

## The Nile Basin: Egypt's Role in Africa's Development

by Hussein Askary and Dean Andromidas, Part III, reprinted from EIR 10 Oct. 2014

[Egyptian priest:] "Ah, Solon, Solon, you Greeks are ever children. There is not an old man among you." On hearing this Solon said, "What? What do you mean?" "You are young," the old priest replied, "young in soul, every one of you. Your souls are devoid of beliefs about antiquity handed down by ancient tradition. Your souls lack any learning made hoary by time. The reason for that is this: There have been, and there will continue to be, numerous disasters that have destroyed human life in many kinds of ways. The most serious of these involve fire and water. . . .

"When this happens, all those people who live in mountains or in places that are high and dry are much more likely to perish than the ones who live next to rivers or by the sea. Our Nile, always our saviour, is released and at such times, too, saves us from disaster. On the other hand, whenever the gods send floods of water upon the Earth to purge it, the herdsmen and shepherds in the mountains preserve their lives, while those who live in cities, in your region, are swept by the rivers into the sea. But here, in this place, water does not flow from on high onto our fields, either at such a time or any other. On the contrary, its nature is to always rise up from below. This, then explains the fact that antiquities preserved here are said to be the most ancient."

—Plato, "Timaeus" (translated by Donald J. Zeyl)

There is a reason why Egyptians are alarmed by any mention of dams or other water infrastructure from the source of the Nile at the Equatorial Lakes region and along its path. This cradle of ancient civilizations has always owed its existence to the flow of the water in the Nile River, and will continue so. As referenced in Part II of this series (EIR, Sept. 12), Egyptians were alarmed by Ethiopia's decision to build the Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile, the largest source and tributary of the Nile River.

Egypt is almost completely reliant on the water of the Nile, which it shares with seven other African nations (Figure 1), each of which has its own requirements and aspirations for development. According to the 1959 Nile Waters Agreement between Sudan and Egypt, the two countries received the right to 85% of the annual flow of the Nile, where the White Nile and Blue Nile converge in Khartoum, Sudan, with Sudan getting 18.5 billion cubic meters, and Egypt, 55.5 billion. But this figure is misleading, as almost eight times this amount

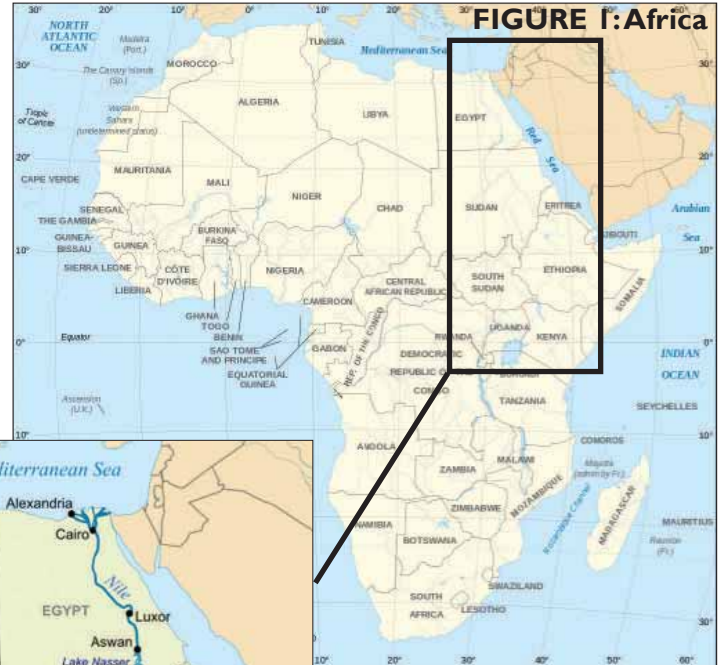


FIGURE 2  
The 10 Nations of the Nile Basin Initiative

of water evaporates, or runs off along the way.

The agreement has become a contested issue, as the other riparian nations further upstream want to sign a new agreement allowing them to have more equal rights to the water of the Nile. But the real issue is not "equal share" of the water, but the right to develop the water resources so that each nation can meet its needs and future development requirements.

