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Is it one Nile? Civic engagement and hydropolitics in the Eastern Nile Basin: the case of Egypt, Sudan and Ethiopia

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Chapter Four

The Context of the Nile Hydropolitics in the Eastern Nile Basin

4.1 Introduction

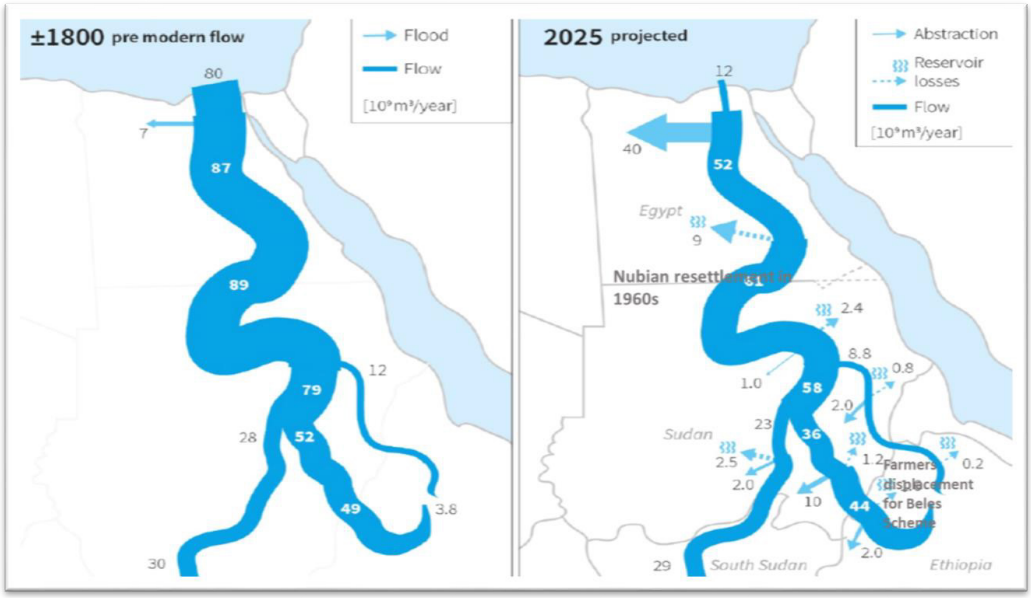
Governing, managing and allocating the waters of the Nile involves complex regionally-networked politics. Applying the relational perceptive, this chapter describes and explains the centrality of the Nile for national development in Egypt, Sudan and Ethiopia. However, the Nile flows are vulnerable to environmental changes and human-induced interventions which articulate the discourse of water scarcity. On the other hand, dealing with this scarcity embodies uncertainty. Hence, the second section describes the Nile water scarcity in various water indices that explain divergence of national water needs and water shares among the riparian countries. The subsequent challenge of uncertainty pervades the relational policies between Ethiopia, Egypt and Sudan. In this respect, two critical issues will be examined: the Nile water shares and regional arrangements, which invites both cooperation and antagonistic behaviours, and the framing of transnational civic activism.

4.2 The centrality of the Nile

The Nile River is not only an integral part of the culture of the riparian communities; it also constitutes a spearhead of the national development strategies. Driven by this value, the River is not a passive object; rather, a central player. In the complexity perceptive, Law (1999), one of the leading scholars of actor-network theory, explains that the actor (could be human or non-human) forges the centre that the 'decentred network' interacts with; at the same time, 'actors are network effects. They take the attributes of the entities which they include' (Law, 1999:5). In Nile politics, the behaviours of different actors reflect the ecological features of the Nile tributaries. The nation-states and the antecedent colonial powers have designed hydraulic projects upon abundance and scarcity of water flows between the upstream and downstream positions.

Therefore, Smit (2019:19) argues that the 'river transforms' in the Eastern Nile Basin under the changes in hydraulic investment aspirations which have been supported by scientific discourses. Map 4.1 below depicts how the river attributes have changed since 1800 where the river was flowing naturally and how will it be shaped in 2025 due to different constructed projects and other planned interventions.

Map 4.1 The Nile river in the 1800s, and in 2025 with hydraulic projects and social resettlements



Source: graph adapted from Smit (2019:53)

The changes over the river course as shown in Map 4.1 have occurred because of the hydraulic projects that have redistributed waters away from its natural flow. These projects have encountered the livelihood of peoples either by creating economic opportunities or by interrupting the social settlements[12]. On the other hand, the established and prospective projects have been planned

[12] Smit (2019) argues that the objectives of hydraulic projects have not achieved water security in the Basin because these water investments have not secured social equality for the beneficiaries (farmers and agri-labour); additionally, the investment models have not contributed to increasing the national production as assumed. Along this line of Smit's

according to the national development priorities and have condoned the unity of the Nile Basin. Therefore, the relations between the riparian countries have been contested and the changes in the river have been formulating the context of civic engagement in the Eastern Nile Basin. The following parts explain that the centrality of the Nile for development purposes is driven from different national perspectives.

4.2.1 Egypt: the gift of the Nile

This prevailing narrative is based on the hydraulic fact that the Nile is the main river in Egypt with limited freshwater resources (rainfalls and groundwater) that run through an arid area. Said (1994), an Egyptian geologist, explained that the Nile flow had been changing over time due to the climatic transitions while the current shape of the Nile stabilized 10,000 years ago. Hereafter the Nile became a perennial river receiving water from the Ethiopian highlands and Equatorial Plateau, and these two resources secure its flow.

Historically, the sustainable flow of the Nile and floods discharge sediments renew the soil fertility and increase land productivity. The ancient Egyptians, who used ancient technology, were able to regulate the Nile floods and recession by constructing a series of canals and dikes. Wittfogol (1957) described these hydraulic developments and the Egyptian intervention to control the Nile as a significant contributor to the creation of 'hydraulic society'.

It is only during the reign of the Ottoman empire that Mehmed Ali Pasha, the Khedive of the Ottoman ruler in Egypt, was able to transform the ancient Egyptian technologies and modernize the use of the Nile water management for economic purposes. During that time, mega water infrastructures were constructed such as the Delta Barrages (completed in 1861). Therefore, Pasha's irrigation and water management infrastructure is viewed as one of the manifestations of

=analysis, I can argue that the riparian states mitigate the impacts of climate change by water infrastructures that affect the social settlements of riparian communities. In response, the affected communities have struggled against the state and investors as will be shown throughout this research. The activism of anti-dam movements as well as the contestation between farmers' associations and investors in the large irrigation schemes demonstrate that possible gains of water abundance will not for certain produce prosperity for communities.

building modern Egypt.[13] Pasha's reign continued the construction with the British intervention (occupied in 1882). In this time, the Aswan dam was constructed in 1902 and was twice heightened in 1912 and 1934 (Chesworth, 1994).

In modern Egypt the Nile had been managed centrally. The water barrages and canals had combined with technical and bureaucratic control to irrigate the expansion of cotton fields, grow sugarcane and fruits for exportation. Additionally, these interventions had been supported by agriculture laws, forced farming, and taxation systems. All of these dynamics had formed the Egyptian state (El Nour, 2018).

During the rule of Gamal Abdel Nasser, his Arab socialist political ideology (1953–1970) promulgated and promoted significant agricultural transformation. He abolished feudalism and redistributed lands in pursuit of social equality for the peasantry. Along the same lines, Nasser policies encountered the resistance of the colonial powers nationally and regionally.[14] In light of socialist policies and decolonization ambitions, Nasser constructed the Aswan High Dam in 1960 and completed it in 1970, as a giant hydraulic infrastructure and a symbol of nation-making.[15] Economically, the Aswan Dam regulates water flows, and generates hydropower for agriculture, fish and industrial production (Samaan, 2019).

