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The Role of Institution Regime in Facilitating Cooperation and Resolving Conflict on Transboundary Water Resources Management:

Case Study Nile Basin Initiative (NBI) for the Nile River Basin

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by

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ABSTRACT

Riparian states in the Nile river Basin for a long time have been in a struggle compounded with upstream and downstream states on the equitable and reasonable utilization of the Nile waters. This hydropolitics relationship among the riparian states has always creating conflicting and cooperative behavior. Egypt one of the downstream states all the time has been considered as hegemonic power in the Nile waters and she has been opposing all the upstream states to initiate and implement any projects along the Nile river watercourse without its consult and approval. The colonial agreements of 1929 and 1959 empowered Egypt to utilize and control the Nile water and allowed Sudan to utilize a specific amount of water by taking into account that Egypt has natural and historical rights; other upstream states were left out in these agreements.

Egypt has continued to protect and maintain the existing status quo of these agreements while the upstream riparian states of the Basin have always demanding the change of this existing situation towards basin-wide cooperation which will ensure equitable and reasonable utilization of the Nile water for the benefit of all riparian states in the basin. Various attempts had been taken to establish cooperation and the permanent legal Institution for water resources management and resolving conflict where it arise.

In 1999, all riparian sates jointly agreed to establish the Nile Basin Initiative (NBI), this was the first time in the history in which all riparian states in the Basin decided to opt for multilateral cooperation. NBI was launched as an transitional institution among other objectives it has given the role to facilitate the process to prepare Cooperative

framework Agreement(CFA) for the establishment of the Nile River Basin Commission(NRBC) that will be a permanent legal institution for water resources governance in the Basin. This study reveals that although NBI has played a significant role to shift riparian states from hydro-hegemonic to multilateral approach but it has not yet achieved its main goal of the establishment of Nile Basin Commission despite of 20 years of negotiation. Signing of the CFA that will create the permanent basin commission has escalated conflictive behavior of the riparian states, Egypt and Sudan which are downstream states has rejected to embrace the CFA due to some of articles in the CFA document that seem not being favorable to satisfy their interest. Currently 6 riparian states has signed the CFA and 4 of them has ratified it.

The Nile basin has been marked as a risk area due to conflictive nature of riparian states inter-relationship on water utilization, environmental degradation, increasing population pressure, adverse effect of climate change and uncoordinated project in the basin; all these challenge has the negative impacts on sustainable water resources management in the basin. This study has revealed that, effective Basin-wide cooperation in the Nile Basin is an inevitable if the riparian states want to avoid/reduce the current and future conflicts that might be more intensive due to water scarcity competition accelerated by inefficient and ineffective water resources management in the basin.

Keywords: Water Resources Management, Transboundary water, Cooperation, Nile water, Riparian states, Water governance, Nile Basin Imitative.

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LIST OF ABBREVIATIONS

CFA Cooperative Framework Agreement

ENTRO Eastern Nile Technical Regional Office

NELSAP-CU Nile Equatorial Lakes Subsidiary Action Program Coordination Unit

IWL International Water Law

WDM Water Demand Management

TWM Transboundary Water Management

NRBC Nile River Basin Commission

UN United Nations

GERD Grand Ethiopia Renaissance Dam

CIDA Canadian International Development Agency

DRC Democratic Republic of Congo

EAC East African Community

FOA World Food and Agriculture Organization

NBI Nile Basin Initiative

Nile-COM Council of Ministers of Water Affairs of the Nile Basin

Nile-Tec Technical Advisory Committee of the Nile Basin Initiative

Nile-Sec Secretariat of the Nile Basin Initiative

NRBAP Nile River Basin Action Plan

SAP Subsidiary Action Programs

SVP Shared Vision Program

TECCONILE Technical Cooperation Committee for the Promotion of the Development of the Nile

UNDP United Nations Development Programme

CHAPTER ONE: INTRODUCTION

1. Background of Study

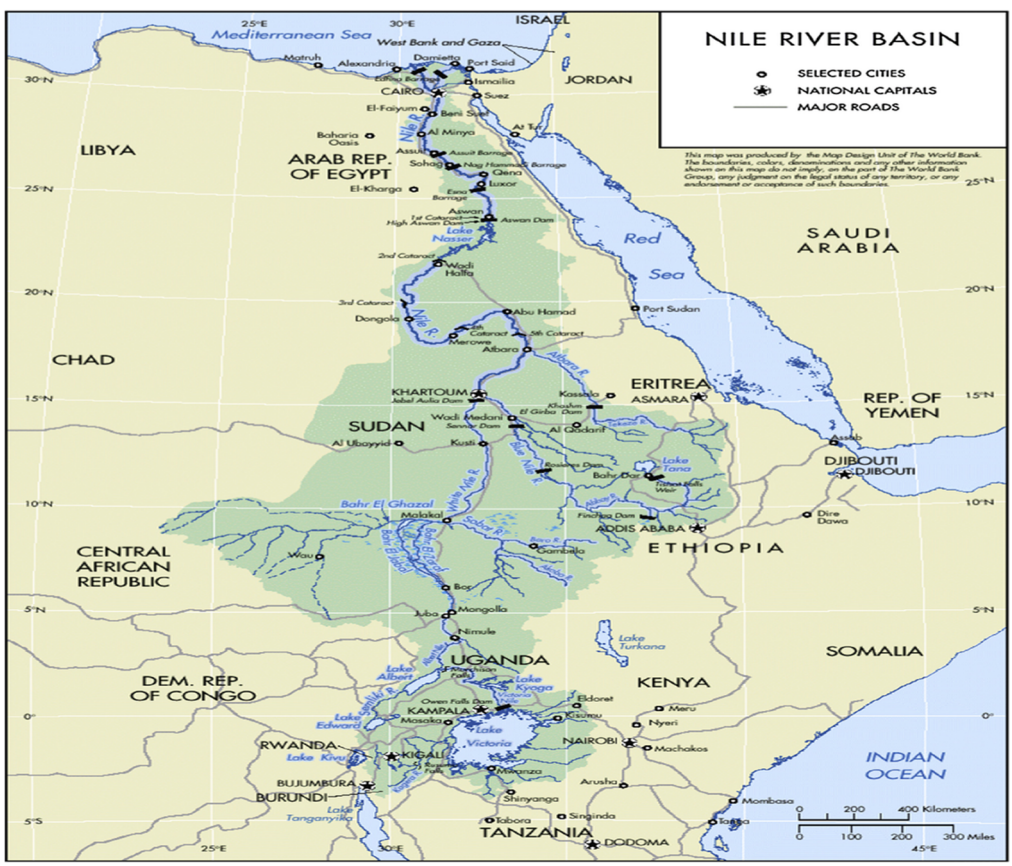
The Nile river is one among the longest river in the world with 6,825kilometers. The river has a long history of cultural and societies that lived along its banks and it is home to some 437 million people across 11 countries, of which about 238 million are inhabitant in the river basin and it is anticipated that the total population of the basin countries will reach over 1 billion by 2050 (NBI,2019). The Nile river is a transboundary[1] river which shared by (11) eleven riparian states, which are Tanzania, Burundi, Democratic Republic of Congo, Eritrea , Ethiopia, Kenya , Rwanda and Uganda. These are upstream states of the Nile river. Sudan, South Sudan and Egypt are downstream states of the Nile. (Dereja &Wuhibegezer, 2014)

The main sources of the Nile River are Lake Victoria which is one of the largest fresh water lake in the world where the tributary of the White Nile flow start, the Blue Nile and the Atbara river both have its origin in Ethiopia. In terms of the amount of water

[1] A river basin is regarded as "transboundary" ("international", "shared", etc.) when it intersects or demarcates political boundaries. Such intersection or demarcation can take several forms. In fact, the relevant literature distinguishes no less than geographical configurations just for rivers shared by two countries. Importantly, a river basin qualifies as transboundary not only where a particular stream effectively flows through or creates state borders, but where political borders intersect parts of the catchment area that discharges water into the basin only through downhill drain of rain or snow melt or through the subsoil. Such broad patterns of a "transboundary" or "international" river basin is recognized by respective by international legal instruments, such as the UN Watercourses Convention, the UNECE Water Convention or the EU's Water Framework Directive.

contribution, the Blue Nile and Atbara river from Ethiopia account for 85 percent of the water sources of the Nile river while the White Nile from lake Victoria supply 15 percent of the water in the Nile. (Swain, 2011). In many transboundary water courses upstream states are normally in the better position to control the run off due to its advantageous geographical position compared to the downstream states but unexpectedly for the case of Nile river the situation is different, where by Egypt which is the furthest downstream states has always maintain a hegemony hydropolitics in the Nile basin.

Figure 1: Map of Nile River Basin



Source: Nile Basin Initiative, 2001.

The situation of Egypt being a downstream state with disadvantageous in geographical location and continued to maintain hegemony role in the river basin has been always creating a conflicting relationship with other upstream riparian states and this has become an interested case for study. Both Egypt and Sudan which are downstream countries depend entirely on the Nile river as the main sources of water by 97 percent (Egypt) and (77.3) Sudan , 85 percent of the water flow from Ethiopia and 15 percent of the water, flow from the White Nile (lake Victoria) in the great lake region. (Swain, 2011).

Table 1: The Nile River and its contributory sources

	Tributary	**12 months water share /year (%)**
Ethiopia	**Blue Nile**	**64**
	Sobati and Atbara	**21**
	Total	**85**
Equatorial Lakes	**White Nile**	**15**

Source: Kameri-mbota 2005 & Swain, 2011

The Nile river is potential for hydroelectric production and irrigation for agricultural development, although this potentiality has not fully and fairly utilized for the development of all riparian sates. By considering hydrological and social-political analysis the Nile basin can be categorized into two sub-basin, the Eastern Nile basin which comprises Egypt , Ethiopia , Eriteria , Sudan and South Sudan and the Equatorial Nile which includes Tanzania, Uganda, Kenya, Burundi, Rwanda and Democratic Republic of Congo. The two sub-basin are not the same in terms of climate variability,

precipitation, geographic conformation and most significant in terms of water share to the Nile river and dependency ratio over the Nile in respect to other alternative water sources. While the white Nile, flowing from lake Victoria northwards , only contribute up to 14 percent of the overall Nile water flow , the Blue Nile which arises from the lake Tana in Ethiopia and merges the White Nile in Khartoum, account for about 85 percent of the Nile volume (Swain, 2011).

The existing hydrological situation of the river has a link with the geopolitics of the water within the basin due to the fact that, riparian states that account for the lion share of the water flow in the Nile (Ethiopia) scarcely/hardly utilises its waters, while Egypt and Sudan/ South Sudan which have no any water flow tributary which contribute for the Nile river are the countries for a long time depending more on water , developing hydraulic infrastructures, irrigation schemes and claim the hegemony role in the basin to maintain maximum control over the Nile waters upstream. (Cascao, 2009). Dependency on the Nile water resources is not the same between the equatorial and Eastern sub-basins; for example, while Uganda depend on external water resources by 40.9 percent, Ethiopia depend with 0 percent but Egypt dependency ratio on external water resources is about 96.9 percent (FAO, 2005). Ethiopia diversified hydrogeological conformation of a country with its rain-fed high land, sufficient ground water potential and many major and minor watercourses make the country in advantageous in terms of sufficient water resources than other riparian states such as Sudan and Egypt that are prone to desert.

Table 2: Water Scarcity projected

Country	Internal Water Resources	Dependence ration in 1995	Amount of water available in 1990	Projected drop off in 2025
Burundi	10.06	19.75	660	280
Egypt	1.7	96.9	1070	620
DRC	935.0	8.2	1019.0	-
Eritrea	2.8	68.2	8.8	-
Ethiopia	110.0	0.0	2360	900
Kenya	20.2	33.1	1907	590
Tanzania	80.0	10.1	2780	900
Rwanda	6.3	0.0	880	350
Sudan	35.0	77.3	1870	-
Uganda	39.0	40.9	66.0	-

Source: FAO Water report (2005)

Thus, based on above data its clear that Egypt is a prone to water scarcity due to limited domestic water resources potential and in a disadvantageous position in geographical location being the further downstream country along the flows of the Nile river. Additionally, the county economic development depend heavily on Nile water for both industrial and agricultural production.

To ensure there is no potential threats that could negatively affect the amount of flow downstream, Egypt has always trying to extend /maintain its control over the Nile upstream countries both diplomatically and through military action where necessary (i.e the expedition in Northern Sudan in 1958 (Kiros, 2012). Upstream states apart from the fact that they are geographically advantageous and are the potential sources of the Nile waters but for the long time have shown a very limited control over the Nile flows and significantly low level of utilisation of the Nile water because of different reasons such

as lack of hydraulic know how and experts , economic constraints and low ability to attract foreign investment (FDI) in different projects. This situation remained for a long time and it gave the downstream countries, especially Egypt extra advantage to utilize the Nile water without any challenges from the upstream action that could affect the volume of the river flow. Recently, the status quo for the upstream countries have changed and some of the them started to undertake unilateral development projects along the tributary source of the Nile river. Ethiopian government in 2011 announced and started building of millennium dam over the Blue Nile for electric power production, the completion of the project is expected to provide 6,000MW of hydropower and the project is fully financed by Ethiopian government by its own financial resources and currently the project is at 70 percent of its implementation status. (Dereja &Wuhibezer, 2014)

The launch and implementation of this huge hydraulic project over the most important tributary source flow of the Nile river has brought a high tension for Ethiopia, Egypt and Sudan; and it intensify hostility and conflict among these three countries in the Nile river basin. Egypt always put the claim forward that, the huge ongoing hydraulic project is going to affect the volume of the Nile river flow downstream and hence it will severely decrease the flow of the water downstream to Egypt and threatening water security of the country, on the other hand Ethiopia government states that the dam technically has no negative impact on reducing the volume of the river flow and it will be beneficial for all riparian countries in the Nile basin. Apart from the technical issues of water allocation

and availability, evapotranspiration and volume, the issue of water governance in the Nile Basin reflect hydro political nature which involves process of securitization of water issues, multilateral negotiation, competing water narrative, development need and sovereignty related questions, ultimately the competition for the regional leadership.

