

WATER AND REGIONAL SECURITY IN NORTHEASTERN AFRICA

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1. INTRODUCTION

One of the major features of Northeastern Africa region is the endowment with trans-boundary water resources, which are shared between two or several riparian nations. The waters of Northeastern Africa have been there for ages, while the political boundaries of communities and states were drawn and redrawn. The water systems of the region are found in clusters of five water basins and sub-basins: (1) The Nile Basin, (2) The Ghibe-Omo/ Turkana basin, (3) The Ganale-Dawa/ Juba basin (4) The Wabeshebelle basin and (5) The Red Sea basin. For ages, the waters of Northeastern Africa have existed as the objective and indestructible natural bond between the upstream and downstream societies and countries. As a matter of natural/ environmental reality most of Ethiopia's neighbors, as well as most parts of Ethiopia itself, are arid or semi-arid and that they, now or in the future, depend on the shared water resources.

From the outset, it is interesting to note that there is no one single country in the Region, that does not share water resources with one or several of its neighbors. But on the other hand, there are no regulatory or institutional mechanisms for enhancing riparian cooperation and mutual benefits. Thus, invariably all the shared water resources in the Region are left for speculation, anarchy and perennial tension between and among the riparian nations. The ongoing, but still nascent, "Nile Basin Initiative-NBI" is the first of its kind where a degree of commitment among the Nile basin states to embark on cooperative activities and for establishing regulatory and institutional mechanisms. But this has yet to bear fruit in terms of concrete contributions for the much needed socio-economic development, conflict transformation and regional security.

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Recognition and promotion of peaceful coexistence and enhancing inter-riparian cooperation on earnest grounds will help mitigate the absolute vulnerability of the downstream countries on one hand, and ameliorate the risk of conflict the upstream countries might be forced into. But a continuation of the status quo with the absence of regulatory and institutional mechanisms on the utilization and management of the shared water resources in Northeastern Africa region will likely perpetuate the hydraulic anarchy and further propel the inter-riparian tension. The ultimate focus of the present study is to look into the potentials of trans-boundary waters of Northeastern Africa as catalysts and instruments for future cooperation and regional security infrastructure in the sub-region.

The findings of present research are based on the NCCR North-South research on Environmental Change and Conflict Transformation in the Horn of Africa, coordinated by Swiss Peace Foundation, Water sub-project undertaken with the auspices of Swiss Federal Institute of Technology-Zurich.

2. TRANS-BOUNDARY WATERS OF NORTHEASTERN AFRICA

Most of the major rivers in Northeastern Africa Region take their rise in the Ethiopian highlands, and they radiate in all directions into the neighboring countries. Tekeze, Abbay and Baro-Akobo flow to Egypt via Sudan. The three Ethiopian headwaters together contribute 86 per cent of the Nile waters. Ghibe-Omo discharges into Lake Turkana, across Ethiopia-Kenya border. Ganale-Dawa flows to Somalia and eastern Kenya. Wabeshebelle enters Somalia on the north of where Ganale-Dawa cross the Ethiopia-Somalia border. For this reason, many observers take Ethiopia as the water tower of Northeastern Africa. Further details can be observed on **maps 1 & 2** and **Table 1** below.

Map 1: The Waters of Northeastern Africa

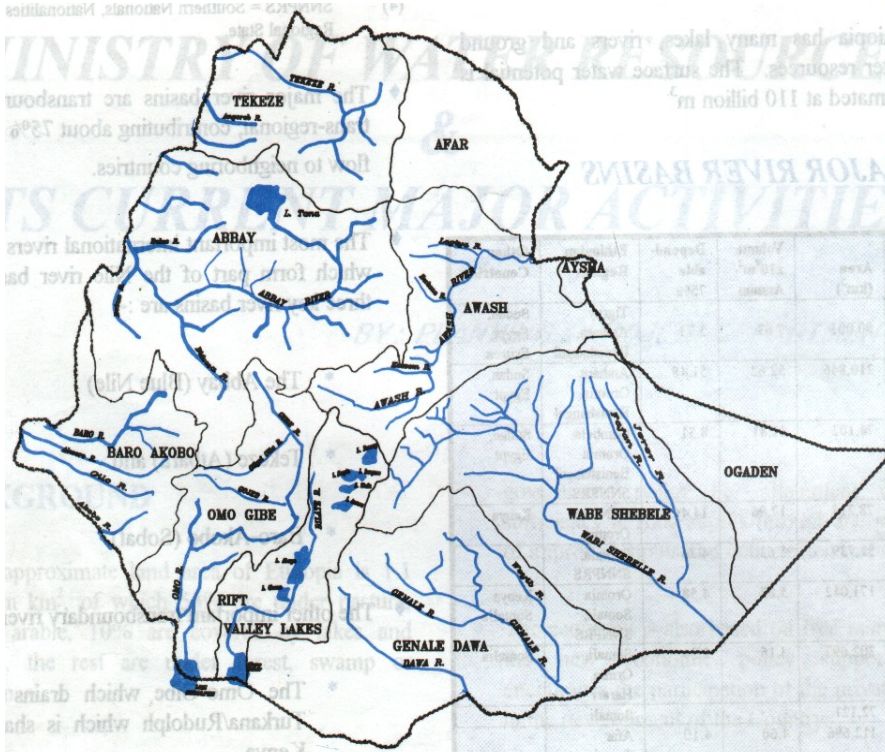


Table 1: Major Shared Waters of Northeastern Africa

River basin	Riparian states	Annual runoff/bcm
The Nile:		
Tekeze	Ethiopia, Eritrea, Sudan, Egypt	7.00
Abbay	Ethiopia, Sudan, Egypt	52.00
Baro-Akobo	Ethiopia, Sudan, Egypt	23.00
Ghibe-Omo	Ethiopia, Kenya	17.00
Ganale-Dawa	Ethiopia, Kenya, Somalia	5.88
Wabeshibelle	Ethiopia, Somalia	3.16
White Nile	DRC, Burundi, Kenya, Rwanda, Tanzania, Uganda	12.00
The Red Sea	Djibouti, Eritrea, Sudan, Egypt, Israel, Jordan, Saudi Arabia, Yemen	-----

Source: Adapted from Ethiopia, federal Democratic Republic of (1999), Country Paper, presented at 7th Nile 2002 Conference, 15-19 March 1999, Cairo.

Map 2: The Ethiopian River Basins



Source: Ministry of Water Resources, Ethiopia (1997), "Current Major Activities", in *Water and Development*, Vol. 2, No. 5, MWR, Addis Ababa, p. 22.

2.1. The Nile Basin

The Nile Basin is the most dominant feature of northeastern Africa. It includes one third of Ethiopia, a substantial portion of Sudan, almost the entire cultivated and settled area of Egypt, the Whole of Uganda, parts of Kenya, Tanzania, Burundi, Rwanda, DRC and Eritrea. The Nile basin's 3,352,710 sq.km. area is the third largest in the world, following the Congo and Amazon basins. The Nile is the longest river in the world with numerous tributaries and headwater lakes. These in turn are clustered in four subsystems: the White Nile, the Abbay, the Tekeze and Baro-Akobo subsystems.

2.1.1 The White Nile Sub-system

The farthest source of the White Nile is the Luvironza River, which discharges into Lake Victoria at the Uganda-Tanzania border. The Nzoria River drains Mount Elgon and enters Lake Victoria. The Kagera river traverses between the borders of Rwanda and Uganda and discharges itself into the White Nile. The Lake Victoria, one of the largest fresh water lakes of the world, is the major source of the White Nile. Lake Albert which lies on the floor of the Rift Valley and the other two Rift Valley lakes, namely, George and Edward are the additional sources of the White Nile. Farther North, the Bahr-el Gazal and its tributaries drain the northern part of the Congo-Nile divide and join the White Nile in the Southern Sudanese plains.

