

Nile Water Conflict Management

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Abstract

In the 21st century, the potential for conflict over water is unacceptably high. Scarce resources must now serve competing needs in agriculture, industry, urban and rural populations across several nations, while retaining sufficient supplies in the environment to ensure long-term sustainability of ecosystems. The problems are especially acute throughout Africa, where many countries are balanced precariously on the edge of scarcity and survival. The Nile River is subject to political interactions. It is the world's longest river flowing 6,700 kilometers through eleven countries in north eastern Africa Rwanda, Burundi, Democratic Republic of the Congo (DRC), Tanzania, Kenya, Uganda, Ethiopia, Eritrea, South Sudan, Sudan and Egypt with varying climates. Considering the basin area of the Nile, Sudan has the largest size (1.9 million km²) whereas, of the four major tributaries to the Nile, three originate from Ethiopia – the Blue Nile, Sobat and Atbara.

The modern history of hydro-politics in the Nile basin is very complex and has had wide ramifications both for regional and global developments. Egyptian civilization has sustained itself utilizing water management and agriculture for some 5,000 years in the Nile River valley. The Egyptians practiced basin irrigation, a form of water management adapted to the natural rise and fall of Nile River. Since around 3000 B.C., the Egyptians constructed earthen banks to form flood basins of various sizes that were regulated by sluices to redirect flood water into the basin where it would sit until the soil was saturated, the water was then drained, and crops planted. Ancient Egypt has a natural historical right on the Nile River, and principles of its acquired rights have been a focal point of negotiation with upstream states.

The fact that this right means that any perceived reduction of the Nile water supply to Egypt is tampering with its national security and thus could trigger potential conflict. Sudan also has hydraulic potential and has created four dams in the last century. This has resulted in the development so far of 18,000 km² of irrigated land, making Sudan the second most extensive user of the Nile, after Egypt. While Egypt is highly dependent on the Nile, there are

factors that may lead to the necessity of conflict over the distribution of the Nile's water supply. Ethiopia's tributaries supply about 86 percent of the waters of the Nile. Over the years, the involved states have put agreements and treaties into place so that conflict can be controlled. Recognizing the importance of preventing water-related conflict, the nations are asked to assist collaboration in their efforts to work together in addressing existing and potential water resources conflicts, both among nations and competing sectorial users.

The Nile River basin presents a practical example of some of the challenges of developing a comprehensive transboundary water management. Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties. The Nile River Basin water crisis related to hydro-political, socio-economy, water conflict, water rights, water management, drought and scarcity, water security, sustainable development, challenges and constraints, cooperation versus confrontation, and Nile water future perspectives are addressed in the present study.

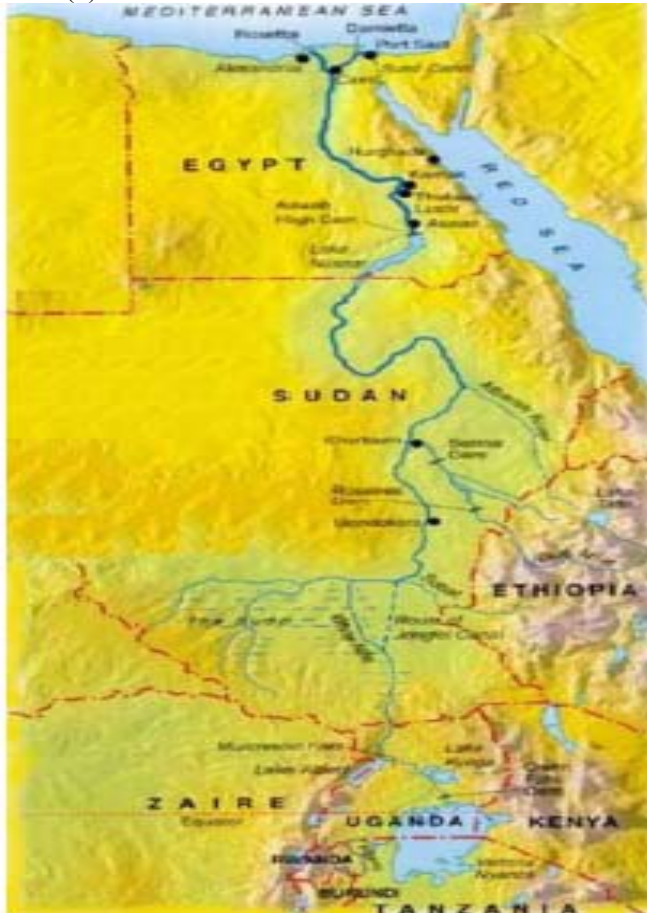
Keywords: Nile River, water conflict, water crisis, water agreements, hydro-politics, socio-economy, water security, challenges, capacity building.

Introduction

Freshwater resources are finite, unevenly distributed worldwide, and often shared by more than one country. Thus, fresh water can be a trigger for conflict but it can also become a reason for cooperation. The longest river in the world, the Nile, flows north towards the Mediterranean Sea and is fed by 2 main tributaries, the White Nile and Blue Nile. Originating at Lake Victoria (Uganda) the White Nile flows to the Sudan where it meets the Blue Nile that starts in Lake Tana and greatly increases the flow. The river drains 10 % of the African continent or an area greater than 3,349,000 km² (1,293,049 mi²).

The remotest headwater stream Ruvyironza which feeds into Lake Victoria is regarded as the ultimate source of the Nile River. The water from the Nile is of good quality and the soil around the river is fertile. Eleven countries fall within the drainage basin of the Nile. The Nile is an important source of water for many countries as well as hydropower; 80% of Sudan's electricity comes from

structures on the Blue Nile. Egypt depends on the Nile River for 95% of its water needs for drinking, agriculture and electricity generation. Egypt and Sudan both use the Nile for agricultural and hydroelectric purposes. Ethiopia and Uganda use the river for hydroelectricity. Egypt is constantly worried about national water security, as a result, there have been many agreements made between Egypt and the rest of the nations through which the Nile flows (1).



Climate change is predicted to shorten wet seasons, increase precipitation and intensify dry periods in the Nile Basin, which already faces chronic drought and deforestation. High sediment loads from increased deforestation and agriculture have severe environmental consequences; and poor sanitation creates dangerous health issues. Today, the basin is characterized by poverty, political instability, rapid population growth, and environmental degradation. Due to the unavoidable and extensive use of water and population rapid growth, supply, unfortunately, is becoming less than demand leading to water scarcity. In addition, four of the Nile riparian countries are among the world's ten poorest, with per capita incomes in the range of USD 100-200 per year. Population is expected to double within the next 25 years, placing additional strain on scarce water and other natural resources. Because of the diverse needs of these countries chances for conflict as well as cooperation among riparian countries aroused.

The conflict over the Nile water rose up when every state on the Nile basin reclaims its right to control the water and to have its benefits according to its natural right, geographic position and economic needs. Currently we are living a very critical situation in Nile basin due to water and especially after threaten of many states to the use of force to protect their rights over the water. Since the beginning of civilization and due to the economic and climatic change Africa lived many wars and conflicts. However, the Nile River basin presents a practical example of some of the challenges of developing a comprehensive transboundary water management. Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties (2).

Facts About The Nile River Basin

The Nile River is the longest river in the world. From its major source, Lake Victoria in east central Africa, the White Nile flows generally north through Uganda and into Sudan where it meets the Blue Nile at Khartoum, which rises in the Ethiopian highlands. From the confluence of the White and Blue Nile, the river continues to flow northwards into Egypt and on to the Mediterranean Sea. From Lake Victoria to the Mediterranean Sea the length of the Nile is 5584 km (3470 mi). From its remotest headstream, the Ruvyironza River in Burundi, the river is 6671 km (4145 mi) long. The river basin has an area of more than 3,349,000 sq km (1,293,049 sq mi). There are eleven countries which make up the Nile River Basin. Some of the countries have only a small part of their area within the basin, whilst others are virtually entirely within the Basin. All the countries contribute differently to the basin and have different needs for the water and other resources of the basin. The following are some facts about the Nile River:

- Length: (From White Nile Source to Mouth) 6695 km (4184 miles).
- Name: The Nile gets its name from the Greek word "Nelios", meaning River Valley.
- Sources: The White Nile: Lake Victoria, Uganda. The Blue Nile: Lake Tana, Ethiopia.
- Nile is world's longest river—4,145 miles.
- 11 African countries where the River Nile passes.
- North is the White Nile from Lake Victoria in Kenya.
- Passes through Uganda to Sudan where it meets the Blue Nile at Khartoum then continue to the river, flows north towards Egypt.
- The Nile Basin covers an area of 3.4 million km².
- Egypt acquires 87 % of its water from the river.
- Climate ranging from tropical rainforest to arid zones.
- Average annual flow 84 billion cubic meters.
- 85% originating from the Blue Nile, within the months of June to September.
- Extensive losses through evaporation in the Sudd, Lake Nasser, and other lakes and wetlands.

