

## Celebrating the third filling of the Grand Ethiopian Renaissance Dam

A closer look into cyber security transboundary cooperation, and resource sharing concerns in this month's exclusive GERD edition

AUGUST  
2022

ADDIS ABABA, ETHIOPIA

**02** *A Comparative Analysis of Cybersecurity Capabilities of the Nile Lower-Riparians (Part II)*  
*Abdijabar Yussuf Mohamed*

**14** *Conversation with Professor Yacob Arsano on transboundary cooperation amongst Nile riparians*



## About us:

Founded in 2021, Horn Review is a premier research and publication think-tank dedicated to exploring and amplifying African voices with a goal of interlinking subject matter experts, practitioners, and academics from Ethiopia, the Horn Region, and the African continent with the broader public. With a stated mission of Africa for Africans, Horn Review aims to amplify and mainstream uniquely African ideas and perspectives on sociopolitical, economic, and geostrategic issues relevant to the continent. Horn Review aims to connect African thinkers, practitioners, and policymakers with their respective communities to create greater synergy and a people-centered discourse on African matters.



@HornReview 

[www.hornreview.org](http://www.hornreview.org) 

Horn Review 

---

# Table of Contents

01	Editor's Note
02	<b>A Comparative Analysis of Cybersecurity Capabilities of the Nile Lower-Riparians (Part II)</b> Abdijabar Yussuf Mohamed
09	<b>Why is a large dam important for Ethiopia? Experiences from the Danube River</b> Silabat Manaye
13	<b>ከህዳሴው ግድብ ሶስተኛው ሙሉት በኋላስ? መሰመድ አል-አሩሲ</b>
14	<b>Conversation with Professor Yacob Arsano on transboundary cooperation amongst Nile riparians</b>
22	<b>إذا بعد الملاء الثالث لسد النهضة ؟ محمد العروسي Muhammad Al Arusi</b>



# A Comparative Analysis of Cybersecurity Capabilities of the Nile Lower-Riparians (Part II)

**Keywords:** Egypt, Ethiopia, Sudan, GERD; National Cybersecurity Strategy;



**Abdijabar Yussuf Mohamed**



## About the Author

*Abdijabar Yussuf Mohamed is a graduate of the Schwarzman Scholars Program in Beijing, China where he obtained his Masters in Global Affairs. Previously, he obtained a Bachelor's degree in Computer Science from Middlebury College in Vermont, USA. As a Middlebury undergraduate, he was a Kathryn Davis Fellow for Peace & an exchange/associate student at Keble College, Oxford University in the U.K. He previously worked as Artificial Intelligence (AI) policy researcher and cybersecurity engineer. He currently researches the intersection between cybersecurity and public policy. His research interests include cybersecurity and cyber policy; AI & Data Science; Sino-Horn of Africa (HoA) relations; data-based (empirical) study of political violence in the Somali Region of Ethiopia.*

## Abstract

This article attempts to investigate Ethiopia's cyber prowess relative to Egypt's and, albeit to a lesser extent, that of Sudan. Of the three countries, evidence shows Egypt as the nation, among the three, has the superior cybersecurity regime. Ethiopia is ahead of Sudan but falls significantly behind Egypt. Additionally, Egypt has a National Cyber Strategy while Ethiopia and Sudan are yet to adopt robust and sound cybersecurity strategies that advance multi-stakeholder collaboration in the security, public, and private sectors. Additionally, Egyptian elite ethical hacker teams are ahead of Ethiopian and Sudanese ethical hackers in the international "cyber Olympics". This article concludes with policy recommendations for building a cyber-resilient Ethiopia in which the national critical infrastructures such as the Grand Ethiopian Renaissance Dam (GERD) are protected from foreign cyberattacks.

In part I of "The Grand Ethiopian Renaissance Dam (GERD) as an African Cyberwarfare Front: A Simplified Cyber Attack Scenario & Some

Plausible Cyber Attack Consequences”, this article illustrated what a simplified cyberattack scenario on the dam’s command & control (C2) involves and the plausible cyber-physical impacts of a cyberattack on the riverine Benishgul Gumuz Region (BGR) communities and the power grid system. These consequences include devastating power outages, future loss of life due to water poisoning, and reduction of the dam’s computer infrastructures to a global cybercrime station for local and international cybercrime syndicates.<sup>1</sup> Part II will focus on assessing Ethiopia’s cyber capabilities vis-à-vis Egypt and, to a lesser extent, Sudan. After a brief discussion of a simple methodology & limitations, this article provides a discussion on the Global Cybersecurity Index (GCI) ranking of the three countries.