2.1.2 Abbay/Blue Nile Sub-system

The Abbay River originates in Ethiopia's northwestern plateau. Its numerous headwaters include Lake Tana and the rivers Dabus, Didessa, Fincha, Guder, Muger, Jamma, Wolaka, Bashilo, Birr, Beles, Gilgal abbay, Dinder and Rahad. Its catchment area of 324,500 sq. km. is more than twice smaller than that of the White Nile, while its water contribution to the main Nile is more than four times as big as that of the White Nile. The Abbay contribution is thus 59 percent, whereas that of the White Nile is 14 percent to the total annual volume of the downstream Nile. Although due to the seasonal variations of rainfall in the Ethiopia plateau the seasonal flow of Abbay varies dramatically. The main rainy season on the Ethiopian plateau is from June to September. The maximum runoff of the Abbay in August, for instance, is as high as 60 times its low discharge, which usually occurs in February (Tvedt, 1992:82). The physical nature of the basin and the seasonal concentration of the water runoff have resulted in the high degree of soil erosion every year, further resulting in land degradation in the upper basin. According to one recent report Ethiopia's annual loss of topsoil is 405 million cubic meters from the Blue Nile basin alone (EVDSA, 1991: 2; Joy, 1967: 87).

2.1.3 Tekeze/ Atbara Sub-system

The Tekeze Subsystem, whose upper streams rise in Northern Ethiopia perennially, replenishes the main Nile in Northern Sudan. Rivers, Angarab and Guang are the main headwaters of Tekeze. The Tekeze River mark the Ethio-Eritrean borders at their westernmost segments. This subsystem contributes some 13 percent of the total annual flow of the Nile waters. The climatic pattern and the physical environment of the Tekeze subsystem is much similar to that of the Abbay. Hence, it is also prone to a high degree of soil erosion and land degradation. Ethiopia thus annually loses 120 million cubic meter of topsoil through the water runoff of the Tekeze river (EVDSA, 1992: 2).

2.1.4 The Baro-Akobo/ Sobat Sub-system

The Baro, Akobo, Alwiro, Gilo and Pivor rivers drain the western Ethiopian plains and exit to Sudan. The Baro, the Pivor and the Alwero rivers make up a 380 km. frontier lines between Ethiopia and Sudan (Tasew, 1965: 3). It is estimated that the amount of water carried by this subsystem to the Nile is 14 percent of its total annual flow.

Compared to other river systems that flow due west, the Baro has wider banks and less irregular course. It is the only navigable river across Sudan-Ethiopian border. There had been a river transport system by steamboat between Gambella and Southern Sudan, the service that has discontinued. It is also in this basin that Ethiopia and Sudan have the numerous ethnic groups with common languages, cultures and similar economic activities.

2.2 Ghibe-Omo/ Turkana Basin

The Omo River is fed on the headwaters emanating from the south-central and southwestern highlands of Ethiopia. The major tributaries are the Ghibe, Gojeb and Gilgal-Ghibe rivers from the southwestern highlands, while Walga, Sanna, Woibo and Sokie rivers from the south-central highland region. The Omo River is Ethiopia's major southern water system that drains due further south and empties itself into Lake Turkana, on the Ethiopia-Kenya frontier line. The biggest portion of Lake Turkana lies on Kenyan territory. Local people and eyewitnesses in Southern Omo claim that the Ethiopian portion of Lake Turkana has been increasingly shallowing up, presumably from multiple effects of "increased aridity" or "siltation" which in turn, might have been accelerated due to land degradation in the southwestern and south-central highlands of Ethiopia.

2.3 Ganale-Dawa/Juba Basin

The tributaries of Ganale River drain the southeastern regions of Sidama, Bale and Borana. Numerous small headwaters including rivers Weiyb and Dawa from the eastern and south-eastern highlands of Ethiopia join the Ganale River. The Dawa and the Weiyb rivers flank Ganale on the west and on the east, respectively, until the three streams converge near Dolo-Bay on the Somali-Ethiopia frontier. From this Juncture onwards, and within Somalia, the river is known as Juba. The Western tributary, the Dawa River, marks 200 km and 15 km on Kenya-Ethiopian and Ethiopia-Somalia frontier lines, respectively.

2.4 Wabeshebelle Basin

The Wabe-shebelle River and its tributaries drain the hills of Arsi, Bale and the Western Ogaden of Eastern Ethiopia. The main tributaries of Wabe-shebelle are the Mojo, Ramis, Jerer, Dakota, Fafen and the Erer rivers. Wabeshebelle gently flows due southeast within Ethiopia for about a total of 2000 kms. and crosses the Somali border near Ferfer town. From that junction onwards it flows due southwest as though forming a perfect crescent shape. After making a parallel line with the coast of the Indian Ocean, the waters of Wabe-shebelle percolate into the sand in Southern Somalia.

2.5 The Red Sea Basin

The Red Sea is a water body that separates northeastern Africa from the Arabian Peninsula and extends from the Gulfs of Aqaba and Suwez in the north to the strait of Bab-el-Mandab in the south. The sea has a 5778 km shoreline and an area of about 438 000 km². The Red Sea is the natural endowment of African and Middle Eastern countries of the region. It serves as a northern outlet of the Indian Ocean, as it does serve as a Southern outlet of the Mediterranean Sea.

In the Red Sea's southern flank the Horn of Africa is separated from the Arabian Peninsula by about 25 km at the strait of Bab-el-Mandab, while the strategic Yemeni island of Perim is situated in the middle of the strait. The sea resembles a huge natural canal stretching from north to south, or the other way round. It is surrounded by eight littoral countries, four of which are on the African side, namely, Djibouti, Eritrea, Sudan and Egypt, while Yemen, Saudi Arabia, Jordan and Israel are littoral states on the Asiatic side. Since 1991, Ethiopia has become a landlocked country following the secession of its former Red Sea province of Eritrea. Ethiopia, however, remains an indispensable and potentially huge economic hinterland to both Djibouti and Eritrea.

The Red Sea littoral countries have commonly shared cultural heritage and historical experience. They have similar socio-economic predicaments and common imperative for co-operation and development. Despite the cultural, political, ideological and climatic diversities, the littoral countries share the indestructible bond of geographic links, as well as the immense marine, metallic, energy and tourist resources. Like in the case of the river basins of the Horn, the Red Sea is characterized by a latent anarchy for the lack of legal framework and institutional mechanism (Arsano, 1990).

3. ECONOMIC IMPORTANCE OF THE SHARED WATER RESOURCES OF NORTHEASTERN AFRICA

Effective management and efficient utilization of the trans-boundary water resources are *sine-quo-non* for the very survival as well as for the much needed economic development of the riparian countries. Notwithstanding the climatic and topographic diversity the economic prospects of the riparian countries hinge on agriculture, accompanied by pastoralism and agro-pastoralism. The countries in the Nile's upper basin, namely, Ethiopia, Kenya, Uganda, Tanzania, Rwanda, Burundi and DRC have so far developed very little of their respective Nile waters. The level of Nile water resources utilization in these countries for irrigation or hydroelectric power generating is almost negligible (See Figures 2 and 3). As can be observed in the figures, the downstream riparian countries, especially Egypt, heavily depend on the Nile waters both for irrigation and hydroelectric power generating. The downstream riparian countries are not only dependent on waters received from outside their territorial jurisdiction but also they are beneficiaries of silt and alluvial soil, which is washed down from the hilly terrains of the up-stream countries, almost entirely from the Ethiopian plateau (see for instance, Mesfin Wolde Mariam, 1972: 77-78).

Figure 2: Water Utilization Profile in the Nile Basin

Size of basin Sq. km.	Average Annual flow Bcm.	Riparian states	Utilization % of available	Estimated population 2000 (mil.)a	Per capita GNP 1997 (USD)b
2 960 000	84	Burundi	3.1	7	180
		CDR	0.2	51	110
		Egypt	111.5	68.1	1180
		Eritrea	NA	3.8	210
		Ethiopia	7.5	66.2	110
		Kenya	8.1	30.3	330
		Rwanda	2.6	7.7	210
		Sudan	37.3	29.8	380
		Tanzania	1.3	33.7	210
		Uganda	0.6	22.5	320

Source: UNDP (1997), *Human Development Report*, Oxford University Press, New York; World Bank (1999), *World Development Report*: 1998-99, Oxford University Press, New York.

Figure 3: Comparative Irrigation Potential in the Nile Basin

Country	Irrigation potential/ ha	Area under irrigation/ ha
Burundi	80 000	0
Egypt	4 420 000	3 078 000
Eritrea	150 000	15 124
Ethiopia	2 220 000	23 160
Kenya	180 000	6 000
Rwanda	150 000	2 000
Sudan	2 750 000	1 935 200
Tanzania	30 000	10 000
Uganda	202 000	9 120
DRC	10 000	0
Total	10 192 000	5 078 604

Source: Irrigation Potential in Africa, FAO 1997; quoted in Egypt, *Country Paper of Egypt*, VIII Nile 2002 Conference, June 26-30, 2000, Addis Ababa, P. 11.