The concept of ‘‘water security’’ which the downstream states wanted to be incorporated in the cooperation framework agreement (CFA) in the basin wide treaty for the overall management of the basin’s resources remain to be a challenge in which the upstream states and downstream states were not ready to find the compromise over the very meaning of the concept of ‘ water security’’ to be applied in the agreement. On the perspective of international water law (IWL) there has never been wide basin agreement for all riparian states on the management, allocation and utilization of the Nile water. However, the 1992 UNECE convention on transboundary watercourses and the 1997 water courses convention informed the drafting of CFA for the Nile Basin, but to date both Egypt and Sudan still refuse to sign it, hence the entry into force of the treaty. (NBI, 2011).

Egypt and Sudan insist that the agreements of 1929 and 1959 which were signed between British and Egypt and later on between Egypt and Sudan by allocated the entire water of the Nile for the two countries is valid and should be respected by upstream riparian states. However, on the other side the upstream riparian states they are not contend that they are not bound by agreement which they were not part of it and they also question the legitimacy of allocating all the water resources of the Nile only for two country (Egypt

and Sudan) and left out other riparian states. Lack of effective system of basin –wide integrated water management in the Nile basin has been considered by Egypt as advantage for extending its hegemony over the basin by utilising the water for hydroelectric production and extensive agriculture project and also to control the upstream states not to initiate and undertake any project that can reduce the volume of the river flow to downstream. However, the intra-basin hydro political relationships have been always very dynamic and the upstream states started to question the pre- dominance of Egypt on Nile waters.

The Nile basin is experiencing a pressure of population increase, environmental degradation, impact of adverse climate change (drought) across the basin which will severely affect the availability of water for the future need of all riparian states. In additional the river basin has been categorized to be a risk basin area and a source of conflict, uncoordinated project (unilateral project for each country), and lack of institutional regime for governance and management of water resources in the basin. (Wolf, 2003). In order reduce and mitigate conflict and promote sustainable water resources management in the basin, various attempt /effort have been undertaken by riparian states to create a basin –wide agreement and the water governance institution regime. In February, 1999 all riparian states agreed and launched a Nile Basin Initiative (NBI) as transitional institution responsible to facilitate the process until the establishment of legal and permanent institution for water resources governance in the basin as stipulated in the drafted a Cooperative Framework Agreement (CFA).

1-1 The Nile Basin Initiative (NBI)

After recognizing the potential that the Nile basin can offer and an increasing challenge in the basin such as conflicts, environmental degradation, adverse climate change impact, increasing population pressure which span across the national borders; all Nile basin countries jointly reached a consensus to establish the NBI in February, 1999. This was the first time in the history in which all riparian states in the basin decided to opt for multilateral cooperation and since then it has revealed a remarkable achievement from and potential for cooperation (NBI, 2019). The NBI has been the basin-wide institution mandated to provide a platform for member states on joint management and the shared water resources, it is forum for build a culture of dialogue, mutual trust and confidence within the member states, knowledge generation, capacity enhancement and policy development support for member states and the people for better management their shared water resources (NBI, 2019).

Furthermore, NBI has facilitated the mobilization of financial resources for project investments in the basin worth US $ 6.5 billion from both member states and multilateral donors/development partners (NBI,2019). The NBI is focusing on implementing its ten (10) years strategy (2017-2027), where six strategic priorities jointly identified by the member states are aimed at contributing to the regional development agenda. It is worth noting that NBI member's states have dedicated their commitment to the Nile cooperation as the only way to achieve effective development and management of the basin's shared water resources (NBI, 2019).

1.2 Statement of Research Problem

Riparian states in the Nile basin for a long time has been a struggle compounded within upper and lower stream countries having conflictive and cooperative nature. Egypt all the time has played as hegemonic role in the Nile water and oppose all the upstream projects along the Nile water courses (Weibe, 2001). The colonial agreement of 1929 and 1959 empowered Egypt to utilise and control the water of the Nile. The 1929 agreement grants Egypt a veto power over any project involving Nile water, additionally the 1959 agreement allow for full utilization and allocation of the Nile water share for Egypt by 75 percent and the remained 25 percent for Sudan. These treaties favoured Egypt and placed the country in a hydro-hegemonic position to manage and control the use of watercourse from upstream to downstream (Weibe, 2001).

The Nile river remain to be an international watercourse with no basin -wide agreement and legal institution framework to facilitate water resources management/governance in the Basin like other major international river do (Arsano &Tamirat, 2005). Recently, in spite the 1929 and 1959 agreements which upstream states never recognise to be valid and bound for them, challenged Egypt's monopolization of the Nile water by relying on the mentioned colonial agreement. Some upstream riparian states started to launch and developing unilateral development projects in the Nile river watercourses in their respective geographical political boundaries. However, the Nile river basin has been marked as risk basin area due to conflicts, environmental degradation, increasing population pressure, adverse impact of climate change, uncoordinated projects within

the basin, and most important is the absence of cooperative framework agreement and institution regime for water governance in the basin (Wolf, 2003). Therefore, the main problem of this research is to explore how institution regime facilitate cooperation and water resources management/governance in the Nile Basin.

1.3 Justification of the Research

Transboundary water conflict and cooperation has been a subject of ongoing debate in various academic fields by different scholars of international relations, international politics, laws and international security. The Nile river basin is currently experiencing critical challenges of conflictive behaviour among the upper and downstream states, example Ethiopia and Egypt, increasing population pressure in the basin, environmental degradation, and adverse climate change impact; however the basin has a huge potential for development of all riparian states if the available resources within the basin will be jointly full utilized and effectively managed by all riparian states. It is with a commitment to this stance that this research area is selected. The finding of this study is useful for policy makers, program and project designers, the mediators and all key players in the development of the Nile Basin.

1.4 Objectives and Research Questions

The main objective of this study is to explore the mechanism in which the hydropolitical situation in the Nile basin can be transformed towards a more integrated approach through cooperative agreement framework under institution regime to enhance equitable

and reasonable utilization of the Nile water, shared investment/joint investment and sustainable environmental management in the basin. Thus, the main question in this research is to explore how NBI regime facilitate cooperation under dynamic interest of riparian states of the Nile basin. Other research question are such as:

i) What are the drivers and constraints of cooperation among the Nile riparian states?
ii) Why institutional water regime is necessary in the Nile Basin?
iii) Why the CFA is still pending? what hinder the cooperative framework agreement into force treaty?

1.5 Methods of Data Collection and Analysis

In answering the research questions, this study employed a methodology that draws its theoretical framework from existing literature on conflict and cooperation in hydropolitics perspective, IR theoretical overview on realism and liberalism have been engaged.

Primary and Secondary data were collected to examine the actual and perceived interaction of the conflict and cooperation nexus between and among the riparian countries. Interview questions based on the research problem developed to collect expert opinion on the ongoing situation surrounding the Nile River. To do so, Two (2) experts from the Nile Basin Initiative were interviewed; two senior government officials from the Ministry of Water in Tanzania were contacted in response of answering the

posed research questions. The study also used primary data from the Nile Basin Initiative (NBI) such as project design documents, progress reports and Institution Strategic Plan (2017-2027). Other important documents that were reviewed as secondary sources are; the legal documents of the Law of the Non-Navigational Uses of International Watercourses (1997) and the Nile agreements (1929, 1959) and CFA. Secondary data of books, journals and reports were also used to understand conflictive and/or cooperative situations in Nile negotiations. Qualitative information were analysed in order to identify variables that play a pivotal role in creating conflict and/or cooperation. Analysis focused on identifying both the situation in which NBI and CFA negotiation has been suspended, and the key actors in the processes of negotiation.

1.6 Limitations of the study

Bureaucratic system to access some information and data from some government offices; time constraints to conduct the research work and limited stakeholders and actors that were consulted.

1.7 Organization of the Study

The research paper is organized into six chapters. Chapter 1 inform the leader of the research area, research problem and the methodology of the study, while chapter 2 present review of literature and theoretical framework of the research paper, chapter 3 discuss the legal perspective on the allocation and utilization of the Nile water and the Nile cooperation. Chapter 4 examine the evolution of cooperation pattern in the Nile

Basin and the new involving cooperation under the Nile Basin Initiative (NBI), chapter five highlight the challenges and opportunities of the Nile Basin and the necessity of cooperation and institution for water governance regime in the Basin. Chapter 6 concludes the whole body of the research paper with recommendations, limitation of the study and suggestions for further research.

CHAPTER TWO: REVIEW OF LITERATURE

2. Review of Literature

Literature on the Nile river is very wide and it cut across different disciplines of studies. An annotated bibliography by Robert Collins (1991) and Terje Tvedt (2000) covers a compressive overview on the rive Nile in relation to its political, economic and cultural role. This literature review focus on the most recent studies after the post-cold war and it critically review the existing debate on water scarcity and its consequences over transboundary water that provide some light to the existing current situation on the Nile River.

2.1 Water scarcity

Recently, terms and concepts related to water such as ‘‘water scarcity’’, ‘‘water shortages’’, ‘‘water stress’’, ‘‘water rationality’’, ‘‘water security’’ and ‘‘water wars’’ has been commonly used in the discussion related to water issues with different stakeholders including academicians, policy makers and the general public at large. Water scarcity which is main area of focus in this particular context is the concept attributed by Swedish hydrologist Malin Falken mark (1986, 1989). Using a water barrier scale measured by personal /flow unit , Falkenmark quantified water availability and categorized it into different stages such as water stress, chronic scarcity and beyond the water barrier. The inverse of scarcity index measured by cubic metre per year and

a personal which she introduced has been accepted and used by many analysts to assess and predict water availability .

General consensus of water experts/practitioners, water scarcity refers to, a situation where the annual supply of renewable fresh water is less than 1,000 cubic metres per person (1 cubic metre equal 1,000 litres) . Prediction and analysis of fresh water scarcity by many organization such as World Bank (1993, 1999), Population Action International (Gardiner –outlaw and Engleman, 1997), Food and agriculture organization (FAO,1998, 2000a) use this figure as a fundamental base of analysis. Olli Varis (2000) used this index to make a comparison on population with water available runoff for five regions such as China, south Asia, South-East Asia, West Africa and the Nile region, the results revels that the Nile basin is relatively highly water scarce region in comparison with others.

Despite a threshold such as 1000m3/capita seem to be useful for the purpose of comparison, but some scholars argue that there are still some critical challenges by using an index which has not been addressed, they believe that the use of index has left out a number of key factor which has an influence on the availability of fresh water (Abrams,1997; Allan, 1997; Glieck, 1993; Ohlsson, 1998; Turton, 1998, 1999a; Winpenny, 1997).

The factors that have not taken into account in the index and seem to be difficult to predict are such as population change, and climate change patterns which all bring an effect on the future water resources, adaptability of capacity scarcity , food production

trend and agriculture water use patterns. Abrams(1997), and Ohlsson (1998, 1999, 2000) critically argued that the concept of water scarcity is relative and therefore is social constructed concept depends on availability of water supply and its consumption trend.

Ohlsson took a step ahead in his study on social dimension of water scarcity and came out with the concept of social scarcity and its measurement the social resources water stress/scarcity index (SWSI) (1998, 2000, Ohlsson, et al., 1999, 2000). SWSI focus on combination of traditional hydrological indices and the human development index (HDI).

In the recent years , due to the development of science and technology , water measurement and assessment methodology, techniques and tools has been utilized and various prediction are supported by sophisticated computer modelling such as World water vision by World Water Council (Cosgrove, and Rijsberman, 2000; Rijsber- man, 2001); Globesight Global Foresight developed by the Case Western Reserve University, USA (Sreenath, 2001); Water-Global Assessment and Prognosis developed by the Centre for Environmental Systems Research at the University of Kassel (Alcamo et al., 1997, 2000);The Water Evaluation and Planning System developed by the Stockholm Environment Institute (SEI, 2001).

All of these models use different approach and produce different results based on specific assumptions, this express the way how water issues is complexities for policy maker and this again accelerate the debate between the water pessiminists and water optimist (Allan, 1997).

(Allan, 1997), put clear that , divergence in assumptions among water perssist and optimist is very wide and its difficult to communicate(1997:10), however, he pointed out that, water pessiminist are wrong but he emphasize that their pessiminism is critical useful in terms of putting pressure for politicians to act , otherwise politicians will not treaty water among the priority agenda and finally necessary investment for innovation to solve the challenges for water issue will not be taken into account.

2.2 The Debate on ‘‘Water Scarcity and its Potential Consequences’’

2.2-1 ‘‘Water Scarcity’’ a Trigger for ‘‘Water Wars’’

Most of Post-cold war literature on freshwater put critical emphasis on the crisis on water shortage due to the increase of population growth which cause more water demand for various social economic use. Some of this literature just to mention a few are: Biswas, 1994; Falken- mark, 1989; Gleick, 1993; Homer-Dixon, 1995,1996; Leslie, 2000; Ohlsson, 1995; Postel, 1996, 1997. Many of the scholars argued that increased in ‘‘demand for freshwater’’ would trigger water conflicts and even can cause ‘‘water wars’’ (Biswas, 1991; Bulloch and Darwish, 1993; de Villiers, 1999; Gleick, 1994; Starr, 1991). Many of these publications gave more weight on conflict over water resources particularly in the Middle East. The core argument was based on the assertion that water scarcity increases as population grows, and it will bring a competition for the scarcity water resources and will ultimately lead to ‘water war’’(Allan,1999). Turton (1998)

emphasized that the water scarcity and population grow has a linear linkage like such of Malthusian type discourse.