## 1. Methodology & Limitations

This is an underinvestigated topic and, as a result, there is little previous body of work upon which to build. Due to limiting legal and security reasons, first-hand data on the full extent of each of these countries’ cyber talent pools. Such data falls into the realm of classified intelligence world and it is not my intention as an “objectivity-seeking researcher” to even attempt to seek data that could be, in any shape or form, construed to undermine the respective national security laws that limit access to such critical data. Notwithstanding the dearth of first-hand data, there are useful talent data availed by the GCI ranking and CyberTalents, an independent platform that competitively nurtures global cybersecurity talent through organizing an annual national and regional Capture the Flag (CTF) competition. A CTF in computer security is a competitive exercise in which individuals and teams compete to find “flags” that are secretly obscured in deliberately

vulnerable programs or websites. It is a way to determine expertise in hacking within the confines of the law. CyberTalents provides Jeopardy-style CTFs in which competing teams are presented with several challenges of varying complexity levels. The challenges are drawn from ethical hacking categories including, but not limited to, network security, web security, digital forensics, and reverse engineering. Teams can either compete independently or collaborate to form a national team.

## 2. Commitment to National Cyber Strategy: Egypt and Ethiopia

There are many tools for assessing a country’s commitment level to cybersecurity. This article will refer to the GCI, arguably the most reliable assessment tool for understanding how much emphasis a given nation places on advancing cybersecurity. The GCI is computed by the International Telecommunication Union (ITU), the specialized United Nations (UN) agency responsible for matters pertaining to information and communication technologies, to assess the level of commitment to cyber development of its 193 member states and the State of Palestine. First launched in 2015 and rooted in ITU’s Global Cybersecurity Agenda, the GCI is based on five pillars that determine the intrinsic building blocks of a national cybersecurity culture: legal, technical, organizational, cooperation, and capacity-building measures.

According to the 2021 GCI index, Egypt is one of the cyber powerhouses in the Global South. In global rankings, Egypt scored 95.48% and claimed position 23 out of 182 surveyed countries. In the same year, Sudan scored 35.03% (corresponding to position 102 out of the 182 surveyed countries) whereas Ethiopia scored a dismal 27.74% and position 115 out of the 182 surveyed countries. There are, however, other regional rankings for the Middle East and Africa

<sup>1</sup> Mohamed, A. The Grand Ethiopian Renaissance Dam (GERD) as an African Cyberwarfare Front – Horn Review. (August 11, 2022).

(MENA) and Africa that respectively included and omitted Egypt.

Given the vastness of the five pillars of the GCI, this article will use two key considerations as our yardstick: national cyber strategy and technical readiness, to fully understand how Ethiopia's cyber capabilities compare to the two riparian downstream states of Egypt and Sudan

### 3. National Cyber Strategies: Egypt and Ethiopia

A national cybersecurity strategy (NCSS) refers to a high-level plan of action that is designed with the primary objective of enhancing the security and resilience of a nation's critical infrastructures. It is essentially a top-down approach that works towards entrenching cybersecurity in critical infrastructures in line with a range of national objectives that are aimed at being attained within the limits of a given timeframe.<sup>2</sup> The next section assesses the national cyber strategies of Egypt and Ethiopia. Due to the sparse availability of reliable cyber strategy information, Sudan is not discussed in this section.

#### 3.1 The Case of Egypt

Egypt has a constitutionally-mandated National Cybersecurity Strategy (2017-2021), an action plan for the period between 2017 and 2021. This strategy involves several key programs that support Egypt's strategic cybersecurity objectives. It acknowledges the most significant threats and challenges facing the nation's critical infrastructures - specifically the energy sector, the information communication technologies (ICT) sector, the transportation sector, the health sector, etc. To achieve the security of these critical infrastructures, the

strategy greatly emphasizes the distribution of roles among the various government agencies, businesses, civil society, and the private sector. To implement this strategy, Egypt has the Egypt Supreme Cybersecurity Council (ESCC). Developed under the auspices of the Ministry of Communications and Information Technologies (MCIT), ESCC reports to the cabinet and MCIT. It is made up of key stakeholders involved in national critical infrastructure management including the concerned government agencies, professional experts from the private sector, educational institutions, think tanks, and research scholars. The ESCC is expected to update the strategy and shepherd coordinated efforts aimed at safeguarding the national critical infrastructure from internal and external cyberattacks (National Cybersecurity Strategy 2017-2021, 2017).