Sudan stands the second and a distant follower of Egypt among the Nile riparian countries as regards the utilization of the Nile water resources. Modern irrigation method was introduced in Sudan with the development of the Zeidab concession in 1904 (Pankhurst, 1973: 9&10). Therefore, the development of Sudanese irrigation took shape as part of the colonial economic interest. In 1925 the Gezira and other large-scale schemes were developed under the same colonial economic drive. It is estimated that Sudan has 1.8 million ha. land under irrigated farming. The country has a further plan to increase the cultivated land by 15 million ha. which in turn raises the country's water requirement to 31.15 BCM (EVDSA, 1992: 3).

The Great Lakes plateau riparian states, namely: Kenya, Tanzania, Uganda, Burundi, Rwanda and Zaire together have put into use a marginal amount of 0.05 BCM. Certainly there will be much greater need for more water use in the future in those countries. Ethiopia's current level of utilization of the Nile waters is only up to 0.6 BCM (EVDSA, 1992: 3). Furthermore, the recent preliminary surveys reportedly indicate that Ethiopia has a potential of 3 million ha. of irrigable land in her own Nile basin and that the water requirement is estimated at 55.9 BCM (EVDSA, 1992: 4) Ethiopia's annual contribution to the main Nile is 72 BCM, while the total annual discharge of the Nile is 84 BCM.

Next to the Nile, the Wabe-shebelle and Ganale rivers demonstrate a high economic significance and potential. Although Ganale-Dawa basin is much less developed compared to that of Wabeshibelle, the two water systems are the only perennially running waters on which the future agricultural development of Somalia will solely depend. The headwaters of the rivers are also vitally important for Eastern

Ethiopian's socio-economic development, which aims at hydroelectric power generating and adaptive agricultural development that will integrate the pastoral livestock production. So far the overall development of these river basins has been modest, and there are no known interstate arrangements between Ethiopia and Somalia. It remains incumbent on the riparian states to not only resolve the unsettling and longstanding territorial questions but also to enter into conventions and to develop operative mechanisms to cooperatively utilize the trans-boundary resources, including the perennial waters.

It is important to observe that, in almost all cases of trans-boundary water resources, planning is done nationally with no or little regard to the overall water resource balance along the watercourse. The need for water and the water use patterns in upstream or downstream countries of the same river course, are seldom (if at all) taken into account by national planners. In national planning the integrity of a water cycle is often disturbed to such an extent that the law of supply and demand for water is then disrupted. National planners are generally guided by the water requirements of their own country and do not necessarily take into account the total supply of water in the watercourse or the water needs and requirements of other co-riparian countries. This problem is attributable to the technocratic and elitist handling of the planning of water resource development that takes place exclusively at the national level. It is for this reason that Dolatyar and Gary (2000: 6) advise that: "when water resource management is properly handled, it can provide the basis for economic growth, improvement in living standards and socio-political stability".

Up until now water utilization and management in the Nile basin has been far from basin-wide approach. Water development strategies that are confined to a national level seem to be elitist driven and very technically oriented. The obvious flaw of this prevailing approach, although politically maintained, is a contributing factor to slow national water development, and this is not something the national planners or respective governments can claim as an achievement in water resources management. Soil erosion and land cover loss in Ethiopia, silt accumulation and decreasing water quality in Sudan, and land salinity and excessive evaporation in Egypt can be understood as a consequence of national water development strategies that have ignored a trans-boundary or basin-wide approach.

Using water resources in one country without considering the supply and demand patterns in other co-basin countries will likely lead to uneconomic utilization. A basin-wide approach to water resource development in Northeastern Africa or elsewhere will result in a more efficient use and increased economic benefits for all the riparian countries. This, in turn, serves as a basis for mutual trust and inter-state as well as regional security structure.

4. ENVIRONMENTAL CONSIDERATION FOR REGIONAL SECURITY

The international community has been alarmed by the ever-increasing scarcity of fresh water resources, which call for a serious mitigation task sooner rather than later (FAO, 1995: 4). It is no surprise, therefore, that the concern and debate has focused on water issues during the past decade or so. The UN system sponsored the International Conference on Water and Environment-ICOWE in Dublin, from 26 to 31 January 1992. The ICOWE appealed for an innovative approach for the assessment, development and management of fresh water resources. The Dublin Conference further provided policy guidelines for the Rio Conference on Environment and Development, which was subsequently held in June 1992. The Rio Conference, in turn, recommended a reform of fresh water policy throughout the world. The World Bank's comprehensive water policy of 1993 defined new objectives. FAO recently established an International Action Program on Water and Sustainable Agricultural Development (IAP-WASAD). In the same way UN specialized agencies, international and local non-governmental organizations and bilateral assistance agencies have all been busy, actively taking part in programs related to water resources.

The dictum 'water is life' is commonplace nowadays. Water is an immediate and essential part of our environment. The need to reckon with environmental aspects is becoming a criterion in planning of water development activities. This was clearly emphasized during the Global Summit in 1992 in Rio. The summit's document was incorporated in chapter 18 of Agenda 21 (UNCED, 1992). Thomas and Howlett (1993: 19) view the Rio perception about the place of water in our environment optimistically, and they suggest that international consensus has been reached on the urgent need for integrating management of water resources as a prerequisite for socio-economic development and conflict mitigation in the future. Shared water resources provide the basis for a regional approach for environmental security.

A nationally confined and fragmentary approach to shared water resources is and will remain an intractable problem. The solution to this, however, rests on a holistic environmental approach at a basin-wide scale. Environmentalists rightly argue that grave consequences of environmental degradation and resource scarcity are not contained to national borders and will inevitably affect all parties in one way or another. There is also an increasing need for environmental security awareness. Environmental security can only be safeguarded through collaborative efforts of states in developing shared regimes pertaining to fresh water basins. There is a growing realization that environmental security will not be achieved through military action. One important reason for this is that national territorial boundaries and natural

resources boundaries may not be the same. Historically, national boundaries evolved in political processes that might have included military means. But natural resources such as, for instance, rivers or fresh water lakes cross the political boundaries. Thus any one state cannot and should not claim authority over such an international resource. Understandably, fresh water is a fundamental source for life and requires more special attention. Lest the environmental security of all parties be in jeopardy, states in an eco-geographical region will have to create a sustainable form of environmental security. The key issue here is to understand the limits to the carrying capacity of a particular environmental asset and to know how to manage and use it sustainably now and for future times.

The concept of sustainable development was first mentioned by the World Commission for Development and Environment (WCED) in its report "Our Common Future" (1987). The report of WCED viewed environment and development in a unified manner, and suggested the establishment of a new approach to economic growth, one in which the criteria would be 'meeting the needs of the present generation without compromising the needs of future generations'. This concept was widely accepted. Hence, according to the World Bank report (1992a: 8), meeting the needs of the present generation implies an essential aspect of sustainably meeting the needs of subsequent generations. This is a new approach to economic development. Equitably sharing limited resources, using the available resources efficiently and applying environmentally sound technology to them is the essence of this new concept. This suggests that our economic goals must be adjusted in view of ecological possibilities, and goals and priorities modified accordingly.

The basic tenets of sustainable water use rest on equity, efficiency and ecological integrity. All this prepares the ground for the establishment of a cooperative international system, which will serve as a mechanism for national and inter-state security. Efficient utilization of water resources should be a guiding criterion that decreases the rate of evaporation, prevents erosion, and minimizes flood occurrences, silt accumulation and soil salinization.

Given the ecological characteristics of the Eastern Nile Basin one can plausibly suggest that construction of dams in upstream Ethiopia, where the climate is temperate, can provide a more sustainable alternative to constructing a dam in the desert climate of downstream locations. Further benefits derived from having a water reservoir in the upstream area include possibilities such as: irrigation, generation of hydroelectric power and prevention of soil erosion in Ethiopia; eliminating the hazards of seasonal floods and silt accumulation in Sudan; and avoiding excessive evaporation for net increase of fresh water in downstream Egypt as well as in

midstream Sudan. Construction of dams and/ check-dams in Ethiopia would offer opportunities for irrigation, hydroelectric power generation, rejuvenation of the basin ecology, rehabilitation of land cover, restoring sanctuaries for wildlife and maintaining scenic attraction in the upstream reaches of that country. This would further increase the total availability of fresh water for all the riparian countries of the Eastern Nile, including the most downstream Egypt.

