ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

HYDRO-POLITICS OF THE EASTERN NILE AND SENEGAL RIVER BASINS: A COMPARATIVE STUDY

BY

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ADDIS ABABA, ETHIOPIA

DECEMBER, 2016

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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF AAU IN PARTIAL FULFILLMENTS OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF ARTS IN INTERNATIONAL RELATIONS

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ADDIS ABABA UNIVERSITY

COLLEGE OF SOCIAL SCIENCES

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APPROVED BY THE BOARDS OF EXAMINERS

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Advisor	Signature	Date
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Examiner	Signature	Date
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Examiner	Signature	Date

Dedicated to:

MY LATE PARENTS DINQU WELDESLASIE AND GEBREHIWOT KIDANE

Declaration

I, the undersigned, declare that this study is my original work and has never been presented for a degree in any other university and that all sources of material used for it have been appropriately acknowledged.

KAHSAY GEBREHIWOT _____

Signature

Confirmation

_____ _____

Advisor Signature

Acknowledgement

This study could not have been materialized without the invaluable and extended support of many individuals and institutions. First and for most, special thanks deserves to Yacob Arsano (PhD), my advisor, for his meticulous and scrupulous support throughout the study. I want to thank experts who cooperated with the study during the time of data collection from different institutions such as Addis Ababa University, Eastern Nile Technical Regional Office (ENTRO), Ministry of Water and Energy and Ministry of Foreign Affairs for their facilitating key informants on appropriate time. My special thanks go to the Water and Society (WaSo) Project of the department of political science and International Relations of Addis Ababa University for giving me fellowship to Makerere University to complete my study and to gain invaluable experience and exposure in Kampala and Entebbe.

I am also glad to thank for Makerere University WaSo Project staffs for their extensive support in contacting relevant persons and sources to the study area. I would also like to thank peoples in the NBI-Secretariat at Entebbe, Uganda, especially Dr. Abdulkerim Hussein for his cooperation in providing relevant data for the study. I, likewise, thank to Aksum University for allowing me to pursue the M.A degree fully sponsored.

Above all, I want to give my gratitude to my families who wished the best for the study next to "God" especially my brother Mengistu Gebrehiwot for his commitment throughout my academic life. The love and support of my friends Desta Tekulu and Haftu Gebreziher also contributed a lot in the study as to encourage in all my stay in Addis.

Table of Contents

Contents Page

List of Maps, Figures and Tables

List of Maps

List of Figures

List of Tables

Acronyms

AQIM	Al-Qaida in the Maghreb
AU	African Union
BCM	Billion Cubic Meter
CCEG	Conference de Chefs d'Etate de Government
CFA	Cooperative Framework Agreement
COMESA	Common Market for the Eastern and Southern Africa
DOP	Declaration of Principles
GDP	Gross Domestic Product
ENCOM	Eastern Nile Council of Ministers
ECOWAS	Economic Community of West African States
ENSAP	Eastern Nile Subsidiary Action Program
ENSAPT	Eastern Nile Subsidiary Action Program Team
ENTRO	Eastern Nile Technical Regional Office
EU	European Union
GERD	Grand Ethiopian Renaissance Dam
GWh	Giga Watt hour
HAD	High Aswan Dam
IGAD	Inter Governmental Authority on Development
ILA	International Law Association
ILC	International Law Commission
IPoE	International Panel of Experts
IUCN	International Union for the Conservation of Nature
IWRM	Integrated Water Resource Management
MDSD	Most Different System Design
MSSD	Most Similarity System Design
MWRD	Multi-purpose Water Resource Development
MW	Mega-Watt
NBI	Nile Basin Initiative
OERS	Organization des Etats Riverains du Senegal
OMVS	Organization pour la Mise en Valeur du fleuve Sénégal

PWC	Permanent Water Commission
SDAGE	*Schema d'Aménagement et de Gestion des Eaux du fleuve Senegal*
SOGED	Societe de Gestion et d'Exploitation du Barrage de Diama
SOGEM	Societe de Gestion de I'Energy de Manatali
SOGENAV	Societe de Gestiontd' Exploitation de la Navigation
SRB	Senegal River Basin
TECCONILE	Technical Co-operation for the promotion of the development and environmental protection of the Nile Basin
TF	Trust Fund
TKLM	Terekole Kolimbine Lac-Magui
UBSLM	Upper Basin Sustainable Land Management System
UNESCO	United Nation Educational Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNWC	United Nation Water Convention
US	United States
USD	United States Dollar

Abstract

As part of this study, hydro-politics is not really confined to conflict; rather, it has more to do with cooperation in the upstream-downstream relations. The Eastern Nile and Senegal River basins have been tested in this regards within the frame work of comparison. Albeit plenty of studies used for the comparison between the Nile River and different other river basins than Senegal River, they don't consider that the hydro-politics and water flow of the Nile is concentrated on its Eastern sub-basin. For this reason, the Eastern Nile is chosen to compare with the Senegal River basin. The purpose of the study is to make comparative analysis of hydro-politics of the Eastern Nile and Senegal River basins. To meet its objective, the study explores the most different system design approach under the general qualitative methodology. In doing so, the study utilizes both primary and secondary sources of data. Primary sources were gathered from key informants based on their expertise and knowledge to the issue while the secondary sources from various books, journal articles, magazines and open sources like websites. The study, therefore, examines various hydro-political issues of the two basins within the frame work of comparison. As finding unit of analysis, issues such as imbalanced of water contribution and benefits from the water resource, the increasing level of upstream riparian to the utilization of their respective water resources, drought and poverty impact, non –contracting riparian countries to the UN Convention as well as non-water issues of cooperation are analyzed. Moreover, variables like unilateralism over cooperation, existence of strong vs weak institutional mechanism and basin vs sub-basin hydro-politics are discussed. In general, the Senegal River basin is better in line of cooperation compared to the Eastern Nile. Thus, countries of the Eastern Nile need to take a lesson from the Senegal River basin.

***Key words**: Hydro-politics, Cooperation, Eastern Nile River, Senegal River, and Shared River basin*

Chapter One

1. Introduction

1.1. Background of the Study

Water is a fundamental resource and integral part of all ecological and societal activities including consumption and non-consumption purposes (Turton and Hewood, 2002:23). It is normal that where fresh water is scarce, competition for limited supplies can lead nations to see access to water as a matter of national security. However, despite history is stuffed with examples of competition and disputes over shared fresh water resources (Gleick, 2010:18), the ability for nations to peacefully resolve conflicts over water resources can be increased to the extent as a factor of bring stable and secure international relations (Mason, 2004:72). This is due to the fact that climate and environmental changes as well as population growth have threatened the quantity and quality of natural resources *(ibid).* Hydro-logically, any trans-boundary river basin, including both its surface and ground waters, is a single unit that is managed optimally without regard to international borders. From the 276 trans-boundary rivers, 63 of them are located in the continent of Africa particularly in the Sub-Saharan region (ENTRO, 2015:11).

It is obvious that the Nile and the Senegal Rivers are among these international river basins. The Nile River is the longest international river system in the world which has two major head water basins; the White Nile with the Equatorial lakes and the Eastern Nile with numerous tributaries and the head water of Lake Tana (Yacob, 2007:72). These two major tributaries converge at Khartoum to form the main Nile which continues on to Egypt.

The hydro-political nature of the Nile basin is somewhat a kind of sub-basin approach in which the three riparian countries are located in the Eastern Nile the basin where the contentious hydro-politics is there. Throughout history of the basin, downstream countries of the Nile have pursued unilateral and conflicting approaches to the utilization of the river based on their stand on ‘historical and natural rights’. This has been an aspect of tense relationships with the upstream countries for a long period of time. For instance, the upstream country, Ethiopia, is not willing to accept such claims, rather, it argues from the ‘reasonable and equitable utilization’ point of view

which is the most relevant principle of the contemporary trans-boundary water laws (Yeshihareg, 2014:3).

In addition, Ethiopia has never accepted any colonial or postcolonial agreements such as the 1929 and 1959 which the country was not part of it (Yohannes, 2008:13). These extreme deviating positions of downstream-upstream on the use and utilization of the river has been existed long controversies in the history of the basin indeed. However, this tendency is on the track to change recently as the riparian countries took different measures towards cooperation though mostly principles approach. Various attempts of co-operations and negotiations have been taking place mainly from the late of 1990,s onwards to the recent time. The 1991 Ethio-Sudan agreements, the 1993 Ethio-Egyptian agreements, the formation of the Eastern Nile Subsidiary Action Program (ENSAP) and Eastern Nile Technical Regional Office (ENTRO) under the umbrella of NBI are among the manifestations of cooperation in this basin. Despite its concern is not only for the Eastern Nile basin, the Cooperative Framework Agreement (CFA) also could have its own implication to change the trend of hegemonic control on the Nile water by downstream riparian countries which they didn't sign it still.

Above all, there are also recent developments and activities towards the utilization of the shared water between the upstream and downstream countries such as the signing of the Declaration of Principles (DOP) and the initiation of public diplomacy particularly on the issues of the upstream mega-projects which is the Grand Ethiopian Renaissance Dam (GERD) in line with the impacts on the downstream riparian countries. In one way or another, all these activities and developments have been signifying towards cooperation in the river basin. It doesn't mean that all the historical hydro-political controversies between the upstream and downstream riparian countries have been solved yet. It is, rather, still what the countries are trying to do making the above achievements as a starting point but not an end (Yeshihareg, 2014:4).

Coming to the Senegal River basin, the second-largest river next to Niger in West Africa, it comprises four riparian countries of Guinea, Mali, Mauritania and Senegal (Khaled, 2014:22). Originating in the Fouta Djallon Mountains of Guinea, the most upstream riparian, this river basin has traditionally been relied upon as a water source for migratory livestock herds, agriculture, and fishing. Even though water management institutions to develop the Senegal river valley were created during the colonial period, colonial conferences on the status of

Africa's rivers had not recognized the Senegal river as an international river; as it belonged to a single colonial power i.e. French (Klaphake and Scheumann, 2006:11). Nonetheless, the river basin has a history of cooperation, as multilateral agreements have been consistently implemented as a means to ensure effective basin management in an ongoing effort to provide mutual benefit to all states.

The first basin-level attempt to create a coordinating body for the Senegal river basin dates back to Bamako Convention of 1963 when the newly independent states of Guinea, Mali, Mauritania and Senegal established the Senegal River Inter-State Committee (CIE, *Comité Inter-Etats pour le Développement du Bassin du fleuve Sénégal*) which was the pioneer step of cooperation in the basin (African Development Bank, 2014). This institution served as a vehicle for commissioning the key preliminary studies for major water development interventions needed in the basin by declaring the Senegal river to be an 'international river' and created an 'interstate committee' to oversee its development.

The Bamako Convention was supplemented by the Dakar Convention, signed on February 1964, concerning the status of the river (Rimkus, 2005:22). In this convention, the Interstate Committee (CIE) laid the foundation for sub-regional cooperation in development of the Senegal River basin *(ibid).*Later on; the Inter-state Committee (CIE) was replaced by the Organization of Riparian States of the Senegal River (OERS, Organisation des Etats Riverains du Sénégal) in 1968 at the Labé Convention (Khaled, 2014:23). The Labé Convention was composed of various issues by broadening the field of sub-regional cooperation, with the mandate to develop the basin by facilitating closer coordination beyond the water and agricultural sectors *(ibid).*

At the beginning of the 1970s, a larger political crisis occurred that halted progress within the basin significantly, leading Guinea to withdraw from the organization in 1972 (Bernauer et al., 2005:11). This withdrawal of Guinea was followed by Mali, Mauritania, and Senegal calling off their membership and establishing the Organization for the Development of the Senegal River (OMVS, Organization pour la Mise en Valeur du fleuve Sénégal), later that same year, in a commitment to regional integration. Moreover, in May 2002, Senegal, Mauritania, and Mali signed the Senegal River water charter, which established a legal and regulatory framework for use of river water that complements the work of the OMVS. Although Guinea was not a party to

the convention it did not oppose it and joined the OMVS later in 2006 and fully integrated in 2013 (VICK, 2006:22).

Over all implications of cooperation in this river basin, the three member states of the OMVS constructed the two dams i.e. the Diama Dam which was constructed in1986, and the Manantali Dam in1988 (Bernauer et al., 2005:10). Furthermore, there are being carried out different joint projects recently such as the Senegal River Multi-purpose Water Resource Development project (MWRD), the Gouina dam, the Felou hydroelectric plant and the Senegal River Integrated Water Resource Management project (IWRM). All these have been operating under the guidance of the common institution which is the OMVS. On the other hand, it was normal that as any particular cooperation seeks more implementation, it could have at the same time challenges and obstacles. The same was true in the Senegal River basin in which the environmental and ecological issues were among others. Following the construction of the two mega-dams of the Diama and Manantali in the 1990,s, their impacts on the environment of the basin communities became severe (VICK, 2006:25). Despite such challenges have been existed, however, the focus of the study is more on cooperation by considering the Senegal and the Eastern Nile river basins.

1.2. Statement of the Problem

In most cases around the world, there is a tendency of claiming exclusive sovereignty over trans-boundary Rivers by ignoring other riparian countries. This was true in the Eastern Nile River basin for the past several years. Such unilateral penchant on the shared water was one of the negative impacts on riparian counties so that not to cooperate each other. In this regard, the Eastern Nile and the Senegal River basins are fundamentally two distinct trans-boundary waters as far as cooperation is concerned. However, this doesn't mean that there were not attempts of cooperation in the Eastern Nile basin though have not been successful. In the mid of 1990s, the three riparian countries of the Eastern Nile river were seen to attempt bilateral negotiation which was downstream-upstream approach in which Sudan and Egypt signed an agreement with Ethiopia in 1991 and 1993 respectively (Elias,2009:80).

On the other hand, the four riparian states of the Senegal river basin Guinea, Mali, Mauritania and Senegal began to cooperate on the utilization and developments of the shared water resource in the late of 1960,s (Bernauer et al., 2005:15). Nonetheless, Guinea, the most upstream of the

basin, withdrew in 1971 from the next steps of cooperation on the utilizations of the river *(ibid).* This had been indeed one major challenges of cooperation in the Senegal River basin. Despite this challenges, the three riparian countries of the basin were successfully utilized the shared River basin through the establishment of their strong institution as a cooperative frame work which is the OMVS (Ndiaye, 2012:9). On the contrary, cooperation in the Eastern Nile river basin has never been successfully implemented than left on paper and discussion hall. But, this is not indicated as cooperation efforts are totally ignored in this basin.

What the problem is most of the literatures on these issues lack relative comparative analysis in which the hydro-politics of the Eastern Nile is not confined to only dilemmas and conflicts, and rather, there have been attempts and efforts of cooperation despite not as implemented as Senegal River basin. Furthermore, different writers are seen to compare the Nile River basin with other trans-boundary Rivers than the Senegal River without considering that the contentious hydro-politics of the Nile basin is concentrated on its Eastern sub-basin. To the best of the researcher's knowledge, therefore, no study has been conducted on the comparative analysis of hydro-politics on the Eastern Nile and Senegal River basins in particular reference to cooperation. However, there are different literatures on different issues such as environmental, sustainable developments and water and benefit sharing issues of these two river basins. Such kinds of literatures, nonetheless, are lacking with comparative analysis of hydro-politics on the two selected case basins particularly in line with cooperation.

For instance, Kibrome (2011) has tried to discuss the historical attempts and efforts of cooperation in the Eastern Nile basin in his study of "water use and the quest for sustainable development"under the section of the 'history of cooperation'. Accordingly, Kibrome considered institutions like the Nile Basin initiative (NBI), Hydro-met project, Undugu group and Technical Cooperation for the promotion of the development and environmental protection of the Nile River (TECCONILE). His study was not comparative analysis to the Senegal River basin yet. Furthermore, he didn't assess other historical attempts of cooperation among the three riparian countries of the Eastern Nile basin than confined to the above mentioned institutions.

Vick (2006) ,on the other hand, wrote on the Senegal River basin with regarding to its cooperation and environmental impacts of large mega-projects in his work entitled "The Senegal River Basin: Retrospective and Prospective Look at the Legal Regime". Despite Vick discussed

how could be the Senegal river basin is one of the cooperative model trans-boundary shared water in the world, her work was not comparative analysis in which the Senegal river basin would expected to be a lesson of experience of cooperation.

Tariku (2014) also compared the Nile and the Euphrates-Tigris in his study entitled "Challenges of Cooperation in the Nile and Euphrates-Tigris Basin: A comparative Analysis". Most of Tariku's discussion has emphasized on the Eastern Nile sub-basin by considering the three riparian countries (Ethiopia, Egypt and Sudan) as far as the Nile River basin is concerned. However, he put the Nile as a whole on the title of his thesis to compare with the Euphrates-Tigris basin. Thus, the normal problem that most writers do not consider is the hydro-politics of the Nile River basin is concentrated on its Eastern sub-basin in which the Nile basin is, in other words, sub-basin approach hydro-political nature.

These two basins have also relative number of riparian countries which is not considered in some cases comparing the Nile with other basins. Moreover, there are recent hydro-political developments as per to cooperation in the Eastern Nile basin which seems changing the historical perception of tension and dilemmas. Thus, in considering this lack of relative comparative analysis and time gap, this study fills the existing gap by contributing recent hydro-political literatures and other relevant substantiated sources on the two river basins in particular reference to cooperation.

1.3. Objective of the Study

The general objective of this study is to examine the hydro-politics of the Eastern Nile and the Senegal River basins with particular reference to cooperation. As part of this general objective, this study has also sought to achieve the following specific objectives:

- To comparatively examine the hydro-political issues and water utilization of the two selected river basins
- To examine the major differences and similarities of hydro-politics and water use of the two basins
- To show the current hydro-political developments of cooperation in both basins.
- To draw a lesson one from the other in line with cooperation

1.4. Research Questions

- What look like the hydro-political issues and water utilization of the two river basins?
- What are the major differences and similarities of hydro-politics and water use of the two river basins?
- What are the current hydro-political developments of cooperation in both basins?
- What lessons can be drawn the two river basins to each other?

1.5. Core Argument

The Eastern Nile basin is characterized by the tendency of unilateral utilization of the resource of the water while the Senegal River basin is more cooperative which seeks inclusive efforts among riparian states. In any case, therefore, cooperation is not an option, rather, as a matter of survival for both basins.

1.6. Methodology, Research Design and Methods of Data Collection

1.6.1. Methodology

Methodologically, the study is employed under the general qualitative approach. Qualitative approach is appropriate for a study that findings are not arrived at by means of quantification (Snape and Spencer, 2003: 3).This means simply, qualitative approach involves use of non-statistical methods of data gathering and analysis. Therefore, the major data collection methods in this approach are observation, personal interview with key informants, and document analysis. Hence, the selection of the qualitative approach is due to its easy applicability to the research problem and suitability of the data collection methods which is relevant to the nature of the study.

Within the general qualitative framework, the study is descriptive and exploratory. Because, descriptive studies attempt to describe certain phenomena or event as it exists or unfolds whereas the exploratory studies are intended to explore relatively new issues related to a research problem with the intention of, among others, developing new insights and priorities for future studies. Based on this, the researcher has tried to describe and explain the hydro-political nature of the

two selected basins. Finally, this qualitative approach helps the researcher to analyze the existing and potential results from those described and explained data.

1.6.2 Research Design

As far as research design in comparative study is concerned, there are at least two major systems i.e the Most Different System Design (MDSD) and Most Similarity System Design (MSSD). The MDS design engages in two or more cases that are different in almost every aspect except for variables under investigation (Lim, 2005: 43). It focuses on identifying the factors for and existing similarities. On the other hand, the MSS design deals with two or more very similar social systems (cases). According to this design, the characteristics that the systems share are considered to be constant where they can explain a particular social or political phenomenon that is identified to be different among the two. In other words, in Most Similar Systems Design cases that share certain common grounds are compared in order to identify differences between them while in the Most Different Systems Design the researcher attempts to distinguish similarities between the cases which significantly differ from one another *(ibid).* Within this context, the study adopts the Most Different Systems Design (MDSD) comparative approach on the Eastern Nile and the Senegal River basins though variables in the different aspects are difficult to control.

1.6.3. Methods of Data Collection

To gather data on the study, the researcher has used both primary and secondary sources. Primary data have been gathered through interview with key informants who have been selected purposely based on their knowledge and position to the study area. Accordingly, the study has employed semi-structured type of interview having open-ended questions as it allows for flexibility and modification on the nature of questions depending on the circumstances. To this end, the researcher has interviewed key informants from Ministry of Water and Energy, Ministry of Foreign Affairs, Diplomats from the Embassy of Egypt to Ethiopia. Furthermore, experts from the Eastern Nile Technical and Regional Office (ENTRO), from the Nile Basin Initiative Secretariat (NBI-Sec) in Entebbe, Uganda, and Addis Ababa University have been interviewed in the study. Generally, nine key informants have been participated in the study. In addition, secondary sources like books, journal articles, published and unpublished reports, newsletters

and internet sources are used. Most of these secondary sources of data are accessed from Addis Ababa University library, library of Makerere University and Nile Basin Initiative (NBI) data system in Entebbe.

1.7. Significance of the Study

In hydro-politics, there are two major conceptual issues pertinent to the utilization of trans-boundary Rivers. These are conflict and cooperation. As the main concern of this study is on the later, it can have paramount role in providing understandings towards the spirit of cooperation by exploring the current hydro-political perspectives as well as their major similarities and differences of the Eastern Nile and Senegal River basins. Furthermore, the study contributes on giving substantial awareness of cooperation which in some cases it is seen as narrowly perceived to the sustainable one. But, as part of this study, cooperation is not confined to success full one rather it can include attempts and efforts of negotiations and discussions on a particular shared water resources.

Regarding to cooperation, the Senegal River is better than its Eastern Nile counterpart. Therefore, based on the comparison of the two river basins, the study has its own significance by evaluating and drawing lessons from the former to the later basin. Moreover, the study has pivotal contribution towards the tendency of cooperation and its advantages especially to the Eastern Nile which lacks sustainable implementation of water management. Generally, the major significance of this study is to offer additional knowledge and information to the students and researchers in hydro-politics on trans-boundary river basins.

1.8. Scope and Limitation of the Study

It is obviously that hydro-politics can broadly consist issues of conflicts and cooperation in trans-boundary Rivers (Benjamin, 2014:23). As much as both issues are broad, the hydro-political dynamisms are also extensively considered to be outsized. Hence, it may hard to see hydro political issues in terms of both conflict and cooperation in a single study. Therefore, the study has confined to compare the Eastern Nile and the Senegal River basins with its main focuses of cooperation as well as new developments. As far as the limitation is concerned, the researcher has been restricted for collecting and analyzing primary data from the Eastern Nile basin only

which is somehow biased. This is because of the inability to get primary data from the Embassies of riparian counties of the Senegal River basin in Addis.

1.9. Organization of the Study

This study has consisted of six chapters. The first chapter has comprised of an introduction part under which background of the study, statement of the problem, research questions, core argument, objective of the study, significance of the study, methodology, research design and methods of data collection as well as scope of the study have been included. The second chapter also covered the review of related literatures that consists of theoretical and conceptual frame works. Under the conceptual framework section, different hydro-political concepts as well as trans-boundary water terms have been defined while in the theoretical frame work part, water doctrines and international water laws have been discussed. The third chapter also assessed the total hydro-logical descriptions of the two cases. Furthermore, the historical challenges and opportunities of cooperation in the two basins have been assessed under this third chapter. The fourth chapter of the study, on the other hand, focused on the new hydro-political perspectives in both river basins. The analysis part of the study has been carried out under the fifth chapter. Finally, conclusion could be encompassed in the sixth chapter.