However, the abundant waters of the river Nile have become scarce as a result of expansion in cultivation to meet increasing domestic consumption and export crops. The population lives on the banks of the Nile which constitute 4 percent of the total area of the country. It is estimated that 98 percent of this narrow strip of cultivable land relies on the Nile water flows (FAO 2016a; Hefny and Amer, 2005).

[13] For more information about the Mehmed Ali Pasha vision and polices see for example: Fahmy (1997) and Mikhail (2011).

[14] On national sphere, Nasser signed a treaty in 1954 to evacuate British troops from Suez Canal. Then the Tripartite Aggression followed in 1956. Regionally, he was active in decolonization policies in Africa and cofounded the Organization of African Unity in 1963 besides the Non-Aligned Movement in 1961.

[15] For more information about Nasser and Aswan High Dam, see for example: Hanna and Allouche (2018).

To govern the population growth on the Nile banks and economic pressures to increase food production, Egypt's subsequent governments have developed policies for desert reclamation. On the other hand, reclamation projects have added to the political legitimacy of political regimes. Both Sadat (1972-1981) and Mubarak (1981-2011) initiated ambitious reclamation plans as part of national development strategies after wars.[16] The Nile has been the central water resource in planned schemes in deserts. The Mubarak regime approved a long-term 20 Years Plan (1997-2017), which included four large desert reclamation regions:1) the South Valley Development Project (SVDP) that includes the Toshka project in the Western desert; 2) the Al-Salam Canal Development Project (SCDP)[17]; 3) the West Delta Irrigation Improvement Project (WDIIP); 4) and the 4 Million Feddans Development Project that was reviving some areas in the previously planned regions of West Valley and Sinai (El Quosy, 2019). This reclamation policy was revamped in 2015 after El-SiSi seized power. He announced cultivating 1.5 million Feddans covering different regions in Egypt using surface and groundwater (Mada Masr, 2015).

The reclamation policy represents the core of the agriculture policies designed to spur economic liberation. However, the land reclamation projects received severe critique from the other Nile Basin countries because they perceived the irrigation of the desert as wasting scarce water (Bush, 2007). Despite the opposition from the riparian countries, Egyptian governments have been continuing to employ the development discourse of reclamations as the best alternative to mitigate effects of population growth and economic demands. Furthermore, these national megaprojects contribute to creating employment opportunities, attracting foreign investments and essentially redistributing population beyond the Nile banks (Adriansen, 2009).

The flip side of mitigating national demographic and economic challenges has been securing the upstream flow of Nile water. Therefore, it is a determinant in Egyptian foreign policy to cooperate with upstream countries which takes the form of constructing and funding hydraulic projects. Furthermore, scientific calculations rationalize this transnational policy. For instance, a scientific study published in 1998 by hydrology scholars predicted that the Egyptian water balance would

[16] Under the Sadat regime: war in 1973 and under Mubarak, Egypt participated in the second Gulf war in 1990. See for example: Samaan (2019).
[17] The Salam Canal was a prospective project by Sadat after the 1973 war to redevelop Sinai after destruction in the war based on a vision of development would prevent war from erupting again. See for example: Samaan (2019).

be adequate until 2000. After that, the country would face a water deficit. Therefore, the authors suggested the national policies should be formulated to secure the flow of the Nile by constructing water development projects in the Sudd area, which is currently in South Sudan, besides the national intervention to increase the efficiency of irrigation canals and to integrate groundwater for reclaimed lands (Elarabawy et al., 1998:315-316).

The scientific justification remains for the Egyptian water investment in the upstream resources. A recent research paper (Allam et al., 2018) was published by a group of Egyptian hydraulic engineers who are close to the decision circles of the national water policy. They assessed the significance of the water flow in the case of constructing the Jonglei canal[18] in the context of water development projects in the equatorial lake countries, by implementing different simulated calculations. The paper concluded that:

> 'It is quite clear from the results of the previous simulations that the upstream development projects will lead to significant reductions in the area of the swamp if [the] Jonglei Canal is in operation. The decrease in the swamp area could be lessened by distributing the reduced flows caused by the upstream development projects between [the] Jonglei Canal and the swamp.' (Allam et al., 2018:8)

This concluding remark reveals the contestation between the upstream and downstream countries over-utilizing the Nile water where the canal project is a critical factor. It is worth mentioning that the authors suggested a win-win situation which is based on reducing the water flow before entering the Jonglei Canal according to whether it is a wet or dry season.

The national policies are compatible with these scientifically-based scenarios. The National Water Resources Plan 2017, under the title 'Water for Future', was articulated according to the vision of integrated water resources management. In this regard, the Plan aimed to improve water productivity and quality for domestic use. For increasing the water supply, the Jonglei Canal project was framed as a feasible project to benefit from evaporated water, comparing it to the

[18] The project location is in South Sudan. It aims to channel water from Baher el Jebel to the Sobat river (360 kilometres long) instead of being blocked in swamps and evaporating.

projects of water conservation in Lake Nasser in Egypt (Ministry of Water Resources and Irrigation ([MWRI], 2005).

Egypt's recent National Water Plan (2017- 2037) securitizes water, treating it as an existential issue and as critical for supporting life, development and the environment. Therefore, the vision of this Plan is tailored to 'Achieve Water Security for All by 2037'. The National Water Plan aims to achieve water security and maximize the usage of the available water resources through four pillars: 1) improving water quality by enhancing the capability of canals and sewages; 2) rationalizing water usage to reallocate 70 percent of water resources to the agriculture sector; 3) developing water resources by adding 1.05 million cubic metres of renewable water to the water balance in 2030 and 4.45 million cubic metres in 2037; 4) applying integrated water management by enabling legislative and administrative harmonization with the other national policies and with the other state bodies in addition to legalizing WUAs (MWRI, n.d.). In conjunction with these main pillars, the MWRI emphasises that the Government has been funding bilateral water projects including technical projects, besides also having engaged in knowledge sharing (MWRI, 2020). It is worth mentioning that the majority of these projects have been implemented in the Upper Nile countries.

In respect of national and transnational strategies, it is apparent that the Nile is the central water resource around which the Egyptian peoples' livelihood, economy and the state itself revolve. However, the scarcity of water reconfigures the reclamation projects which have reshaped the river's ecological attributes. On the other hand, it reinforces trends towards regional cooperation as Egypt is only a downstream country.

4.2.2 Sudan: potentially a breadbasket?

Sudan is rich in natural resources, including water and fertile arable lands. An FAO report (2015:4) states that 'Sudan has the largest irrigated area in sub-Saharan Africa and the second largest in Africa, after Egypt'. The agriculture lands cover 60 percent of the total area of the country, but the cultivated area of crops constitutes only 11 percent of the land mass. The irrigated lands are located

along the Nile River tributaries (Blue Nile, Atbara river, Setit-Tekeze river and the Main Nile); moreover, 96 percent of the cultivated area depends on the Nile surface water (FAO, 2015). Besides these natural attributes, the Nile is a central river compared to the other rivers in Sudan (the Mareb-Gash and Baraka) because its flow does not fluctuate heavily across seasons which is appropriate for irrigated agriculture. The livelihoods of people and economic activities revolve around the Nile River (Taha, 2010; FAO, 2015).

Like in Egypt, the Nile banks are the most inhabited area. It is estimated that two-thirds of the population is settled along the banks and work in the agricultural sector. The sector is based on cultivating cash crops (cotton and grains) (Taha, 2010). The related agriculture activities, such as trade and textile products, have contributed to integration into world trade. Even more, the nomad tribes like Beja, who trade in livestock, established trade points along the Nile River (Niblock, 1987). So, the river is not only a resource to irrigate cash crops, it is also a transportation facility that links Sudan with the world, meaning that the Nile is central for both farmers and pastoralists.

