what it takes to achieve it. Some commentators has it that "water security" was introduced in the CFA as "a cunning scheme to employ the hegemonic compliance-producing mechanism of securitization in a bid to perpetuate the legally non-viable and anachronistic status quo".[233]

The third parties such as the World Bank and other International Development partners play key and influential roles in shaping of the behaviours of the Nile Basin States.

The World Bank and the Canadian Development Agency are the key development partners or donors involved in the NBI process. Their support to the NBI resulted into the establishment of the Nile Basin Trust Fund (NBTF) in 2003. It is through this window that a number of donors have funded the NBI projects and its operations. It is clear that without their support NBI would not have survived leave alone seeing the light of the day. The donor support has therefore been crucial and indispensable. These development partners especially the World Bank has not just

[233]Supra note 231

been giving financial support but has acted as good offices or mediators to some extent by providing international technical, financial and political support. This therefore demonstrates the importance of international actors in developing a new Nile River water regime. Due to the role played by World Bank and other Development Partners in supporting the NBI some critics has it that the NBI process is excessively donor driven.[234] This support leads to the negotiation of the CFA 2010 despite of such critics.

In this thesis it was therefore, found necessary to inform of the journey of the Nile Cooperation as cooperation has been demonstrated not to be a choice but a must in the improvement and administration of the common water resources as in the case of the Nile basin water resources. In the journey of cooperation the following facts on the Nile River basin should be the starting point:[235]

i. That the Nile presents an opportunity for sustainable development in the region
ii. That the basin covers 3 million square Kilometers
iii. That the Nile Basin has low runoff compared to other transboundary rivers of its status like the Congo, Amazon, Mississippi and Mekong
iv. That the Nile Plays a central role in human settlements and development (irrigation, hydropower, Cities, Industries built along the Nile)
v. That the Basin is home to about 238 million people with very high population growth rates

[234] Cascao, A. E. "Institutional analysis of the Nile Basin Initiative: What worked, what did not work, and what are the emerging options? Report submitted to the International Water Management Institute as part of the Nile basin Focal point", (International Water Institute, 2009), P.18
[235] The State of the Nile River Report, (Nile basin Initiative, Secretariat, Entebbe, Uganda, 2012), P. 234

vi. That the Regional and transboundary challenges requiring regional solutions: climate change viz Droughts and floods; environmental degradation; low social economic development, low water infrastructure development for regulation and control; as well as uncoordinated infrastructure development, inadequate human and institutional capacities

vii. That the journey of cooperation has evolved from early bilateral cooperation in the beginning of the 20th century. Many bilateral agreements signed between the colonial governments themselves namely Britain and Belgium and Between Britain and Egypt.

In a nutshell the evolutions of the cooperation were as follows:

i) **Hyroment Survey carried out from 1967 to 1992**: The focus by then was hydrometeorological survey in the Lakes Victoria, Albert and Edward on the White Nile to obtain Hydrometeological data to give information of the White Nile water resources potential.

The members were Burundi,Kenya, Uganda,Tanzania, Egypt, Rwanda, Sudan with Ethiopia and Democratic Republic of Congo joining as observers in 1971 and 1977, respectively.In this arrangement Eritrea was not a party. In this cooperation the Nile basin States have complained that there was very little on the ground. The basin States wants to see tangible benefits from such cooperation.

ii) **The Hydromet Survey was followed with the UNDUGU, 1983 - 1992:** the focus was theestablishment of Nile Basin Economic Community. The members were Egypt, DRCongo, Sudan, Uganda, Burundi, Rwanda with Ethiopia and Kenya as observers. This cooperation too has no result to show. One thing that is coming out is that the Nile basin States has always been looking for a forum for cooperation.

Technical Cooperation in the Nile (TECONILE), 1993-1999: The focus was technical cooperation (environmental and water quality).Despite major basin states being deterred from becoming full members due to the solid technical focus, TECONILE demonstrated to be a pivotal launch pad for the next phase in Nile basin States collaboration. Noticeable in this undertaking is the Nile River Action Plan which was constituted within the framework of TECCONILE and was formally approved by the Council of Ministers of Water Affairs who met in Arusha, Tanzania, in February 1995. The fourth component within the action plan had a section on regional collaboration and envisioned the formation of a basin-wide structure for legal and institutional activities but could not be executed due to resource limitations and unrelenting non-cooperative behavior among the Nile Basin States. On Ethiopia's persistence, resolution of the impartial claim of the Nile Basin States to Nile waters was encompassed as a concern of importance as opposed to a long term goal. Unanimously agreed as a significant undertaking, the Nile Basin Cooperative Framework was then fused into the action plan, becoming, thus, "a true progenitor of the NBCFA negotiated over the past decade under the aegis of the NBI".

This cooperation started the Nile 2002 Conference series that brought together the Council of Ministers, Head of Technical Departments and Scholars to present papers on various aspects of the Nile. The cooperation also resulted into the establishment of the Nile Basin Initiative with an effective Vision objective: "To achieve socio-economic development through the equitable use of, and benefits from common Nile basin water resources".

This vision changed the nature of cooperation in the Nile basinwith the introduction of the premise of impartial use of the Nile water resources as opposed to the colonial agreement of 1929 and 1959 which were based on rights.

The major objectives of Nile Basin Initiative as enshrined in the policy guidelines[236] are:

i. To improve the water resources of the Nile Basin in a viable and unbiased way to ensure fortune, safety and harmony for all its peoples.
ii. To guarantee non-wasteful water management and the finest usage of the resources.
iii. To guarantee collaboration and joint action between the riparian states, seeking win-win gains.
iv. To aim at poverty suppression and stimulate economic integration.
v. To guarantee that the program outcomes transition from planning to investment on the ground.

From its establishment in 1999, Nile Basin Initiative has transitioned through three main phases:

a. 1999 to 2008 was a period of eestablishment and confidence building phase
b. 2008 to 2012 was iinstitutional strengthening phase
c. 2012 to 2017is the period for consolidation and delivery investments phase

From 1999 to date with the establishment of the Nile Basin Initiative tangible results has been realized.

iii) Key results achieved to date:[237]

a. Increase in cooperation as exhibited by increased information sharing, joint planning, and collaboration in infrastructure development as in power interconnection which are at different stages. This has seen the commissioning of the interconnection between

[236] Nile Basin Initiative Guiding Policy, (Nile Basin Initiative Secretariat, Entebbe, Uganda, 1999), P. 3-4
[237] Nile Basin Flagship report, (Nile Basin Initiative, Secretariat, Uganda, 2014), P. 8-11

Ethiopia and Sudan in 2013. The joint implementation of Rusumo Hydroelectric project by Burundi, Rwanda and Tanzania.

b. Regional platform established with norms and procedures for regional dialogue
c. NBI today is a source of knowledge and analytical tools for wise use of the shared Nile basin water resources. A notable tool is the development of the NB-DSS that today is used in analyzing projects and giving various scenarios on how best the projects with adverse effects to other Basin States can be implemented with minimal effects.
d. NBI has established itself as a regional hub for water resources management building the capacities of the Basin States in resource management and development and a common pool for water resources.
e. To date investment aimed at closing the infrastructure gap leveraged in the region. To this effect investment projects worth about US$ 4.89 billion under preparation, and projects worth US$ 1.39 billion under implementation. This is what the Basin States wants and it shows the benefits of cooperation. The Nile basin States this time seems to have found it. The remaining challenge is the is a transitional organization established with a legal instruments.

iv) Challenges going forward:

a. Delays in formation of a permanent river basin organization keeps the institutional arrangement in a transitional mode hence the need of a new Nile River basin regime.
b. NBI still requires funding to maintain its services and capacity. Resource mobilization a priority and support from the countries encouraged

c. Inclusion and effective participation of a broader range of stakeholders, beyond the water ministry. This is important for visibility of NBI and prioritization of the regional projects in the national planning processes.
d. National office functionality and effectiveness needs support from all of the stakeholders. The NBI Offices at the Basin States are the main platform at national level and needs to be facilitated to deliver its work. A study aimed at revising the coordination strategy is currently underway and expected to propose ways of improving the coordination.

The establishment of NBI heralded an unprecedented positive chapter in the hydro political history of the Nile Basin, namely the beginning of a trans-boundary perspective informing the Basin States on the Nile basin water resources management policies and plans and a growing recognition of the need for basin wide cooperation.

NBI was initiated as a interim organization and to serve till the negotiation of the Nile Basin Cooperative Framework Agreement (CFA) was concluded and a lasting institution formed.The premier decision and policy-making body of NBI is the Nile Council of Ministers (Nile-COM), comprising Ministers responsible for Water Affairs in each NBI Member State. The Nile-COM is aided by theNile Technical Advisory Committee (Nile-TAC), comprising 20 high-ranking government administrators, (preferably Directors of water resources or their deputies) two from each of the Member States.

Nile-COM in charge of water affairs in December 2003 in the fifth Nile-COM meeting in Egypt resolved that a negotiation Committee drowned from the Nile River Basin States be formed to

negotiate a new Cooperative Framework starting from the output of the D3 project on the Nile River prepared by the panel of experts that started its work in 1997. Prior to the start of the ongoing negotiations to develop a new Nile River Agreement the Nile Basin States had tried at many times to have joint projects that could keep them together to achieve a peaceful and sustainable management and development of the basin water resources in the absence of having a permanent joint management Commission for the Nile River Basin. Such attempt has been analysed in this paragraph above. Of the above attempts NBI appears to be the most successful among all past Nile joint projects as it rolled out the negotiation process for the development of a new Nile River Basin Cooperative Framework Agreement.

The negotiations are carried out by the appointed members of Negotiation Committee from each nine Nile basin States. When any outstanding issue is tabled for negotiation, the Negotiation Committee from each basin states is called upon to give their country's position with regards to the issue under negotiation. The negotiation rules set out in 2005 in Addis Ababa, Ethiopia when the negotiations of the outstanding issues began is that the issues are resolved when a consensus is reached. The consensus was later interpreted to mean two thirds majority and not unanimity. This interpretation is still being objected to by Egypt and Sudan who would want to see all the outstanding issues resolved with the agreement of Nile countries. Further once an issue is negotiated and resolved by consensus it cannot be reopened again for renegotiation. This rule of negotiation was set to allow moving forward and to avoid moving forward and backwards which would have derailed the negotiation process.

The issue of 'water security' was a lateraddition in the CFA by the Negotiating Committee to be specific by the negotiation members from the Egypt and Sudan. The Negotiation Committee was established by the Nile-COM at its Cairo meeting held in February 2002 charged with the task

ofnegotiating the draftCFA that was developed by the panel of experts under the D3 project. The issue of ‘water security’ was introduced at the time but misconstrued by Egypt and Sudan to mean “anything a riparian country wanted it to mean” and has since been viewed “as an ingenious solution to the thorny issue of existing treaties”. It is accordingly fought that 'water security' will make ready for a bargain as it, purportedly, “has the advantage of relegating existing treaties to the background in favour of the more dynamic and progressive principles of international water law". The idea has likewise been emphatically depicted as a vehicle for the transfusion of "constructive ambiguity' into the CFA, that will make it conceivable to bring nearer the dissimilar perspectives held by the upper and lower Nile Basin States. The idea has likewise been decidedly depicted as a vehicle for the transfusion of "constructive ambiguity” into the CFA, which, thus, will make it conceivable to bring nearer the dissimilar perspectives held by the upper and lower Nile Basin States. Regardless of these conflicts, the genuine indicate of the idea is propagation of the lawfully chronologically misguided and non-reasonable norm under the shroud of water security. The choice to include this idea into the CFA accordingly speaks to a somewhat outlandish temporary route to a deadlock, not the way forward to a trade off and extreme determination of the Nile waters question.[238]

The argument that the presentation of 'water security' would introduce a measure of 'constructive ambiguity' into the discussions, which consequently would bring the different riparian positions into a trade off, has been flawed in numerous regards. In the first place, the very suggestion that a practically obstinate issue relating to an imperative rare asset would have a superior possibility of being determined if the transactions were directed in an environment of "constructive

[238]paragraph 4.7.1 of this thesis

ambiguity" is certainly bizarre. It has been kept up that the utilization of "constructive ambiguity", which is generally ascribed to the field of International Relations, "can defuse many controversies over the appropriation of shared natural resources under power-imbalanced conditions".As to shared water resources and arrangements over their common use, the focal reason of the "constructive ambiguity" contention is the asserted standardizing uncertainty characteristic in worldwide water law, including the 1997 UN Watercourses Convention, in its provisions concerning "equitable use of the water resources"

It has been contended that "ambiguity is commonly incorporated in agreements pertaining to natural resources, and water in particular", and the Watercourses Convention has, similarly, been depicted as an underwriting of "ambiguity" of a "basket of Halloween Candy" nature which gives something to everybody, empowering all sides to claim halfway triumph while not giving any instruments to determining contending claims. In spite of the irrefutably tumultuous drafting history and the extreme and now and again sterile level headed discussion encompassing its two centre standards, the Convention, which encapsulates "codification and progressive development of rules of international law regarding non-navigational uses of international watercourses", has the essential standardizing clarity which could soundly be anticipated from a structure tradition and is in no way, shape or form a "Halloween Candy basket" of uncertainty.

One of the Convention's center standards – the guideline of fair and sensible use – being a basic rule of universal water law overseeing the non-navigational employments of worldwide watercourses, and one constituting "the conceptual backbone of international water law" entitling each riparian State, "within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international river", the legitimacy of the "constructive ambiguity" suggestion is faulty. Applying the fundamental standards of worldwide water law contained in the

Convention and making an interpretation of the same into particular basin wide understandings to guarantee fair and equitable use is, without uncertainty, a Herculean assignment.

The Nile Basin States should hence note that the 1997 Watercourses Convention "provides a starting point for the negotiation of agreements relating to specific watercourses, and, in the absence of any applicable agreement, sets basic parameters governing the conduct of the basin States to those watercourses."[239]

The CFA 2010 was submitted to the Nile-COM that convened in Entebbe, Uganda, in June 2007. In spite of lengthy dialogue, accord couldn't be come to on the topic of "water security" presented by Article 14 of the CFA 2010, in appreciation of which Egypt and Sudan entered reservations requiring the substitution of sub-article (b) thereof by another sub-article (b) which the other riparian States felt was unsuitable. The Nile-COM arrangements couldn't make progress as the other riparian States dismisses the Egyptian-Sudanese revision to Article 14(b) which would rather commit them "not to adversely affect the water security and current uses and rights of any other Nile Basin State." Unable to determine this gridlock, the Nile-COM received the content of Article 14 settled upon by the seven other basin States but for Egypt and Sudan which entered a reservation on article 14(b) as their proposition on article 14(b) was rejected. It additionally chose to delegate the "water security" issue for determination by the particular Heads of State and Governments of the basin States who were to meet later.[240] Such proposed meeting of the Head of States never too place as even the two countries of Egypt and Sudan who had a reservation on article 14 (b) were not keen on such meeting for fear that their two Heads of

[239]paragraph 4.7.1 of this thesis
[240]Mekonnen, DerejeZeleke, "The CFA 2010 negotiations and the water security", 21 Euro. Journal,International LawNo. 2. 421, 2010), P. 428

States could be out numbered during such a meeting and a non-favourable phrase on article 14(b) could be adopted.

The CFA 2010 was talked about again at the sixteenth Nile-COM meeting held in July 2008 in Kinshasa, the DRC. The meeting was gathered "to resolve the exceptional issue (water security) of the draft Cooperative Framework Agreement which usher in the establishment of a perpetual Nile River Basin Commission. The Nile-COM from that point chose to embrace the CFA, forgetting the disagreeable Article 14(b) on water security, which would be taken up and determined by the Nile River Basin Commission in a period not more than six month of its enactment.[241]

Up to May 14th 2010 when the negotiated Nile River Basin Cooperative framework Agreement 2010 was opened for signature in Entebbe, Uganda all the provisions assembled by the panel of experts had been resolved by consensus except article 14(b) on water security that remained outstanding to date. It is this key outstanding issue that makes Egypt and Sudan not to sign the new Nile River Agreement that this study wants to find the way forward to enable Nile countries to out a new Nile River Regime.

In a nut shell the CFA 2010 was developed over more than a decade of intensive work as summarized in table 2 below. The draft CFA text was submitted to the Council of Ministers of Water Affairs of the Nile Basin States (Nile-COM) by the negotiation panel in March 2006. The Nile-COM members completed their negotiations of the CFA on June 25, 2007, with all except with the reservation of article 14(b) that was lifted and annexed to be resolved within six months

[241]'Sudan walks out of Nile River talks', *The Daily Nation*, Sunday 24 May 2009 accessed via http://www.nation.co.ke/news/africa/-/1066/602492/-/4ihfcx/-/index.htmlon 25th June 2014.

by the Nile River Basin Commission on its establishment. An attempt by the Nile-COM to refer the reservation to their Heads of State for resolution did not materialize as some States Namely Egypt and Sudan were not for the idea. This further reveals that the solution to article 14(b) will come from both through the legal and technical analyses as done under this thesis.

The 17thNile-COM meeting held from 27 to 28 July 2009 in Alexandria, Egypt, ended with a decision "to allow anadditional period of six months to enable member States to move forward in concluding an all-inclusive treaty" and conveying the hope that "their next meeting will mark the last step of signing of the Cooperative Framework Agreement". The Nile COM likewise ordered the Technical Advisory Committee and the Negotiating Committee to discuss with global specialists on strategies for signing the CFA and present their report to an unprecedented Nile-COM meeting to be gathered to receive the report. The inauspicious reality however is that even the fruitful signing of the CFA with "water security" as its component would just check either a consistent circular drive in the decade-long transactions or the start of yet another round of unendingdiscussions under the patronage of the Nile River Basin Commission.[242]

Table 1Summary of the Chronology of Negotiation of the Cooperative Framework Agreement[243]

Dates	Actors	Results
1997January – 2000, March	Panel of Experts From the basin States together with legal advisor	Assembled key principles, rights and obligations, and proposed the required institution for the Nile basin.

[242]Mekonnen, DerejeZeleke, "The CFA 2010 negotiations and the water security", 21 Euro. Journal,International LawNo. 2. 421, 2010), P. 429

[243] Negotiation of the Nile River Basin Cooperative Framework Agreement, 2010, (Nile Basin Initiative, Secretariat, Entebbbe , Uganda, 2015) at www. nilebasin.org: analysed and amended by the candidate who was the Kenya Chief negotiator on the CFA 2010 accessed on 13th May 2015.

2000, Aug - 2001, Aug	Transitional Committee under the advice of legal expert	Prepared the Draft Agreement based on the principles assembled by the Panel of Experts.
2003 December, –2005 December	Negotiation Committee formed 2 members from each Basin States under the advice of Legal Expert	A number of Bracketed provisions were removed after reaching consensus following negotiation with full mandate of the COM. The Draft CFA still had a number of unresolved issues. Top on the Agenda were water security of the basin States, which waters were to under the governance of the CFA among others.
2006, March – 2007, June	Council of Ministers joined the Negotiation Committee	The Draft CFA improved with a number of outstanding issues resolved. The key unresolved issue left was Article 14(b) on the Water Security that is on how to balance the existing uses and potential uses. This is the fulcrum of this thesis.
2009, May 22n	Nile-COM Meeting in Kinshasa	7 member countries agree to annex Article 14b for later resolution by the Nile River Basin Commission to be established when the CFA2010 entered into force: Egypt put reservation and would want the article to be resolved first before adopting the CFA 2010; Sudan had earlier stormed out of the negotiation hall and later expressed its reservation on the same.
2009, July 3	Negotiation Committee Meeting in Nairobi	The Kinshasa document was adopted as a clean text by the 7 countries, with Egypt and Sudan expressingstrong reservations on the adopted clean text.
2010, April 13	The historic Sharm el Sheikh Nile-COM Meeting that lasted the whole night	More rejection of the clean text by both Egypt and Sudan as the 7 countries moved ahead to open the CFA 2010the clean Text) for signature.
2010, May 14	CFA 2010 opened for signature at the NBI Offices in Entebbe, Uganda	On the same day the CFA 2010 was signed by 4 countries namely Ethiopia, Rwanda, Tanzania, and Uganda without reservation with Kenya asking

		for the Text to be brought to Nairobi for signing at a later date as the Minister of Water was out of the country on that day.
2010, May, 19	In Nairobi	Kenya signs the CFA 2010 in Nairobi, Kenya without any reservation
2011, February 28		Burundi signs the CFA in Bujumbura, Burundi without any reservation
2013, June 13	1st Ratification	Ethiopia ratifies the CFA without any reservation
2013, August 28	2nd Ratification	Rwanda ratifies the CFA
2015, April,	3rd Ratification	Republic of Tanzania ratifies the CFA without any reservation

4.3 Geopolitics of the Nile River Basin

According to Prof. Majeed in 2011, **access** to water in Africa is one of the most critical aspects of human survival[244]. This is a further testimony to the fact that access to water is one of the key pillars of the water security of the Basin States as demonstrated in chapters 5 and 6 of this thesis that the water security of the Basin States revolves around three pillars that is the availability of the water resources, its accessibility and managing any conflicts that might arise.