Chapter Two

2. Review of Related Literatures

2.1. Concepts and Definitions of Terms

It is obvious that life is impossible without water. This makes, in fact, water is increasingly acknowledged as an extremely valuable resource to the extent that being as a subject matter of hydro-political dynamism. Different writers and scholars vividly put that the study of hydro - politics is a relatively new academic hobby. According to Anthony Turton (2002:15), hydro-politics is emerging as a specific discipline largely as a result of the increased awareness that water-related issues are important and possibly due to a growing North-driven environmental wakefulness. For these reasons, a greater focus on the development of conceptual clarity has become crucial subject *(ibid).* Moreover, as scholars and researchers became involved in studies of water-related issues, they quickly realized that water is a complex resource in which human being is hardly possible to live without it.

Accordingly, Allan (1999:23) clearly stated that human species has inhabited every possible ecological space on the planet in unsustainable life which is even more pertinent to the fact that the fundamental driving force behind hydro-politics as more people rely on declining water resources. In other words, because of its importance and scarcity, water has become a contested environmental resource and, therefore, a political issue. This motive, indeed, could studies focused on water invariably touch on the many different facets of life, thus providing them with a clear multidisciplinary character up on the concept of hydro-politics. Nevertheless, multidisciplinary approaches to issues are not really being promoted in universities and professional environments. This creates a dilemma as specialists in a particular field start studying water issues by utilizing other disciplinary methodologies and epistemologies in which a new conceptual register starts to emerge that is both necessary and not confusing to those amateurs and non professional societies.

For instance, among the few definitions of hydro-politics is provided by Elhance (1997:218), who noted that "it is the systematic analysis of inter-state conflict and cooperation regarding international water resources". Based on this definition, it becomes evident that hydro-politics is

about conflict and co-operation; involving states as the main actors; and taking place in shared international River basins. However, such a state-centric focus on conflict and conflict alleviation in shared international river basins is not the only focal point of hydro-political concern. It is, hence, inadequate if the definition is confined to such kind of narrow actors, which is the state. Because, even non-water issues of the contemporary international system is characterized by the involvements of non-state actors than state centric which was before the end of the cold war era. Thus, it is difficult to perceive that hydro-politics is only as a state centric interaction on water issues whether in cooperation or in conflict manner. There may be a cooperation or conflict situations at local level even between upstream and downstream communities in a particular river system.

On the other hand, Meissner (1999:45) has tried to define hydro-politics as the systematic investigation of the interaction between states, non-state actors and a host of other participants, like individuals within and outside of the state regarding the authoritative allocation or use of international and national water resources. This definition unlike Elhance's sharpen meaning indicates that the concept of hydro-politics is an investigation into the interaction between state and non-state actors which includes individuals and other participants both within and outside of the state. Moreover, the authoritative allocation or use of water and with the water in question potentially being both international and national in its origin, thereby implying some kind of sovereignty over this water. What the important point here is, therefore, the concept of hydro politics is not confined to the state centric definition even with regarding to water conflict and cooperation.

Furthermore, there are various concepts and terms in hydro-politics which they may become vague and difficult in the time of water agreements, such as River system, River basin, water course and water course state, etc. According to the CFA (2010) document, "River system" means "the particular River (Nile) and the surface waters and ground waters which are related to it". This term is used where there is reference to utilization of water. For instance, there are about 60% of global water flow that covered by international rivers which has to do with River system (Benjamin, 2014:2).

Whilst River basin means the geographical area determined by the watershed limits of the particular River system of waters (CFA, 2010). This term is used where there is reference to

environmental protection, conservation or development. There are more than 240 international River basins (Yacob, 2007:24).This number is not specific and substantive yet, in which some other literatures (ENTRO, 2015:13) says 276 international river basins in the world. Regardless of this difference of digit, this has to do with the concept of River basin indeed. While, "watercourse" means a system of surface waters and ground waters constituting by virtue of their Physical relationship a unitary whole and normally flowing into a common terminus. This is, in short, to mean that the line of the particular river. Having tried to understand these concepts, it may not difficult to know the concepts of "international watercourse" means a watercourse parts of which are situated in different states as well as "Watercourse State" means a state party to a particular water institutional framework in whose territory part of an international watercourse is situated (CFA,2010:2).

There are also concepts that seem vague with regarding to the water management in hydro-politics. The concept of "benefit sharing" as clear indication of cooperative approach in the management of trans-boundary water resources is also an important concept which has a vital role relatively with the water sharing approach. The most important work regarding popularizing this concept or paradigm is done by Claudia Sadoff and David Grey through their two Articles one "Beyond the river: the benefits of cooperation on international Rivers" published in 2002 and the second Article entitled "Cooperation on international rivers: A continuum for securing and sharing benefits" published in 2005. Sadoff and Grey argued that, international rivers can bring out cooperation or conflict. The choice between the two will in large part be determined by perceptions of their relative benefits. They, moreover, argue that despite there is enormous variation among the numerous international Rivers of the world, non-cooperation has costs and cooperation has intermingle benefits of environmental, economic, political and socio-cultural in nature *(ibid).*

In other words, benefits are broadly defined to include economic, social, environmental and political gains from shared rivers. This can be understood from the literature as benefit sharing is pertinent to the gaining of benefits from the shared rivers through the principle of 'equitable and reasonable utilization'. In addition, the concept of benefit sharing approach is based on a moving from sharing of water quantities to sharing of benefits (Dombrowsky, 2010:11). The emphasis here is, therefore, on the use of water resource rather than the allocation of the water itself. It is

also indicated that benefit sharing focuses on optimizing the values (economic, social, cultural, political and environmental) generated from water in its different uses and equitably distributing the benefits amongst water users and suppliers. Therefore, benefit sharing, fundamentally, requires a common understanding, interest and vision as well as the required political will to jointly manage trans-boundary river basins that involve wide-ranging acceptance of the different identifying projects and the equitable distribution of costs and benefits which can only be done as a result of joint action and cooperation.

On the other hand, the concept of benefit sharing is not synonym with that of "water sharing" notion which is focused on the physical allocation of the water. Unlike the benefit sharing approach, water sharing in trans-boundary Rivers pays no attention to any joint development projects indeed (Zerihun, 2011:25). In other saying, water sharing gives an emphasis on the volumetric allocation of the particular River water and disregards on the different benefits identified from joint water development projects. In fact, separating benefit sharing from water sharing and labeling the former as a solution of water management is problematic. Because the later serves as a base for the former, a basin wide legal regime that declares equitable and reasonable utilization of water is a precondition.

In considering the two basins, the use of water in the Eastern Nile is characterized by the tendency of water sharing than benefit sharing in which basin states may give attention and focus on their own projects and maintaining the water that is to be allocated to them. While, the Senegal River basin states give more emphasis for cooperative water sharing approach despite there are same precise water allocation targets. With regarding to these two hydro-political concepts (benefit sharing and water sharing) in relation to the two basins, the Eastern Nile is not indeed followed by the benefit sharing approach which became one challenge of cooperation. Coming to the Senegal River basin, it is worthy to say that benefit sharing has been implementing more than any other trans-boundary River basins.

2.2. Theoretical Frameworks

In this section, the study has used water doctrines and laws as well as conventions in trans-boundary river basins by considering the two selected cases. Most studies in hydro-politics are seen to discuss about water doctrines and international water laws as part of their respective

theoretical frame work. What the focal point to consider here is, however, which doctrine and water law is relevant and irrelevant to the particular case under study. Indeed, there have been put four doctrines and more than three water laws and conventions as well as charter in this study. Nevertheless, it doesn't mean that all these doctrines and water laws may have appropriate argument and notion for the two selected cases. But, what matter is taking and comparing the moderate one than others.

2.2.1 Water Doctrines on Trans-boundary River Basins

As population growth rapidly increases in and scarcity of water is inevitable, allocating and managing water resources has become unavoidable necessity. In the proposition to realize such allocation, different doctrines have been forwarded at different times. Generally, there are at least four main contending doctrines pertinent to theoretical legal rights to international water resources (Kibrome, 2011:44). These are, absolute territorial sovereignty; absolute territorial integrity; community of interest; and limited territorial sovereignty.

2.2.1.1 The Doctrine of Absolute Territorial Sovereignty

The doctrine of absolute territorial sovereignty holds that a state has a right to use the River water that flows within its borders without consideration of whether this use affects other states or not (Elias, 2009:54). This doctrine is associated with the so-called Harmon Doctrine, named after US Attorney General Harmon, who developed the doctrine with regard to the 1895 dispute between the United States of America and Mexico over the use of the Rio Grande River (Aaron, 2008:73 cited in Zerihun, 2011:12).

However, this doctrine is not soundly consistent with the demands and interests of states under present legal views and moral thoughts, which advocate the "equitable and reasonable use 'as a guiding principle at its premise. The theory favors the upstream countries and has the potential of igniting inter-state conflict as it does not consider the rights of downstream states to use the water of the same River. In this regard, Yacob (2007:45) briefly stated that, the doctrine of absolute territorial sovereignty refers to the principle that a state's sovereign rights are reserved to make full utilization of all water resources flowing within its territory, irrespective of the effects beyond its territorial jurisdiction.

But, this doctrine can't be an instrument of cooperation in which doesn't encourage riparian states to cede relative sovereign interests for mutual utilization and benefits from the particular River. Therefore, despite this theory has put in the study as part of theoretical frame work, it is really not applicable in today's international water laws on trans-boundary River. Even in the Eastern Nile basin, although unilateral utilization of the water is common; it doesn't mean that the upstream country Ethiopia has a full control of it irrespective of other riparian countries. Similarly, in the Senegal River basin, there is no any tendency of upstream control of the water over the downstream countries in which Guinea is even not have full access to utilize the development of the river relatively.

2.2.1.2 The Doctrine of Absolute Territorial Integrity

Absolute territorial integrity also known as 'riparian rights of the river', a water doctrine that assumes the lower riparian countries have an absolute right to use the water flowing from the territory of upstream riparian. It restricts the upstream countries from over using water significantly reducing the water quality, or altering the course of the water (Habtamu, 2011:38). This doctrine advocates that states may not utilize the waters of an international river in a way that might cause any detrimental effects on co-riparian countries *(ibid).* This means that states must conduct themselves within the limits of their territories in such a way as not to alter the natural regime of the river when it runs through the territory of another state. Moreover, it believes that the upper-stream state under view has the right to exploit the waters of a river so long as such utilization does not affect the interests of the lower riparian.

On the other hand, downstream states have the right to object any upstream water utilization that is likely to disrupt the natural flow or adversely affect the water position of the former (Kenyi, 2011:28).). This is the theory on which Egypt and Sudan has been centered their argument in the case of the Eastern Nile basin. These two downstream countries have been reluctant for several years to see any upstream projects on the Nile water through various objection strategies. Whereas the Senegal River has never faced such problem of water utilization regardless this doctrine advocates more for downstream countries interest. In general, the doctrine of absolute territorial integrity is mostly a conducive environment for downstream riparian countries though it gives the right for utilization of the water for upstream states.

2.2.1.3 The Doctrine of Limited Territorial Integrity

The theory of limited territorial integrity is also called 'the theory of sovereign equality and territorial integrity' (Petrella, 2001:47). According to this theory, every state has the right to use water within its territory as long as action of that state does not impede the right of other states. This means that a state may use the water of an international river system, but the use should be managed in such a way that other riparian states can also use the water. This doctrine is also argued that any state is not allowed to alter the natural condition of its own territory to the disadvantage of the natural conditions of the territory of a neighboring state (Kibaroglu 2002:124).

This doctrine is indeed restricts state sovereignty over trans-boundary rivers and binds riparian states to share water resources according to such criteria as prior appropriation, arable land and population. This doctrine further holds that each riparian state, regardless of whether an international watercourse originates in or traverses its territory, has a vote in deciding what measures are adapted within the watercourse as a whole. The doctrine recognizes and appreciates the rights of both the upstream and downstream countries in the equitable share of water. Coming to the two basins under study, the same is true in this doctrine like that of community of interest as far as the Senegal River is concerned in which there is no a problem facing of upstream and downstream riparian countries on the utilization of the water. But, in the Eastern Nile, it is difficult to argue that there have been common perceptions and claims towards the river resource.

2.2.1.4 The Doctrine of Community of Interests

The doctrine of community of co-riparian states, or community of interests, permits collective rights to river water (Zerihun, 2011:14). It believes that the river water forms common geographic and economic mutual benefits to all states. It also argues that integrated water resource management is the most efficient approach to control of watersheds and requires collaboration and creation of institutions to implement joint policies *(ibid).* This doctrine stipulates a need for cooperation in international rivers. Moreover, the doctrine argues, "no state may use the water on its territory without consulting other states to achieve integrated management based upon cooperation" (Petrella, 2001:32).

This doctrine further advocates for the concerns of the community created by the natural features, the physical unity, the ecosystem and the availability of water (Aaron, 2008:74). Above all, the doctrine envisions a reasonable share or equitable use by all riparian states and not causing unreasonable harm to any other state (Yacob, 2004:46,cited in Kibrom 2011:64). The quality of this doctrine lies on its call for an integrated management of a trans-boundary watercourse as one hydrological unit. More or less, this is implementing to the Senegal River basin indeed though it seeks to manage the entire ecological problem of the basin. The Eastern Nile basin, on the other hand, needs more effort to implement this doctrine in which riparian states claim always to utilize the river unilaterally.

2.2.2 Major International water Laws and Conventions

Even though its binding nature is very limited, modern international water law is the result of an evolutionary process on legal doctrines related to the agricultural and navigational uses of trans-boundary freshwater resources (Eckstein, 2002:81-82). In line with this explaining, the nature of international law also noted that, international water law does not have centralized international structures for making and enforcing law, instead it relies on a decentralized process of voluntary agreements and customs (Aaron ,2008:52).

Generally speaking, international water law is a result of customary laws as well as various treaties between states and different doctrines on the utilization of trans-boundary Rivers. Nevertheless, the works and contributions of International Law Association (ILA) and International Law Commission (ILC) concerning the legal statues of international water courses and the development of international water law have a paramount importance. International water law recently has evolved from the Helsinki Rules of 1966 through the 1997 UN Convention to the Berlin Rules of 2004.

2.2.2.1 The Helsinki Rules of 1966

Different literatures tell us the Helsinki Rules of 1966 was developed by the International Law Association (ILA); which is a scholarly non-governmental organization. According to Kibaroglu (2002:129), "the Helsinki Rules was the first effort by an international organization to prepare a comprehensive codification of the law of the international watercourses." The Helsinki Rules has

an important elements of hydro-political issues within its provisions under article IV and V, which set from the well-known principle of "equitable and reasonable share", such as the geographic, hydrological, climatic, historical, social, economic and technical elements assessed when affecting this principle (Eckstein, 2002:82). This (equitable and reasonable share) provisions, indeed, makes original the Helsinki Rules. Because, those hydro-political elements under the said articles (IV and V) are based on the principle of equitable and reasonable utilization. What it is clearly stated in the Helsinki Rules, in other words, "the principle of "reasonable and equitable utilization" of the water of an international drainage basin among riparian states is the basic principle of international water law.

Above all its importance in incorporating the principle of equitable and reasonable share of international rivers, the Helsinki Rules seems more incorporated than other water regimes. Because, in the different factors outlined to determine equitable and reasonable utilization of an international watercourse, it includes critical concerns such as water contribution of riparian states and related issues specifically. In this regard, Ethiopia contributes 86% of water not only to the Eastern Nile but also to the total Nile River system. In other words, water contribution for the Eastern Nile is almost covered by Ethiopia indeed. However, this has never been considered both by the international water law and the riparian countries. With regarding to the Senegal River basin, though no problem of claiming such hydro-political issues Guinea, the upstream country, is the main contributor of water in the basin. Nonetheless, there has not been a serious problem of hydro-politics as far as water contribution is concerned in that basin.

2.2.2.2 The 1997 United Nations Water Convention

The United Nations Convention on the Law of Non-navigational Use of International Watercourses was adopted on 21 May 1997, with 104 states in favor where as 27 states abstained and 3 states voted against (Loures et a., l 2015:28).This convention is largely based on the Helsinki Rules. It is divided into seven parts and 37 articles with an annex on arbitration *(ibid).* As a framework convention, it addresses some basic procedural aspects and few substantive ones, and leaves the details for the riparian states to complement in agreements that would take into account the specific characteristics of the watercourse in question (Salman, 2007:632).

As noted by Aaron (2008:82), the most important sections of the convention are contained in part II of the general principles, namely Articles 5, 6 and 7. These dealt with the rule of "equitable and reasonable utilization" and the "obligation not to cause significant harm". Furthermore, the convention addresses issues like definition of international water courses (Art. 2) watercourse agreements, (Art. 3), general obligation to cooperate (Art. 8), settlement of disputes (Art. 83) and arbitration on its annex (UNWC Document, 1997). Under part II, Article 5, clearly states what "equitable and reasonable unitization" is all about and the need for watercourse states participation. Under Article 6(1), the UN Convention set out "factors relevant to equitable and reasonable utilization. It lists natural, socio economic, demographic and other related factors and circumstances as basis for equitable and reasonable utilization.

On the other hand, Article 7(1) of the Convention puts an "obligation not to cause significant harm," which reads as: "Watercourse states shall in utilization an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse states*"(ibid).* This, more or less, is made a kind of confusion with Article 5(1) of the convention which states that "watercourse states shall in their respective territories utilize an international water course in an equitable and reasonable manner*" (ibid).* Besides, one can also ask what does the term 'no significant harm' it means. Regarding the incorporation of these two principles together in the convention, Aaron (2008:84) noted that, "the convention does not prioritize but rather it straddles these important principles." The convention, however, subordinates the non-harm rule to the rules of equitable utilization (Fitzmaurice and Gerhard, 2005:17).

But, the very presence of the rule itself is criticized in some literatures as assuming that upper riparian states of international watercourses are against to the 'no harm' phrase. For instance, as far as the Eastern Nile is concerned, equitable use is seen as an encompassing phrase as it means an equitable use for both upstream and downstream users, and there is therefore no need for the 'no significant harm' article (Mason, 2004:193).On the contrary, Egypt as a downstream riparian state in the Eastern Nile claims as the only presence of the rule without clear definition of what 'significant harm' constitutes. From the Egyptian perspective, this provision of the convention is not strong and independent by itself but something hanged on the principle of equitable and reasonable utilization *(ibid).*

2.2.2.3 The Berlin Rules on Water Resources of 2004

After a series of discussion and conferences in different cities such as London in 2000 , New Delhi in 2002 and Berlin in 2004, the Berlin Rules has come up with a comprehensive set of rules on all major aspects of the utilization, management and conservation of water resources (Fitzmaurice and Gerhard 2005:18). This Berlin Rules defined different water related terms in a detailed manner and it uses "international drainage system" than 'international watercourse" or 'international river basin *(ibid).* This is because mainly, the Berlin Rules unlike the previous attempts-the Helsinki Rules or the UN Convention, are applicable to the management of the surface and ground waters of a national and international (Berlin Rules Document,2004). It also includes on impact assessment (Chapter VI), rules on extreme conditions (Chapter VII) and rules on protection of aquatic environments (V).

Perhaps the most important development in the Berlin Rules is the Article dealing with "equitable and reasonable utilization". According to Aaron (2008:87), "the most important change of Article 12 of the Berlin Rules as compared to prior attempts brought was to connect the right to an "equitable share" with the responsibility and "obligation not to cause harm". In line with this, Article 16 of the Berlin Rules also link 'avoidance of trans-boundary harm" with the "equitable and reasonable use of waters". It can, therefore, be concluded that by subjecting each principle the "no significant harm" and "equitable utilization principles" to the other, the Berlin Rules present the two principles as equal (Salman, 2007:637).

In such case, the Berlin Rules is different from the Helsinki Rules which established equitable and reasonable utilization as a core of international water law. In addition, it also differs from the 1997 UN Convention which subordinates no significant harm to equitable and reasonable utilization. Nevertheless, the Berlin Rules is being criticized for its failure to answer some difficult issues in inter-state relations vis-a vis water (Aaron, 2008:86). Aaron in this regard questions whether a basin state has the right to divert water to a non-basin state in a unilateral manner *(ibid).* This is because of it uses the concept of international water drainage than international water course or river basin. Furthermore, the phrase it uses as 'international drainage basin' instead of 'international water course' is problematic as it is also difficult to define what constitutes an" international drainage basin". More its problem, the Berlin Rules

does not incorporate water contribution as a factor in dealing with equitable and reasonable utilization Salman (2007:638).

However, the primary roles of international water law are to determine a state's entitlement to the benefits of the watercourse (substantive rules) and to establish certain requirements for states 'behavior while developing the resource and procedural rules (Cosgrove, 2003:31). Different institutions or organizations could formulate rules or riparian states may enter into agreements regarding trans-boundary water resources. But, their effectiveness depends on the eagerness of riparian states to accept these rules and be bound by them (Yacob, 2007:46). In general, in contemporary world, shared water resources remain the most important area that is not yet regulated by a binding international convention or treaty.

In fact, those issues under the two chapters of V and VII are really pertinent to the Senegal River basin in which prevail a lot of environmental and ecological problems due to the new hydrological regimes (the construction of the Diama and Manantaili dam). As far as the rules of impact assessment is concerned, in some cases of trans-boundary river basins, upstream and downstream riparian states are always suspicious to one another. This is true in the Eastern Nile basin in a manner downstream countries assume that the utilization of the water through different projects by upstream, Ethiopia, may have serious impact on them. This is, indeed, another challenge of cooperation in the basin.

2.2.2.4 The 2002 Water Charter of the Senegal River

As it is drafting Master Plan for the Development and Water Management (SDAGE) of the Senegal River basin, the OMVS began to launch the water charter of the Senegal River in March 2002 (Newton, 2007:20). The formulation of the Master Plan for Water Development and Management (SDAGE) of the Organization for the Development of the Senegal River (OMVS) was conducted in a participatory manner. The principles and procedures for the allocation of water were drawn up and a Permanent Water Commission (PWC) was set up to serve as an advisory body to the OMVS's Council of Ministers that makes decisions and asks the High Commission to oversee their application *(ibid).*

This Water Charter probably the first of its kind in Africa was adopted among OMVS member States *(*African Development Bank,, 2008:14*).*What the problem in this Charter, nonetheless,

was Guinea did not initially became as part of the charter, rather, it includes only the member states of the OMVS (Senegal, Mali and Mauritania) though the country joined in 2006. Despite its drawbacks, the Charter embodies all key emerging principles on equity, Integrated Water Resource Management (IWRM) and on the need to protect the environment. For instance, there are provisions on water allocations and distribution of resources in the charter that require the states party to it for implementation.

Article 4, of the charter states that:

> *The use of water of the River is opened in each Coastal state, like with the people being on her territory in accordance with the principles and methods defined by the present Charter. The distribution of water between the uses is in particular founded on the following general principles:*
>
> - ✓ *obligation to guarantee the balanced management of the water resource;*
> - ✓ *the equitable and reasonable use of water of the River;*
> - ✓ *obligation to preserve the environment; obligation to negotiate in the event of conflict;*
> - ✓ *obligation for each Coastal state to inform the other Coastal states before undertaking any action or any project which could have an impact on the availability of water and/or the possibility of implementing future projects (Charter of water of the Senegal River,2002:2).*

As it has been put in the article above, the charter includes some important provisions like equitable and reasonable use of water, environmental protection as well as exchange of information to protect significant harm which are found in most international water laws. Above all, today all OMVS member states recognize that the portion of their territory located in the Senegal River Basin is governed primarily by agreed OMVS conventions when it comes to water resources management. For example, the 2005 adopted Mauritanian Water Code refers to the OMVS Water Charter for the management of all its water resources located in the Senegal River basin (African Development Bank, 2008).This indicates that member states of the charter and the OMVS are strongly committed to implement the charter to the extent that applied in their national water law.