Joyce R. Starr's (1991) bring the perspective idea of 'water wars'' he build his argument based on the evidence of critical shortage of water in middle east, North Africa and the Gulf and noted that there was no any attention has been taken to address the issue. He further explain that water has become a strategic issue that needs to be addressed accordingly, otherwise, he warned that ''water security would soon rank with military security in the war rooms of defence ministries''. Likewise, Bulloch and Darwish, 1993; Gleick, 1994; and de Villiers, 1999 have put more emphasis that water ''scarcity will most likely lead to water wars especially in arid and semi-arid areas such as the Middle East and North Africa''.

Postel and Wolf (2001) in the article ''Dehydrating conflict'' discusses the debate of whether there will be water war or not, they look on why there is a tension that water shortage will lead to water war. They identified the early signal and potential location areas of water related disputes, and provided an advice for the policy makers and international actors to take immediately measures to avoid conflict and political instability; the Nile basin was marked among the potential conflict water basin. Postel and Wolf recommends the establishment of cooperation as early as possible among the riparian interstates in order to avoid the future conflict.

The massage and statements that have been derived by some prominent global and national leaders on water in relation to war has been intensifying the debate on water war argument to different stakeholders. In the spring of 1979 when the President of Egypt, Anwar Sadat was signing the historic peace treaty with Israel, he said "the only matter that could take Egypt to war again is water", his statement was not only deriver the massage to his former enemy –Israel , but it also reflect the same to Ethiopia , the country where the main tributary source of the Nile river depend upon (Starr, 1991). The late King Hussein of Jordan in 1990 said the similar massage that ''water was the only issue that could trigger war between Jordan and Israel''.

Furthermore, the former late UN Secretary General, Kofi Annan and the Vice President of the World Bank, Isimail Serageldin in the mid of 1990s predict about the future wars on fresh water resources. All these statements have been severally quoted in different forum and have become a part and parcel on the debate of water scarcity with conflict and war.

Michael Klare (2001), an expert on warfare and international security, in his book entitled Resource Wars, analysed on the global insecurity and peace in the future. His core argument pointed out that the ''wars of the future will mostly be fought over the possession and control of vital and scarce resources such as oil and water'' and he mentioned Nile river basin as among the potential area of conflict, his argument seem to be quite different to that of other security experts such as Samuel Huntington (1996) who argued that ''clash of civilizations theory contends that cultural differences, such as

between Muslim and Christian will become a dominant feature of post-cold war global security''.

2.2-2 Water Scarcity as a Catalyst for Cooperation

Arguments against the mostly existing perceptions that, water scarcity would trigger international conflict and war is well demonstrated by Aaron T. Wolf (1998). Wolf came out with four arguments against the possibility of future "water wars" namely; ''historical arguments'', ''strategic arguments'', ''shared interest arguments'' and ''institutional resiliency arguments''.

The first argument based on historical analysis of water resource agreements and conflict, Wolf revels that there is no records in the history which substantiate that countries have ever fought the war over water resources. Future "water wars" are not plausible, he argues, simply because such war is not ''logical from strategic point of view''.

On ''common interest or shared interest'' perspective he argued that, regularly interstates-initiated treaty of sharing resources which normally overshadow the alternative of going to war over water. According to the Transboundary Fresh water data base project of the Oregon State University directed by A. Wolf revels that there are 360 treaties that have been signed at different period over different international watercourse and many of them have succeeded to work effectively in solving water associated dispute that have been emerged.

On the last point, Wolf argues that, through the initiated treaties on cooperative framework and water resources governance institutions are installed, interstates normally behave positively for cooperation even in some circumstance of conflict. Wolf, finally concluded that, interstates wars over water resources are not likely to happen due to the fact that fighting the war because of water resources does not apparently to be what he called ‘‘strategically rational’’, ‘‘Hydrologically effective’’ or ‘‘economically viable’’.

Peter H. Gleick, an international expert on global freshwater resources, in his three published reports entitled ‘‘The World’s water’’ (1998, 2000, and 2002) provided a very extensive analysis on political, economic, scientific and technological issues related with freshwater. The topic of his focus are water crisis, conflict and cooperation over freshwater resources, global warming and water, privatization and globalization of water and other water related issues; he suggest the ‘‘Soft Path’’ or solution to existing challenges of fresh water. The main argument of the concept of ‘Soft Path’’ is to look for new approach on how water is managed. He emphasis for policy maker to rethink on the efficient use of water (demand management) on how and for what we use water rather than seek endless resources of new supply.

Allan (1997) Tony Allan , came out with the new perspective of the concept of ‘‘virtual water’’, he tried to answer the question as ‘‘why there had been no water wars in the middle East and North Africa (MENA) despite predictions warning by both politicians and different scholars’’, in his answer he found that the middle East and North African

region have been importing water from international system through trade in the form of what he used to call ‘‘virtual water’’ or ‘‘food import’’, according to Allan ‘‘virtual water’’ is the ‘‘water embedded in the key water intensive commodities’’ (Allan.1997). Allan argue that a key indicator of the scale water deficit of an economy is reflected by the level of its food import. Allan pointed out that substantial amount of water flow into middle East each year in ‘‘Virtual form’’. His main argument tried to pinpoint is that the solution for water deficit countries can not only be found by just depending on hydrological system or watersheds but in a political economy of global trading system , ‘‘virtual water’’ being one among the solution. The idea of Allan is contrary against the principle of food self-sufficiency which most of the countries struggle to maintain and the ‘‘virtual water’’ concept embrace the dependency on food import from other countries.

Turton (2002), in his book, ‘‘Hydropolitics in Developing World’’, disputed the existing hydro politics literature which seem solely concentrated on international river basin in which conflict is high. He mentioned four elements of bias inherent in the existing literature on hydro politics namely;

- The first bias refers to water and conflict, where the literature focuses on conflict and cooperation within the framework of the state or where the state is mostly used as the unit of analysis.
- The second category of literature seeks to place water within a broader environmental setting and water is seen as being a component of the environment,

with a variety of inherent conflict drivers.

- The third body of literature referring to water and security aims at drawing attention to the element of crisis within the water sector and consequently politicises, or "securitizes" the management of water resources.
- The fourth group of literature focuses on the social and cultural components of water and as the result tends to examine water in a more abstract and less empirically defined sense.

The key points he wanted to deliver is the new definition of hydro politics, hydro politics according to his perspective is a ''study of the authoritative allocation of value in the society with respect to water''. He introduced two concepts of ''scale'' and ''range'' to elaborate in details the definition of hydropolitics. The scale in this context is regarded as a vertical dimension of hydro politics which includes range of issues from individual, to household, village, the city, social, provincial, national and international level with a number of undefined levels in between. The range which is horizontal dimension is almost infinitely wide, and includes issues such as conflict and its mitigation, states and non-states actors, water service delivery, water for food, the social value of water and the political value of water. His main objective is bringing a clear understanding on concept of hydro politics so that it can be addressed appropriately in development as a discipline.

Generally, the above scholars and other authors tried to bring out the perspective idea of water scarcity against water wars argument which justify that there no empirical

evidence back up a causal relationship between water scarcity and war/conflict. Additionally, some scholars /authors tried to bring different perspectives on how water resources scarcity can be addressed to avoid water related conflicts. They did not underscore the interlinkages between water resources and political unrest and they insist on the need of cooperation on transboundary water resources in order to jointly address the water scarcity challenge to avoid crisis.

CHAPTER THREE: LEGAL PERSPECTIVES ON THE ALLOCATION AND UTILIZATION OF NILE WATERS

3. Overview

It has proven to be difficult to establish a strictly binding international law on transboundary watercourse, the Nile river throughout its history has been subjected to several treaties and agreements regarding the utilization of the Nile water, out of many existed treaties signed on the Nile waters, the two treaties which seem to be the most critical both in the scope and their relevance for the negotiation of the Nile Basin cooperation are the 1929 Anglo-Egyptian Nile waters agreement and the 1959 agreement (Hefyn & Amer, 2004).

The following section will discuss in details on the entails of these agreements which formulated a critical debate up to date on the allocation and utilization of the Nile waters for the riparian states in the Basin.

3.1 Principal Treaties and Agreement regarding the Utilization of the Nile Waters

The historical background of the process and negotiation on utilization of the Nile waters can be traced back from 1891. There were eleven (11) bilateral treaties and agreements involving Nile water signed by different countries, five of these treaties and agreements

were signed between Great Britain and Egypt, and two treaties were signed between Great Britain and Italy (December 20, 1925, April 15, 1891) (Fafesse, 2001).The other treaties and agreements were signed between Britain and Ethiopia march 18, 1902, Great Britain and Belgium November 22, 1934, Egypt and Sudan (November 1959). All of these agreement and treaties were negotiated on strictly bilateral basis and Great Britain has always one party of the treaty except in the agreement of 1959 that were signed between Egypt and Sudan *(ibd*).

The 1929 and 1959 agreements that formulated critical debate in the utilization of Nile water for the riparian states up to day are elaborated in the following section below.

3.1-1 The 1929 Agreement

The 1929 agreement was result of negotiation between the British Empire and Egypt and this agreement has proved as a landmark of blessing for some of the riparian states in the Nile basin and at the same time created a curse for other others on the rights and utilization of the Nile waters.

The two important aspects of this agreement is that; first, Egypt recognized Sudan's at this time a British colony , rights to use and increased amount of water of the Nile, the second, Britain committed that Egypt had ''Natural and historic rights'' to the water of the Nile and stated that the ''safeguarding these rights was a fundamental principle of British policy'', hence the amount of water flowing into Egypt was not to be affected

negatively (Holm, 2014:35). In this agreement Sudan was entitled the allocation of 4 billion cubic metres of water per year and 48 billion cubic metres of water per year was reserved for Egypt. Britain in this agreement not only signed on behalf of Sudan but also signed on behalf her colonies in the Nile Basin such as Tanzania/Tanganyika, Kenya and Uganda. Ethiopia, the country where the main tributary sources of the of flow Nile river starts and the major producer of the Nile water was neither involved or consulted during the negotiation and signing of the 1929 agreement hence no any water share that was allocated to Ethiopia. (Hefny& El-Din Amer, 2004: p.49; Mokenner, 2010: 432; Tved, 2004: 141-148)

The 1929 agreement, between Britain and Egypt entitled Egypt to claim ‘‘historical’’ and ‘‘natural rights’’ with respect to the Nile water, Egypt was given the mandate to approve any projects/activities undertaken in the entire basin which are likely to affect the flow of the Nile river (Arsano, 2010).

3.1-2 The Agreement of 1959 (Nile Waters Treaty)

This treaty was signed between independent Sudan and Egypt and it allocated a ‘‘full utilization of the Nile water’’ for the two countries. The process of renegotiation of the new allocation of the Nile water from the 1929 agreement started after Sudan raised a serious complaints and expressed its dissatisfaction with the 1929 agreement (Yohhanes, 2013).

The dissatisfaction of Sudan against the 1929 agreement started after Egypt shown an interest to start building the Aswan dam project with storage capacity of 164 billion cubic metres per year which raised an alert for many Sudanese nationalists to claim that Egyptians were exploiting the Nile water without taking into account the interest of Sudan, Sudanese started to disregard the 1929 agreement and its related terms, hence started to undertake unilateral irrigation projects (Kiros, 2012).

Sudanese continued to demanded renegotiation of a new water allocation agreement that would address their existed water demand and more specifically the potential need for irrigation schemes for the future. However, Egypt continued to ignore and rejected the Sudanese claims by insisted that she has ‘‘historic and natural rights’’ to the Nile water (Wolf &Newton,2006). The process of renegotiation for the new agreement was very difficult; however, in 1959 the two countries reached a consensus and signed the Nile Water Treaty on the 8th November 1959, this treaty allocated the full utilization of the Nile water between the two countries without considering other countries in the basin (Yohhaness, 2013).

In this 1959 treaty , Sudan water allocation was increased from the previous 1929 agreement in which she was entitled 4 billion cubic metres of water per year to 18.5 billion cubic metres of water per year of the total 84 billion cubic metres average annual flow of the Nile river measured at Aswan High dam. On the other hand, Egypt retain to use 55.5 billion cubic metres of water per year and the remain 10 billion cubic metres of

water per year was estimated to be lost through evaporation (Mtui, 2017; Knobelsorf, 2006)

In this agreement, Sudan was free to construct several dams and reservoirs to utilize its own water share. Furthermore, both Sudan and Egypt agreed not to negotiate with any third party over the Nile water before they reach a consensus on a common position. This has proved to be a setback in the current negotiation for the basin-wide cooperation among the riparian states due to the fact that Egypt and Sudan are always in one side to oppose any proposal brought forward by other riparian states which is likely to affect the existing status quo of the 1959 agreement.

The 1959 agreement also recognize and maintain the Egypt‘s claim to ‘‘natural’’ and ‘‘historical’’ rights as it was stipulated in the agreement of 1929. The agreement also continue to maintain the monopoly of the Nile water to the only two countries (Sudan and Egypt) without recognizing the other upstream riparian states.(Makonnen, 2010; Cascao, 2009:245; Hefny&El-Din Amer, 2005:50; Yohannes & Yohannes, 2013:199; Tvedt, 2011:102).These two agreements regarding to allocation and utilization of the Nile water has become Egypt’s ‘‘redline’’ in all discussion on the negotiations related to the Nile water ever since.