The 1959 agreement was signed after Sudan and Egypt became free from British colonialism. However, it has its precedence in a British imperial agreement signed by Anglo-Egyptian Sudan with the British-controlled government in Cairo in 1929. That agreement stipulated that not only do Egypt and Sudan utilize 48 and 4 billion m<sup>3</sup>, respectively, of the Nile flow per year, but that Egypt reserves the right to monitor the Nile flow in the upstream countries, and to "veto any construction projects that would affect her interests adversely!"

In 1999, the Nile Basin Initiative (NBI) was adopted by all the riparian nations,<sup>1</sup> aimed at creating a partnership mechanism to develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security. However, lack of development and abundance of political conflicts have hampered the Initiative.

In 2010, spearheaded by Ethiopia, which has been

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encountering massive and unfounded international pressure due to its attempt to develop its hydropower projects, four of the eight Nile Basin states (Ethiopia, Rwanda, Tanzania, and Uganda) signed a new treaty on the equitable sharing of the Nile waters, despite strong opposition from Egypt and Sudan. "This agreement benefits all of us and harms none of us," said Ethiopia's Water Resources Minister Asfaw Dingamo. "I strongly believe all Nile Basin countries will sign the agreement." Burundi and the Democratic Republic of Congo were not represented at the meeting, while Kenya issued a support statement.

For Africa in general, and the nations of the Nile Basin in particular, to realize their aspirations for peace and development, and to cope with underdevelopment, wars generated by poverty, lack of education, and fights over allegedly "limited resources," for the benefit of Anglo-American and other foreign interests, human society's relationship to Nature in this region has to change. No longer should civilization be subject to the whims of the "gods" and of what are called Nature's arbitrary powers. Humankind is the only creative species on the planet, and is endowed with certain capabilities to master nature's forces for its own legitimate benefit.

In addition, with the advent of a new, just world economic order, initiated by the emerging BRICS (Brazil, Russia, India, China, and South Africa) New Development Bank, and the end of the colonial era of racist British and other trans-Atlantic policies against Africa, the nations have a genuine opportunity to rise above the ashes of decades of civil wars and underdevelopment.

### From Linear to Geometrical Development

In almost all academic papers and reports by international organizations, including the UN, water is treated as a closed system, with a finite amount of water and limited potential for development. The linear measurements of the water and land resources exclude creative, noetic human intervention, in the form of technology to transform these resources and multiply their effect. On the contrary, humans, whose growth in numbers and needs is not linear but geometrical, are considered a burden on the natural resources that are growing arithmetically, to cite the British Empire's genocide theorist Thomas Malthus. This is reflected, often subconsciously, in many "scientific" papers presented in conferences concerning water issues in the world, to which this author has been a witness.<sup>2</sup>

The total population of the Nile Basin nations and East Africa has quadrupled since the 1960s, from 100 million to an estimated 400 million people. This fact is considered a catastrophe by international environmental and financial institutions. But for cognitive humans, this should be considered a great source of wealth.

The linear facts:

According to the standard information, such as from the United Nations Food and Agriculture Organization (FAO), the Nile River, with an estimated length of over 6,800 km, is the longest river flowing south to north, traversing over 35° of latitude. It is fed by two main river systems: the White Nile, with its sources on the Equatorial Lake Plateau (Burundi, Rwanda, Tanzania, and Uganda—sometimes, Kenya and the Democratic Republic of Congo are also included);



FIGURE 3: White and Blue Niles Converge at Khartoum

and the Blue Nile, with its source in the Ethiopian highlands and Lake Tana 2,100, meters above sea level.

The sources of the White and Blue Nile are located in humid regions, with rainfall varying between 1,200 and 2,600 mm/year, a relatively high level of precipitation. However, the annual average for the whole Nile Basin is 650 mm/year. That is due to the inclusion of the arid region that starts in Sudan, which was the largest country in Africa before the separation of South Sudan in the 2011 referendum. Sudan can be divided into three rainfall zones: the extreme south, where rainfall ranges from 1,200 to 1,500 mm/year; the fertile clay-plains where 400 to 800 mm of rain falls annually; and the desert in the north, where rainfall averages only 20 mm per year. Further north, in Egypt, precipitation falls to less than 20 mm per year, or as the Egyptian priest told Solon, the water comes from down below and never from above.