5. REGULATORY AND INSTITUTIONAL ISSUES

No inter-riparian agreements exist in the trans-boundary waters in Northeastern Africa. The numerous agreements signed with regard to the Nile did not include most of the riparian states and they lavishly favored Egypt, the most downstream country. Most of the existing agreements were reached between the colonial powers, or between Egypt and the colonial powers. The 1959 Egyptian-Sudanese, agreement on "Full Utilization of the Nile Waters" was signed between the two most downstream states (Arab Republic of Egypt, 1984; Wondimneh Tilahun, 1979). This agreement also not only lavishly favored Egypt but also totally excluded all seven upstream states. The Nile agreements can be classified into three types:

5.1. Agreements between colonial powers

- 5.1.1 *The Anglo-Italian protocol of 1891*, safeguarded the continued flow of the Tekeze Waters to the British colony of Egypt through Sudan.
- 5.1.2 *The 1906 Tripartite Treaty*, between Britain, France and Italy, recognized the British political influence over the Ethiopian territory of the Nile basin.
- 5.1.3 *The 1906 Agreement*, between the Belgian colonial authorities and Britain, provided that the Belgian king Leopold II would not put up dams or divert the Semliki and Isango headwaters from joining the white Nile system.
- 5.1.4 *The 1925 Anglo-Italian agreement*, allowed the Italians to continue in the colonial aspiration over Ethiopia and to construct roads and railways in Ethiopia adjacent to their then colonies of Eritrea and Somalia. In return the Italians recognized Britain's interests in the Ethiopian Nile basin with respect to a continuous flow of the waters to Sudan.
- 5.1.5 *In 1929 Britain and Egypt*, (the latter, newly independent, and condominium authority over the Sudanese colony) agreed, *inter alia*, as follows: (1) Egypt would take 23/24 of the waters that pass through Sudan and the latter to retain 1/24. (2) Egypt to supervise water related activities in the entire basin from source to mouth. (3) Britain recognized the "historical" and "natural" rights of Egypt with respect to the waters of the Nile.

5.1.6 *In 1934 Britain and Belgium*, agreed that any amount of the water of Kagera river in Rwanda diverted for hydropower production would have to be returned to its banks.

5.2. Agreements between Colonial Powers and Independent States

5.2.1 *The 1902 Anglo-Ethiopian boundary agreement*, carried a water provision in its third clause. According to that provision the Ethiopian government would not do any construction work or allow third parties to do the same on the Abbay, Lake Tana or their branches, without a prior permission of the British colonial government of Sudan. The clause was deceptive because the basic idea and purpose of the agreement was to delimit the frontier line between Ethiopia and the Anglo-Egyptian Sudan, but was not intended to deal on water issues. In any case Ethiopia's stake was to ensure her territorial boundaries against the encroachment by imperialist forces. It is presumable that the Ethiopian leaders of the time would perceive the transboundary waters as "wild" resource, and, as long as these were within the sovereign territorial jurisdiction it wasn't of much worry. Urgent priority of the Ethiopian leaders of the time was to have the country's territorial jurisdiction recognized and safeguarded from the encroachment of the imperialist enemies and their collaborators.

5.2.2. *The Anglo-Egyptian agreement of 1952*, stipulated that the Owen Falls dam in Uganda to be heightened with the object of conserving more water, to be destined and eventually flow to Egypt.

5.3. Agreement between Independent States

The only agreement under this category is the 1959 Egyptian Sudanese agreement of "Full utilization of the Nile waters." This agreement was reached between the two sovereign states. The binding force of the agreement remains, however, null and void with respect to the upstream riparian states in the Nile basin. The agreement faced two immediate challenges. Firstly, Ethiopia protested against her exclusion from the negotiation process. This was aptly expressed in the circular *aide memoire* of 23 Sept. 1957, which was served to the diplomatic community in Cairo. The *aide memoire* in part reads, thus:

The second challenge to the 1959 agreement was from Sudan, the other party to the agreement. Sudan expressed indignation and dissatisfaction over several issues involved in the agreement. In the first place, Sudan was not satisfied with its one-quarter allotment of the waters. According to the agreement Egypt's share was 55.5 BCM, while that of Sudan was 18.5 BCM. The remaining 10 BCM was left for

evaporation and desalination purposes. Secondly, the Sudanese negotiators of the treaty felt that what they got was like an "Egyptian grant" rather than the right of Sudan to get what it legally deserved as equal partner. The Sudanese Prime Minister was reported as to have argued that the Nile first passes through his country, and that Sudan would not be satisfied by getting the smallest share of the waters. Furthermore, upon their independence in early 1960's, Uganda, Tanzania and Kenya explicitly declared that they would not inherit any Nile waters agreements which Britain might have entered while the colonial administrator in those countries (Waterbury, 2002; Okidi, 1992; Collins, 1990; Godana, 1985).

The Nile agreements seem to have always been aimed at maximizing the interests and advantages of downstream states. It is true for colonial and post-colonial states. All previous agreements excluded Ethiopia and other upstream nations. In other words none of the upstream nations were parties to any of the agreements, nor the national interests of the upstream countries accommodated in the agreements. The strategies of downstream states, especially that of Egypt, have been circumventing the upstream countries so that the latter go by the status quo as imbedded in the Nile agreements described herein above. For instance, the Egyptian national policy has been to maintain the status quo on the basis of the colonial and post-colonial agreements.

The main tension in the Nile basin is the contention between downstream states insisting to maintain the status quo and upstream states seeking fresh, all encompassing and mutually beneficial regulatory and institutional mechanism. But it is increasingly evident that dead politics imbedded in the self-serving and unilateral agreements cannot serve as regulatory or institutional infrastructure for establishing a regional security system in Northeastern Africa.

6. TOWARDS A REGIONAL SECURITY APPROACH

Many scholars conclude that there is a positive relationship between resource scarcity and conflict. Fresh water is taken as the most important natural resource, and nations have increasingly vied for greater control. This is mainly attributed to the growth of population, structural dependence on agriculture, and the expansion of agricultural activities as a leading sector, especially in economically less developed countries, such as those in the Eastern Nile basin. There are two schools of thought with regard to the increasing conflict over the shared water resources. One school perceives that the increased competition over fresh water resources inevitably entails conflict between riparian states. One of the exponents of this school, Buthros Buthros Ghali, the former Secretary General of the United Nations, predicted in early 1980s

that “water would be a source of international conflict”, as cited by Waterbury (2002: 9). In 1991 Joyce Starr wrote a book further accentuating the possibilities of water wars (1991). Thomas Homer-Dixon (1994b) underlined his expectation that conflict over the earth’s natural assets will grow, owing to the increasing population growth and economic development. Arthur Westing (1986: v) argued that human history is an account of resource wars. Along the same line, and some years later, Falkenmark and Widstrand (1994: 4) argued that world history is replete with wars and conflicts over access to fresh water resources. Falkenmark takes the scenario even further and sees water as a factor of international dispute and conflict formation in the future. Gleick (1993a: 79) contended that fresh water resources are objects of military campaign and conquests as long as they provide economic and political strength to nation states. A decade or so earlier some military analysts, such as Thompson (1978: 62-71), claimed that fresh water resources were becoming increasingly scarce, and that they would increasingly become a source of future conflict.

In reference to her own findings in the Horn of Africa, Eva Ludi (2002: 23) concludes that “regional issues have an imminent potential for conflict and are linked in one way or another to land and/or water scarcity”. With regard to a positive relationship between conflict and lack of capacity, she writes: “In principle conflicts might escalate due to the incapacity of local and traditional authorities to regulate growing tensions; [or] due to lack of policies to deal with such issues on a national level; or due to a low level of regional cooperation” (Ludi, 2002: 23).

The other school of thought views water resources as an arena for future cooperation and the formation of common security. Elise Boulding (1993, 202), for instance, explains, at a rather simplified level, that water flows like everything in nature. No state boundary, no barbed wire, no wall can stop water from flowing along its natural course, from source to its final destiny. The significance of this simple explanation by Boulding underscores the common fact that actors, such as political decision makers, tend to forget about or choose to ignore as not so important. The author wants us not to forget that water does not know state boundaries, it only knows its natural course.