- Main water consumptions: irrigation, hydro- power, transport, industrial development, environmental protection, etc.
- Eleven riparian countries; most important; Egypt, Sudan, South Sudan, Ethiopia, and Uganda. Others are Kenya, Tanzania, Congo, Rwanda, Burundi, and Eritrea.
- 95 % of Egyptians live in Nile Valley and depend on river for fresh water.
- Nile water is life or death issue for Egypt. Nile is also crucial for Sudan.
- 86 % of Nile water reaching Aswan High Dam comes from Blue Nile (Ethiopia).
- 14% of Nile water arrives via White Nile from Uganda and southern riparian states.
- The Nile and its tributaries flow through ten countries. The White Nile flows through Uganda, Sudan, South Sudan and Egypt. The Blue Nile starts in Ethiopia. Zaire, Kenya, Tanzanian, Rwanda, and Burundi all have tributaries, which flow into the Nile or into Lake Victoria Nyanes.
- The major cities that are located on the edge of the Nile and White Nile are: Cairo, Gondokoro, Khartoum, Aswan, Thebes/Luxor, Karnak, and the town of Alexandria lies near the Rozeta branch.
- The major dams on the Nile are Aswan Old Dam , Sennar Dam, Jebel Aulia Dam, Owen Falls Dam, Khashm el-Girba, Aswan High Dam, Roseires Dam, Tekezé Dam, Merowe Dam and the most recently Renaissance Dam.
- The Nile River's average discharge flow is about 300 million cubic metres per day.
- Nile tributaries are: Atbara River, Bahr el Ghazal and Sobat River, Blue Nile, Yellow Nile, (3), (4).

State Of Art

The Nile is one of the world's great rivers. For millennia, this unique waterway has nourished varied livelihoods, an array of ecosystems, and a rich diversity of cultures. As the world's longest river, it traverses nearly 6,700 kilometers, covering more than 35 degrees of latitude and draining an area over 3 million square kilometers; one tenth of Africa's total land mass. It is a basin of varied landscapes, with high mountains, tropical forests, woodlands, lakes, savannas, wetlands, arid lands, and deserts culminating in a vast delta on the Mediterranean Sea. It also serves as home to an estimated of more than 160 million people within the boundaries of the basin. Despite the extraordinary natural endowments and rich cultural history of the Nile Basin, its people face considerable challenges. Today, the basin is characterized by poverty, political instability, rapid population growth, and environmental degradation. Four of the Nile riparian countries are among the world's ten poorest, with per capita incomes in the range of USD 100-200 per year. Population is expected to double within the next 25 years, placing additional strain on scarce water and other natural resources.

Legal Situation: Historically, Egypt and Sudan determined Nile water allocations. 1929 agreement between Egypt and UK gave Egypt 48 billion cubic meters annually and Sudan 4 billion cubic meters. 1959 agreement between Egypt and Sudan allocated 55.5 billion cubic meters (three quarters) to Egypt and 18.5 billion cubic meters (one-quarter) to Sudan. Agreement assumed 10 billion cubic meters would evaporate from Lake Nasser. Treaties resulted in virtual Egyptian and Sudanese monopoly of Nile water. No other riparian countries signed 1929 and 1959 agreements. Incompatibility between —equitable share|| arguments of upstream riparian and —historic needs, established rights, and no significant harm|| arguments of downstream countries prevails.

Irrigated Agriculture in Basin: Irrigation dominates agriculture in climatically dry. Egypt has begun Northern Sinai irrigation project that includes Salaam Canal under Suez Canal and eventually will use additional 4.4 billion cubic meters of water. When completed in 2017, New Valley Project will divert another 5 billion cubic meters of water annually. Sudan now irrigates only about 1 percent of arable land. Ethiopia has about half million acres under irrigation. Kenya, Uganda, and Tanzania have plans to develop about 1 million acres. New irrigation projects in Egypt and Sudan pose threat to upstream riparian countries.

Hydropower in Basin: Numerous dams for hydro-power in basin; best known is Aswan dam in Egypt (2100MW). Sudan is moving ahead with new dams at 3rd and 4th cataracts of Nile along with Merowe Dam (1250 MW). Ethiopia constructing a new dam the Renaissance Dam as Ethiopia plans to increase hydroelectric production to 6000 MW. Uganda is constructing another dam near Lake Victoria. Dams only for hydropower are not serious threat to downstream use of water.

Nile Basin Cooperative Framework Agreement: The Nile Riparian countries founded *the Nile Basin Commission*, then Nile Basin Initiative (NBI), in 1999, with funds from World Bank, aiming to establish a diplomatic protocol for evaluating the fair use of the river for agricultural and energy projects'. The Commission paved the way for the drafting the Nile Basin Cooperative Framework Agreement CFA' for the equitable sharing of the Nile waters. It was signed by Rwanda, Ethiopia, Uganda and Tanzania on May 14, 2010, and later by Kenya and Burundi. With the signing of Burundi, last February, the treaty is deemed binding, since 6 of the 9 countries are on board. Yet, Egypt argues it doesn't replace the 1929 agreement, bereft of her signature. Sudan, apparently, follows Egypt's lead (5).

Problem Statement

The Nile, the world's longest river, exemplifies the challenges of trans-boundary watershed management. Half the estimated 160 million people in this arid basin, spanning one tenth of Africa, depend on the Nile for

survival; yet river overuse threatens further desertification. The Blue Nile, supplying 86% of the Nile's water, flows from Lake Tana (Ethiopia) to Khartoum (Sudan), where it joins the White Nile. The source of the White Nile is Lake Victoria which is bounded by Kenyan, Tanzanian and Ugandan shores. Climate change is predicted to shorten wet seasons, to increase precipitation and to intensify dry periods in the Nile Basin, which already faces chronic drought and deforestation. High sediment loads from increased deforestation and agriculture have severe environmental consequences; and poor sanitation creates dangerous health issues. The Nile River Basin water crisis related to hydro-political, socio-economical, water conflict, water rights, water management, drought and scarcity, water security, sustainable development, challenges and constraints, cooperation versus confrontation, and Nile water future perspectives are addressed in the present study. The problem statement of the Nile water crisis can be highlighted in the following section.

- Water scarcity is a single big threat to global food security.
- There is little water left when Nile reaches Mediterranean.
- Conflict most likely when downstream riparian is highly dependent on river water and are strong in comparison to upstream riparian countries.
- Egypt has threatened war if Ethiopia tries to block the Nile flow.
- Ethiopia responded no country can prevent it from using Nile water.
- Egypt says it will not give up its share of Nile water.
- Most upstream countries are seeking to use more water before it reaches Egypt.
- Water is limited; riparian needs are growing; potential for conflict is real.

The Nile River basin presents a practical example of the challenges of developing a comprehensive transboundary water management. Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties (5).

Nile River Basin Hydrology

The principle streams are the White Nile, which begins in the Great Lakes region of Central Africa; and the Blue Nile (Abbey) and the Atbara (Tekezé), both flowing from the Ethiopian highlands. The most distant source is the Kagera River, which winds its way through Burundi, Rwanda, Tanzania and Uganda into Lake Victoria. While the White Nile is 5,584 km long, the Blue Nile covers a distance of 1,529 km from its source in Lake Tana to Khartoum, where both join and then flow on to Egypt, where 86% of the land is classified as arid. The exceptions to the extreme aridity are the narrow bands of the Nile Valley and the narrow coastal strip, where some 150-mm of winter rain falls. All this accounts for no more than 3.03% of the total land area

of Egypt. As a result, 96% of the population is forced to live astride the Nile River, upon which the entire life of Egypt depends (5), (6).



The White Nile originates in the tropical region around Lake Victoria in Central Africa, an area with little seasonal variation in rainfall. Annual average rainfall in the lake plateau basin is about 750 mm (50 inches). One-third of Lake Victoria's inflow comes from the Kagera River. The Victoria Nile passes through Lakes Kyoga and Albert. From Lake Albert to Nimule on the Uganda-Sudan border, the river is known as the Albert Nile. It passes through the Fola rapids and into the Sudan and becomes the Behr el-Jebel (meaning mountain sea). North of Juba the river reaches flat land and its waters spread out in all directions. This flow forms a giant papyrus swamp called the Sudd (the barrier) whose size has been estimated to range from 16,931 km² to 30,600 km² during the rainy season, the permanent swamp area being about 6,000 km².