#### 3.2 The Ethiopian Case

For a very long time, Ethiopia has been trailing its peer nations in technological development. Since the 2006 creation of the Information Network Security Agency (INSA), the Ethiopian government has accorded special attention to cybersecurity policy. Since then, the government of Ethiopia approved two key proclamations - the 808-2013 and 1072-2018. As a result of these proclamations, in 2011, Ethiopia formulated a cyber policy. This policy is still under review and the nation lacks a comprehensive national cybersecurity strategy that guides coordinated efforts at combatting cyberattacks. In addition to the lack of political will to implement a national cybersecurity policy and implementing mechanism, there are two major challenges that the nation faces. The first one is a lack of awareness among the citizenry on what cybersecurity entails and its significance to the nation's critical infrastructures. Second, is the lack of consideration of the international ISO 27001 cybersecurity standards, the international standard for information security (Markos, 2022).

<sup>2</sup> National Cybersecurity Strategies. (n.d.). [Topic]. ENISA. Retrieved September 2, 2022, from <https://www.enisa.europa.eu/topics/national-cyber-security-strategies>

## 4. CTF Cyber Supremacy Battle: Egypt, Ethiopia, and Sudan

One way of measuring a country's cyber power is by scrutinizing the existing cyber talent. Because it is the cyber talent that undergirds a nation's cyber offensive and defensive capabilities, it is worthwhile to comparatively analyze how that given country compares to its potential digital battle enemies. In this case, we are interested in fathoming how the existing Ethiopian cybersecurity talent compares to those of Egypt and Sudan.

CyberTalents previously organized national CTFs for Egypt and Sudan but Ethiopia had its first national CTF (organized by CyberTalents) in 2020. Given that the 2022 competitions are yet to be held, we considered the available CTF data for 2020 and 2021. As indicated in tables 1 and 2 below, Egypt is ahead of both Sudan and Ethiopia in both participation & winning teams. In 2020, 40 Egyptian teams signed up to compete, 34 of whom successfully solved some of the challenges. In the same year and competition, Ethiopia fielded 37 teams. Out of the 37 teams, 21 teams won points.

Sudan, on the other hand, had 23 participating teams. Only 7 of the Sudanese teams won points.



**Recommendation: Create an Ethiopian Cyber Command, an organization composed of professional cybersecurity experts that can enhance Arat Kilo's capability to & authority to guide and control cyberspace operations for strategic purposes...**

Similarly, in 2021, Egypt had 102 participating teams and 66 winning teams; Ethiopia had 27 teams and 14 winning teams; Sudan had 16 teams with only 8 of the teams emerging as winners. Comparing the statistics of the two years, notice that Egypt's participating and subsequently winning teams dramatically improved. In 2021, Egypt had 62 more participating teams and 32 more winning teams than in the year 2020. Contrarily, Ethiopia's participating teams dropped by 10 and as a result, the previous year's (2020) winning teams declined by 7. Similar to Ethiopia's dismal performance in 2021, Sudan had 7 participating teams less than in the year 2020 and 1 more winning team than 2020. In both years, all three countries tied in high-level accolades (gold, silver, and bronze). Hence, these awards are not differentiating factors.

Country	# signed up teams	# winning teams	Gold	Silver	Bronze
Egypt	40	34	1	2	3
Ethiopia	37	21	1	2	3
Sudan	23	7	1	2	3

Table 1: The 2020 National CTF competitions data for Egypt, Ethiopia and Sudan

Country	# signed up teams	# winning teams	Gold	Silver	Bronze
Egypt	102	66	1	2	3
Ethiopia	27	14	1	2	3
Sudan	16	8	1	2	3

Table 2: The 2021 National CTF competitions data for Egypt, Ethiopia and Sudan

### 4.1 Tri-Nation CyberTalent CTF Competition Visuals

Going by the tabular data above, Egypt boasts of a more active and robust cyber talent than both Ethiopia and Sudan. Coupled with the individual teams' points for the three cases, we can conclude that Egypt is the cyber talent superpower among the three, followed by Ethiopia and lastly Sudan.