In the past, the geopolitics of the Nile River basin had been dominated by Egypt[245]. This led to the 1929 and 1959 Nile Rivers agreements discussed below. For many years Egypt developed the Nile's waters unilaterally. This situation was influenced a lot with the role played by Great Britain in the 19th century as Egypt was seen to be vulnerable to the low flows of the Nile River. This influenced the building of the first Aswan dam to cope with low flow seasons and years in order to harvest and store flood waters for agricultural production, especially cotton and to

[244]Majeed A. Rahman, "Geopolitics of the Nile River basin" , (Centre for Research on globalization,, 2011), P.46
[245] As evidenced by the Colonial Nile River Agreements of 1929 and 1959 discussed above, analysed in Chapter 3 of this thesis

prevent harm from peak flows in Egypt. In 1892, United Kingdom occupied Egypt to serve its business enthusiasm by safeguarding its stakes in the Suez Canal[246]and to address lack of cotton in the world market. Since it was more favorable to cultivate cotton in summer there was a deviation to perennial irrigation from customary regular flood-fed method. This change hastened an intensive period of water development of the Nile that created extreme level headed discussion over the interests of upper and lower basin nations on these improvements. This made Britain to choose four commissions to draw up territorial development plans for utilization of the Nile waters. Egypt dismissed the commissions' arrangement since significant structures would have been past Egypt's control.[247]

The World Bank, GIZ, and the Canadian Development Agency are the key development partners or donors involved in the NBI process. Their support to the NBI resulted into the establishment of the Nile Basin Trust Fund (NBTF) in 2003. It is through this window that a number of donors have funded the NBI projects and its operations. It is clear that without their support NBI would not have survived leave alone seeing the light of the day. The donor support has therefore been crucial and indispensable. These development partners especially the World Bank has not just been giving financial support but has acted as good offices or mediators to some extent by providing international technical, financial and political support. This therefore shows the essence of global actors in developing a new Nile River water regime. Due to the role played by

[246] Halfords L. Hoskins, "The Suez Canal as International waterway", 37 The American Journal of International Law (July 1943) P.373
[247] Ibid

World Bank and other Development Partners in supporting the NBI some critics has it that the NBI process is excessively donor driven[248]

Considering that up to date the hydro-political situation of the Nile Basin has been a legal-political deadlock for decades[249], there is therefore need to develop an accepted Nile River basin Regime outside the negotiated Nile River Basin Cooperative Framework Agreement 2010 that would make the basin states willing to cooperate and willing to listen to the political concerns and national interest of others by at least ready to accept selected projects in the partner states.

A new entry into the Hydro-politics of the Nile is China. China's enthusiasm for Africa for the most part spotlights on acquiring vital supplies and crude materials for businesses and financial advancement, besides the impacts it can have on a countries' development[250]. This is evident in the heightened expansion in foreign trade between China and African Countries from the end of the 1990s that has surprised the western public[251].

[248] Cascao, A. E. "Institutional analysis of the Nile Basin Initiative: What worked, what did not work, and what are the emerging options? Report submitted to the International Water Management Institute as part of the Nile basin Focal point", (International Water Institute, 2009).
[249]Arsano.Y, "Ethiopia and dilemmas of national and regional hydro-politics", (Centre for Security Studies, Swiss federal Institute of Technology, Zurich, Switzerland, 2007), P.2.
[250] Martens, Anja Kristina "Impacts of the Global change on the Nile Basin: Options for Hydropolitical Reform in Egypt and Ethiopia", (International Food Policy Research Institute, January, 2011), P. 22
[251]Schuller, M. and Asche, H. "China engagement in Africa –Opportunities and Risk in Development" (GTZ, 2008), P.10

4.4 Analysis of theChronology of Negotiation and the Status of the negotiated CFA 2010 to date

To date six countries namely, Burundi, Tanzania, Uganda, Rwanda Kenya and Ethiopia have signed the negotiated Nile River Basin Cooperative Framework.[252] The signing as interpreted under the International law simply means that the countries that have signed the negotiated agreement are willing to be a party to the agreement. For example in the case of Kenya, the signing will be followed with the ratification process whereby the Cabinet Secretary (read Minister) for Environment, water and Natural Resources did table the CFA through a cabinet memo for approval by the cabinet and direction. The Cab Memo was approved and forwarded to parliament for adoption. Most of the Basin States therefore still have one step to the ratification save for Ethiopia and Rwanda that have fully ratified the CFA 2010 in accordance to their nation or Municipal laws.

The Kenyan position which is shared by the five other basin States the signed the CFA 2010 and other basin States is that all the Nile River Basin States need this new Cooperative Framework Agreement to be in force. It is this agreement together with the Nile River Basin Commission and a new Nile River Basin Regime that is developed in this study that will shape the behaviours' of all the basin stated to use the basins water resources in an equitable usedevoid of causing substantial damage to other basin States. This Kenyan position is shared by nearly all the Nile Basin States save for Egypt and Sudan who would first want their allocation based on the existing use upfront before they can append their signature on the negotiated CFA in order to be sure of their water security a position that has been rejected by the other eight basin states

[252] Nile Basin Initiative Strategic Plan, 2012 -2016, (Nile Basin Initiative, secretariat, Entebbe, Uganda, 2012), P. 4

(South Sudan included). The Nile basin regime like the Niger Basin Charter call for the presentation and analyses of Nile countries development plan that touches on the utilization and improvement of the Nile River water resources in addition to agreed principles, norms and rules to act as a management tool for the implementation of the CFA to enable the basin states be sure of their water security and to realize their water security.

To this effect Kenya is developing a National Water Master Plan 2030 that will spell out its development plan within the Lake Victoria basin that shall form the basis of its development plan under the Nile River Basin Regime. To Kenya this position will give an assurance to Egypt and Sudan who are yet to sign the Nile River Basin Cooperative Framework. Upfront analysis and agreement on all the development plans for the development of the Nile River water resources by all the Nile basin states will give assurance to Nile countries of their water security as there will be no new development that has not been analyzed and agreed upon as a part of the Nile River Basin Regime.

Other basin states might site State Sovereignty, but this approach can be defended as even under the international law States are still required to give information on planned measures on shared water resource at the very minimum or give a full notice on new planned measures[253]

[253] World Bank Operation Policy O.P 7.5; Article 7 of the 1997 UN Watercourse Convention

4.5 The Analyses of the Nile River Basin Cooperative Framework Agreement 2010

4.5.1 The Scope of the Cooperative Framework and the Nile River Basin Commission

The agreed scope of the framework tells it all. The scope reads as follows:

> "*This Framework covers the development,use, protection, conservation and management of the Nile River waters and establishes an institutional mechanism for cooperation among the Nile countries"*[254]

The Negotiated and signed CFA that was opened for signature on 14th May 2010 at Entebbe Nile Basin Initiative offices, and now under ratification process if entered into force will allow the establishment of the Nile River Basin Commission.[255]

The Nile River Basin Commission when established will play a key and central role in the sustainable, peaceful utilisation of the shared Nile River water resources. The Commission will act as a clearing house to new projects or planned measures in the Nile River basin and hence regulate the use of the basin water resources.[256] Such a Regulator as a referee in a football field requires rules of the game. Such rules are provided in the Negotiated Nile River Basin Cooperative Framework.

[254] Article 1 of CFA 2010
[255] Articles 15 and 43 of the CFA 2010
[256] Article 16 of the CFA 2010

During the negotiation of the CFA 2010, additional Factors of Equitable use were added in the CFA outside the factors of equity adopted from the 1997 UN Watercourses Convention.

On comparing these factors with those provided under Article 6 of the Draft CFA presented to the Nile-COM by the panel of experts, it was found that, additional two factors the CFA 2010namely:[257]

a) The water contributed by each basin state to the waters of the Nile River; and
b) The degree and fraction of the drainage area in territory of each basin state.

The first factor was introduced by the upper basin states that are the sources of the Nile River flows on the understanding that this factor would give them a good share of the Nile River flows.

In order to counter this factor, Sudan which by then was the largest Nile Basin State as it was still carrying South Sudan, introduced the factor of the size of the Nile River Basin State within the Nile basin. This factor though still apart of the CFA 2010 would not benefit Sudan as they might have not calculated well the period of pregnancy with South Sudan that is now a new born state in the basin and significantly reduced the size of Sudan within the Nile Basin.

If the two newly introduced factors turned out to be contentious once again then it is recommended that the two additional factors introduced by the upper basin states and Sudan be aborted and the original factors in the 1997 UN-Watercourses Convention be considered

[257] Article 4(2) of CFA 2010

4.5.2 The Right and the Duties of the Basin States[258]

The Nile River Basin States agreed to go to the negotiation table in order to come up with an agreement that has been freely negotiated and acceptable to them. Such an agreement would forestall the rights of the basinStates to utilize the shared water resources of the Nile River system in an equitable manner and further sets obligations for the States to prevention harm to other riparian States. The right of the Nile Basin States to the use of the shared water resources within their territory though enshrined in the 1945 UN charter is perceived to have been eroded by the 1929 Nile River agreement by giving Egypt veto powers over the use of the Nile River water resources. Articles 4 and 5 of the CFA 2010 therefore, balances the Right of the basin States to utilize the basins water resources with a responsibility not to cause substantial damage to other riparian States. This can only be achieved if the basin States cooperate under the guidance of a binding agreement that provides the rights and duties of the basin States as provided in the negotiated CFA 2010.Article 4 and 5 therefore, if balanced and implemented with the cooperation of the basin States will give the required water security for the basin States.

Second, keeping in mind the end goal to viably create and utilize the mutual water assets of the Nile River Basin there is need to level the playing field that permits consolidation of the required assets for the improvement of the basin water resources. There is in this way, need to comprehend that under the current lawful courses of action in the Nile basin there is no Nile River Basin Agreement that is satisfactory to the Nile Basin States with the exception of Egypt and Sudan as the current assertions were not arranged by the autonomous Nile Basin States and are viewed as one-sided and give veto forces to other Nile Basin States over the others and

[258] Articles 4 and 5 of the CFA 2010

subsequently don't give the required level field for resource mobilization and collaboration among the basin states to permit equitable use of the Nile River water resources. Based on this history the Nile River basin States acknowledged and discussed the closed CFA that today has been signed by six basin states in particular Tanzania, Uganda, Rwanda, Burundi, Kenya and Ethiopia.

Further articles 4 and 5 together with article 10 and 16 allows for the development of the Nile River regime. The regime if developed and agreed upon will provide additional sets of rules. Norms, principles and agreed on the projects the will not cause significant harm to other basin states.

In the examination of the CFA 2010, a number of Scholars[259] have praised the establishment of the NBI and the attempt it has made to broker anagreement on legal and institutional framework that will replace the transitory NBI with a permanent institution to guarantee the realization of the "shared vision."[260] The NBI therefore is a breakthrough from the previous arrangements of Technical and competition to cooperation.[261]

The additional advantage of the basin regime once the agreement is in force is that unlike the basin Agreement that is adopted through consensus the basin regime enjoys the rules of unanimity that is Nile countries must clear a particular project as in the case of Niger River Basin Regime.

[259]Mekonnen, DerejeZeleke "The Nile Basin Cooperative Frame Agreement Negotiations and the Adoption of "Water Security" paradigm: Flight into obscurity or a logical Cul-de-Sac, (The European Journal of International Law, 2010 Vol.21 no.2, P. 421-440)

[260]Tefesse, T. "The Nile Question: Hydropolitics, Legal wrangling, modus Vivendi and perspectives (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2001),P. 109

[261]Brunnee and Toope,"The changing Nile Basin Regime; Does Law Matter?"43 Harvard International Law Journal (2002) P.122-131

The new Nile River Basin Regime was to be achieved through an agreed Cooperative Framework Agreement (CFA) that would provide a permanent legal and institutional Framework. The articleby DerejeZelekeMekonnenunder review in this thesis describes the "Water Security" as non-legal, destructively elastic, and indeterminate concept to circumvent the "thorny issue of the status of existing treaties". In this thesis the water security is analysed in chapter five and its definition provided in article 2 of the negotiated Nile River Basin Cooperative Framework Agreement 2010 and the works by Patricia Wouters in 2005 also under review in this thesis gave me the confidence to differ with description in this paper that "Water Security" is non-legal.

Further, the existing Nile River Basin Regime under the colonial agreements are inconsistent with the fundamental standards of global water law thus would be a nullification of the NBI shared vision. The analyses of the existing Nile Agreement of 1929 between United Kingdom and Egypt and the 1959 between Egypt andSudan in chapter three of this thesis do support this statement.[262]

The CFA 2010 is therefore, the transformation in the Nile Basin States cooperation as for the first time, the agenda of fair and sensible usage of the Nile River waterresources is put under consideration. This provision under 4 gives the CFA 2010 a bi g credit for providing for equitable use, a principal which was avoided in all the past Nile Basin States co-operations described above.[263] The CFA 2010 would therefore transform the Nile River Basin from a

[262] See paragraphs 3.2, 3.3 and 3.4 of this thesis
[263] Article 4 of the CFA 2010

notable unilateralism and competitive basin into one governed by a permanent legal and institutional framework agreed upon by all Nile Basin States. This is why in this thesis a solution to resolve article 14(b) on the water security was found very important in order to bring Nile countries on board.[264]

In the Nile River setting, Egypt's pioneers, utilizing Herodotus' portrayal as their hegemonic account, have dependably been productive in securing an exclusive right over the waters of the Nile River in light of its reliance on the Nile waters. However regardless of Egypt's dominative use over the Nile waters, upstream States are progressively testing Egypt's restraining position. Starting close to the end of imperialism in Africa, Nile basin States have been gradually however certainly mounting a test to Egyptian control over the Nile. In seeking to answer the question on Egypt's dominance over the Nile, Abadir M. Ibrahimin his article under review in this thesis, states that:

> *"...It seems as if the upper riparian states, from whose mountains the Nile gushes downstream, are asking Herodotus in retrospect: whose gift is the Nile anyway?In May 2010, upper riparian states reinforced this statement by opening the Nile Basin Cooperative Framework Agreement for signature. This agreement claims to announce the rights of upper riparian states to use the waters of the Nile."*

The States through which the Nile River passes require the Nile River water resources, essentially for domestic use, watering system and, in fluctuating degrees, for hydroelectric power generation, industrial use and transportation.[265]

[264] Chapter 6 of this thesis
[265] Ibid

As time goes, the Nile waters will progressively be contended as the Nile basin water per capita in both amount and quality will diminishes with populace development and ecological deterioration. The Nile basin which is portrayed by high population increase, environmental deterioration poverty, food shortage, water lack and on top of everything, the potential for strife over water. The interest for new water in Nile basin States is prone to rise while the supply will either stay limited or reduce later on. As the number of inhabitants in the Nile basin keeps on growing, water lack will be at the bleeding edge of the basins issues. In spite of the huge capability of the Nile, extreme poverty and food shortage has been a persistent element of the Nile basin. Extreme ecological deterioration is likewise anticipated to reduce the future utilization of the Nile waters. The locale's formative potential is further lessened by the way that it has one of the least accesses to energy. By 2025, it is anticipated that all nations in the Nile basin will encounter water stress or shortage.[266]

This water situation in the Nile River basin put together, with the hydro-legislative issues rooted within the relations between the lower and upper basin States and underscores the hegemonic responsibility carried out by the United Kingdom and later independent Egypt requires a new Nile River Basin Regime that is well balanced taking into consideration the prevailing international water law and the enabling scientific tools to balance the existing water uses and potential water uses in the basin. .

This is one of the reasons while some scholars have stated that, the upper basin States accepted the CFA, 2010 for reasons other than the legal framework for the use of the Nile waters and not

[266]Nile Basin Strategic Plan 2012-2016, (Nile Basin Initiative, secretariat, Entebbe, Uganda, 2012), P.4

for its legal value but its political and counter-hegemonic value. The CFA 2010is therefore seen as aninitial step to counter and fix the hegemonic activities of Egypt that have been spurred subsequent to the start of the nineteenth century.

The lower basin States of Egypt and Sudan, have dependably relied upon the waters of the Nile for their life. Nile waters constitute 96% of Egypt's renewable water, while 85% of both Sudan and South Sudan's populace is somehow counting on to the river. Hydroelectric force generation and irrigation are the significant uses of the Nile for the lower basin States. Horticulture, more than whatever other use, constitutes 80% of the lower basin State's utilization of Nile waters. The popularity and vitality of Nile waters to the lower basin States could be clarified by the way that these States are situated in the Sahara desert and its immediate outskirts, making it unimaginable for them to get by without the water from the Nile. Egypt has utilized the Nile waters greater and over a longer duration than various basin States put together.[267]

This reliance of the Nile water resources by Egypt and Sudan is seen as the principle yearnings of the Nile colonial understandings to keep upstream basin States from raising dams and using the waters of the Nile to permit Egypt to keep up sufficient flows to extinguish its thirst.

Due to the developing difficulties confronting the Nile Basin States, the upper basin States are as of now endeavoring to utilize the Nile Basin Cooperative Framework Agreement 2010 to oppose Egypt as well as to turn the hegemonic tide to empower them to enjoy their impartial right of utilization of the Nile shared water resources. A few analysts have contended that the Nile Basin Cooperative Framework Agreement 2010 won't have any legitimate quality as Egypt and Sudan

[267] Ibid

won't sign the archive at any point in the near future. Further, that the political history of the Nile authenticates the way that State interests are coordinated towards hegemonic control and predominance instead of participation. This has prompted a circumstance in which the interrelations among parties, particularly according to Egyptian legislators, is characterized by a zero-sum game where any admission to one party is thought to be a misfortune.

The upper Nile Basin States have gone ahead with signing of the CFA 2010 not only to counter-hegemonic impact but mainly to establish a new Nile River Basin Regime that would allow equitable use of the Nile River water resources and to establish a permanent Nile River Basin Commission to facilitate cooperation of the basin States, build their capacity for the proper management and sustainable use of the basin water resources and to act as forum for conflict resolution.

4.6 Analysesof the current position taken by the Nile River Basin States on the Historical Nile Agreements and the Negotiated CFA 2010.

The Negotiation Committee discussed all the 45 articles displayed in the Draft Nile River Basin Cooperative Framework Agreement (CFA) by the Technical Experts that began compiling the Draft Cooperative Framework in 1997 and achieved an agreement in all the 45 articles. It ispart Article 14 (b) on water security that was to replacethe earlier Article on existing agreement that consensus was not reached.

Although this article 14(b) on the water security is only one that remained unresolved it is the heart and the survival of the CFA 2010. In it hold powers of the Nile colonial agreements and, the existence of the present Nile water use, the acceptance of the potential or future uses of the

Nile waters hence the acceptance of the international water law that today is equitable use of the shared water resources and the prevention of significant harm to other basin States by the Nile Basin States that up to today are divided into the upper and down streams. In this division the downstream that have developed the Nile River waters would want the continuous of the Nile River natural flows hence holds the theory of territorial integrity, while the upper basin States that are starting to develop the Nile shared water resources would want to see the use of prevailing international water law that is equitable use of the shared water renounces and prevention of harm failure to which they would revert to Harmon Doctrine that was based on territorial Sovereignty.