As the river moves through the Sudd it loses about one-half of its total discharge - approximately 14 bcm - through evaporation. There, it joins by other tributaries: the Behr el-Ghazal, which receives its water from Zaire, and the Behr el-Arab and Lo Rivers of western Sudan. Known then as the White Nile, it flows east, meets the Sobat River that rises in the Ethiopian Highlands, and turns to Malakal. From this point to Khartoum, where the White Nile and Blue Nile meet, a distance of 807 km, the White Nile receives no additional water. The Blue Nile originates in Ethiopian highlands. Its flow is seasonal and depends on the annual monsoons. Annual average rainfall at Gore in Ethiopia is about 2,000 mm (80 inches) per year. The principal source of the Blue Nile is Lake Tana, but over its course, it picks up the flow of two seasonal tributaries, the Dander and the Rah ad on its way to Khartoum. The Atbara River is the last source of inflow into the river north of

Khartoum. Like the Blue Nile, its flow is seasonal. Over the entire year, about 86% of the Nile's water originates from the Ethiopian Highlands, while the White Nile contributes only 14%. During the flood period, however, 95% of the water originates from Ethiopia and only 5% from East Africa (3).

Nile River Major Dams

The first dam on the Nile River, the *Aswan Old Dam*, was built in 1902 and heightened in 1936. On the other hand, the *Aswan High Dam* took seven years (1964-1971), and was completed with the help of the Soviet Union, at a cost of \$100 million, or 850 million Egyptian pounds. As far as Egypt was concerned, the Aswan High Dam helped to reclaim 650,000 feddans and brought some 800,000 feddans (1 feddan equals 4200 m²) under permanent irrigation. As a result, agricultural production has considerably increased, and village communities have been provided with water and electricity.



The more recent dam, Ethiopians, in 2011 announced plans to build the controversial —*Great Renaissance Dam*” one of the biggest dams in Africa, with a capacity to produce 6000 megawatts of electricity. Research and construction plans of the dam started without delay, about 45 kilometers from the Sudanese border. Egypt then demanded the submission of technical and environmental studies for the proposed dam, and eventually dispatched an Egyptian high-level delegation that arrived in Addis Ababa to inspect the plans. Egypt even warned that it would resort to pressure by the international community or even consider military action if Ethiopia failed to reply. In the following sections, the basic information about dams govern Nile water are addressed (3).

Aswan Low Dam 1898-1902

Basic Information:

Country: Egypt
Location: Aswan
Type : Gravity, masonry buttress

Height: 36 meters
Length: 1,950 meters
Impounds: River Nile
Spillway : Flood gates
Reservoir: 5.3 billion cubic meters
Turbines: 11 units
Electricity capacity: 592 MW
First rising: 5 meters (1907–1912)
Second rising: 9 meters (1929–1933),(7).

Sennar Dam 1920-1925

Basic Information:

he Sennar Dam is a dam on the Blue Nile near the town of Sennar, Sudan.

It was built in 1925-1926

The dam is 3025 meters (9925 feet) long, with a maximum height of 40 meters (130 feet).

It provides water for crop irrigation in the Al Jazirah region. Construction works began in 1920 and completed on 1925/1926, (8).

Jebel Aulia 1933-1937

Basic Information:

Country: Sudan
Location: 40 km south of *Khartoum*
Project name: Jebel Aulia, Sudan
Impound: White Nile
Construction: 1933- 1937
Dam depth: 12 meters
Dam Capacity: 3.5 cubic kilometers
Installed capacity: 30 MW in 2003,(9).

Owen Falls Dam (Nalubaale Dam) 1954-1968

Basic Information:

Country: Uganda
Location: Njeru, Uganda
Name: Nalubaale Power Station
Construction: 1954-1968
Type : Arch dam
Impounds: Tekezé River
Turbines: 15 units
Electricity capacity: 380 MW, (10).

Aswan High Dam 1960-1971

Basic Information:

Country: Egypt
Location: Aswan
Construction: 1960-1970
Type : Embankment
Height: 111 meters
Length: 3,830 meters
Base width: 980 meters
Impounds: River Nile
Spillway : 11,000 cubic metres per second
Reservoir capacity: 132 cubic kilometres
Reservoir length: 550 kilometres
Reservoir width: 35 kilometres
Evaporation loss: 10 billion cubic meters

Normal Water Level: 183 meters
 Turbines: 12x175 MW Francis type
 Electricity capacity: 2,100 MW (1967-1971), (3).

Khashm el-Girba Dam 1960-1964

Basic Information:

Country: Sudan
 Location: Khashm el-Girba
 Construction: 1960-1964
 Type : Gravity/Embankment
 Height: 47 meters
 Length: 3,500 meters
 Impounds: Atbara Nile
 Reservoir capacity: 1.3 billion cubic meters
 Reservoir area: 125 sq. kms
 Reservoir length: 80 kilometres
 Normal Water Level: 473 meters
 Turbines: 2x5 MW Kaplan type
 Electricity capacity: 10 MW (1961-1963), (11)

Roseires Dam 1961-1966

Basic Information:

Country: Sudan
Location: 550km Southeast of Khartoum
 Project name: Roseires Dam Heightening Project, Sudan
 Impound: Blue Nile, 550km Southeast of Khartoum
 Employer: DIU (Dam Implementation Unit) Project
 fund : Sudan Government Contract value: USD 396 million
 Construction period: 1308 days Maintenance period: 730 days
 Installed capacity: 280 MW Annual energy output: 460 million KWh , (12).

Tekezé Dam 1999-2009

Basic Information:

Country: Ethiopia
 Location: Tigray, Northern Ethiopia
 Construction: 1999-2009
 Type : Arch dam
 Height: 185 meters
 Length: 710 meters
 Impounds: Tekezé River
 Turbines: 4x75 MW
 Electricity capacity: 300 MW
 The Tekezé hydroelectric in Ethiopia was first proposed seven years ago and was scheduled to be completed in 2008; the end cost of the dam was \$360 million which was \$136 million over budget. The Tekezé Hydro Electric project aims to construct the highest double curve arch dam in Africa, topping the current highest, Lesotho. The contractors behind the project are CWGS and completion is scheduled to occur in 2009, (13).

Merowe Dam 2004-2009

Basic Information:

Country: Sudan
 Location: Merowe
 Construction: 2004-2009

Type : Gravity/Embankment
 Height: 67 meters
 Length: 9 kilometres
 Impounds: River Nile
 Reservoir capacity: 12.5 cubic kilometres
 Reservoir area: 125 sq. kms
 Reservoir length: 80 kilometres
 Normal Water Level: 473 meters
 Turbines: 10x125 MW Francis type
 Electricity capacity: 1250 MW, (14).

The Renaissance Dam 2011 to Date

In 2011, the Ethiopian Government announced plans to construct a hydroelectric dam on the Blue Nile, 45km east of its border with Sudan, which has been named the Grand Ethiopian Renaissance Dam. This ambitious project is planned to generate over 6,000MW of electricity. It will create a lake with a volume of over 74 billion cubic meters, and its costs have been estimated at nearly \$5bn. The project is part of a wider scheme by the Ethiopian Government to expand its hydroelectric power capacity. However, the scheme faces many technical and financial problems, as well as opposition from its downstream neighbors.

Basic Information:

Country: Ethiopia
 Location: *Benishangul-Gumuz Region*
 Construction: 2011-2015
 Construction Cost: 4.8 Billion \$
 Type : Gravity, *roller-compacted concrete*
 Height: 170 meters
 Length: 1800 kilometers
 Impounds: Blue Nile River
 Reservoir: Millennium Reservoir
 Reservoir capacity: 74 billion cubic meters
 Turbines: 16x375 MW Francis turbines
 Electricity capacity: 6000 MW (2018), (15).

Such multipurpose infrastructure could include hydropower production facilities, irrigation systems, and storage capacities that could mitigate the impacts of both droughts and floods. However, the Grand Ethiopian Renaissance Dam is primarily to be used for electricity generation, and therefore, may not present an optimal investment choice. To date, the World Bank and other international donors have refused to support the project, and the Ethiopian Government is attempting to finance the project through a national bond.