More self-explanatory details of the team pseudonyms, member pseudonyms, team leaders, specific winning time, points, award levels, etc. are demonstrated in figures<sup>3</sup> 1-6 below.

**ETHIOPIA National Cyber Security CTF 2020**

Rank	Team	Leader	Points	Talents	Won At
1	Kerbit	kwl	975	st RobMail st nibusan st Dima	2020-08-22, 02:14:16 PM
2	tautsec	eyosias-negash	975	st consuela st houdini	2020-08-22, 02:34:38 PM
3	DayMon	Ovecho	775	st sor1 st coderme st Benny7	2020-08-22, 03:35:18 PM
4	Paradox	inoelnegash	675	st reubenhunter	2020-08-22, 03:17:30 PM
5	sugomma	ftsun	425	st pirate st eyuazero st aaronayalew	2020-08-22, 02:53:15 PM
6	Leopards	Israel12	325	st Kharon st kin7 st samson	2020-08-22, 01:16:14 PM
7	Born2Pwn	confusedooper	275	st lightning st RedStorm	2020-08-22, 09:21:47 AM
8	Pwn Rules	kw40	275	st Code Love st jah st Lord_Commander	2020-08-22, 12:47:13 PM
9	AT-teams	Teddy	275	st Malik st redwan st dawa	2020-08-22, 01:01:17 PM
10	hd	hencokt	225	st d4br4	2020-08-22, 01:52:53 PM

Image 1: Ethiopia National Cybersecurity CTF 2020<sup>4</sup>

**EGYPT National Cyber Security CTF 2020**

Rank	Team	Leader	Points	Talents	Won At
1	Revers3c	BateeSa	775	ss n1ghtw0lf ss X-Vector ss serWazto0	2020-10-03, 01:06:41 PM
2	N33rdZ	Flee	675	ss Heide ss nersil ss corefood	2020-10-03, 03:44:18 PM
3	BullShirt	InSanity	575	ss Y4mm1 ss Virus0X01 ss Istangab	2020-10-03, 02:25:59 PM
4	FireFall	V-II	575	ss XJanior ss Meistover ss MOH3Y	2020-10-03, 03:50:10 PM
5	0x31m7wh633n	0x01g33k	575	ss Th3Burn3r ss DarkK ss at7	2020-10-03, 03:52:14 PM
6	0xN1ghtR4ld	shadowclone	475	ss aAbstract ss anonymous	2020-10-03, 02:31:21 PM
7	BlackOps	31n00	375	ss Darkjoker ss E4g1_Ey35 ss mustafa_mamdoh	2020-10-03, 02:05:43 PM
8	Cl@y	abdoghazy	375	ss MMOX ss xElesaway	2020-10-03, 02:29:26 PM
9	Includ3R4g	Mohamed177	375	ss ezzamohamed ss Th3Rub1ck ss MostafaAnas	2020-10-03, 02:48:53 PM
10	StarX101	70sAM	375	ss M49D1 ss walednegm ss Abdalrahman16	2020-10-03, 03:53:58 PM

Image 2: Egypt National CTF 2020<sup>5</sup>

**SUDAN National Cyber Security CTF Competition 2020**

Rank	Team	Leader	Points	Talents	Won At
1	ScriptKiddies	BlackSudo	825	ss farifataill ss S3r31SDN ss sud0_j0ker	2020-09-26, 03:31:30 PM
2	H4Z4Rd	r00tbug	525	ss rede player ss OuTahol ss M0nt3x	2020-09-26, 03:47:47 PM
3	Fr3nds	Shad0w	525	ss zayn1337 ss Moonlight ss scriptsd	2020-09-26, 03:50:25 PM
4	Monsters	NSYS	375	ss A_D12 ss 0xC3yberDev1 ss SudoOmar	2020-09-26, 03:18:08 PM
5	Sud0n333	3MH8r	175	ss Dr_reet ss ABDOOL492 ss 0x2naedNda	2020-09-26, 11:28:53 AM
6	SudoSudan	SudoHameed	125	ss sud0M	2020-09-26, 03:18:00 PM
7	V3n0m\$	Hunter0x00	125	ss AbdouhC4D ss khaleed ss Ahmedmukhtar1994	2020-09-26, 03:31:19 PM
8	OG	OGing		Empty!	
9	OmegaTeam	mhrndfj		Empty!	
10	ALPHA	Wael		Empty!	