Ethiopia has officially refused to recognize these agreements because she has never been a party and always has been insisting that ‘‘there is no legal or moral ground that makes the agreement binding on Ethiopia’’. Other upstream states such as Tanzania, Kenya ,

Uganda after gained their independence started to question the legitimate of these agreements and also refusing to acknowledge the existed colonial agreements by arguing that, the 1929 and 1959 agreements are ‘‘inherently colonial in nature’’ and they can not be binded by an agreements in which they were not a parties of it. (Makonnen, 2010; Yohanness & Yohanness, 2013: 200).

Egypt and Sudan who are the downstream riparian states and the most significantly beneficiary of the both 1929 and 1959 agreements have been always in struggle to maintain the existing ‘‘status quo’’ while the upstream riparian states such as Ethiopia and the Great lakes region states such as Tanzania, Kenya, Uganda, Burundi, Rwanda they have been demanding for the change in the existing status quo of the Nile water allocation to be replaced by equitable utilization rather than on ‘‘historical’’ and ‘‘natural rights’’. The main argument of the upstream riparian states is that the inclusion of ‘‘natural and historical rights’’ in the new pattern of agreement and Basin-wide cooperation it has ‘‘nothing more than old wine in the new bottles’’(Cascao, 2009).The lack of a comprehensive and binding agreement for all riparian states in the basin has precluded management and development of Nile water Basin. The downstream states’ continue to rely on the existed colonial agreements and it became a road rock of hydropolitics for cooperation and comprehensive treaties in the basin.

3.2 The Law of International Watercourses and its implications for the Nile Basin Cooperation

3.2-1 The Convention and Customary International Law

The conventional on the law of Non- navigational uses of international watercourses, normally known as 'UN Watercourses Convention'' is an International treaty adapted by the United Nations on 21 May 1997, pertaining to the uses and conservation of all waters that cross international boundaries, including both surface and underground water (Abebe,2014). This treaty aim to conserve and manage water resources sustainably among states for current and future generation. From the first time it was adapted it took more than 17 years to enter into force on 17 August, 2014. With the treaty having been ratified by just 36 states, majority of countries, especially, the key one remain out of its scope. The Convention is generally considered the most accurate representation of customary international law regarding international watercourses (Azarva, 2014).

In this regard, it is critically important to discuss in details on how the UN watercourses convention is relevant and useful in addressing the Nile water issue/crisis which remain to be a puzzle for the riparian states cooperation in the basin.The UN Watercourse convention rests on the core principles of ''equitable and reasonable utilization and participation of the riparian states exploiting a watercourse'' and an obligation not to cause ''significant harm to other states sharing the watercourse'' (Abebe, 2014)

These principles are reflected in Articles 5 and 7 of the Convention. Article 5 requires states to "participate in the use, development and protection of an international watercourse in an equitable and reasonable manner" and instructs them to use and develop the international watercourse "with a view to attaining optimal and sustainable utilization thereof and benefits therefrom"(Azarva &Supra, 2014). Article 7 imposes an

obligation on states to "take all appropriate measures to prevent the causing of significant harm" to the other states sharing an international watercourse This principle reflects the *maxim sic utere tuo ut alienum non laedas* and suggests that upstream riparian states can develop their water resources, as long as such development does not "significantly harm" downstream riparian states. Articles 5 and 7 of the Convention, read together, appear to encourage states to minimize significant harm from their use of the international watercourse and to reach equitable and reasonable solutions to watercourse conflicts (Abebe, 2014).

With this highlight on the UN Water convention core principle article 5 and 7 which are fundamental basis of this convention emphasising on ‘‘equitable’’ and ‘‘reasonable utilization’’ of riparian states exploitation of the watercourse (article 5) and obligation not to cause ‘‘significant harm’’ to other riparian states sharing the watercourse (article 7), let us now look on how these articles validate/support or reject the claim of upstream or downstream riparian states on the utilization of the Nile water.

3.2-2 Downstream States claims on the Utilization of Nile water under the UN Water Convention Perspective

Downstream riparian states (Egypt and Sudan) would likely offer several justifications under international law to support its claim that have a near exclusive right to use the Nile and its resources based on Article 7 of the UN Water Convention, which imposes a duty on states to take measures to ‘‘prevent causing significant harms to other states

sharing an international watercourse'', to argue that they have the right to limit upper riparian development of the Nile's water resources.

The claim would be that any big projects that would be constructed such as Dam project would cause significant harm to downstream states by negatively affecting the Nile's water volume and reducing downstream water resources that they solely depend upon for economic and social life and mostly they regard the Nile water as national security issue (i.e Egypt).Downstream states at various time have been arguing that even the existed agreement of 1929 and 1959 (Nile Water Treaty) was purposely to guarantee exclusive rights (historical and natural rights) for their survival because they have limited alternatives of water sources.

3.2-3 Upstream States claims on the Utilization of the Nile water under UN Water Convention Perspective

Article 5 of the UN Water Convention, permits riparian states sharing an international watercourse to utilize the watercourse in an ''equitable and reasonable manner'' According to Article 5, upstream riparian states would argue that the Convention implicitly rejects an appropriation approach to international watercourses, one that would have assigned the right to exploit the international watercourse to the first state to utilize it, in favor of a riparian approach that permits each riparian state to have equal use of the international watercourse.

Article 5 of the UN Water Convention support the claim of upstream states to utilize the Nile's water resources as longer as it would not cause ''significant harm'' to other riparian states particularly downstream states. Upstream states would also claim the unconditional and exclusive right to develop and utilize the Nile's water resources within its territory. Relying on the Harmon Doctrine the idea that jurisdiction over natural resources in a sovereign's territory is exclusive and absolute hence each upstream states would claim it has the right to unimpeded exploitation of the Nile's water resources within its territorial jurisdiction. (Daniel Abebe, 2014).

3.3 Summary and Conclusion

Through the above analysis on the implication of the UN Water Convention to the upstream and downstream riparian states claim on the utilization of the Nile water, the terms like ''equitable and reasonable manner'' and ''significant harm'' in Article 5 and 7 of the convention it gave both upstream and downstream riparian states the rights on utilization of the Nile water. However, it still bring some questions on how best are these article 5 and 7 can be interpreted by the riparian states to reach the common ground in which the interest of all would be addressed in the appropriate way.

Perhaps downstream riparian states (i.e. Egypt) have the better legal argument and should be permitted to limit the utilization of the Nile water by upstream riparian states like Ethiopia, or perhaps Ethiopia can exploit Nile water without any cause of significant harm to downstream states like Sudan and Egypt. But even if the Convention were the sole binding international legal document available to resolve the claim/conflict between

lower stream riparian states (i.e. Egypt) and upper stream riparian states (i.e. Ethiopia) the Convention's two core articles , Articles 5 and 7 leave sufficient ambiguity to permit both states to view the Convention as supportive of their respective legal positions. Simply stated, there is no binding principle of international law that compels a particular result for the parties (Azarva, 2013; Supra, 2014).

Increase in water scarcity due to various factors such as adverse effect of climate change, rapid increase in population and poor water resources governance within the Nile basin is more likely to accelerate the claims and conflict between Nile Basin riparian states particularly in the eastern. Lack of comprehensive and binding agreement has been a setback for water resources governance for the sustainable development of riparian states in the Nile basin. The downstream riparian states selective insistence on the existing colonial agreements (1929 and 1959) has become a roadblock for the basin-wide cooperation and comprehensive treaty in the Nile Basin.

How does the UN Water convention act as an important legal instrument to promote cooperation among the riparian states in the Nile basin?, According to Sherk et al (1998) assert that the UN Water Convention has provided a legal framework for determining the rights and responsibilities of the state concerning the key questions of ''who get what'' in regards to Nile water utilization.

Brunnee and Toope (2002), argue that fundamental principles of the water entitlement in the UN Water Convention has created more space of cooperation sprit in the Nile

basin relationship that is was before. The authors explain further that, the convention triggered cooperation in the Nile basin based on its core principles of Article 5 and 7 which ‘‘neutralise’’ computing rules, Article 5 and 7 of the convention provides both riparian states the legal rights on the utilization of the Nile water. In this perspective, states should cooperate to attain the maximum relative gain rather than focusing on absolute gain. It motivate riparian states to find the common ground on fair solution for their disagreements.

Brunnee and Toope (2002) in their article entitled, ‘‘The Changing Nile Basin Regime: Does Law Matter?” The authors argued that the UN Convention has played a potential contribution in promotion of cooperation in the Nile basin quite different as seen by others as limited or that its role has been considered subordinate. The authors assert that ‘‘the evolving normative framework for shared freshwater has helped to re-define both the identities and interest of the key state actors in the Nile basin, moving them more recently towards more cooperation behaviour’’(2002:110). This argument was based on the assessment of contribution of the Nile historic treaties/agreements, international water law, and various informal institution and process in place to promote cooperation among the Nile riparian states. Brunnee and Toope conclude that international law has set the way forward for the riparian states to decide on either to formalize the previous reached agreements through a rational strategic bargaining or to establish a new legal framework regime on water resources management /governance in the Nile basin.

CHAPTER FOUR: EVOLUTION OF COOPERATION PATTERN IN THE NILE BASIN AND THE NEW INVOLVING COOPERATION UNDER NBI

4. Overview

Since the 19th century, the only cooperation that was existed by the Nile basin countries were based on bilateral tied by agreement between two or three countries, and the main purpose of this relationship was to ensure the control of the amount of Nile water by downstream countries such as Egypt and the necessary measures were taken to prohibit the upstream countries to initiate or to undertake any project along the Nile river which can affect negatively the volume of water flow to the downstream countries (Mtua,2017:32; Tariku,2014:78Many activities or project undertaken was initiated by Egypt in order to maintain its status quo of the Nile water based on the 1929 and 1959 agreements. Therefore, since the beginning the cooperation among the riparian states were based on mistrust, suspicious and were mostly bilateral rather than focusing on the basin –wide cooperation to share the available water resources in the basin for benefit of all riparian states (Tariku,2014).

This section, highlight the historical background of cooperation effort made by Nile basin riparian states from the beginning of 1960's to present era of Nile Basin Initiative (NBI) which focus on establishing the basin-wide cooperation involving all Nile basin

riparian states and to set up institutional legal framework for the water resources management/governance in the Nile Basin. Briefly, the most widely known multilateral cooperation efforts in the basin effort are Hydro-Met project, Undugu, TECCONILE and the current one, the Nile Basin Initiative (NBI).

4.1 Background of Cooperation in the Nile Basin

4.1-1 Hydro-Met Project (1967-1993)

In 1967, Egypt, Kenya, Sudan, Tanzania and Uganda launched the Hydro-metrological survey of lake Victoria, Kyoga and Albert (Hydro-Met) under the support of the United National Development Programme (UNDP) and the World Metrological Organization (WMO). The objective of this project was to collect and analyse hydrological and metrological data in the great lake catchment areas with specific purpose of regulating the water level of the lake Victoria as well as water flow of the Nile. In 1971, Rwanda and Burundi joined with the project and Ethiopia joined as an observer member (Kebrom, 2011; Mtua, 2017).The project was very important for all Nile basin riparian states as far as the issue of collection of hydrometeorological data and the investigation of the meteorology, hydrology and hydraulics of the upper Nile Basin as priority for sustainable water resources management (NBI, Mtua, 2017).

Hydro-Met project was well succeeded to collect and gathering important meteorological data; however, it fail to harmonize the divergent interest between upstream and downstream riparian states on the utilization of the Nile water. The

project continued to work for twenty five years and it end up in 1992 (Mtua, 2017).

4.1-2 Undugu (1983-1993)

In 1983 the ‘‘Undugu’’ initiative was established in the meeting that held in Khartoum, Sudan. Undugu was initiated by Egypt; and its the member were Egypt, Sudan, Democratic Republic of Congo (DRC) and Central Africa Republic (non-riparian states). Ethiopia, Kenya and Tanzania decided to be observers (Kebrom, 2011; Mtua, 2017:79).The objective of ‘‘Undugu’’ initiative aimed to achieve a regional cooperation in the area of environment, infrastructures, trade and culture (Yacob, 2007) However, Undugu initiative was dominated by Egypt and it failed to realize its objective due to financial constraints and political problem as well as Egypt started to consider Undugu as an exercise in hegemonic influence and started to develop giant irrigation and land reclamation project alone something quite different from the cooperation initiative she introduced at the beginning (Yacob,2017), by this reasons Undugu failed and replaced by Technical Cooperation Committee for Promotion of Development and Environment Protection of the Nile (NICCONILE).

4.1-3 TECCONILE (1993-1999)

In 1992, the Ministers responsible for Water Resources from Egypt, Sudan, Rwanda, Tanzania, Uganda and Democratic Republic of Congo signed the agreement in Kampala (Uganda) which created a new organization known as TECCONILE (Technical Cooperation Committee for Promotion of Development and Environment Protection of

the Nile). Other four riparian states such as Kenya, Burundi, Eritrea and Ethiopia participated as observers (Metawie, 2004).The secretariat of TECCONILE was allocated in Entebbe, Uganda and started its function on January, 1993(NBI, 2019).

Apart from other things, TECCONILE was created to coordinate the common interest of riparian states towards the establishment of permanent basin –wide institution. It played a key role in facilitating the 2002 conference series and this acted as a platform for informal dialogue among the riparian states and international community. Although TECCONILE, initially was perceived by some people as a ‘‘Novel initiative representing an attempt to circumvent the effect of the political dominance of Egypt in Undugu’’ but it remain to stand to be more technical in its operation at the cost of political negotiation over the Nile issues (Kiros, 2012).