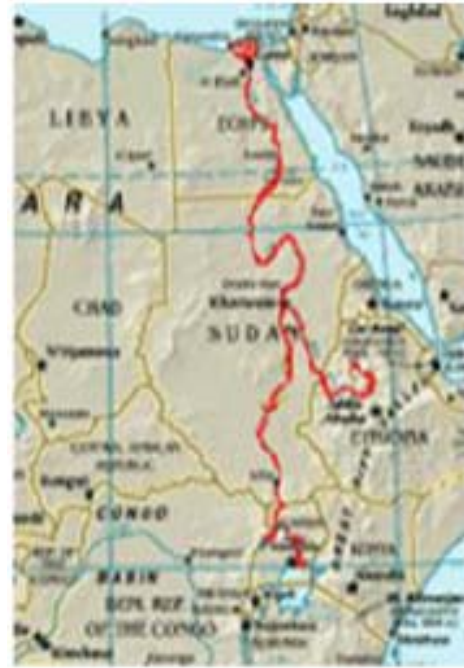
In addition to these difficulties, the dam also faces opposition from neighboring states. The Nile River is the Transboundary River. At 6700km long, its basin of over 3 million km² consists of 11 countries: Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. As the populations and economies of these countries are projected to grow, pressures on water resources are likely

to increase. The main source of tension involves Egypt, Sudan and Ethiopia, with Egypt and Sudan being highly dependent on flows that originate in Ethiopia. Although figures vary, it has been estimated that the Ethiopian Highlands provide 86% of the Nile flow, with 70% of that flow coming from the Blue Nile.

The concern for Egypt and Sudan is that their available water resources will be reduced by the construction of the dam. However, there is limited understanding of how the dam would affect downstream flows. In September 2011, the creation of a trilateral team of experts from Egypt, Ethiopia and Sudan was announced to assess the impact of the dam on the Nile flow. These disputes over the management of the Nile have a history that precedes the Grand Ethiopian Renaissance Dam, and two important agreements stand out in this history. In 1929, Egypt and the United Kingdom, on behalf of Sudan, agreed to allocate minimum flows to the two countries. This agreement declared their natural and historic rights to water from the Nile, and also stated that upstream nations had to consult them over construction projects in upstream countries. In 1959, following tension over the construction of the High Aswan Dam in Egypt, Egypt and Sudan were allocated 55.5 km³ per year and 18.5km³ per year of water respectively. These agreements excluded upstream countries, who have increasingly argued for their rights to use water from the River Nile, (15), (16).

Nile Water Agreements & Treaties

The regulation of the Nile dates back to the time of 4000 BC when the Egyptians joined the Nile with a natural depression in the western Desert, thus creating Lake Karun. The British, who controlled the entire Nile basin until the mid-20th century, had an idea to develop the entire basin in an integrated fashion, through a series of dams controlling the outflow from the equatorial lakes feeding both tributaries and a canal for the White Nile to bypass the Sudd. Historically, attention to the management of the waters of the Nile focused almost entirely on the irrigation needs of Egypt and the Sudan with the possible future requirements of Ethiopia and other nations. In recent years, however, the use of the Nile's waters for development has become something of a bone of contention among the 11 countries that share its basin. The contention partly arises from two agreements signed during the colonial era - the 1929 Nile Water Agreement and the 1959 Agreement for the Full Utilization of the Nile - that gave Egypt and Sudan rights over the river's use. In 1959, Egypt and Sudan signed an agreement for full utilization of the Nile waters without including other riparian in the agreement. By this agreement Sudan was allocated 18.5 BCM of water of the Nile and Egypt 55.5 BCM. After this agreement was reached the construction of the High Aswan Dam went ahead in 1960. During the 1990s, attempts to resolve disagreements surrounding the Nile Basin and develop a regional partnership within which countries of the basin could equitably share the Nile's waters, got under way.



The Nile treaties and agreements are as follows:

1. Protocol between Britain and Italy (1891);
2. Treaty between Britain and Ethiopia (1902);
3. Britain and Congo [Modifying 1894 Agreement of Brussels] (1906);
4. Agreement between Britain, Italy and Ethiopia (1906);
5. Exchange of notes between Britain and Italy (1925);
6. Nile water agreement (1929);
7. Convention between Britain and Belgium (1934);
8. Exchange of memos Egypt & Britain (on behalf of Uganda) , 1949 – 1953;
9. Egypt and the Sudan Nile Agreement (1959);
10. Exchange of memoranda between Egypt and Uganda (1991);
11. Framework for General Cooperation , Egypt and Ethiopia in 1993;
12. Egypt and Uganda Agreement for controlling water hyacinth (1998); and
13. Cooperative Framework Agreement of Nile Basin States, Entebbe agreement (2010)

However, till today, there are no well-established international laws on river basins water rights. In the following sections the main treaties and negotiations over the Nile water are highlighted, (3), (16), and (17).

Colonial Era Conflicts over the Nile River Basin 1891-1959

The European partition of Africa in the 1880's added huge complexity to this conflict. Egypt was colonized by England in 1882. Ethiopia defeated the Italians at the Battle of Adwa in 1896 becoming the only African country to retain its independence during the —scramble for Africa.|| But colonization created many new states in the Nile Basin (Eritrea, Uganda, Rwanda, Burundi, Kenya, and Tanganyika) and set off new competition for resources and

territory. Egypt was prized for the Nile Delta, a region of unsurpassed agricultural productivity. After the completion of the Suez Canal in 1869, Egypt also offered access to the Red Sea and the Indian Ocean. For the British control of Egypt meant more profitable trade with India, its richest colony. For the French, the canal offered quicker access to Indochina, its most lucrative colony.

In the late nineteenth century, since controlling Egypt was the key to Asian wealth, and since Egypt depended on the Nile, controlling the source of the Nile became a major colonial goal. The French-English competition for control of the Nile Basin climaxed in 1898 at Fashoda. The French conceived of the idea of building a dam on the White Nile, so as to undermine British influence further downriver and establish east-west control of the continent. They organized a stupendous pincer movement with one group of soldiers traveling from East Africa across Ethiopia and the other from West Africa across the Congo. The British heard of the French expedition, and, having just captured Khartoum ordered a fleet of gun boats and steamers with soldiers under the leadership of General Horatio Herbert Kitchener upriver to Fashoda, the site of the proposed dam. With fewer than 200 men, the French were embarrassed.

In 1899 the two colonial powers reached an agreement which designated to France the frontiers of the Congo River and to England the frontiers of the White Nile. The Fashoda Incident revealed how little Europeans understood about the Nile River. Thinking that most of the Nile waters came from the equatorial lakes (Victoria, Albert, Kyoga, and Edward), the English spent enormous energy on plans to increase White Nile water flows. First called the Garstin Cut and later the Jonglei Canal, the British intended to create a channel that would maximize water transfer through the great swamp (where half of it evaporated). One of the most expensive engineering projects in Africa; it was terminated in 1984 by the Sudan People’s Liberation Army, because of the severe disruption it brought to the lives of the indigenous upper Nile peoples. If the 300 mile-long Jonglei Canal had been completed, it would have increased water flows by nearly 8 billion cubic meters into the White Nile. This period was characterized by —colonial agreements|| in which six agreements were developed as follows, (3):

The Protocol between Italy and the United Kingdom of 15th April 1891: It sought to protect the Egyptian interests in the Nile waters contributed by the Atbara River (known as the Tekezé in Ethiopia). The Italian government undertook not to construct any works on the Atbara River that might —sensibly modify|| its flow into the Nile.

Agreement between the United Kingdom (acting for Egypt and the Sudan) and Emperor Manlike of Ethiopia, signed in Addis Ababa on 15th May (1902 Treaty):

One of the oldest treaties that are being invoked by the downstream riparian states is the 1902 Treaty (Ethiopia and Britain), which its Article III reads as:

—His Majesty the Emperor Manlike II engages himself towards the Government of His Britannic Majesty not to construct or allow to be constructed any work across the Blue Nile, Lake Tana, or the Sobat, which would arrest the flow of their waters except in agreement with His Britannic Majesty’s Government and the Government of Sudan—. It bound Emperor Manlike not to construct, or allow to be constructed, any work across the Blue Nile, Lake Tana or the Sobat which would arrest the flow of their waters into the Nile except with agreement of Britain and Sudan.

The Tripartite Agreement between the United Kingdom, France and Italy of 13th April 1906: Required the United Kingdom, France and Italy to act jointly to preserve the interest of Great Britain and Egypt in the waters of the Nile and its tributaries.

The 1925 Anglo-Italian Exchange of Notes:

Enabled Britain to continue to pursue her interests in controlling the headwaters of the Blue Nile. It among other things recognized the —prior hydraulic rights of Egypt and Sudan||. It obliged Italy not to construct in the headwaters of the Blue Nile, the Sobat and their tributaries any work, which might sensibly modify their flow into the main rivers.