2.2.2.5 The Cooperative Framework Agreement (CFA)

On May, 2010, the CFA was launched essentially in a manner that five upstream states including Ethiopia signed to seek equitable utilization of water from the Nile River though the two downstream riparian countries (Egypt and Sudan) strongly opposed it (Kibrome, 2011:72). Under this Cooperative Framework Agreement (CFA), there are six chapters and 44 articles which constitutes general principles, right and obligations, institutional structure, subsidiary institutions, miscellaneous provisions, and final clauses. Moreover, as institutional frame work, the CFA sets out several principles under part I, among which some are well-known principles at the international arena in relation to water courses, while others are less known in the mainstream (CFA Document, 2010).

What indicates this is mainly, as the nature of water courses differ from one basin to the other, different basin level agreements hold their own odd nature as a reflection of the specific characteristic of the water course they apply to. The principles of cooperation, equitable and reasonable utilization, the no significant harm rule, and exchange of data and information are among the well recognized principles under international water law also included in this frame work agreement. Another principle in the CFA worth mentioning is "water security," which has been one of the reasons that made the signing of the agreement both sluggish and controversial. In this framework agreement, it is defined that "the right of all Nile basin states to reliable access to and use of the Nile River system for health, agriculture, livelihoods, production and environment". This principle is adopted under article 3(15) of the agreement and article 14(a) provides that the basin states will work together towards achieving and sustaining water security for all states (CFA, 2010, Art.14 and15). Nonetheless, the riparian states failed to reach an agreement on article 14(b) which, therefore, will be left to the river commission, which will be established, to decide and resolve the issue. As far as this "water security" issue is concerned, the Nile River Commission annex is stated as follows:

> *At the end of the negotiations, no consensus was reached on Article 14(b) which reads as follows: not to significantly affect the water security of any other Nile Basin State, all countries agreed to this proposal except Egypt and Sudan. Egypt proposed that Article 14(b) should be replaced by the following wording: (b) not to adversely affect the water security and current uses and rights of*

any other Nile Basin State (Nile River Commission Annex on art. 14. b).

What can easily be understand in this observation is, it is not only apprehension to be a challenge for the CFA in coming in to force but also some believe that including the concept of "water security" in the agreement was not a wise move by the riparian states, mainly because of its 'non legal and indeterminate' concept, rather, to serve the ambition of the two downstream states of Egypt and Sudan to maintain the old-fashioned and non-viable' status quo. Generally, the CFA has, however, its own significant role to change the tendency of unilateral control of the water which was for the long period of time by the downstream riparian countries mainly Egypt.

2.3 Trans-boundary Water and Cooperation

As reviewed in most literatures, water is often described as the most valuable resource in which without it there will be no life on earth. For thousands of years, water has been a key factor responsible for the world's civilizations in all aspects (Zerihun, 2011:23). Despite the fact that water can be a major factor for leading nations into inter-state conflict, it can mainly harness cooperation amongst different states *(ibid)*. The actual significance and availability of water has generated intense debate among different scholars and stake holders of various institutions. Even though different scholars put variety of figures, there are over 240 international Rivers, which constitute about 60 percent of the earth's freshwater supply (Yacob, 2007:24). However, there is a growing concern that available freshwater is drying up due to either environmental degradation or mismanagement of the water. Several of the major works reviewed in this study argue that there is no historically told major war on water related issues than endemic conflicts.

For instance, Peter H. Gleik, in his book, *"*The Global Environment in the Twenty- first Century: Prospectus for International Cooperation;" and Leif Ohlsson, in his article "Hydro-politics Conflicts Over water as a Developed Constrains*;"* both believe that there have been no major water-related conflicts, however, if states refuse to cooperate to share water resource, it may lead to potential inter-state conflicts. While most of the water conflict literatures in the last several years were preoccupied with the argument that water scarcity might possibly to lead to inter-state wars, there is, on the other hand, a growing body of literature that holds the view that water scarcity does not necessarily lead to immediate war. Proponents of this view are scholars such as Anthony J. Allan, Martin Jon Trolledalen, Shlomi Dinar's, Simon A. Manson and Yacob Arsano.

For instance, according to (Mason, 2004:325), the severity of the water scarcity problems in trans-boundary rivers is politicized to relegate a politically destabilizing factor that may lead to political tensions and hinder sustainable development. To him, conflicts over the water are likely to occur at what he refers to as "on the sub national rather than on international level.

In addition, Dinar (1999) study appears to have embraced the view that water scarcity may not be the major factors that drives states to war. In his work on "The Israel- Palestinian Water Conflict and its Resolution: A View through International Relations*",* he contends that water in the case of the Israel- Palestinian conflict is one where water as a causation of low politics becomes embedded in the high politics of both people. Israelis and Palestinians are struggling to establish or sustain states; thus making it hard to justify that it is a water-related conflict. He argues that, therefore, though water can be a vehicle for conflict (if it is not managed), it can also be a significant factor of cooperation *(ibid).*

The University of Oregon is one of the leading research institutions on water resource management. Its database on trans-boundary freshwater indicates that no direct conflict exists amongst the countries; instead, cooperation has existed in most of the cases, for instance, cooperation has existed between India and Pakistan under the 1960 treaty (Dinar, 1999:14). Despite the challenge of the protection of international waterways is much greater still, there are recent examples of major cooperative efforts to restore and protect shared water systems. Furthermore, cooperation among the eight Rhine riparian states is another interesting example (Zerihun, 2011:26). In 1987, ministers of the Rhine countries launched the Rhine Action Plan, the much more complex goal of reducing chemical contaminants to a level that would bring life back to the river *(ibid).* Following intensive international cooperation, major investment and widespread public support, the Rhine could breed once more signifying a healthy river again. Today, much wider Rhine cooperation is planned such as in the area of flood control. In another case, Lesotho and South Africa are cooperating in the construction of infrastructure on the Orange River in the Lesotho Highlands Project, providing least cost water supply to South Africa's industrial heartland and royalties to Lesotho amounting to 5% of GDP (Vick, 2006:20).

The important point here is, therefore, managing a river basin from a system-wide perspective can increase the quality, the available quantity, and the economic productivity of river flows. River basin development seeks to promote this integrated, system-wide perspective, where the

full range of water use opportunities and the various inter-relationships of individual water uses can be considered. Even though there is a widespread perception that water allocation is a zero-sum game in which water resources are finite and that one use will always preclude another, the quantity of available water resources can be influenced by management actions. This is particularly true where rainfall is low and highly variable.

In semi-arid Spain, for example, effective water management practices have increased water availability from 8% of total flow to 60% (Klaphake and Scheumann, 2006:9). Just as good water resource management practices can increase the availability of water in a river system, integrated planning that maximizes the benefits derived from water can clearly increase the overall productivity of a river system *(ibid).*The positive-sum nature of international cooperation in this context is more intuitive, because of the interaction of economic activities and the integrity of the ecosystem. Basin-wide configurations of consumptive and non-consumptive water uses can be explored to optimize benefits.

Major (joint or several) developments, such as the construction of dams and major abstractions for irrigation, present special challenges due to the need to assess options and tradeoffs and to apply environmental and social safeguards effectively and reasonably across international borders and jurisdictions (Khaled, 2014:11). Today's international rivers are also interlinked with the geo-political map of the particular river basin. Many rivers have always been natural barriers and have defined boundaries as the Roman Empire reached but did not cross the Rhine and Danube Rivers *(ibid).* Similarly, the boundaries of watersheds are borders in many parts of the world today, as they formed natural lines where there was no dispute over water (Swain, 2011:51). Moreover, Rivers have political significance particularly when they are shared between states; to a greater or lesser extent and when tensions will generate costs; significant benefits could be derived by reducing costs arising because of the river(Manson, 2004:35). Rivers are, thus, extraordinary and multi-dimensional systems. They are ecological systems, with critical life- and landscape-sustaining functions. Cooperation on an international river could enable better management of these ecosystems, providing benefits to the river, and underpinning all other benefits that can be derived .In addition, rivers are physical and economic systems, whose efficient, cooperative management and development can yield major benefits from it like increased food and energy production.

Generally speaking, international rivers can be catalytic agents of cooperation that yields benefits from the river and reduces costs because it can pave the way to much greater, even economic integration among states, resulting in benefits beyond the river. As part of this study, the Eastern Nile is not as a symbol of cooperation while the Senegal basin is one of the exemplary cooperative river basins in the world. Nevertheless, it doesn't mean that there are not attempts and prospects of cooperation in the former though not as effective as the later. In fact, this study really gives emphasis to cooperation despite not much in the Eastern Nile in comparison to the Senegal River basin.

Chapter Three

3. Hydrological Description, Challenges and History of Cooperation in the Eastern Nile and Senegal River Basins

3.1 The Eastern Nile

3.1.1. Hydrological Description of the Eastern Nile

Hydro-logically, the Eastern Nile is encompassed of five countries Ethiopia, Egypt, Sudan, Eritrea and South-Sudan (Kibrome, 2011:41). However, for the purpose of this study in which the contentious hydro-politics is concentrated on the three countries of upstream Ethiopia on one hand and downstream Sudan and Egypt on the other, the study has focused on these three countries. In fact, South Sudan as a new basin state couldn't get a time to join in the full hydro political issues due to internal politics while Eritrea remains as an observer from the beginning.

The Eastern Nile basin is larger than the White Nile basin in terms of contribution to the in-flow of the water with sharing of 86% and 14% respectively (Elias, 2009:6). Furthermore, this basin has three sub-systems with their respective contributions of water to the main Nile i.e. the Abay/blue Nile (59%), the Baro-Akobo (14%) and the Tkeze-Atbara (13%) with the fact that all are mainly originated from the upstream country of Ethiopia indeed *(ibid).* Hence, it is easily to understand that the total flow of the water in the basin is initiated from the upstream riparian country of Ethiopia. In addition, the contribution of water by Ethiopia is not only for the Eastern Nile basin but also for the total Nile River in a manner that 86% of water flow is acquired from the three sub systems of the Eastern Nile which are originated from it.

As it has been tried to mention in the above, the Abay/blue Nile is one sub system of the Eastern Nile and its tributaries drain a large proportion of the central, western and south western highlands of Ethiopia before dropping to the plains of Sudan, and joins with the White Nile at Khartoum. In this regard, there have been a lot of confusions mainly by those historians who are not interested to recognize the real origin of the Abay/blue Nile throughout history. For instance, according to one report which edited by Otto Simonett (2012:18),"the Nile begins near the equator in Africa and flows north to the Mediterranean Sea. The river is called the upper Nile in

the South and the lower Nile in the North. For centuries, heavy rains in Ethiopia caused the Nile to flood every summer." Such irrational description and expression indicates that many historians, practitioners and geographers have not been interested to recognize the real origin and flow of the Nile River mainly from the downstream riparian country of Egypt.

On the other hand, different scholars and writers on the hydro-politics of the Nile issues asserted that the real origin of the Abay/blue Nile is from the Ethiopian Northwestern highlands. For instance, Yacob (2007:82) clearly stated that the Abay/blue Nile has numerous tributaries including the Dabus, Dedessa, Fincha, Guder, Muger, Jamma, Wolaka, Ashilo, Birr, Beles, Dinder and Rahad rivers all are originated in Ethiopia. In addition, Zelalem (2009:8) drastically put that the Abay/blue Nile originates in the Ethiopian Northwestern plateau with its furthest source in the river Gish Abbay and the Choqie Mountains some 60 km South of Bahir Dar city. Accordingly, its catchment area is smaller than that of the White Nile while its water contribution to the main Nile is four times than that of the White Nile *(ibid).* Therefore, what the fundamental point in this hydrological description of this basin is, though water doesn't know boundary it is important to know and recognize its origin and flows through. Moreover, there is no any doubt that the origin of the Abay/blue Nile is from the upstream country, Ethiopia, in the Eastern Nile basin.

The other one is the Tekeze (Atbara in Sudan) sub-system, whose upper streams rise in Northern Ethiopia, and Southern Eritrea lasting fills to the main Nile Sudan. Rivers such as Tekeze, Angareb and Guang are the main headwaters of the subsystem (Elias, 2009:6).As it can be easily understand from the map of the Eastern Nile below, unlike the Abay/blue Nile, the Tekeze/Atbara river system is not joined with the white Nile at Khartoum, rather, it joins to the main Nile in the Northern part of Sudan.

The Baro-Akobo with its main tributaries of the Alwiro, Gilo and Pivor rivers is the third subsystem of the Eastern Nile basin which drains the Western plains of Ethiopia and joins the Sobat river in Sudan/now South Sudan (Yacob, 2007:83). Accordingly, this subsystem makes up about 380 km frontier line between Ethiopia and Sudan/currently South Sudan. In general, what is indicated from the above hydrological background of the Eastern Nile is Ethiopia, the upstream country of the basin, is really the main contributor of the water resource.

Moreover, it is not overstated to say that almost water in the Eastern Nile river basin is originated from Ethiopia. Nevertheless, this doesn't mean that the country should control the water unilaterally. Because, water doesn't has any border instead has a course. Ethiopia has essentially been arguing as the Nile water was not expected to be controlled by the downstream riparian country mainly Egypt in hegemonic manner without consideration of the upstream riparian states for the past several years. What it is, generally, important point that should be clear is as the water of the Nile River is concentrated in the Eastern Nile which is almost originated from Ethiopian highlands, the Hydro-politics of the basin also there more to.

Map.1 Shows the Eastern Nile Basin

Source: Simon A. Manson (2003), From Conflict to Cooperation in the Nile Basin, A dissertation for the degree of Doctor of Sciences submitted to the Swiss Federal Institute of Technology, Zurich, Switzerland Available at: www.fsk.ethz.ch, www.eawag.ch

3.1.2 Historical Challenges of Cooperation in the Eastern Nile

3.1.2.1 The 1929 Agreement

As it can be seen in different reviewed literatures, the 1929 agreement was a sort of colonial agreement between Egypt and Britain, the then its colonial master, that assured for Egypt a minimum of 48 billion cubic meters as well as 4 billion cubic meters for the Sudan per year(Zelalem,2009:18). This was without taking in to consideration of the remaining riparian states' interest. This agreement, indeed, guaranteed to Egypt that no works were to be constructed on the Nile or its tributaries in the then British colonies in a way that would alter the flows entering Egypt without her prior approval. But, this kind of long held historical exclusive agreement has been degrading its legal significant in modern international water law.

> *Disagreements among the Nile countries over sharing the waters have been real and deep-seated. The post-colonial era in the Nile basin has been a period marked by legal battles concerning the successors of the colonial Nile agreements and the degree to which these should be legally binding on what is described as non contracting, sovereign basin states(*Terje,2010:10).

This is, in other words, to express that this agreement didn't go with the riparian countries other than Egypt and Sudan. Furthermore, the above quotation has clear message that colonial agreements like the 1929 water agreement are null and void except when they enshrine principles recognized by international law otherwise become as a challenges of cooperation among riparian countries. This became true in the Eastern Nile river basin in which by virtue of this agreement (the 1929), Egypt recognized the Sudan's right to water adequate enough for its own development, as long as Egypt's 'natural 'and 'historic rights' were protected.

The other imbalance nature of this treaty was that the entire seasonal flow of the Nile River, vital for winter crops, was reserved for Egypt to the extent that Egypt assumed the right to monitor upstream flows. Besides, Egypt was considered the right to undertake projects without the consent of upstream states and assumed the right to veto over any construction projects that would affect its interests adversely (Kibrome, 2011:53). This is really a treaty that had clear manifestation of zero-sum game in which it favors for Egypt over the remaining riparian states. In short term, this agreement was made mainly to secure the Nile water for Egypt by limiting the rights of Sudan and by rejecting those of the remaining riparian states. On the other hand,

Ethiopia, the upstream country, in particular did not recognize the validity of the agreement, nor did it ever accept Egypt's claim to ‘acquired’ or ‘historic rights’.

In any case, this 1929 agreement is one of the main challenges of cooperation in the basin that to be solved based on the contemporary international water law mainly the concept of ‘equitable and reasonable utilization’. Because, as the agreement was signed between Egypt and Britain, it could not have a binding effect on other riparian countries in the Nile which have questioned the validity of the agreement and had eventually renounced it after attaining independence (Elias, 2009:75).

In other terms, an agreement made between two parties cannot have a binding effect on a third party without its consent. This agreement was between two parts of Britain and Egypt which was basically a colonial treaty. After independence, Sudan even criticized the agreement as having been motivated by Great Britain to maintain good relations with Egypt at the expense of Sudan's interest. Consequently, the 1929 agreement became a base for the next agreement, called “the 1959 Nile Water Agreement” which was a bilateral agreement and opened a door for Egypt and the Sudan to acquire rights to the resources of the Nile and for the full utilization of its waters (Ademnur, 2002:51). Generally, despite its irrelevant to the contemporary international water law, the 1929 agreement has been one challenge towards any attempted cooperative approach institutional mechanisms in the Eastern Nile River basin.

3.1.2.2 The 1959 Agreement

In 1950,s Egypt planned the High Aswan Dam (HAD) project to store the entire annual flow of the Nile waters (Erlich, 2012:173). However, before implementing this project, Egypt realized that it was important to seek a guarantee from the Sudan and obtain international recognition for the financing and technology of the dam. Finally, on November 8th, 1959, the agreement for the full utilization of the Nile waters was signed between Egypt and the Sudan *(ibid).* Both countries are not contributors of the Nile; but only users indeed. In this agreement, water for Egypt was allocated 55.5 BCM/year and Sudan’s allocation was raised from 4 BCM in the 1929 agreement to 18.5 BCM/year of the 84 BCM average annual flow of the river while the remaining 10 BCM was estimated to be lost through evaporation (Zerihun, 2011:67).

From the implication of this agreement, what has to be understood is even within the two countries that Egypt's strategy was to accomplish those projects designed along the river resources through the improvement of the previous water allocation for Sudan. Furthermore, the problem here was that these two downstream states of the Eastern Nile basin didn't show any interest to invite the upstream states of when entering in to an agreement for the full utilization of the waters of the Nile River by which all reasoning should have been equitably allocated among all riparian states. In fact, being one among the upstream states, Ethiopia has been declaring that reserved its sovereign rights to use the water resources of the Nile within its territorial bounds though not part of this agreement.

The other main challenge of cooperation in this agreement in the basin is that Egypt and Sudan committed them-selves not to negotiate unilaterally with any third party over the Nile waters and to adopt a unified view. This has proved to be one of the obstacles that came to the prospect whenever there is negotiation for cooperation among riparian states siding Egypt and Sudan on one side as opposed to the rest of the upstream riparian states mainly Ethiopia. To its effect, there are a variety of points in the agreement which became as an obstacle of contemporary cooperation in the Eastern Nile. Among others:

> *If any claims persisted and the Nile waters had to be shared with another riparian state, Egypt and Sudan would jointly consider these claims and reach a unified position. If their position included allocating a portion of the Nile waters to one or more riparian states that allocated portion would be deducted from Sudan and Egypt's shares (Erlich, 2012:178).*

Despite there is a phrase 'agreement for the full utilization of the Nile' in the 1959 agreement as a title, it is really irrelevant to serve as an instrument for a basin wide water management in the utilization of the contemporary trans-boundary rivers. This is because of its failure to include all the riparian states as contracting parties to the agreement and does not recognize their right to use the common resource. It is also clear that the treaty fails to address broader issues such as water quality, flood control or environmental protection rather than focused on water allocation between the two downstream countries of the Eastern Nile basin.

Another historical element of the 1959 agreement was that permitted for Egypt to construct the High Dam, and Sudan to construct the Rosaries Dam on the Blue Nile and the Khashm el-Girba

Dam on the Atbara river which later to provide irrigation for the Nubian population displaced from the banks of the Nile due to the construction of the High Dam (Ademnur, 2002:54)**.** Even though this agreement was not Sudan's concern but mainly Egypt's, it gave an impetus bilaterally. One way or another, the Sudan had to come to commit itself to the agreement yet, because of its right of allocation of the water assured to 25% (18.5 BCM). On the other hand, Ethiopia objected to the agreement which was in favor of Egypt and Sudan and considers the agreement not binding effect on its part. This means, in short term, the agreement was not a basin wide or an inclusive rather was simply an agreement of uneven water allocation between Egypt and Sudan. This agreement was not only as a challenging factor of cooperation in the last several years but also is in the contemporary efforts of negotiation.

3.1.2.3 The Perception of 'Historical' and 'Natural Rights' towards the Nile River

Herodotus, Greek historian, once called Egypt "The Gift of the Nile " because of the river made it possible for people to develop a civilization there (Yohannes,2008:33). This is to express that the country has long been totally dependent on the Nile and Egyptians have developed a deep sense of entitlement to the river. There is no doubt that Egyptians relied on the Nile for agriculture, drinking water, transportation, and energy throughout history. The problem here is, however, Egyptian successive politicians, policy makers and elites from the academia have been utilizing this historical fact for their own discourse of 'historical and natural rights' which has been serious challenge of cooperation on the use and developments of the water in the Eastern Nile river basin. In line with this, Egypt argues that any cooperation attempts on the Nile with upstream states should be based on the acceptance of this Egypt`s heavy dependence on the Nile.

According to Hefny and Amer (2005: 47), for example, "due to Egypt`s historical dependence on the Nile, cooperation in the basin needs to be based on the acceptance of Egypt`s 'acquired rights'." This and related partial arguments has really been great impacts for any prospective cooperation in the basin with the fact that Egypt and Sudan want to keep the status quo of 'historical' and 'natural rights' discourse while the upstream riparian, Ethiopia, has strongly been opposing the discourse which is considered as a puzzle in modern international water law.

Moreover, what the problem here with regarding to the 'historical and natural right' is, it could not be told based on the fact and truth, as far as the Nile River is concerned, mainly in Egypt.

In other words, Egyptian generation has been indoctrinated in misunderstanding of the river to the extent that its origin. For instance, one document based written material for grade 11-12 by Helly Snyder (1996:14) puzzled as Herodotus visiting Egypt in the fifth century was when he told that the Nile flooding in the summer was caused by the melting of snow which is not believed to exist in the heat of the Nubian desert. Even on its hydrological expression, from al-Atbara river, North of Khartoum to the Mediterranean Sea, the Nile flows 2,700 kilometers without receiving any tributaries. Without the Nile, Northern Sudan and Egypt would be no more than a desert, and ancient human civilizations would not have emerged *(ibid).*In addition, other published report says that:

> *The Nile is considered the world's longest River, but it is not its length that makes it great, nor the volume of water it carries. Because, its volume is comparable to 1% of the Rhine,2 % of the Amazon's volume, or 15 % of the Mississippi's. However, what distinguishes the Nile is the role it has played in nurturing Egyptian civilization since the dawn of history, and the broader impact it has had on all human civilization and on our imagination (Somonett,2012:13).*

This kind of discourse is clear indication that both political and academic elites from the Egyptian society have not been interested to put the historical facts of the affinity of the Nile and Egypt and their interdependence. Furthermore, they couldn't really give critical concepts for the Nile River to the extent that not to be recognized its origin. These and other related lopsided perceptions have been really indoctrinating for the past and present Egyptian generations towards the Nile water.

In recent years even, there have been many declarations that any threat to Egypt's water rights would a matter of war and peace. For example, in 1978, President Anwar Sadat warned for upstream countries against touching his country's share of the Nile waters through his offensive talking "We depend upon the Nile 100 percent in our life, so if anyone, at any moment thinks of depriving us of our life, we shall never hesitate to go to war" (Mebot, 2007:2). Nevertheless, this is totally wrong that any riparian country of a particular international river has both a right and capability to control it unilaterally in the contemporary international water laws.