The entire article 14 as provided in the CFA 2010 states that:

> Having due regard for the provisions of Articles 4 and 5, Nile Basin States recognize the vital importance of water security to each of them. The States also recognize that cooperative management and development of the waters of the Nile River system will facilitate achievement of water security and benefits. Nile Basin States therefore agree, in a spirit of cooperation,
>
> (a) "to work together to ensure that all States achieve and sustain water security".
> (b) "not to significantly affect the water security of any other Nile Basin State"
>
> *"In effect, all the States except Egypt and Sudan agreed to this provision. Egypt and Sudan, however, wants part (b) to be replaced with the following phrase":*

"Not to adversely affect the water security and current uses and rights of any other Nile Basin States"

The position taken by Egypt and Sudan is not fair to the seven other Basin States including Kenya as it is seen to dig into the rights which were apportioned in the colonial agreements. Kenya and other riparian States are not party to the colonial agreements that ascertain existing uses that arenot equitable and instead are causing significant harm to the upper basin States as the rights provided in these colonial agreements prevents resource mobilization to enable these basin States to also develop the shared Nile water resources hence these colonial agreements are in line with the International water law.

4.7 Comparison of the CFA 2010 and the 1997 UN Watercourses Convention and other Modern Transboundary Water Agreements

4.7.11997 UN Watercourses Convention

This is a global agreement which entered into force on 18th August 2014 and has been recognized by International Court of Justice as was referred to in the 1997 Danube case of *Gabcikobo-Nagomoros*[268], between Hungary and Slovak (Danube River Water Locks Case) and contains some principles that have previously been recognized as international customary

[268] 1997, ICJ Rep. No. 7

law.[269]These principles includes, equitable use of transboundary water resources, causing no significant harm, and cooperation.[270]Now that this Convention has entered into force no basin State that has interest in a transboundary water resources should dismiss it either because they have not ratified it hence are not parties or had rejected it during its negotiation prior to considering its provisions and the mandate it is set to carry out in the use, protection and conservation of international watercourses.

In 1970 the United Nation General Assembly suggested that the International Law Commission ought to take up the investigation of the law of non-navigational uses of international watercourses with a perspective to its continuous improvement and codification. The work of the Commission finished in the selection by the General Assembly of the Convention on the Law of Non-Navigational Uses of International Watercourses on May 21, 1997.[271]

During the negotiation of the Working Group of the Sixth Legal Committee of the UN General Assembly, of the 1997 Convention on the Law of the Non- Navigational Uses of International Watercourses many provisions of the ILC's draft articles were not changed and the number and titles of articles of the Convention remained the same as contained in the ILC's draft. This shows that the 1997 UN Watercourses Convention tracts very closely the ILC's draft articles.

[269] Such provisions are the Equitable use of international watercourses, see article 5 of the 1997 UN Watercourses Convention.
[270] International Customary law is further analysed in paragraph 4.7.4 of this thesis.
[271]Status of the Convention, as at 18th August 2014 is that the Convention had entered into force after receiving the 35th ratification instrument as by provided by article 36 of the Convention, that states "this Convention shall enter into force on the ninetieth day following the date of deposit of the thirty-fifth instrument of ratification, acceptance, approval or accession with the Secretary- General of the United Nations.

The Convention is therefore an authoritative interpretation of the law relating to the non-navigational uses of international watercourses. It is intended to form the basis of a multilateral framework laying down the general principles and rules governing the areas of international water law and environmental law in regards to use and protection of international watercourses.

It is useful to assess the extent to which the Convention's principles and materials obligations separately or in combination require or encourage a balancing of considerations of economic development with those of environmental protection while taking into account the interest of future generations in the continuous availability of freshwater from international watercourses.[272]In the first place, the prime guideline in the field of global watercourse law is the rule of fair and sensible usage as broken down underneath. This principle provides for a balancing test relating to, for instance, economic advancement considerations and contemplation of safe and efficient utilization of watercourses. It therefore my view that some use of the basin water resources today are wasteful and need to be audited as provided in article 9 of the signed Nile River Basin Cooperative framework, 2010. Further the Convention includes provisions, which add to the assurance of, or controlling of the degradation of the purity of the water of watercourses for example, the general guideline to practice due perseverance so as not to bring about huge transboundary damage as contained in article 7 of the Convention, and the material commitments as regards ecological security as highlighted in articles 20, and 23 of the Convention.

[272] Article 20 of the 1997 UN Watercourses Convention

The guideline "not to bring about compelling danger" to global watercourses guards the stakes of the coming eras that new water resources won't be used inefficiently and the water quality will be preserved. Article 7, section 1, states: "Watercourse States should practice due diligence to use a worldwide watercourse in a manner that does not bring about substantial danger to other watercourse States". Article 7, turned out to be the most troublesome provision amid the arrangements and the Working Group eventually rolled out a few improvements to the ILC's variants of the article, yet most eyewitnesses trust the modifications did not change the principal impact of the provision. Then again this must be metered with the rule of equitable use as constituted in article 5, passage 1, of the Convention. The aftereffect of the adjusting the advantages to be picked up by a specific watercourse state against the adverse impacts of such a use on other watercourse states may infer that a specific level of damage will be made to one or more water course states. This is still in accordance with the premise of "equitable use" of a global watercourse that may at present constitute substantial damage to another Watercourse State. In such scenerios, the premise of equitable use remains the yard stick in governing the various member state stakes.[273] On the other hand upon implementation, however, such harm is caused notwithstanding the exercise of due diligence, and where agreement to such use is absent article 7, paragraph 2, is applicable.[274] As explained by the tribunal in the Alabama Arbitration, due diligence means "a diligence proportioned to the magnitude of the subject and the dignity and strength of power which is to exercise it" and "such care as governments ordinarily employ in their domestic concerns."[275] The "due-diligence", or "all-appropriate-measures", standard is

[273] Ibid.

[274] Article 7, paragraph 2 advances the fact that “the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation”.

[275] The Alabama Arbitration, United Stated v. Great Britain, decision of 14th September 1872, See, Moore, J.B. *Digest of International Arbitration,* Vol. I, 1997), P. 572-573 and 612.

thus a flexible one, whose precise meaning must be determined in the context of the particular case at hand. Then again it might be said that the obligation to practice due prudence or to take all fitting measures to counteract, eradicate or relieve damage, adds up to a commitment to act sensibly as pertains the particular situation.

As explained in the UN Watercourses Convention, the "commitment not to bring about significant damage"[276] or to "prevent the causing of significant harm"[277]is in no way, shape or form a flat out one. Consequently, that which may constitute "suitable measures" in the circumstances of a particular case will rely on an array of elements; variables pertaining to conditions both in the State whose actions may bring about damage and in the State that might be affected. Furthermore, the "fitting measures" to eradicate or relieve substantial damage that has been brought about are to be taken "having due respect for the provisions of article 5 and 6", and "in liason with the disadvantaged States". The reference to articles 5 and 6 on fair and sensible use, and to discuss with the disadvantaged state, recommend that the goal of the measures taken is to come to a consensus of the uses as well as the advantages of the watercourses that the states concerned can commonly acknowledge as being equitably used.

Articles 20 to 23 of the Convention contain obligations, which are directed at the protection of the watercourse and at the control and improvement of water quality. This is further in the interest of the future generations. These articles specify the general principles of article 5, paragraph 1, and article 7, paragraph 1 with respect to the protection of the environment. Article

[276] Article 7 of the 1997 UN watercourses Convention
[277] Article 7(1), of the 1997 UN Watercourses Convention

20 as inspired by article 192 of the United Nations Convention on the Law of the Sea, provides that "Watercourse States shall, individually and where appropriate, jointly, protect and preserve the ecosystem of international watercourses". This obligation should therefore be supported by a perception of global public interest aims, which states consider desirable to pursue, for them to take effective measures for its accomplishment. On the other hand article 22 stipulates that watercourse states should take all precaution to keep away species, alien or new, into a worldwide watercourse, which may have impacts harmful to the ecological community of the watercourse bringing about substantial damage to other watercourse States. This obligation raises further question as to the cumulative harm and harm which are not trans-boundary. Articles 20 and 23 could be referred to on how such harm, which initially does not constitute significant harm, may, however, together with similar or other types of harm over time lead to significant trans-boundary harm or even to irreversible harm, and those which does not amount to threat of significant trans-boundary harm could when it poses a threat to the ecosystem of a watercourse, or to the marine environment for that matter be dealt with.

Comparative analysis of the CFA 2010 and the 1997 UN Watercourses Convention has revealed that the CFA 2010 treads very closed with the Convection in the provisions of Rights and basic obligations of the basin states such and other International Water Law Rules as duty to cooperate (in good faith) in the use, development and management of the basin's water resources, Equitable use (based on factors discussed above), causing no significant harm to other basin states, duty to exchange information, duty to give information on planned measures. It is on this basic obligation that the CFA 2010 did not come strong as in the Convention that provides for notification on planned measures while the CFA 2010 slightly diluted this duty to giving information on planned measures as also discussed above. Lastly both the Agreement and the

Convection provides for duty to consult and negotiate in good faith and provision of the establishment of basin commission as a forum for cooperation and conflict resolution.

4.7.2 Comparison of the Principles of the Nile River Basin Cooperative Framework Agreement 2010 and those of other Modern Transboundary Waters Agreements

Table 2:

Principles	1997 UN Watercourses Convention	Nile River Basin CFA 2010	Niger River Basin Agreement 1964(Revised 1980)	
International Watercourse as Hydrological Unit	Article 2	Article 2	Article 4-5	
Equitable use and participation	Article 5	Article 4	Article 1	
Duty to prevention harm	Article 7	Article 5	Article 4	
Duty to cooperate	Article 8	Article 3,	Article 4,5	
Notification of planned measures with possible adverse impacts	Article 11	Article 3, 8	4,5	
Duty to Exchange information	Article 9	Article 3,7	Article 4,5	
Duty to consult and negotiate in good faith	Article 4	Article 3		
Right of the basin States to use water within their territory	Article 5	Article 4	Article 4,5	
Monitoring mechanism	None	None	Article 5	
Shared vision		Article 1	Article 4	
Water security		Article 3, 14		
Decision making		Article 15 (Consensus)	Article 5,6 (Consensus)	
Water has social and economic value		Article 3	Article 5	
Right to water		Article 14	Article 4,5	
Dispute resolution	Article 33 (peaceful means preferably arbitration)	Article 3, (peaceful preferably arbitration)	Article 20	
Basin Commission (Authority)	Article 2	Article 15	Article 5	
Joint Planning	None	None (Required)	Article 4,5	

Benefit sharing	Article 2	Article 2	Article 4,5	

i. *Principle of international cooperation* – countries ought to seek *to make the most of and impartially share the benefits*;

- *Principle of* equitable use of the basin shared water resources;
- *Commitment not to bring about substantial damage to co-riparian-In using the resources, States are required not to bring about huge damage to the stakes of different states by contamination or other behavior*;
- Assurance of current sensible and useful utilization of the water – International law supports the security of current profitable utilization of equitable use and dejects inefficient utilization;

ii. Principle of *prior notification and information sharing* as contained in the 1997 Convention and general international law;

iii. Principle of *consistent exchange of data and information*;

iv. Guideline of the aversion, minimization and control of contamination – of watercourses in order to minimize unfavorable consequences for freshwater resources and their biological communities, including fish and other oceanic species, and on human wellbeing;

v. Principle of the *safeguarding and conservation of the ecosystems*;

vi. Principle of *community of interest* of all riparian states. Available water resources shall be shared on the principle of "*some for all" (rather than "all for some"),* articulated at Global

ix. Consultation on Safe Water and Sanitation for the 1990s, New Delhi, 1990;

x. Principle that water is a *social and economic good*, as articulated at the International Conference on Water and the Environment, Dublin, 1992 United Nation Conference on Environment and Development, Rio de Janeiro, 1992 and moderated the emphasis on the economic value of water resources by asserting the importance of the social functions of water resources as well;

xi.*Precautionary principle* to put in place the appropriate guidelines to avoid environmental deprivation despite the absence of scientific certainty as regards the kind and extent of the threat;

xii. The *"polluter pays" principle* – refers to the person that causes the pollution, shall as far as possible bear any costs associated; and

xiii. Principle of *sustainable* management and utilization of transboundary water resources should be based on *Integrated Water Resources Management (IWRM) principles* and on *basin or catchment boundaries. IWRM also* stipulates that currentutilization of resources ought to factor inmeeting the requirements of not only this generation but also those of coming generations in their bid to utilize the resources.

4.8 Conclusion

Despite that some Scholars still present a contracted debate that water security is not legal while the renowned international water lawyers as Wouters, Patricia of Dundee University, Scotland, UK in 2005 and 2013, and Prof. Steven McCaffrey of Pacific Catholic University, USA have demonstrated that in order to achieve the water security of any basin State both international

water law and the countries national law comes handy to ensure 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively and accessibility through regulation and the protection and conservation of the basin water resources to ensure its availability and the necessary rules and procedure for conflict resolution. In this thesis it has been demonstrated at length that the days when only science was relied on to solve problems is gone especially in the use of shared water resources. Science therefore should be brought in to inform policy and joint planning on utilization of the shared water resources. In the Nile River Basin, the management and development of the Shared water resources, NB DSS has proved that science only informs the policy while law is the management tool for the implementation of the policy.

Asconfirmed by the Member States in the preamble to theAfrican Convention on the Conservation of Nature and Natural Resources, the Member States are *"conscious of the need to continue furthering the principles of the Stockholm Declaration, to contribute to the implementation of the Rio Declaration and of Agenda 21, and to work closely together towards the implementation of global and regional instruments supporting their goals"*. If this statement sees the light of day through full implementation of the international instruments, the trans-boundary water resources, amongst them, the Nile Basin, would be better protected and water security for future generations secured as contemplated under the unresolved Article 14(b) of the CFA 2010.

The ultimate question in resolution of the water security question under Article 14(b) of the CFA is not so much question of whether Sudan and South Sudan will accept the Treaty but much more dependent on Egypt's acceptance and concession to cut down on its use of the Nile waters. Going by the firm positions and pronouncements on Egypt's position on the issue, a resolution to the water security question has been seen as a pipe dream to many others. The finding in this thesis that is based on both the international water law and science is therefore the cure to the problem of the water security in the Nile River Basin.

CHAPTER FIVE

5. THE WATER SECURITY IN INTERNATIONAL WATER LAW

5.1 Introduction

In defining the Water Security, Wouters, Patricia in 2005 referred to the UN General Assembly Reports of 2005[278] that states "…emphasizing that water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, and is indispensable for human health and well-being."

Under the UN-Water definition:

"Water Security" is defined "as the capacity of a population to have in the adequate quantities and quality for the sustenancehuman life and well-being and their livelihood, and to enablesocio-economic development, and cautioning them against water-borne disasters, and for preserving ecosystems in a climate of peace and political stability (UN-Water, 2013)".[279]

Therefore, access to water by the basin States is key in achieving the water security of the basin States. In her same articles of 2005 under review in this thesis it has been demonstrated that water security in the context of shared or trans-boundary waters is about legal entitlement and obligation of the basin States in the use and development of the shared water resources. This is therefore, about who is entitled to use what water? [280] Entitlement is nothing but the right of the basin States to equitable use of the shared water resources that is balanced with the obligation to

[278]Wouters, Patricia, "Water Security: What Role for International Water Law?' (Earth scan Publication, 2005), P.167

[279]UN-Water Analytical Brief on Water Security and the Global Water Agenda, 2013 at http://www.unwater.org/topics/water-security/en/ (accessed on 4th August, 2014), P. vi

[280]Balamu Allan Dentine, "State of the Nile River Basin 2012", (Nile River Basin Initiative, Secretariat, Entebbe, 2012), P. 19

prevent significant harm[281] Even before the entry in Force of the 1997 Watercourses Convention, the principle of equitable use of the shared water resources was used in the case of the Danube River between Hungary and Slovakia and was considered as part of the international customarily law while causing significant harm in a transboundary water basin is about compensation under the international water law. The water security is greatly achieved by the balancing of the two principles. The two principles are the key substantive rules under the international water law. Further in this thesis law has been defined as a set of rules backed by the States hence the notion by some scholars that that "water security" is non-legal has no room in the international water law.

The two scholarly Intergovernmental organizations, the Institute of International Law (IIL) and the International Law Association (ILA), have made major contribution to the law of international watercourses through adoption of a number of resolutions and rules. The ILA works includes among others things, the famous Helsinki Rules of 1966 and the Berlin Rules of 2004 seven years after the 1997 UN-Watercourses Convention was adopted. In these works both the 1966 Helsinki Rules and the 1997 UN Watercourses Convention given more emphasis and weights to the principle of equitable use in the use and development of the transboundary waters hence the consideration of prevention of harm can only be considered when use is being put into place. This analysis can be considered with driving of a car on the road whereby the driver in the course of driving must be very careful and cautious to prevent causing and accident. So it is the use that comes first then the consideration to prevent harm follows.

[281]Articles 5 and 7 respectively of the 1997 UN Watercourses Convention that entered into Force on 17th August 2014 following the ratification by Vietnam on 19th May, 2014 reaching the required ratification by 35 countries. Reference: C.N. 271 .2014Treaties. XXVII.12(Depository Notification)

The use of international law to regulate the use of transboundary watercourses began in the 19th Century with the Europe industrial revolution that enabled transportation of materials goods and people.[282]This was because other means of transportation were not developed and people resorted to rivers as a means for transportation. In this respect navigation became the largest uses of rivers in Europe turning the rivers into international highways. This use of rivers for navigation called for the regulation of the use of rivers in Europe that show the concluding of the 1815 treaty better known as the Act of Congress of Vienna. This Act established of freedom of navigation for Nile countries in the shared rivers.

The priority and freedom established by this Act continued to prevail and was expanded in 1885 by the Berlin General Act of the Congress treaty that brought on board freedom and priority of navigation to Rivers Congo and Niger in Africa.[283] The inclusion of the two African rivers, Congo and Niger has been seen to enable the free movement of the colonial powers in Africa by opening some of its rivers for all of them. If this was the case then the 1985 General Act of Congress of Berlin extended the freedom of navigation to even nonbasin States as well. The freedom of navigation was further extended in 1919 by the peace treaty of Versailles that opened up all the navigable rivers in Europe to all the European countries. Further the growth and extension of the industrial revolution also resulted to other uses of the river in hydropower production and industrial purposes with increase of population bring on board domestic and irrigation uses. In 1921 the Barcelona convention (convention and statute on the Regime of the navigable waterways of international concerns reconfirmed the principles of freedom of navigations and other uses of the rivers as well.

[282]Salman M. Salman, "The Helsinki Rules, the 1997 UN Watercourses Convention and the Berlin Rules: Perspective of international water law," (World Bank, Washington DC, USA, 2007), P. 626
[283] Ibid

The above treaties of 1815, 1885, 1919 and 1921 together with the 1923treaty of the German convention for the development of hydropower affecting more than one Basin State provided the regulation for the uses of international rivers for navigation, domestic uses, industrial uses, irrigation uses and hydropower generation in accordance with the international laws. After the Second World War that ended with the division of Europe into west and east camps, with the freedom of navigation being restricted only to the basin States.

This has been reconfirmed by a number of Scholars[284]that this situation continues to prevail and today represents contemporary customary international law in this field. Simply put, it is only the Basin States that have a right to the use and development of the waters of the basin they share.

Due to the more eminent and emergence of the non-navigational uses of shared water resources as a result of increase in population and vast reconstruction after the second world war show the emergence of different principles with varying State practice in the uses of itransboundaryrivers, lakes in the 19th century. These principles and practices are analysed in details in paragraphs 1.21, 1.2.2, 1.2.3, 1.2.4 and 1.2.5 of this thesis.

The 1997 UN-Watercourses Convention is the series in the development of international water law and today is the only universal water law agreement that exist to date. In the development of this convention UNGA adapted a resolution on 8th December, 1970 tasking the ILC to inform on

[284]Caflisch Lucius, " Regulation of uses of International Watercourses: Cooperation and Conflict Management (Word Bank Technical Paper No. 414, 1998), P. 9

international watercourses being a UN body of legal experts elected by the UNGA with the duty of codification and advancing the development of international law.

In response, the ILC worked on the draft convention from 1971 finishing its work and adopted the articles of the draft convention in 1994. The same draft articles were recommended to the General Assembly in the same year 1994. The draft articles were deliberated upon for three years by the sixth committee of the UN (Legal Committee) that was convened as working group of the whole and by the General Assembly of the United Nations that finally adopted the convention in 1997 with 103 members voting for, 3 against (Burundi, China and Turkana) all upstream Basin States) with 27 abstentions (including Egypt) and 52 countries did not participate in the voting.