To utilise this abundance of water and land in the Nile Basin, the British colonialists had established a water management system in Sudan. The empire had created large irrigation schemes (e.g. the Gezira Scheme in 1922) to cultivate cotton. These schemes contained dams on the Nile: the Sennar Dam (1926) and the Jebel Aulia Dam (1937, on the White Nile) (Taha, 2010). Furthermore, before independence in 1956, there were 1000 private schemes on the Blue Nile and White Nile and they constituted one-third of the total irrigated land at that time (Niblock, 1987:32). Generally, the expansion of irrigation schemes on the Nile, either for cotton or fodder cultivation, has been the core of agriculture development in Sudan since British colonization, passing by the British–Egyptian Condominium and after the independence gained in 1956.

Since the 1980s, the discourse of a 'breadbasket', mainly for the Gulf countries, has been articulated. The geographic proximity and political accommodation between Sudanese regimes and monarchies in the Gulf has encouraged investors to channel disbursements to the agriculture sector for exporting crops. This discourse has been iterated by subsequent governments and contributed to modernizing water resources to feed large schemes and increase grain exportation (Kaikati, 1980; Verhoeven, 2015a).

Unlike the Egyptian case where population growth is a critical variable of food shortage and induces reclamation plans, in Sudan, the political impetus of a 'breadbasket' has disrupted crop production and food surplus. El Zain (2007) explains that national development plans draw upon mechanizing rain-fed agriculture, expansion in cash crops and privatizing production processes. He demonstrates that since independence up until the 1980s, rain-fed agriculture has been the source of staple food (sorghum and millet) which have supplied domestic consumption. However, with an economic ambition to increase surplus for exportation and generating foreign currency, the traditional cultivation techniques have been abandoned at the expense of mechanization and cultivating cash crops (e.g. wheat). This modernization plan was not resilient, with a prolonged drought hitting the region in 1985, leaving communities in these areas vulnerable to famine.

Moreover, the privatization of large-scale schemes has deteriorated local production and food security. The enlarging of cultivated lands was at the expense of grazing spaces and local plots that farmers and pastoralists had previously used. As a result, these development interventions triggered conflicts on a tribal/ethnic base (El Zain, 2007:27).

An example of these conflicts in the Nile Basin can be found in the Khasm El-Girba Scheme on the Atbra River which has a transboundary dimension. The Nubian people of Wadi Halfa, North of Sudan, were resettled in this scheme following the construction of the Egyptian High Dam in the Sudanese-Egyptian border. The scheme plan was to be inhabited by the displaced Nubian people and affected pastoralists. Economically, the scheme was irrigated from Khasm El-Girba Dam storage water, and a network of canals was established to cultivate cash crops: cotton, groundnut and sugarcane for exportation, and wheat for domestic food consumption. As a result, two communities were forced to resettle together despite their main economic activities: Nubians for agriculture, pastoralists for livestock. The Government prompted the large agriculture scheme as a turning development plan that would generate greater income from crop exportation and consequently improve the living conditions of the two communities. The economic activities of the scheme required different production relations in terms of land tenure, resource distribution, pricing and infrastructure maintenance. These relations were not built upon close family or tribe relations and therefore the development plan interrupted the stable indigenous economic and societal ties. This was particularly disruptive for pastoralists, who were not allowed to integrate

their livestock into the scheme because the developers designed it for cash-only crops and ignored the need for sorghum to feed animals. A further complication was that the scheme did not allow for grazing space. In these conditions, the competition over water and land as well as over social services (e.g. health care) increased the disparities between the two communities and intensified conflict. On the other side, there were technical inefficiencies of the water canals (siltation and evaporation), poor health conditions (water diseases), lack of fertilizers and planting tools, absence of information and unfulfilled promises from the government representatives. All of these factors led to the failure of one of the large-scale schemes in Sudan (Abu Sin, 1985; Assel, 2006).

Despite the malfunctioning of the large irrigation schemes, development strategies have continued to focus on expanding irrigation schemes. Both the 20 Years Plan which had been formulated in 1979 and the Plan of 1992-2002 for Nile water development, emphasized the utilization of fertilized lands and Nile water to expand the agriculture schemes. Therefore, a group of projects was created on the river, including Kenanah, Dinder and El Rahad large-scale irrigation schemes. The purpose of these schemes was to achieve food security and importantly, to attract foreign investment. For example, the Kenana Sugar Company is financed by Kuwaiti and Saudi investments (Taha, 2010; FAO, 2015). On the other hand, to irrigate these schemes, several dams were designed and constructed, such as the Merowe Dam which engendered tense state-society contestation due to resettlement and lack of compensation (Verhoeven, 2015a). Similarly, other dams such as the Kajbar and Dal dams were resisted by communities, and still have not been completed.

In Sudan the Twenty-Five-Year National Strategy (2007-2031) was formulated by the ousted Al-Bashir regime before the December 2018 uprising. This strategy allocated the Nile under the security and defence pillar. According to the strategy, the Nile and the Red Sea are unsecured due to international threats. Nevertheless, the Nile is mentioned under the international cooperation pillar later in the strategy, through the NBI. The strategy claims that NBI is an entry point to maximize benefits from the Nile in electricity generation projects (Supreme Council for Strategy and Information, 2014).

Domestically, the Al-Bashir Government implemented the national project of 'Zero Thirst', Its duration was planned to be from 2016 to 2020. The objective was to increase water accessibility and availability for the population in rural and urban regions. The project included execution of various water infrastructures such as water harvesting, digging wells and improving the quality of water stations. The main funding came from Arab countries that afforded loans and technical assistance (Sudan News Agency, 2017). The Egyptian Government promoted this Sudanese project and announced to support it by knowledge exchange in addition to providing machines for testing water quality and removing water weeds (Salem, 2016). However, this national project was not completed because Arab donor countries suspended the funds due to Sudanese economic deterioration (Alnilin, 2018).

Yet, the current transition Government (formed in August 2019) has not released agriculture and water policies. Hitherto it is not clear how Sudan Nile water will be planned under the abundancy and security discourses of the previous regimes.

To conclude, hydrologically, the Nile waters are abundant in Sudan, but development interventions in pursuit of cash crops, combined with drought waves, led to water scarcity and food shortage. Despite that, large-scale irrigated infrastructures (schemes and dams) are prevalent in the national development strategies, although they are contested and threaten social stability.

4.2.3 Ethiopia: water tower of East Africa

Ethiopia has twelve river basins with seven of them being transboundary rivers which constitute three basins (Nile Basin; Rift Valley basin and Shebelle-Juba basin) (FAO, 2016b). Like in Sudan, the Nile water is perennial and rarely fluctuates in response to seasonal variations, compared to the rivers on Ethiopian territory. The Nile Basin includes four major tributaries: the Abbay or Blue Nile, Baro-Akobo, Setit-Tekeze/Atbara and Mereb, which together cover 33 percent of the country.

Thus, hydraulically, the narrative of 'water tower of East Africa' relies on the Nile Basin and its tributaries that collectively contribute to the main surface water in Ethiopia. Furthermore, watersheds in Ethiopia including the Nile River and other rivers, run down to the East African countries: Sudan and South Sudan, Kenya, Somalia, Djibouti and Eritrea (Arsano and Tamrat, 2005; Negm et al., 2017).

Despite plenty of freshwater resources, the water scarcity threat in Ethiopia is framed around subsequent incidences of severe droughts that have caused famine in different parts of the country. The famine cycle in the 1980s was more dreadful than in 2002/2003 (World Bank, 2006). Drought had a direct effect on rain-fed agriculture, where a large proportion of the Ethiopian population depends on the eking out of a living. A severe shortage of rain-fed crops (maize, sorghum, barley and wheat) induced food insecurity. It also ruined grazing lands, resulting in the decimation of livestock, another vital source of livelihood for rural Ethiopians. Drought also caused mass population movement and environmental refugees who often fled to Sudan. The drought cycles were country-wide, occurring both in the highlands and lowlands (Keller, 1992) and famine became a national disaster engraved in the collective memory of Ethiopians (Hafez, 2019).