The other issue with regarding to the perception of the 'natural and historical rights' which is becoming one challenge of contemporary and future cooperation in the Eastern Nile basin is, the downstream countries mainly Egypt put the Nile in their constitution to express that the water is inalienable with the country and its people. Accordingly, in the Egyptian constitution of 2012, it subscribed as "The Nile River and water resources are a national wealth. The State is committed to maintaining and developing them, and preventing abuse. The use of such resources shall be regulated by law" (Egyptian constitution, 2012). Furthermore, the military draft constitution of 2014 states that:

> *Egypt is the gift of the Nile and the gift of Egyptians to humanity. Blessed with a unique location and history, the Arab nation of Egypt is the heart of the whole world. It is the meeting point of its civilizations and cultures and the crossroads of its maritime transportation and communications. It is the tip of Africa on the Mediterranean and the estuary of its greatest river: the Nile (Egyptian military constitution, 2014).*

What it can be understood from the above two articles of the two constitutions is that successive Egyptian governments and politicians have instructed their people to the extent that Nile is all about the life of Egypt. In fact, Egypt is really depended on the river more than any other riparian countries in the basin. Even so, the problem is not whether Egypt is depended on the water or not the problem is, rather, Egyptian politicians and successive governments politicized the status quo to their own interpretation as a matter of security. This indeed became one obstacle of cooperation in the basin.

3.1.3 History of Cooperation in the Eastern Nile Basin

As it has been tried to be seen some historical challenges of cooperation in the Eastern Nile basin it is not, however, denied that there have been attempts of cooperation in different periods of time. The basin (Eastern Nile) is more characterized by claiming of unilateral utilization and exploitation of the river than cooperation in which the downstream riparian countries always claim 'the historical and natural rights' while upstream riparian state (Ethiopia) has a strong position against this status quo. Nevertheless, attempts and efforts of cooperation was began to rise in the 1990,s albeit have not been effective (Kidane, 2012:10).

3.1.3.1 The Ethio-Sudanese Agreement of 1991

For several years, Ethiopia and Sudan have long been caught in a relationship of mutual suspicion that regularly pulls them into interlocking, regionalized conflicts to become the Horn of Africa's leading powers (Medhane, 2004:172). Both countries also have a broader definition of national interest and security policy than only the Nile River. Throughout history, relations between these two countries have never been cordial or stable to the fact that was many years of mutual distrust and cold diplomatic relations. These mistrust relations, however, have only not been on hydro-political issues of the Nile water unlike that of Ethio-Egyptian relations *(ibid)*.

Even so, for the purpose of this section, it is better to discuss the hydro-political issues of cooperation on the Nile. In view of that, there have been attempts and efforts of cooperation towards the use and developments of the Nile River between these two riparian countries of the eastern Nile basin. The two countries (Sudan and Ethiopia) agreed to explore cooperation over the Blue Nile and Atbara River, on December 1991, in Khartoum (Kidane, 2012:11). In this agreement, Ethiopia and Sudan issued a joint peace and friendship declaration which both agreed that they believe in a firm, "equitable entitlement to the uses of the Nile waters without causing appreciable harm to one another". Furthermore, in the declaration, both sides agreed to work together to establish a Nile basin organization. Similarly, technical advisory committees were formed to the extent that bilateral meetings and contacts between the respective national committees were held regularly as a result of the agreement *(ibid).*

At least, it is safe to say that regarding promoting their national interest both seem to have long-term thinking of an important variable for long-term cooperation mainly on oil and energy based economy. Nevertheless, as Sudan has been contracting party to the so-called "full utilization of the Nile water" by the 1959 agreement, it would not worthy to assume that any water agreement would effective and practical in a manner of bilateral negotiations between downstream (Sudan and Egypt) and upstream (Ethiopia). Undeniably, as neighboring states considering to geographic proximity, complementary economic contexts, converging political values and policies, allowing the flourishing of trade across national borders as well as the will and capacity to push the process forward, Sudan and Ethiopia would facilitate economic interdependence and regional cooperation beyond the Nile issues. While in the utilization of the water, it has been

really difficult to negotiate Sudan unilaterally without the consent of Egypt. This became really one challenge of cooperation in the basin.

Despite the fact that those colonial agreements and past bilateral negotiations between Sudan and Egypt have their own impacts on any current attempts of cooperation, it doesn't mean that this 1991 agreement on the Nile river was void, which was ,rather, as a route to conceive for future negations as would possible in the Eastern Nile basin. After a decade of oil-driven growth in Sudan and the priority that both Sudan and Ethiopia accord to harnessing water resources for electrification and irrigation, there is potential for joint natural resource management, agricultural investment projects and free exchanges along the 1600km-long border that would yield mutual benefits (Verhoeven, 2011:9).

Thus, the 1991 agreement, as part of the above issues of cooperation and development, had its own significant role in exercising such future negotiations in the upstream and downstream countries in the basin. The main important legacy of this agreement is that norms and sprits of cooperation on the utilization of the Nile River between upstream and downstream riparian countries could be asserted at least in principle.

3.1.3.2 The 1993 Ethio-Egyptian Framework Agreement

In most cases, Ethio-Egyptian relation on the issues of the Nile River has been characterized by mutual suspicion and tension throughout history. However, this doesn't mean that any attempt of cooperation was totally left. On July 1993, the framework for general cooperation between the two countries was signed in Cairo (Kidane, 2012:5). Despite this agreement was neither a binding nor has it settled all the disputes between the two countries, it has a symbolic value of cooperation in which it represented the first attempt by the two sides that they should tackle the very serious challenge of them. Five of the eight articles in the agreement directly addressed the Nile river issues at least on paper.

In some articles of this agreement was put controversial hydro political issues and concepts that became as instruments of mistrust towards cooperation between the two countries yet. For instance, *Article: 5* stated that;*"*Each party shall refrain from engaging in any activity related to the Nile waters that may cause "appreciable harm" to the interests of the other party". In this

view, the term “appreciable harm” is really difficult in the fact that has other synonym terms like” no significant harm” and” no adversely harm” in which downstream countries claim mainly in non-cooperative river basins.

On the other hand, the agreement under its *Article 4:* says that, “ the two parties agree that the issue of the use of the Nile waters shall be worked out in detail through discussions by experts from both sides, on the basis of the rules and principles of international law.” This seems really very important idea that if the two countries would have implement in the past three decades starting from the agreement. The other subject that would considered is, as the concept of “appreciable harm” has been put in article 5, why the principle of “equitable and reasonable utilization” has not been included which advocated the rules and principles of modern international water law?

What indicated the above articles in the frame work agreement, thus, though it was historical attempt to cooperate it could not address main problems of hydro-political issues between the two countries. In fact, Egypt tried to use the word "appreciable harm" as a blocking mechanism to prevent Ethiopia from implementing various projects on the Blue Nile. This is one manifestation of Egyptian insisting of hegemonic control of the river through advocating on vague hydro-political terms such as "appreciable harm" and “adversely harm” to the other side. Ethiopia on the other hand, attempted to induce Egypt to cooperate in sharing the water resources of the Nile equitably through its position towards the principle of ‘equitable and reasonable utilization’ on several occasions. But, Egypt has pursued to continue the status quo of "natural and historical rights" on the utilization of Nile waters (Kibrome, 2011:54).

Fairly important to appreciate, however, though it was faced to several challenges to be materialized the 1993 agreement opened a new chapter in the hydro-politics of the Eastern Nile basin by creating a better understanding on the use of the Nile river as it could negotiate and discuss for equitable right of the water which was not thought before. Furthermore, this agreement as a frame work was the beginning of an era of reduced tension in the Nile basin. Thus, the agreement could be considered as a sign of positive trend which opened the way for dialogue and partnership that was not accustomed before. In other words, it has been significant in giving rise to watchful optimism among Egypt, Ethiopia and other riparian countries in the basin.

3.1.3.3 The ENSAP under the NBI

In 1999, the Nile riparian countries launched the Nile Basin Initiative (NBI), a joint program of action, whose aim is to ensure cooperation and economic integration, sustainable resource development and security (Seleshi et al., 2012:47). Nonetheless, the purpose of this study is not to discuss about the NBI which is not only an institutional frame work of the Eastern Nile basin but also the whole of the Nile basin. The purpose is, rather, to discuss the Eastern Nile Subsidiary Action Program (ENSAP) as an opportunity of cooperation in the Eastern Nile basin. In the same year establishment of the NBI, the governments of Egypt, Ethiopia and the Sudan established the Eastern Nile Subsidiary Action Program (ENSAP) under the umbrella of the Nile Basin Initiative (NBI). This program is an investment program led by the Eastern Nile Council of Ministers (ENCOM), comprised of the Water Ministers of the three Eastern Nile countries, and an ENSAP Team (ENSAPT) formed of three technical country teams *(ibid).*

The objective of this project (ENSAP) is to achieve joint actions on the ground to promote poverty alleviation, economic growth as well as reversal of environmental degradation (Kibrome, 2011:62). Besides, in 2001, the Eastern Nile Technical Regional Office (ENTRO) was established by the Eastern Nile Council of Ministers (ENCOM) decision to manage and coordinate the ENSAP project, and to capacitate and strengthen institutions and provide secretariat support to the program. In addition to the above major objectives, the primary objectives of this project are to: ensuring efficient water management resources through 'equitable utilization' and 'causing no significant harm', ensuring cooperation and joint action among the Eastern Nile countries seeking win-win approach, to ensure poverty eradication and promote economic integration, and ensure that ENSAP to move from planning to action *(ibid).*

What the problem in the list objectives and goals of the ENSAP is, nonetheless, on the implementation and effectiveness of any cooperative and developmental program. As its name indicates 'Action Program' which is relevant concept for implementation, but not really on the ground in which the riparian countries have divergent positions even on the use of resources (the water) in the basin though one of the objective of this action program is ensuring water management and optimal use of it through equitable utilization. It has been obvious that Ethiopia strongly support the principle of 'equitable and reasonable utilization' which is one objective of

the program while the two downstream countries (mainly Egypt) are not interested to implement this in which they perceive as the principle against their water sharing and present utilization.

Conversely to the divergent status quo of riparian positions, the action program has its own historical legacy of cooperation at least in bringing of attitudes towards the sharing rights and utilizations of riparian countries in the basin relatively to the past. What's more, the program has pivotal role in ensuring the perception of shared developments and water managements in the river basin as parts of its main objectives.

3.2 The Senegal River Basin

3.2.1 Hydrological Description of the Senegal River Basin

The Senegal River basin is located in West Africa with covering 1.6% of the continent and spreads over four countries Guinea, Mali, Mauritania, and Senegal which is the second largest river in the region (Hamerlynck and Duvail, 2003:35). However, measured by runoff, the Senegal River basin is one of the smaller watersheds of the world *(ibid).*This river rises in the Fouta Djallon Mountains of Guinea and Southwestern Mali. The main tributaries, contributing 80% of the flow, are the Bafing, Bakoye, and Faleme rivers which all originate in the Fouta Djallon Mountains located in Guinea (VICK, 2006:16).In addition, the Karakoro and the Gorgol rivers both originate in Mauritania are other tributaries of the River *(ibid).*

Hydro-logically, the Senegal River basin covers approximately 483,200 km2 from the upstream Guinea up to the downstream country Senegal (Barron et al., 2005:15). The river flows through three distinct regions, the mountains of Guinea and Southwestern Mali, the valley forming the border between Mauritania and Senegal, and the delta at the Atlantic Ocean. The basin is home to an estimated 3.5 million people in the four countries, 85 percent of who live along the river *(ibid).*Moreover, there are two dams in the basin that were constructed in 1986 (Diama) and in 1988 (Manantali) respectively. The Diama Dam located near the mouth of the river in Senegal, is intended to limit saline seeps (Khaled, 2014). It also creates a theoretical irrigation capacity of 120,000 hectares and improves the filling of Lake Guier in Senegal and Lake Rkiz in Mauritania, where as the Manantali Dam is located in Mali mainly intended for electricity production of 200

megawatts. It has a storage capacity of 11.5 BMC of water and creates an irrigation capacity of 225,000 hectares *(ibid)*.

Based on the above description, most of the water flow of the Senegal River comes from Guinea, the upstream riparian state, though few tributaries originate from Mauritania and Southwestern Mali. On the other hand, Senegal, the downstream riparian country, is not much contributor of water flows despite the name of the river is as its own.

Map.2: Riparian countries of the Senegal River basin

Source, Alex Grzybowski(2013),Innovations in trans-boundary water management, Journal Article Available at: https:/ HAL. archives-ouverts

3.2.2 Historical Challenges of Cooperation

3.2.2.1 Environmental Impacts of the Two Dams (Diama and Manntali)

As it has been tried to describe in the above hydrological description part, during the 1980s, two dams were built along the valley floor to facilitate hydro-electrical production and regular water supply for crop irrigation (Khaled, 2014:15). Over a period of ten years, the OMVS (Organization for the Development of Senegal River) conducted studies, gathered and analyzed data, obtained financing, and began construction on these two dams. Accordingly, the upstream dam was completed in 1988 on the Bafing tributary at Manantali in Mali. The dam created about 11.3 BMC reservoir from which water is released for irrigation, for hydropower production, and to maintain a navigation channel (Grzybowski, 2013:22). The second dam is 27 km upstream from the Atlantic Ocean, inland from Saint-Louis city which was completed in 1986 with its function to stop saltwater from flowing up the riverbed during the dry season and during droughts and maintains the navigation channel *(ibid).*

Albeit both dams were designed to maintain a minimum water level in the river for irrigation as well as to secure hydropower production, they adversely affected to the surrounding community through environmental related issues (Dumas et al., 2010:22). Within the first year after Diama Dam became operational, the people living near the new irrigation projects in Richard Toll, Senegal and at other locations along the river suffered a significant increase in waterborne diseases *(ibid).* Different literatures indicates that the people living along the lower reaches of the river particularly the population living along the Diama reservoir was infested by various water born diseases.

According to Vick (2006), for instance, "the most serious waterborne disease to appear in the lower part of the Senegal River basin was intestinal shistosomiasis with its life cycle of requiring a host snail". The permanent pools of fresh water in the river bed and irrigation canals without the traditional river cycle with a dry river bed and saltwater intrusion upstream created the optimum conditions for the host snails to increase. Moreover, several surveys conducted in communities near Richard Toll showed that virtually everyone above five years of age had shistosomiasis mansoni infestation. Intestinal schistosomiasis *(*bilharzia*),* malaria, and cholera also increased dramatically during this same time period, all because of the pools of fresh water.

Within the first two years of operation, in 1988 and 1989, a random field study of 1,000 people in the vicinity of Diama Dam showed that a 60% prevalence of intestinal schistosomiasis that was not present in this location before Diama Dam began to operate (Hamerlynck and Duvail, 2003:5). Malaria was present before the dam construction, but the year-round standing water dramatically increased the mosquito breeding grounds. In addition, cholera epidemics, which in the past occurred only during the rainy season, became quasi endemic *(ibid).*

What it can be easily understand from the above source is, following the construction of Manantali and Diama Dams, the human health costs were greater than all the economic benefits of increased irrigation and navigation potential. When mega-projects like dams and canals are design to construct along various areas of trans-boundary Rivers, there are a number of prospective issues such as environmental impacts on the riparian societies, sanitation and advantages based on cost benefit analysis should be considered. This means in short, mega-projects like dams have not only positive impacts but also may have negative results unless they are properly managed.

Thus, though the OMVS has asserted that riparian countries of trans-boundary River can cooperate to the extent that having common projects in one way it could face another challenges of managing the environmental impacts of the Manantali and Diama dams. The OMVS is basically an institutional frame work of cooperation with its main objective of ensuring economic development and wellbeing for the peoples of the three riparian countries of Senegal, Mali and Mauritania with an observer status of Guinea. Nonetheless, it couldn't escape from environmental and healthcare problems in which the two dams have affected to the livelihood of the societies living around there though they are considered as a symbol of cooperation in another way.

In general, among other negative impacts of these two meg-dams**,** waterborne disease for humans and livestock, loss of recession agriculture, loss of pasturage for livestock, and loss of acacia forests had devastating human consequences. In such circumstances, the economic costs may not be outweighed by the benefits provided from the development of river resources as planned by the member states when the OMVS was created in 1972. Therefore, these impacts can be considered as one challenges of cooperation in the well organized and institutionalized river basin which seeks more inclusive stakeholders to address the problem.

3.2.2.2 Divergence Benefits and Riparian Interests in the OMVS Member States

The potentials made available by the Diama and Manantali dams for the benefit of the 3 member countries of the OMVS are really not symmetrical. As far as irrigation is concerned, for instance, from the total land (375.000 ha) distributed among the three countries, 240.000 ha for Senegal, 125.000 ha for Mauritania and 10.000 ha for Mali has given (Niasse, 2004:6). On the other hand, from the annual generation of 800 GWh of hydroelectric power is guaranteed with 52% for Mali, 33% for Senegal and 10% for Mauritania. With regarding to navigation, Mali uses high potential which is 82% than the two other countries *(ibid).* What is clearly described in the above paragraph is both Senegal and Mauritania have more utilized the irrigation resource of the river while Mali has utilized high potential of hydroelectric power and navigation than the two riparian countries. This, in fact, has its own effect to increase strong cooperation with in a manner of common interests in the OMVS member countries.

Table.1: Benefit sharing of the OMVS member countries in the Senegal River basin

Member countries of the OMVS	Irrigation	Energy Production	Navigation	All
Mali	11%	52%	82%	35.30%
Mauritania	31%	15%	12%	22.60%
Senegal	58%	33%	6%	42.10%
Total	100%	100%	100%	100%

Source: International Union for the Conservation of Nature and Natural Resources, (2003), IUCN, Gland, Switzerland and Cambridge, UK

As it has been put clearly in the above table, within the different interests and utilization conditions of the resource of the river, Senegal gains 42% from the total allocations followed by

Mali 35% and Mauritania 22%. Thus, this also indicates that there is different allocation and utilization of the resource of the river among the member states of the OMVS. In addition, there have been challenges on demographic issues within the basin states based on the 1988 general population census (Kjellson, 2012:10). Accordingly, the space concerned numbers some 2.565.000 inhabitants of which 1.070.000 (or 42%) in Mali, 800,000 (or 31%) in Senegal and 695,000 (or27%) in Mauritania.

The Malian population living in the basin constitutes the most important one with about 1 million inhabitants whereas development prospects for irrigated agriculture in the framework of current projects are the lowest (in the tune of 10.000 ha). Notwithstanding, there are rain fed agricultural possibilities that are not found in the other countries. Furthermore, Mali is indeed land locked riparian country of the Senegal River basin that needs more water resources both for navigation and irrigation. But, the country utilizes less percentage of irrigation as it is indicated in the table above. On the other hand, although assessed to stand at 800.000 inhabitants, Senegalese populations living in the basin enjoy the most promising prospects in relation to agricultural development (about 240.000ha). As clearly seen in the table, Senegal utilizes more ratios from the resource of the river with the total allocation of 42.10 %.

Mauritanian populations living in the basin have been assessed to the number about 700.000 inhabitants with theoretical possibilities for the development of 125.000ha (Niasse, 2012:3). Accordingly, unlike the other two member countries of the OMVS, the Mauritanian zone constitutes a population migration area insofar which is practically the only region of the country that offers an actual and important development potential. However, the country has been utilizing less percentage of allocation from the resources and projects designed by the OMVS with a total of 22.6%. Although these figures are important as such and relatively comparable, their specific demographic scopes are somewhat different. In Mauritania, for instance, one third (1/3) of the country's population lives in the basin while the ratio is in the order of 15% for Mali and only 10% for Senegal. Thus, here is also a problem of proportion of costs and benefits among the member countries in the organization (OMVS).

Another major difference lies with the fact that the activities of the Malian population of the basin is not mainly oriented or based on the river where as those of Senegal and Mauritania are totally dependent on the Senegal River (Kjellson,2012:17). In this regard, it indicates that the

divergent interests among them also persisted. In addition to the member states of the OMVS (Senegal, Mali and Mauritania), Guinea's interest is also not expected to be symmetrical with the rest. Nevertheless, this doesn't mean that these riparian countries have not common interests.

In all around, the four riparian countries have common as well as different interests that they pursue. Guinea's principal interest is in investment for development and environmental management. The principal interest of Mali continues to be the maintenance of river levels so as to provide navigable access to the sea from landlocked country. The Manantali dam and generating station are on Mali territory and the country is clearly also interested in output of power from the plant. The Mauritanian and Senegalese interests include power production, particularly for Senegal, but a dominant preoccupation has been the livelihoods of the population of the valley and the delta. The challenge for the riparian countries is, therefore, to develop a cooperative platform which seeks to support win-win actions and closer integration so that the various interests can be addressed to the maximum extent possible. This means, in other words, the riparian countries in this river seeks to narrow their divergent benefits and interests with a manner of conceding to each other so that to ensure more cooperation than the existing one.

3.2.2.3 The Absence of Guinea from the OMVS for about Four Decades

The upper part of the Senegal River basin (Futah Jallon area) is reported to have recorded important environmental degradations such as deforestation and bush fires as a result of man's action. This is due to the OMVS has no control over Guinea, the icon part of the upper basin, which commands the major part of the Senegal River inflows. According to Newton (2007), the artificial flood has been managed fairly well until now, but issues related to flow regulation are becoming more prominent as the generating plant at the Manantali dam in Mali comes on line in the second half of 2001. This is because of the principal flows for the dam come from the Bafing River in Guinea. Conversely, the flow information available from the head waters in Guinea is inadequate to allow for optimal management.

This clearly indicates that an inclusive basin organization as well as improved data and knowledge management would greatly enhance the flow management of the Senegal River basin. Therefore, one major challenge in the history of OMVS is the need to encourage the upstream riparian Guinea to join the organization. On the other hand, Guinea is very conscious

of the hydropower potential of the Senegal River headwaters. In the Bafing river sub-basin, for instance, Guinea has identified four favorable dam sites with a combined power-generation potential of 770 MW (Hamerlynck and Duvail, 2003:28)). Of these, the Koukoutamba site, alone, has a potential of 290 MW *(ibid).* This compares with the 200 MW for which the Manantali dam was to have been equipped, which in itself is not enough to serve the needs of the three OMVS countries.

Above all, the integration of Guinea in a regional power grid would an alternative that is of interest to all riparian countries in the basin. Moreover, the need to consider and support Guinea's interests so as to seek its full involvement in the development of the basin's land and water resources was clearly important. It is obviously that the OMVS is an effective river basin institution that can be a symbol for other trans-boundary rivers across the world. Nevertheless, the absence of Guinea from being full member of it has been one challenge of managing the flow of the river in organized manner.

The absence of Guinea from the OMVS has not been challenged only for the member countries but also challenged for Guinea itself in which each riparian country, including Guinea, needs to clearly see benefits derived from the spirit of cooperation. So, the present and future project facilitates that can be established by the OMVS should be inclusive which have a platform for dialogue and exchange between the riparian countries through cooperative development paths and win-win options. In addition, the opportunity to include Guinea in joint planning of shared benefits is much to be preferred to the possible alternative of competition for limited resources which is one challenge of cooperation among the basin states. Overall, since Guinea is located on the upper part of the Senegal River where most of the water is originated from, the OMVS may face a challenge to manage water and resource of the basin in comprehensive manner without the full involvement of Guinea.

3.2.3 History of Cooperation

3.2.3.1The Vulnerability of the People for Drought and Poverty

Most of the Senegal River basin is located in the Sahelian and desert zone of Africa. Its average rainfall is 550 mm per year, but varies from about 1,500 mm per year in the Guinea Highlands to less than 200 mm in the northern part of the basin in Mauritania (Niasse, 2004:2). Since the late

1960s and early 1970s, the Senegal River basin as the rest of the Sahel region experiences severe and chronic rainfall deficits. The average annual rainfall in the Sahel region declined by 30 percent since the early 1970s compared to the 1940-1969 period (Benjamin, 2014:48). Similarly, the average river discharge declined by more than 50 percent. Drought and chronic deficits in river discharge were also marked by frequent food shortages and famine *(ibid).*

In the period that mentioned above, this problem led the countries of the Senegal River basin to look at ways to work together to mitigate the disastrous effects of severe droughts. Unlike other international water bodies, cooperation over this basin did not grow out of a conflict over use of the Senegal River resources. Instead, the catalyst for cooperation was the vulnerability of the populations of the basin states. Consequently, these four countries believe that collaboration on the development of this resource would improve the standard of living of their respective peoples. The four riparian countries of the Senegal River Basin (SRB) Guinea, Mali, Mauritania, and Senegal rank among twenty-five poorest countries in the World (Dione, 2000:22). From the total riparian population which is estimated at 35 million inhabitants, of which 12 million live in the basin *(ibid).* Therefore, increased water storage and infrastructure coupled with multipurpose water resources development and management were crucial to address the growing demand for water and food, and to ensure sustainable growth and the welfare of the people living in the basin.