Image 3: Sudan National Cybersecurity CTF Competition 2020<sup>6</sup>

<sup>3</sup> | screenshot these images from the CTF competition bulletins of CyberTalents  
<sup>4</sup> https://cybertalents.com/competitions/ethiopia-national-cybersecurity-ctf-2020  
<sup>5</sup> https://cybertalents.com/competitions/final-egypt-national-cyber-security-ctf-2020  
<sup>6</sup> https://cybertalents.com/competitions/sudan-national-cyber-security-ctf-competition-2020

Rank	Team	Leader	Points	Talents	Won At	Actions
1	g3rd3m3n	kharon	625	<a href="#">ir balak</a> <a href="#">ir b3n7</a> <a href="#">ir Midin</a>	2021-09-11, 02:28:32 PM	Teams Locked
2	DayMon	l3ach0	425	<a href="#">ir cedems</a> <a href="#">ir Benny7</a> <a href="#">ir chapinenge</a>	2021-09-11, 01:33:42 PM	Teams Locked
3	Gelez Cyber Masters	Nadl	325	<a href="#">ir YALET-CYBERETHIOPIA</a> <a href="#">ir Mamas</a> <a href="#">ir ferahawda</a>	2021-09-11, 02:33:45 PM	Teams Locked
4	HelmetClouds	cyberhelmet	275	<a href="#">ir pirate</a> <a href="#">ir pland</a> <a href="#">ir salmas</a>	2021-09-11, 02:14:00 PM	Teams Locked
5	Yekolo Temari	yekolo_temari	175	<a href="#">ir Baka</a> <a href="#">ir Adedayim</a> <a href="#">ir Blacklion</a>	2021-09-11, 02:34:46 PM	Teams Locked
6	Unbeatable	mente123	75	<a href="#">ir Bwaki1</a>	2021-09-11, 10:30:49 AM	Teams Locked
7	cephus	cephus21	75	<a href="#">ir cephus21</a> <a href="#">ir ralu</a> <a href="#">ir ALPHA_C003H</a>	2021-09-11, 10:43:34 AM	Teams Locked
8	Ethio Cyberary	Ethio_Cyberary	25	<a href="#">ir neamenabday</a> <a href="#">ir Mohammed1</a> <a href="#">ir Japs</a>	2021-09-11, 08:35:23 AM	Teams Locked
9	sana	Natman	25	<a href="#">ir cy3r</a> <a href="#">ir k1skumki</a> <a href="#">ir danesh</a>	2021-09-11, 08:37:06 AM	Teams Locked Go to Set Activat
10	Nair CyberSecurity	kakalid	25	<a href="#">ir Adony</a> <a href="#">ir Ethionnes</a> <a href="#">ir cygnetsahy</a>	2021-09-11, 09:01:26 AM	Teams Locked

Image 4: Ethiopia National Cybersecurity CTF 2021<sup>7</sup>

Rank	Team	Leader	Points	Talents	Won At	Actions
1	0xNightRings	Hamaed74	775	<a href="#">ir esaiou8</a> <a href="#">ir omakmah</a> <a href="#">ir D3h3r3k3k</a>	2021-10-09, 02:03:18 PM	
2	K w T	Me3gza	625	<a href="#">ir Nouraldeen</a> <a href="#">ir AdhamGhanna</a> <a href="#">ir Ouj3p451</a>	2021-10-09, 02:54:26 PM	
3	Cyberastro	reb3llion	625	<a href="#">ir TKRO</a> <a href="#">ir tefah</a>	2021-10-09, 02:59:25 PM	
4	0xL4ugh	abdoghazy	575	<a href="#">ir AhmedMazroua</a> <a href="#">ir MIMOX</a> <a href="#">ir mina1460137</a>	2021-10-09, 01:53:14 PM	
5	B00K1G33K3s	ZeyadAzma	575	<a href="#">ir Mosky</a> <a href="#">ir MoShams</a>	2021-10-09, 02:26:59 PM	
6	1337Sec	logardx	475	<a href="#">ir FatmaGama1</a> <a href="#">ir FouahDX</a> <a href="#">ir omh99</a>	2021-10-09, 02:23:21 PM	
7	SlaVer5	mostafaaboehour	475	<a href="#">ir Khaledreda350</a> <a href="#">ir mustafa_mandoh</a> <a href="#">ir KHAT1D_AL1</a>	2021-10-09, 02:37:58 PM	
8	chacc	Mesbaha	475	<a href="#">ir H3F3d1d</a> <a href="#">ir Torada</a> <a href="#">ir MahmoudFamadan</a>	2021-10-09, 02:44:09 PM	
9	DarkSync	wasfyebaz	475	<a href="#">ir Adm1r</a> <a href="#">ir omarehabshy</a> <a href="#">ir w3hcr4ft3</a>	2021-10-09, 02:55:16 PM	
10	Hackabuki1	DeadRobin	375	<a href="#">ir Katoe</a> <a href="#">ir InfoRobo</a> <a href="#">ir maad</a>	2021-10-09, 01:32:50 PM	