In 1995, TECCONILE organized the conference for the Ministers of Water affairs from riparian states in the Nile basin; in this meeting, the Ministers endorsed the Nile Basin Action Plan which highlighted 21 projects at the total cost of US $ 100 million. Ethiopia used this opportunity to submit its reservation requesting the plan should also include the preparation of the Nile Basin Cooperation Framework; the Ministers accepted the proposal from Ethiopia and the panel of experts was formed with a task to prepare the recommendations of a permanent Nile Basin cooperative framework. The ‘‘equitable entitlement’’ concept to the Nile water riparian states raised by Ethiopia was taken as among the priority issues rather than a long term objective(Dereje,2010).Despite TECCONILE’s technical focus, this achievement was become a decisive springboard

for the next phase in Nile riparian cooperation. Generally, it is possible to argue that the period from 1967 to 1999 was a period of "limited cooperation" in the history of the Nile basin because attempts at multilateral cooperation during this period was ultimately failed because some countries had an observer status(Belay& Semakula,2010). The observer status of some riparian states was partly due to their perception that the fora were dominated by Egypt. TECCONILE was replaced by Nile Basin Initiative (NBI) in 1999 and since then multilateral cooperation has changed dramatically because all of the Nile countries, including Ethiopia, are active members (Dereje, 2010).

4.1-4 Nile Basin Initiative (NBI)

The Nile Basin Initiative (NBI) is an intergovernmental partnership of ten Nile Basin countries, namely Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, The Sudan, Tanzania and Uganda. It was established on February 22, 1999, by Ministers in charge of Water Affairs in the Nile Basin countries: "*To achieve sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources*".

During the launch of NBI, the Nile- COM also adopted (guidelines for) a Strategic Action Program that consisted of a set of two sub-programs: the Shared Vision Program (designed to build technical and institutional capacities of participating countries to enable and facilitate the cooperation process) and the Subsidiary Action Programs (designed to facilitate embarking on joint water resources investments to demonstrate early benefits of the cooperation process (NBI,2019).

Driven by Nile countries themselves, NBI marked the first time a truly comprehensive mechanism of cooperation had been agreed among riparians. It provides Member States with the only basin-wide and impartial platform to discuss with trust and confidence how to jointly take care of and utilise the shared water resources for win-win socio-economic benefits and to promote regional peace and security.

The NBI was launched as a ‘‘transitional’’ arrangement up until ‘‘…a final Framework for Cooperation is put in place’’, i.e. the Nile Basin Cooperative Framework Agreement (CFA) that would provide a permanent legal and institutional basis for Nile cooperation. These two parallel processes, the implementation of the NBI Strategic Action Program to which riparian countries agreed to, on the one hand, and the negotiation process to arrive at a Cooperative Framework Agreement, on the other, will be referred to as the ‘NBI’ and ‘CFA’ tracks respectively in this research paper.

The NBI started implementation of the Strategic Action Program in 2003 through a basin-wide Shared Vision Program which comprised 8 projects, and two Subsidiary Action Programs, one for the Eastern Nile and the other for the Nile Equatorial Lakes region. At the end of the first Strategic Action Program, in 2012, as part of the Institutional Strengthening Project executed by Nile-SEC, member states agreed on three core functions of the NBI, namely;-

- Facilitating Basin Cooperation - Providing the regional platform for multi stakeholder dialogue, information sharing, joint planning and management of shared water and related natural resources in the Nile Basin

- Water Resource Management - Strengthening Member States' institutional and technical capacities as well as developing and operating a shared knowledgebase to support decision making at basin-wide level and action at lower levels.
- Water Resource Development - Assisting Member States to identify and prepare regionally significant investment projects and mobilising financial and technical resources for their implementation.

NBI Institutional set up and Programme Implementation

Overseeing both the NBI track and CFA track, the Nile-COM was originally established under TECCONILE and remains to this day the key policy and political decision-making body of the NBI. Approving annual work plans and budgets, overseeing the implementation of NBI activities, and helping to ensure the receipt of government contributions, Nile-COM also engages the external support of development partners and on the recommendation of the Nile TAC, selects a new Executive Director of Nile-SEC every two years.

The NBI operates from its three centres – the NBI Secretariat (Nile-SEC) in Entebbe, the Eastern Nile Technical Regional Office (ENTRO) in Addis Ababa and the Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) in Kigali. ENTRO and NELSAP-CU primarily are mandated to prepare water infrastructure investments in the Eastern Nile and Nile Equatorial Lakes sub-basins, respectively.

Each NBI centre has its own governance structure involving a Council of Ministers of Water Affairs and a Technical Advisory Committee. Thus, the NBI structure involves the Nile-COM, which is the decision-making body for the Nile-SEC, the Eastern Nile Council of Ministers (ENCOM), which is the decision-making body for ENTRO and, similarly, the NEL-COM. Each of the Council of Ministers is supported by a Technical.

The setup of NBI is informed by the principle of subsidiarity to enable leveraging distinctive development potentials and addressing constraints and challenges unique to geographic regions.

The breadth and depth of work programs of the NBI centres has greatly evolved in the last 5 – 7 years adapting to changes in country priorities and funding situations. The three centres, especially ENTRO and the NBI Secretariat evolved differently responding to the specific challenges they faced and the circumstances under which they had to operate. In 2010, following the signature by 5 riparian states of the CFA, Egypt and Sudan suspended their full participation in NBI activities.

Thus ENTRO, which was established by Egypt, Ethiopia and Sudan, was forced to operate with only one member state remaining. Further, one of the scenarios (or assumptions) underlying the Institutional Strengthening Program (ISP) project, namely that the CFA would be signed and ratified by a sufficient number of countries with eventual transitioning of the NBI into the Nile River Basin Commission did not materialize.

Egypt, Ethiopia and Sudan met in Addis Ababa in November 2012 to find a way of resuming participation by Egypt and Sudan in ENTRO programs. This facilitated Sudan's return to the NBI while Egypt continued to suspend its participation. The Nile-COM agreed in 2012 (21st Nile-COM meeting, July 2012) to gradually increase member country annual cash contributions and fully finance the core operations of the NBI by 2017. The agreed annual contributions of member states duly grew from US$15,000 (agreed in Dar es Salaam in 1999) to over US$300,000 by 2017.

Those countries that contributed to all three NBI centres would now contribute over US$400,000 per annum. This was a significant step forward to ensuring the financial sustainability of the NBI's core operations in its three centres.The three centres are now implementing their joint 10- Year Strategy (2017 – 2027), which has been structured along six priority areas, namely: water security, energy security, food security, enhancing environmental sustainability, climate change adaptation and strengthening transboundary water governance (NBI,2019).

The NBI has been driving forward a cooperation mechanism that has brought new levels of understanding about the Nile, captured in a range of knowledge products and tools, including the Nile Decision Support System (Nile DSS). Under the first Strategic Action Program (2003 – 2012), the eight projects of the Shared Vision Program (SVP) established a stronger appreciation of the shared nature of the basin's resources and built alliances and structures – some formal, some informal – that persist to this day and propel forward the message of cooperation for development.

Under the Subsidiary Action Programs (SAPs) joint and cooperative investment projects have been prepared worth over US$6 billion with some that have moved to implementation. Construction of the Rusumo Falls Hydroelectric Power project commenced in 2017 and is progressing well. When completed, the project will have an installed capacity of 80 MW equally shared by Burundi, Rwanda and Tanzania. The Ethiopia-Sudan power transmission interconnection was inaugurated in 2015 by the Heads of State of Ethiopia and Sudan (NBI, 2019).

Capacities of Eastern Nile countries have been strengthened for improved flood early warning and community preparedness. Flood-prone communities in the Eastern Nile have benefited from flood early warnings issued by ENTRO at regular intervals during flood seasons. Slowly, the NBI has had to adapt to changes in the wider development context as new state entities emerged with South Sudan's independence and as countries left the initiative and then returned. New infrastructure has grown both as a result of the NBI's work, but also because countries have continued to develop their own national projects.

The idea that cooperation will generate important core public goods as well as a basket of benefits surpassing those available under conditions of unilateral relationship in the basin has been well established. From its emergence on the cusp of the new Millennium to the present-day 10-Year Strategy, which takes the NBI through to 2027, the NBI has played a key role in changing this discourse. Whatever the economic and political developments in the countries and region in the next 10 years, the NBI has provided a

flexible and constructive contribution to the development and management of Nile Water resources (Hamada, 2011). Its 2017-2027 Strategy now offers a roadmap to achieving stronger multilateral cooperation, under which is nested the development of a portfolio of basin-wide multipurpose investment projects.

Although the story of the NBI may be 20 years old, it is far from complete. Climate change uncertainty, population growth and economic development remain as daunting as ever – challenges in common with other major river basins. A rise in population in Nile countries to more than 1 billion by 2050 will be felt acutely in all economic, environmental and social systems. Food security alone will pile pressure on rain-fed systems in vulnerable watersheds, and challenge other farming systems where the demand for irrigated cropping is increasing. Energy demand will also grow and, with it, pressure to develop hydropower. Knowledge of the right energy mix in different contexts will be key to identifying future solutions that work from the basin scale down to local levels.

Though the NBI was launched as a transitional institutional arrangement up until ‘‘a final Framework for Cooperation is put in place’’, 20 years on the CFA process has yet to yield that intended result. This has affected the NBI in a number of ways not the least as a result of Egypt and Sudan suspending participation in 2010 following disagreement among countries over the signing of the CFA document. Although Sudan returned in 2012, the continued abstention of Egypt from NBI activities has reduced the basin-wide coverage of key work programs. Efforts are being made by the countries to address the

differences with Egypt to facilitate its full resumption of participation in the NBI (Samaan, 2019).

The Nile Basin Initiative was created with the intention of forming a permanent commission within three years' time. However, after twenty years, the countries of the NBI have failed to agree on a formalized legal agreement to form such a body. This particular failure highlights the difficulties associated with attempting to gain a consensus among such a wide array of interests and needs. Despite the fact that the NBI has helped to relieve the tension within the basin, there are key issues that are yet to be addressed.

4.1-5 Cooperative Framework Agreement (CFA)

Cooperative Framework Agreement (CFA) was prepared under NBI. The CFA aim to provide an agreement on legal principles which will determine a reasonable and equitable solution for sharing Nile waters among the basin states.

After almost ten years of negotiations, the draft text for a River Nile Cooperative Framework Agreement was submitted to the meeting of the Nile Council of Ministers (Nile-COM) for their consideration in June 2007. With the CFA the fundamental issue of equitable (re)allocation of the Nile waters was, for the first time, brought onto the cooperative agenda of basin states. It could be considered natural that the CFA negotiations have taken over a decade as it involves a bold initiative to transform a basin noted for unilateralism and competition into one governed by a permanent legal and

institutional framework. Endorsing CFA means including it in national legislation, as well as it would disband NBI and simultaneously establish a permanent River Nile Basin Commission. The CFA is not about quantifying and distributing specific shares of Nile waters. It is about establishing the principles, operational mechanisms and setting up a commission to facilitate and oversee a smooth equitable and reasonable utilisation, management and protection of the Nile waters (NBI, 2019).

A decade of extensive discussions first at the technical level followed by political discussions among the respective Ministers of Water Affairs, the Nile-COM concluded in June 2007 that the draft CFA be referred to the respective Heads of State to resolve the outstanding issues. In early 2006 it was pointed out that the two outstanding issues concerned the status of existing agreements and procedures regarding planned measures, but as the draft CFA was submitted the Nile-COM meeting in Entebbe, Uganda, June 2007, it became clear Sudan and Egypt did not approve the wording or the draft CFA article 14 which involve the issue of ‘‘water security’’. The text of article 14 reads that;

‘‘Having due regard for the provision of Article 4 and 5, Nile Basin states recognize the vital importance of water security to each of them’’. The States also realized that cooperative in water resources in the Nile basin will facilitate achievement of water security and other 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.

Egypt and Sudan refused to approve this language, and proposed to amend Article 14(b) to read "not to adversely affect the water security and current uses and rights of any other Nile Basin State". All other riparian states rejected this proposal not only due to the significantly/adversely controversy, but also because of what they saw as an attempt to revitalise past agreements. Unable to solve this deadlock the Nile-COM adopted the article as agreed upon by all other riparian's together with the proposed amendment (NBI-CFA,2010).

Despite the strong opposition of Egypt and Sudan, which claim historic rights on the Nile waters, the Agreement was opened for signature on May 14, 2010, during a ceremony held at Entebbe, Uganda. Five states have already signed it: Ethiopia, Kenya, Rwanda, Tanzania, and Uganda. Burundi signed in 2011 and the Democratic republic of Congo is expected to sign in due course. The new Cooperative Framework Agreement is influenced by the UN Convention on the Law of Non-navigational Uses of International Watercourses. The CFA does not include any figures about water sharing. It establishes a framework for cooperation among the Nile River Basin states.

May 14, 2010, government representatives from Ethiopia, Rwanda, Tanzania and Uganda signed the CFA in Entebbe. The Ugandan Minister of Foreign Affairs (Regional Cooperation) said "considering that all the principles and articles of the draft Cooperative Framework were discussed by the countries and consensus reached on all

except for one clause under Article 14(b) on Water Security it is appropriate that this document is opened for signature to pave way for establishment of the Nile River Basin Commission". Kenya and Burundi signed the CFA in May, 2010 and February, 2011 respectively and currently six out of 10 countries has signed the CFA. The CFA formalises the transformation of NBI into Nile River Basin Commission and facilitates its legal recognition in the member countries as well as regional and international organisation. For ratification the agreement now needs the signature of DRC. Pending their pledged, the CFA will be deposited with the African Union (AU) and United Nations (UN), after which the Commission will be established to manage Nile waters resources.