Because water knows no boundaries numerous states are bound to share the same watercourse at the upper or lower or middle course. And this is also why numerous river basins become the shared property of two or several sovereign states. In the world there are some 240 river basins that are shared by two or more countries. About 40 per cent of the world’s population and 50 per cent of its land resources are found in these shared river basins (Dolatyar and Gray, 2000: 7). Other authors vary on these figures. Scott Barret (1994: 2), for instance, claims that there are 200 river basins shared worldwide. Elhance (1999: 4-5) on the other hand asserts that there

are 215 shared river basins around the world and these are distributed as follows: 57 in Africa, 35 each in North and South America, 40 in Asia and 48 in Europe. Elhance further explains that: 65 per cent of continental Asia, 60 per cent of Africa and 60 per cent of South America are covered by shared water basins. Some countries like Uganda and Paraguay lie entirely within shared water basins. According to the same author, three hundred treaties have been signed with regard to shared waters across the world between riparian countries, and more than three thousand treaties bare provisions relating to water questions (Elhance, 1999: 5). The table below shows a sample overview of such an effort. John Waterbury has provided a distribution pattern of international water agreements across the continents. Obviously the table, while indicating the pattern of accords, does not include all of them.

Figure 4: International Agreements on River Basins

River basin	Location	Countries sharing	Status of cooperation
The Indus	Asia	India, Pakistan	Bilateral accord
The Ganges-Brahmapu.	Asia	India, Bangladesh, Nepal	India-Bangladesh bilateral accord
The Tigris-Euphrates	Asia	Turkey, Syria, Iraq	Turkey-Syria & Syria-Iraq bilateral accords
The Jordan	Asia	Israel, Jordan, Syria, Palestine	Israel-Jordan bilateral accord
The Nile	Africa	Egypt, Sudan, Ethiopia, Eritrea, Kenya, Tanzania, Burundi, Rwanda, Uganda, DRC	Egypt-Sudan bilateral accord
The Niger	Africa	Mali, Nigeria, Niger, Algeria, Guinea, Cameroun, Borkina Fasso, Benin, Cote d'voire, Chad	Multilateral accord
The Senegal	Africa	Senegal, Mali, Mauritania	Trilateral accord
The Zambezi	Africa	Zambia, Angola, Zimbabwe, Malawi, Mozambique, Botswana, Tanzania, Namibia	Zambia-Zimbabwe bilateral accord
The Colorado and The Rio Grande	North America	USA, Mexico	Two bilateral accords
The Mekong	Asia	China, Cambodia, Laos, Viet Nam, Thailand	Multilateral accord (without China)
La Plata	South America	Brazil, Argentina, Paraguay, Uruguay, Bolivia	Multilateral accord
The Danube	Europe	Romania, Yugoslavia, Hungary, Austria, Czech Rep. Germany, Slovakia, Bulgaria, Russia, Switzerland, Italy, Poland, Albania	Several bilateral and multilateral accords
The Rhine	Europe	Switzerland, Germany, France, The Netherlands, Austria, Luxembourg, Belgium, Lichtenstein	Several bilateral and multilateral accords
The Columbia	North America	USA, Canada	Bilateral accord
The Great Lakes	North America	USA, Canada	Bilateral accord

Source: adapted from Waterbury (2002), *The Nile Basin: National Determinants of Collective Action*, Yale University Press, and New Haven & London.

In contrast to the second school of thought, integrated management of water resources in shared water basins has not been an easy matter, owing to the fact that in numerous cases explicit implementation procedures and institutional mechanisms are not in place. It is for this reason that Dolatyar and Gary (2000: 7) argue that “water security is already one of the most crucial elements in the foreign policy considerations of many countries”. In response to this concern, and realizing the importance of cooperation on shared water resources, riparian states and multilateral agencies have elevated the issue of shared water resource management to a new level of diplomatic engagement. There is ample evidence of riparian states that have already made successful efforts in reaching agreement of some form and on some level, as can be observed in the table provided above. Inter-riparian disputes about ‘who gets what’ will, however, keep riparian nations wrangling.

Basing his thoughts on the environmental context, Baechler (2002: 539) reminds us of the existence of many intricacies, including: multiplicity of parties, asymmetry of power between the contending parties, and the existence of other factors external to environmental issues. He prefers to consider environmental conflict resolution at a different, but higher level of handling. First of all, he believes that ‘conflict resolution’ or ‘conflict management’ is not enough. Rather he suggests that a step further or higher is necessary. By doing so he introduces the concept of ‘conflict transformation’. Although he agrees that an organizational approach to conflict management is useful, he believes that proper institutionalization will be necessary for its fruition. According to him, “conflict resolution has to deal adequately with so called process and structures”, the notion of which “stems from a modern scientific concept used to describe phenomena in nature that are, at the same time, process and structure” (Baechler, 2002: 540). In conflict transformation, Baechler argues that, “we embrace the challenge to change that which has torn us apart and build something we desire” (Baechler, 2002: 540). Baechler’s view is that in ‘process’ and ‘structure’ phenomena, challenges are embraced in order to change the undesirable status quo to a desirable result. There is a strong support for this view in what Jerome Delli Priscoli (1990: 10) suggests, when he says: “help parties to own both the problem and the solution”. In the same vein Oran R. Young, a prominent theorist on international organizations, notes, “Institutional design emerges as a process of steering complex bargaining toward coherent and socially desirable outcomes.”(Cited in Delli- Priscoli, 1996: 30).

The increasing need for cooperation on transboundary waters is viewed as inducing a shift from the ‘traditional’ national security perception to a “common security” perception. Boulding (1992: 202) argues that “traditional definitions of security are bound up with concepts of the state as defender of boundaries within which its

citizenry is safe from threats to survival, whether those threats are military, economic or involve environmental resource deprivation". He goes on to assert that security is collaborative, if it is to be effective. He further suggests that common security is concerned with linking peace and environment, developing global regulatory systems through treaties and making a shift from military preparedness to diplomatic preparedness.

It is quite understandable that bilateral and multilateral agreements have not yet been achieved in many shared river basins. Examples of shared river basins that currently have no riparian accords in place are: the Amazon River in South America, shared by Peru, Ecuador, Colombia and Brazil; The Congo River in Africa, shared by DRC, Central African Republic, Angola, Zambia, Tanzania, Cameroon, Burundi and Rwanda; The Syr Darya and the Amu Darya rivers in Central Asia, shared by Kyrgyzstan, Kazakhstan, Turkmenistan, Tajikistan and Uzbekistan.

In other major river basins the existing accords do not encompass all riparian states. The 1959 'full utilization' accord in the Nile basin, for example, only refers to the two most downstream nations, Sudan and Egypt. The other seven nations at the time of signing, are not party to the accord. The long negotiated Mekong River Agreement of 1997 did not include China, the upstream and most powerful state in that particular sub-region. Such partially inclusive or selectively inclusive riparian agreements may not or do not achieve collective security across the basin. The exclusion of some countries may even create a future security threat.

If one looks at the Nile basin countries, the existing status quo hangs on a delicate balance with no equilibrium. Historically, Egypt could get an unimpeded amount of water. Sudan's share is determined by the terms of the 1959 agreement. The amount set for Sudan in the agreement was 18.5 billion cubic meters (bcm) (Waterbury 1979). Sudan has indicated time and again that the agreed amount did not and does not indicate the water resource needs of the country. This can be clearly observed in the latter's government statements during the negotiation of the agreement in the 1950s and in the later day Sudanese Government statements (Collins 1990). Ethiopia, on the other hand, has so far been able to utilize 0.6 bcm of the planned 6 bcm in 1964 (several interview 2001). As Ethiopia is not a party to the 1959 agreement, the amount Ethiopia has been able to utilize has only been determined by the country's economic, technical and security capacity to do so. As can be seen from various water planning documents Ethiopia's stated needs for water utilization are much greater than the country has been able to put into any gainful use. Inter-state conflict over water resources in the Eastern Nile basin has been averted due to low-level engagement in the utilization of the water resources in the upstream countries.

There is a growing realization that increased utilization of water resources is indispensable for the immediate remedial of food shortage, as well as for agricultural and agro-industrial development and for power generating. It goes without saying that water resource utilization in each of the Eastern Nile basin countries, especially in the upstream countries, will likely increase. This has already been clearly indicated in the respective national strategic development plan documents. In the interest of preventing any eventual water conflict, the riparian states will have to address trans-boundary water development and inter-state security concern as inseparable issues. Wenger and Mockli explain that, "security and development find common ground" (Wenger and Mockli, 2003: 25). Inter-state security has a relaxing effect on riparian states and encourages them to opt for mutual cooperation on shared water resources. Future conflict prevention can be sought through more active engagement in adopting alternative and mutually beneficial ways and means of water utilization and management, both at the national and the inter-state level. In this regard, Wenger and Mockli explain that conflict prevention will have to be approached as a long-term process, involving the goals of providing systemic interaction, establishing the structure and addressing the immediate issues at stake (Wenger and Mockli, 2003: 41).