This was led to the local populations' dependence on rainfall for crops in which the droughts caused severe disruption in the economies of the basin states. In other term, the impacts to the economy were a result of the affects of the drought on the environment. Erosion, saltwater intrusion, drop in groundwater, vegetation loss among other impacts were felt in the entire region resulting in the mass departure of large numbers of inhabitants from the rural areas towards the cities (Newton, 2007:13). Thus, the extreme poverty in the region made these populations very vulnerable to changes in the climate.

In response to the droughts and to meet the economic needs of the region, the riparian states of Mali, Mauritania, and Senegal entered into the Convention on the Statute of the River Senegal on March 11, 1972 (Kjellsson, 2012:23). Hence, the OMVS itself is the result of the vulnerability of the riparian countries for drought and ecological problem. In general, it is not difficult to understand that the drought which affected the people in the basin in 1960,s and 70,s could led to

cooperate the three riparian countries through the establishment of their common institution of the Development of the Senegal River Organization (OMVS).

3.2.3.2 The Establishment of Organization for the Development of Senegal River (OMVS)

As it has been tried to seen in the preceding section, the three riparian states of the Senegal River basin particularly Senegal Mali and Mauritania took a measure through the establishment of common institutional frame work as a response to the severe drought in the 1970,s. When the OMVS was created in 1972, the major concern was to develop infrastructure to address water stress resulting from a cycle of droughts, develop agriculture, and reduce the cost of hydro-electricity and open up Mali by improving navigation (Khaled, 2014:30). At that time, OMVS was mainly dedicated to infrastructure development, although it would have been played an important role in sharing costs and benefits between riparian countries *(ibid).* Structurally, the OMVS is under the high auspices of the Conference of Heads of State and Government (CCEG Conférence des Chefs d'Étatet de Gouvernement,) the supreme body that sets policy for cooperation and development of the organization (Kjellsson, 2012:10).

In addition to the Conference of Heads of State and Government, the restructured organization has five permanent bodies. One is the Council of Ministers, with its function for the design and control body and details the general OMVS policy for the development of its resources. The second is, the High Commission, which is the executive body of the OMVS with its mandate of implementation the decisions of the Council of Ministers, reports regularly on their performance as well as any action taken under the guidance received and within the limits of the powers delegated to it. The third one is, the Manantali Energy Management Company (Société de Gestion de l'Energie de Manantali, SOGEM), which is inter-state owned company established on 7 January 1997. The fourth is ,the Diama Dam Management and Operation Company (La Société de Gestion et d'Exploitation du Barrage de Diama, SOGED). Finally, the fifth is, the Navigation Management and Operation Company (La Société de Gestionetd'Exploitation de la Navigation, SOGENAV) with its responsibility for managing and administering the activities of navigation and transport on the river and the operation, maintenance and renewal works *(ibid).*

This organizational framework is not simply remained on the paper, rather, statutorily strong, but flexible on the operational level, enables all of the actors and stakeholders to participate

effectively in the efficient management of both the basin's natural resources and its other economic potentials. It is also decentralized at national levels, associated with technical bodies (Permanent Water Commission, Regional Steering Committee, and Environment Observatory), and coupled with autonomous management entities, familiar with private sector involvement, and open to stakeholder participation (Dione,2000:19). According to various sources and documents such as the (UNESCO, 2003),for more than thirty years now, the OMVS through these structures, able to find suitable solutions to all of the technical, social, political and other problems linked to the development of the Senegal River basin's water resources.

The important point that should be clear is the OMVS, in one way or another, became as a great opportunity for cooperation among the three countries (Senegal, Mali and Mauritania) in which they began to cooperate even on multidimensional economic issues such as infrastructure developments in the river despite Guinea has been out of it for the last four decades. In addition, the OMVS is an example for cooperation with a strong international competence center in charge of organizing cooperation with national authorities. Nevertheless, it is not sufficient to say that the organization is much inclusive to address multiple environmental and ecological problems than government based trilateral institution of the three member countries. The OMVS even didn't fully participated Guinea in its institutional bindings and developments in the basin.

But, in 2006, Guinea joined the initial members, Mali, Senegal and Mauritania, and became a member of OMVS at least some issues such as attending meetings and conferences about the basin. Generally, though it has those limitations in the above the OMVS shows overall that regional cooperation provides benefits and advantages over unilateral action. Moreover, OMVS has been a prominent institutional frame work for the developments of different projects in the basin mainly the three member states have showed that cooperation is possible to the extent that having multilateral projects by constructing the two dams (Diama and Manantali) as their common property.

3.2.3.3 The Construction of Dams as Joint Projects

The Senegal River basin underwent major changes in the 1990,s by the building of two dams, the Diama and Manantali dams in operation since 1986 and 1988 respectively (Dione,2000:15). These two dams have their own negative impacts as it has been discussed in the first part of

challenges of cooperation section in the study. However, they have a great positive role in which the three member states of the OMVS utilized them as a bridge for cooperation with a clear objectives and purposes. Basically, the Manantali dam mainly serves flow regulation, water stocking, and electricity production while the Diama dam was built to keep salt water from intruding into the river basin.

The Diama dam is situated some 23 km upstream from the Senegalese coast (Benjamin, 2014:51). It stretches over some 1.6 km and keeps the salty sea water from intruding into the Senegal River delta (*(ibid)*. The natural conditions of a low runoff during most of the year and a slight slope land inwards resulted in salt water intrusions up to 250 km land inwards. Even keeping the salt water out on the surface, the dam can't influence the pressure of the salt water on the groundwater. This dam has multidimensional aspects of cooperation with varieties of changes implied in the above presented literature. Among others, this dam could achieve its objectives such as, changing seasonal and yearlong salt water ecosystems into yearlong fresh water ecosystems with some 500 million m3 volume (Khaled, 2014:31). It also prevents salt water intrusions to keep the river water suitable for irrigation as well as to control intrusions into Lake Gurers, which is an important freshwater reservoir, for instance, for the city of Dakar among others *(ibid).*

The Manantali dam, on the other hand, is situated near the town Manantali in Mali, around 1200 km upstream (Vick, 2006:11). It retains the flow of the Bafing River coming from Guinea and it regulates around 50% of the flow system. Furthermore, the dam holds around 11.3 million m3 of water and forms a lake covering some 477 km2 with about 150 km shoreline *(ibid).* The most important implications and manifestations of cooperation in this dam is, the hydro-electric production units are in operation since 2003 (Khaled, 2014:35).

In addition, like the Diama dam this dam has its significance changes implied with, the flow and flood regulation, electricity production, and changes of the fresh water pressure on the groundwater, especially in the delta. Above all an important things here as an indication of cooperation in the Senegal River basin is, these two dams are the property of the three riparian countries (Senegal, Mali and Mauritania) despite Guinea is not included. In addition, they have a great opportunity not only for the existing cooperation but also for the potential economic

integration among the basin states. Moreover, these dams can have pivotal role to provide sound message for international River basins as it is possible to have a common projects and resources in trans-boundary Rivers if riparian countries cooperate to each other.

In general, since the set aims of these two dams are mainly for the development of the region through regularization of the river flow in order to allow navigation, generating of 804 GWh of electricity per year (Benjamin, 2014:54) and ensure an annual flood of known size for the traditional flood-recession agriculture, it is fair to say that they are historical steppingstone of cooperation in the basin.

Chapter Four

4. Current Perspectives of Hydro-politics in the Eastern Nile and Senegal River Basins

4.1. Current Perspectives of Hydro-politics in the Eastern Nile River Basin

4.1.1 The Construction of GERD by Upstream Ethiopia

In the early 2011, Ethiopia declared that the construction of the Grand Ethiopian Renaissance Dam (GERD) would begin with its potential to produce of 6000 Megawatt on the Abay/ Blue Nile in the Benishangul-Gumuz at Guba. Subsequently, the project was begun to construct same year (Belachew, 2013:1). It has vividly been discussed in the preceding chapter that Egypt along with the Sudan has had an oligopoly control on the Nile water though the two nations are located downstream of the basin. However, this is something that the upstream country, Ethiopia, asserted as extremely unfair this historical control of the water and tried to change the status quo through launching the construction of the Grand Ethiopian Renaissance Dam.

At the beginning of the construction of the project, the building of the dam would likely have major implications for the downstream riparian countries mainly for Egypt in which the country moved to the extent that successfully lobbied against Ethiopia's receiving access to external loans and grants. This project is being constructed totally by Ethiopia through mobilization of its citizens yet. Instead of securing the financing before the project started, the Ethiopian government decided to borrow as much as possible of the money needed from its people (Nicholas.2010:17). This is done by selling special dam bonds, and the project is being, therefore, funded by its natives.

In this perspective, it is obvious that how much is challenging when any riparian country of a particular trans-boundary river basin carries out such mega-project unilaterally. Never the less, since Ethiopia would have been changed the past status of upstream riparian on the utilization of the shared water of the Nile River, it could be launched the GERD with the full engagement of its people than waiting towards any external donor agencies. It is ,hence, easily understandable that there was no any potential alternatives of gaining funds for this mega-project from the international community because of the strong objection of the downstream riparian countries especially Egypt (Interview

with an expert on trans-boundary resources from the Ministry of Water and Energy, 11,Janury,2016-10:30 Am). On the other hand, the construction of this huge hydroelectric plant without any external funds and co-operations could have a strong implication that Ethiopia has a potential to use the water of the Blue Nile unilaterally that had been difficult throughout history of the basin. The study is not recommending that unilateral utilization of shared water is important than cooperation yet. However, as far as this project is concerned, Ethiopia has been taking out the right measure and found in the right track as long as the country has the right to use the resource of the river which is totally originated from its vicinity.

Despite the downstream riparian countries were basically not happy for the launching of this upstream mega-project, different steps of cooperation have been taken place in different periods of time. In 2012, the International Pannel of Expertise was formed in order to look deeper into the positive and negative outcomes of the construction (IPoE Final Report Document, 2013). The panel is comprised of two representatives from each of the three involved countries (Ethiopia, Egypt and the Sudan) in addition to four international experts *(ibid).* Moreover, cooperation of the three riparian countries could move to the extent that signing a legal principle document in 2015 which is the Declaration of Principles (DOP). As far as this GERD is concerned, different writers and political analysts argue that the hydro-politics of the Eastern Nile will reach its climax point during the dam filling at the completion of its construction.

According to Abdul Latif (2014:4), for instance, the most critical situation in the construction of the Grand Ethiopian Renaissance Dam will undoubtedly during the filling of the dam. He argues that the filling of the dam will depend on how much it rains and the rate of this seasonal condition might vary a lot. If the period after the completion of the dam has heavy rain, it might take no more than two years. If it is a year with long dry periods and almost no rain at all, this might take even longer time *(ibid).* Nonetheless, despite the amount of water in the dam is Egypt's greatest concern as part of its water security issue, it is a perception than scientific analysis to conclude such arguments. Under the umbrella of cooperation, countries are not expected to harm each other significantly on the utilization of shared resources in such trans-boundary river.

Others mainly from the Ethiopian side argue that there is an awareness of the problems that might occur when the dam is being filled. To deal with this, the filling operation will be conducted in a

responsible way without blocking the water. Exactly how long it will take to fill the dam will, as mentioned, depends on the amount of rain that falls. But, this must be carried out based on win-win approach which considers for all the parties involved. Abay (2012:13) clearly put that blocking the water for the downstream riparian states is something that any one simply does not able to do, primarily for two reasons. First and foremost," it is not internationally accepted. And secondly, it is not fair". It is of course impossible to accurately predict how the critical filling operation will transpire, and how this might influence salinity, pollution and erosion in the area. Despite this fact, at this time, parallel to the construction of the dam a discussion is taking place between the parties to solve issues such as those mentioned externalities.

The other fundamental question on this upstream mega-project is whether it will bring regional cooperation particularly among the three riparian countries (Ethiopia, Egypt and Sudan).In this view, there are divergent arguments mainly between the upstream and downstream countries mainly Ethiopia and Egypt. On the upstream perspective, this project will have significant role in bringing cooperation among the three riparian countries through producing of hydroelectric power and exchange of trade (Interview with an expert of trans-boundary Rivers from the Ministry of Foreign Affairs, February, 24, 2016, 10:00Am). The downstream (Egypt's) perspective, on the contrary, is totally different from its upstream counterpart in such a way that GERD is nothing for Egyptian developments even in any potential providing energy will not the Egypt's concern because of not having a problem of energy (Interview with Abdel Aziz Mohamed, March 15,2016,11:30 Am).

Albeit prevail such divergent perspectives on this upstream mega-dam project, it is, generally, important for both upstream and downstream countries to develop sustainable cooperation based on the spirit of good faith and trustful utilization of the shared water.

Figure.1. shows the current construction development of Grand Ethiopian Renaissance Dam (GERD)

Source: Ethiopian Government Communication Affairs at: http:/www.gov.com (March, 11, 2016)

4.1.2 Initiating of Public Diplomacy

From the treaty of Westphalia up to the end of the cold-war era, sole actors of international relations were sovereign states and the players for the conduct of state-to-state relations had mainly remained to be diplomats and designated state envoys (Melissen, 2005:11). Despite the narrower or broader definitions offered by governments or scholars alike, the concern of public diplomacy is not only confined to diplomats but also to other non-state actors through creating positive attitudes and perceptions towards what others have. Moreover, it can be defined as a government's and other stake holders process of exchange of ideas, in formations and cultures with foreign publics in an attempt to bring about understanding for its nation's and institutions (Tuch, 1990:32).

This type of public diplomacy has been begun in the Eastern Nile river basin over the ongoing construction of the GERD project with its main intention of providing an awareness on which the existence of the dam is only to help drive poverty eradication and regional integration, based on a win-win approach. The first and crucial step taken after the launch of the project was the reception of the Egyptian People's Diplomatic Delegation (Tadesse, 2015:7). Accordingly, Egypt sent a 48 persons delegation named "Egyptian People's Diplomatic Delegation" in mid-2011. The delegation was headed by Moustafa El Gendy and comprised of three presidential candidates, independent political activists, representatives of different political parties and movements, members of parliament, politicians, jurists, public figures, members of the academia, media representatives and members of the Youth Movement of the Egyptians Revolution former parliament members *(ibid).*

Furthermore, the delegation embraced community leaders, journalists from Egypt and other Arab countries and other public figures from Egypt. The Public Diplomacy Delegation met with the late Prime Minister of Ethiopia Meles Zenawi and received warmly (as reported by Ahram Arabic in May, 2011). During, the coming of this public diplomacy, clear information was given to the delegation by Ethiopian government that GERD is not potential water threat for the downstream country. The public diplomacy delegation also acknowledged that the mistaken views expressed by some among its ranks and the general public as well needed to be set right. That is why it is of the belief that Ethiopians must also abandon their mistrust and fear of Egypt and evince solidarity with their Egyptian compatriots. For their part, the Egyptians are beginning to show signs that it is in their interest to reach a shared understanding and take confidence building measures. This is an encouraging start which gives rise to optimism indeed.

What the point is, this public diplomacy is expected to have a vital role in strengthening people to people relations between the peoples of the three nations and conveying Ethiopians desire for mutual growth, strong bond and genuine cooperation to several Egyptian and Sudanese officials and religious leaders. In addition, the visit of the delegation's of each country is timely as it would have a positive impact in building on the positive momentum among the leadership of the three riparian states of the Eastern Nile exemplified in the resumption of the tripartite talk over the Grand Ethiopian Renaissance Dam (GERD) and other issues.

Ethiopia attaches great importance to its relations with Egypt, over the Nile as in the area of security. It accepts that Egypt has legitimate interests in the use of the Nile River. Equally, it sincerely believes that the only way any controversy over the use of such a common resource can be settled is through dialogue and the principle of equitable and reasonable utilization of the water, without causing significant harm to others. This has really significant role to change the past misperception of lower riparian peoples towards the utilization of the shared water resources. Besides, it engenders genuine cooperation amongst all basin countries in which various stakeholders participated than only state actors relatively.

In other words, such activity of public diplomacy can have a pivotal role in giving awareness of utilizing shared water and resources for the mass. In this view, Egyptians had full of misunderstanding towards upstream riparian Ethiopia in which they thought as it would hurt their interest on the Nile water. However, this perception has been turning through different instruments like public diplomacy campaign. As well, the policy and strategy of the current Egyptian government might have its own role on this issue. In fact, successive Egyptian governments were reluctant to any cooperation on the Nile water issues throughout history.

The current government, on the contrary, seems follow cooperative approach than continuing the previous bellicose one at least in principle. Abdel Fattah el-Sisi, during his visit to Ethiopia, has said that Egypt's relations with Ethiopia must be informed by cooperation and love, not hatred and belligerence (A Week in the Horn, 27 March 2015). Accordingly, this indicates that his government is transitioning Egypt from throwing about threats to forging cooperation. Such an encouraging development, however, does not mean that animosity and mistrust have been rooted out. Some politicians and elites still spew out hatred and threats against Ethiopia. Similarly, it is difficult to assume that all the Ethiopian public can be said to have a proper appreciation of the feelings and views of their Egyptian brethren.

In response to the Egyptian public diplomatic delegation, the Ethiopian public diplomacy delegation was warmly welcomed by the Egyptian government and community in 2014 (Endalcachew, 2015:161). The public diplomacy delegation, which was led by Speaker of the House of Peoples' Representative, Aba Dulla Gemeda, had a general objective of building trust and fraternal relations between the peoples' of Ethiopia and Egypt. It was encompassed of

prominent academicians, former Ambassadors, religious leaders, artists and other prominent personalities drawn from various sectors *(ibid).*

As Ethiopian Foreign Minister Tedros Adhanom pointed out:

> *The delegation is the first of its kind and [aims] to further strengthen the good relations fostered since last June following a meeting of the two countries' leaders. It will be a good opportunity to express Ethiopia's belief in common development and narrow the gap [with Egypt] created due to the construction of the Grand Ethiopian Renaissance Dam (Getnet, 2014:13).*

This Ethiopian public diplomatic delegation have a vital role in strengthening people to people relations between the two nations and conveying Ethiopians desire for mutual growth, strong bond and genuine cooperation to several Egyptian officials and religious leaders including Al-Azhar Grand Imam Sheikh Ahmed al-Tayeb and Coptic Orthodox Pope Tawadros II. As part of this result, the Egyptian pope visited Ethiopia in the late of 2015 *(ibid).*

On the other hand, the Ethiopian Public Diplomacy Delegation led by Abadula Gemeda, Speaker of the House of Representatives visited the Republic of Sudan for five-days from May 8, 2015 (Ministry of Foreign Affairs ,2014). The Ethiopian Public Diplomacy Delegation was drawn from all walks of life Members of Parliament, representatives of political parties, religious leaders, ambassadors as well as diplomats, intellectuals, farmers, business community, journalists, artists, and students from higher institutions *(ibid).* Upon arrival, the Delegation was welcomed by Dr. Elfatih Ezzaldin, Speaker of the National Assembly of Sudan, Abadi Zemu, Ethiopian Ambassador to Sudan, leaders of the Ethio-Sudan Friendship Association, and members of the Ethiopian community (Endalcachew, 2015:162). Abadula Gemeda, in his opening remark, expressed his appreciation and gratitude, on behalf of the Government and People of the Federal Democratic Republic of Ethiopia (FDRE) and the Ethiopian Public Diplomacy Delegation, for the warm welcome and generous hospitality accorded to the delegation since arrival in Khartoum *(Getnet, 2014:10).*

He also said that:

> *We have come to the city that we Ethiopians commonly consider as our second home," adding that the warmth and kindness that the Sudanese people and government accorded to the delegation is a clear testament to the strong brotherhood and friendship that sustained between the two friendly nations. He upon hailing the longstanding relations of the people to people and government to government bonds between the two countries, remarked that Ethiopia and Sudan have enjoyed a legacy of relations based on brotherhood, mutual trust and confidence (Tadesse, 2015:10).*

The speech of the speaker of the house can be remarked as the Ethiopian Public Diplomacy Team in the republic of Sudan will further strengthen the historic relationship between the two countries, and provide more opportunities to further enhance the existing bilateral cooperative relations. Despite any foreign relation of a particular country is based on strategic and national interest, this public diplomacy may really has a pivotal role so as to bring the mass as stakeholders of the resources of the Nile water in cooperative manner.

Another important point that was noted by the head of the delegated is the two countries have been able to linkup the two nations in various economic areas as well as the defense cooperation between them have been clearly demonstrated within a common border *(ibid).* What it can clearly be understood from this is that the two countries have also cooperated on non-water issues in the Eastern Nile region. Thus, this public diplomacy has multidimensional objectives to ensure cooperation in the Eastern Nile basin.

4.1.3 The Signing of Declaration of Principles (DOP)

As it has been tried to discuss in the earlier section, the construction of the GERD is becoming as a central hydro-political subject of the contemporary Eastern Nile river basin. One of the cooperative implications of this upstream mega-project is the signing of the Declaration of Principles (DOP) by the three main actor riparian countries of the basin in 2015 at Khartoum (Document of the DOP, 2015). But, this doesn't mean that there are not suspicious issues in the downstream countries on this upstream mega-project in which Egypt may have an anxiety of minimizing of the water and Sudan may fear towards the dam safety. These and related riparian issues will might be seen at the time of the dam filling period. This principal agreement

constitutes ten articles with various provisions which are relevant to the contemporary international water laws. Most of the articles in the document are framed based on the modern international water laws which are essentially cooperative approach. The first article (art, I) says "the principle of cooperation" by stating that: " to cooperate based on common understanding, mutual-benefit, good faith, win-win and principles of international law, to cooperate in understanding upstream and downstream water needs in its various aspects "(DOP document, 2015:1).

What it can be clear from this principle based document is the tendency of hegemonic utilization on the Nile River is turning to the modern utilization of trans-boundary Rivers. Because, all the provisions under the article above are the foundations of modern international water laws though the document is principle approach. Moreover, article IV of the document constituted an important provision of the contemporary trans-boundary water laws of "the principle of equitable and reasonable utilization" which is a cornerstone of cooperation in shared river basins. It visibly stated that:"the three countries shall utilize their shared water resources in their respective territories in an "equitable and reasonable manner". Under this article, there are a number of other issues taking in to account that are determined by the geopolitical and hydrological nature of the riparian countries of the basin.

Among others, it included the provision of "the contribution of each basin state to the waters of the Nile River system" under the considered point of 'h' (DOP, 2015 art. IV). On this point, Ethiopia contributes 86% of the water to the Nile River through its three main sub-basins (the Blue Nile, the Tekeze-Atbara and the Baro-Akobo). This more contribution of water had never been considered by the downstream countries for a long period of time yet. Thus, the declaration seems an important chapter in which the "water contribution" phrase has been put at least on paper signed by downstream countries for the first time in the basin.

On the other hand, there has been included the term of "the availability of alternatives" under column 'g' within this article IV *(ibid).* This point of consideration may have its own impact on the upstream riparian country which the downstream counties claim always as Ethiopia acquires natural rain more than any others in the basin and has other rivers than only the Nile/Abay. Nevertheless, this claim has not relevant with the provision of sovereign equality and territorial integrity principle which included in the DOP under article 'IX'.

In general, this "equitable and reasonable utilization" principle has a crucial role to construct cooperative approach riparian relations in the basin which was difficult in the last several decades. The document principle came up really with new and important clause of "water contribution" which is left even in the major international water laws particularly the Berlin Rules. Thus, this DOP (Declaration of Principle) can be considered as a corner stone of insuring for the potential utilization of the water by the upstream country (Ethiopia).