The total area of the Nile Basin or catchment area of the Nile is 3.2 million square kilometres, representing 10.3% of the area of the continent. As mentioned above, most of that rainfall occurs in the Equatorial Lakes region and in South Sudan, in addition to the Ethiopian highlands. The total annual precipitation in the whole basin can be estimated to be 800-1,000 billion m<sup>3</sup>. Of that, almost 70% is lost to evapotranspiration. The combined share of Egypt and Sudan of that is less than 10%!

What is also not represented in the linear facts is that, unlike the almost even flow in the White Nile that emerges from the tropical Equatorial Lakes region, the rainfall and level of water in the Blue Nile and other tributaries, like the Atbara, that originate in the Ethiopian highlands, vary dramatically from the rainy season (July-September) to the dry season (November-June). The increased flow in the Blue Nile in the rainy season usually causes catastrophic flooding in Sudan, and increased siltation in the Sudanese water reservoirs behind dams such as the Roseires and Khashm El-Girba. What this implies is the need for considerable regulation of the flow of the Blue Nile to reduce the risks of the fluctuation and to achieve the full utilization of the water, both for its own sake and for generation of hydropower.

Construction of dams on the Blue Nile and Atbara would augment the quantity of water available for Egypt eventually, because of a loss of only 3% by evaporation in this region with its moderate weather, compared with a loss

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of almost 16% in the Aswan Dam reservoir in Egypt. Egypt, however, would no longer be the beneficiary of additional water in years of high flood, which would then be stored and regulated in the Blue Nile reservoirs, such as the GERD under construction in Ethiopia now, instead of at Aswan.

Ironically, the lack of water infrastructure in this water-rich region exposes it to severe water shortages, due to the variability in seasonal rainfall. The capability of storing water from times of plenty for use in times of scarcity is lost, due to lack of infrastructure. Artificial storage of water in Ethiopia has been, until recently, 47 m<sup>3</sup> per capita, Kenya 114 m<sup>3</sup>, and Tanzania 142 m<sup>3</sup>, as compared to 6,150 m<sup>3</sup> per capita in North America or 4,100 in Australia (source: The Nile Basin Initiative).

Once again, it is not the availability of a "natural resource" which is the issue, but society's optimizing of its use, through science and technology, that is the key. These technologies have been available for more than a century in the industrialized world; but Africa has been denied their benefits. Environmental organizations, NGOs, and financial institutions such as the World Bank and the IMF have been used to stop such development in Africa in recent times, the same way colonial armies were used in the 19th and 20th centuries.

### Lost to Evaporation

Another non-linear way of looking at the availability of water for the downstream nations such as Egypt and Sudan is the ability to reduce evaporation of the water of the White Nile. A great part of the water originating in the Equatorial Lakes Region evaporates before reaching northern Sudan. While evaporation and transpiration (through vegetation) are a natural way to balance the water cycle in such tropical locations as the misnamed Lake Victoria and Lake Albert (Lake Mobutu Sese Seko) in Uganda, evaporation from swamps and wetlands can be considered a net loss of water and, actually, arable land.

The Kagera flows into Lake Victoria, from which Nile waters then flow on to Lake Kyoga, then Lake Albert, and northward across the Uganda-Sudan border. At the town of Bor in South Sudan, the land gradient changes, and the great swamp, the Sudd, begins. The extent of the Sudd varies greatly with the volume of water received. During the great rains of 1961-64 over the Equatorial Lake district, the Sudd reached 29,800 km<sup>2</sup>, which is close to the size of Belgium.