The role of the commission to be based in Entebbe and which chair will rotate between its members will then be to discuss and decide on all matters pertaining to Nile development and the use and management of water. The concept of water security was a belated inclusion in the CFA in 2002. The problem is that 'water security' is a non-legal concept that can mean anything a riparian country wants it to mean. As such it has transfused constructive ambiguity into the CFA, which, in turn, will make it possible to bring closer the divergent views held by upper and lower riparian states. It furthermore enables the perpetuation of the legally anachronistic and non-viable status quo of previous agreements and standpoints under the cloak of water security. As such, it is asserted that the decision to interpolate the concept into the CFA represents a "rather unwarranted detour to a dead-end, not a headway towards a compromise and ultimate

resolution of the Nile waters question" (Makonneh, 2010). Including water security has been justified as a means to circumvent the thorny issues of existing treaties and to establish a constructive ambiguity. The first justification is underpinned by the assumption that there in fact exists a legitimate treaty binding all the riparians which, conversely, has been seen as a Trojan horse of Sudan and Egypt to give legitimacy to treaties the other riparians consider illegitimate.

The second justification concerns the amorphous, non-legal aspect of water security. Although helpful in bringing the divergent riparian position into a compromise through constructive ambiguity, the last decade of CFA-negotiations demonstrate less ambiguous positions of Egypt and Sudan with regard to the purport of water security in the context of CFA. Although the decision to include water security was a fateful one, it enabled to move ahead with the CFA negotiations by facilitating a compromise and, allegedly, relegates existing treaties in favour of discussions within the Nile River Basin Commission.

Nevertheless, this ambiguity envisions that Egypt and Sudan's potential CFA signing and future Commission negotiations will facilitate discussions of the ilk previously seen. The governments involved assert their current positions with reference to old assertions of previous agreements and arguments largely following the formula of where they stand depend on where they are situated along the river in maintaining the classic upstream–downstream controversy. This, then, reverts to the position held by Egypt, Sudan, Ethiopia and the Great Lake countries respectively.

4.2 Current status of riparian states's position on the Nile issues and CFA

The downstream and upstream riparian states have been with divergent interest on cooperation and sharing of the Nile basin water resources for mutual benefits. However, for effective cooperation in the basin both upstream and downstream states need to work forward for common goal of sharing available resources and taking a full responsibilities of water resources management in the basin.

Currently, the riparian downstream and upstream states of the Nile Basin have not yet reached a common consensus on the CFA.

4.2-1 Egypt's Position

Egypt position on CFA is still rest on the existed colonial agreements of 1929 and 1959 which provide a historic and natural rights to Egypt on the use of Nile water and to approve any projects initiated by upstream countries in the Nile River. Specifically, Egypt key demand is to maintain the existed status quo of 1959 agreement which guarantee its access to the annual quota of 55.5 billion cubic metres of the Nile water. The position of Egypt is justified by its rejection of the article 14(b) of the CFA in which Egypt want the article to read ''not to adversely affect the water security and current uses and rights of any other Nile Basin states''. This is quite different from the proposed version of the CFA which states that ''Nile Basin States agreed not to significantly affect the water security of any other Nile Basin States'' (CFA-NBI, 2010). Therefore,

Egypt does not seem to be ready for negotiation which is out of the terms and conditions of the 1959 Nile treaty.

4.2-2 Sudan's and South Sudan's Position

South Sudan's decision regarding whether to accede to the CFA is of particular significance for the entire Nile Basin. It could trigger new dynamics in the ratification process of the CFA and be a wake-up call for negotiations for a comprehensive agreement to overcome the colonial treaty regime in order to include all Nile riparian states (Kiros, 2012).

Egypt and Sudan, however, oppose the CFA, consider South Sudan to be bound by the 1959 Nile Agreement, and have tried to persuade South Sudan not to accede to the CFA. Although there have been several signals by South Sudanese officials that they are willing to accede to the CFA, South Sudan has so far been hesitant to sign the treaty. International water issues are currently not on South Sudan's political agenda, as it is engaged in a brutal and destructive civil war. Sooner or later, however, the government of South Sudan will have to decide if it wants to accede to the CFA *(ibd).*

Sudan has no alternative to cooperation with Ethiopia in water projects in order to overcome the problem of sedimentation. This involves the construction of dams in highland Ethiopia, which also would allow for Sudanese import of Ethiopian hydroelectric power. While it favours Ethiopian dam construction, Sudan opposes upstream irrigation schemes as this would drain water destined to Sudan *(ibd).* There is

thus a trend that Sudan is becoming increasingly independent from Egypt, also on Nile related issues, simultaneously as relations with Ethiopia improves. Influential political voices have latterly argued that perhaps Sudan's interests lay more in cooperation with Ethiopia, since this could facilitate steps to improve flood control and protect the Sudan from the threat posed to its reservoirs by silt deposits from the Ethiopian tributaries (Nurhusein, 2020).

4.2-3 Ethiopia's Position

Ethiopia official position on CFA and the Nile issues is purely based on its claim of sovereign right to use the Nile water due to the fact that the Nile water is coming from its territory. Ethiopia has always put forward its claims that she has the rights to use the Nile water for the development of its people such as hydropower generation projects and other economic activities as longer as it does not affect the Nile river water flow to downstream countries (Egypt and Sudan).

Ethiopia is looking forward for more cooperation in all Nile basin states for sharing the Nile water for the benefit all. The decision of Ethiopia government to launch and implement the Ethiopia Grand Renaissance Dam (GERD) in 2011 is the signal that she is ready to use the Nile water for its development. Additionally, Ethiopia has signed and ratified the CFA for the basin -wide cooperation on the Nile basin.

4.2-4 Equatorial /Great Lake countries' Position

The Great lakes countries which comprises Tanzania, Kenya, Uganda, Burundi, Rwanda, and Democratic Republic of Congo have committed towards Nile basin cooperation. The interest of these countries to promote their development by utilizing the available resources the Nile Basin by sharing investment opportunities and management of water resources in the Basin. To justify their commitments towards basin- wide cooperation, five countries have already signed the CFA and 4 of them ratified it.

4.3 Conflict between Egypt and Ethiopia's Grand Renaissnce Dam Project

The Ethiopia Grand Renaissance Dam (GERD) is the huge hydropower generation project initiated by government of Ethiopia in 2011 on the Blue Nile River in Ethiopia. The dam has a water storage capacity of 75 billion water cubic metres and expected to produce 6,450 megawatts , the project is financed by Ethiopian government using its own domestic resources costing a total of Us dollar 4.0 billion.

The Implementation of this project which currently is at 75% has created a critical conflict between Ethiopia, Egypt and Sudan concerning the impact of the project to the Nile river water flow to downstream countries of Egypt and Sudan. Egypt and Sudan claims that the implementation of the project will affect the Nile river water flow to downstream countries which depends solely on the Nile waters. On the other hand ,Ethiopia argue that the project has nothing to do with any effect on the Nile water flow to downstream countries , it's just a hydropower project which does not consume substantial amount of water that will affect the Nile river water flow to downstream

countries (Egypt and Sudan). Egypt has the following claims on the implementation of the GERD project:-

- Is worried the dam will affect flow of the Nile, its main source of fresh water;
- It could lose more than one million jobs and $1.8 billion in economic production annually;
- She claim to have the legal rights of the Nile water according to 1929 and 1959 Agreements;
- 100 million people relies on the Nile for around 90% of its fresh water.

On the other hand Ethiopia has the following Justification for the implementation of GERD project;-

- The hydropower project is crucial to its economic development, only 40% of its people have electricity supply;
- The project has no any substantial effect to the Nile river water flow to down stream countries;
- Aspire to become Africa's biggest power exporter and the power will be shared for all riparian states;
- Ethiopia claim that the Nile water (80%) originates in its territory and has the right to use it for deveopment of its people;
- Ethiopia is against the 1929 and 1959 Agreements which gave Egypt the natural right of Nile water because she was not a part of the agreement.

The critical areas of tensions between Egypt and Ethiopia on the GERD on this conflict lies on building the dam, time of filling the dam and its operation in which the key underlying issue is water security.

To find out a win-win situation, the Declaration of Principles on Grand Ethiopian Renaissance Dam (GERD) between Egypt, Ethiopia and Sudan, was signed by the respective Heads of State in Khartoum on March 23, 2015. Some of the key principles include; principle of cooperation, principle of equitable and reasonable utilization, principle of not to cause significant harm and principle to cooperate on the first filling and operation of the dam. The discussion on how long period should be appropriate to fill the dam without cause any effect to volume of Nile water flow to downstream riparian states remain to be a critical challenge, the negotiation between Ethiopia, Egypt and Sudan concerning how this big project will be managed is ongoing and AU is the mediator of this serious hydropolitics after Ethiopia lose its trust to US, which seem to be in favour of Egypt side.

Table 3: Nature of Interaction of cooperation and conflict in the Nile Basin

Organization	**Member country**	**Observer**	**Form of interaction**	**Nature of Interaction**	
1959 Agreement	Egypt & Britain	None	Unilateral	Cooperative	Conflictive
1959 Agreement	Egypt & Sudan	None	Bilateral	Egypt's control over Nile	Other riparian demands
HdroMet	All, except	Ethiopia & DRC	Multilateral	Meteorogical survey project	Other riparian demands
Undugu	All, except	Ethiopia , Kenya and Tanzania	Multilateral	Infrastructure	Nile Commission proposal
TECONNILE	Egypt, Sudan, Rwanda, Tanzania, Uganda, and DRC	Ethiopia, Burundi, Eritrea and Kenya	Multilateral	Environment and water quality	Allocation of water
NBI	All, except	Eritrea	Multilateral	Investment project	Water security

Source: Researcher summary analysis

CHAPTER FIVE: CHALLENGES AND OPPORTUNITIES OF THE NILE

5. Challenges facing the Nile river Basin

The interdependence between upstream and downstream countries goes far beyond the hydrologic features of surface and groundwater resources and involves socio-political as well as economic linkages, which rely both on historical (often conflictive) relationships and on evolving patterns of diplomatic developments. The challenges arising from the complex management of the Nile flows urge for an analytical shift from the watershed paradigm to a broader problem shed approach in order to take into account regional power asymmetries, dynamics of bargaining processes, legal assessments within international water law, social implications of water management policies and economic analysis of benefit-sharing opportunities (Grandi, 2015).

The changing pattern of power asymmetries, the ambitious plans of unilateral development of water infrastructures by upstream countries, the evolving practices of International Law and the growing interconnected-ness of most Nile countries on water-related fields (such as hydroelectric power generation and intra-basin energy trade) are substantially changing the status-quo towards the unfolding of a new Nile Basin water regime. In the following sections, the rapidly evolving setting of the Nile Basin water management will be investigated from the perspective of social science studies, with the aim to address past and present water crises within the established regime, and with the

purpose of advancing appropriate policies according to the range of future scenarios identified *(Ibid)*.

5-1 Limited water resources with rapid increase in population

Population growth in the Nile countries is likely to severely impinge on future water availability in the region: past and future trends show that the rapidly increasing population in the basin will substantially affect both the quantity and quality of water available and its inter-sectoral distribution. These in turn are expected to impact at different levels on several regional dynamics, from social to economic stability as well as on political relationships and features of water governance.

According to the World Population Prospect (UN 2013), the Nile basin population is likely to almost double by 2050, and more than 400 million people will be hosted in the Eastern Nile alone, doubling the figure for 2010. Obviously this increase won't be evenly distributed among the riparian countries, and the inter-state disparities in terms of population growth will deeply affect not only national policies, but also, and most importantly perhaps, the harmonization of regional strategies and the processes toward the institutionalisation of basin-wide cooperative mechanisms. Indeed, with the regard to population increase, it is remarkable to highlight the growth that both Egypt and Ethiopia will experience, these states being the most important representatives of downstream and upstream interests, respectively.

The Egyptian population, despite a relatively low growth rate, is expected to reach 120 million by 2050, with an expected 56% increase with respect to the 2010 figure. Estimations over the population growth in Ethiopia are even more apocalyptic: with an expected increase of 115% over the period 2010-2050, the Ethiopians will likely reach 190 million by 2050, a figure that would push Ethiopia to the 9th place in the world ranking of the most populated countries [UNDESA, 2013].

Moreover, despite a population increase in Egypt and Ethiopia of 20% and 34% respectively over the period 2002-2013, the total freshwater withdrawals have remained the same over the same period in both countries. Consequently, the decrease in water availability per capita has shown constant regressive figures both in Egypt and Ethiopia: if the total water withdrawal per capita in Egypt was 1,000 m3 in 2000,5 this was reduced to 832 m3 in 2013, whereas the figure for Ethiopia shows a decrease from 80 m3 per capita in 2002 to 59 m3 in 2013. If this trend will continue over the next decades, the availability of water per capita is likely to experience a constantly rapid decrease as the population keeps growing and the water withdrawals remain constant: according to UN Water projections, by 2050 in Egypt the share per person will decrease to less than 300 cubic meters/years [Oestigaard, 2012]. These figures alone would not automatically provide evidences for increased regional water stress in the future, but the exceptional growth of the Nile population is likely to exert increased pressure over the available freshwater resources.

5-2 Urbanization prospects and water demand

Population growth not only shows disparities among the basin countries, but it is also unevenly distributed at domestic level: whether most of the population increase will be experienced in either rural areas or urban areas is likely to have a substantial impact on utilization of the available water resources. For example, in Egypt and Sudan the proportion of population living in rural areas has remained constant over the last 20 years, meaning that there has not been any major migration towards urban areas.

In Ethiopia instead, the percentage of rural population has decreased by more than 5% in the period 1993-2013, while the urban settlements has shown an increase of 10 million people over the same period. Therefore, according to this population distribution over time, the UN estimates that while the urban population in Egypt and Sudan is expected to increase by 13% and 16% respectively by 2050, Ethiopia will experience a much greater rural-urban migration that will account for an increase in urban population larger than 20% by 2050 [UNDESA, 2013].