On adoption the convention was opened for signature for three years from 21st May, 1997 to 20 May, 2000 and in this period only 16 States signed the convention. Despite of closure for signature, the States still have freedom to accede to the convention and become parties to this convention.. This means they can have the convention approved or accepted through their legislative process without having it signed). This has been realized and the Convention entered into force on 17th August 2014.

This is the same case for the Nile River Basin where the negotiated CFA 2010 was opened for signature on 14th May, 2010 and remained opened for one year to 14th May, 2011 with only six countries signing, and now the 5 remaining countries can still become parties to the CFA 2010by

acceding to it. Now the basin States are in the process of ratification with Ethiopia, Tanzania and Rwanda having fully ratified the CFA2010.

The 1997 UN watercourse convention is a framework or umbrella Convention that aims at ensuring the peaceful, equitable use, development and management of the shared water resources to meet the present and future needs of the all the basin State. As a framework it addresses the basic procedural aspects and some substantive rules, and leaves the details for basin States in establishing their basin agreements that would consider specific characteristics of the watercourse in question. In the case of the Nile River Basin this was done and the result is the CFA 2010 with article 14(b) still remains unresolved.

The main areas addressed by the convention are; the definition of terms “watercourse”, “watercourses agreements”, “equitable use” and “the obligation not to cause harm”, “planned measures”, “protection”, “conservation” and “management dispute resolution”. All these definitions put together with the cooperation of the basin states leads to the achievement of the water security of the Basin States.

These main areas are the same areas dealt with in this thesis as thisthesis considers availability of the shared water resources; the accessibility and managing any conflict that might arise based on the prevailing international water law as the sure way of the basin States to achieve their water security.

Articles 5 and 6 of the 1997 UN-Watercourses Convention deals with the principle of equitable use of the shared water resources. Caflisch, Lucius in his paper of 1998[285] states that, new formula that takes into consideration listed factors of equitable use and balances with the principles of no causing significant harm was "considered by a number of lower basin states as sufficient to protect them the principle of equitable use that gives the upper basin states the right to use the shared water within their territory"

In this thesis it has been demonstrated at various paragraphs and concluded that, like the 1966 Helsinki rules, the obligation to prevention harmhas been subordinated to the principle of equitable use of the shared water resources.

The 2004 Berlin Rules does not pronounce the right of the basin states to use the equitable use within their territory but leans more towards environmental protection and relationship between the principle of equitable use and obligation not to cause harm. In conclusion, the Berlin Rules equals the two principles as opposed to the 1966 Helsinki Rules and the 1997 UN-Water-causes convention that subordinated no cause harm to reasonable and equitable use. Further a number of Berlin Principles are applicable to the management of all waters, both national and shared water resources which is a deviation of ILA from its earlier entire work. The 2004 Berlin Rules has been criticized by a number of scholars who intern calls on the basin States to give more consideration to the 1966 Helsinki Rules and the 1997 UN-Watercourses convention. This is the fact that has been upheld in this thesis and it's the balancing that would ensure the achievement of water security by Nile countries.

[285] Supra note 287

According to Wouters, Patricia in 2005, by quoting the then UN Secretary – General Kofi Annan in March, 2005 saying that "The International Community recognizes the need to improve the management of its global water resources." This demonstrates the increased focus on issues related to water security and water resources[286]. According to Wouters Patricia, the notion of "Water Security" is not a new one, but is being reconsidered in current global discourse a reinvigorated concept inviting closer study. This is one of the reasons why the water security was introduced in the Nile River Basin Cooperative Framework Agreement, 2010 negotiations[287]

According to this paper by Patricia Wouters under review in this thesis, maintaining environmental quality and improving degraded environments are preconditions for achieving sustainable development goals and meeting the millennium development (Klaus Toepfer, UNEP, Executive Director, 2004).[288]

In a shared or transboundary water basin it has been argued in this thesis that to ensure availability of the water resources Nile countries has a responsibility in the conservation and protection of the water sources in line with the principle of subsidiary and joint planning in the developmentof the basin's shared water resources.

According to Patricia Wouters, the term Water Security has never been defined precisely although it has many contexts. Sitting Eric Gutierrez, 1999, Patricia Wouters in her paper under

[286]Wouters, Patricia, "Water Security: What Role for International Water?' (Earthscan Publication, 2005), P. 166
[287] Article 14, CFA, 2010
[288]Dadde, Felix (Editor), "Human and Environmental Security: An Agenda for change, London". (GBR: Earthscan publications, limited 2005), P.166

review in this thesis she states that a "comprehensive definition must include accessibility hence goes beyond availability."

In this thesis it has been demonstrated at various chapters that, water security is about availability of the water resources, its accessibility and managing any conflict that might arise in the utilization of water resources. The above analyses by Wouters, patricia[289], do concur with the findings in this thesis that, access to shared water resources in a trans-boundary water context like the Nile River Basin shared by eleven countries requires acceptable legal and institutional framework provided in freely negotiated Basin Agreement[290] Such an Agreement must clearly spell out the rights and obligation of the basin States in the utilization of the basin water resources.

On the phase value some scholars have stated that, water security is not Law. The analyses in this thesis has proved this wrong as defined earlier in this thesis that, "Law is a set of rules backed by the states". The definition by Wouters, Patricia, and Gutierrez, in 1999 and 2005 under review in this thesis is a clear testimony that water security is about the basin States legal entitlement, the right and duty of the basin States to equitable accessibility, in order to make adequate water and in good quality, affordable and accessible to its citizens.. Regulations require set of rules provided in Agreements or National Legislations enforced by States.

The paper further refers to the World Bank report on "Water Security: Policies and investments". In the World Bank Report (2005)referred by Wouters, Patricia in her paper under review in this

[289] Supra Note 7, Wouters, Patricia. is a renowned international water law scholar and the Director of Dundee University, Water Law School in Scotland, U.K.
[290]Kameri, Patricia Mbote, Supra para.1.6.10 of this thesis

thesis[291] states that the preconception that all water problems can be solved with infrastructure is as questionable as the assumption that, in the right institutional environments problems can be solved with minimal infrastructure. According to this paper the two has to be done in parallel. The World Bank therefore helps the countries to balance infrastructure and institutional developments.[292]

The paper further states that the above definition introduces other notions that includes the right of all people to enjoy secure access to adequate supplies of drinking water and sanitation within the context of water-related environmental requirements. This notion further leads to the right to water for all.[293]

As per this paper water security is based on three core freedoms that are freedom from fear freedom from want, and freedom to live in human dignity.[294]Therefore t ensuring water security might lead to a conflict of interest which should be identified and dealt with effectively at all levels.[295] This notion concurs with the finding in this study that apart from availability and accessibility to water resources there is need to have a mechanism to resolve any conflict that might arise.

In discussing these concepts on the water security using water law, the paper first considers water law to include all areas of law, at the national and international level, that might impact

[291] Supra paragraph 1.6 in this thesis
[292] At World Bank website: www.Worldbank/Water Security/Policies and Investment, 2005 accessed on 15th June, 2014
[293] World Water Forum, Report, 2005; The human right to water entitles everyone to sufficient, affordable physically accessible, safe and acceptable water for personal and domestic UN, 2003a.
[294] Report of the UN Secretary – General (2005), document A/59/2005,21 March; available at www.un.org/largerfreedom/report-largerfreedom.pdf, on 15th June, 2015
[295]Wouters, Patricia,"Water Security: What Role for International Water Law",(Earthscan publication,2005), P. 170

upon the legal regulation of water resources. The areas under considerations include both the treaties and agreements that touch on the use of international waters directly or indirectly such as environmental, trade and commerce and boundary treaties. At the national level, the paper states that, the areas include the law that governs water use (supply and demands).[296] These cover constitutional law to administrative, planning, environmental, health among other.

According to Wouters, Patricia (2005) in her paper under review in this thesis, there is still a big gap that requires further studies in the area of water law. These areas include international water law with regards to state-state relations and national water law with regards to domestic legal system for regulating the use development of water resources and the water and sanitation services within the state borders and the transnational water law as a new emerging water law concerned with the rules that apply to third party involvement with the national state's regulation of its water resources thus includes donors, multinationals, and non-governmental (NGOs).[297] This is a clear testimony that there is still a big gap in coming up with legal and institutional mechanism to enable the basin states achieve their water security. This study is therefore tuned to fill this gap.

In addition the paper discusses the role of water law in ensuring the water security of a state is meet. To this effect the paper first looks at the conflict over use of water by various sectors at the national and the conflict of use of water by several states in a river basin. At the national

[296] South Africa Constitution gives the municipalities the mandate to provide water services. The Kenya Constitution 2010 gives the counties the mandate to provide water and sanitation services and the national government to regulate the use of water resources, (Government Printing Press, 2002)

[297] Wouters Patricia, *The Relevance and the Role of Water Law in the Sustainable Development of Freshwater. Replacing "Hydro-sovereignty" and Vertical Proposal with "Hydro-solidarity" and Horizontal Solutions* (forthcoming), in the Swedish International Water Institute Stockholm 1999 Conference Proceedings; reprinted in Water international volume 25 in 2003), P. 202-207

level the paper asks, what water security the Government can provide in the cases of countries where most of its water are trans-boundary water resource. In the Nile River basin these are the case of Ethiopia where 98% of the water resources are trans-boundary waters.[298] What position on water security for countries like Mozambique, a downstream State on 11 international watercourses hence relies on upstream State activities and something subjected to ranging floods like in 2002.[299]

In the areas of transitional water law, the global debate challenges world trade law and scrutinize the roles of the public and private sector in their obligations to meet water security objectives around the world. In most cases the poor who lives in informal settlement pay the highest price for water, placing them in a cycle of water insecurity.[300] This is the reason why the water coverage in most developing countries (Kenya 53%, Ethiopia 17%) leaves the poor at the mercy of the water vendors.[301]

Consideration of the role of international water law in achieving the water security of the Basin States one must take note that the world is covered with 250 major watercourses, Nile River included, that are shared by two or more States. During the increase in water demand, both quality and quantities, and with population growth the likelihood of water conflict is very high. This scenario is a live in the Nile River Basin.[302] According to UN wire 2002, the World's fresh

[298] Ethiopia Water Resources Management Policy (FAO, Water Report No.29, 2005)
[299] Wouters, Patricia in her paper of 2005 under review in paragraph 1.6 of this thesis
[300] World Bank Operation Policy 7.50 (OP7.50) – Report on International Waterways, March 2012 website www.worldbank.org/op.7.50, accessed on 12th January, 2015.
[301] Kenya National Water Master Plan 2030, (Ministry of Water and Irrigation, 2013), Volume 4, P. 26
[302] Supra paragraph paragrapgh 1.1 of this thesis.

water abstraction will increase by at least 50% by 2025 leading to water scarcity especially in the developing countries.[303]

International water law therefore, is concerned with sovereign State relations over water. At the national level States are concerned with water rights entitlements or simply put who is entitled to use what water. The international water law therefore has been analyzed and proved to be capable of enabling the basin States in achieving their water security.[304]

5.2 The legal Analyses: "Availability of Water Resources", "Accessibility of the Water Resources" and Managing any Conflict that might arise"

5.2.1 Availability of Water Resources

In order to assure the availability of the shared water resources the basin States must agree to cooperate in the management of the basin's water resources.[305] The principles of cooperation in the management of shared water resources are well documented in a number of International water conventions[306], Memorandum of Understanding[307] and the protocol for the sustainable management and development of Lake Victoria basin under the EAC Treaty.[308] The effective implementation of the provisions under these instruments, particularly in regard to Feeder Rivers

[303] UN water report, 2002: "Good policies can avert world crisis, global water outlook to 2025".website www.unfoundation.org, accessed on 23rd August 2014

[304] This introduces also the notion of "sharing benefits", a concept that is part of the governing rule of 'equitable utilization". This notion of shared benefits is well shrine in the Nile Basin Initiative vision (CFA 2010 article 1).

[305] Articles 20, 21 and 24 of the 1997 UN Watercourses Convention analysed in paragraph 4.7.1 of this thesis

[306] Ibid

[307] Memorandum of Understanding between the Republic of Kenya and United Republic of Tanzania, for the management of Lakes Chala and Jipe and River Umber Basin ecosystem signed by Tanzania and Kenya under the EAC Treaty (Lake Victoria Basin Commission, Kisumu, Kenya, 2013), P. 2

[308] East Africa Corporation Treaty, 1999 and the Protocol for Sustainable Development of Lake Victoria Basin, 2003, (EAC Secretariat, Arusha, 1999 and 2003 respectively), P. 18

and Lakes to the Nile Basin, has the ripple effect on the sources from which the River Nile derives its resources.

The MOU for the management of Lakes Chala and Jipe and River Umba Basins Ecosystem provides that the Partner States of Kenya and Tanzania shall cooperate in the management of the water resources of Lakes Chala and Jipe and River Umber Basins inline the following principles;[309]

a) *the principle of equitable use of water resources:*[310] This principle has been demonstrated in this thesis as the key the principle in the international water law. The principle is today widely accepted as states practice and forms part of the international customary law today.

b) *the principle of sustainable development:* This principle is dealt with at length in paragraph 5.2.1of this thesis.

c) the principle of subsidiarity whereby the implementation of measures for the management of the shared water resources shall be based on who is best placed to do what at the lowest level.[311]

The above principles therefore, restore the following Rights and Obligations on the basin States in cooperation in the development and management of the shared water resources[312]: -

c) Promote the proper joint management and equitable use of basin water resources.

[309] Supra note 310
[310] Articles 5 and 6 of the 1997 UN Watercourses Convention
[311] Article 3(3) of the CFA 2010
[312] The MOU between the Republic of Kenya and United Republic of Tanzania on the management of Lakes Chala and Jipe and River UMBA Basins Ecosystems (Lake Victoria Basin Commission, Kisumu, 2013), P. 8

d) Build capacity of existing institutions and develop additional institutions to contribute to the purposes of this MOU;

e) Provide a forum for discussion of various initiatives, issues and impacts concerning water resources and the environment in the Basins;

f) Conduct research concerning the integrated and sustainable use of water resources of the Basin;

g) Ensure joint monitoring of both quality and quantity and other such parameters of the Trans-boundary water resources as well as environmental changes as a result of any infrastructure development and natural resource use within the Basin;

h) Ensure sharing of Environmental Impact Assessment results for any development projects within the Basins;

i) promote the generation and dissemination of information, without prejudice to industrial property rights, while ensuring confidentiality of the information disseminated;

j) formulate joint plans, programs and projects, and undertake joint financial management and allocate funds to activities of the framework, or to such activities of

the riparian states as it may determine to be in furtherance of the purposes of this MoU; and

k) ensure proper land use and management practices commensurate with the eventual sustainable utilisation of the Basin resource

The two parties to this MOU have also signed the CFA 2010 and this MOU is signed under the EAC Treaty of 1999 which brings together three other East Africa States namely Uganda, Rwanda and Burundi who all have also signed the CFA 2010. The introduction of such management rights and obligations in the Nile River basin would encounter very little resistance if not non as the principles leading to these rights and obligations are already acceptable to Nile countries under the signed CFA 2010. The MOU can be compared with the basin wide forum in Okavango River.

Okavango River Basin Water Secretariat (OKASEC) is responsible for providing administrative services to the OKACOM. Besides the formal structure of the OKACOM, the Basin Wide Forum (BWF) has been established. It is comprised of representatives from local communities of member states, meets once per year on the basin level and exchanges experience and knowledge aiming at providing a bird's eye perspective on socioeconomic as well as hydrological issues in the basin in order to formulate action plans for local communities.[313]

In addition to the instruments on shared water resources towards management by the party states, the scope and extend of the implementation of the terms therein is reinforced through

[313] These revelations were obtained during the study tour to Okavango River basin in 2013 by the Nile Technical Advisory Committee of which I was a member up to August 2014.

domestication of Regulations providing for regulatory use and management through equitable use and catchment protection. Most of the domesticated legislations within the Nile Basin have adopted the management and regulatory approaches envisaged under the international instruments, particularly, those under the 1997 UN Watercourses Convention.

5.2.2 **Accessibility of the Water Resources**

In this thesis it has also been argued that, for the case of Nile River where it is considered that all the 84 billion cubic metres of the river flows have been developed by the two lower basin states namely Egypt and Sudan, it is necessary to use both law (the principle of equitable use[314] and the causing no significant harm principle[315]) and science (use of NB-DSS) to balance the existing use and the potential use as analysed and discussed in section 1.6 under literature review of this thesis.

In the Danube case, the Court did not refer to the obligation to prevention harm. It is also worth to take note of other basic obligations under the 1997 UN Watercourses Convention that should be used to test the negotiated Nile River Basin Cooperative Framework Agreement (CFA 2010).

These basic obligations are:

(i) Obligation to cooperate in the management and use of equitable usethrough the establishment of joint water commission.

[314] Article 4 of the CFA 2010 and article 5 of the 1997 UN Watercourses Convention
[315] Article 5 of the CFA 2010 and article 7 of the 1997 UN Watercourses Convention

In this respect, the preamble and Article 3 (i) of the CFA 2010 calls upon the Nile River Basin States to cooperate in the equitable use of the Nile River water resources. Article 15 of the CFA 2010 provides for the establishment of the Nile River Commission which will act as a clearing house in the use and development of the shared Nile Basin water resources. Article 24 of the 1997 UN Watercourses Convention calls upon the basin States to cooperate in the planning of the sustainable development of the shared water resources and the implementation of plans adopted and provide for the rational and optimal development and management of the shared water resources.

(ii) Exchange of data and information regularly.

In this regard, Article 7 of the CFA 2010 calls upon the Nile Countries to r exchange of data and information regularly.

(iii) Notification of other basin states of planned measures with possible significant adverse effects.

With regard to this basic obligation, the CFA 2010[316] provides that the Nile River Basin States agree to exchange information on planned measures.

[316] Article 8 of the CFA 2010

Article 8 of the CFA, 2010 is another contentious issue apart from the unresolved Article 14(b) on the water security. Though this issue was agreed upon as provided above, Egypt is not fully convinced that Article 8 of the CFA will provide the required notification as required under International Water Law (1997 UN-Watercourse Convention). The use of the wordings "giving notification on planned measures" was rejected by the upper basins states especially Ethiopia who argued that notification calls for consent and consent itself is nothing but giving veto power to other basin states over the other basin States.

On this understanding, it was finally agreed that giving information on planned measures would be considered along with a timed feedback mechanisms with sixth months as time given to the basin states with any issue on the planned measures to raise them within that six months period and the basin state planning the measures to mitigate/response to raised issues before proceeding with the planned measures. In this study, use of NB-DSS to analyse the effects of planned measures has been recommended as NB-DSS has proved to be a very powerful tool in such analysis.

The access to the Nile Basin shared water resources be based on the balance of the of the right of the basin States to equitable use of the common basin water resources and the duty of the basin states to prevent harm to other basin States on one hand and the balance of existing water uses and potential water uses.

5.2.3 Managing Any Conflict that Might Arise

The 1997 UN Watercourses Convention calls upon the basin states to seek settlement of the dispute by peaceful means through negotiation[317], or use of good offices if the negotiation fails. The basin States could also request for mediation or reconciliation by a third party or make use of a watercourse basin commission established by the basin states. In this thesis it has been demonstrated that the proposed Nile River Basin Commission[318] will act as forum for conflict resolution and clearing house for use and development of the shared basin water resources. The same basin Commission has proved to be very useful in the Okavango River Basin.[319]

The 1997 UN Watercourses Convention further provides for use of fact finding mission.[320] The CFA 2010 has also provided for use of fact finding Commission[321] in the settlement of dispute. If the fact finding Commission fails to settle the dispute, the 1997 UN Watercourses Convention provides the reference of the dispute to the International Court of Justice or to Arbitration whose ruling or award shall be binding on the parties.

The dispute settlement provided in the CFA 2010 article 34 is a mirror image of the dispute settlement in article 33 of the 1997 UN Watercourses Convention. So the management of any conflict that might arise in use or development of the shared Nile River basin would easily be solved if the Nile countries are parties to the CFA 2010 as the Nile River Basin Commission to be established under article 15 of the CFA 2010 will be the forum for cooperation, conflict

[317] Article 33 of the 1997 UN Watercourses Convention; Article 34 of the CFA 2010 provides the same
[318] Article 15 of the CFA 2010
[319] Supra paragraph1.2.2.2
[320] Article 33(3)
[321] Annex of CFA 2010

resolution, and a clearing house for use, preservation and protection of the Nile water resources. Can one tells me which Nile Basin State with interest in the Nile waters and would not like to be a party to such a forum?