Image 4: Egypt National Cybersecurity CTF 2021<sup>8</sup>

Rank	Team	Leader	Points	Talents	Won At	Actions
1	1n1t	scriptid	475	<a href="#">ir azayn1337</a> <a href="#">ir ZIRO_OR_1</a> <a href="#">ir etc</a>	2021-09-11, 02:49:46 PM	
2	SudOn333	3Mh3r	325	<a href="#">ir Dr_reot</a> <a href="#">ir ABDOL492</a> <a href="#">ir O3znacN3da</a>	2021-09-11, 02:41:46 PM	
3	N0obs	Hunter0x00	275	<a href="#">ir hass0dark</a> <a href="#">ir Zoldik</a>	2021-09-11, 12:03:48 PM	
4	249-shadow	Ra3Ta-San	175	<a href="#">ir Abu3Sec</a> <a href="#">ir Mia77</a> <a href="#">ir linus101</a>	2021-09-11, 12:47:54 PM	
5	Anonymous	Mr_Hacker	175	<a href="#">ir odax</a> <a href="#">ir Rab00K</a>	2021-09-11, 01:05:42 PM	
6	Alpha Sec	Mr_Koant	125	<a href="#">ir Crystal_X</a> <a href="#">ir Makazo</a>	2021-09-11, 09:52:14 AM	
7	OCD-404	0xHalhol	125	<a href="#">ir RYDAN</a> <a href="#">ir Haxd</a> <a href="#">ir ZIRO</a>	2021-09-11, 11:39:36 AM	
8	404	vermouth	25	<a href="#">ir Querty</a>	2021-09-11, 01:01:57 PM	
9	FBI_0X	Mohammed_Sd		Empty!		
10	EAT	EAT		<a href="#">ir mustafa101</a>		

Image 5: Sudan National Cybersecurity CTF 2021<sup>9</sup>

<sup>7</sup> <https://cybertalents.com/competitions/ethiopia-national-cybersecurity-ctf-2021>

<sup>8</sup> <https://cybertalents.com/competitions/egypt-national-cybersecurity-ctf-2021>

<sup>9</sup> <https://cybertalents.com/competitions/sudan-national-cybersecurity-ctf-2021>

## 5. Conclusion and Policy Recommendations

Based on the aforementioned findings from the previous sections, one can conclude that compared to Ethiopia, Egypt is a relative cyber power.

While Sudan is a close competitor of Ethiopia in cyberspace, it does not outperform Ethiopia. Egypt's cyber capabilities in combination with Sudan's could mean devastating outcomes for Ethiopia in the event that these two countries collaborate in cyber operations against Ethiopia.

Such a scenario can occur if an international battle over the GERD extends beyond the domains of air and land to incorporate belligerent actions in the cyber realm. Bearing this in mind, it behooves Ethiopia to adopt evidence-driven policies that facilitate the following:

(a) Quicken the process of adopting a comprehensive national cyber strategy that can protect the national critical infrastructures such as the GERD;

(b) Create an Ethiopian Cyber Command, an organization composed of professional cybersecurity experts that can enhance Arat Kilo's capability to & authority to guide and control cyberspace operations for strategic purposes;

(c) Create a Cyber War Studies Program with experts that conduct research in cyber war simulation, cyber war games and defensive technical posture for the protection of the national critical infrastructures;

(d) Provide support to cybersecurity & cyberwarfare researchers at both public and private universities;

(f) Integrate a cybersecurity education into the national and regional curricula. Egypt enjoys a democratized higher education that cheaply provides cybersecurity education;

(g) Provide support for cybersecurity hackathons, conferences, and journals at Ethiopian universities and colleges.