The Nile Waters Agreement of 1929 between Egypt and the United Kingdom (1929 Treaty)

The other old treaty is the 1929 Nile Agreement between Britain & Egypt. The Agreement grants Egypt 55. 5 BCM of water (of 84 BCM – total), - the remaining understandably goes to Sudan. It gives Egypt the rights to on-site inspectors at the Sennar dam, no works would be developed along the river or on any of its territory, which would threaten Egyptian interests. The downstream countries argue that this colonial treaty is respected by upstream countries. This is a very important agreement because it covered most of the riparian countries of the Nile Basin. It was signed by the Egyptian government and the British government, the latter on behalf of the Sudan and the East African riparian to Lake Victoria (Kenya, Tanganyika [now Tanzania] and Uganda); The primary motive of the agreement was to facilitate an increase in the volume of water reaching Egypt. The Agreement included specific volumetric water allocations- 48 billion m³/year to Egypt and 4 billion m³/year to Sudan and this institutionalized the Egypt and Sudan —natural and historical rights|| to the Nile giving Egypt the right to inspect the entire length of the Nile.

The Supplementary agreement between the United Kingdom and Egypt of 1932:

Provided for the building of the Jebel Aulia Dam near Khartoum on the White Nile for the benefit of Egypt and with Egyptian funds. Provided, inter alia, for the

construction and maintenance by Egypt of the storage at Jebel Aulia, about forty kilometers upstream from Khartoum on the White Nile.

The Anglo-Belgian Agreement of 1934:

The only agreement, which was not directed at the interests of Egypt but intended to apportion waters of Kagera between Tanganyika and Rwanda- Burundi. Required that whenever water was abstracted from the watercourse on one territory, it should be returned without substantial reduction to its natural bed before entering another territory.

The Owen Falls Dam Agreement:

This was entered into between Egypt and the British administration on behalf of the Uganda protectorate with regard to the construction of the Owen Falls Dam. Contained three exchanges of notes, namely: (1) Agreement on the control of the flow of the Nile waters for production of electricity for Uganda (30 May 1949); (2) Agreement on construction plans of the Owen Falls Dam (December 5, 1949); and (3) Agreement on the financial arrangement for the construction of two Owen Falls Dams (January 5 1953). The first and second agreements constituted the core of the legal regime for the construction of the Owen Falls dam. Their purpose was twofold: (i) the control of the flow of the Nile waters; and (ii) the production of hydro-electric power for Uganda. The British Note of 30th May 1949 provided that this flow was to be supervised by an Egyptian resident engineer at the dam. The Agreement for Cooperation between the United Kingdom and Egypt of February 1950. It made arrangements for co-operation with a view to collecting and recording meteorological and hydrological information about the Equatorial Lakes. Provided the right of the resident Egyptian engineer at the Owen Falls Dam and his assistant's access to all the posts in Uganda for periodical inspections to ensure that the posts are being satisfactorily maintained and the observations regularly collected.

The Agreement for the Full Utilization of the Nile between Egypt and Sudan (1959 Treaty)

The 1959 Agreement for the Full Utilization of the Nile Waters (Egypt & Sudan): 55.5 BCM for Egypt and 18.5 BCM for the Sudan [10 BCM of Nile waters is estimated to evaporate].

- The treaty provides for a dispute resolution through a permanent Joint Technical Committee stipulates water claim of upstream countries would not exceed 1-2 BCM/year.
- Any additional claim claims should be met by a unified Egyptian/Sudanese front.
- It aimed at full utilizations of the Nile.

After the independence of Sudan in 1956, Egypt's had plans to build the High Aswan Dam and thus the need to renegotiate existing water allocations under 1929 Agreement; sanctioned the construction of the Aswan High Dam in Egypt, and the Roseires Dam on the Blue Nile in Sudan. The two countries established that the total annual flow of the Nile measured at Aswan as 84 BCM, and it allocated 55.5 BCM to Egypt and 18.5 BCM to the Sudan. Established a PJTC to do research related to the management of the Nile waters and increase of the Nile supply and of hydrological survey work in the Nile's upper reaches, (17).

Negotiation Conflicts over the Nile River Water 1959-1993

This period was characterized by limited cooperation among Nile Countries and seven arrangements of cooperation were developed, (3):

1. Ndugu (1959-1960)

- **Ndugu** (Swahili) – —brotherhood|| was proposed by Egypt as an extension of the Permanent Joint Technical Commission of 1959 Nile Waters Agreement.
- It was formed to discuss issues like: Nile waters, agriculture, resource development, and promotion of economic, technical, and scientific among members.

- **Members:** Burundi, Central African Republic, Egypt, Rwanda, Sudan & Zaire.

The Hydromet Agreement 1967-1992

- Hydro Meteorological Survey (Hydromet) of the Upper Nile region to enable and enhance the data collection of the hydrology and meteorology of the Nile River and the lakes.
- Regulating floods of the equatorial lakes region.
- Capacity building in terms of water experts of member countries
- It was signed by Egypt, Kenya, Sudan, Tanzania, Uganda, UNDP and World Meteorological organization later expanded to include Rwanda, Burundi and Democratic Republic of Congo (DRC) as parties to the Agreement. Ethiopia participated as an observer.
- The purpose was to collect and analyze the hydro-meteorological data of the catchments of Lakes Victoria, Kyoga and Albert;
- Came to end in 1982 but member countries continued with their own funding 1982-1992;
- Unfortunately, the project failed as a result of political disinterest.
- The project expired in December 1992.

The Kagera Agreement of 1977

- It was signed by the Heads of States of Burundi, Rwanda and Tanzania and Uganda joined in 1980
- The treaty was open to membership of four Basin States only.

- It aimed at promoting the development of the Basin generally and its specific objectives was to cover all aspects of development including water and hydropower development, mining, industry, agriculture, health, tourism, trade, wildlife conservation and development, fisheries and environment protection.

4. 1977 attempt to establish a Nile Basin commission

- This idea was floated at Cairo Egypt, in 1977 and it was agreed that a Basin-wide treaty be concluded.
- A draft treaty was submitted to the technical committee, which recommended such a commission.
- Due Political misunderstandings between Egypt and the Sudan on one hand, and the upper riparian States on the other regarding the status of the 1959 Agreement, the treaty could not be concluded.
- UNDUGU set up in Egypt in 1983 with all the Nile riparian as members except for Kenya and Ethiopia who were just participating observers.
- Its policy objective was to collectively compel Egypt to abandon its rather unfair theory that all the waters of the Nile belong to it.
- It rejected Egypt's theory that all the waters of the Nile belong to it.
- However due to political differences between some States, not much was achieved by the group.

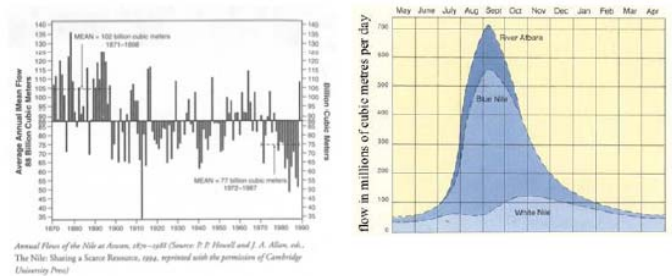
The Sudan - Ethiopia Agreement (1991)

- The two countries are committed to the principle of equitable utilization of the waters of the Blue Nile and Atbara rivers.
- Establishment of a technical joint committee to exchange data and to explore co-operation that related to the utilization of the waters of the Blue Nile and Atbara Rivers;
- Sudan moved away from the united front which binds it with Egypt under the 1959 Agreement.

TECCONILE 1992-1999

- The Co-operation for the Development and Environmental Protection of the Nile (TECCONILE) - replaced the Hydromet and it was intended as a transitional arrangement for the continuation of technical co-operation on the Nile River Basin.
- It was signed by Ministers from 6 countries: Egypt, Rwanda, Sudan, Tanzania, Uganda, and Zaire (now D. R. Congo) and while the other 4 : Burundi, Kenya, Eritrea and Ethiopia participated as observers;
- Aimed at continued cooperation in the Nile Basin replacing the HYDROMET Agreement which expired on 31st December 1992;
- Short term objective was: to assist participating countries in developing National Water Master Plans and to develop infrastructure, capacity and techniques required in managing the Nile Basin Waters;

- Long term objective: to steer the member States towards the development, conservation and use of Nile Basin waters in an integrated and sustainable manner through basin wide cooperation for the benefit of all.
- Sought to provide assistance to member States to determine the equitable entitlement of each Member State to the Nile waters.
- One of its major weaknesses was its concentration on the technical side and as a result it failed to develop a legal regional framework and it was thus terminated in 1998.



The Egypt-Ethiopia Framework for General Cooperation (1993)

The 1993 Egypt & Ethiopia Agreement on Framework for General Cooperation. Accordingly: neither country would do anything with the Nile that causes 'appreciable harm' to the other. To consult and co-operate in projects of mutual advantages such as projects that would enhance the volume of flow and decrease the loss of water through a comprehensive and integrated development schemes. It recognized the traditional ties existing between Egypt and Ethiopia that have been consolidated during their long history of close relations and linked by the Nile River with its Basin as a center of mutual interest.