At other times, the Sudd has averaged 16,000 kilo meters, still quite vast. Through the Sudd, the Nile flow makes its way through various currents. The swamp is characterized by floating or jammed up "islands," called *sudd* in Arabic, of marsh vegetation, broken off from their moorings, and in various states of decomposition. There are vast chunks of *sudd*, some up to 30 km long. In the sluggish waters there are many varieties of malaria mosquitoes and waterborne parasites. The Sudd is almost impassable overland or by river craft. A huge volume of Nile flow is lost to evaporation in the Sudd. The mean annual loss from evaporation from 1905 to 1980 is estimated to be 16.9 billion m<sup>3</sup>, and can reach 20 billion m<sup>3</sup>, which is nearly a third of the annual volume of the Nile at Aswan.

Another example is the swamps in Uganda, a country with numerous lakes and wetlands, and with internal renewable water resources estimated at 39 billion m<sup>3</sup>/year. However, the total annual flow into the country (at Ripon Falls and from D.R. Congo) is about equal to the total annual

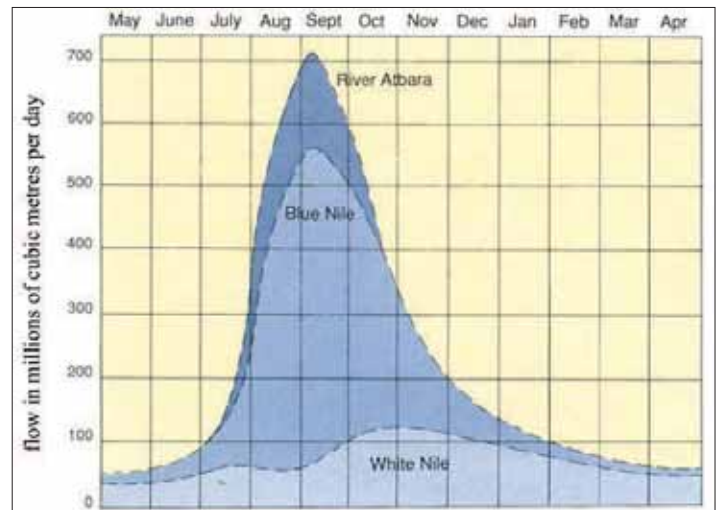


FIGURE 4: Water flow from the Blue Nile and River Atbara

outflow to Sudan, which means that a lot of water disappears within the country through evaporation from the lakes and wetland. Wetlands cover about 10% of Uganda's land surface.

Like many countries in Africa that had become formally independent from British colonial rule, Uganda, which became independent in 1962, launched several large-scale drainage programs, especially in the 1970s. However, a civil war that ended with the deposing of Idi Amin in 1979, and a rebellion by the National Resistance Movement that subsequently that led to the demise of the Milton Obote regime in 1985, destroyed these plans.

In 1986, the government banned further large-scale drainage, and instituted the National Wetlands Conservation and Management Program, becoming subservient to the British-inspired and controlled Ramsar Convention on Wetlands of International Importance, which has been used for decades to hamper the development of water resources in Africa, under the guise of environmentalism and biodiversity. Direct British colonialism was replaced by "green genocide," and by International Monetary Fund and World Bank genocide. Only small scale projects were allowed, and the country was encouraged to use its water and land resources for production of cash crops for export, such as coffee.

The Ramsar Convention specifies that each country must designate on its own territory, certain sites to be locked up in the "Ramsar List," now managed by a secretariat run out of the offices of the International Union for Conservation of Nature (IUCN) in Gland, Switzerland. In 1999, a "strategic framework" was designed "to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the ecological and hydrological functions they perform."

Critical parts of the Sudd in South Sudan are on the Ramsar list too. This vast, marshy area, created by the White Nile, could be transformed into farmland by completing construction of the Jonglei Canal (see below). But fully 5.7 million hectares of the swamp are listed as a "Ramsar Site" to be frozen for eternity.

Large parts of the Lake Chad Basin, a world priority for upgrading through the proposed Transaqua Project for moving water from the Congo River to refill the disappearing Lake Chad, are listed as untouchable for development by Prince Philip's World Wildlife Fund and the IUCN. The specific designation is that there are wetland habitats for

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Left (FIGURE 5): The Sudd Swamp in South Sudan (Satellite photo). Right (FIGURE 6): Location of Sudd Ramsar site in South Sudan.

bird life in the Lake Chad basin that must remain off-limits to human projects. One hundred and sixty nations have signed the Ramsar Convention, and there are 1,898 sites on the list. This represents a total surface area of over 186 million hectares (more than five times the area of Germany!).