## REFERENCES

- National Cybersecurity Strategies. (n.d.). [Topic]. ENISA. Retrieved September 2, 2022, from <https://www.enisa.europa.eu/topics/national-cyber-security-strategies>
- Markos, Y. (2022). Cyber Security Challenges that Affect Ethiopia's National Security. Available at SSRN 4190146
- Mohamed, A. The Grand Ethiopian Renaissance Dam (GERD) as an African Cyberwarfare Front – Horn Review. (August 11, 2022). Retrieved September 2, 2022, from <https://hornreview.org/the-grand-ethiopian-renaissance-dam-gerd-as-an-african-cyberwarfare-front/>
- Egyptian Supreme Council. (2017). National Cybersecurity Strategy 2017-2021. [https://www.mcit.gov.eg/Upcont/Documents/Publications\\_12122018000\\_EN\\_National\\_Cybersecurity\\_Strategy\\_2017\\_2021.pdf](https://www.mcit.gov.eg/Upcont/Documents/Publications_12122018000_EN_National_Cybersecurity_Strategy_2017_2021.pdf)

# Why is a large dam important for Ethiopia?

## Experiences from the Danube River

### Part One

### Silabat Manaye

 @dessalegnmanaye



*Silabat Manaye is an international relations professional based in Addis Ababa. He obtained his Bachelor of Science in Geography and Environmental Studies from Wolayta Sodo University and his Bachelor in Science from New Generation University College in Addis Ababa. Silabat also completed his Master of Arts in Diplomacy and International Relations from the Ethiopian Civil Service University. His research interests include water politics, Peace journalism, as well as Digital and mobile journalism*

In the case of Ethiopia, about 90% of the available water is received mainly in three months. Hence, dams could effectively store water during heavy rain seasons between June to September and some extent during the short rainy seasons.

Large water storages are therefore essential. In addition, we can expect the following advantages could be expected from building big dams in the Blue Nile basin: The flood waters are wasted unless large major dams are constructed, Large dams are eminently suited for carrying over storage and thus impart greater reliability and stability to the system, Large dams generate cheap and clean hydropower, Dams provide the most effective way of flood regulation and control.

Large dams are most reliable during drought periods as small storages are fast depleted and suffer excessive evaporation. In drought years, small dams are scarcely reliable. Longevity as large silt pockets, per unit areas stored with large dams, is much less as compared to small dams.

Diversion and transfer of surplus water to water-scarce basins can be an option only through big dams. Employment potential is higher in large dams throughout the year. In the case of small dams, there is little employment potential as seasonal rains affect only small local areas.

The imperatives for large water storage were supported by the former President of the World Water Forum Council who stated that “some 8,000,000 dams (of which 45 000 are major, higher than 15 meters in height) exist around the world delivering energy, flood protection and water for household, industrial and agricultural use”

He further stated that “despite the drawbacks, the world’s growing population and their need for greater economic development call for more water, in which demand will exceed availability. More and larger storage will be necessary to meet the challenges of development and socio-cultural fabric and make sure that those people affected by the development of dams will be better off than the alternative.

While giving special attention to the environmental and displacement aspects, Ethiopia should construct large-scale dams that: increase economic and social productivity and hence increase consumption of goods and services, irrigate 2.2 million hectares identified in the basin, distribute benefits to millions of inhabitants through employment in mechanized agriculture in the basin, provide better settlement, equipped with socially, economically and technically sound services in the basin for millions and change their life; producing complex

hydroelectric power for trade with the trans-boundary countries.

Therefore, Ethiopia needs urgent action on matters concerning the building of major dam structures in the Abbay, Baro-Akobo, and Tekezze catchments and other River basin areas in accordance with some detailed studies and engineering designs.

Ethiopia has made many valuable studies and design works without much chance of putting them into action mainly because of lack of funds. To date, Ethiopia is the most minor user of the Blue Nile run-off in the Eastern Nile Basin, compared to Sudan and Egypt. At the national level, economic and institutional capacities are also limited. Despite many hindrances, Ethiopia should concentrate on the modern agricultural development options, focused on the rivers so that these resources could be utilized to realize meaningful irrigation programs.