The two countries agreed that neither of them would do anything with the Nile that causes appreciable harm to the other. Further and agreed to consult and cooperate in projects of mutual advantages such as projects that would enhance the volume of flow and decrease the loss of water through a comprehensive and integrated development schemes. It also requires parties to create appropriate mechanisms for periodic consultations on matters of mutual concern including the Nile waters.

This was signed on 1 July 1993, in Cairo, between Egypt and Ethiopia. It was the first bilateral framework for cooperation signed between Egypt and Ethiopia regarding the Nile issues, after the colonial period. It stipulated that future negotiations between Ethiopia and Egypt, with respect to the utilization of the water of the Nile, would be based on the rules and principles of international law. The Framework was only indicative of the base of future negotiations and failed to provide detailed rules. The 'no harm' rule principle was mentioned in it and for this reason, some Ethiopians criticized it as favoring Egypt and compromising Ethiopia's sovereignty over the Nile.

Even if the 'no harm' principle was part of the agreement, this did not mean that it was the only principle on which water division would be based, since the rules and principles of international law are referred to as the guideline for negotiations in the document itself. Apart from the 'no harm' principle, other relevant principles in international law could then be employed. Hence, the assertion that the framework favors Egypt, for it makes reference to the no harm rule, is exaggerated. Even the basis of what it contains in general is not so strong. It merely represents the first attempt by the two states to come together, and does not have a binding effect. It is no more than the heralding of a new era of improved relations between the two states with regard to the water of the Nile, (3), (17), and (18).

Development of the (CFA) and the (NBI) 1993-to date:

This phase was implemented at three levels: The establishment of the UNDP D3 project which started the negotiations for a River Nile Cooperative Framework Agreement in 1997; The D3 project had three main activities two of which was major for the development of the Cooperative framework agreement. The Legal and Institutional Component which was tasked with the following activities: review of existing international water law relative to shared water courses; research and review of institutional arrangements (includes site visits and study tours to relevant river basin organizations) identification and definition of principles of international water law relevant to the Nile River Basin and review and summary of the above activities and making proposals and draft implementation plan.

The second activity involved the establishment of the Nile Basin Initiative (NBI) in 1999. It was proposed to the COM to form a new transitional institutional mechanism with all riparian states as equal members to succeed TECCONILE until the final institutional and legal framework of co-operation is formed. The other activity was the POE Framework Deliberations and analysis Components which were tasked to: prepare a background paper on the alternative approaches, strategies, and methodologies; conduct a workshop on the formulation of cooperative framework and finalize the POE report to the Council of Ministers.

The D3 project essentially facilitated a dialogue/negotiation process between the Nile riparian in accordance with an agreed timetable. The D3 project has two major outputs: recommendations for appropriate multi-disciplinary framework for legal and institutional arrangements for water resources development of the Nile Basin recommendations for process, methodology and activities, which could lead to the determination of equitable and legitimate rights of water use in each riparian country. In 1996, each minister nominated a three-person dialogue team to form the Panel of Experts (POE) to form the core of the dialogue process. The (POE) had assigned two

consultants to work with two (POE) groups; namely: legal and institutional team and data and information (Technical resources) team, to submit a report to the (COM). The (POE) visited Mekong River (Thailand and Cambodia) the study tour to Senegal River (Senegal) to get their practical experience. The draft CFA was presented to the Council of Ministers at the Khartoum Nile-COM meeting in August 2000. The 2000 Nile-COM no discussion of the draft CFA because of unresolved substantive issues remained unresolved the text. Decided to form a Transitional Committee to prepare a Cooperative Framework text for consideration by the next Negotiations Committee, with the aim of reaching convergence on outstanding points and putting the text in proper form.

The second level covered the period 2001-2002 and the following activities were carried: A legal consultant was selected; the Nile-Technical Advisory Committee (TAC) reviewed and finalized the draft Ministerial Accord with reservation from Ethiopia, and therefore, it was not approved by Nile-COM. There was also introduction of formal additions to the Framework text and TAC recommendation of additional consultations and establishment of the Negotiation Committee (NC).

The third level was the period 2005-2009 which involved following activities of the NC: The NC adopted the articles which had been agreed upon by the TAC with minor corrections and made progress on the reservation and reported finally December 2005. This report was to be considered and adopted by Nile-Com but Egypt and Sudan objected to its adoption and a recommendation that countries not having NOTES to proceed with signature and also that the Executive Director convene meeting to examine the use of terms —Nile River System;|| and Nile River Basin||. Burundi, DRC, Kenya, Tanzania and Rwanda objected to the recommendation that the Nile-COM accord further time while Ethiopia refused to accept or endorse the recommendations as framed in the report. Egypt and Sudan argued that submission of the report was in violation of consensus and any course of action should be left completely to the respective governments. There was an extensive discussions on — existing agreements|| now —water security|| and after four meetings Nile-COM concluded consideration of NC's report on 25 June 2007, and decided to refer to one clause Article 14 b Water Security) to Heads of States and Government of the Nile Basin for conclusion.

During COM fifth meeting in Kinshasa on 22 May 2009. The Nile-COM with the exception of Egypt and Sudan absent agreed and resolved that the CFA is a clean text ready for presentation to the riparian states for signature and the Commission will within six months of its formation resolve the annexed article 14 b. There are divergent bargaining positions, regarding the ambiguous concept of —water security|| as a legal principle introduced under Article 14 of Draft Agreement Framework. The most

controversial provision was Article 14 (b) on water security as a result the Extraordinary Meeting of the Nile Council of Ministers held in Kinshasa, DRC on 22 May 2009 resolved that the issue of 14 (b) be annexed and resolved by the Nile Basin Commission within six months of its establishment.

The Article provides that —The States also recognize that the cooperation management and development of waters of the Nile River system will facilitate achievement of water security and other benefits||. Nile Basin states therefore agree in spirit not to significantly affect the water security of any basin state. All other Nile Basin countries agreed with this provision except Egypt and Sudan. Instead Egypt proposed that the article be replaced by —not adversely affect the water security and current uses and rights of any other Nile Basin State||.

Egypt proposed the formation of a committee of Ministers from the Eastern Nile, Equatorial lakes region which include Ethiopia, Egypt and Sudan and one or two experts from international organization to formulate an acceptable text within six months and present it to the Nile-Com members and Sudan explained its position that the matter is before Heads of state and Government. During the NC’s Eighth Nairobi meeting of 3 July 2009 linguistic changes were introduced, the phrase — Nile river basin from Articles 4 (1) and 5 (1) was deleted, and Article 35 was completed by including specific dates and ordered renumbering the Articles consistently.

Egypt and Sudan refused to sign the Minutes on the basis that Nile-Com Kinshasa meeting considered the CFA as a clean text. The Nile-COM Sixth Meeting in Alexandria during 27-29 July 2009 noted that the decision of the Nile-COM Extraordinary Meeting held in Kinshasa, DRC, on 22 May 2009, and the follow up meeting of the Negotiation Committee on 3rd July 2009, in Nairobi, Kenya, the positions taken at these meetings and communications concerning them; decided to provide a period of Six Months to allow for more time to enable member states move forward together and also further decided to mandate TAC/NC to recommend to Nile-COM the basis for moving forward in an inclusive manner, consider and advise on the transitional arrangements and advise on procedures for the signing.

During the 1st TAC/NC meeting 28-29 September 2009 held in Kampala, Burundi, DRC, Ethiopia, Kenya, Rwanda, Tanzania and Uganda were of the opinion that Alexandria Nile-Com meeting did not reverse the Kinshasa Nile-COM decision. Egypt and Sudan were of the opinion that Alexandria meeting and not Kinshasa meeting provided the best way of moving forward together in an inclusive manner. Countries recommended recruitment of a consultant to recommend detailed transitional arrangements but Egypt and Sudan were of the view that the intrusion of the transitional arrangements in the decisions of the TAC/NC is unacceptable. In the 2nd joint TAC/NC

meeting in Dar el salaam during 10-11 December, 2009 when considering Egypt’s proposal concerning Articles 8, 14 and 35 the seven countries were of the opinion that no new ideas had been forthcoming from Egypt, the guidance given by Nile-com in Kinshasa remains the only option Sudan was of the view that the benefits accrued from giving more time to further explore possibilities for moving forward in inclusive manner would, by far, outweigh the benefits accruing from the signature of the CFA by some; In the 3rd joint TAC/NC meeting of April 11-12 2010, some countries gave the consultant preliminary comments despite the fact that the report was given few hours before the meeting and the French version was not ready, (3).