4.1.4 The 2nd Khartoum Agreement on GERD (December, 2015)

Following the launching of the Grand Ethiopian Renaissance Dam, different hydro-political developments have been continuing among the three riparian countries of the Eastern Nile basin still. Up to now, there have been signed two formal principal agreements with regarding to the GERD i.e the DOP which was signed in March 23, 2015 and the 2nd Khartoum agreement on December 30, 2015. Both principles of cooperation were signed in Khartoum. In fact, these are not the only recent hydro-political developments of the basin, rather, various bilateral and trilateral discussions and negotiation took place in different times by the riparian countries. However, these agreements were formally signed at least on paper. After 3-day talks in Khartoum, ministers of water and foreign affairs of Ethiopia, Sudan and Egypt on Tuesday, December 29, 2015 have reached an agreements pertaining to the Grand Ethiopian Renaissance Dam (GERD) (Sudan Tribune, Wednesday, 30 December 2015).

The agreement was one step forward towards finalizing and reaching concurrence on the nomination of the two consultancy firms (French Artelia and BRL groups) tasked with carrying out technical studies on the potential impact of Ethiopia's Grand Renaissance Dam on the flow of the Nile. The three countries had initially picked French firm BRL and Dutch firm Deltares in April but Deltares later withdrew leading them to replace it with French firm Artelia on Tuesday *(ibid).* The controversial question is, however, why the Dutch firm withdrew from its given task? Many peoples and commentators in the social media have been seen to criticize this agreement in which they thought as consensus on the filling of the dam will hurt the national interest of the upstream riparian country (Ethiopia). Nevertheless, this seems really lack of contemplation towards the concept and nature of cooperation.

The essential point in this concern is, to ensure their national interests, countries should engage to cooperation otherwise hardy to. This agreement, in any case, is next step to the preceding Declaration of Principles (DOP) and that has a clear indication of continuous initiating of cooperation among the three countries on the impacts of the dam (GERD) on downstream countries. The Ethiopian foreign minister Tedros Adhanom, said his country invited Sudan and Egypt to visit the GERD, stressing that Ethiopia has nothing to hide. Accordingly, "We have nothing to hide, they [Egypt and Sudan] should inspect the dam site and this would promote [our] partnership and build trust. We also extend the invitation to the public diplomacy and the media [in Sudan and Egypt] to visit the [renaissance] dam", (Ethiopian Herald, Thursday 31 December 2015). On the other hand, Sudan's foreign minister Ibrahim Ghandour, who spoke in a joint press conference with his Egyptian and Ethiopian counterparts Tuesday in Khartoum, described the signed document as "historic". He disclosed the three parties have reached an agreement on the consultancy firms which would conduct the technical studies on GERD (Sudan Tribune, Wednesday, 30 December 2015). According to Ghandour, there has been taking place relevant studies and measures on the potential effects of the dam from its starting point.

It was clear that, on this regard, on September 22, 2014, the panel of experts in the three countries proposed the conduction of two additional studies on the dam project, the first one on the effect of the dam on the water quota of Sudan and Egypt and the second one to examine the dam's ecological, economic and social impacts of the dam on the said countries (Tadesse, 2015:9). "It has also been agreed that the three parties should commit to the declaration of principles signed by the three countries leaders in Khartoum last March," according to Ghandour. He added the three parties also agreed to continue a spirit of cooperation to build trust with regarding to the GERD (Sudan Tribune, Wednesday, 30 December 2015).

For his part, Egypt's foreign minister Samih Shoukri told reporters that all Egyptians and Sudanese concerns regarding "water security" and quota have been addressed in the document (Global Media Services, Thursday 31 December 2015). Spokesman of the Egyptian foreign ministry Ahmed Abu Zaid, furthermore, said what has been agreed upon doesn't represent the end of the discussions on the GERD, pointing that Ethiopia has pledged to meet its commitments in this issue. He pointed in a press release that the three nations are required to make more efforts in the coming period to ensure continued building of trust and achieve development aspirations

of their peoples and protect their interests *(ibid).* He, accordingly, said that Ethiopia underlined commitment to implement item 5 of the declaration of principles, noting the item provides that the three parties must agree on the bases for filling and running the dam besides establishing a coordination mechanism.

What can every one clearly understand from the above declaration and information of the three countries of the Eastern Nile is that Egypt and Sudan have not the same position towards the construction of the dam. Because, as it could be put by its official speaking in the above paragraph Sudan, the downstream riparian, seemed understood the advantage of cooperation than left reluctant and bellicose approach. But, in one way or another, the three countries have reached a consensus over the next steps and have agreed to hold the regular meetings to enhance cooperation among them.

4.2 Current Perspectives of Hydro-Politics in the Senegal River Basin

4.2.1 Establishment of the Senegal River Basin Multi-Purpose Water Resources Development Project (MWRD)

The Senegal River Basin Multi-Purpose Water Resources Development Project (MWRD) was initially approved in 2006 at its first phase with the involvement of Guinea (World Bank,2013). This integration of upstream country to the development and use of the water gave pave the way to review and update the inclusive framework governing of OMVS. To enhance more regional integration among the riparian countries as well as to foster improved community livelihoods, this project (MWRD) was revised in 2011. After this revised development project initiated, Guinea fully integrated into the decision making structures of OMVS in 2013 *(ibid).* Up on completion its first phase (MWRD1) in 2013, the project designed MWRD2 with proposed of various dams to be constructed. According to the World Bank document analysis of (2013), this project has initially three main components. The first one is the regional institutional development for water resources with its purposes: to reform OMVS and enhance its institutional capacities, to achieve effectiveness of Guinea membership to OMVS, and to rehabilitate the OMVS regional documentation center.

The other one is the local level multi-purpose water resource development with having the purposes of development of small hydraulic infrastructure, development of sustainable and efficient traditional fisheries, planning and management of land and water resources collectively at the community and sub-basin levels, reduction of waterborne diseases at the community level and control of invasive aquatic species primarily typha. Finally, the regional multipurpose and multi-sectoral master planning with its objectives of preparing the SRB (Senegal River Basin) comprehensive master plan, ensuring the pre-investment support for the OMVS-Guinea hydroelectric and for a number of multi-purpose dams, and participating in multipurpose and master planning.

In addition to these general objectives of the project, enhanced regional integration and improved river basin management has been promoted by fully integrating Guinea into the decision-making structure and processes of the OMVS. The project supported Guinea's integration through studies of the OMVS administrative structure, making proposals for reform and supporting their implementation (Senegal River Basin Integrated Water Resources Management Project Document Appraisal, 2015). Subsequently, the Council of Ministers signed an agreement to finance and to start work on the different dam sites such as the Gouina under the umbrella of this project. The Gouina dam was indeed launched in March 2013 and will be expected to complete in 2017*(ibid).* What more activities to illustrate above is, the project financed the feasibility studies of three other hydroelectric dams: Gourbassi, Koukoutamba and Boureya. The Project thereby supported the future development of reliable sources of electric power in the region.

The program demonstrated the benefits of enhanced regional integration and showed that coordinated and cohesive actions can reduce costs and increase impact. It is easily understood, therefore, riparian countries were willing to invest to strengthen the organization, and have seen in return the substantial contribution to the implementation of their own development plans in the Senegal River basin. In addition to the points raised previously, joint seminars and workshops drew the attention of the riparian countries to problems that can be resolved only through the implementation of regional trans-boundary programs under this project. This type of multi-purpose project has significant role both within the project, for example, management of fisheries and malaria; and outside of the project scope, for example, a coordinated response to migratory pests during the harvest, or actions to reduce the risk of conflict among fishermen.

Above all, the effective integration of Guinea into the decisional structures of the OMVS including training on the basic texts of data management, procurement and environmental management is the result of this project (MWRD). Guinea is now an operational member of OMVS in which the country has ratified the OMVS convention to the extent that paying contributions which adopted legislation as the overarching legal framework for water resources management and its staff is fully integrated into the revised operational structure of it (Ndiaye, 2012:34).

Moreover, the integration of Guinea allowed OMVS to: reduce the risks of water related conflicts among the riparian countries, strengthen the integration of OMVS member countries, and widening the common economic area, protect water resources through upstream work on erosion protection and guarantee the durability of the undergoing investments. Guinea itself can also have a chance to increase hydropower development and adjustment of its cost and benefit sharing among the basin countries through this common project *(ibid).* Based on its plan and potential objective, the project achieved in starting of the implementation of the Gouina dam at the end of its first phase, in 2013 (Senegal River Basin Integrated Water Resources Management Project Document Appraisal, 2015). Therefore, this multipurpose project has been contributing in promoting new hydrological and institutional developments in the Senegal River basin by integrating the upstream riparian country (Guinea).

4.2.2 The Completion and Operation of the Félou Hydroelectric Plant

The, Félou Hydroelectric Plant, is a hydroelectric installation at the Félou falls on the Senegal River in Mali. It has three turbines capable of generating 62.3 MW (World Bank, 2003). Before this hydroelectric plant was installed, it was another old hydroelectric installation which was built during the colonial era of 1920,s. Hence, the current power station which is one project of the OMVS under its Multi-purpose Water Resource Management Project replaced the older one (Senegal River Basin Integrated Water Resources Management Project Document Appraisal, 2015). Construction of the new power station began in October 2009 and was financed by the World Bank with a cost of 242 million US dollars *(*World Bank, 2003). Like other mega-projects of the OMVS, this Felou hydroelectric plant was also constructed in collaboration with external fund rising agency which is the World Bank *(ibid).*

It is worthy to say that, therefore, both the past and exiting projects that have been constructing in the Senegal River basin are more depended on the foreign funds and donor agencies. However, it doesn't mean that riparian countries of the basin are not contributing in providing money and capital for these projects, rather, to emphasis the role of the external fund rising agencies in promoting cooperation and development in trans-boundary river basins. In addition, it is clear that how much is difficult to construct mega-projects without getting any fund or lends from external actors indeed. Thus, to carry out any mega-projects like dams and hydroelectric plants, basin countries of any particular trans-boundary river really need cooperation to the extent that having legal institutional frame work otherwise became difficult.

The Senegal River basin is, in fact, good in having this chance more than any trans-boundary river. This hydroelectric plant is the third project of the Senegal River basin development authority on the river and was completed in 2014. In other words, the Senegal River basin through its strong institution of the OMVS has four mega-dam projects right now, the Manantali, Diama, Felou and the Guiona under construction dam. This Felou hydroelectric plant is generating 320-350 GWh which is already in operation currently (Ndiaye, 2012). Generally, it is apparently to understand that cooperation in the Senegal River basin is progressively increased from time to time. The planed and under construction dams such as the Koukoutamba and Guiona respectively are a clear indication of progressive cooperation on the utilization of the shared water in the basin. This basin is carrying out its second generation projects under the umbrella of its authoritative institution of the OMVS currently. One of these second generation projects is this Félou Hydroelectric Plant which is already in operation.

Figure.2. Shows the Félou Hydroelectric Plant in operation

Source: Tamsir Ndiaye (2012): International workshop paper on water Allocation and Green growth,Wagenigen,22&23,November,Availableat:http://gridnairobi.unep.org/chm/waterbasins/senegal_river_basin

4.2.3 The Launching of the Gouina Dam Project

One of the main achievements of the Senegal River Basin Multi-Purpose Water Resources Development Project (MWRD) was the decision to build at least one dam to complement the hydroelectric capacity of the OMVS member countries. Based on that at the end of its first phase (MWRD1) in 2013, the project made a decision to finance and build not only for Gouina dam but also other projects were designed to be created and constructed in its second phase (MWRD2). Following the foundation stone for the Gouina dam was laid in December 2013, the heads of States of OMVS with the integration of Guinea decided to finance and build dam with the total cost of 181.4 million Euros, on March 25, 2013 (Ndiaye, 2012:9).

The Gouina dam is situated on the Senegal River**,** 80 km upstream from, Kayes, which is one of the tributary of the Senegal River in Mali. This dam is a run-of-the-river type hydroelectric installation currently being constructed on Gouina falls along the Senegal River in Mali. It is the fourth project of the Senegal River Basin Development Authority. It will have an installed capacity of 140 megawatts (190,000 hp) and will use the outflows of the, Manantali Dam, upstream to regulation water flow into the plant. About 1,230 m (4,040 ft) long weir just above the water fall will direct water into a channel which will feed the power house just downstream of the falls. The power house will contain three 46.6 MW Kaplan turbine-generators *(ibid).*The plant is expected to be complete in 2017 and will provide power to the riparian countries of the Senegal River basin. The project is receiving 85 percent of its funding from the Exim Bank of China along with US$1 million from the EU-Africa Infrastructure Trust Fund and US$1.4 million from the International Development Association and European Investment Bank (Office Memorandum Document of the World Bank,2001:11).

The clear message from this project is, if basin countries of a particular trans-boundary river are cooperated with having strong institutional frame work, they will have a great opportunity to get funds or lends from the external donor agencies. Regarding this issues, the Senegal River basin is full of experience in exploiting the external lends and fund rising institutions in comparison to the Eastern Nile which is characterized by self help and unilateral utilization of the shared water. The reason that engaging those fund rising actors in the projects of the Senegal River basin is the result of having common institutions like the OMVS which is one of the strong and comprehensive trans-boundary water institutions in the world. Because, those fund rising institutions do not have any suspicion of cooperation with legal frame work institutions unlike with any unilateral projects.

4.2.4 The Establishment of the Senegal River Basin Integrated Water Resources Management Project (IWRM)

As previously mentioned, the first phase of the Senegal River Basin Multi-Purpose Water Resources Development (MWRD1) was accomplished in 2013 by proposing of another second phase project (MWRD2). To meet its objectives, this second phase of the 10-year Senegal River Basin Multi-Purpose Water Resources Development (MWRD2) Project needs relative co-financing project which is the Senegal River Basin Integrated Water Management Project

(IWRM). Despite it is usual that establishing of Integrated Water Resource Management at national level unilaterally ,it is faced to various challenges to accomplish its objectives such as financial and related issues. However, the Senegal River Basin Integrated Water Resource Management Project (IWRM) is a multilateral project of the four riparian states of the Senegal River basin (Senegal River Basin Integrated Water Resources Management Project Document Appraisal, 2015). This project was founded in 2015 with the collaboration of the Dutch Trust Fund (TF) through granting of 15 million US dollar *(ibid).* The development objective of the Project (IWRM) is to strengthen the capacity of OMVS and local water user associations to improve the environmental and water quality conditions of the Senegal River's water resources.

Furthermore, the project has aimed to address the challenge of degradation in the upper basin through restoration of the main headwaters of the Senegal River, the banks of other rivers in the basin, and the deforested slopes in Guinea and Mali through the sustainable reversal of the process of deforestation and erosion in the Térékolé/Kolimbine/Lac-Magui system (TKLM) North of Kayes. It is important to note that one of the major challenges of cooperation in the Senegal River basin is environmental issues due to climate variability and infrastructure development like mega-dam projects (Vick, 2006:23). Hence, to address such kind of challenges, the project has really pivotal role in the river basin. The other important point that has been put as its main component of this project is the "Upper Basin Sustainable Land Management" (UBSLM) which aimed to manage the deforested slopes in Guinea and Mali and the head water of the Senegal River through the sustainable reversal of the process of deforestation and erosion.
In fact, deforestation and erosion including riverbank erosion are serious problems particularly in the upper basin.
In addition, in the valley and the delta of the upper basin, there is a decrease in the vegetation cover and a loss of soil fertility, often due to anthropogenic causes. The deforestation phenomenon is worsened by wind action, rainfall deficits, increases in salinity, and the lack of drainage in the irrigated perimeters *(ibid).* Therefore, it is easy to induce that the importance of this project is paramount as indicated in its objectives. Above all, it can vividly be understood as the role of this project in integrating the upper basin riparian country to the developments and utilizations of the resources of the Senegal River particularly Guinea which was left previously.

Chapter Five

5. The Comparative Analysis of Hydro-politics on the Eastern Nile and Senegal River Basins

In this chapter, major hydro-political issues have been analyzed based on Most Different Systems Design (MDSD) method of comparative approach by considering the nature of the two selected basins. It is also important to understand that such approach of comparison helps to identify the better basin with cooperation and to get a lesson from the overall findings of the study. Having discussed various hydro-political issues in the preceding chapters and collected some primary data from key informants, the researcher has found some selected units of analysis by taking into account the hydro-political nature of the two river basins. Based on this, issues such as imbalanced water contribution and benefits, drought affected basins, the involvement of upstream riparian to the utilization of their respective shared water, non-contracting party riparian countries in the UNWC, and non-water issues of cooperation have been discussed. Moreover, issues like the existence of weak versus strong institutions, unilateral utilization versus cooperation and basin versus sub-basin approach hydro-politics have been considered.

5.1. Imbalance of Water Contribution and Unequal Benefits in Both Basins

It is obvious that (discussed in different sections of the study) Ethiopia contributes 86% of water to the Nile River. The rest 14% even comes from the equatorial Nile sub basin which is the origin of the White Nile. In other words, the total water flow of the Eastern Nile is supplied by the upstream riparian country, Ethiopia, with zero contribution of Sudan and Egypt. On the other hand, the river had been exploited its resources by the downstream riparian countries in different sectors mainly for irrigation and energy. Ethiopia, nevertheless, didn't get a chance to have a proper utilization of the water which is almost originated from its vicinity.

What should be the fundamental question here is whether there is balanced benefit sharing though unbalanced water contribution is existed which is a part of natural endowment to a particular riparian state. With regarding to this issue, the doctrine of community of interest's advocates that a particular shared river basin forms a common geographic and economic mutual benefits to all states in the basin. Benefit in general can be seen as both unilateral and

cooperation utilization of the shared river indeed. But, based on the doctrine above benefit is assured within the spirit of cooperation. As far as the notion of water contribution is concerned, neither the United Nations Water Convention (UNWC) of 1997 nor the Berlin Rule of 2004 includes it in any articles of their document.

This water contribution phrase has, in fact, been put in the Helsinki Rule as well as in the document of the Declaration of Principles on the Grand Ethiopian Renaissance Dam (GERD) in 2015 as an issue of consideration. This has not, however, sustainable guarantee unless riparian states changed the status of principle approach cooperation in to practice trustfully. Furthermore, this subject of water contribution has not any peculiar guarantee to bring sustainable cooperation than other issues in the Eastern Nile, what matter is, rather, commitment of riparian countries to cooperate based on trustful and good faith than mutual suspicion. One respondent from the Egyptian Embassy to Ethiopia, on the other hand, reflected his point of view on the issue of water contribution as despite the fact that Ethiopia provides 86% of water to the Nile River it has other alternative water resources including from rain (interview with Abdel-Aziz Ahmed an expert of international law from the Egyptian Embassy to Ethiopia, 10, April, 2016, 11:25 AM).

But, this has nothing to do with the right of any riparian state of particular shared water resources in utilizing of its benefits. Where ever water resources found in the country other than the Abay/ Blue Nile is not represent to its expected benefits and developments for the Ethiopian people. So, what the point here is again, though water contribution to any particular shared river is not expected to be symmetrical the benefits that are expected from the resources of the water should not be paradoxically less in the more contributor. This is true in the two selected cases in the study in which Ethiopia and Guinea had been.

Looking at the Senegal River basin, water contribution and benefit sharing is not balanced like that of the Eastern Nile River basin. Guinea, the upstream country, could not get relative benefits from the Senegal River resource which is originated from its Foutadjalon Mountain. The River's three principal tributaries of the Bafing, the Bakoye and the Faleme are all originated in the Foutadjallon Mountains in Guinea and together produce over 80% of its flow. The Bafing alone contributes about half of the River's flow at Bakel. Even the main tributaries above Bakel, namely the Gorgol and Oued Gharfa that located on the River’s right bank are from the mountainous parts of the basin which is situated in Guinea (Diene, 2012:5)

Almost, from 80-86% of the water flow of the Senegal River is provided by the upstream riparian country, Guinea, which is water tower of the basin. However, expected benefits and developments from the River as one riparian state, Guinea, still didn't assured its full and sustainable sharing of the resources from the River. It is obvious that Guinea has fully integrated in 2013 to the developments and utilization of the Senegal River within the frame work of the Senegal River Multi-purpose Water Resource Development Project (WMRD) as it has been discussed in the proceeding chapter. However, this doesn't mean that the country could assure its benefit symmetrically with those original members of the OMVS in considering its more water contribution to the River.

On the contrary, the three riparian countries as well as initial members of the OMVS Senegal, Mali and Mauritania could achieve their economic benefits from the River mainly on electric power and irrigation particularly from the joint projects of the Diama and Manantali dams. It is generally obvious that water contribution in any trans-boundary river basin has asymmetric nature; but, the problem here is on the benefit sharing approach in which some riparian countries of a particular river basin lose it. The same is true in the Eastern Nile and the Senegal River basins as it has clearly been put above.

5.2. Drought and Poverty in the Two Basins

Both the Eastern Nile and Senegal River basins are situated in the category of Sub-Saharan African countries the region where drought and extreme poverty is fully experienced. The Nile basin, in particular the Eastern Nile, is characterized by high climatic diversity and variability, a low percentage of rainfall reaching the main river, and an uneven distribution of its water resources (Interview with Abdulkarim Hussein, Environmentalist in NBI-Sec, 27-9- 2016, 10:30, Am, Entebbe, Uganda). This complex hydrology also leads to a complex eco-system comprising of wetlands, lakes, forest, deltas etc. The variability also introduces an annual risk of drought and flood in many parts of the region. Thus the need for infrastructural development in storage facilities is eminent to address these challenges.

One factor for the cooperation of the Senegal River basin riparian countries in the 1960,s and 70,s was the vulnerability of the countries to drought and poverty. As the result of the populations of the riparian states of the basin suffered by hunger and drought in the period

mentioned above, heads of state and government of the four basin countries of Guinea, Mali Mauritania and Senegal could decided to cooperate and utilize the shared water through the establishment of the CIE, the ORCS and finally the OMVS which is a strong and comprehensive one still. While the Eastern Nile River basin is one of the region where is affected by drought and poverty, water management and use is not as good as the Senegal River basin yet.

Despite the fact that riparian countries of the Eastern Nile basin have been trying to combat against poverty and drought, unilateral use of the water is more prevailed than basin wide utilization that would bring effective results in minimizing poverty on the basin countries. In fact, the economic performance of the riparian states of the basin is not balanced and the same. Nevertheless, this doesn't mean that those riparian countries with relative better economic performance like Egypt could escape from natural limitation of the water and drought. Albeit the economic development and growth of the three riparian countries of this basin is different, the basin is affected by drought and poverty which seeks to establish strong joint projects and cooperation utilization of the water. One of the contemporary global challenging issues of the world is really drought and environmental degradation which are essentially a result of climate change. The two basins also have been vulnerable to these serious global issues though international Rivers have a potential to solve such problems.

In the Eastern Nile case, Egypt in fact, has been utilizing the water for irrigation unilaterally which is not, however, based on the principle of equitable and reasonable utilization. Since the Aswan High Dam was built, floods and droughts are no longer a problem for Egypt, although it did experience high flow years where excess water had to be dealt with (Zelalem et al., 2011:3). In 1998, the water in Lake Nasser reached a record of 180.27 meters and the Toshka depression had to be used for the overflow which has a capacity of 120 km^3 (*ibid*).But, unless Egypt is committed to cooperate with the upstream country, rather than claiming more water allocation, this unilateral development may not continue. Considering the fate of the riparian states of this basin (Eastern Nile), one respondent from the Ministry of Foreign Affairs drastically argues that cooperation is not an option in this drought affected basin, rather, a matter of survival. Both the downstream and upstream riparian countries are ,in one way or another, depended on each other for the development and utilization of the water (interview with an expert of trans-boundary rivers in the Ministry of Foreign Affairs,March,24-2016-11:AM). In other saying, when any one

of the downstream countries wants to secure even their water interests from the shared river, they need to have good spirit of cooperation with the upstream country, otherwise, difficult to utilize the water in sustainable manner. The same approach is important for the upstream riparian country too.