Learning from the two schools of thought and the concept of collective security, it can be observed that successful negotiation and establishment of a treaty regime in the Nile basin, in the first place, will likely rid the protagonist riparian states from mutual insecurity. Second, a legal agreement becomes the basis for the long-term creation of a common security zone in the direction of mutual national interest through cooperative mechanisms. In any case, however, the trans-boundary resources, especially water resources must be viewed as arena for inter-state cooperation rather than a futile battlefield of inconclusive war. As can be observed in Figure 4, the historical trends and current engagements show that there are more conventions and willingness of riparian states to establish future conventions and institutional infrastructure for cooperative utilization and management of trans-boundary water resources. On the basis of historical observation, and also from an operative point of view, the national level capacity of the riparian states will likely determine how soon and with what terms cooperative mechanisms will be achieved and regional security enhanced.

7. SOME ATTEMPTS AT REGIONAL ARRANGEMENTS

The few partial and inconsequential attempts at establishing institutional framework for the Nile basin have been initiated and manipulated by downstream nations. These attempts, as will be described herein below, if anything, served as a delaying

mechanism to prolong the life span of the status-quo. Hence no achievement has been scored to establish a comprehensive and all encompassing institutional framework for the basin. The more recent Nile Basin Initiative can however be taken as a fresh opportunity.

7.1 Hydromet

Hydromet, known as “The Hydro-meteorological Survey of Lakes Victoria, Kiyoga, and Albert” was established in 1967 with the funding assistance of the United Nations Development Program (UNDP) and World Meteorological Organization (WMO). Its main purpose was to study, analyze and disseminate to member countries meteorological data on the equatorial lakes and rivers. The more specific task of Hydromet included an evaluation of water balance in the Lake Victoria catchment, in view of controlling and regulating the Lake’s level as well as the flow of the water down the lake. The Kagera basin was included in the Hydromet in 1972 and the Semliki river basin in 1974.

Hydromet’s signatories in 1967 were: Egypt, Kenya, Sudan, Tanzania and Uganda as well as the donor organizations UNDP and WMO. Although the geographic area of Hydromet’s concern was outside its Nile basin, Ethiopia became an observing member since 1971. The historical background of Hydromet can be drawn from the Anglo-Egyptian exchange of notes of 1950, which intended to cooperate in meteorological and hydrological survey of lake Victoria catchment, and to establish East African Nile Waters Coordinating Committee, comprising Kenya, Tanzania and Uganda. The establishment of the Coordinating Committee was meant to play a counter part role to the Anglo-Egyptian agreement of 1950 (Okidi,1990: 209). Hydromet remained in operation for 25 years without a substantive impact on the upstream-downstream interest harmonization. There is no evidence for any of its projects to have been translated into operation.

7.2 Undugu

In Swahili language undugu means "brotherhood". Undugu or 'brotherhood' forum was set up in Khartoum, Sudan, in 1983, with the initiation of Egypt. Egypt, Sudan, Uganda, Congo Democratic Republic and Central African Republic were the founding members. The latter country is, however, not a Nile basin country. The spelled out objective of the forum was to create cooperation in such common fields including: culture, environment, telecommunication, electric power, trade, and water resources development. Ethiopia, Kenya, Tanzania chose an observer status in the forum. At an expert meeting held to evaluate the UNDP sponsored Undugu plan of action for the

Nile basin Ethiopia challenged that Undugu having no legal standing or terms of reference as a legitimate body, has no competence to submit a plan of action for Nile basin. The forum died out after its 10th Ministerial meeting held in Addis Ababa, in 1993.

7.3 NBID (Nile Basin Integrated Development)

The Nile basin ministers at their meeting in Bangkok, Thailand, in January, 1986, reached an understanding that there was a need for a basin-wide integrated development and they decided to request the United Nations Development Program to provide funding support for the initiative. At their Second meeting, held in Addis Ababa in January 1989, the Nile basin ministers decided to commission a basin wide study to evaluate the state of affairs, with the funding to be availed by UNDP and the Economic Commission for Africa (ECA). Subsequently a terms of reference was drawn up and experts were commissioned. The report of the experts was submitted at a workshop held in Addis Ababa in October 1989.

Ethiopia challenged the report criticizing it as biased and concerned only on the possibilities of conserving water resources in the interest of downstream nations, and that none of the interests of the upstream countries were addressed. Following this the Ethiopian delegation submitted an alternate terms of reference for what it believed fair and unbiased evaluation of the state of development in the basin. Ethiopia's alternate proposal was accepted by Nile basin delegation, except Egypt and Sudan. However, no progress was recorded thereafter about the 'Integrated Development of the Nile Basin'.

7.4 TECONILE

TECCONILE (Technical Cooperation Committee for Promotion of the Development and Environment Protection of the Nile Basin) was formed in 1992 with Egypt's initiation and funding support from the Canadian International Development Agency (CIDA). It was meant to fill the void left by the defunct Hydromet. The founding members comprised Egypt, Sudan, Rwanda, Tanzania, Uganda and DRC.

In the short term TECCONILE aimed to assist member states in developing national master plans and their integration into a Nile basin development action plan; and develop the infrastructure and build capacity and techniques required for the basin's water resources (MOWR, 1999: 4). Tecconile's long term objective appeared even loftier. It aimed at conservation and equitable entitlement of the water resources (MOWR, 1999: 5). Kenya and Ethiopia chose to be observers. From the viewpoint of the Ethiopian Ministry of Water Resources establishing legal and institutional

framework should be given priority attention rather than to put it as a vague long-term objective.

It can be noted that Ethiopia's position is consistent in that any Nile waters issue should address the long overdue regulatory and institutional issues. Venturing into operational matters will follow and make sense when these are based on legal and institutional foundations. During the first three years of its existence Teconile's work was not visible, and in its entire tenure until 1998 the organization's achievement was not significant but limited to the modest contribution towards the "Nile basin action plan" exercise. Ethiopia and the Great Lakes regional states, in actual fact, belong to geographically different sub-basins. However, they have similar interests in that they insist that the down stream nations of Sudan and Egypt must know that the upstream nations have the rights and, in fact, obligations to develop water resources in their respective territories. Beyond this they do not embrace a particular course of action vis-a-vis downstream nations as can be observed in Hydromet, Undugu or Teconile formats. In the Nile Basin Initiative framework the Great Lakes regional countries and Ethiopia are separately linked to the two downstream countries of Egypt and Sudan for development projects level.

7.5 NBI (Nile Basin Initiative)

A new cooperative framework known as the Nile Basin Initiative has been initiated by UNDP and co-sponsored by the World Bank and the Canadian International Development Agency (CIDA). The present initiative has been encouraged by the ideas and direction of debate obtained from the Nile 2002 Conferences, which started in 1993 and have been held every year on rotation basis among the basin countries. Research findings and viewpoints were presented by riparian governments, international governmental and non-governmental agencies as well as by independent academics.

The Nile Basin Initiative-NBI is hoped to facilitate a cooperative enterprise between and among the riparian states. The four goals of NBI are: building confidence among the basin states; changing perception on the issues of the Nile waters; realizing that cooperation is more beneficial than confrontation; and knowing the extent of the water resources potential for inter-state collaboration.

NBI was formally set up in February, 1999, in Dar-es-Salaam, Tanzania, with all water ministers of the riparian countries agreeing to come up with a Subsidiary Action Program (SAP) and Institutional and Legal Framework known as D-3 Project. The explicit motto of the NBI is "Sustainable development of the River Nile for the benefit of all". A provisional structure, comprising Council of Water Ministers (Nile COM),

Technical Advisory Commission (Nile TAC) and the Secretariat (Nile Sec) was has been set up. Terms of reference for a smooth functioning of NBI were also set up.