5.3The Legal and Institutional Arrangements in achieving Water security of the Basin States

The water security as discussed in paragraph 5.1 above in this thesis is a complex issue. In order to understand all its basics one must think of both technical, economics and legal issues. That is why in this thesis both international water law and national or municipal laws are considered as key and provides the conducive atmosphere for accessibility, development and management, technical to enable infrastructure development to covey the water from the source to the door steps or points of use is necessary, affordability makes it available for use.

There is a direct connection between a trans-boundary watercourse State's ability to provide its population with adequate drinking water and sanitation and the existence of an operational (legal) framework guiding the use of its shared water. This further demonstrates how the water security of the Basin State is more of law that infrastructure.

In order to ensure the water security of the basin States in a trans-boundary watercourse, the matters relating to the scope (described above) substantive rules, procedural rules, institutional

mechanism and disputes/settlement must be well defined in the negotiated Agreement as in this case the Nile River Basin Cooperative Framework Agreement 2010.

In this thesis these matters has been analyzed and presented to form part of the new Nile River Basin Regime developed in this thesis. The Nile River Basin Cooperative Framework 2010 analyzed in this thesis has also to some extent taken into consideration these matters. Where there is a gap on these matters in the CFA 2010, the findings in this thesis has filled such gap. The key gaps in the CFA 2010 which has been filled in this thesis are procedural rules that ensure enforceability of the agreement while the substantive rules namely equitable use of the Nile River flows and causing no significant harm are provided in the CFA 2010.[322]

The 1997 UN watercourses convention provides a credible framework agreement for addressing the above five fundamental issued that ensures the water security of the trans-boundary basin States.[323] In order to ensure compliance with basin agreements, the 1997 watercourse convention requires the basin States to fulfill their international obligations at all times even during war.[324]The challenges for a trans-boundary watercourse State ensuring water security at the national level are linked to issues of international water security to which this thesis concludes that the entry into force of the 1997 UN Watercourses Convention would provide a good cure to most of the basin States problems. Now that the Convention has entered into force it is advisable that the Basin States sharing a watercourse should start referring to this convention

[322]Article 4 and 5 of the CFA 2010.
[323] Article 5 of the 1997 UN Watercourses Convention requires the basin states to participate in the use, development and adequate protection of international watercourses in an equitable manner. These include the regulation of the use and development the basin shared water resources.
[324] Article 27 of 1997 UN Watercourses Convention provides for the prevention and mitigation against harmful conditions.

by first being a party to it and there after using it as a key guide in developing new agreements. In this thesis it has been demonstrated that, the Nile River Basin Cooperative Framework Agreement 2010 is a mirror image of the 1997 UN watercourses convention hence was concluded on the basis of the 1997 watercourse convention and therefore together with the gaps filled in this thesis such as joint planning, balancing of current water uses and potential uses would form the foundation for the Nile Basin States water security. This is so because in the Nile River Basin there is conflict of use of the shared Nile River flows as in the case of Ethiopia Grand Renaissance Dam under construction on the Blue Nile that has brought unfriendly relationship between Ethiopia and Egypt. Further it is also believed that, there is an inequality of power among the Nile Basin States hence such a framework that would ensure equitable use of the Nile River flows is the cure. This thesis therefore concurs with Wouters, Patriciaarticle of 2005 on "Water Security and the Role of international water law" that required legal and institutional Framework to ensure the achievement of the water security of the basin States.

Since there is a relationship institution, change and scale,the conflicts therefore occur the institutional capacity cannot handle the change in the basin. Further the institutional capacity goes should go beyond water institutions and includes all factors that contribute to water governance that includes economy, needs, military and infrastructure. The institutional analyses in this thesis concurs with that of Wouters,Patricia.in 2005 on the role of international and national laws in providing effective institutions that ensure the 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of water resources. This analogy has been presented in this thesis at various paragraphs and chapters that, the basin States can only cooperate effectively

in the management and equitable development of the Basin's shared water resources if they establish a joint Basin Commission that would act as clearing house for planned measures and a forum for conflict resolution and resource mobilization.

This thesis also concurs with Wouters, Patricia statement in 1999[325] that identified 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the shared trans-boundary watercourses as the core rule and the heart of the legal framework for achieving the water security of the basin states.[326]

In this thesis under theoretical analyses,[327]equitable use has prevailed over, Absolute State sovereignty and territorial integrity in the use of shared freshwater hence this thesis also concurs with the theory that identifying equitable use as the core rule at the heart of this legal framework. This rule is a flexible and can therefore be applied on a case-by-case. The rule is very much applicable as in the case of the Nile River Basin as it requires the consideration of all uses and all needs across the basin enabling the determination of what qualifies as "equitable". In using this rule all factors are considered to be equal in weight, with priority being given to water reserve meant for human basic needs and environmental balance.[328] Article 10 of the UN Convention provides that in the absence of agreement or customs to this effect, no use of an equitable use will enjoy inherent priority over other uses. Any conflict of the use of equitable use shall be resolved with reference to articles 5 and 7 with special regard given to water for human basic

[325]Wouter, Patricia, ", (The legal response to water scarcity: The UN Watercourses Convention and beyond", German Year Book of International laws, Vol.42, 1999, P. 293.
[326] Ibid
[327] Paragraph 2.2 in this thesis,
[328] Article 10 of the 1997 UN Watercourses Convention

needs.[329] The two articles 5 and 7 of the 1997 UN watercourses convention calls for the balancing of the two principles. In this thesis the mechanism for their balance in the Nile River basin has been provided to include use of science. In this case the use of NB-DSS analyzed in details in this study[330] has been recommended. In determining the water required for basic human life, to include drinking water and water required for production of food in order to prevent starvation. This definition further gives the important insights on how issues of individual water security are dealt with within the Framework of International law.[331]

The Basin States are also obliged to cooperate in the development of activities and for the better agree to develop join plans in a transboundary context. In this thesis, joint planning as in the case of the Niger River Basin analyzed discussed in this thesis has been identified as key in reducing conflict as joint planning will also act as clearing house that only allows agreed activities to be implemented in the shared watercourse.

Core freedom of water security are therefore, best secured in States with sound governments and governance and strong institutions. Where such elements are not solid in place, then, enforceable legal requires provides transparent entry points to ensure the enjoyment of such fundamentals freedom. The rule of international water law therefore provides a solid foundation upon which to develop cooperative arrangements that enable States in meeting their goals of water security. The negotiated Nile River Basin Cooperative Framework Agreement 2010 that is based on the

[329] 1997 UN Watercourses Convention
[330] Paragraph 1.6 of this thesis
[331]Wouters, Patricia, et al, "Sharing trans-boundary waters: An Integrated Assessment of Equitable Entitlement – the legal Assessment Model", UNESCO technical paper, UNESCO, New York, 2005), P. 8

1997 UN-watercourse Convention principles will provide the required legal and institutional framework to enable the Nile Basin States achieve their water security.

Therefore, the CFA 2010, together with the applicable rules of customary international law, in this case "equitable use" offers the required building blocks in the Nile Basin States" quest to ensure the Nile Basin States achieve their water security.

The use of Science, in this case the use of NB-DSS to balance the current water uses and potential water uses in trans-boundary watercourse of the Nile River concurs with the call of UN-Secretary General Kofi Annan in his March 2005 report to the governments to recognize the need for significant increased international support for Science to address the very needs of the poor in agriculture, health, energy, natural resources and environmental, and climate change.[332]

To ensure their water security Basin States therefore, in the development of national water policies trans-boundary watercourse States must take the following into consideration.

Scope: what waters are included? Which other State parties are involved. On the scope, this thesis has considered the equitable use Nile River basin as the Nile River system (both surface and groundwater that flows from one Nile Basin State to the other Nile River Basin State.[333]

Substantive Rule: which roles govern the use of equitable use? The key substantive rules identified in this thesis are right of the Basin State to 1966 and 1997 Helsinki Rules, and the UN-

[332] Kofi Annan, UN Secretary General Larger Freedom : "Forward Development, Security and human rights for all" UN, 2005a
[333] Article 2 of the CFA 2010.

Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the Nile waters and the obligation to prevent "significant harm". This thesis goes further in providing the mechanism on how Watercourse State's national policy related to water use is best identified and applied. This introduces also the notion of "sharing benefits", a concept that is part of the governing rule of "equitable use". The shared NBI vision is derived from this notion. The two can be balanced. This mechanism further to the balancing of the present water uses and the potential water uses a gap that exists up to date in the International water law. This gap is a big challenge in the Nile River basin where all the 84 BCM of the Nile River annual flows is assumed to have been developed.[334]

Institutional Mechanism: which body is given which mandate to manage and regulate the use of the shared water resources? In this thesis, the establishment of Nile River Basin Commission is provided by article 15 of the CFA, 2010. This thesis further analyzed the key role of such an institution to be a forum for conflict resolution, a clearing house for planned measures, a recipient of information on planned measures and a platform for resource mobilization and an institution with mandate and capability to build the capacity of the basin for effective management and 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the basin waters.

Dispute avoidance/dispute settlement and compliance: what mechanisms are available to ensure the parties are able to comply with the rules that apply? In this thesis, under the definition

[334] 1959 Nile River Agreement for the full utilization of the waters of the Nile River, between Sudan and Egypt analyzed in paragraph 3.3 chapter 3 of this thesis.

of treaties, it is taken that, treaties are pactasandasavanda in that, they are binding on State parties to an agreement. The CFA 2010 calls for arbitration where such disputes arise. Failure to perform their duties by any basin State under the international law is punishable.[335]

The effectiveness and sustainability of regional cooperation is dependent on institutions both at regional and national levels; hence the need to strengthen capacities of these institutions to effectively deliver on their mandates. NBI is currently at a critical phase of consolidating the gains made over the last 15 years of its existence and delivering further socio-economic benefits, now that most of the investment projects are moving into implementation stage and additional project identification in the Nile Equatorial Lakes (NEL) and Eastern Nile (EN) sub basins is ongoing. The period is critical and requires a strong institution to leverage and facilitate the process; hence institutional strengthening remains a key priority area. To improve its effectiveness, NBI has to address challenges related to its transitional nature and mandate, sustainability of funding and finalizing of the cooperative framework agreement; which are currently undermining its effectiveness. Additionally, for effective transboundary management, regional programs must be appropriately embedded into national development planning; hence capacity development for national institutions is paramount to ensure improved inter-sectoral coordination and planning as well as leveraging political commitment for the Nile cooperation and NBI.

Knowledge is necessary for decision making in water resources planning and development especially in a shared water resource such as the Nile. For this reason, analytical work and basin monitoring is critically important to generate information necessary to improve the

[335] The Trail Smelter Case between Canada v. United States of America 35AJIL(1941)

understanding of the Nile Basin hydrology and water resources systems, the shared risks and how to manage them and optimize mutual benefits.

The current system of Nile Basin monitoring to generate the much needed data and information for decision making is inadequate: many hydrological significant parts of the Nile Basin are either un-gauged or very sparely gauged even with respect to basic hydrological parameters.[336] Data collected from the operational stations often exhibit breaks in the records, which makes a good proportion of the data unsuitable for operational use. Measurements of water quality and sediment transport are virtually rare in all except very few countries. Moreover, there is a lack of necessary infrastructure for water quality monitoring (certified labs, field sampling and laboratory testing equipment, trained personnel, standards and guidelines). Generally, the degree of automation of the hydrometric networks is still very low, and telemetry is not used in most countries (except Egypt). Most recorders are out of order, and real time data are not available. Therefore, improving the river basin monitoring system for improved transboundary water use and management has been one of the priority areas for NBI. A concerted and sustained effort is needed to regularly monitor basin resources, undertake strategic water resources analyses to inform the riparian dialogue and thereby steer development planning towards win-win solutions and environmental sustainability, data collection and information sharing to transform water resources management in the Nile Basin. NBI has built and will continue to expand its knowledgebase on Nile water and related resources to inform decision making at regional and national levels.

[336] Nile River basin Monitoring-Design report, (Nile Basin Initiative, Secretariat, Entebbe, Uganda, 2014), P. 23-26

It is against the above background and analyses that this thesis strongly recommends the establishment of a permanent Nile River Basin Commission with the above specified mandates and functions and also provided in the CFA 2010.[337]The establishment of the Commission can only be achieved when the CFA 2010 entered into force that requires its ratification or accessionby at least six Nile Basin States[338].

This thesistherefore, concludes by stating that, water law is necessary for the coordination of the management and development of the Nile waters through a commission established by the basin States as this will ensure the equitable use of such resourcesthat is the heart of the water security.

5.4 Cooperation in the Management and Development of Transboundary Water Resources

Water resources management is nothing but conflict management.[339] Water unlike other commodities or scarce resources is an enabler as it is used to fuel all aspects of society in all walks of life that includes biology to economics to aesthetics and spiritual practice. This has resulted into the management of water resources being fragmented, and is often subject to vague course, and/or contradictory legal principles. Therefore water cannot be managed for a single purpose but for multi-objective and for competing needs/or interest.[340]These analyses concur with the finding in this thesis that, water resources is finite and its demand is increasing with

[337] Articles 15 and 16 of the Nile River Basin Cooperative Agreement, 2010, analysed in chapter 4 of this thesis.
[338] Article 42 of the CFA 2010
[339]Wolf, Aron, T. "A Long Term View of Water and International Security, (Journal of Contemporary Water Research & Education, 142(1), 67–75. 2009). P. 67
[340] Wolf, Aron. T. A long term view of Water and International Security, Journal of contemporary Water Research and Education, 2009), P. 17

population growth, demand of hydropower, industry and irrigated agriculture and environmental concerns. Any two of these needs are always at odds and not easy to find acceptable solutions as more stakeholders come in play. Wolf in his 2009 article under review in this thesis adds that the competing needs become worse in trans-boundary water resources due to other political considerations. This situation has led to a number of scholars writing on the hydro-politics of the basins. In this thesis such articles/or papers has been analyzed and the finding do concur with this descriptions.[341]

The 1997 UN Watercourses Convention on regulation use of waters of an international rivercall upon the basin States to cooperate and participate on equal footing in the construction and maintenance of the regulatory mechanism as had been earlier agreed.[342]

Wolf therefore, concludes that water can accelerate dialogue and promote cooperation, even between especially contentions basin States. In the map of International/or trans-boundary waters[343] developed by Wolf provides, that there are 263 rivers in the world that are transboundary waters and a number of unknown International groundwater aquifers. The catchment areas traversed by the 263 rivers cover 47 percent of the earth land surface[344] that supports 40 percent of the world's population, and holds 80 percent of fresh water[345]

[341] Supra paragraphs r 1.6 of this thesis
[342] Article 25 of the1997 UN Watercourses Convention
[343] Wolf, A.T, Yoffe, S.B and Giordano,M. "International waters: identifying basins at risk",(Water Policy **5**(1), 2003), P. 29–60

[344] Ibid
[345]McCaffrey, Stephen C. "The law of International watercourses" (Oxford University Press, 2001), P. 24

Whether water resources requires management Wolf in his article of 2003[346] reported that in order to vigorously scrutinize the history of water conflicts, scholars at Oregon State University did a three year research project and compiled a data set of all reported water related interaction between two or more States whether incidents of conflicts or cooperation, over the past 50 years and a total of 1,800 such cases that involves water resources were recorded. This research by Oregon State University does confirm the finding in this thesis that, freshwater resources are scarce, finite and requires management. In this thesis it has further been demonstrated at various chapters that, equitable userequired cooperation of Nile countries for protection of water sources, and joint planning for equitable use of the shared water resources.

The finding by Oregon State University further concluded that:

First, cooperation cases still outnumber water disputes despite the high potential for dispute posed in international basins. During the 50 years under review, 157 treaties were negotiated and signed, against only 37 a cute disputes and the only true "Water war" between nations in the history record occurred over 4,500 years ago, in the Tigris-Euphrates basin.[347]

Second, that most activities taken over the water are valid despite of fiery rhetoric of politicians which are often aimed at their own constituencies rather than the enemy. This is also true in the Nile Basin on the ongoing tension between Ethiopia and Egypt over the Ethiopia's Grand Reconnaissance dam on the Blue Nile.

[346]Wolf, AronT., S.B. Yoffe, and M. Giordan, "International waters: identifying basins at risk". (Water Policy **5**(1):. 2003), P.29–60

[347] Supra note 358

Third, the Basin States have more to cooperate with regards to water resources than to fight over. This situation cannot be taken for granted in the Nile River Basin that is unique and more challenging in that, as all the total annual Nile River flow of 84 Billion cubic metres is considered developed by two lower basin States of Egypt and Sudan following their 1959 Nile River Agreement.[348] The upper Nile basin States are just starting the development of the Nile River flows as demonstrated in this thesis in various chapters.

Fourth, Water can be both unifiers an irritant. . Therefore water can make good relations bad and bad relations worse. On the other hand equitable use can also enhance cooperation among States where strong institutions are in place. This fourth conclusion also concur with the findings in this thesis on the call for a new Nile River Basin Regime that would enable the establishment of an effective and efficient Nile River Basin Commission that would act as a forum for conflict resolution, a clearing house for planned measures and a coordinator of joint planning for both the management of the Nile River Basin Water resources and equitable use of the shared water resources.[349] The finding at Oregon University has revealed that historical record shows that international water disputes do get resolved, even among the bitter enemies. This is why in this thesis, it is being emphasized that, all the Nile Basin States should cooperate and agree to be parties to the negotiated CFA 2010 and establish the proposed Nile River Basin Commission where they will have a forum to discuss all the unresolved issues in the CFA 2010 as that of Article 14(b) that is analyzed and discussed at length in Chapter six of this thesis. The paper under review affirms this fact by stating that, the institutions created by the basin States

[348]Under the 1959 Nile River Agreement between Egypt and Sudan, the two countries allocated themselves 55.5 and 18.5 Billion cubic metres annually respectively with the balance of 10 Billion cubic metres was left for evaporation in Aswan dam; Analysed in Chapter 3 of this thesis

[349] Article 15 of the CFA 2010

have frequently proven to be resilient over time and even during times of strained relations. The example is the Mekong Committee that continued to work from 1957, exchanging information and throughout the Vietnam War. The other example is the secret "Picnic table" talks between Israel and Jordan that is being held since the failed Johnston negotiations of 1953-55, even though the two neighbours were until recently in a legal state of war. On the same vein the Indus River Commission also survived. The same is much applicable to the Nile River where all the eleven basin states continued the negotiation over the cooperative development of the basin under the Nile Basin Initiative.

Through the same research at Oregon University factors that leads to conflict in international waters were identified. These are numerated as first, long time takenbynations from the first start to impinge on each other's' water planning and when agreements are finally reached. This analogy also concurs with the finding in this thesis that calls for the speeding up the finalization of the CFA 2010 and establishment of the Basin Commission. The Oregon University research revealed that what is happening in the Nile Basin by stating that, in most cases Basin States that share a basin would like first implement water – development projects unliterary on water within their territory, in order to avoid the political intricacies of joining managing the shared resources in the Nile River Basin this trend has been there with Egypt building the Aswan dam and now Ethiopia developing the Grand Renaissance dam on the Blue Nile.

The two countries are the most powerful countries in the Nile Basin. These attitudes have resulted in prolonging the negotiations of basin agreements. For example treaties over the Indus took ten years of negotiations, the Gauges thirty years, and Jordan forty years.[350]

In light of these challenges and upon recognition that if water resources development and management are well-coordinated the Nile Basin holds significant opportunities for mutual benefits that could advance socio-economic development and regional integration, peace and stability in the basin; Nile Basin countries opted for multilateral cooperation and agreed to establish the Nile Basin Initiative (NBI) in 1999; as a transitional mechanism under a shared vision. The NBI is comprised of 3 centres, the NBI secretariat in Entebbe and the two Subsidiary action program in Kigali and in the Addis Ababa

From the time NBI was established, conversation among the Nile Basin States have been transformed more towards upstream – downstream mutuality and basin-wide development. Cooperation is accepted as the only means to sustainable management of the Nile water resources. Awareness on the Nile as a shared resource and interdependence between the ecosystems and the need for an integrated approach in order to protect the 'common goods' has been created. The NBI has grown into a strong regional organization that provides a platform for discussion and understanding of the different interests, positions and expectations of Nile countries in what concerns the utilization (current and future) of the Nile waters resources, for sharing information, joint planning and management of Nile water resources among Basin States.