On the other hand, the major goal of cooperation in any trans-boundary river basin is to have mutual economic benefits, to save the environment from any potential hazards, to secure water management system as well as developments (interview with an experts of water developments and managements in ENTRO, March 13-2016-10:AM). These all are directly or indirectly have nexus with drought and poverty in any particular River basin. Hence, it is just fair to say that trans-boundary river cooperation is not only an option but also a matter of survival. To exploit the multifaceted economic benefits of water in a particular trans-boundary river basin, riparian states need to cooperate on the shared resource so that to escape from suffering of drought and poverty through the expansion of irrigation and hydroelectric power projects. Located in the desert Saharan and Sahel region of Africa, this basin encapsulates many of the same shortcomings of to each other. Due to low average rainfall, both basins are particularly vulnerable to fluctuations in river flow and the prospect of unpredictable climate patterns in the future.

The Senegal River basin riparian states, in this considering, understood initially as the only alternative to flee from the danger of drought and poverty that had been existed in the 1960,s and 70,s was cooperation to utilize and develop the water of the river. These countries especially the three members of the OMVS have been gaining multiple economic advantages from the different joint projects of their strong institution. They have taken an innovative approach to water management and allocation based on a concept of optimal distribution among users, rather than on purely volumetric withdrawals. The water is allocated by sector, based on needs assessed through joint studies. The OMVS through its commission allocates water according to use. The categories are: agriculture, inland fishing, livestock rising, fish farming, tree farming, fauna and flora, hydroelectric energy production, urban and rural drinking water supply, health, industry, navigation and the environment (World Bank Report, 2006). What from this can, apparently, be understood is, both the OMVS and Guinea have becoming an alert towards the benefit and advantages of cooperation recently.

To have successful cooperation, it needs to involve the upstream and downstream countries in comprehensive manner. Because, water and environmental management in trans-boundary river which is one mechanism of combating drought and poverty is not easy to carried out by few and single riparian state. Therefore, it is worthy to say that countries which are found in any particular trans-boundary river with desert land topography and drought affected basin like the Eastern Nile and the Senegal Rivers should cooperate to use and develop its resources than unilateral approach.

5.3. Increasing Level of Utilization of the Water by Upstream Riparian States of the Two Basins

In every trans-boundary river basin, it is natural to be present upstream riparian country where the particular water flow comes in most cases from. This is true in the Eastern Nile and Senegal Rivers that Ethiopia and Guinea are the most upstream countries of their respective basins. In the Eastern Nile river basin, it has been obvious that Ethiopia, the upstream country, did never utilize the water of the blue Nile/Abay which is totally originated from its fascinated topography. Paradoxically, the country provides 86% of water flow to the total Nile water while the rest 14% comes from the White Nile. On the other hand, the downstream riparian countries had monopolized the River for a long period of time through their perception of the" natural and historical rights" claim. Indeed, riparian states of this basin have been influenced by contending water doctrines on trans-boundary river basins which are characterized by upstream-downstream divergent interests.

The doctrine of territorial sovereignty, in this regards, focuses on the right of the upstream riparian states for using on shared waters of their respective basin while the doctrine of the territorial integrity emphasizes on the interests of downstream countries of a particular River basin (Kibrome, 2011:8). In one way or another, the historical use of the water in this river basin has never considered the right of the upstream riparian country where the total water flow comes from it. In fact, Egypt and Sudan had monopolized the use and developments of the water for a long period of time.

Despite Ethiopia has never accepted the past inequitable and unfair use of the water by the downstream countries of the basin, the country couldn't fully involve to the utilization of the

Nile water for the last several years. This might had different reasons that the country had faced a major historical challenges relating to its economic constraints. For instance, one of the reason that Ethiopia was not effectively able to utilize the shared river (Abay/blue Nile) is the country has been in a history of civil war, drought and poverty (interview with an expert of trans-boundary rivers in the Ministry of Foreign Affairs, March, 11, 2016, 10:45 AM). In other words, the implementation capacity for any proposed projects and developments in the River were not relatively assured due to the said challenges.

Nevertheless, the status quo didn't continue in the current period in which Ethiopia moved one stage to the extent that able to construct mega-projects like GERD. This can also have different factors that the country could able to decide to involve for the utilization of the water of the Blue Nile/Abay. Among others, the prevalence of relative peace and security, the status and acceptances of the country in different regional and international organizations and institutions have significant role for the countries implementation capacity on water related projects and developments on the Blue Nile (interview with, an expert of trans-boundary resources in the Ministry of Water and Energy,Janwuary,23,2016,3:30 AM). The respondent also vividly put that the country has been doing its homework in a way that can have assertive implication of potential utilization on the Eastern Nile water resources.

The question here is whether this emerging status of involving to this historical contentious water will continue or not. Ethiopia's potential utilization and developments on such shared resources is depended on critical variables such as economic performance, relative internal peace and stability. The country's sustainable internal peace and stability which is an icon instrument for utilizing the shared water resource is actually in question currently. Because, there were different kinds of protests in different corners of the country in the year of the study. Therefore, to assure its sustainable utilization of the Nile water Ethiopia should address these exiting and potential internal problems here and there. These and other related issues of national power have a pivotal role even within the frame work of cooperation. Unless a country has good economic performance and relative internal peace and security, it is hardy to assert its national interest in such shared resources even in the spirit of cooperation.

From the legal point of view, on the other hand, an expert of international water law in Addis Ababa University advocated as the upstream country has a full right to use the resources of the

shared water though the long held hydro-political realities had been characterized by hegemonic control in the downstream riparian particularly Egypt. But, that status quo has never any legal ground in the contemporary international water laws which is framed based on the principle of 'equitable and reasonable utilization' and 'no significant harm' on other riparian states (interview with Derge Zeleke, 25-3-2016,11:00,Am).

Thus, Ethiopia has been trying to use its right on the shared river Abay/blue Nile though not dramatically as its expectation from. According to the respondent, this changing the status quo is due to the legal insignificance of the colonial agreements of the 1929 and 1959 which were not inclusive concerns of the upstream riparian countries and the increasing level of Ethiopian involving on regional and international politics. This means in short, due to the emergence of modern international water law and Ethiopia's influential position on regional organizations such as IGAD and AU, the long standing hydro-political realities has been changing in which the country's involvement on the water use has been increasing.

As far as the Senegal River basin is concerned, Guinea the most upstream riparian country, was left behind from the utilization of the water for the last forty years because of its withdrawal from the OERS (Organization of Riparian States of the Senegal River or in 'French language "Organisation des Etats Riverains du Sénégal) in 1972 (Grzybowski, 2013:19). The withdrawal of Guinea from the OERS had its own reason indeed. According to different reports from the NBI working group that went to Senegal River basin in 2010 document, the reason that Guinea initially withdrew from the OMVS was due to the tension with Senegal and internal crisis during the time of withdrawal (NBI study tour report, 2010:32). Furthermore, the OMVS officials responded the question that was raised by the NBI working group as why Guinea withdrew from the OMVS initially and the current status of involvement during the 2010 Tour to the Senegal River Basin as follows:

> *Guinea did not join the OMVS for political reasons: there were great differences in the nature of the political regimes at that time. Guinea has been an observer since 1987. In 2006, Guinea considered the evolution of the OMVS. And the real needs for development of Guinea led to a constructive membership in the OMVS. Guinea agreed on the principles of equity and of a collective vision for development. Finally, instead of expected 2 years to become a full member, the process took only 14 months. Today, the result is quite positive: we are*

experiencing an active participation of Guinean experts and administrators in the OMVS" (Responses by OMVS officials for NBI Working Group, 2010:16).

Following Guinea's withdrawal from the OERS, the three riparian states of the basin began to utilize the resources of the Senegal River through establishment of their strong institution of the Organization for the Development of the Senegal River (OMVS, Organization pour la Mise en Valeur du fleuve Sénégal). But, later both Guinea and the OMVS have understood the importance of Guinea's involvement to the utilization and development of the resources of the water as the country is located in the upper tip of the River. Subsequently, Guinea became the fourth member of the OMVS in 2006 and fully integrated on various development programs in 2013 under the umbrella of MWRD (Senegal River Basin Multi-purpose Water Resource Development Project).

Moreover, Guinea is very conscious of the hydropower potential of the Senegal River headwaters recently. In the Bafing River sub-basin, for instance, Guinea has identified four favorable dam sites with a combined power-generation potential of 770 MW (Ndiaye, 2012:2). Of these, the Koukoutamba site, alone, has a potential of 290 MW. This compares with the 200 MW for which the Manantali dam was to have been equipped, which in itself is not enough to serve the needs of the three OMVS countries (*ibid*).

The important point, in this regards, is that both Guinea and the downstream countries seemed understood towards strategic advantage of cooperation in which without the involvement of upstream riparian country sustainable development on the river might be difficult while the upstream country itself became aware for potential benefits from this shared resources. The integration of Guinea in a regional power grid is an alternative that is of interest to all riparian countries. Guinea is also interested in the development of its micro-hydro potential. The need to consider and support Guinea's interests so as to seek its full involvement in the development of the basin's land and water resources is clearly indicated. Thus, these all interests of both the upstream and downstream riparian countries are assured through cooperation in a manner of full integration of Guinea to the OMVS. Generally speaking, Guinea's level of involvements to the utilization and use of the water in the Senegal River has been as a paradigm shift from 2006 relatively to the past three and four decades.

5.4. Weak Vs Strong Institutional Mechanisms

As the study has tried to assess in the third chapter, the Eastern Nile basin riparian countries had been attempting different historical negotiations and agreements in different period of time as stage of cooperation. However, both the historical and contemporary attempts and efforts of cooperation have been remained on paper in which strong institutional frame work couldn't establish than principal approach so far. In fact, the 1991 and 1993 agreement between Ethio-Sudan and Ethio-Egypt respectively were one historical step of cooperation among the three main riparian countries of the basin. What the problem here was, nonetheless, these agreements did not bring significant results to the extent that establishment of strong institutional frame work. Rather, those articles remained on paper which was basically principal approach.

As far as institutional frame-works and water managements are concerned, we can look in two ways; one is basin wide cooperation while other is cooperation on single projects (Interview with Abdulkerim Husien, Environmentalist at NBI-Sec, 27-9-2016, 10:30, Am. Entebbe, Uganda). These two perspectives of institutional frame-work and cooperation may also bear another question as what do we mean by cooperation? is that necessarily to be successful cooperation or it seeks time and gradual process?. For the purpose of the study, cooperation is not confined to successful one; rather, any attempts and initiatives for discussions as well as dialogues are part of it. Coming to the Eastern Nile, it is obvious that cooperation is not successful but doesn't mean that ignored and always tense. There are attempts of cooperation and negotiations on the use of the shared water resources. The point here is, however, what kind of cooperation are taking place are they giving attention on single and specific projects or on the general hydro-political issues of the basin.

In this regard, Ethiopia, Egypt and Sudan have signed the Declaration of Principles (DOP) in March 2015 which is a kind of cooperation on single project. In fact, this might has brought new development to seat for discussion about the shared water resource among the three riparian countries. Nevertheless, there are some points that should be analyzed why the discussion could be confined to GERD which could have been included in other projects like the ENTRO. Because, to have real cooperation it must be move beyond like that though its initiative is important. It is also not overstated to say that the NBI and CFA are institutionally weak and confined by principles. Indeed, these two institutions are not only concerned to the

Eastern Nile basin, but, the implication that they couldn't be effective and strong frame work is concentrated on the hydro-politics of this sub-basin. According to one respondent from the Ministry of Water and Energy, one of the obstacles to bring stable and strong institutional mechanism in the Nile River basin is Egypt's continuous insisting to dominate the water through its colonial agreements of the 1929 and 1959 (interview with, an expert of and trans-boundary resources in Ministry of Water and Energy, January, 15-2016-4:45 AM).

One of the divergent claim and position on the utilization of the Nile water that could be argued by respondent from ENTRO, South Sudanese national, also clearly implies to support this argument in which downstream Egypt wants to keep its 'historical right' claim while upstream riparian particularly Ethiopia in the Eastern Nile River basin strongly oppose this claim (interview with Jakson Elsoma, ENTRO project coordinator, March, 26-2016-9 AM) . Despite these facts, there have been signed two agreements among the three riparian countries of the basin in Khartoum recently on the Grand Ethiopian Renaissance Dam. The same approach was followed despite it has its own positive legacy for cooperation in the basin yet. The DOP (Declaration of Principle) itself implies that the agreement is more depended on principles.

With regarding to the status of institutional frame work in the Eastern Nile basin, other respondents optimistically argue as there have been increasing implications to establish strong water management institutions than remained on paper relatively with the past history of the basin (interview with an expert of trans-boundary rivers in the Ministry of Foreign Affairs, March,24-2016-11:AM). This arguments, indeed, substantiates by taking the CFA as a turning point in the historical institutional mechanisms of the basin. On the other hand, another respondent from Sudanese national, a senior regional project coordinator in the Eastern Nile Technical Regional Office (ENTRO), also supports the above argument in such a way cooperation is the best option for the riparian countries even more for the downstream countries by considering saving from any potential environmental impacts of any projects that can be constructed around. Based on this and other advantages of cooperation, riparian states have understood towards it (interview with Omer Mohamed, March, 26-2016-11 AM).

In reality, nonetheless, though there has been trying to establish institutional frameworks it is really difficult to assume that these institutions like the CFA are an effective and strong water

management mechanisms comparing to the OMVS. Moreover, the problem of having strong institutional mechanism in the Nile River basin is concentrated on this Eastern sub-basin in which the continuous insisting of unilateral controls by the downstream country particularly Egypt takes a lion shares. Because, Egypt is even not heart fully participating in those co-operational issues that are provided by the NBI than observing what riparian countries are doing there (interview with Dorothy Kaggwa, head strategic planning and management in the NBI Secretariat, 23-9-16, 11:15 Am. Entebbe, Uganda).Therefore, though various attempts and agreements were made in this basin it couldn't be assured one strong institutional frame work that would bring significant and sustainable cooperation among the riparian countries.

On the contrary, the Senegal River basin has a good experience of trans-boundary river cooperation through establishment of strong water institutions in the world. In this regard, the Organization for the Development of the Senegal River (OMVS, Organization pour la Mise en Valeur du fleuve Sénégal) is considered as a model of institutional frame works of trans-boundary Rivers in which the three riparian countries cooperated to utilize the water resources of the River under the umbrella of this institution (Grzybowski, 2013:20). The major indicator of cooperation with in this institution is, Mali, Mauritania and Senegal constructed two joint projects i.e the Diama and Manantali dams as tripartite property in 1986 and 1988 respectively. Moreover, recent projects have also been carried out in the basin with the integration of upstream Guinea which withdrew from the institution in 1972. Novertheless, Guinea has been involving and integrating to the full utilization of the resources of the river recently mainly from 2013 onwards.

The important point here in this River basin is, the power of riparian states is less than the institution (OMVS) on the utilization and managements of the water resources. This situation is in to being because of the trustful cooperation of the riparian states through ceding their sovereignty in full consent to this common institution. The doctrine of limited territorial sovereignty even advocates such situation of utilizing shared water resources. It says that any riparian state of a particular trans-boundary river is not independently allowed to alter the natural condition of the particular shared river even in its own territory to the disadvantage of the natural conditions of the territory of a neighboring state (Habtamu, 2011:38)..

This indicates that, in other words, the sovereignty of riparian countries in a shared river is restricted. This is true in the Senegal River basin through the common institution of OMVS. The OMVS has, indeed, a power to restrict riparian sovereignty on the overall managements of the River resources. Moreover, the shared projects in this river basin such as the Manantali and Diama dams shows that watercourse management does not necessarily need to be restricted to classical definitions of sovereignty. In general, because of having strong and legal institution in the basin, the Senegal River is continuing to construct and develop new projects in a manner of fully cooperation of riparian countries. For instance, the construction of the Gouina dam, Feluo dam and the establishment of the Senegal River Multi-purpose Water Resource Development (MWRD) are among the recent joint and cooperative projects of the riparian states of the basin.

5.5. Unilateralism Vs Cooperation

As it has clearly been put in the core argument of the study, the Eastern Nile basin is characterized by the unilateral utilization of the water despite different attempts of cooperation was carried out. The construction of different irrigation and hydroelectric projects such as the High Aswan Dam (HAD) and Nag-Hamady barrage Dams in Egypt can be as a manifestation of this unilateral use of the water. Sudan also could construct various hydro-projects in the Eastern Nile River basin such as the Merowe and Jebel Aulia Dams in different periods of time. Despite its absent of full utilization from the resources of the Nile River relatively, Ethiopia, the upstream and main contributor of the water, has also been utilizing the water unilaterally. The Tekeze and the GERD dams are the few projects from the more water resources of Ethiopia in the Eastern Nile.

On the other hand, water utilization and governance in the Senegal River basin is totally different from the Eastern Nile River basin which every hydro-logical project is constructed and managed by the riparian states jointly through their common institution of the Organization for the Development of the Senegal River (OMVS, Organization pour la Mise en Valeur du fleuve Sénégal). To the best of their cooperation, they have still three common dams in operation and one under construction. The Diama and Manantali dams have been providing a paramount economic development for the OMVS member countries. Furthermore, the Felou hydro-electric plant is in operation since 2014. The other fourth project which is under construction is the Gouina dam. Guinea, the upstream riparian, has left from these development and utilization yet

until 20013 though currently joined to the OMVS. In general, the tradition of unilateral use of trans-boundary River is totally abandoned in the Senegal River basin.

Table 2.Water Utilization in the Eastern Nile and Senegal River Basins

Name of Project/Dam	Status of Ownership	River Basin	Year of Completion or to be Completed
Nag-Hamady barrage	Unilateral/Egypt	Eastern Nile	1930
Old Aswan Dam	Unilateral/Egypt	Eastern Nile	1933
High Aswan Dam	Unilateral/Egypt	Eastern Nile	1970
Tana Beles	Unilateral/Ethiopia	Eastern Nile	2011
Tekeze	Unilateral/Ethiopia	Eastern Nile	2010
GERD	Unilateral/Ethiopia	Eastern Nile	2017
Roseires	Unilateral/Sudan	Eastern Nile	1966
Merowe	Unilateral/Sudan	Eastern Nile	2010
Khashm-El-Gibra	Unilateral/Sudan	Eastern Nile	1964
Diama	Joint/OMVS	Senegal	1986
Manantali	Joint/OMVS	Senegal	1988
Gouina	Joint/OMVS	Senegal	2017
Felou	Joint/OMVS	Senegal	2013

Source: Seleshi, et al. (2012) with some modification, the Nile river basin Water, Agriculture, Governance and Livelihood, at: http/www. Routledge Park Square, Milton Park, Abingdon, Oxon OX14 4RN

What it can be understood from the table above clearly is riparian states of the Senegal River basin have moving apart from the tradition of unilateral development of the river, rather they have been implementing and materializing the development and utilization of the resource of the river in the spirit of cooperation. As far as the Eastern Nile River is concerned, unilateral

development in the river is common still. Even these unilateral dams in the above table are not the only unilateral activities in the River basin. There are a lot of other small and mega-projects that have been under construction and planned for the future such as the Setit and Shiraik dams in Sudan and Tekeze II and Border dams in Ethiopia. Egypt has also a number of unilateral projects other than listed in the table above on the Nile water resources such as the Assiut barrage and Esna barrage irrigation dams (Seleshi, et al., 2012:15).

It is, therefore, obvious that the Senegal River basin is better in having the experiencing of cooperation than the Eastern Nile River basin. However, this doesn't mean that attempts and efforts to cooperate in the utilizing of the shared water are totally absent. Despite the unilateral utilization and development takes the lion share in the Eastern Nile River, different efforts have been taking place to cooperate on the utilization of the shared water still. But, the question here is whether the spirit of cooperation is based on trustful or suspicion manner relatively with the Senegal River basin.

In this regards, historical hydro-political nature of the two basins is basically different. Riparian states of the Senegal River had never faced to any complex colonial water agreements even in the colonial era in which four of them were under one colonial master that was French (interview with an experts of water developments and managements in ENTRO, March 13-2016-10:AM). On the other hand, according to the respondent, the Eastern Nile case is totally different from this historical background. The two downstream riparian countries Egypt and Sudan were under their colonial master of Britain while the upstream country, Ethiopia, was not though Italy had a dream to control its resources. This historical colonial legacy had its own impact on the past and present status of cooperation on the Nile water. One of these manifestations can be the tripartite treaty of 1906, the 1929 and 1959 agreements which were fundamentally not the concerns of the upstream riparian country.

Hence, it is reasonable to have such level of utilization on the shared water in the Eastern Nile River basin relatively with the Senegal River. Moreover, cooperation in the Eastern Nile River basin is not matured enough like that of the Senegal one. In fact, riparian states of this River basin have not common position and strategy towards cooperation. In other words, cooperation in this shared water of the Eastern Nile countries is not characterized by trustful approach, rather, based on mutual distrust and suspicion. Even South Sudanese national and regional project

coordinator in the Eastern Nile Technical Regional Office (ENTRO) substantiated this idea in a way that "though there are various activities of cooperation in the Eastern Nile basin it is difficult to say that real cooperation than in principle"(interview with Jakson Elsoma, ENTRO project coordinator,March,26-2016-9 AM). Because, there are more challenges than prospects of cooperation in which upstream-downstream riparian interests are not coming to common position *(ibid).*

5.6. The Role of Non-Water Issues for Cooperation

Non-water issues are issues that are not related to water but indirectly perk up the cooperative environment particularly through play down any tense relations between the riparian states. These issues may be social, political or economic which they thought is important for their national interest. These issues are common both in the Eastern Nile and Senegal River basins in pushing the riparian states to cooperation. In other words, both the riparian countries of the Eastern Nile and the Senegal River basins are not confined to water issues as far as cooperation is concerned. In the Eastern Nile case, as they have common boundary, Ethiopia and Sudan are making a lot of cooperation beyond the Nile issues.

Ethiopia has large potential of generating hydropower from others than the Abay/blue Nile water which can provide to neighboring countries while Sudan has natural gas which makes an opportunity for economic integration with neighboring states including Ethiopia. According to the respondents from the Ministry of Foreign Affairs, these two neighboring countries of the Eastern Nile basin are not limited to cooperate on the Nile water but also have present and potential cooperation on issues of trade, smuggling and human trafficking. In addition, as both countries have a common regional organization of IGAD, they cooperate on multiple regional issues beyond the Nile water such as security in the Horn, economic transaction and investment activities (interview with an expert of trans-boundary rivers in the Ministry of Foreign Affairs , March,24-2016-11:AM).

Despite Egypt and Ethiopia are not geographically proximate, they have been cooperating on global issues such as international terrorism and human trafficking. Moreover, Egypt and Ethiopia have been cooperating on non-water issues such as trade tide and combating illegal human trafficking. The loss of the life of 21 Egyptian and 30 Ethiopian nationals at the Sinai

desert and Libyan shore of Mediterranean sea respectively in 2015 could be one manifestation of the Ethio-Egyptian cooperation against international terrorism (interview with Abdel-Aziz Ahmed an expert of international law from the Egyptian Embassy to Ethiopia, April,10-2016-11:25 AM).Furthermore, both of these main actor riparian countries of the Eastern Nile River basin are a member of the regional organization of the Common Market for the Eastern and Southern Africa (COMESA). This has also its own significant opportunity for potential water cooperation among the three countries.

What the fundamental point here is these non-water issues have their own role to strengthen the cooperation on the Nile water between these two countries. Indeed, Ethiopia has historical hostility in the past several years on the Nile water issues with the downstream riparian country especially Egypt in which its position and strategy on the upstream riparian country (Ethiopia) has never changed which is to destabilize the country so that not to utilize the water properly. However, this doesn't mean that co-operations are ignored beyond the Nile water issues between these two countries.