Initial disagreements were noted already in December 1999, during the deliberation on the draft legal / institutional framework prepared by a UNDP consultant. The upstream countries insist that a new framework must disregard all previous agreements to which their nations are not a party. On the other hand the downstream countries wish that a new framework takes the previous agreements as an integral part of a new agreement. Hence, D-3 project has not been moving satisfactorily. In the meantime, however, the SAP projects (separately for the eastern and southern Nile) yielded results in producing shared vision (win-win) project proposals. Accordingly, Ethiopia identified 46 projects, Sudan 6 and Egypt 5. Of the 57 project proposals 7 were short-listed and presented to the ICCON (International Consortium for Cooperation on The Nile) conference, held during June 26-28, 2001, in Geneva.

The Nile Basin Initiative has been structured into Nile-COM, Nile TAC and Nile Sec (Nile Secretariat). This structure has so far effectively facilitated the active consultation and dialogue among the basin countries. As a result significant decisions have been taken at the basin as well as subsidiary levels. The shared vision projects have been prepared and presented for the International Consortium for Cooperation on the Nile (ICCON), held in Geneva in June 2001. ICCON is an international forum of bilateral, multilateral and private funding agencies with whom the Nile Basin countries seek funding pledges for their shared vision projects. From the 46, 6 and 5 projects initially prepared by Ethiopia, Sudan and Egypt, respectively, a short list of projects commonly prioritised by the three Eastern Nile countries was presented to ICCON forum to seek funding for their implementation. The priority projects are in the areas of water conservation, flood early warning, power pooling and interconnections, basin development simulation, hydropower generation, watershed management and irrigation projects at regional contexts. (Mekonnen, Mohammed and Messele, 2001: 19).

Reaching agreement on the mutually accepted Nile waters development projects was not achieved without difficulty. But a mutually acceptable legal and institutional framework has been difficult to agree on. The dialogue and negotiations are going on since 1999 with all Nile Basin states on board. It seems obvious that this process is more difficult than many observers may think. It is equally obvious that without legal and institutional framework it will not be easy to achieve a sustainable cooperation between and among the Nile Basin countries. One thing is sure that the downstream countries would like to hold on the status quo while the upstream countries insist on

fresh agreement. This stance is already alluded in the speeches of water ministers at the ICCON forum held during 26-28 June 2001, in Geneva.

Without having a mutually acceptable legal and institutional framework it will be naive to believe the mutually agreed upon development projects can have a sustainable future.

8. INADEQUACIES OF THE EXISTING PARTIAL STRUCTURES

8.1 Permanent Joint Technical Commission (PJTC)

The Permanent Joint Technical Commission was established as a result of the November 8, 1959 agreement between Egypt and Sudan over the full utilization of the waters of the Nile River. By the provisions of the agreement Egypt would receive 55.5 bcm and Sudan would receive 18.5 bcm, annually. It was a 14.5 bcm net gain for Sudan and 7.5 net gain for Egypt over the 1929 Anglo-Egyptian agreement over the allotment of the Nile waters. The 1959 agreement also made an allowance of 10 bcm annually to be written off in consideration of evaporation and seepage at the points reservoirs.

The mandate of PJTC is broadly to function as the implementing institution of the 1959 agreement. The specific functions include: 1) Study and prepare common negotiating position vis-a vis any other riparian state. 2) Station inspectors in each country. 3) Gather hydrological data. 4) Supervise studies and implementation of hydraulic works to be taken in the upstream of the Nile waters. 5) In times of high floods and increased water yield the Commission would see to it that the additional water is divided evenly to the two countries. 6) In case the Nile water has low floods and in shorter supply the Commission see to it that the shortfall is evenly distributed to the two countries. Nothing, however, was specifically provided to the Commission with respect to the control of the water quality as there is no specific provision in respect with this function (Details are to be found in Waterbury, John (1979), *Hydro-politics of the Nile Basin*, Syracuse University Press, Syracuse, New York, PP. 73-78); Collins, William (1990).

8.2 Kagera River Basin Commission

The Kagera Basin Organization (KBO) was first conceived in 1967, by which time a technical agreement was signed with the backing of the UNDP and the European Commission. In 1971 a comprehensive basin survey was completed. In 1977 Rusumu Agreement was signed. On February 5, 1978, Organization for Management

and Development of the Kagera River Basin was formally launched. The purposes set out for the Kagera Basin Organization are not only rather lofty ones but also broad ranged to encompass other aspects of interaction between and among the signatory nations of the most upstream basin of the Nile waters. These included: 1) water resources, 2) agriculture, 3) mineral exploitation, 4) disease & pest control, 5) transport & communications, 6) trade, 7) tourism, 8) wildlife, 9) fisheries, 10) industry, 11) environmental protection.

An implementing institution was provided for in the agreement with all the necessary autonomy envisaged by the signatory states. The main organs are: the representative Commission, which meets twice yearly and makes decisions and the Secretariat that having the function of running the Organization. The expenses are to be borne equally between the member states. As good as it is the blue print of the Kagera Basin Organization has been gripped by misfortunes entire different from organizational matters of its own. The late 1980's and 1990's were the time of big odds for the Kagera basin countries. Tanzania experienced economic difficulties following the political reform in the country. Uganda revived from the isolation of Idi Amin era but regressed to civil strife that preoccupied the nation's attention. Rwanda and Burundi incarcerated themselves in the waves of frati-cidal conflicts. Not only the envisaged 200,000 ha. irrigation or 80 MW hydro-power remained unrealized but also all the other planned activities remained on paper (The details of the above can be had in John Waterbury (2002: 155-56; KBO Secretariat, 1979; World Bank, 1979; Okidi Odidi, 1986, 1990).

8.3 Lake Victoria Development Commission

Lake Victoria with a catchment area of 193,000 sq.km. and the lake area of 67,000 sq.km. (Eldaw and Ahmed, 2002), is the largest lake in Africa and second largest freshwater body in the world, after Lake Superior. The water body of the lake is shared by the three surrounding nations of Uganda, Kenya and Tanzania.

For some time now the quality of the water of the lake has been deteriorating subject to the pouring of industrial waste matter and owing to the increasing hyacinth coverage of the water body. In addition to the industrial effluents, the residue of the chemical fertilizer run off from the farms in the vicinities finds its way to the Lake Victoria (see for instance Malembwa, 2002; Sikoyo, 2002). Concerned with the gripping problem of the hyacinth and the environmental deterioration, the World Bank took the initiative to allocate US\$ 50 million to establish the Lake Victoria Environmental Management, of course, with consent and participation of the riparian states (See details in FAO, 1995; Kaufman, 1995; Uganda Ministry of Natural

Resources, 1995, Waterbury, 2002). The present structure of the Lake Victoria Environmental Management Project is expected to be an effective sub-regional organization and yet to transform into a comprehensive inter-state development organization.

8.4. Inter-governmental Authority for Development-IGAD

Inter-governmental Authority for Development for the Horn of Africa was first established in 1886 in the Republic Djibouti, the founding members being: Djibouti, Somalia, Ethiopia, Kenya, Sudan and Uganda. The great ideas of IGAD include to mediate conflicts within as well as between the member states. In view of this the organization effectively mediated the Ethiopia-Somalia conflict, which had ensued in 1977, following the border dispute between the two nations. Its relentless efforts to resolve the south-north conflict in Sudan and the Conflict in Somalia can be acknowledged as commendable. The recent attempt of IGAD to lay down an early warning infrastructure for conflict occurrence in the Horn of Africa might render a tremendous assistance to track conflicts before they happen or get worse. IGAD is an organization, which was formed by the initiation and commitment of the states of the Horn. However, the financing capacity of the organization has very much been dependent on outside donations and sponsored projects. It has been obvious that the effectiveness of IGAD has been modest mainly due to limited funding possibilities. Therefore, it is not difficult to discern that sustainability of IGAD will be negatively affected by the same limitation of resources that depend on donor benevolence.

9. OPPORTUNITIES FOR REGIONAL SECURITY INFRASTRUCTURE

There exist immense and untapped opportunities for interstate collaboration in the Horn of Africa. IGAD can be maintained as an interstate forum for the sub-regional states where they can continue to get together and deal on their mutual concerns. But more realistic and practical interstate structure will have to be sought in view of mutual interests, especially relating to cross-border natural resources, trans-boundary human settlements, regional security and common development agenda. On ground side of all these, the sub-regional governments must have learned that: 1) they cannot deal with the existing problems singly and just for themselves; 2) intrastate security is intertwined with interstate cooperation; 3) they can only benefit from the shared resources through collaboration. The state of affair outlined below do provide opportune areas for interstate as well as regional cooperation.