Urban settlements have usually higher levels of per capita water use than rural areas, since the water demand for municipal needs constantly grows [WWAP, 2015]. This increase is not only driven by the population growth itself, but mainly by the changing patterns of water use and consumption that rapid urbanisation originates along with sustained economic development: not only the industrial sector will increase its water demand due to the likely expansion of the sector (industries are mainly settled in or near urban settlements rather than in rural areas), but also the demand for piped access to water facilities will increase due to the rapid urban population pressure, as well as the

demand for new water-consuming goods by a growing middle class, and the demand for more (and more diverse) food items.

Therefore, despite the fact that agriculture will still hold the lion share on the uses of the available water resources in the basin [WWAP, 2015], in the next decades the Nile riparian countries will have to face the challenges that increased water needs for the urban areas and industrial activities will pose to both domestic and regional water policies, besides general population growth.

5-3 Inter-sectoral competition over scarcity water resources

Among others, one of the crucial aspects to be included into the analysis is represented by the sectoral distribution of water resources: inter-sectoral competition over an increasingly scarce resource is likely to rise, with possible consequences over the intensification of disputes or conflicts among different water users. Agricultural activities currently account for the greatest proportion of total water use worldwide, driven by the high demand for irrigation purposes: in 2005, agriculture was estimated to consume 70% of total freshwater withdrawals worldwide. In Africa, the share of water used in agriculture over the total consumption is even higher, accounting for more than 80% [WWAP 2012]. In the Easter Nile River Basin particularly for Ethiopia case, agriculture water use has remained stable over the last decade with almost 94% on total withdrawals, whereas industrial activities only consumes less than 0,4% of the national water availability.

Despite trends of growing industrialisation processes in the countries along the Nile River, FAO estimates that new vast harvested areas will be developed in the next decades, the projections for 2050 in Egypt, Ethiopia and Sudan show an expansion in irrigated areas of about 2 million Ha with respect to 2005, with Ethiopia expected to increase its land exploitation by more than 120% by 2050 [FAO, 2011]. According to these figures, the water demand for irrigation in these three countries is expected to grow by 13% over the same period, thus escalating the competition for water among the different economic sectors of the societies within the basin. In Egypt, for example, the growing water demand in all sectors will likely increase the gap between available water and unmet demand.

5.4 Expansion of upstream irrigation development and Egypt food demand

Egypt has carried out its ambitious plans of "hydraulic mission" [Allan, 1999] all over the 20th Century, succeeding in building massive water infrastructures (i.e. the Aswan Dam), developing plants for generating hydroelectric power and expanding its cultivated areas (from 2,5 million ha in 1962 to 3,6 million in 2012).11 Despite these national efforts however, the Egyptians still rely significantly on food and energy imports, given the unmet demand for feeding its growing population and meeting the demand of the industrial sector: in 2013 for instance, cereals accounted for the largest proportion of the total Egyptian imports (49%) [MWRI, 2014]. The World Bank [2007] calculated that

Egypt imports more than 16 bcm of virtual water stocked in crops, thus supporting its food needs through external trade.

Unlike Egypt, Sudan and Ethiopia hold both water resources for improving their irrigation potential and suitable land for expanding their agricultural production. According to FAO [2011] projections, Sudan and Ethiopia will increase their irrigated areas by 57% and 124% respectively by 2050, thus improving their agricultural production. Competition for water between agricultural production for domestic consumption and for exports, and between water for food and water for fuel, will impinge on the decreasing water availability within these countries.

5-5 The impact of climate change

With regard to the likely impact of climate change over the hydrologic system of the Nile river, predictions for the future decades are very much uncertain and conflictive figures result from different studies, since "climate change progresses cannot be predicted" [Kloos et al., 2013]. The uncertainty around the prediction of future runoff is due to the fact that rising temperatures could increase evapotranspiration, but at the same time rainfalls "can lead to an expanded cloud cover, higher humidity and lower temperatures, causing reduced evaporation and increased soil moisture, therefore potentially increasing runoff" [Link et al., 2014]. The thesis of an increase in the overall runoff in the Nile basin is also advanced in Kim et al. [2008], and in Jagerskog and Phillips [2006], where a 2050 projection based on a IPCC scenario results in a 20%

increase of the run-off with respect to the average 1961-1990 value in most areas of the Eastern Nile Basin [Arnell 2004].

For these reasons, the effects of climate change over the Nile flows through the modification of precipitation patterns, temperature and overall runoff is hard to predict, and future scenarios vary according to the models and data used. What is certain is that, due to the high variability of climatic events, the Nile Basin states could be exposed in the next future to a huge range of possible climate change outcomes, which not only will modify the actual water systems but will also affect the agricultural production and hydroelectric power generation as well as existing ecosystem. Therefore, if water demand and supply governance are not addressed in an integrated and sustainable way, the riparian states' ability to respond timely and efficiently to climate change challenges will be significantly lowered, with severe consequences over the likelihood of future water crises within the Basin.

5.2 Water –energy nexus

The Nile river basin water resources are not only used as primary input for agricultural production, but are also increasingly exploited for hydropower generation. The potential of hydropower in the Nile basin is estimated over 20 GW, of which less than 30% is currently generated [NBI, 2012]. Energy demand in sub-Saharan Africa has grown by 45% over the period 2000-2012, and it is expected to further grow by 80% by 2040 [IEA, 2014], with hydropower generation expected to increase significantly.

Currently, existing hydropower generation facilities only account for the 26% of the potential capacity in the basin, but in 7 out of 11 basin states it represents the largest share of total national installed capacity (reaching more than 85% in Uganda, Burundi, Ethiopia and Congo) [IEA, 2014], and energy generation from hydroelectric sources is expected to be significantly developed in the next decades across the whole basin. Actually, hydropower generation is very attractive both for national government and foreign investors, and "remain the preferred source of energy in the region" [NBI, 2012] for several reasons, among which the most important are: It generally represents a non-consumptive water use, except for evaporative losses, therefore it doesn't necessarily affect the water flows downstream [WWAP, 2015]);It allows power generation at relatively low per unit cost of production ;additionally it help to control flood and regulate the river flow.

5.3 Water demand and policy implications

Population growth and urbanisation trends, increasing industrialisation and exploitation of hydropower potential, are among the main factors that will drive the increase in water demand for the decades to come in the Nile Basin. Whereas the expected demand increase for the Equatorial Nile riparians does not constitute a major concern (due to the unexploited potential of diverse water sources other than the Nile River), the most demanding scenario emerges from the analysis of future water demand in the Eastern portion of the Nile, also because it's where the river itself acquires a more pivotal role in terms of share of total water availability, in particular in Sudan and Egypt.

Egypt, for example, which can't rely on many water resources but the Nile, already exploits the river flows almost at their full potential, and projections for 2050 suggest an increase in demand up to more than 100 bcm whereas the annual average flow measured at Aswan dam is 84 bcm only [WWAP, 2009]. Both Sudan and South Sudan are expected to double their water demand by 2050, a factor that could potentially threaten the respect of the water quotas allocated by the 1959 Agreement. Thus, for these three countries, the supply-side of water management would only partially provide their populations with affordable solutions, and water-demand management should be prioritized in order to face future challenges. Finally, Ethiopia will more than triplicate its water requirements by 2050, but due to an overall demand substantially lower than its neighbours and given the domestic availability of large renewable resources, its future water challenges could be tackled with improvements in both demand- and supply-side of water resource management.

Water demand management (WDM) is explicitly aimed at managing water "in a more efficient, equitable and sustainable way" [Zeitoun et al., 2010], and in its broader conceptualisations it implies not only technical solutions and technological transfers, but also political, economic, social, institutional and financial policies [Brooks 2003].

According to Zeitoun et al. [2010], WDM needs to be supported by socio-economic reforms as well as political engagement, and interventions should include food trade (i.e. the institutionalisation of regional food market), changing consumption patterns (i.e. in water conservation and food demand), agronomic interventions (i.e. diversification of

production and improved rainfed farming), environmental interventions (i.e. water harvesting and watershed management) and international cooperation (i.e. in transboundary water management and climate change adaptation).

A focus on integrated WDM might be particularly effective in the management of the Nile Basin water system (and specifically in areas where the water supply management could hardly advance) in order to contrast potential water crisis and intra-basin disputes, by the provision of coordinated strategies to deal with the rapid increase in population pressure and the increasing food and energy demand, to supersede narrow national-based interests and to foster a broader integration through cooperation in the water sector.

5.3 Institutional regime for Water Governance in the Nile River Basin

The riparian states of the Nile River Basin are exposed to an evolving situation of physical, socio- economic and political nature: climate change, population growth, patterns of water utilisation and development needs are factors that impact on the overall management of the river flows. Moreover, upstream infrastructure development (i.e. the expansion of hydroelectric facilities in Ethiopia), changing international alliances (i.e. with regard to Sudan and Egypt), foreign investments (i.e. in land acquisition and energy generation) and recent political events (i.e. the independence of South Sudan, the signature of the Cooperative Framework Agreement) are changing the power relationships among the basin states and affect the way in which water issues are considered in domestic and regional agendas (Abseno, 2013).

Economic development and increase in population will likely drive the water-demand curve to a steady rise, whereas the "potential for further supply increase is limited" [NBI, 2012]. Moreover, upstream riparian states are increasing their (previously bare) utilisation of the Nile flows, thus increasing the intra-basin competition for ensuring national water needs.

The projections for water, food and energy demand in 2050 are controversial, but certainly point out at the exploiting limitation of an increasingly scarce resource such as water. However, a narrow "water-shed" perspective focused solely on technical solutions and managerial approaches would not account for the broader picture of socio-economic and political implications, since "Technology alone will not be sufficient to completely offset increasing resource limitations" [FAO & WWC, 2015].

Cooperative efforts toward an increasing integration for all Nile Basin states could constitute the strategy for the establishment of institution regime based on mutual trust, equitable utilisation of shared national resources and benefit- sharing: thus, a water-driven basin-wide cooperation could hold the potential to trigger benefits to other sectors too, and at the same time foster improved relationships among the national governments in the Basin. This in turn could led to more efficient water management, better adaptation and resilient capacity, sustained economic development and, even more importantly, to the overcome of past and present disputes among upstream and downstream countries.

The hysteria around the likelihood of future water wars in the Nile basin has not yet concretized in actual conflicts, and the opportunity that improved regional water

governance and integrated water management could supersede inter-state political disputes and led the basin toward a new regime grounded on the principles of equitable and sustainable use of water resources is real. However, integrated water governance can not be achieved if an effective political commitment is missing, and if national interests and historic(al) mistrust are not downplayed: in order for a new Nile Basin Regime to be established, inter-state joint efforts and the convergence of interests through win-win solutions should be given the highest priority.

CHAPTER SIX: CONCLUDING REMARKS

6. Introductory Remarks Considered

The analysis advanced in this study addressed the dynamic configurations of hydropolitics in the Nile River Basin and the patterns of cooperative and conflictive relationships among the riparian states, from the beginning of 1960's to the current period in 2020 under NBI. The origins of the research puzzle, outlined in the introductory chapter, stand in the relevance of the topic of transboundary water management (TWM) in the Nile basin in the urgency for improved water governance in the basin and the need for combining theory and practice in order to inform policy makers towards more efficient water policies and integrated water resources management.

The first research sub-question (what are the drivers and constraints of cooperation among the Nile riparian states?) facilitated the investigation over facilitated the investigation over the inter linkages between the domestic and the regional levels, in order to define the specific relationships established by each riparian state with the river Nile. In order to pursue national interests the riparian states aim at increasing their share over the river flows, but competing uses among the states risk increasing the potential for confrontations, which create a tension in the Nile basin.

The second sub-question (Why is cooperation and institutional regime is necessary in the Nile basin? Addresses issues of conflict/peace potential among the Nile riparian states, and emphasis upon the institutionalisation of (existing and potential) cooperative mechanisms for the integrated management of transboundary water resources. Whether

water could be foster cooperation or be a trigger of conflicts has been investigated through the identification of regional drivers and constraints for an effective integration among the riparian countries an historical outlook over bilateral and multilateral negotiations over the management of the Nile Basin and a critical assessment over existing agreements and Institutions aimed at the identification of potential legal frameworks for an equitable and reasonable utilization of the Nile waters. The historical patterns of relationships among the riparian states, existing legal frameworks, and evolving regional power asymmetries, the evolution of the relationships among riparian states presents features of hydro-hegemonic setting , as well as mechanisms of counter-hegemonic strategies which are evidences of the role of power plays in determining the out-comes of water related negotiations , the Nile Basin represents a remarkable case in terms of the application of principles of international water law, both with regard to past agreements , diverging perspectives on legal interpretations and likely outcome of current negotiations

6.1 From Potential Conflict to Cooperation Potential in the Nile river Basin

The collection of secondary data over the geophysical attributes of the Nile River Basin disclosed the existence of different hydrogeological sub-systems, with uneven distribution of water resources across the region, a multitude of patterns of climate variability, and substantial differences in population distribution and water uses among the riparian countries. The asymmetries in terms of water availability and accessibility,

in the knowledge management and in the capacity of attracting foreign funds have historically affected the ability of exploiting the domestic natural resources potential in each Nile country. Thus, the combination of both sub-regional areas of physical water scarcity (i.e. Egypt) and economic water scarcity (i.e. Ethiopia), and the absence of an integrated framework for the management of transboundary water resources resulted in intra-basin differences in water withdrawals, utilization and management, ultimately in terms of water governance.