[350] Wolf, Aron T. 2009, Supra note 352

NBI has built a strong comprehensive knowledge base for cooperative water use and management as well as analytic tools to understand the implications of their actions on other Basin States. Further, NBI has assisted Member States in preparing water resources investment projects worth over USD 6 billion in power, agriculture, irrigation and river basin management of which approximately $1.3 billion are at different stages of implementation by Member States as well as facilitated mobilization of both financial and technical resources for project implementation.[351]

Despite of the progress so far made, the challenges highlighted above still remain and are further compounded by emerging ones such as non-participation of one of the downstream countries, uncoordinated unilateral development in the basin and uncertainties with hydro politics. The challenges are by their very nature trans-boundary and no single country is capable to address them or manage their consequences on its own. Cooperative action is necessary to manage/mitigate the shared challenges, optimize benefits regionally in order to achieve peace, security and prosperity for all basin inhabitants.

There is need, therefore, to deepen and broaden the understanding of the Nile cooperation process more extensively in Basin States, building on the achievements thus far. This requires sustaining effective communication on the benefits of and risks of non-cooperation in ways that make sense to NBI stakeholders, to take advantage of the opportunities for win-win benefits and jointly address the shared water management challenges. It is important to expand further, the cooperation platform to include all key stakeholderssuch as private sector, civil society and other likeminded institutions and improve coordination with other the regional blocks (IGAD, EAC,

[351] John RaoNyaoro, Executive Director, NBI, "The Story of the Nile Cooperation, Results, opportunities and challenges", Nile Basin Initiative, Entebbe, Uganda, 2014) at www.nilebasin.org, accessed on 14th March,2015, P.2

AU, and COMESA) in order to improve efficiency and avoid duplication. NBI provides the platform for this, and brings together all the ten Member States to dialogue on their different interests, share information and jointly plan for the development of the Nile water resources. This will not only enhance political commitment to the cooperation but will also promote regional integration, peace and stability between the Member States. This calls for renewed commitment to the cooperation process from Member States, Nile Basin citizens and international community.

5.5 Facts Versus Perceptions in Transboundary Water use and management

The comparison of perceptions and facts in this thesis is intended to build confidence and trust among the Basin States. The tension, mistrust and conflicts that are today seen in the transboundary water basins are as a result of perceptions. In this respect a number of case studies by Don Blackmore in 2003[352] has been analysed in this thesis and presented as follows:

5.5.1 The Murray-Darling River in Australia

The Murray-Darling River Basin is today considered as one of the best managed river basin in the world. It is only comparable to the Tenancy Valley of United States of America where States cooperation, joint management and planning of projects have shown a success story of best practices in managing trans-boundary waters.

[352]Don Blackmore, "Counting the Benefits of the Nile River Basin Cooperation", (Nile Basin Initiative, Secretariat Publication, Entebbe, Uganda, 2014), P. 6

The driving philosophy in the Murray-darling River basin is that “you cannot manage what you cannot measure and describe. “Simply put, you can only manage what you understand and know. We must therefore move from perception to facts based on science. Science in this thesis has been considered to inform both the national and regional policies and this is a fact we cannot run away from. Sufficient information and certainty enables the hard questions and tradeoffs to be tackled.

The Murray-Darling River basin provides 70% of the Australia’s irrigated agriculture. This resulted into serious over allocation of water resources between 1960s and 1980s. These facts puts the Australia’s top three water issues as diminishing water security due to the effects of climate change that frequently results into drought, over allocation of water resources due to rapid and poorly managed expansion of irrigation (between 1960s -1980s) and uncontrolled ground water exploitation and environmental degradation that may result into high salinity, toxic algal blooms and decline in native fish, birds and flood plain vegetation.

Due to these revealing facts Australia has put in place good policies informed by science (research findings) and effective institution to regulate the use and development of water resources and to apply the principle of conjunctive water use. As a result many river basins in Australia have been turned around and today are considered as some of the best managed river basins in the world.

5.5.2 The Tigris -Euphrates

The Tigris- Euphrates Rivers basin is shared by Turkey, Syria and Iraq. The bulk of the salinity water emanates from Turkey hence Turkey believes that they should control the use of the basin's water resources. In July 1992, the then Turkey Prime Minister Suleyman Demirel stated that "we do not say that we share Iraq's oil resources. Likewise they cannot say they share our water resources. We therefore, have the right to do anything we like with our water resources" This statement simply means that Turkey's Prime Minister was introducing the principle of absolute State sovereignty (also known as Harmon Doctrine). A principle that has been analysed in this this thesis in various paragraphs and concluded that, this principle was buried and is not a part of the international customary law. This statement of the Prime Minister of Turkey therefore, is more of a perception than fact. Today under the internal water law, Nile countries have a right to 1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively1966 and 1997 Helsinki Rules, and the UN-Watercourses Convention respectively of the shared water resources within their territory with a duty not course significant harm to other basin States in the cause of such uses. In the theoretical analyses of this thesis[353] of this study it has been concluded that State sovereignty must bow before the principle of equitable use of the shared water resources.

The key issue on the development and management of the Tigris-Euphrates River Basin is the issue of salinity that rose from 1,080 ppm in 1980 to 4,500 ppm in the year 2000.[354]

[353] Paragraph 1.2 above
[354] Don Blackmore 2013 paper under review in this thesis, Supra note 364

The perception here is that Iraq must solve its own water salinity problem without help from the neighbours. Iraq being the most downstream State of the Basin is subjected to salt water intrusion from the sea as the river flows that is supposed to push the salt water buck into the sea is often reduced hence the increase of salt water intrusion into Iraq's farm land.

The fact here is that salinity problem can only be managed with the help of all the other basin states and does not need water trade off. This reason therefore call for cooperation among the basin states, regulation of the utilization of the basin's shared water resources and joint planning in the development of the equitable use by Nile countries.

5.5.3 The Indus River Basin

The Indus River Basin is shared between Pakistan and India. The Basin is governed by the 1960 Agreement between the Pakistan and India. The key issue in the basin is the massive dam development and non-use of conjunctive waters (both surface and groundwater as it may be appropriate).

The perceptions here are;

i. You only need to manage the surface water.
ii. More surface water storage will result into more water yield.
iii. Climate change is a long way off

The facts are that;

a. Groundwater dominates production and is threatened by lack of management (1-3% reduction in annual availability)
b. The next major dam costing USD 12 Billion will yield less than 1.5% increase in regulated flow.
c. Western end of the Himalayas is likely to see a 30% reduction in flows in the next 30 years.

The facts presented here is a clear testimony that the choice of dam sites is key in reducing water loses and harvesting more regulated river flows. In the case of the Nile River basin, the choice of Aswan Dam with high evaporation loses was not the best. This call for bold decisions in the choice of new dam sites in the Nile River basin with less evaporation loses and more regulated river flows.

5.5.4 The Ganges River Basin

The Ganges River Basin is shared between India and Bangladesh. The first key issue is that the basin has a highly variable hydrology (base flows and flood flows). The second issue is that it is very difficult to control the river flows due to the uneven basin terrain (step valleys in the upstream and flat basin in lower reaches).

This often result into floods during the heavy rainy seasons followed by drought as there are no retention basins to allow gradual basin flow or steady ground to river recharge that sustains the base flows. All the annual river flows totaling 500 billion cubic metres are today all developed.

The perceptions here therefore are:

i. Major dams will deliver multiple benefits, including the control of Gauges floods,
ii. More surface water for irrigation is good,

iii. Climate change will have a catastrophic impact.

The facts are that:

a. The next 20+ major dams will have little impact on mainstream Gauges floods.
b. Surface water irrigation is of low value in the Ganges and hence should be supplemented with groundwater
c. Conjunctive water use has huge opportunities and can be delivered now.
d. Though climate change is real more research to the actual far reaching effects is yet to be unearthed as global circulation models have not agreed on the outcome of climate change.

These perception and facts therefore calls for the development of new basin regimes (principles, norms, rules) and establishment of basin commission (institution) to develop and implement basin policies that are informed by science (research findings and facts).

5.5.5 The Mekong River Basin

The Mekong River Basin is shared by China (not a part to the 1995 Mekong River Basin Agreement), Myanmar, Thailand, Laos and Vietnam as lower most Basin State.

Mekong River Basin today has hundreds of operational dams and tens are under construction.

The Key issues in the basin are:

i. The decrease in reverse flow volume to the Tangle Sap Lake in Cambodia,
ii. A reduction in sediment inflow into the Lake
iii. Blockage of fish migration paths by mainstream dams
iv. How to develop the North East of Thailand and maintain community support

v. In Vietnam is how to protect the Delta against salt water intrusion as a result of Mekong low flows

The perceptions are:

a. Hydro-electric dams in China will have a negative effect on lower riparian.
b. There is little space for development without significant environmental tradeoff.

The facts are that:

China dams deliver much increased low flows and mitigate salinity intrusion in the delta. The dams also provide scope increase irrigation diversion with little impact on fisheries.

There is significant scope in energy and irrigation development provided they meet international standards.

5.6 Other Regional International Water Agreement and Best Practices to be "Replicated by African States in the Event of Developing New or Reviewing the Existing International Waters Agreements"

5.6.1 1992Helsinki Convention on Trans-boundary Watercourses

The 1992 Helsinki Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (Helsinki, 1992) also referred as 1992 UN ECE Helsinki Water

Convention.[355]This is UN convention that was fully supported by the countries with a fully fledged secretariat.

In July 1997 the parties further adopted the Helsinki declaration compelling them to the full implementation and further development of the Convention.[356] In the declaration, the parties pledged the commitment to the implementation of the Convention that will be guided by the principle of good-neighbourliness, reciprocity, non-discrimination and good faith. The parties further agreed to apply, as appropriate, the principles of the Convention when drawing up, revising, implementing and enforcing their national laws and regulations on water. This Convention, therefore though a regional one has hedge over the global 1997 Watercourses Convention at least in the commitments the parties have in its implementation and adoption in their national laws and further its being in force and hence binding on parties.

This balancing of existing uses and potential uses is anticipated in the new Nile River Basin Regime with the supportof NB DSS to analyse all the use and development of the shared Nile River flows to ensure economic viability and environmental protection

[355] The "Convention was adopted on 17 March 1992 and signed the next day by twenty-five countries" and the European Community in Helsinki, (entered into force on 6 October 1996, ninety days after it was ratified by sixteen countries), [hereafter, 1992 UN ECE Helsinki Water Convention].

[356] This has seen the adoption of the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Trans-boundary watercourses and International Lakes (17 June, 1999, London), and a further 2000 Water Framework directive.

5.6.2 African Convention on the Conservation of Nature and Natural Resources 1968 (Revised 2003)

The African Convention on the Conservation of Nature and Natural Resources is a continent-wide agreement signed in 1968 and has since been revised with the last revision having been signed in Maputo in 2003.

This African Convention supersedes the *Convention Relative to the Preservation of Fauna and Flora in the Natural State* (also known as the London Convention of 1933) which was an early agreement among colonial powers for the conservation of nature.

The Convention was revised in 2003. With Article VII section 3 calling upon the States that shares the water resources to consult each other in the use of such water and establish a basin commission to act as a clearing house and a conflict resolution forum.

5.6.3 Customary International Law and the Contribution of the Learned Society

A custom is a clear and continuous habit of doing certain actions, which has grown up under the aegis of the conviction that these actions are, according to international law, obligatory or right. Customs should therefore be distinguished from usage which is a habit of doing certain actions that has grown up without there being the conviction that these actions are, according to international law, obligatory or right. Some conduct of States concerning their international relations may therefore be usual without being the outcome of customary international law. In the *Asylum* between Columbia and Peru the International Court of Justice, relied on Article 38 of

its Statute that defines customs hence the parties that wants to rely on customs must prove that such customs are binding on the other parties.

In the North Sea Continental Shelf cases the ICJ, in considering whether the state practice since the conclusion on the Geneva Convention on the Continental Shelf had been such as to lead to the creation of a new rule of customary international law on the basis of what was originally a purely conventional rule, stressed that in order for state practice to constitute the necessary *opiniojuris* two conditions had to be fulfilled:

'Not only must the acts concerned amount to a settled practice, but they must also be such, or be carried out in such away, as to evidence that this practice is rendered obligatory by the rule of law requiring it. The need for such a belief, that is, the existence of a subjective element, is implicit in the very notion of the *opinion jurissive necessitatis* .The States concerned must therefore feel that they are conforming to what amount to legal obligation. The frequency or even habitual character of acts is not in itself enough. There are many international acts, for example, in the field of ceremonial and protocol, which are performed almost invariably, but which are motivated only by considerations of courtesy, convenience or tradition, and not by act sense of legal duty.'

Custom in itself, is a matter of general rather than universal consent, so that a dissenting state cannot free itself by an act of will from the obligations imposed on it by a rule of customary law; and even with treaties, where the will of the contracting states is normally paramount (even in

derogation from otherwise applicable rules of customary international law, states are not free to ignore the prescriptions of *jus cogens*.

The most relied upon sources of evidence of customary international law is the work of recognised experts. These individuals or groups conduct empirical studies on the basis by which they form conclusions and make recommendations regarding the codification and progressive development of customary norms. Three international organisations of high repute have prepared sets of draft rules in this field, rules, which to a large extent are based on state practice. While they are not conclusive evidence of norms of customary international law, the drafts are highly authoritative as seen in the discussion below.

The Intitut de Droit International (Institute of International Law or IIL) is a non-official body established in 1873 and composed of some 120 elected members. It adopts resolutions, which purport to state existing rules of international law and sometimes proposes such rules. Such work has been relied upon on a number of occasions by international tribunals and by states in diplomatic exchanges. The institute has adopted three resolutions concerning shared water resources. These are the 1911 Madrid International Regulations regarding the use of International Watercourses,[357] the 1961 Salzburg Resolution on the Use of International Non-Maritime waters[358] and the 1979 Athens resolution on the Pollution of Rivers and Lakes and International Law.[359]

[357]*Annuaire de l'Insttut de DroitInternational*, Vol. 24, Madrid Session, (Paris, 1911)
[358]Annuairre de l'Institut de Droit*International*, Vol. 49-II, Salzburg Session, (Basel, 1961)
[359]Annuairre de l'Institut de Droit*International*, Vol. 58-II, Athens Session, September 1979 (Basel/Munich, 1980), at 19.7

The 1961 resolution of the IIL declares that a state's right to make use of equitable use "is limited by the right of use by the states concerned with the same river or watershed."[360] This then provides that any dispute as to the extent of the respective states' rights "shall be settled on the basis of equity, taking into consideration the respective needs of the States, as well as any other circumstances relevant to any particular case."[361] The Resolution that rejects the "Harmon Doctrine" of the absolute territorial sovereignty, [362] implicitly recognised the equality of rights, and affirms the principle that any conflict of uses is to be resolved in an equitable manner. The resolution goes on to provide for an advance notice of new uses and negotiations in the event of objections to such uses.

The IIL's 1979 Resolution provides that states must "ensure" that, activities within their borders "cause no pollution in the waters of international rivers and lakes beyond their boundaries."[363] This obligation is, however, moderated in a subsequent article, which provides that it may be fulfilled by preventing new forms of pollution and increases in existing levels of pollution, and by abating existing pollution as soon as practicable.[364] The resolution also contains detailed provisions concerning forms of cooperation between states sharing the same basin, such as exchange of data concerning pollution, prior notification of potential pollution activities, consultation concerning pollution problems, and the establishment of international commissions competent to deal with basin wide pollution problems.[365]

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[360] Article II of Salzburg 1961 Resolution
[361] Ibid, art. III
[362] McCaffrey, Stephen C. "The Harmon doctrine One year Later: Buried, Not Praised", 36 N.R.J. 965 (1996), P. 227-238
[363] 1979 Resolution, art.II.
[364] Ibid, art. III
[365] Ibid, art. VII

The two resolution of the Institute demonstrate that a select body of international legal authorities of high repute support a flexible approach to international water problems, emphasising the need for regular communication and the establishment of mechanisms within which experts from the countries concerned can work together to anticipate and solve problems on the technical level.

As the Intuit de Droid, the International Law Association (ILA) was also founded in 1873. The Association has a much larger member, numbering thousand. The ILA also adopts resolutions setting forth rules and recommendations concerning international law. Among its best-known products is the set of articles adopted in 1966, known as the Helsinki Rules on the Uses of the Waters of the international Rivers.[366] According to the Helsinki rules and the subsequent work of the ILA, the basic governing principle in the field of the international water resources is the equitable utilisation or apportionment.[367] Article IV of the Helsinki Rules provides that States are entitled "to reasonable and equitable share in the beneficial uses of the waters of an international drainage basin." According to Article V (1), "What is equitable share within the meaning of Article IV is to be determined in the light of all the relevant factors in each particular case

From the list of factors of equity it is evident that the determination and maintenance of a regime of equitable use is a complex process. It is also a continuing process, in view of the inevitable changes in the elements that affect a watercourse, including both those that are due to human activities (e.g. new uses and changes in existing uses).

[366]International Law Association, *Report of the fifty second Conference,* Helsinki, 1966.
[367] The commentary to the ILA's Montreal Rules on Water Pollution in an International Drainage Basin, adopted in 1982, states "the principle of equitable use is the foundation on which the Helsinki rules are built." International Association, *Report of the Sixtieth Conference, Montreal, 1982, P. 535-536.`*

In itself, the Helsinki Rules do not have a separate article on the question of the permissibility of activities in one State that result in harm in or to another state through an international watercourse inform of pollution harm or harm due to diminution of water supply. Instead harm or "substantial injury" as per the language used in Helsinki Rules is one of the important factors to be taken into consideration in determining whether the first state's use is equitable. It is therefore worth emphasising that the possibility of "substantial injury" to another state is to be considered in the context of determining whether the needs of a basin state may be satisfied without causing such injury.[368]

Thus while the activities of states in relation to an international watercourse are to be governed generally by the principle of equitable use under the Helsinki Rules, existing uses are treated with great care and accorded significant protection. It would therefore be incorrect to characterize the Helsinki rules as giving blanket approval to new uses, regardless of their effects upon existing uses, under the doctrine of equitable use. Instead a careful analysis would be necessary to determine the proper relationship between the existing use and the proposed new use.

The other group of experts whose work in this field should be mentioned is the International Law Commission of the United Nations (ILC). This body is composed of 34 experts on international law, from as many countries, who are elected by the United Nation General Assembly and serves

[368] National courts in federal systems have noted that a state is denied the possibility of initiating a new use because of an existing use in another state may also be regarded as being "harmed". In the case of the US Supreme Court, in enumerating factors to be considered in arriving at an equitable apportionment as between two US states, identified as a relevant factor, "the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former". Nebraska v. Wyoming, 325 U.S. 589 (1945)

in their individual capacities, not as representative of governments. The ILC, like the two organisations previously discussed, prepares drafts setting forth existing and proposed rules of international law.[369] The works of the ILC are therefore approved by the United Nations General Assembly.