Politically, droughts had political impacts as well. The failure of political regimes to secure food mainly for rural people had contributed to the collapse of regimes in 1973/4, 1984 and 1991. The Ethiopian regimes intervened to mitigate droughts and famine through resettlement programmes which in turn produced two sources of instability: first, ethnic division and conflicts, and second, disparities between rural regions and political instability. Furthermore, food aid distribution was not sufficient due to international and domestic contestation (Keller, 1992).[19]

[19] During the 1970s, the Ethiopian empire system had been dismissed by Derg, but its socialist ideology failed to manage droughts. While receiving food aid was impacted by Cold War powers calculations (Derg was pro Eastern bloc while aid providers leaned to the Western bloc), besides the lack of logistics to deliver aid on the ground (Keller, 1992).

Since the EPRDF seized power in the mid-1990s, it articulated the development plans on the agriculture sector, targeting rural people in the highlands who are vulnerable to drought and food insecurity (Kassahun and Poulton, 2014).

Due to these severe droughts and their destructive impacts, the Ethiopian Water Resources Management Policy (WRMP) states that water is a scarce resource that necessities specific interventions to develop. Furthermore, the investment in the water sector is combined with the significant national objective of poverty reduction that in the long term will contribute to Ethiopia being a middle-income country by 2025. Accordingly, the Government aims to improve and expand the small-scale agriculture that relies on rain harvesting and feeds domestic demands in addition to large-scale agriculture that will be for exportation and the agri-industry sector (Atakilte, 2018). Also, the Government established the River Basin Councils and Authorities for the major river basins, including the Nile Basin (FAO, 2016b).

The Ethiopian water development strategies are aligned with old plans designed under the British vision of the Nile Basin. Although Ethiopia was not colonized, the British in 1922 and then American consultants designed a development plan for Abby river that included the Lake Tana project in 1922. The main objective was to use the lake as a reservoir, and as part of an effort to regulate water flows for cotton irrigation in downstream populations, mainly the Gezira Scheme in Sudan. In 1964, the British developed the Blue Nile Master Plan, and proposed hydraulic infrastructure for cultivation and generating power (Tafesse, 2001).

Similar plans to utilise the Nile resources were issued by the World Bank in its Assistance Strategy for Water Resources (2006), which recommended that the Ethiopian Government should invest in developing its water infrastructures and also respond to water storage and hydropower generation. This forms part of Ethiopia's present vision for promoting and reforming water institutions, and enhancing the technical capacities of human resources in the water sector (World Bank, 2006). The Ethiopian governments adopted these international visions and recommendations into actions and started constructing hydraulic infrastructures in an effort to realise its development aspirations.

One of these significant development interventions in the Nile Basin is the Beles Sugar Development Project which is a large-scale scheme (75000 hectares) irrigated from the Beles river. Initially, the area around Lake Tana has been targeted since 1988 by the Derg regime as part of socialist policy and drought mitigation. It aimed to redistribute the population from the highlands in the Amhara region to a place with agriculture and settlement potential. At that time the Tana-Beles Project was funded by the Italian government to construct dams and irrigation canals (Tafesse, 2001; Fantini et al., 2018).

The Project has been revamped for agri-business purposes and has furthermore been integrated into the national development plans known as the Growth and Transformation Plan (GTP)I (2010/11–2014/15) and GTP II (2015/16-2019/20). The Government disseminated the proposed benefits of such a modernized agriculture national project to create jobs and to bring advanced technology and urbanization with reliable public services. However, this prospective vision contributed to social instability as it had done in Sudan. There was a displacement of farmers from their lands to expand sugar cane plantations and in the meantime, newcomers (workers in the Project) were resettled in the area by the Government. Moreover, the Project's progress has been inefficient - the sugar factories have not been completed and workers have complained about poor public service in the area (Fantini et al., 2018).

GERD is another hydraulic infrastructure which was included in the Blue Nile master plan in 1964. The Dam project was restored as a core of the national development plan. The GTP II legitimized the construction of a hydropower dam and framed it as the fighting against poverty by the green economy. The Government endeavours to mitigate climate change impacts by expanding environmental conservation and utilizing renewable energy, mainly hydropower, to feed both the agriculture and industry sectors. Specifically, in agriculture, the Government aimed to expand the irrigated lands from two to four billion hectares for crop exports by 2020. It was also meant to mitigate the fluctuation of rainfall (National Planning Commission, 2016). On the other hand, compatible with being the water tower in East Africa, GERD would generate and export power to the neighbouring countries.

To sum up, Ethiopia enjoys an abundance of rain and surface water, but famine and development ambitions have reconfigured the centrality of the Nile water, namely the hydropower infrastructure which has devastated transnational cooperation in the Nile Basin and provoked civic activism, as will be discussed later.

4.3 Water and fear of conflict in the Nile

The three countries described above have a paradox of the abundance of water and fertilized lands which are the backbone of the local economy and a way to attract foreign investment. At the same time, however, these countries have been suffering from water stress. This paradox has caused conflict in the Nile relations. This fear of conflict is based on scientific calculations that have been calculated in water indices. Nevertheless, scholars have suggested various scopes to mitigate potential confrontation in the Nile Basin.

4.3.1 Water indices

The scarcity of the Nile waters is captured in different water indices that have measured multiple dimensions of water scarcity. These indices include the Water Scarcity Index, the Social Water Stress Index and the Water Poverty Index. In these various measurements, the Nile is allocated at the tail of them depicting the stress of water availability and accessibility.

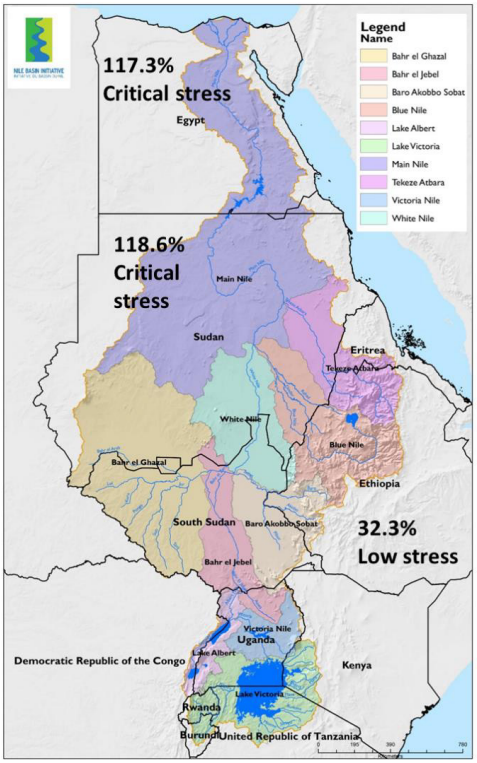
The Water Scarcity/Stress index was developed by two water scientists, Falkenmark and Lindh, as a response to severe famines in Africa in the 1980s. The measurement was created according to the linear relationship between water availability and food security. It thus measures water stress relative to population density which is a proxy variable of demands in agriculture, industry, energy and household sectors (Damkjaer and Taylor, 2017). According to this index, Egypt's record in 2014 was 700 m^3/year/capita and in 2030 it will be 500 m^3/year/capita (FAO, 2016a).

In the Ethiopian and Sudanese cases, the FAO AQUASTAT database of water resources does not provide a clear value of their rank in the Water Stress Index. However, in an Ethiopian research

study (Dowa et al., 2007) authors argue that by 2030 water stress will be 1000 m^3/year/capita and it will continue increasing.

In sum, the following map depicts Sudan and Egypt are under water stress according to the value of the level of water stress. This value calculates the usage of freshwater for economic purposes (e.g. agriculture, industry, forestry) as a proportion of freshwater resources in the country. The low-stress level is between 25% and 50%; while the critical stress is above 100% (FAO,2020).