Eestablishment of NBI (1999- to date)

- The NBI aimed at achieving sustainable socio-economic development through equitable utilization of, and benefit from, the common Nile water resource.
- There are programs for the realization of the shared vision, objectives, trust and capacity building as well as two sub-basin Strategic Action Programs with the objective of Investment and action on the ground.

NBI has the following major objectives:

- to develop the water resources of the Nile Basin in a sustainable and equitable way to ensure prosperity, security and peace for all its peoples;
- to ensure efficient water management and the optimal use of the resources; to ensure cooperation and joint action between the riparian countries, seeking win-win gains;
- to target poverty eradication and promote economic integration and to ensure that the program results in a move

from planning to action, (19).

Shared Visions of the NBI

- Socio-economic and Benefits Sharing
- Confidence-Building and Stakeholder Involvement
- Efficient Water Use and Drainage
- Water Resources Planning & Management
- Regional Power Trade (hydropower)
- Nile Transboundary Environmental Action

The two sub-basin programs are:

Eastern Nile Subsidiary Action Program (ENSAP) – With Ethiopia, Eritrea, Egypt and Sudan as members.

Nile Equatorial Lakes Subsidiary Action Program (NELSAP) - with Burundi, DRC, Rwanda, Kenya, Tanzania and Uganda as members.

- In 1997 the Basin states established a forum for a legal and institutional arrangement to forge a partnership of all the riparian states.
- In 1998 all riparian states, except Eritrea, joined the dialogue to facilitate the process of sustainable development and management of the Nile resources
- In 1999 the Nile Basin Initiative (NBI) was officially launched in Dares Salaam (Tanzania).

Ddevelopment of CFA (2003)

In 2003 a negotiation was started for Cooperative Framework Agreement (CFA) – negotiation for the equitable utilization of the Nile waters.

□ The draft CFA was negotiated by a Panel of Experts from the riparian countries who endeavored for creating a win-win situation for all basin states towards ensuring equitable & sustainable utilization of the waters.

□ The experts completed their task of drafting the CFA in 2008 and submitted the draft to the Nile CoM (Council of Ministers) for the finalization of the contentious articles in the draft, (3), and (21).

Major Principles of the CFA

- Sustainable development (*Articles 6*)
- Subsidiarity (*Article 10*)
- Equitable and reasonable utilization (*Article 4*)
- Prevention of the causing of significant harm [Obligation not to cause significant harm (*Art. 5*)]
- Information concerning planned measures (*Art. 8*)
- Environmental impact assessment and audits (*Art. 9*)
- Water security (*Art. 14*)

Article 14 (b) states —not to adversely affect the water security and current uses and rights of any other Nile Basin State.”

Article 4: Equitable and reasonable utilization

- Nile Basin States shall in their respective territories utilize the water resources of the Nile River system and the Nile River Basin in an equitable and reasonable manner.
- Each Basin State is entitled to an equitable and reasonable share in the beneficial uses of the water resources of the Nile River system and the Nile River Basin.

Article 5: Obligation not to cause significant harm: Nile Basin States shall, in utilizing Nile River System water resources in their territories, take all appropriate measures to prevent the causing of significant harm to other Basin States.

- Where significant harm nevertheless is caused to another Nile Basin State, the States, whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard to the provisions of Article 4 above, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation

Article 14 : Water Security: Nile Basin States recognize the vital importance of water security to each of them also recognize the cooperation management and development of waters of the Nile River System will facilitate achievement of water security and other benefits. Nile Basin States therefore agree, in a spirit of cooperation:

- (a) To work together to ensure that all states achieve and sustain water security;
- (b) The unresolved *Article 14 (b)* is annexed to be resolved by the Nile River Basin Commission within six months of its establishment.



Negotiations on Water Security

An emerging concept subject to different interpretations:

- Defined in the CFA as the right of getting reliable access to and use of the waters of the Nile by all basin states
- Upstream countries adopted a version that “*water security*” be based in light of equitable utilization and no significant harm
- Egypt and Sudan insisted that this to be replaced by a provision that would oblige riparian countries to recognize —current uses and rights of riparian states (reservation made)-back to their original position.

- Expectations of reaching agreement on the “*water security*” provision failed after many negotiations
- At a Nile-CoM meeting in June 2007, it was noted that continued negotiations on the provision of “*water security*” would not bear fruit.
- Decision was made to adopt the text on water security supported by all upper Nile riparian countries with the inclusion of a reservation provision by Sudan and Egypt
- It was further agreed to refer the matter to Heads of States/Governments of the respective NB countries to try to resolve the outstanding issue
- In May 2009, an extra-ordinary Nile CoM meeting was called in Kinshasa to try to resolve the impasse by then Chair of Nile-CoM (DRC)



Three options were tabled at the meeting:

- delete the provision on —water security|| and adopt the CFA;
- reopen the negotiations on —water security||;
- defer the provision on —water security|| and adopt the CFA and try to resolve the outstanding issue once the NB commission is established Sudan walked out of the meeting and Egypt reiterated its previous position, including provision on planned measures.
- All upstream countries decided to adopt the CFA by annexing the contentious provision on —water security|| (Art 14b) and seek resolution of the issue within 6 months after NBC is established (Egypt made reservation to this decision)
- Article 14(b) —*not to significantly affect the water security of any other Nile Basin State*”, [all agreed except Egypt & Sudan]
- Egypt proposed Article 14(b) to be replaced by: *(b) not to adversely affect the water security and current uses and rights of any other Nile Basin State.*
- Egypt and Sudan made several statements objecting to Kinshasa decision claiming it was in violation of the —consensus|| principle and opening up negotiations on planned measures.
- Post-Kinshasa: Nairobi (July 2009)-decided to clean-up CFA text and move to signature (Sudan and Egypt

objected)

- Nile-CoM meeting (Alexandria, July 2009)-decision made to give an additional six months to enable countries —to move forward together||
- Mandate given to Nile TAC/NC to recommend basis for moving forward together (also advise on transitional arrangement to NBC and procedures for signing the CFA
- Three Technical Advisory Committee (TAC)/NC meetings were held in Uganda (Sept, 2009), Tanzania (Dec., 2009) and Sharm El Sheik (April 2010);
- No agreement between upstream/downstream countries on the basis of moving forward together
- Position of upstream countries-Kinshasa decision
- Position of downstream countries- Kinshasa decision in violation of the —consensus|| principle; reiterated same position on Art.14b and opening up agreed upon issues.
- Sharm-el-Sheik Meeting: positions remained same.

All upstream countries decided to sign the CFA in Entebbe, Uganda on May 14, 2010.

- To date six countries have signed the CFA (Ethiopia, Kenya, Tanzania, Uganda, Rwanda and Burundi); three countries DRC; Sudan and Egypt have not yet signed {Eritrea was not in the negotiation and South Sudan yet to come on board}
- Art.42 of CFA requires six countries to ratify the agreement and deposit the instrument with AU Ratification may take some years and on-going cooperation under the NBI can continue.
- However, Sudan and Egypt currently seem to undermine on-going cooperation under the NBI.
- Sudan has officially declared that it has —frozen|| cooperation under the NBI (AA Nile-CoM meeting
- Egypt seems to have followed suit on-going cooperation under the NBI particularly on-going projects under the EN seem to be in danger of collapsing, (3).

Entebbe Agreement 2010: After prolonged negotiations started since 2003, all upstream countries decided to sign the Cooperative Framework Agreement (CFA) in Entebbe, Uganda on May 14, 2010, which is known afterwards as *Entebbe Agreement*.

The Extra- Ordinary Nile-COM meeting was held in Sharm El Sheikh, Egypt on April 13, 2010 was significant the upper riparian countries- Ethiopia, Kenya, Tanzania, Uganda, Rwanda, Burundi and DRC- made it clear that the 1959 unilateral agreement between Egypt and Sudan is null and void and lower riparian countries- Egypt and Sudan vehemently insisted on the historical rights of the Nile water. After a grueling mid night debate past midnight on

April 14, 2010, the riparian countries admitted that they could not reach any agreement on the allocation of the Nile waters. As a result, the seven countries reiterated their position that Kinshasa remains the basis for moving forward together in an inclusive manner and decided to move on to the next stage of signing the CFA beginning May 14, 2010 and the CFA was to remain open for signature for not more than one year which is known thereafter as Entebbe Agreement, (18), (20), (21).

Signing of Entebbe Agreement: Ethiopia, Rwanda, Tanzania and Uganda signed the Entebbe Agreement on the day it was opened for signature on the May 14, 2010. Kenya signed on the May 19, 2010. Burundi signed on the February 28, 2011. South Sudan signed on the March 25, 2013. Seven Riparian States that have so far signed the Entebbe Agreement to five and if they ratify it will be enforceable. DRC, Egypt and Sudan have not signed, (3).