On the law of the Non-Navigational Uses of International Watercourses, the ILC completed the "second reading", or final adoption, of a set of 33 draft articles, at its 1994 session. The Commission prepared the final draft that was based on comments and observations of governments on the first reading of the draft articles of 1991 version. The main "general principles" contained in the draft as finally adopted are, (i) equitable use (article 5), (ii) the obligation to prevention harm to other riparian states (article 7), (iii) and the obligation to exchange hydrologic and other relevant data and information on a regular basis (article 9). Part III of the ILC's draft articles contains a variety of additional provisions, including a detailed set of procedures concerning new uses of international watercourses,[370]and articles on protection of ecosystems and water quality,[371] protection of installation,[372] and equal access to judicial and administrative procedures.[373]

[369] Article 1(1) of the ILC's Statute, provides that, the object of the Commission is the "promotion of the progressive development of international law and its codification." U.N. Doc. A/CN.4/4/Rev.2, (1982), P. 1.
[370] Part III
[371] Part IV
[372] Article 26
[373] Article 32

5.7 The key lessons learned are:

i. That in addition to the negotiated Nile River Basin Agreement there is need to have an addendum outside the agreements like in the Niger River Basin Charter or the proposed new Nile River Basin Regime in this thesis with political goodwill of Nile countriesand cooperation.

ii. Joint planning by Nile countries is key and central to the peaceful use and development of the shared water resources

iii. Harmonized national water policies of the basin states is a prerequisite to the sustainable development of the basin's shared water resources

iv. That the key principles of international water law today is the principle of equitable use of the basin's shared water resources and the precautionary principle of prevention of harm. In the balance of the two principles it should be understood that the principle of equitable use of the basin shared water resources is superior to that of causing significant harm as causing significant harm is more about compensation after the principle of equitable use has been applied. This position was upheld in the 1997 ICJ Danube case between Hungary and Slovakia and reading both the 1966 Helsinki Rules and the 1997 UN Watercourses Convention also bring out this superiority of the principle of equitable over causing no significant harm.

v. The principle of cooperation is an enabler principle in realizing the balance of the two principles above hen cooperation is not a choice but a must in the management and development of the basin shared water resources.

vi. The balancing of existing use and potential use of the basin shared water resources should therefore be based on the two principles in the context of their superiority and bring in Science to inform on the benefits and effects of each use. In the Nile River basin it has been demonstrated in this thesis that the use of analytical tool as the Nile Basin Decision Support System that gives scenarios on how best the new projects should be designed and implemented and coexist with the existing use to ensure more benefits to Nile countries and minimal or no harm to other basin States.

vii. It is the two sets balances that is the legal balances and use of an analytical tools presented here in this thesis that would ensure the realization of the water security of the Nile basin States through cooperation.

5.8 Ensuring Availability of the Shared Water Resources

Water needed by humanity is renewed by freshwater and related ecosystems. With increasing frequency, the sources of freshwater and its renewal havebeen degraded resulting in toe reduced quantity and quality hence can no longer support and serve the diversity of life and life-giving functions as they have always done. This has been made worse due to uneven distribution of andcontrol over scares waters by few people and few basin States is by use power rather than reasoning or accepted prevailing laws.

The Framework for Action suggested in this thesis will build on positive initiatives,and propose three conceptual frameworks namely sustainable development, joint planning, management and Integrated Water Resources Management (IWRM).

5.8.1 Integrated Water Resources Management (IWRM)

The concept of IWRM, with its roots in the Dublin Principles and given emphasis during Rio de Janeiro Conference of 1992 has been defined "as a holistic, cross-sectoral process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant socio-economic development in an equitable manner without compromising the sustainability of vital ecosystem". The implementation of the IWRM therefore, ensures sustainable water resources development and management, participation of stakeholders, joint planning hence cooperation of the basin States, and establishing an effective and efficient basin institution that shall act as a forum for cooperation, clearing house for new projects or planned measures, conflict resolution, benefit sharing, platform for development and resource mobilization is further assures and accessibility of the basin water resources by all.

Water needed by humanity is renewed by freshwater and related ecosystems. With increasing frequency, the sources of freshwater and its renewal have been degraded that resulting into reduced quantity and quality.. This is made worse due to uneven allocation that is controlled by few people and few basin States is by use of power rather than reasoning or accepted prevailing laws.

Against this bleak picture some positive development is being witnessed through cooperation, joint management and planning for development of the shared water resources togetherThe Framework for Action suggested in this thesis will build on positive initiatives, and propose three conceptual frameworks namely sustainable development, joint planning, management and

Integrated Water Resources Management (IWRM).

5.9 Dispute Settlement Mechanisms

The development and management of common or shared water resources have enormous challenges that requires effective legal and institutional framework that is acceptable and supported by the basin States in order to have a conducive atmosphere for achieving the water security of the basin States. Therefore, the utilization of water of a basin as Nile can be very complex. This so because the Nile Basin States today are at varying stages of development, different economic status of which some are among the poorest and least developed countries in the world while others are listed as developing countries and capable of becoming middle class countries by 2030.[374]Each Nile basin States therefore, has its own varied and competing sets of interest as the case of the Ethiopia Grand Renaissance Dam with a capacity of 75 BMC on the Blue Nile upstream of Egyptian Aswan dam with a capacity of over 100 BCM. Because of these competing developments the three Nile basin States of Ethiopia, Sudan and Egypt had to sign a tripartite agreement on the principles of development, filling of the dam and its operation when completed.[375]Such coordination requires cooperation. Today the development and management of shared water resources as in the Nile River basin requires cooperation of Nile countries.[376]Shared or trans-boundary water resources management cuts acrossvarious sectors

[374] Kenya vision 2030, (Kenya Government Printer, Publication, 2004), P. 8
[375] Ethiopia, Sudan and Egypt, EGRD agreement on the Declarations of Principle(Nile basin Initiative, Secretariat, Entebbe, Uganda, 2015)
[376] Article 25 of the 1997 UN Watercourses Convention entered in to force on 18th August 2014.

and disciplines, including national and international water laws. In addition these includeecosystem protection, food and energy security, peace and political stability, human rights, international relations, and regional development and integration. In the absence of cooperation and dialogue there will be no joint planning in the development of the common water resources hence the basin States would resort to unilateral development that is recipe for conflict.[377]

Whereas negotiation towards settlement of any disputes between any two or more States seems to be the recommended mode of resolution, most international instruments recommend dispute resolution through Arbitration. The CFA however contemplates resolution through mediation, the International Court of Justice amongst others.

5.10 Conclusion

Water issues must be placed within the existing paradigm of human security. In the past few decades, definitions of security broadened to encompass a wide range of threats to security, with a particular focus on human security and its achievement through development. Water is best placed within this broader definition of security and acts as a central link across the range of securities, including political, health, economic, personal, food, energy, and environmental, among others.

Many factors contribute to water security and range from biophysical to infrastructural, legal and institutional, political, social and financial – many of which lie outside the water realm. Water security, therefore, lies at the center of many security areas, each of which is intricately linked to

[377] Wolf, Aaron T, "Along Time View of Water and International Security" (Oregon State University, 2007), P.69

water. Addressing water security, therefore, requires interdisciplinary collaboration across sectors, communities and political borders, so that the potential for competition or conflicts over water resources, between sectors and between water users or States, is adequately managed.

Over the years, theNilehasbeenthe source of livelihood and economic backbone ofEgyptandeventodayEgyptianleadersinvoke threatsof military nature if its access to the Nile is in any way diminished. Egypt being a downstreamnationisinavulnerableposition, this disadvantage is however compensated with a strongmilitaryandbigger economy and its strategic position and a game changer in the Middle East thanother basin States. This Scenario is changing very fast as Ethiopia today is developing the Nile water resources with its own resources and ready to discuss its development agenda on the Nile with any basin State. This Scenario is comparable to the male hippo calf that is hidden away from the father as it grows and from time to time do fits its foot into the footsteps of its father. Should it one day finds that its footsteps fits that of the father that is that day it will the family and the same things the father had been doing (read building Grand Renaissance Dam that matches the High Aswan Dam).

In the past, tensions were muted by several factors: Egypt's military dominance, civil wars in Sudan and Ethiopia and the negligible use of water by upstream basin States. But recently tensions have surfaced, as most basinStates have openly defied the *status quo*, which favours Egypt.

The conservation of water and the control of rivers for irrigation and hydroelectric power are of increasing importance in the world today and particularly in the Nile basin States.

CHAPTER SIX

6. ARTICLE 14(B) OF THE CFA 2010 AND THE WATER SECURITY OF THE NILE RIVER BASIN STATES

6.1 Introduction

Water security is a challenge faced within many trans-boundary rivers. Therefore, identifying the resilient factors within a system may reduce water security concerns and enhance cooperation.[378]In this thesis cooperation of the basin States has been described as key and mandatory in the conservation of the water sources to ensure availability of water resources, joint planning and giving information on planned measures to ensure accessibility of water resources without much conflict.

The negotiated CFA 2010 defines "Water security" "as the right of all Nile Basin States to reliable accessto and use of the Nile River system for health, agriculture, livelihoods,production and environment".

After over twelve years of negotiations of the CFA2010 by the nine Nile Basin States namely Tanzania, Burundi, , Ethiopia, Kenya, Democratic Republic of Congo,Rwanda, Sudan, , and Uganda the CFA 2010 was opened for signature on 14th May, 2010 at the NBI Secretariat in Entebbe, Uganda for one year. At the expiry of the one year, six basin States namely Burundi,

[378] Perlman, Petersen, Veilleux, J. D., Zentner, J. C., and Wolf, Aron. T. Case Studies on Water Security: Analysis of System Complexity and the Role of Institutions. (Journal of Contemporary Water Research & Education, 149: , 2012), P. 4-12

Ethiopia, Kenya, Rwanda, Tanzania, and Uganda had signed with Egypt and Sudan refusing to sign the negotiated agreement stating that their water security has not been taken care of as Article 14(b) of the negotiated CFA that provides for the water security of the basin States has not been resolved hence the negotiated CFA 2010 could not be signed, ratified and entered into force. While the other six countries that have signed the CFA 2010 maintained that the negotiation of the CFA 2010 was concluded and Article 14(b) on the water security that remained unresolved from 2007 to 2010 after nearly all the 49 Articles of the negotiated CFA 2010 were long agreed upon be annexed and resolved later by the Nile River Basin Commission within six month after its establishment.[379]

6.2 Article 14(b) on the Water Security

In this thesis it has been demonstrated at various paragraphs that the ratification of this Cooperative framework by all the Nile Basin States can only be realized if the unresolved article 14(b) is resolved. This thesis has gone ahead and filled this gap by providing the way forward how this article can be resolved. Article 14(b) touches on the hydro-politics vulnerability and resilience of the Nile River basin."Hydro-political resilience," has been defined "as the complex human-environmental system's ability to adapt to permutations and change within these systems," while "hydro-political vulnerability" is defined "by the risk of political dispute over shared water systems".[380] Wolf, Aron T. in his paper under review in this thesisfurther suggested the following relationship between change, institutions, and hydro-political vulnerability: "Conflict is likely to occur if the institution cannot contain the changes."

[379] Articles 14 and 15 of the CFA, 2010 analysed in chapter 4 of this thesis
[380]Wolf, Aron T., Yoffe, S.B. and. Giordano M.. "International waters: identifying basins at risk". (Water Policy **5**(1):, 2003),P. 29–60

The concepts of "resilience" and "vulnerability" with regards to common waters and "sustainability" and relate to the ability of ecosystem to adapt to change.[381]

In the CFA 2010, article 14(b) is viewedby Egypt and Sudan as bringing change in the use of the Nile River flows hence the resistance to such change.

Article 14bof the CFA2010 on the water security states that:

" not to significantly affect the water security of any other Nile Basin state".

In effect, all theNile Basin States except Egypt and Sudan agreed to entire Article 14 including Article 14(b) that is on the balancing of the existing water use and potential water uses. Egypt and Sudan, however, wants Article 14(b) to be replaced with the following phrase:

"*Not to adversely affect the water security and current uses and rights of any other Nile Basin States****"***

The position of Egypt and Sudan was rejectedby seven Nile countriesincluding Democratic Republic of Congo which is yet to sign the negotiated CFA 2010 as it is seen to entrench rights which were provided by the historical colonial agreements.[382] The other seven

[381]Gunderson, L.H. and Pritchard, L. "Resilience and the behavior of large-scale systems". (Washington , DC : Island Press. 2002).
[382] The 1929 and 1959 Nile River Agreements, analysed in chapter 3 of this thesis

riparian states have stated categorically that they are not party to these existing agreementsthat allowsnone equitable use of water

The current uses and rights being advance by Egypt and Sudan not equitable and are not based on best practices. The remaining 13% of the Nile River flows forms the water reserves meant for environmental concerns (river maintenance flows), evaporation and channel loses.

Article 14(b) on the water security is therefore,nothing but about the balancing of the existing uses and potential uses as this article is seen to bring change in the use of the Nile River flows. This article 14(b) brings on board the principles of equitable useof the Nile waters by its countrieswhile in the past the historical agreements only provided for the allocation of the Nile River flows to only Egypt and Sudan. It also provides for the use of precautionary principle of prevention of harm.

6.3 Balancing of the Existing Uses and the Potential future Uses

In addition to the geography, the hydrology and climate of the basin, the non-exhaustive list of factors of equitable utilisation provided by the 1966 Helsinki Rules Article V (2) and article 6 of the 1997 UN watercourses Convention includes:

i) "the past utilisation of the waters of the basin, including in particular existing utilization";
ii) "the economic and social needs of each basin States";

iii) “the comparative costs of alternative means of satisfying the economic and social needs of each basin Sates”;

iv) “the availability of other resources”;

v) “the avoidance of an necessary waste in the utilization of water of the basin”;

vi) “the predictability of compensation to one or more of the co-basin Sates as a means of adjusting conflict among uses”; and

vii) “the degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State;…”.

From the above list it is evident that the determination and maintenance of a regime of equitable use is a complex process. It is also a continuing process, in view of the inevitable changes in the elements that affect a watercourse, including both those that are due to human activities (e.g. new uses and changes in existing uses).

In itself, the Helsinki Rules do not have a separate article on the question of the permissibility of activities in one State that result in harm in or to another State through an international watercourse inform of pollution harm or harm due to diminution of water supply. Instead harm or "substantial injury" as per the language used in Helsinki Rules is one of the important factors to be taken into consideration in determining whether the first state's use is equitable. It is therefore worth emphasising that the possibility of "substantial injury" to another State is to be considered in the context of determining whether the needs of a basin State may be satisfied

without causing such injury.[383] The explanation of the functioning of the equitable use analysis is therefore provided by the commentary to Article V as follows:

On other existing uses, paragraph 1, of article VIII of the Helsinki Rules provides as follows:

> 1. An existing reasonable use may continue in operation unless the factors leading to the conclusion that it be modified or terminated so as to accommodate a competing incompatible use.

The commentary to Article VIII explains that the two extreme views concerning existing uses are, (1) that they enjoy nearly absolute protection, and (2) that they are entitled to no weight at all in determining what an equitable use is.

Thus while the activities of states in relation to an international watercourse are to be governed generally by the principle of equitable use under the Helsinki Rules, existing uses are treated with great care and accorded significant protection. It would therefore be incorrect to characterize the Helsinki rules as giving blanket approval to new uses, regardless of their effects upon existing uses, under the doctrine of equitable use. Instead a careful analysis would be necessary to determine the proper relationship between the existing use and the proposed new use.

[383] National courts in federal systems have noted that a state is denied the possibility of initiating a new use because of an existing use in another state may also be regarded as being "harmed". In the case of the US Supreme Court, in enumerating factors to be considered in arriving at an equitable apportionment as between two US states, identified as a relevant factor, "the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former". Nebraska v. Wyoming, 325 U.S. 589 (1945)

As analyzed in section 1.2 above, and in the literature review the sustainable and peaceful management of the shared water resources must ensure peaceful coexistence through equitable use of shared waters.

It has been demonstrated that water resources requires management in order to realize their sustainability.[384] The basic and minimum water resources management that must be performed to ensure sustainability of the water resources includes;

i. The water resource monitoring to know the quantity and quality of the water resources

ii. Catchment conservation and rehabilitation

iii. Pollution control

iv. Regulations of the water resources use

These tasks require installation of regular gauging stations either manual or automatic or telemetric systems and hence requires trained manpower, tools and equipment and financial resources

The equitable accessibility of the common waters requires coordination in order to regulate its use.Regulations require rules based on good principles and norms. Such rules, norms and principles are better provided in a freely negotiated agreement by the basin states. Though an agreement is *Pucta Sunda Savanda* (binding on the party States to the agreement) a number of basin agreements especially in Africa are not implemented as basin states do not see the direct benefit they are getting from such agreements hence do not take them seriously. Developing a basin regime outside such agreements will supplement agreements with emphasis to

[384] Kenya National Water Master Plan, 2030, Final Report, (Ministry of Water and Irrigation, April, 2013), P. 48-52

development projects at national level and joint regional projects by the basin states that will add benefits to the basin states; ensure equitable allocation of basin water resources. In the Niger River basin, the Niger Charter together with the Niger action plan developed outside the Niger River Basin Convention of 1964 today acts as the Niger River regime.[385]

The Senegal River Basin under the OMVS is another success story where joint regional projects under the development plan outside the Agreement similar to the proposed new Nile River Basin Regime has helped the basin states to cooperate and implement joint projects in the Senegal basin.

In both Niger Basin and the Senegal River basin, the Charter, the action plan and the shared vision are anchored on the principles of equitable use of the basin water resources and causing no significant harm. Key factors of equity to be considered are the existing use and potential use. Article 4 of the Nile River Basin Cooperative Framework Agreement 2010 provides the factors of equitable use of the basin water resources to be considered. In addition article 5 of the same CFA 2010 provides for causing no significant harm.

It is therefore, the development of the basin regime that balances the existing water uses and the potential future uses that will ensure equitable water use and assurance of their water security.

With the accepted agreement as the basin negotiated CFA (constitution) in place, and the basin regimes with additional rules, norms and principles and joined planned projects to be developed and agreed upon upfront by Nile countries in addition to having a forum for conflict resolution in

[385] The Niamey Act on Navigation and Economic Cooperation of 26 October 1963 on the Niger Basin..

the form of a Basin Commission or Authority in place the basin states will have no alternative but agree to cooperate as they will see clearly the benefits they will get in a such a cooperation.

6.4 Use of Science to Inform Policy on the Use of Shared Nile Basin Water Recourses: Applications of the Nile Basin Decision Support System (NB DSS)

Nile Basin Initiative (NBI) as stated above is a partnership initiated and led by the Nile Basin States with the goal of developing the Nile River Basin water resources in a cooperative manner in order to ensure thatthe basin's water resources are developed in an equitable manner and the transboundary benefits that accrues arewith all the Nile countries.

To this effect, NBI has built a strong comprehensive knowledge base for cooperative water use and management as well as analytic tools to understand the implications of their actions on other Nile basin States.[386] Such analytical tools include NB DSS.

"The Nile Basin DSS has been developed for several years to support equitable water development, planning and investments in order to bring harmony and peace in the basin"[387]

NB DSS has a capability of analysis both the current Nile River Basin water resources uses and potential water resources uses and can balance the two uses and inform the basin States on the best Scenario with more befits and less effects on other basin States.[388]To this effect it gives scenarios of the different options and their benefits and effects. This is the key reason why the

[386]Seid, Ahmed H. and Jonkar, V. "Application of the Nile Basin Decision Support System (NB DSS)", (Nile Basin Initiative Secretariat, Entebbe, Uganda, 2013), P.3-4
[387]Ibid
[388] Ibid

DSS has been considered as an important tool in the equitable use of Nile waters and offer solutions to the balancing of the existing uses and potential water uses. This tool is therefore a breakthrough in contributing to the solution of article 14(b) of the CFA 2010 on the water security of the Nile River basin.

As analysed and presented above that, the water security of the basin States is about the availability, accessibility of the Nile River flows and managing any conflict that might arise in the use of the Nile waters. On recognizing the need for scientific information and objective analysis tools, the NBI on behalf of the Nile countries developed NB-DSS as a shared analytic and knowledge system. The NB-DSS has therefore been envisioned to serve both at policy strategy as well as planning and management level.

NB-DSS has been categorized to be useful at various levels.[389] At policy levels the DSS shall provide the necessary shared knowledge base that shall help in joint identification of development strategies and investments to be rolled out. At planning and management level, the DSS shall provide the necessary data, models and tools for evaluation of impacts and benefits from alternative water resources development and management plans. It shall support tradeoff analysis and identification of win-win opportunities for the basin states. Since the development of the DSS was based on conceptual design, it was pursued through three work packages that focused on the development of the system, independent testing and quality assurance. In addition extensive training has been mounted to over 200 professionals in the Nile Basin States who took part in the design, testing and application of the DSS to problem cases in the Nile River

[389] Nile Basin Strategic plan 2012-2016, (Nile basin Initiative Secretariat, Entebbe, Uganda2012) , P. 7-9

basin.[390]It is therefore clear that the use of the DSS is the Nile River Basin has started. Today the NBI secretariat administers the DSS help desk and technical backstopping services.

The NB-DSS will support planning decision in ten identified focused areas namely, "water optimal utilization of water resources,resources development, , coping with droughts,coping with floods, , Energy development, (hydropower), watershed and sediment management,Rain fed and Irrigated agriculture, , navigations, water quality and climate change "has been identified as cross-cutting issues.