Map 4.2 Water scarcity in the Eastern Nile Basin according to the level of water stress



Source: map adapted from NBI, 2021; the level of water stress is given for the year 2017 (FAO,2020)

Because the Water Stress Index is a linear one that defines the causality between population growth and water usage, Ohlsson (2000) developed the Social Water Stress Index that aims to consider the capability of society in mitigating physical water stress by adapting their water usage. The author stresses the social ability to adopt tools to mitigate water challenges. However, the index classifies social indicators, using the Human Development Index (HDI), where countries are ranked from severely stressed to water-sufficient status based on the adaptive sociality measurement for water scarcity. As the Human Development Index is a determinant for calculating water stress, the three countries are allocated at the lower end of the world ranking.

On the other side, another index was evolved to reflect the complexity of water resources, including environmental aspects. In 2002 Sullivan developed the Water Poverty Index that counts available water resources as measured in the water stress index combined with the capability of management in different sectors and the environment. Nevertheless, this Index has been challenged for the same reason flagged by the Water Stress and Social Water Stress indices, namely that societal techniques to mitigate water challenges are difficult to measure using quantitative methods (Damkjaer and Taylor, 2017). These indices link the physically available water to its usages across human household activities and economic sectors. There is the Asian Water Security Index developed by the Asian Development Bank in 2013 on a national level, that ranks countries according to sectors' usage of water in addition to its resilience to water catastrophes (Shrestha et al., 2018). In no other African river basin has a similar water scarcity index been established.

These indices that measure the various dimensions of water scarcity are likely to end in conflictual situations. Furthermore, the conflict is not only an interstate phenomenon, but can occur within the state due to social competition to access water. The studies (Ohlsson, 2000; Brochmann and Gleditsch, 2012) classify scarcity into two 'orders' or 'screws'. The first layer of water scarcity is about the availability of water resources. In this case, the Government intervenes by constructing large water infrastructures such as dams or irrigation schemes to maximize the benefits of available water to be able to cover food shortage and development aspirations. However, the second layer of scarcity is a structured one that appears with managing these infrastructures and distributing the harvest among various sectors and communities. At this point, it is possible for social conflict to

occur as a result of different causes: mismanagement of water projects; failure of water policies and institutions in distributing crops equally; diverting water resources away from the food sector to the industrial sector because of high-profit returns; or all of these combined.

In the Nile Basin, both these layers of scarcity exist. Regarding water availability, research studies (Staddon and James, 2014; Besada and Werner, 2015; Pacini and Harper, 2016) predict contestations in the Nile Basin according to comprehensive analyses of Malthusian linear causality between population growth and the increasing demands on food, energy and other basic needs. This linear causality takes place in all riparian countries, not only in Egypt, which intensifies competition over the Nile waters and increases the likelihood of conflict. The Nile Basin countries have been deploying water development plans geared towards industrialization and urbanization.

These processes involve the reallocation of the water quota between sectors in addition to water liberalization and drive tensions inside the state; mainly amongst the riparian and multi-ethnic countries. Climate change is another factor that can convulse the planned development strategies and de facto legal arrangements, meaning that intra-state conflict is possible, as explained in the previous section.

In addition to these scarcity issues, water conflict in the Nile was also endorsed by the colonial arrangements when the British empire established treaties to allocate waters for the downstream countries. Although the conflict has never been converted to physical conflict, there have been triggers that have fuelled the contestations between the Nile countries. The last section of this chapter will illustrate these contestations.

So, the Nile riparian countries are struggling with water stress according to different indices. In causality calculations, population growth together with development implications added pressure on the water supply side. Concomitantly, inappropriate national water policies and poor human development has caused water scarcity among the poorest sectors of society

4.3.2 Governing scarcity: network scopes

To mitigate water scarcity on the river basin level, some scholars have argued for employing adaptive strategies such as virtual water and ecological considerations. One the other side, there are emerging approaches based on network thinking which suggest multilayered cooperation in the Nile Basin.

Regarding the adaptive scopes, virtual water is primarily employed for the Middle East and the Nile Basin. The British geographer Tony Allan applied this concept to investigate water vulnerability and food insecurity in these two regions. Allan's (1997) argument of virtual water assumes that exporting and importing food and livestock can relegate the possibility of conflict. For Egypt and Sudan, these are in arid zones, while the other riparian countries depend on rain-fed agriculture. Therefore, the Nile Basin countries import their food, but the food trade balance from 1998 to 2004 demonstrated that food imports from outside the Nile Basin were more significant than the trade between the riparian countries (Zeitoun et al., 2010). Yet, this idea is refuted because the food trade of the Nile Basin takes place in the North, and not in the Nile Basin, so the cooperation hypothesis is not necessarily applicable (Yang and Zehnder, 2007).

In addition to a solution for food security, ecological perspectives have penetrated the Nile security discussions in order to tackle the dreadful impacts of climate change that are mirrored in droughts and floods. There are research studies that have considered the ecological dimension as an entry point to promote cooperation in the Nile Basin. For example, a study by Sallam (2014) discusses the principle of equitable utilization through measuring the water footprint of both Egypt and Ethiopia as an indicator to show how water is utilised in the two countries. Sallam concludes, however, that statistics of water consumption are limited, and there is a need to create a scale of footprint in the Nile, which will assist countries in equitably distributing water shares.

The ecological changes are drivers in reconsidering the legal arrangements in the Nile Basin. The historical treaties that allocate the Nile water shares do not speculate on the shortage of Nile flows due to climate uncertainty. Accordingly, the Nile Basin countries should formulate flexible legal

and institutional arrangements to be able to adapt to ecological changes (Swain, 2011; Link et al., 2012).

These adaptive scopes to Nile scarcity demonstrate that water is a complex natural resource. So, governing water scarcity requires considering multiple dimensions which can be linked to agriculture policies; risk management of floods and droughts; the accessibility for households without health risks, legal distribution, water price and the equity question. However, these aspects are usually approached and tackled from technical, reductionist and operational perspectives (Cook and Bakker, 2012).

Therefore, Zeitoun (2013:16) suggests the 'web of sustainable water security' to mitigate the physical and technical perspective of water security. Implanting sustainability to water security reflects political ecology, social and economic aspects of natural resources, as well as the scales of water security from individuals and the community to the state either in transboundary interactions or inside the state. Therefore, the perspective of the 'web of sustainable water security' challenges the classic hard definition of national security because security and insecurity are mutually inclusive.

Another dimension with which to depict the complexity of water is the field of water, energy and food nexus that has prevailed recently in literature and policy papers. This nexus creates interdependency among the natural resources which makes water security like a network or a web (Verhoeven, 2015b, Zeitoun, 2013).

Mirumachi and Chan (2004) developed the Transboundary Waters Interaction Nexus Matrix (TWINS) to investigate the multifaceted aspects of water conflict and cooperation in transboundary river basins. This nexus considers the various aspects of water where different economic and political power tools are used by riparian countries to maximize their gains. Furthermore, the Matrix involves multiple scales and actors in its analysis. The river basin organisations could be a venue of negotiation and exercising power, alongside domestic politics

affecting the behaviour of riparian countries. According to this view, local NGOs as well as think tanks are involved in the transboundary dynamics.

Hence, the aforementioned approaches of network, nexus and matrix studies implicitly illustrate that water governance cannot be reduced to the causal/dual analysis. In this regard, Verhoeven (2015b) describes water complexity as:

> '(…) a high degree of plasticity to allow it to mean different things to different people, such an omnivorous conceptualization also veils that there is not one single nexus but multiple, socially constructed and politically consequential nexuses.' (Verhoeven, 2015b: 361)

He criticizes the technicality of dealing with water complexity because it tackles community and society as needs or pressures due to population growth. They are thus denoted as a challenge and we should find a solution for them rather than tackling how they interact with water resources. Additionally, the method of discussing the water-energy-food nexus depoliticises natural resources and negates the political dynamics mainly in the less represented community, whose citizens are not leading the decision-making process.