9.1 Cross-border Settlements

Invariably, most countries in Northeast Africa have sizable populations whose permanent homes are on both sides of the political boundaries. It makes a lot of sense and, indeed, it is incumbent upon the neighbouring states to work together for the welfare of those communities. Collaboration in such endeavour will have impetus to set the states to look for more areas of collaboration rather than attempting to use those communities for subversive activities against their neighbouring countries.

The countries of Northeast Africa have their pastoral communities who usually straddle across the border areas. In most cases, the pastoral herders graze their livestock across the international boundary lines, due to seasonal necessity of grazing and watering resources. The pastoral production system requires an extensive use of grazing territories and cyclical transhumence. Pastoralism can be positively rationalized through interstate convention with an aim of maximizing the mutual economic benefits to partner countries. Cross-border disease control, livestock marketing, joint research and information centres can be the most basic levels of interstate collaboration.

9.2 Wildlife and Game Resources

Both livestock and wild animals straddle across the interstate borders in search of feed and watering points. From cultural point of view, the pastoral and other communities of the cross-border areas would believe that the wild animals are the symbols of grace. For centuries, the livestock and the wild animals lived side-by-side, surviving on the same natural resources. Even the culturally bound seasonal hunting is done sparingly and most selectively. It is in the cultural practice of the local communities to protect the wildlife from depletion and extinction.

Nowadays, the wild animals have become points of attraction, among other things, for tourism. Countries have responded to this by creating parks and game reserves within their territorial jurisdictions. The neighbouring states can collaborate on a variety of joint projects that can enhance mutual economic benefits accruable from tourism industry. An interstate collaboration on cross-border wildlife conservation and management for tourism industry will positively influence towards mitigating potential inter-state conflicts in the Region. A driving effect of such collaboration will greatly enhance the conservation of bio-diversity at regional and sub-regional level.

9.3 Cross-border Water resources

There is no one single country in the Horn of Africa that does not share water resources with one or several of its neighbours. Although the countries find themselves as upstream or downstream locations, there is an absolute need to collaboratively utilize the shared water resources. It must be reckoned that the trans-boundary water resources are the natural bonds between the riparian countries and it cannot be destroyed or altered at will. In normal circumstances the riparian countries will not have the options not to collaborate on these shared resources. Irrigation, hydropower generating, inland navigation, fishing, tourist resort development are all the major areas where the up-streamers and down-streamers can work together. In the Horn, there are no significant projects where riparian states jointly own on the shared water resources. More frustrating is that there are no active and comprehensive negotiations for bilateral or multilateral activities on the shared water resources.

IGAD's 18 year experience is most telling that the inter-state and intra-state conflicts have played obstructive role against much aspired regional integration. It is unlikely that the states in conflict can cooperate and genuinely work together for regional integration. The IGAD member states have sufficient experience in their efforts of conflict management in the sub-region. Drawing on the lessons of both previous shortfalls and achievements the states of the sub-region can map out the modalities, instruments, procedures and institutions of not only conflict resolution but also of conflict mitigation and transformation.

Hence, the immediate task of the states in the region will have to be concentrating on the available, simple, and manageable structures that more efficiently address the bilateral, multilateral or regional development and security concerns. Tangible and more permanent benefits will serve driving forces for interstate cooperation. Development and protection of the shared resources like, trans-boundary waters, grazing resources, wildlife, tourism potential and bush-markets can be the focal activities of interstate collaboration. Once these modest, small-scale and tangible joint endeavours are firmly grounded, they can grow and develop to become the basis for a regional integration. IGAD can still be maintained and strengthened as a forum and umbrella organization in the Region.

What is to be done now? And where to begin? These can be good points of departure towards a long- term development and security infrastructure for Northeast Africa. The governments in the Region will have to be supported with concrete studies on the extent, potential and the existing modes of utilization/ and management of the

cross-border resources. Current problems and possible future challenges will have to be included in the studies. Governments will have to be lobbied and influenced to establish conventions on the cross-border resources. The following potential conventions can be envisaged:

- i. Convention for the protection and development of cross-border wildlife resources.
- ii. Convention for the management and protection of cross-border grazing resources.
- iii. Convention on cross-border livestock health and market.
- iv. Conventions on trans-boundary water resources:
 1. Convention on Ganale-Dawa/ Juba River (involving Ethiopia, Kenya & Somalia).
 2. Convention on Wabeshebelle River (Ethiopia & Somalia).
 3. Convention on Baro-Akobo/ Sobat River (Ethiopia, Sudan & Egypt).
 4. Convention on Ghibe-Omo-Turkana (Ethiopia and Kenya).
 5. Convention on the Abbay/ Blue Nile River (Ethiopia, Sudan & Egypt).
 6. Convention on Tekeze/ Atbara River (Ethiopia, Eritrea, Sudan & Egypt).
 7. Convention on Merb/ Gash River (Ethiopia, Eritrea & Sudan).
 8. Convention on Barka River (Eritrea & Sudan).
 9. Convention on the Red Sea (Djibouti, Eritrea, Sudan & Egypt). The convention may extend to include the Asiatic littoral states of Yemen, Saudi Arabia, Jordan and Israel).
 10. Convention on Equatorial Nile (Tanzania, Kenya, Uganda, Burundi, Rwanda, DRC, Sudan & Egypt).

It goes without saying that the existing interstate initiatives, like the Nile Basin Initiative (NBI) involving all 10 states of the Nile basin, Lake Victoria Commission involving Kenya, Tanzania and Uganda, and the Kagera Basin Commission involving Tanzania, Burundi, Rwanda and Uganda can be further strengthened.

The governments in the Horn of Africa will have to be supported with expertise and advice in their efforts to establish bilateral and/ or multilateral border commissions where these do not exist. Upgrading the authority and capacity of such commissions where these exist needs keen attention of the involved states. The governments will have to be encouraged to embark on comprehensive and phased strategy of establishing economic, political and security infrastructure of the sub region through establishing and operationalizing the bilateral, multilateral and/ or sub-regional conventions.

10. CONCLUSION

The countries in Northeastern Africa are bound together by one or several trans-boundary natural resources, especially fresh water resources. But these bountiful natural resources have been recipes for unregulated competition and unmitigated tension. The state of the matter has been a serious challenge not only for cooperative development but also for inter-state security in the region. The more immediate challenges to overcome include: 1) inadequate national and regional capacity to go into serious and immediate water resources development; 2) non-sustainability of externally propelled assistance for the long-range and expensive investment in view of national or inter-state water resources development programs; 3) the climate of mutual suspicion, lingering tension and unregulated competition for the otherwise shared water resources. It goes without saying that the nations in the region have great opportunity in having immense natural endowments in common. The countries in the various basins of Northeastern Africa have no plausible choice other than utilizing the available water resources, in order to make possible the economic and social welfare for their present and future populations. A peaceful and rightful utilization of the shared water resources becomes, therefore, an immediate need for feeding the fast growing populations in each of the countries.

Appropriate legal framework and institutional mechanism will greatly contribute towards inter-state collaboration on trans-boundary waters in particular and in all shared natural resources in general. Upstream and downstream states must choose active and peaceful mode of co-existence, whereby the shared water resources further serving as permanent bonds and positive factors for good relations between and among riparian nations of the region. Recognition and promotion of peaceful coexistence will help mitigate the absolute vulnerability of the downstream countries on one hand, and ameliorate the risk of conflict the upstream nations from being forced into needless conflict over the shared water resources.

The shared waters of Northeastern Africa do exist as indestructible bond between and among the riparian nations. This will have to be reckoned as natural/ physical basis, as well as objective elements for conflict transformation in the region. But a continuation of the absence of regulatory and institutional mechanisms for the utilization and management of water resources in the Region will likely perpetuate the anarchic approach to the utilization of the otherwise shared water resources, and this may further propel mutual suspicion and political climate of insecurity.

As a matter of immediate recommendation, the governments of Northeastern Africa:

- 1) Engage, sooner than later, on bilateral and multilateral negotiations to establish

appropriate principles and modalities, and to put in place intergovernmental institutions to facilitate cooperative utilization and management of the shared water resources. 2) Commission persons with the necessary expertise and wisdom to draw conventions and institutional structures for enhancing collaborative utilization of the trans-boundary water resources in particular and other natural resources in general, at bilateral and/or multilateral levels.

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