Besides hydrogeological, economic and technical reasons, this study reveals that the core feature of the Nile hydropolitics resides in the regional power asymmetries, consolidated in the last Century by the most powerful actor (Egypt) has impacted on other riparian states, through a mix of coercive and consent-inducing mechanisms of resource capture. The resulting regime of hydro-hegemony over the Nile Basin has been consolidated through strategies aimed at counterbalancing the geographical disadvantage of Egypt (the most downstream of the Nile riparian states, with no internal tributaries to the main river) with relative gains in the three dimensions of power, namely the material, the bargaining and the ideational. Evidences of the existence of a hydro-hegemonic regime are, among others, the allocation of the full Nile waters to only two countries (according to the 1959 Nile Waters Treaty), the interference in the internal affairs of the other riparian states, and the opposition to hydraulic projects upstream. This conduct has consolidated and reinforced the status quo established during the 20th Century, and procrastinate the adoption of a new legal framework for the integrated management of the Nile water resources in the 21st. As a result, Egypt is currently

entitled to utilise 66% of the whole Nile waters and Sudan 22%, with no quotas left for the other upstream countries (given that 12% of the waters is estimated to evaporation).

Divergent approaches to cooperation in the Nile Basin: multilateral agreements or unilateral developments?

The history of cooperative engagements in the Nile Basin is a complex patchwork of mistrust, aborted negotiations, unilateral hydraulic developments, and partial bilateral agreements. The absence of a basin-wide comprehensive agreement over the utilisation of the Nile waters and the perpetuation of reciprocal hostilities among the riparian countries resulted in the lack of a shared vision for a more effective management of the existing water resources. While past interstates initiatives (such as Hydromet, Undugu, TECCONILE) were partial in scope and limited in their effectiveness, the establishment of the Nile Basin Initiative (NBI) in 1999 inaugurated a new era of relationships among the Nile countries, which for the first time were all participating as members of a Nile Basin institution. However, despite it provides a forum for knowledge sharing and joint technical programs, the NBI has failed in addressing the core of the Nile waters dispute, which is essentially of political nature: the allocation and the rights of utilisation of the water resources in the Basin. Conceived as a transitional institution with the aim of establishing a permanent Nile Basin Commission (NRBC) and a new legal framework for the management of the Nile waters, after 20 years of operation the NBI has not yet reached its main goal.

The major divergences in terms of perspectives over principles of international water law (IWL) stand at the core of the Nile waters disputes with regard to the proper legal framework to adopt for the future management of the Basin: while Egypt and Sudan advocate for the supremacy of the no-harm rule and the recognition of historical acquired rights of prior use, the upstream block asks for a revision of past agreements in the light of the principle of equitable and reasonable utilisation. This impasse has hindered the resolution of the legal dispute for over a decade of negotiations, and resulted in a (irreconcilable) breakage between downstream and upstream countries: while the latters signed the Cooperative Frame-work Agreement (CFA) in 2010, Egypt decided to withdraw from the negotiation process. As a result, the Nile Basin is nowadays both governed by partial bilateral or multilateral agreements, and exposed to the unilateral development of hydraulic infrastructures likely to have transboundary impacts over the other riparian states (i.e. the GERD project in Ethiopia). The coexistence of multilateral agreements and unilateral development is a specific feature of current Nile hydropolitics, and this work assumes that only a basin-wide comprehensive treaty informed by the UN Water Convention (UNCW, entered into force in 2014) and other instruments of IWL could overcome the present impasse and provide the Nile states with proper norms for an effective TWM.

Regional drivers and constraints to cooperation.

Ensuring an effective cooperation "in good faith" among the riparian countries encompasses a slow and complex process of confidence building, as well as the

guarantee of an equal distribution of potential benefits among all the members. While on the one hand cooperation is desirable since it provides opportunities for information sharing and knowledge transfers, enhanced possibilities for joint projects and external funding, and improved mechanisms for dispute settlements, the Nile countries could be reluctant in transferring part of their sovereignty over the management of natural resources to supra-national institutions, and in changing the established status quo towards an uncertain new Basin regime.

Among the factors that hinder the possibilities for an improvement in the intra-basin cooperative engagement, an important role is played by the concern of being bound by unfavourable water distribution quotas and allocation measures: this is particularly a relevant issue to Egypt, whose argument is that the current situation of water scarcity in the country would make almost impossible to eventually cede portions of its present allocations to the other Nile riparian states.

Furthermore, the establishment of a permanent NRBC would mean that all the potential projects over the Nile tributaries (and connected aquifers) envisaged by a riparian state should be submitted for approval to the Commission, which could arguably halt the project, while the current situation allows the Nile states to develop unilateral projects without a formal prior approval (in the respect of general principles of International Law).

Another constraint to cooperation is represented by the difficulties in quantifying the potential benefits, and the distribution of them, accruable from the integrated exploitation of the Nile water resources: for example, while some riparian states might

value more economic benefits, others could rather focus on environmental ones, and the balance between different kinds of benefits is a delicate matter that have not yet reached a shared agreement within the international community.

With regard to the drivers of cooperation, an integrated management of the Nile Basin could facilitate the multiplication of benefits of both external and internal nature (Cascão, 2009). In terms of external benefits, the institutionalisation of a cooperative framework would enhance the opportunities for foreign investments and financial assistance by third parties, attract institutional support and contribute to the improvement of instruments of IWL at international level.

At domestic level, the downstream countries would attain more guarantees against eventual unilateral initiatives upstream, access to a broader database of affordable data and information, and rely upon precise norms for water allocation and dispute settlements. In the same way, upstream countries would have their rights of utilisation recognised and protected, accrue major economic benefits from the exploitation of their water resource potential, access to funds for regional energy interconnections, and ultimately counterbalance the historical power asymmetries with the downstream countries.

Relevant alternatives to the current hydropolitical regime in the Nile Basin.

Given the ineffectiveness of the present configuration of the Nile hydropolitics, and the growing contestation of its current outcomes, in particular by the upstream states, the search for potential alternative regimes and the eventual policy implications that a

change in the status quo would convey represents one of the main issues of this study. Asserted that a hydro-hegemonic regime is in place in the Nile Basin, the analysis advanced assessed both the mechanisms through which the status quo has been consolidated, and the emerging strategies of resistance employed by the counter-hegemons.

The relative erosion of power that Egypt has experienced in the period 2000-2015 is likely to endure for the next future, with a consequent re-balancing of power asymmetries between the Nile riparian states. The diverse range of counter-hegemonic strategies advanced by the upstream block, and by Ethiopia in particular, has increasingly contested the hegemonic order consolidated by the downstream states, and un-locked the opportunities for a change in the status quo.

Nevertheless, the entry into force of the UNWC and the likely adoption of the CFA in the next few years would arguably facilitate a transition towards a non-hegemonic setting of the future Nile hydropolitics.

Conflict Prevention: Transboundary Water Management as a tool for integration?

This study argues that the establishment of integrated mechanisms for a shared and agreed management of the Nile waters would be beneficial for all the riparian countries, since the status of water availability in the Basin has already reached its closure point. Indeed, it is estimated that the current patterns of water withdrawals and utilisation are already exploiting the full potential of the existing Nile waters: rather than foresee increases in water availability due to more effective systems of withdrawal in the future,

projections show a constant decrease in water availability in the Basin, considering the adversely impact of climate change in the basin, the rapid population increase and the increasing water demand by sectors other than agriculture.

The figures draw worsening scenarios of water availability in the whole Basin, and in particular in the relatively more arid downstream countries. For a number of reasons, a situation of water scarcity is more prone to the occurrence of water related disputes, or even inter-state conflicts.

In order to prevent the likelihood of intra-basin water wars, the Nile countries should develop policy frameworks for the integrated management of transboundary water resources, which would provide them with coordination mechanisms, efficient technical solutions, and norms for dispute settlements, thus minimizing the risk of conflict.

A system of integrated management, with precise rules and effective mechanisms, would accrue larger benefits for all its members and ensure the equitable share of such benefits, contribute to the de-securitization of water related issues in the region, and promote cooperation in other sectors too, thus fostering a deeper integration among the Nile riparian countries. To be effective, such system urges to be supported by a cross sectoral enabling environment, which can only be achieved through actual political engagement by fostering synergies among the members. Unless the broader political context become more accommodating in order to include the large range of demands by all the different actors in the region, an integrated management of TWM in the Nile Basin would not be effective.

Therefore, achieving cooperation and collaboration (taking into consideration basin-wide needs and concerns) among those states in the basin to which the Nile issue is a major national, political and economic concern should be given priority if the ultimate goal of cooperation is to assist in conflict prevention and resolution, and management of the Nile waters.

Until an all-inclusive cooperative agreement is reached and put into effect, all state-centric and fragmented water development projects in the Nile Basin should take into consideration both the needs of the upstream states and the concerns of downstream states in an effort to reduce possible escalation of already existing conflicts and to facilitate future cooperation and collaboration. Cooperative engagement of the Nile riparian countries should be a continuous process and respond to the rapidly occurring changes in the political, socio-economic and environmental landscapes of the Nile Basin states.

Intensive and extensive sensitisation, education and communication in favour of upstream–downstream cooperation and collaboration at sub-basin and basin-wide levels should be carried out to forge the political will to act. The promotion of broad public awareness is an essential part of basin-wide cooperative efforts to strengthen attitudes, values and actions compatible with the sustainable use and development of the Nile waters.

6.2 Limitation of the study

In high degree of securitisation of water issues in the Nile Basin revealed to be a severe obstacle for the collection of reliable information, both in terms of quantitative data over water availability, withdrawals, and in terms of qualitative information over perspectives and narratives. Time constraints was one of the challenge to conduct this study and in some cases secondary data and information were used to meet the purpose.

6.3 Suggestions for futher research

The analysis over transboundary water management is more and more relevant in a world where water is increasingly felt as scarce and where water wars are believed to occur in the next future. Thus, the role of the researchers results of pivotal importance in order to foster cooperation, avoid the risk of water conflicts and advance solutions for an equitable and effective management of shared water resource, as Professor Aaron Wolf brilliantly argued more than 15 years ago: ‘‘The history of sharing waters is a rich one, filled with nuanced collaborations and practical applications. Yet the resources are threatened by dangers old population and poverty among them and new climate change and commodification, for example. Avoiding crises and violence in the future will require heroic effort and political will, and will rely heavily on the work of the vibrant research community of the next 20 years’’ (Wolf, 1999).

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KOREAN ABSTRACT

국문 초록

강기슭국에서는 나일 리버 물동이 오랜 시간이 되었습 투쟁에서 복합으로 업스트림 및 다운스트림국에서 공정하고 합리적인 활용이 나일강의 물이. 이 강국 국가 간의 수중폴리틱스 관계는 항상 충돌하고 협력적인 행동을 만들어내고 있습니다. 이집트나 다운스트림국의 모든 시간이 있으로 간주되었으로 지배력에서 나일강을 바다와 그녀가 되었습을 반대하는 모든 업스트림 상태를 시작하고 구현하는 어떤 프로젝트 나일강을 따라 강의 물줄기가 없는 상담 및 승인을 받습니다. 식민지 시대의 계약의 1929 년 1959 능력이트 이용 및 제어 나일강의 물고 허용되는 수단을 활용하는 특정한 양의 물에 의해 계정으로는 이집트에 있는 자연과 역사 인권을 다른 상류 국가에서 이러한 계약에 동의합니다.

이집트 계속되고 있을 보호하고 유지하기 위해 기존의 현 상태의 이러한 계약을하는 동안 업스트림 강국의 유역은 항상 요구하는 변화의 이러한 기존 상황으로 물동이 넓은 협력하는 것이 확인하여 공정하고 합리적인 활용이 나일강의 물의 이익을 위해 모든 강기슭국에서 있습니다. 다양한 시도 협력 및 물 자원 관리 및 발생 충돌을 해결하기위한 영구적 인 법률 기관을 설립하기 위해 촬영되었다.

1999 년에,모든 수변 sates 공동체제를 수립하기로 합의하였는 나일 물동이 이니셔티브(NBI)이 첫 번째 시간에서 역사하는 모든 강기슭에서 미국 물동이를 선택하기로 결정했다는 다자간 협력이 있습니다. NBI 었으로 시작되는 과도기관 중에서는 다른 목표를 그것은 주어진 역할을 촉진하는 프로세스를 준비하는 협력 협약(CFA)의 설립을 위한 나일 리버 물동이 위원회(유핵 적혈구)하는 것이

영구적인 법적 기관을 위해 물 자원을 거버넌스에 있습니다. 이 연구는 것을 알지만 NBI 는 중요한 역할을 이동하는 강기슭에서 수력 전기 패권을 다각적으로 접근하지 않았지만 아직 달성된 그것의 주요 목표의 설립의 나일 물동이 위원회에도 불구하고 20 년 동안의 협상이라고 합니다. 의 서명 CFA 을 만들 것입니다 영원한 분위원회는 에스컬레이 의 행동 강국,이집트,수단되는 다운스트림국을 거부했을 받아 CFA 때문에 일부의 기사에서 CFA 문서는 보이지 않는 유리한을 만족시키기 위해 관심이다. 현재 6 강국 국가는 CFA 에 서명했으며 그 중 4 개는 그것을 비준했다.

나일 물동이되었으로 표시되고,위험지역으로 인해 자연의 강기슭국 간에 관계를 물 이용,환경 파괴를 증가,인구 압력,악영향의 기후 변화와 조정되지 않은 프로젝트에서는 유역;이러한 모든 문제는 부정적인 영향에 지속가능한 물자원 관리에 있습니다. 이 연구는 공개했고,효과적인 물동이 넓은 협력에서는 나일 물동이 불가피한 경우에는 강국이 피하고 싶/을 줄일 현재와 미래의 충돌할 수 있는 더 집중적인 인해 물이 부족한 경쟁이 가속화하여 비효율적이고 효과 물자원 관리에 있습니다.