From these key thematic areas the NB-DSS will provide the decisions support that holds the key to the balanced Nile waters accessibility and giving well analyzed information in conflict management hence a clear solution to the achievement of the Nile River Basin water security. As it is described above that Science inform policy and policy requires law as a management tool to be implemented, in this thesisthe required principles, norms and rules for a new Nile River Basin Regime has been identified and analysed with the appropriate institutional arrangement with clear mandates and roles to ensure the enforcement of the identified principles, norms (expected behaviors of the Basin States) and rules (substantive and procedural rules) that forms the desired Nile River Basin laws. In this context law has been defined as a set of rules backed by the State.

The application of the NB-DSS to date includes the case study application areas involving six sub-basin applications in addition to a seventh application which considers the whole Nile Basin as an integrated system. The sub-basins included the Kagera, Nile Equatorial Lakes, Basin Akoko-Sobat, Sudd, Blue Nile and Tekezz-Atbara.

[390] Ibid

The case studies considered basin-wide impacts of various development interventions and management options.

Scenario 1: Is on assessment of the potential impacts associated with a full basin development scenario. It presented a possible future development state in the Nile Basin on the assumption that Nile countries will unilaterally go ahead with the implementation of all the projects which have been identified for possible implementation. These include 27 major dams, 24 hydropower installations and 13 new irrigation schemes across the Nile Basin.

The impacts of this full basin development scenario is that water availability during the dry low flow, will improve along the white Nile, lower Blue Nile and lower Sabat rivers and the main Nile River upstream of Aswan Dam due to the increase flow released by upstream dams hence elevated dry season flows.

On the other hand, water availability along the lower Atbara River will reduce significantly due to the increased consumptive use of water in the Tekeze-Atbara Basin under the full development scenarios. Water is also expected to decrease downstream of Aswan Dam by 11%. While downstream of Lake Victoria water availability is expected to reduce slightly.

Fish production will be affected along the lower Blue Nile, the White Nile, the lower Atbara and the main Nile River downstream of Aswan Dam. The fish production in the main lakes and reservoirs of Lake Victoria, Lake Albert, Jebel Aulia Dam and Aswan Dam will remain unaffected. In Morowe Dam, fish production is expected to increase by 11%, while in the Suddswamp, the fish production will reduce by 3%. In the Machar marshes where the existing

annual fish production is 8,900 tons annually will be the most affected with a fish reduction of 17%.

The recession agriculture due to the attenuation of flood peaks which will be harvested by upstream dams will be severely affected along the lower Atbara and Blue Nile rivers together with the main Nile River downstream of Atbara and Aswan Dam.

Other effects as a result of unregulated full scale development of the shared Nile River Basin water resources are that:

i. "The urban water pollution risk downstream of Khartoum will increase"
ii. "The dams to be constructed will displace 101,000 households across the Nile Basin"
iii. "Environmentally sensitive areas will be inundated by the dams while expansive irrigation will also result in clearing environmentally sensitive areas".
iv. "All the proposed dams will to some extent result in carbon emissions".
v. "The areas extent of the Machar Marshes will be reduced by 20% while the Sudd swamp will reduce by 4%".
vi. "Average annual flow along the lower Atbara, and Blue Nile Rivers will be significantly reduced as will the inflow into Aswan Dam be reduced by 11%".
vii. "It is finally anticipated that this scenario 1, will increase the GDP of the Nile River Basin by 6,700 million USD and will result in 75,000 direct employment opportunities and about 260,000 indirect employment opportunities".

Other scenarios includes:-

2. The benefits of construction of the much talked Jonglei Canal in South Sudan was assessed. The canal capacity was set equal to 500 m^3/second (43 million cubic metres per day) with flow being divided only during the wet season (June to November) each year.

3. The scenario 3 was similar to scenario 2 however in addition to the construction of Jonglei Canal, it also entails, the construction of an outlet structure at Lake Albert in order to regulate the outflow from the lake. When the water level in Aswan Dam drops below a certain threshold, water is released from Lake Albert and directed into the Jonglei Canal.

5(a) This scenario represents a possible future scenario where the existing Gezira-Managil Irrigation Scheme in Sudan will effectively double in size (+7,600 km^2), with an associated increase in irrigation demand.

5(b) This scenario swift the irrigation growth area of 7,600 km^2 to the Nile Equatorial Lakes Region upstream of Lake Victoria. This scenario evaluates the potential benefits of a more humid climate on water use and also assesses the buffering effect of the Sudd swamp on increased water use upstream on the tested cases.

The case study applications of the NB-DSS have convincingly demonstrated the NB-DSS capabilities within the context of transboundary integrated water resources planning and management and have confirmed that, the NB-DSS is a powerful tool which is sufficiently capable of advanced water management scenario evaluation.

This tool will therefore offer the much needed knowledge in joint planning of the use and development of the Nile Basin shared water resources development plans that will build trust among the Nile River Basin states and clear way of realizing their water security and the solving of article 14(b) on the water security when taken together with the prevailing international water law on equitable use of transboundary water resources and the precautionary principle of prevention of harm. The solution to article 14(b) in the above context will enable Sudan and Egypt to sign and ratify the new Nile River Basin Cooperative Framework Agreement 2010.

6.5 Conclusion

The rule in paragraph 1, of Article VIII of the 1966 Helsinki Rules stated above reflects the current international attitude in this matter- a middle ground between the two extremes. It gives protection to existing use but only so long as the factors justifying its continued existence are not outweighed by factors showing the desirability of its modification or termination. A modification or termination to be consistent with the principle of equitable use, may, in a particular case, require compensation to other user. There may also be instances where an existing use will be "phased out" over a period of time in order to give the user the opportunity to develop alternative sources of water. The balance here calls for the use of the Nile River Basin Decision Support System (DSS) to weighs the benefits and effects of both the existing and potential uses.

The new Nile River Basin Regime proposed in this thesis provides a mechanism that ensures the management of the basin's shared water resources by Nile countries based on the principle of subsidiarity, to ensure the availability of the basin's water resources, accessibility of the basin

shared water resources based on equitable use of the Nile waters taking into consideration all agreed factors of equity as provided in article 4 of the signed CFA 2010on equitable use of the shared water resources when read together with the precautionary principle of prevention of harm and only allows the implementation of projects which meets the requirements of the above two principle after their analyses with the NB DSS. The Nile River Regime shall also act as management tool for the implementation of the Signed CFA 2010. Further the Regime will unsure the basin States of their water security hence a sure way of solving Article 14(b) on the water security.

CHAPTER SEVEN

7. KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

In this thesis, there have been discussions on and analyses of the Nile River Basin historical agreements that today form the Nile River basin regime, the uses of the Nile waters, the effects of lack of a permanent institution to effectively regulate the use of the Nile waters. In order to do this a detailed analytical analysis of the unresolved Article 14(b) of the CFA has been done in this thesis and the effect this position has on cooperation of the Nile Basin Statesin the management and use of the Nile Basin shared water Resources.

This Chapter therefore, seeks to address the key findings of the foregoing discussions, the conclusion based on the key findings and the recommendations on the way forward.

7.1 Key Findings

i. As discussed under the Problem Statement in Chapter One of this thesis, the main challenge in the development and management of the Nile River basin water resources today is the threat to water security of the basin States that lead to Egypt and Sudan refusal to sign the negotiated CFA 2010 for failure by the other basin States to guarantee their existing water uses and the self-proclaimed historical rights provided by the 1929 Nile agreement between United Kingdom and Egypt and the 1959 Nile agreement between Sudan and Egypt in the unresolved article 14(b).To resolve this impasse of

article 14(b) as analyzed and demonstrated in this thesis requires thebalancing of exiting water uses mainly by Egypt and to some extent Sudan and the potential uses by mainly Ethiopia using the prevailing international water law analysed and presented in this thesis as the principle of equitable use of the Nile River shared water resources and the precautionary principle of prevention of harm. In this thesis "the rule in paragraph 1, of article VIII of the 1966 Helsinki Rules has been found to reflect the current international attitude in this matter- that is a middle ground between the two extremes. It gives protection to existing use but only so long as the factors justifying its continued existence are not outweighed by factors showing the desirability of its modification or termination. A modification or termination to be consistent with equitable use, may, in a particular case, require compensation to other user. There may also be instances where an existing use will be "phased out" over a period of time in order to give the user the opportunity to develop alternative sources of water". This means that in the balancing of existing water uses and potential water uses the existing water uses must also be analysed using factors of equity and in the case of the Nile basin the application of analytical tool (NB DSS) will be very useful in such analysis and balancing of the two uses. Therefore, in such analysis and balancing of the existing and potential water uses in the Nile River Basin theself-allocation of the 55.5 and 18.5 billion cubic metres of water under the 1959 Nile River Agreement to Egypt and Sudan respectively must first be tested if such allocation qualify to be considered as existing water uses as allocation of water resources under an agreement does not necessarily turn into immediate use but can also be for future uses.

ii. That the sustainable and peaceful development and management of the shared Nile River water resources requires cooperation of all the Nile basin States in the protected and

conserved of the sources of the Nile River water resources to ensure the availability of the Nile River waters and its equitable use. In this thesis it has therefore been demonstrated that cooperation in the transboundary water resources is not a choice but a must.

iii. That water resources requires management in order to ensure their availability and sustainability. The basic and minimum water resources management that must be doneto ensure availability and sustainability of the water resources includes:

a. The water resource monitoring to know the quantity and quality of the water resources as this will enable planning for the water resources use and the balancing of existing uses and potential uses and to inform if harm has been done to any basin States in the development of the Basin's water resources.
b. Water catchment protection and rehabilitation to prevent degradation of the source.
c. Pollution control to ensure the shared water resources reaches the other basin States in good quality.
d. Regulations of the water resources use and development will also ensure the efficient and effective water uses and the protection of existing water uses and their balancing with potential water uses.

Thesewater resources management tasks require installation of regular gauging stations either manual or automatic or telemetric systems and hence requires trained manpower, tools and equipment and financial resources. Therefore, all the Nile Basin States must cooperate to

ensure they contribute to such management. Each BasinState should therefore, charge water use fees for economic projects such as Hydropower, commercial irrigation schemes, and for industrial purposes that use the basin water resources based on the quantity abstracted by each user. It is part of the water use fees collect by the basin States that should form part of their contribution for the management of the basin water resources and to support the basin organization as NBI established by the basin States[391].

That each Nile Basin Statesmake great efforts year in year out to deal with the challenges of the development of the Nile basin common water resources through country programs. Each country targets to develop and utilize the common Nile water resources for various purposes. Over time, it has been deduced that cases where the Nile countries develop the waters unilaterally in order to achieve their goal is becoming unattainable leading to inequitable water development and is the cause of conflict in the basin.

iv. Though the numbers of multilateral agreements are still few in comparison to bilateral agreements even in a multilateral basin as the Nile River Basin, the recognition of water basins by riparian states as a unit basin calling for cooperation of all the Nile Basin States is growing steadily resulting into the increase of multilateral agreements. There is therefore, urgent need to reach consensus on article 14(b)of the CFA 2010 to ensure all the Nile Basin Statesare a party to the negotiated Nile River Basin Cooperative Framework Agreement 2010. The solution to article 14(b) on the issues of historical water rights, protection of the present Nile water resources uses by Egypt and Sudan and

[391] Kenya and some basin states are already charging water use fees, Kenya Legal Notice No. 171 of 2007, (Kenya Government, Printers, Office of the President, Nairobi, Kenya).

allowing potential uses by mainly Ethiopia and the balancing of the two uses based on the prevailing international water law which is today based on the principle of equitable use of the basin shared water resources together with the application of NB DSS as analytical tool to give Scenarios on how best the potential development should be structured to ensure more benefits to the basin States and minimal harm. It is such legal arrangement together with the application of Science to inform the basin policies and planning that would form the new Nile River Basin Regime. Further such arrangement would make the basin States reach consensus on article 14(b) and further pave ways for the CFA 2010 to be accepted by Nile countries. Once the Nile Basin Cooperative Framework 2010 is accepted and entered into force a permanent Nile River basin Commission would be established as provided by article 15 of the CFA 2010. Such a regime would encourage joint planning by the basin States in the development of the common Nile Basin water resources to build trust. Such joint planning has proved to be very useful in the Niger River basin and has help in the resource mobilization, build trust among the Niger River Basin States. Though in the Nile River Basin the proposal of joint planning would first be rejected by Ethiopia as it is the Nile basin State today with already a laborious plan on how it wants to develop the Nile Basin water resources. Such Ethiopian plan includes the Grand Ethiopia Renaissance Dam now under construction and has raised a lot of tension between Ethiopia and Sudan. Agreeing to the declaration on the Common principles on how the dam should be implemented and operated mount to joint planning hence the beginning of acceptance of joint planning in the Nile basin. If this should be the case and joint planning is fully accepted by all the Nile basin States the there would be need to develop a Nile River basin water resources development master plan for the next 20 to

30 years with national and regional projects accepted by Nile countriestaking care of the existing efficient water uses and the potential future water uses based on equitable utilisation of the basin shared water resources with precautionary principle of prevention of harm.

v. The historical Nile River agreements that were agreed between Egypt and the Colonial masterswith an attempt to defuse conflicts over the use of the Nile Rivershared water resources haveoffered very little assistance if any in the equitable use, protection and preservation of such resources. These historical Nile agreements have today not in harmony with the prevailing international water law as they are based on water allocation that today cannot work on the Nile basin as the known shared Nile Water resources total 84 BCM that all have allocated to Egypt and Sudan in the 1959 Nile agreement analysed in Chapter three of this thesis.

ix. Climate change will either bring more floods or more droughts. The impacts will therefore have significant effects on infrastructure demand and investment as Climate Change adaptation is about availability and access to water resources for Hydropower, irrigation, flood and drought mitigation, ecosystem services and therefore key for water resources development interms of water storages by building new dams to harvest flood flows, flood controll dykes to control the river flows within the river channels. Potential uses are therefore emininent and might outweigh some existing uses. The water basin regime that balances the facts of existing uses and the the potential uses as illustrated above will also give benefits to the Basin States that have not developed but with key potential uses in their plans.

x. The Precautionary principle to prevent harm or " to prevention harm" to other basin States advances the interest of the future generations that fresh water resources will not be wasted and the water quality will be good. Article 7, paragraph 1, of the 1997 UN Watercourses Convention provides that: "Watercourse States shall exercise due diligence to utilize an international watercourse in such a way as to prevention harm to other watercourse States. This principle balances the right of the riparian Statesto use and develop the shared water resources with a duty to prevention harm to other basin States. This balance gives both protection to the lower basin Statesas causing no significant ensures them that the Nile River flows will continue to reach the in good quantity and quality while the upstream Statesare also assured access to the Nile River flows within their territory.

xi. The principle of cooperation between the Nile basin Stateson the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection and conservation of the Nile River Basin and to promote joint efforts to achieve social and economic development. Cooperation also provide a forum for conflict resolution.

xii. The principle of subsidiarity, whereby development and protection of theRiverNile Basin water resources is planned and implemented at the lowest appropriate level. Principle of subsidiarity also gives room for regional development as in the case of the power pool trade and Rusumo Hydropower plant now being developed jointly by Tanzania, Rwanda and Burundi.

xiii. Establishment of an institutional mechanism such as the proposed Nile River Basin Commission that shall act as a clearing house for planned measures, a forumfor conflict resolutions and a regulator for the Nile basin water resources is key and would bring order and harmony in the development of the common Nile basin Water Resources.

7.2 Conclusion

From the research findings it is crystal clear that there is urgent need to have a new Nile River Basin Regime based on the prevailing international water law presented in this thesis at various paragraphs and institutional arrangements and joint planning of projects in addition to spelling out the benefits the basin States would get when they are parties to the new Nile River Basin Cooperative Framework Agreement 2010. Today the peaceful and sustainable utilization of the shared water resources that is a prerequisite to achieving the water security of the Basin States can only be achieved through cooperation. In this thesis it has been demonstrated that cooperation in this context is not a choice but a must as backed by the prevailing international water law. The current Nile River Basin Regime is no longer sustainable as it is based on historical Nile River agreements of 1929 and 1959 that are only focused on water allocation to only Egypt and Sudan rather than on the prevailing international water law that today focuses on equitable use of the basin's shared water resources that is balanced with the precautionary principle of prevention of harm and cooperation in addition to the application of the NB DSS as analytical tool guides in the balancing of the existing water uses and potential water uses. The current Nile River Basin Regime has been rejected by all the Nile basin States except Egypt as

Sudan. To this effect it also notable that eve Sudan rejected the 1929 agreement siting substantial change on attaining independence. It is the same Sudan reasoning that has been advanced by the other upper Nile Basin States that were under the British administration during the enactment these historical Nile agreements.

From the findings it is clear that Egypt and Sudan will neither sign nor ratify the negotiated Nile River Basin Cooperative Framework 2010 in its present form. The six basin States namely Burundi, Ethiopia, Kenya, Tanzania, Rwanda and Uganda which have signed the CFA 2010 would want to go ahead with the ratification process without looking back. In addition, the new kid in the basin, South Sudan, would also want to accede to the CFA 2010. This will only give the seven Basin States an equal to the 1959 Nile River Agreement between Egypt and Sudan. This is not a good trend as the seven Basin States might also go ahead and allocate themselves the Nile River flows as the 1959 Nile River Agreement did. This will only create more tensions and deny the basin States the cooperation gains they have enjoyed for the past thirteen years during the negotiations.

The answer to the unresolved Article 14(b) based on the prevailing international water law analyses and presented in this thesis is therefore, as follows:

> *"The realization of the water security of the Nile basin States requires the cooperation of Nile countries, in the development and management of its common water resources to ensure the availability of its shared water resources, equitable use, joint planning and balancing of the existing water uses and potential water uses to ensure peaceful*

accessibility of the Nile River waters, and early management and resolution of any conflict that might arise."

7.3Recommendations

The new Nile River Basin Regime proposed in this thesis be presented to the Nile Technical Advisory Committee for consideration and onward transmission to the Nile Council of Ministers in charge of water affairs for adoption and direction. The Nile Basin States be asked to submit their National Water Master Plan with projects that touches on the use and development of the Nile River common water resources for the next 20 to 30 years for balancing with the existing water uses.

This thesis therefore, proposes a parallel approach whereby the six basin States that have signed the CFA 2010 should go ahead with the ratification process but without water allocation. Instead the basin States should push for the development of the Nile River Basin water development master plan for the next 20 to 30 years as a part of the Nile River Basin Regime based on the prevailing international water law together with the application of the NB DSS to ensure compliance, enforcement and conflict resolution mechanism. The new Nile River Regime should be added as an addendum to the Nile River Basin Cooperative Framework 2010. This would ensure acceptability of the CFA 2010 by Nile countries and enable all the Nile basin States to be parties to the CFA 2010 and the establishment of the Nile River Basin Commission.

7.4 The Way Forward

Replace the unresolved article 14(b) with phrase reading as follow:

> **"The realization of the water security of the Nile Basin States requires the cooperation of Nile countries, in the development and management of its common water resources to ensure the availability of its shared water resources, equitable use, through joint planning and balancing of existinguses and potential uses to ensure peaceful accessibility of the Nile River water resources, and early management and resolution of any conflict that might arise".**

This is the answer to the main question in this thesis that will enable all the Nile basin States to cooperate in the development and management of the Nile River waters, be sure of their water security and finally be parties to the negotiated Nile River Basin Cooperative Framework Agreement 2010.The entry into force of the CFA 2010 would enable the establishment of Nile River Basin Commission as provided by article 15 of the CFA 2010.

7.5 The Study Vision

Water is one of the most critical and strategic resource in the Nile River Basin and due to lack of adequate developed infrastructure, especially in the upper Nile basin States, effects of climate change, and rapid population growth that rewires services development of the common Nile water resources are so significant in mitigating these challenges, it wouldno longer be tenable to postpone the development of the Nile water resources in all the Nile basin States. It is imperative

to initiate a focused effort to create the Nile River basin water vision and articulate a strategy to sustain the basin's water resources.

It is on this understanding that the vision for the Implementation of the findings and recommendations of this thesis has been developed and reads as follows:

"To have a water-secure Nile Basin States with equitable useand sustainable development and management of the Nile River basin water resources for poverty eradication, socio-economic development, benefit sharing, regional cooperation and environmental sustenance by 2025".

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