Under the Ramsar Convention, the government of Uganda undertook a "National Policy for the Conservation and Management of Wetland Resources" in 1995. It states: "7.1—Drainage of Wetlands: Uganda has experienced massive drainage of wetlands for human development activities. The effects of this drainage are visible in many parts of the country."

Uganda's "strategy" to deal with this issue is not development, but the contrary: "i) There will be no drainage of wetlands unless more important environmental management requirements supersede." Its explanation reads: "Artificial large-scale removal or exclusion of water from a wetland by whatever means constitutes drainage. This may be by pumping, by excavation of water channels and perhaps combined with excessive growing of trees. Other drainage means may include building of dams upstream of a wetland. Such modifications should be avoided."

But now that the British Empire's trans-Atlantic System is going down in bankruptcy, the suffering of the people of Uganda, among others, under the merciless forces of nature, will force governments to reverse that policy, with the help of the emerging BRICS system.

### The Jonglei Canal

One of the most important drainage projects in Africa is the Jonglei Canal Project, intended to drain a portion of the Sudd swamps. The idea goes back to the British colonial period in the early 1900s. But the first serious study was carried out in 1946 by the Egyptian government, before it became really independent of the British. But it was under the progressive, republican government of Gamal Abdel

Nasser that concrete plans were developed in 1954-59. An agreement with the government of Sudan in 1976 paved the way for the construction work on the canal in 1978. But a British orchestrated, U.S.-backed rebellion halted the work in 1984. The first major military target of the Sudan People's Liberation Army under John Garang was the giant German-built excavation machine, nicknamed "Sarah." When the work was halted, 240 out of the total 360 kilometers had been completed. The canal is intended to divert a portion of the water from entering the Sudd, and send it directly, from south to north, from Bor to Malakal to provide great ecological and economic benefits to both the immediate region and downriver lands.

Sarah, a bucket wheel machine, was first used in Pakistan, where it had successfully dug the 101-km Chasma-Jhelum link canal between the Indus and Jhelum rivers (completed 1970). It was dismantled, brought to Sudan, and reassembled there. It was the largest excavator in the world, weighing over 2,100 tons. Operating at full tilt in 1981, the bucket wheel was excavating 2 km a week, and digging at a rate of 2,500- 3,500 m<sup>3</sup> per hour. The great machine required 40,000 litres of gasoline per working day. The canal is designed to divert about 25 million m<sup>3</sup> a day from the upper Nile waters just north of Bor, and channel it through a cut of 360 km, which would deliver at Malakal about 4.7 billion m<sup>3</sup> annually. This would mean adding to the downriver Nile volume about 3.8 billion m<sup>3</sup> yearly, as measured at Aswan (subtracting for losses in transmission). The draw-off of 25 million m<sup>3</sup> daily from the feed waters of the Sudd would reduce the swamp area by an estimated 36%, from an average total swamp area of 16,900 km<sup>2</sup> down to 10,800 km<sup>2</sup>. The canal is designed to vary in width from 28 to 50 meters, and to vary in depth from 4 to 7 meters, to accommodate boat traffic. Parallel to the canal there was intended to be an all season roadway, and ancillary projects include slipways, bridges, ferries, civil works for crossings and regulation, and other infrastructure.

*To be continued...*

#### Footnotes:

1. The Nile Basin Initiative is a political agreement of 10 nations: Tanzania, Uganda, Rwanda, Burundi, D.R. Congo, Kenya, Ethiopia, South Sudan, Sudan, and Egypt. The physical Nile Basin, or catchment area, includes Eritrea and the D.R. Congo. However, they are not members of the NBI. The eight nations that could have impact on the Nile water if they develop their infrastructure are: Tanzania, Rwanda, Burundi, Uganda, South Sudan, Sudan, Ethiopia, and Egypt.
2. See Hussein Askary, "World Water Week: Two Opposing Worlds Meet: Development or Death," EIR, Sept. 14, 2012.