These scholarly contributions point to the movement from water conflict due to scarcity, to networking thinking where conditions and contexts are not determinants. However, the argument of the nexus still focuses on power capabilities and attributes of the actor to assume cooperative or conflicting behaviour, in the same way that traditional international relations theories define power.

In a nutshell, the water scarcity discourse embarked on the frame of linear correlation between population growth and water stress. However, interstate and intra-state interactions demonstrate multiple layers of water scarcity which propel the network thinking to the governing of water resources.

4.4 Relational politics in the Eastern Nile Basin

Egypt, Ethiopia and Sudan have been struggling with how to increase their share of the Blue Nile water to achieve their agriculture and energy plans. At the same time, they have to adapt amidst ecological uncertainty, which affects the availability of water; as well as to the complicated economic calculations to balance between equity, costs of service provision and national income. Due to these competing interests, the political relations between the three countries have been in motion over time. Furthermore, each part has been capitalizing on its capabilities, i.e. alignment with the powerful actors or acquiring technical advancement to gain the best position in Nile politics, which supposedly fulfils its development aspirations.

The network perspective in international relations assumes that actors' behaviours are changeable according to how they tackle complexities to maximize the opportunities and to adapt to constraints in the network. Therefore, power is located in the relations and is not fixed in the attributes of the state (Qin, 2016) as elaborated earlier in chapter three addressing the theoretical framework for this dissertation.

The structure of the network is shaped by the pattern of actors' behaviours, although it is also not stable, and somewhat changeable. In the Nile politics literature, many scholars (e.g. Zeitoun and Warner, 2006; Ibrahim, 2011)[20] have been analysing Egyptian behaviour as acts by a regional hegemonic power. The explanation is driven by realist power assumptions in the lens of two poles, either conflict or cooperation, where the downstream country (i.e. Egypt) opposes the upstream countries.

On the contrary, the change in the network structure entails numerous actions where the riparian countries employ their foreign policy tools besides the involvement of international actors. Additionally, the institutional arrangements have been the sphere where the riparian countries have

[20] See for example: the World Water Council special issue on Hydro-Hegemony, Volume 10, Issue S2, 1 November 2008. Available from: https://iwaponline.com/wp/issue/10/S2

contained the complexity of the Nile politics network and uncertainty (Wu et al., 2016; Hassan and Al Rasheedy, 2011).

The dynamics and the structure of the Nile network involving the three countries concerns two issues: The Nile water shares and regional arrangements. These two issues are critical because they willingly or unwillingly invite international actors to position themselves in the cooperation-conflict continuum. However, the approach simultaneously garners civil society engagement in Eastern Nile Basin hydropolitics, standing for or contesting the various governments' positions. These issues will be elaborated on in the next chapters.

4.4.1 Sharing the Nile

Many factors affect the distribution of the Nile water shares. These include colonial legacy, the independence and legacy of fighting imperialism, the Cold War alignments, in addition to the facts of population growth and increasing demands on water. The three countries have been dynamically tackling these factors in pursuit of their development aspirations.

The colonial powers had settled the rule of the Nile water shares to secure a constant flow of water to the downstream countries (Sudan and Egypt). Since the beginning of the 19th century, water was a staple resource for the Mehmed Ali Pasha empire that he had built in Egypt to compete with the Ottoman empire. However, for European powers, especially Britain, securing water flows to cotton fields in Sudan and Egypt was essential to keep the textile industries running in Lancaster (Tvedt, 2011).

In light of these colonial premises in the Nile Basin, the two powers, the Mehmed Ali Dynasty and the British, had to pursue control over the Nile waters to fulfil their imperial economic aspirations. Mehmed Ali (1805-1848) and his rulers who ruled Egypt, Sudan and South Sudan, used defensive strategies and disseminated military troops along the Nile to defend their economic empire; also the Egyptian scientific missions were sent to the Upper Nile to explore its tributaries. Thus the technical control combined the hard power of the Mehmed Ali Dynasty over the Nile Basin. The

British colonialists concluded the 1891, 1898, 1902, and 1906 Agreements based on their rivalries (French, Italian and Belgium empires) and Ethiopia. They aimed to avert the construction of any water projects on the White Nile tributaries and as a result, Britain got control over the White Nile whose flow was essential to irrigate cotton fields (Hassan and Al Rasheedy, 2011).

Despite Egypt's independence in 1922, with the British military presence in Egypt continuing, the 1929 treaty provided technical and legal supremacy to Egypt over the Nile. At this time, the political regime in Egypt believed in the idea of 'unity of the Nile valley', where Sudan was seen as part of Egypt. According to this treaty, Egypt got the right to veto water projects that could be constructed on the Upper Nile (Taha, 2010). Additionally, this treaty allocated a fixed share to Egypt and Sudan: 48 and 4 billion cubic metres respectively (Hassan and Al Rasheedy, 2011).

Subsequent regimes had espoused the inherited reign of Sudan from the Mehmed Ali Pasha Dynasty until Sudan got its independence in 1956. This long relation with Sudan is interpreted based on securing the flow of the Nile to Egypt (Saleh, 2008).

However, the Sudanese political debate at the eve of independence had tried to challenge the Egyptian hegemony and unity vision. Thus there were demands to renegotiate the 1929 treaty because it was established under British rule, but the Egyptian Government at that time opposed it. Furthermore, Egypt urged to include Sudan in the Arab League, where Egypt had exerted influence over this intergovernmental organisation (Deng, 2011; Swain, 2011).

This contested relation with Sudan had been articulated in the Egyptian foreign policy attitude, with Ghali (1982), the former Egyptian foreign minister, explaining this relation as such:

> 'Sudan shares with Egypt the blessings of the waters of the Nile and an African, as well as an Arab, identity. History and geography have woven a very special relationship between the two countries and cooperation that covers many fields' (Ghali, 1982:782)

Furthermore, this special relationship has been supported by military cooperation: the joint military defence treaty that was signed in 1976 and, additionally, on a multilateral level in the Arab League, both of Egypt and Sudan are part in the Arab Common Defence Pact, signed in 1950 (Ghali, 1982).

The scale and weight of Sudanese-Egyptian relations has been heavier compared to the Sudanese-Ethiopian side. This pattern of the relationship with Ethiopia can be interpreted due to the Ethiopian-Sudanese contestations in the 19th century. There was a religious manifestation between the Mahdist Islamic Movement in Sudan and the Orthodox Christian Government in Ethiopia. Moreover, the Ethiopian governments were highly concerned over their control over the horn of Africa, and defending Italian intervention.[21] Accordingly, sharing the Nile did not form the core of interactions between Sudan and Ethiopia and thus these dynamics constituted opportunities that were utilised by the rulers in Egypt (the British empire and the Mehmed Ali Dynasty) to distribute the Nile water to fulfil their economic aspirations (Arsano, 2007).

The establishment of the Egyptian First Republic by Gamal Abdel Nasser in 1952 had a significant influence on Nile water distribution. Responding to the domestic development plan, Nasser constructed the Aswan High Dam on the border with Sudan. As a result, Nile politics were restructured by signing the 1959 agreement that settled new fixed water shares: 55 billion cubic metres to Egypt and 18.5 billion cubic metres for Sudan. Moreover, The Permanent Joint Technical Commission (PJTC) was established to coordinate Nile related issues between the two countries.