Countries of the Senegal River basin have also multiple projects of cooperation other than water issues. The OMVS is basically not only limited to the utilization of the water of the Senegal River, it rather, have broad and multipurpose objectives so that to escape the basin from the existing and potential drought and poverty. Three of the four riparian countries of the Senegal River basin are member states of their common regional organization which is the ECOWAS (Economic Community of West African States).In the last decade, with a view to dealing with pressing migration matters, Mauritania has invested considerable effort in institutionalizing its migration apparatus (MPC-profile report of EU, 2013). Mauritania has, moreover, consolidated cooperation in the fields of irregular and transit migration with international stakeholders and Sub-Saharan Africa (Senegal and Mali). According to the MPC –profile report, since 2008, the government has, coordinated the return and reintegration of Mauritanian refugees from Sub-Saharan Africa particularly Senegal and Mali. On the other hand, Mali has cooperated with Mauritania on special governance and returns of refugees. In fact, since 2012 the Malian refugee crisis has sent over 100,000 Malians to Mauritania *(ibid).*

In the security aspect also the two riparian states of this River basin Mali and Mauritania have been cooperating against surrounding terrorist groups. The security threat from terrorist activity

by Al-Qaida in the Maghreb (AQIM), which has found a sanctuary in Northern Mali, is focused on Western targets and has evolved from taking money to taking life and discouraging investment in the region at all indeed (The Stockholm Programme, 2010). This AQIM resources and operational capacities are significant and growing to the extent that deteriorating security conditions more in these two riparian states from the basin pose a challenge to development cooperation and restrict the delivery of humanitarian assistance and development aid, which in turn exacerbates the vulnerability of the region and its population. Mali and Mauritania cooperated to as far to establish joint military command along with Algeria and Niger against the terrorist groups in the Sahel region.

The critical point here is, thus, since the main objective of whether water or non-water cooperation is to foster economic development in this river basin, being members of regional organizations also helps them as a subsidiary input for water cooperation in the river. Thus, riparian countries of the Senegal River basin are not confined to water utilization but also have other issues such as ground transportation and trade, migration and security like that of the Eastern Nile basin countries.

5.7. UN Water Convention of 1997 and Riparian States of the Two Basins

The United Nations Convention on the Law of the Non-navigational Uses of International Water courses adopted by its General Assembly on 21 May 1997. This convention is considered as one of the contemporary relevant international water laws which comprise many important principles of water utilization in shared river basins. Under its "part II" of this convention, there are a lot of general principles such as the 'principle of equitable and reasonable utilization' and participation' (art.5), and the 'principle of obligation not significance harm' (art.7) which are found in different other international water laws.

Nonetheless, three of the Eastern Nile riparian countries neither ratified nor accede to this international water convention. Sudan, in fact, was fundamentally in favor of the adoption of the convention in 1997 (Mason, 2004:192). Sudan's position of in favor, however, doesn't has any guarantee for its legal effect as long as the country did not ratified it or acceded to. In other words, all countries that were in favor of the adoption of the convention are not a contracting party to unless they ratified or acceded to it. Because, there are a number of countries even they

were with a position of abstains but later ratified or accede to it. In this regard, one respondent from Addis Ababa University has vividly stated that any country which is a member of the UN General Assembly might have in favored with the convention at its adoption. Nevertheless, this doesn't mean that the country is a contracting party to it as long as it did not sign or accede to. This is, for instance, true as far as Sudan is concerned in the Eastern Nile River basin. Hence, neither the upstream riparian, Ethiopia, nor the two downstream countries are contracting party to the convention still (interview with Dereje Zeleke, an expert of international water law, 25-3-2016,11:00,Am).

What should be the important question here is why these riparian countries are not contracting party to this international legal regime. This, in fact, has different reasons in which the upstream and downstream riparian countries have divergent positions towards some general principles. Egypt has never been agreed with the principle of equitable and reasonable utilization though currently the principle has been included in the DOP in 2015 in which the country signed for the first time on this provision at least in principle. On the other hand, Ethiopia wants to be included provisions like water contribution and other related hydrological and riparian issues which are supposed to assure its national interests. As far as Sudan is concerned, despite its position has been changing from time to time, it wants to assure the volumetric water sharing and allocation along with its downstream Egypt.

In other saying, the reason which riparian countries in the Eastern Nile basin couldn't become contracting party to the convention is because of the convention's less protection of the upstream and downstream riparian interests. Ethiopia and the two downstream countries (Egypt and Sudan) have their own respective interests which are not protected by the convention. Therefore, all those issues mentioned in the above and other related factors might influence, in one way or another, riparian countries not to become binding party to the convention easily.

None of the riparian states of the Senegal River basin is also contracting party to the convention. However, the Senegal River basin Riparian countries were not fundamentally faced by the problem of utilization of the water. They rather heated by a serious of drought which pave the way to cooperate so that to tackle its effect. Hence, Senegal, Mali and Mauritania understood the importance of cooperation based on equitable and reasonable utilization initially. Even Guinea

withdrew from the OERS not because of incompatible position on the utilization of the water, but because of political tension with Senegal and its internal politics.

Albeit the water use in the Senegal River basin is based on mutual understanding and cooperation which is the foundation of equitable and reasonable utilization, basin countries are not party to the Convention yet. In this regard, when riparian countries of a particular River basin are requested to be contracting party of an international legal institution, they may various reasons to be or not to be party to that institution based of their comparative advantage as it has been put in the case of the Eastern Nile basin. The Senegal River basin riparian countries also might have their own calculation on this issue in which environmental impacts have been challenging due to the plenty of mega-projects constructed by the OMVS in different periods of time.

The convention, in fact, included provisions such as the protection and preservation of ecosystem (art.20) and prevention, reduction and control of pollution (art.21). These and related environmental and ecological issues may have their own incompatible interests with the status quo of their respective river basin. It can also be substantiates as riparian countries give priority for their national interests, it is usual that they became reluctant to be a contracting party to such kind of international binding law (interview with Abdel-Aziz Ahmed an expert of international law from the Egyptian Embassy to Ethiopia, 10, April, 2016, 11:25 AM). When the UNGA (United Nations General Assembly) at its 51st session approved resolution of A/RES/51/229 to adopt the UNWC, it invited countries to become party to. In the session, there were about 103 nations in favored towards its adoption (Loures et al., 2015:25). Sudan the downstream riparian country in the Eastern Nile was among these nations with a position in favored .On the contrary,26 countries of the member of the UNGA gave their vote of abstention while 31 nations absent from it. Egypt and Ethiopia the most downstream and upstream riparian countries respectively in the Eastern Nile also were from these nations with a vote of abstention. In the Senegal River basin, Mali, the second upstream riparian country in the basin voted the same as Egypt and Ethiopia. Three of the rest riparian countries of the Senegal River basin (Senegal, Guinea and Mauritania) were absent from *(ibid).*

The fundamental point from this narration on the position of riparian countries of the two selected basins towards the convention is that any of them has no legal obligation to be binded

within the convention right now. Because, since they did not sign or acceded to it, they are not expected to be binded by it. This UNWC is basically binding international water law like any other law within a minimum requirement signatory number of 35 nations. But, the binding authority of the convention is legally confined to those signatory states. Thus, any one of the riparian country in the Eastern Nile, for instance, is not interested to be binded with such kind of legal regime because of its divergent national interests with other riparian countries. This is true that the interest of the upstream and downstream riparian has never converged to common stance.

The hydro-political nature of the Eastern Nile is not fundamentally characterized by consensus approach negotiations, rather, by mutual suspicion and mistrust approach. One important element for states to be a party of any legal binding regime is the consent of the party. So, it is really difficult to assume that states that have not trustful consensus in their shared resources are expected to be party to this international legal regime easily. In any international agreement, consent of the party is very fundamental element of a particular legal regime to be inclusive concern of the party (interview with Dereje Zeleke, 25-3-11:00, Am). Hence, unless states have full consent to the particular legal regime, they are not obligated to be a party to it. In this regards, three of the Eastern Nile riparian countries have not full consent to be contracting party towards this UNWC still. On the other hand, riparian countries of the Senegal River basin have different approach of legal obligations for their basin institutional mechanisms from that of the Eastern Nile River basin countries. According to an expert of water development and management in the ENTRO, for instance, they essentially negotiated on the establishment of common institutional frame work based on consensus than treaty approach (interview with Wubalem Fekade March 13-2016-10: AM). However, four of these riparian countries of the Senegal River basin are not contracting party to the UNWC so far. This makes what similar approach with the Eastern Nile River basin countries which they preserved towards their respective national interests. Now, the main idea here is, any country of the Eastern Nile and the Senegal River basins are not the contracting party to the convention as it can clearly be seen in the table below. They, rather, have their own respective votes other than contracting party.

Table 3.Voting Status of the riparian countries of the Eastern Nile and the Senegal River Basins to the UNWC of 1997

Country	River Basin	Vote to the UNWC of 1997
Egypt	Eastern Nile	Abstention
Ethiopia	Eastern Nile	Abstention
Guinea	Senegal	Absent
Mali	Senegal	Abstention
Mauritania	Senegal	Absent
Senegal	Senegal	Absent
Sudan	Eastern Nile	In favor

Source: Clarke et al. (2012:36) with some modification, Key facts: The status the worlds international watercourse and other governance, at: http/www.Zeb Hogan / WWF-Canon

As it has visibly been put in the table above, any one of the two selected basins country is not a contracting party to the convention. Sudan has with a vote of in favor to the convention. But, the country is not obligated to any legal effects as long as it did not ratified, acceded or approved it.

5.8. Basin Vs Sub-Basin Approach Hydro-politics

There is no doubt that the Eastern Nile is one sub-basin of the Nile River which has hydro-logically two sub-basins i.e the Equatorial lakes and the Eastern Nile. Nonetheless, it is important to be considering that the hydro-political dynamics of the Nile River is both historically and currently concentrated on its Eastern sub-basin. In every hydro-political activities whether cooperation or conflict that had been for the past several years on the Nile

water issues, it was never undertaken without the involvements of any riparian countries of the Eastern Nile River basin particularly the downstream one Egypt. In fact, Egypt and Sudan are members of the basin wide multilateral cooperative efforts such as the Hydro-Met, the Undugu, and the TECCONILE while Ethiopia is an observer status. On the other hand, when the upstream country, Ethiopia, became the first signatory of the CFA during its launching period, Egypt the downstream riparian country opposed it strongly.

Different scholars of hydro-politics even argue that the critical problem of cooperation in the Nile River is concentrated on the Eastern Nile sub-basin where riparian states have more interest for the water than those of equatorial lakes region where they depend on lakes water. As Ashok Swain argues in his paper, "Mission Not Yet Accomplished: Managing Water resources in the Nile River Basin", for instance, the Equatorial Lakes nations are primarily dependent on Lake Victoria for freshwater, so their interest in the Nile River is less considerable than the Eastern riparian countries. According to him, therefore, the NBI's emphasis on the basin-wide initiative faces the problem of co-opting a large number of uninterested parties (Swain, 2008:11). Swain, furthermore, explains that the best way to progress would be to first address the issue of water management between Egypt, Sudan and Ethiopia, which are widely considered most susceptible to conflict. After achieving strong and institutionalized cooperation among the three most important riparian countries, their effort can be directed towards establishing a comprehensive and basin-wide arrangement *(ibid*).

In one way or another, the hydro-political dynamics of the Nile water is depended on its Eastern sub-basin in a way that having divergent claims of downstream and upstream riparian countries. The essential question is why these divergent claims are existed on this sub basin? Hydro-logically, the Eastern Nile is faced for water scarcity and seasonal variability than the Equatorial lakes region. This could become one cause of vulnerability to hydrological impact on downstream countries which is one challenge of cooperation. Furthermore, the colonial agreements, rapid population growth and the nexus of the basin to other non-water issues which has to do with the Middle East and the Horn have been challenges of cooperation in the basin. The other point that can be mentioned as a challenge is the perceptions of riparian countries towards the utilization of the water in which the downstream countries look to its upper stream counterparts as it has water alternatives comparing to themselves while upstream country views

as this in terms of sovereignty (Interview with Abdulkerim Husien, NBI-Sec Environmentalist, 27-9-2016, 10:30 Am, Entebbe, Uganda). In any case, these issues make the hydro-politics of the basin more complicated than its Equatorial lakes region.

This situation is indeed the main challenge to not having basin wide institutional mechanism so far. So, the point here is the hydro-political volatile of the Nile River is depended on the riparian countries of the Eastern Nile sub-basin. On this point, one respondent from Ministry of Foreign Affairs even argues that the hydro-politics of the Nile River basin is characterized by sub-basin approach in which the divergent riparian perceptions and fears of to each other prevailed between upstream and downstream countries (interview with Zerihun Abebe March,24-2016-11:00,AM). In other terms, the incompatible position between Ethiopia in one hand and Egypt and Sudan on the other hand could have shape and reshape the hydro-politics of the Nile River Basin. The hydro-political stance of the two downstream countries is currently different yet. Means, Sudan that had hitherto frozen its participation in the NBI turned its stance currently (Interview with Dorothy Kaggwa, head strategic planning and management in the NBI Secretariat, 23-9-16, 11:15 Am. Entebbe, Uganda,). But, as long as Egypt's claim to dominate the water allocation is, on one hand, Ethiopia's strong opposition to it, on the other hand, is persistently there; its real spillover effect to the whole basin is indicated. It is, therefore, worthy to consider that the Eastern Nile sub-basin as the same times as basin wide hydro-politics.

Looking at the Senegal River basin, on the other hand, it is totally different with the case in the Eastern Nile which is clearly a sub- river basin without strong institutional frame work. While the Senegal has one strong basin wide institutional and legal frame work which is the OMVS that was established in 1972. The important institutional mechanism in this OMVS is, every water projects and developments are carried out under the managements and guidance of this common institution. There are no any sub-basin institutions in this river basin indeed. Hydro-logically even, the river has not notable sub-basins other than tributary rivers. In fact, it has three topographical categories which are the mountain area of the Foutadjalon in Guinea, the valley and the delta. However, this doesn't indicate any sub-basin hydrology in this river.

With regarding to the utilization of the shared water of this Senegal River, respondents from, ENTRO, vividly put that riparian states have common perception towards the OMVS which is

their orbit of cooperation from its establishment on wards. This is because of their essential consent of ceding their sovereignty to the institution for their common developments (Wubalem Fekade, March, 13-2016-10:45 AM). This indicates that how much is effective institutional mechanism the OMVS to the extent that to limit unilateral development perceptions than cooperation. In other saying, the power of management for the resources of the river basin is given to this common institution in a way that riparian countries as a ruled while the OMVS as a ruling body.

What, hence, importantly to understand is, the hydro-political activities and developments in this river basin are fundamentally undertaken by basin wide approach with the common consent of riparian countries. It is also free from incompatible perceptions and suspicions between and among riparian countries. This is also because of having strong common institutions with clear objectives which is basin wide. Above all, the implementation capacity of basin wide and sub-basin institutions are totally different. The OMVS is really implementing the utilization of the Senegal Rive water in the spirit of cooperation. In the case of the Eastern Nile, there are sub-basin institutions and projects such as the ENTRO and ENSAP. However, these institutions and projects have a subsidiary capacity to implement any managements of cooperation in the sub-basin specific objectives. On the other hand, those institutions considered as basin wide in the Nile such as the NBI and CFA also influenced by the divergent riparian perceptions to each other from this sub-basin (Eastern Nile).

Chapter Six

6. Conclusions

Having discussed various hydro-political issues in different sections of the study, the researcher has tried to identify some findings within the frame work of similarities and differences of the two selected cases. Historically, these two river basins had not been passed through similar approach of cooperation in which the Eastern Nile basin was characterized by mutual suspicion and mistrust while the Senegal basin initially avoided such kind of problems through the establishment of its strong institutional frame work i.e the OMVS. However, unlike to the past, the long held hydro-political history of the Eastern Nile basin could have been changed in recent times though it has numerous constraints. In other terms, the hydro-politics of the Eastern Nile is not limited to conflict, rather, there have been emerging some sort of cooperation not as effective as the Senegal River basin yet.

It has, apparently, been tried to seen the major hydro-political issues of the two river basins with particular reference to cooperation in the study. Both theses two river basins are located in drought and poverty affected region which is totally from the sub-Saharan Africa. This makes, indeed, riparian countries of both river basins need to utilize the resources of their respective river in cooperative manner. The other point of hydro-political issue of these two selective basins is that upstream riparian countries have been involving to the utilization and development of their respective water resources relatively to the past. In this regard, Ethiopia has been dramatically engaging to the developments and utilization of the Eastern Nile water resources comparing to the long held hydro-political nature of the basin. On the other hand, Guinea, the most upstream of the Senegal River basin, has began to participate in the water governance and management of the shared river to the extent that integration to the OMVS.

The two river basins also appear comparable in issues such as imbalanced water contribution and benefits of riparian countries and non-water issues as facilitating factors of cooperation. Any one of riparian countries of the two river basins is also not contracting party to the UN water convention. This can be considered as another issue comparison of these two selected river basins. Moreover, both basins have carrying out recent hydro-political developments. In the Eastern Nile basin the construction of GERD, initiation of public diplomacy and the signing of

DOP are among those recent hydro-political developments of the three riparian countries which are Ethiopia, Egypt and Sudan. There have also been taking place some hydro-political developments in the Senegal River basin recently. The Establishment of the Senegal River Water Resource Management and Development project (WRMD), the launching of the Guiona dam, the Felue hydro-electric plant and the establishment of the Senegal River Integrative Water Resource Management project (WIRM) are among others.

As it has been tried to discuss on the comparable issues of hydro-politics of the two selected cases, it is also important to discuss on some uncontrolled variables which is mostly persisted implicitly in most different system design approach. These two river basins are more different than similar with reference to cooperation in which the Senegal River basin is more effective in terms of having strong institutional frame work and utilization of the water resources than the Eastern Nile indeed. The Eastern Nile basin is totally characterized by unilateral utilization of the water resource though there are some attempts of cooperation recently. This unilateral use is due to the absence of basin wide strong institutional water regime.

In the case of the Senegal River basin, on the contrary, there is basin wide institutional frame work with effective implementation to the extent that riparian countries could have common projects under the legal frame work of the institution. In other saying, unilateralism is totally avoided in this River basin, rather, riparian states have been cooperating through their common legal regime i.e the OMVS. In addition, The Senegal River basin has never faced upstream-downstream tension unlike that of the Eastern Nile which had been throughout its history. The initial withdrawal of Guinea from the OMVS was not even the result of hydro-political dilemmas with its downstream countries but due to its internal politics and border conflicts with Senegal. Water management, development and utilization in the Senegal River basin is, therefore, characterized by cooperation based on mutual trust and equitable and reasonable use principle which is not easy to implement in the Eastern Nile basin.

The other variable as a point of discussion is regarding to the basin and sub-basin approach hydro-politics. The Eastern Nile basin is as the same time one sub-basin of the Nile River basin. However, the hydro-politics and the water share of the Nile are, in fact, concentrated with in this Eastern part of the river. This is, apparently, seen as most contentious hydro-political issues

between the upstream, Ethiopia, in the one hand and downstream riparian, Egypt and Sudan, on the other hand. The destiny of the Nile hydro-politics is, thus, determined by this Eastern Nile basin. This is different in the Senegal River basin which is not distinguished by sub-basin approach hydro-politics at any level. As it has discussed earlier, this basin has one strong basin wide institutional frame work. Every hydro-political and water governance in the basin is carrying out within the frame work of the institution. Hence, it is clear that this basin wide water regime (OMVS) is the main decision making body over any water issues of the basin and riparian countries are guided by its legal authority.

More importantly, the Senegal River basin can provide a lesson for the Eastern Nile in a way that overall its water governance and management is based on the consent and strong commitment of riparian states to utilize the shared resource. This effective governance and management of the shared water could show how riparian countries of trans-boundary rivers are be able to beneficial if they cooperate through their trust full consent. So, what the riparian states of the Eastern Nile river basin can take a lesson from its Senegal counterpart is strong commitment of their governments to cooperate, establishment of institutions based on consent than mutual suspect and mistrust as well as understanding and calculating towards the advantage of cooperation than unilateral developments. The Senegal River basin is; generally, better than the Eastern Nile as far as cooperation is concerned. It is obvious that the Eastern Nile is one sub-basin of the Nile River. But, if the riparian countries of this sub-basin are committed to establish strong institutional mechanism like that of the former, the Nile water will be utilized in cooperation manner than unilateralism approach. Therefore, countries of the Eastern Nile need to take a lesson from the Senegal River basin how the spirit of cooperation is implemented and materialized to the extent that having common projects.

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Appendices

Appendix.1

List of Key Informants

1. Abdel-Aziz Ahmed, International law expert in the Egyptian Embassy to Ethiopia, 10, April, 2016, 11:25, AM

2. Abdulkarim Hussein, Head Water Resource Management in NBI-Sec, Entebbe, Uganda, September 27th -9-16-10:30,Am

3. Dereje Zeleke , an expert of International Water Law Assistance Professor at AAU, 24 March, 2016, 10:30 AM.

4. Dorothy Kaggw, Head Strategic Planning & Management at Nile Basin Initiative Secretariat, Entebbe, Uganda, September,23rd -9-16 -11:15 AM

5. Jakson Elsoma, ENTRO project coordinator, March, 26-2016, AM.

6. Omer Mohamed, Sudanese National and Senior Regional Project Coordinator at ENTRO March, 26-2016-11 AM
7. Tedroos Teffera , an expert of Boundary and Trans-boundary resources in Ministry of Water and Energy, 15, January, 2016-4:45 AM
8. Wubalem Fekade , Head of Social Development and Communication in ENTRO March, 25-2016-10:45 AM
9. Zerihun Abebe , International Relations and hydro-politics expert at MoFA March,24-2016-11:AM

Questions for Key Informants

1. What is the motivation that upstream riparian state has been involving to the utilization and development of the shared river in the Eastern Nile?
2. Why riparian countries of a particular river basin eg. in the Eastern Nile and Senegal basins are not contracting party to the UNWC of 1997?
3. How much is guaranteed the issue of water contribution which was already put in the Declaration of Principles (DOP) in 2015?
4. What are other non-water issues of cooperation among the three riparian countries of the Eastern Nile Basin?
5. The role of cooperation for these drought and poverty affected basins?
6. What are the existing challenges of cooperation in the Eastern Nile Basin?
7. Is there any fundamental change of hydro political relationship between and among the three riparian countries (Ethiopia, Egypt and Sudan) after the launching of GERD?
8. What looks like the contemporary utilization of the Nile water relatively with the previous three and four decades? In other words, does it cooperative or unilateral approach?
9. Are there any new hydro-political developments in particular reference to cooperation in the Eastern Nile basin?
10. What are the factors to have or not to have strong institutional mechanisms in a particular river basin?

Introduction letter from Makerere University to NBI-Sec, Entebbe, Uganda

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COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
Office of the Principal

13th September 2016

The Nile Basin Initiative Secretariat (Nile-Sec)
ENTEBBE

Dear Sir/Madam

This is to introduce Mr. Kahsay Gebrehiwot, an exchange student under The Water and Society project (WaSo) from Addis Ababa University (Ethiopia). He is engaged in conducting research of his thesis to the award of a partial fulfillment of the requirements for MA degree in Political Science and International Relations. The title of his thesis is **"Hydro-politics of the Eastern Nile and Senegal River Basins: A Comparative Study".**

The purpose of this letter is to kindly request your organization to provide relevant information and material to the student.

Thank you in advance for your cooperation.

Yours sincerely,

MAKERERE UNIVERSITY P. O. BOX 7062, KAMPALA 13 SEP 2016 PRINCIPAL COLLEGE OF HUMANITIES & SOCIAL SCIENCES

Prof. Edward K. Kirumira
PRINCIPAL AND WaSO AFRICA COORDINATOR

In future correspondences please quote the reference number above