Water Crisis In The Nile River Basin

As Nile water is limited and riparian needs are growing then potential for conflict is real.|| —The Nile River basin presents a practical example of some of the challenges of developing a comprehensive trans-boundary water

management; Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties||. United Nations Secretary-General Kofi Annan said that "fierce competition for fresh water may well become a source of conflict and wars in the future," and a recent report of the U.S. National Intelligence Council concludes that the likelihood of interstate conflict will increase during the next 15 years "as countries press against the limits of available water.|| Ethiopian Foreign Minister Mesfin affirmed some years ago —No earthly force can stop Ethiopia from benefiting from the Nile—. From the side, Egypt declared that —the Nile water issue is a red line —(Al –Ahram Weekly 2010). Egypt’s Historical Rights versus Ethiopia’s ambitious gives potential for water conflict and water war.

The creation of the new state of South Sudan and transitional government in Egypt; No country has ratified the Entebbe Agreement ; Egypt and Sudan have refused to sign while the position of DRC is not clear; Trust Fund for NBI ends 2013, it not clear what happens thereafter. The Nile River basin presents a practical example of some of the challenges of developing a comprehensive transboundary water management; Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties. The seven countries that have signed should go ahead and ratify the Entebbe Agreement and so that it is effective and start engaging the others that have not signed; Raise awareness about the benefits of Entebbe Agreement using data and technical experts; NBI countries need to sign and ratify the UN Water convention so that it acts as a basis for MA negotiating. Continuous use of third parties in the negotiations. For example use of Independent and neutral parties (3).

Comparing Egypt, Sudan, and Ethiopia

Egypt	Sudan	Ethiopia	
Population millions 2004	72.6	35.5	70.0
Population millions projected 2020	94.8	47.5	107.7
Population annual growth rate % average 1990-2004	1.9	2.2	2.2
Population annual growth rate % average projected 2004-2020	1.7	1.8	2.7
Life expectancy at birth 2004	70	57	42
Net migration in thousands 1995-2000	-500	-207	-77
Gross national income 2004 \$billions	90.6	18.7	7.6
Gross national income per capita 2004 \$	1,250	530	110
Gross domestic product 2004 \$millions	78,800	21,100	8,000
Gross domestic product 2000-04 % average annual growth	3.4	6.0	3.6
GDP % derived from agriculture 2004	15	39	47
Military expenditures as % GDP 2004	2.8	2.2	4.3
Primary school enrolment 2004 % relevant age group	100	60	77
Secondary school enrolment 2004 % relevant age group	87	33	28
Agricultural land as % land area 2001-03	3.4	56.4	31.3
Irrigated land as % cropland 2001-2003	100	11.0	2.6
Electricity production billion kilowatt hours 2003	91.9	3.4	2.3
Per cent of total electricity production provided by hydropower 2003	14.1	34.7	99.3
Electric power consumption per capita kWh 2003	1,127	81	28

Who owns the Nile? Egypt, Sudan or Ethiopia

Egypt and Sudan are utterly dependent on the waters of the Nile River. Over the past century both of these desert countries have built several dams and reservoirs, hoping to limit the ravages of droughts and floods which have so defined their histories. Now Ethiopia, one of eight upriver states and the source of most of the Nile waters, is building the largest dam in Africa. Located on the Blue Nile twenty five miles from the Ethiopian border with Sudan, the Grand Renaissance Dam begins a new chapter in the long, bellicose history of debate on the ownership of the Nile waters, and its effects for the entire region could be profound.



Down river Egypt and Sudan argue that they have historic rights to the water upon which they absolutely depend on and in 1979 Egyptian President Anwar Sadat threatened war on violators of what he saw as his country’s rights to Nile waters. Upriver Ethiopia, Kenya, Uganda, Rwanda, Burundi, and Tanzania argue that they too need the water

that originates on their lands. Since the twelfth century C.E. Christian Ethiopian kings have warned Muslim Egyptian sultans of their power to divert waters of the Nile, often in response to religious conflicts. But these were hypothetical threats.



Today, however, Ethiopia is building the Grand Renaissance Dam and, with it, Ethiopia will physically control the Blue Nile Gorge, the primary source of most of the Nile waters. The stakes could not be higher for the new leaders in Egypt and Ethiopia, President Mohamed Morsi and Prime Minister Hailemariam Desalegn, as well as Sudan’s long-time President, Omar El Bashir. The stakes are perhaps even higher for the millions of people who owe their livelihood and very existence to the Nile’s waters.

If the question of Nile waters was sensitive in the centuries before 1900, when Ethiopia and Egypt each had populations of 10 million or less, what will happen over the next twenty years, as their populations each surpass 100 million and the collective population of the Nile River Basin countries reaches 600 million. The Grand Renaissance Dam poses a question as basic as water itself: Who owns the Nile? When the Grand Renaissance Dam closes its gates on the Blue Nile River, whether it is in 2015 or 2025, the time for a final reckoning will have arrived.



Ethiopia will then have the power to claim its water shares, with the backing of all the upriver states. Egypt and Sudan’s stand to historic water rights will have become merely hypothetical. In the context of a difficult history, violence is a possibility, but good solutions for all can be achieved through diplomacy and leadership. Ethiopia’s options for economic development are limited. With nearly 90 million people it is the most populous landlocked country in the world. It is also one of the world’s poorest countries—174 on the list of 187 countries in the United Nations Human Development Index for 2012. (Sudan is 169 and Egypt 113.) This index rates countries based on life expectancy, education, and income, among other criteria.

Part of Ethiopia’s challenge is that 85 per cent of the workforce is in agricultural commodities that bring low profits. Ethiopia is already leasing land in its southern regions to Saudi Arabia, India, and China for large irrigated water projects—despite severe land shortage in its northern regions—because it does not have the funds to develop this land on its own. (26), (27), (28).

Future of the Nile River Conflict

Central to conflict problems is the assertion that resource scarcity and certain forms of environmental degradation are major factors in political instability or violent conflict at local, regional and interstate levels. In short, there is a growing perception that local, regional, and global environmental deficiencies or resource scarcities may increasingly lead to conflict.

Legal Situation

- Treaties resulted in virtual Egyptian and Sudanese monopoly of Nile water.
- No other riparian signed 1929 and 1959 agreements.
- Inherent incompatibility between —equitable share|| arguments of upstream riparian and —historic needs, established rights, and no significant harm|| arguments of downstream countries prevails.
- As Nile water is limited and riparian needs are growing then potential for conflict is real.||
- The Nile River basin presents a practical example of some of the challenges of developing a comprehensive trans-boundary water management; Achieving a basin-wide agreement governing the Nile River is complicated by the competing needs of upstream and downstream users and colonial treaties||



In the coming years, Egypt and Ethiopia may be forced to fight a water war because Ethiopia’s ambitions contradict Egypt’s historical and legal rights in river waters. Ethiopia can only be deterred by the regional and international

balance of powers, which in recent years has favoured Ethiopia. The government of *Hisham Qandil* (an irrigation expert, not a diplomat, legal expert or strategist) seems unable to manage such a complex issue with legal, political, economic, military and international aspects. His government is unable to solve everyday problems that are less complex, such as security, traffic, and fuel and food supplies. This portends dire consequences for Egypt.

What is needed is a way to manage the crisis and use Egyptian soft power toward Ethiopia, especially the Coptic Orthodox Church, which is the Ethiopian Church's mother church. It is necessary to form a fixed Egyptian team to manage this highly sensitive issue. The team should go beyond party affiliation and include leading Egyptian Nile specialists. Ideological or religious affiliation should not be a factor in choosing that Egyptian crisis team. What is important should be the capabilities and competencies of the team members, who will come from the clay of the country, not from a particular group, party or political current. Clay, to those who don't know, is what Egyptians call their country's soil, which is a fertile soil resulting from the mixing with the Nile water. Will Egyptian President Mohammed Morsi realize the seriousness of the situation and deal with that issue as a major national matter and quickly implement the required policies and procedures, or will he hesitate, as usual, and go down in history as someone who squandered the historic rights of Egypt and its future generations?, (3), (28).



ROAD MAP FOR AVOIDING NILE WATER WAR

- Nile Water Decision Support System
- Nile River Building Capacity
- National Water Projects Scenarios
- Riparian Hydro-Political Dialogues
- Riparian Socio-economic Scenarios
- African & International Scenarios
- Militarily Scenarios

Optimistic Scenario: It is much hoped that all riparian States would come to a common definition of —water Security|| and agree to sign the Cooperative Framework Agreement (CFA) to make the equitable and sustainable utilization of the Nile waters a reality. Nile waters are enough for all of the vital needs of the riparian states if managed and used sustainably.

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