Ethiopia and Britain challenged the bilateral agreement between Egypt and Sudan. Ethiopia sent a diplomatic mission to Cairo in 1957, which expressed its right to a share in the Nile water and the right to utilise the Blue Nile waters for constructing water projects. However, the Nasser and Abboud regimes disregarded this opposition and regulated water shares between the two countries in the framework of the 1959 agreement (Taha, 2010; Tafesse, 2011). There are different factors that affected these behaviours: one is the military background of Nasser and Abboud, which played a role in supporting a giant dam under the pretext of nation building. The other is the regional factor which was infused with liberation movements that spiked with the peak of anti-colonization

[21] Italy colonized the Horn of Africa and had contested relations with the Ethiopian kingdoms in the 19th century. However, in 1896 the Ethiopian Empire defeated the Italian forces in the Battle of Adwa.

thoughts. Nasser was one of the African leaders who acted against imperialism. In light of this, the development plans and implementation of large projects were a manifestation of becoming liberated from colonial hegemony. Also, the Cold War was an international factor that influenced the Egyptian and Ethiopian interactions in Nile politics. For Egypt, the time of planning the dam construction was threatened by the Suez crisis in 1956. The crisis was perceived by Nasser and the Non-Alignment Movement as a sphere to fight colonial powers (Saleh, 2008; Sharawy, 2019). At the same time, Ethiopia requested American support to prevent Eritrean separation (Lefebvre, 1993).

Furthermore, the confluence of alignment and non-alignment during the Cold War affected the mutual behaviours of the three countries. Nasser was financially supported by the Soviet Union to construct the High Dam; meanwhile, Emperor Haileselassie (1930-1974) received technical assistance from the US Bureau of Reclamation that designed dams on the Blue Nile to expand irrigated lands. Later on in the 1970s, when Egypt and Ethiopia switched their alignment, Sadat was backed by America while Mengistu Haile Mariam (1974-1991) was aligned to the Soviet Union. That is why the incident of diverting the Sobat river provoked Sadat to declare that Ethiopian actions on the Nile would be responded to with military actions (Warner, 2013). Again in 1977, Ethiopia demonstrated in the water conference at Mar del Plata in Argentina, proclaiming its water development plans on the Blue Nile and challenging the structure of the Nile politics, how Egypt water security was at the fore (Tafesse, 2011).

As shown earlier, the demands for freshwater resources in the Egyptian national plans rely on intervention in the Upper Nile. Therefore, Egypt initiated constructing the Jonglei Canal in 1974 at the time of close political relations between Sadat and Nimeiry. This political intimacy was combined with a triple union between Egypt, Libya and Sudan in 1971 to support the Sudanese regime against internal coups. While on the other side, Ethiopia sponsored negotiations between Sudan and South Sudan (Deng, 2011).

In the 1990s, the development dynamics became the concern of national policies to meet the population growth and demands on natural resources which were supported by the international narrative of water wars which replaced the Cold War dynamics. Warner (2012:176) argues that

this prevailing narrative of water wars emerged because of the increasing demands on natural resources generally. However, it also affected the Nile dynamics.

In this context, each country formulated its national development plans where agriculture production is a backbone to attain its economic aspirations. Therefore, the question of the Nile water shares is still at the core of relational behaviours. For example, when Egypt constructed the Toskha Canal in 1997 to irrigate reclaimed lands, Ethiopia announced its refusal to participate in this project because Egypt diverted Nile water to the desert without consulting with the other riparian countries. After expressing this to the Egyptian ministry of foreign affairs in 1997, Ethiopia raised its claims to international platforms: the Organisation of African Union (OAU), the World Bank (WB), the European Union (EU) and the Intergovernmental Authority on Development (IGAD) (Tafesse, 2011). Similarly, Kenya, Tanzania and Uganda added to their debates over Lake Victoria's management, voicing their demands to share Nile waters entirely. These countries expressed the need for an equitable distribution of the Nile waters and their disagreements with the 1929 and 1959 treaties through political statements as well as through initiating water projects without getting approval from Egypt (Kagwanja, 2007).

At the international level, the disagreement over the Nile water shares was raised during the discussion of the UN Convention on the Law of Non-Navigational Uses of International Watercourses. Egypt and Ethiopia took different stances: Ethiopia urged to consider the convention rules that have the power of international treaties to substitute the historical treaties, while Egypt urged to consider the convention as a guide to maintain the principle of historical rights (Deng, 2011).

The recent manifestation of disagreement about the Nile water shares was highlighted with respect to extensive water projects: Ethiopia inaugurated the Tekeze Dam in 2009, and in 2011 started the construction of GERD. Similarly, Uganda constructed the Karuma Dam as a mega hydropower dam in 2013. Also, the Sudanese regime propagated its land and water for foreign investments, mainly for the Gulf countries, and planned several dams to serve these large-scale irrigation schemes. These water projects challenge the principles of prior notification and no harm for the downstream countries, which Egypt had gained by the historical treaties (Tawfik, 2016).

These water projects have been constructed while the riparian countries have been discussing the CFA. The draft version of this agreement was finalized in 2001. It integrated water security by linking the right of water access to attaining the fulfilment of livelihood, health, agriculture and other needs. Despite referring to water security in a legal agreement, its definition is not clear, which means that confrontations between the riparian countries remain: each country has its own perception of water security (Paisley and Henshaw, 2013; Tawfik, 2016). According to the CFA, the principles of prior notification and of the no harm rule are removed. Additionally, it proposes to make decisions in the organisation of the Nile Basin by majority rule, not consensus. Because of this, the Egyptian hegemon role/ego in the framework of the Nile politics network has been convulsed.

The aforementioned highlighted events in the framework of interactions between the three countries elucidate that the structure of the Nile politics has not been static. The political regimes have deployed various power tools to boost their position in Nile politics. Samaan (2019) concluded that relations between the Eastern Nile Basin countries had been reconfigured due to entangled factors, including the role of international players. These included colonizers and contemporary investors (e.g. Chinese and Gulf countries), followed by the political changes that involved reshuffling ideologies and respective development priorities.

Under the forces of these factors, the historical and legal legacy confronted national development strategies, which in turn affected the interests and behaviour of each sovereign state. Therefore, sharing the Nile in terms of water allocation reflects unstable relations and predetermined absolute gains; instead, the network perspective highlights the dynamic nature of state power in this context.

4.4.2 Regional approaches to govern the Nile

The second critical issue in transnational relations related to the Nile concerns regional arrangements. The riparian countries have framed their regional cooperation on a technical level. Therefore, the Nile Basin has been coordinated technically through several bilateral and multilateral arrangements. Nevertheless, these regional intergovernmental organisations have not

been sustainable and collapsed because of a lack of support from all riparian countries. Thereafter, in the 1990s, the international institutions were induced to channel Nile politics to the NBI as a river basin organisation that can mitigate transboundary conflict through the sharing of information and building of mutual understanding for a better development of the Nile Basin. Moreover, the practices of non-legal arrangements could strengthen norms that could be transferred to conventions and treaty formats (Paisley and Henshaw, 2013; Metawie, 2004; Brunnee and Toope, 2002).

Again, technical motivations behind establishing regional institutional arrangements aimed to manage the waters of the Nile. In the Eastern Nile Basin, the Permanent Joint Technical Commission (PJTC) between Sudan and Egypt was established according to the 1959 treaty. This technical commission determines the calculation of Nile flows and water shortages to implement the treaty's rules, equally reducing water deficits from the water shares of Egypt and Sudan (Taha 2010; Metawie, 2004).

However, Deng (2011) argues that the Egyptian interest in establishing technical arrangements was to observe the Nile water flow and to legitimize its presence in the other riparian countries. But the PJTC continues to be a functioning bilateral institution that covers different aspects of arrangements between two neighbouring countries, such as transportation and trade issues.

In addition to coordinating bilateral relations, the idea of this commission was to support coordination with the other riparian countries. Metawie explains:

> 'The PJTC is very active in co-operation with other riparian countries of the Nile basin. It played a major role in establishing the hydro-meteorological survey project (HYDROMET) in 1967…The PJTC seconded staff members to that project on a regular basis and contributed to its budget considerably when the finance from the UNDP was terminated.' (Metawie 2004:51)

To extend the technical cooperation to the entire Nile Basin, the Hydro-meteorological Monitoring System (HYDROMET) was institutionalized as a regional organisation in 1967. Eventually, the international response to the floods in the 1960s in the East African countries was to employ the

technology of hydro-meteorological surveillance. Egypt and Sudan were invited to join this international call. Through this framework, Egypt suggested establishing the Nile Basin Planning Commission to monitor water availability in the Equatorial Lakes and check the supply and consumption in the upstream lakes until it reached those downstream (Metawie, 2004; El Zain, 2007). However not all riparian countries welcomed this arrangement due to the leading role of Egypt technically and legally (Deng, 2011). As an example, Ethiopia joined it as an observer in 1971. Though the HYDROMET organisation was abolished, the hydro-meteorological technique is still a significant tool employed by the NBI to collect and share adequate data on the river's hydrological attributes (NBI, 2019a).

Securing the flow of the Nile to the downstream countries propelled the Egyptian regime in early 1980 to reiterate the idea of the Nile Basin organisation conducting technical functions in order to coordinate water development projects in the riparian countries. The justification of the Egyptian position was that the Nile Basin should be treated as one unit and should be planned holistically. On the other hand, the position of intergovernmental organisations complied with the African discourse of sub-regional arrangements, as promoted in the Lagos Plan of Action and adopted by the OAU (Ghali, 1982), while the national motivation was based on the national strategy of land reclamations that required securing the flow of Nile waters.

As a result of the Egyptian movements, the Undugu organisation was established in 1983 with support from the UNDP. The broad objective of the organisation was to foster multi-factor cooperation among the riparian countries. The awareness of the need to coordinate water resources is essential to attain economic development. The riparian countries joined it motivated by the Pan Africanism discourse and to entrench African interdependence for the continent's prosperity (Paisley and Henshaw, 2013; Brunnee and Toope, 2002). Despite this African cause, Ethiopia and Kenya joined as observer members only, because the mandate of the organisation did not solve the Nile water shares dilemma (Deng, 2011).

Undugu was not a sustainable intergovernmental organisation, and it was subsequently dismantled. Seemingly, the riparian countries abandoned the ambitious holistic vision of intensive regional cooperation over the Nile waters. Hence, they restored the technical endeavours for cooperation

and established the Technical Committee for Co-operation for Integrated Development and Environmental Protection of the Nile Waters (TECCONILE) in 1992. Nevertheless, the riparian countries attempted to manage the causes of the collapsed former regional experience. Thus, TECCONILE was designed to be an interim regional organisation with two objectives: to develop a legal and institutional framework accepted by all countries and to coordinate the hydraulic projects and water policies of all the riparian countries (Metawie, 2004; El Zain, 2007).

TECCONILE succeeded in compiling the national water plans and generating a master plan of Nile Basin development: the Nile River Basin Action Plan (Paisley and Henshaw, 2013). However, Burundi, Kenya, Eritrea and Ethiopia limited their participation within the organisation to an observer position. The technical mandate fed into Ethiopia's suspicion that the organisation would not discuss the distribution of water, but focus on technical issues. On its part, Egypt's attempt to depoliticise cooperation was suspected, as it could spill over to include other aspects too (Brunnee and Toope, 2002).

TECCONILE completed its mission as an interim organisation, and was succeeded by the NBI in 1999. The succession occurred after consecutive meetings and discussions to find an acceptable legal and regional institutional arrangement to manage the water resources of the Basin in equitable and sustainable ways.

The mandate of the NBI is based on a benefit-sharing idea, which means cooperation can spill over to non-water aspects. Sadoff and Grey (2005) have defended the significance of the NBI from the realist assumption that to maximize national gains, The Nile Basin countries must cooperate. The cost of cooperation is less than applying national water plans individually. Moreover, they demonstrated the benefits of cooperation based on four dimensions: the first benefit is an ecological one because the Nile Basin will be treated as one unit which will conserve the river. From this holistic management of the river, riparian countries can fulfil their food and energy needs in an effective way, which is the second beneficial aspect of cooperation. The third and fourth beneficial factors will appear as results of cooperation; mutual understanding and trust-building will be consolidated and the possibility of conflict will be decreased, and finally, cooperation will be widened to also include other aspects.

Unlike in other arrangements, Ethiopia joined as a full member and so did the other Nile Basin countries. This change in Ethiopian behaviour regarding regional arrangements from an observer position to being an active member in the NBI can be explained by economic needs and aspirations of development, and also the need to avoid any hostile behaviour from the Egyptian side, to keep the flow of the Nile (Brunnee and Toope, 2002).

Furthermore, the NBI established two Subsidiary Action Programs (SAPs) offices; one is the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) and the second is the Eastern Nile Subsidiary Action Program (ENSAP) where Ethiopia, Egypt, Sudan and South Sudan comprise the Eastern Nile Technical Regional Office (ENTRO). In this office, different energy and water projects have been planned and are under implementation.

However, despite the optimistic view of the functioning of the NBI in consolidating cooperation, Egypt and Sudan froze their membership in 2010 because they objected to the CFA,[22] fearing that it could replace the historical treaties. Moreover, with the serious confrontation over GERD that affects the flow of the Blue Nile to Egypt, negotiations resulted in the DoP in 2015 as a tripartite agreement to affirm the principles of no harm and negotiations over the filling periods in a way that does not affect flow and storage in the High Dam lake. This tripartite agreement reflects that Egypt prefers bilateral arrangements over multilateral ones. This different arrangement, however, refutes the respective analysis of scholars (Kagwanja, 2007; Deng, 2011; Brunnee and Toope, 2002) that the NBI is an opportunity to manage the Nile Basin in a collective way rather than in the unilateral manner it has been manifested in the historical treaties. It has terminated the duality of upstream versus downstream countries and the cooperation through the organisation creates commitment to a holistic vision of the Nile Basin.

To sum up, regional institutions as a driver for cooperation, as assumed by liberalism, have not secured permanent transboundary cooperation in the Nile Basin. On the contrary, the sovereign

[22] Sudan reactivated its membership in 2012

countries have been mistrustful of mutual prospective gains. This non-static frame of regional cooperation endorses the relational perspective in the analysis of Nile politics.

4.5 Preliminary conclusion

This chapter has attempted to explain the context of the Eastern Nile Basin as a preface to understanding the civic activism of social forces underlying it. The centrality of the Nile River, as well as regional interactions, have been significant factors in the configuration of Nile politics.

As explained, the Nile River has been a critical natural resource in the fulfilment of national development strategies for the three countries. It features centrally, either in a condition of scarcity (e.g. Egypt) or abundance (e.g. Sudan and Ethiopia). Hydraulic project interventions to reclaim lands and generate power, as well as large-scale schemes and other irrigation improvements, have all led to 'river transformations'. More significantly, they are legitimized by the aims and values of development and poverty alleviation, while civil society has acted under the mission of public service provision and philanthropy, as will be illustrated in the next chapter. Nevertheless, these interventions have caused social conflict, as mentioned for the case of Sudan.

The second factor that has affected interactions over the Nile concerns interstate relations. Different approaches to maintain the significance of the Nile within the state's existence and development are state-centric in nature. The colonial powers, treaties, political regimes, and actions of intergovernmental organisations are all variables that are amply covered in literature. Accordingly, the state is the driver in Nile negotiations over water shares and legal arrangements or institutions. Despite the dominance of state actors, Nile people and civil society organisations have entered this international sphere and have initiated and organised transboundary actions to govern the Nile politically and technically.

Moreover, this chapter has attempted to explain the interactions over the Nile from the relational perspective; a perspective that does not hinge on the dualism of conflict and cooperation. However, Nile politics has evolved and shown to be ever-changeable, from the colonial times until the

present. With this in mind, the next chapter explains the role of civic activism and how social forces have evolved to become pivotal actors in the hydropolitics of the Nile.