## Climate Change should concern the Nile Nations

A holistic approach to conservation, protection and utilization of the Nile River basin was sparsely implemented. The long-standing dispute over the Nile River was primarily on the utilization of the waters. But without arriving at a comprehensive governance scheme to address the environmental problems posed against the basin an equitable and reasonable share of the Nile waters would not be secured.



**But without arriving at a comprehensive governance scheme to address the environmental problems posed against the basin an equitable and reasonable share of the Nile waters would not be secured.**

The blame must go to the downstream countries for their reluctant approach to a basin-wide agreement to address the governance challenges including the climate change impacts. Benefit-sharing should come after sharing of burdens on the costs of conservation and protection of the Nile environment.

Climate change has become a global threat to the environment including watercourses. The globe has launched several international mechanisms to deal with climate change.

The 2015 Paris climate accord was the latest of all initiatives. There is a nationally determined emission reduction to withhold the global warming rate below 2 Degree Celsius. The Nile riparian states are duty-bound to mitigate the environmental problems threatening the water flows of the Nile River.

Their mitigation should be expressed through their cooperation in afforestation programs on the headwaters and tributaries of the Nile River. Those headwaters are located in Ethiopian highlands. Ethiopia has embarked on the planting mission of twenty billion trees within a four-year period.

The downstream countries should participate in this green legacy mission and should cover the conservation and protection costs of the Nile basin. To that end, Ethiopia should offer a call for participation in the green legacy mission to the downstream nations.

For the downstream nations, participating in the greening of Ethiopian highlands would be a mitigation strategy for the millennial damages caused to the Nile River. They have depleted the Nile surrounding area with over-exploitation and mismanagement of the river. With that said, long-term cooperation on the conservation and protection of the Nile River Basin should be governed through basin-wide legal and institutional frameworks. Such a basin-wide arrangement could establish a permanent river basin commission to administer and facilitate cooperation among the riparian nations in the fight against climate change and its adverse impacts on the Nile ecosystem.

## Lessons on governance for Nile nations from the Danube River

The Danube River Basin Cooperation provides a laudible lesson and example to the nations of the Nile Basin, as there are striking similarities between the two basins. The anticipated lesson to be learned by the Nile Nations from the Danube River Basin Cooperation is the harmonization and integrated management that brought tangible results and ensured peaceful co-existence within that region. Some of the outstanding achievements of integrative development and management approach of the communities of the Danube River Basin and their experiences are summarized below to illustrate the power of harmony and spirit of the shared responsibilities of the ordinary inhabitants of large river basins to the Nile families.



**The Danube River Basin Cooperation provides a laudable lesson and example to the nations of the Nile Basin, as there are striking similarities between the two basins.**

As mentioned in the study made by Oregon, Sullivan, and Bromley, the Danube is a large river that covers approximately 800,000 square kilometers in the territories of 18 states, with over 80 million inhabitants and 60 large and growing urban centers. The Danube is a slow-moving river with well-developed alluvial plains in its course. The Danube River covers an area of 675,000 ha and is internationally recognized as one of the most important watersheds in Europe.

The basin area covers all of Hungary, most of Austria, Romania, Slovakia, Serbia, and Montenegro; significant parts of Bosnia-Herzegovina, Bulgaria, Croatia, Czech and Moldovan republics, as well as

a smaller area of Germany and Ukraine. Albania, Italy, Macedonia, Poland, and Switzerland also have small geographical areas within the basin. The Danube River Basin is spread across countries with very different levels of economic development and social and environmental diversities. Germany and Austria, highly developed nations, are located in the upper basin with longstanding membership of the European Union. In the middle basin Czech Republic, Slovakia, Hungarian, and Ethiopia are experiencing an appreciable degree of economic growth. Further downstream Romania, Bulgaria, and Ukraine are less developed states in Europe but they are experiencing political and economic transition. Also, within the basin are the Former Yugoslav republics and northeast Moldova, the least developed country in Europe, heavily dependent on agriculture.

## Institutional framework Experience

The development of the Danube River Basin is coordinated through several institutions formed by all member states and policies directed by these bodies. The most important of the European-level policies is the European Water Framework Directive (WFD), which seeks to introduce comprehensive river basin management and environmental protection initiatives across Europe. The Danube River Protection Convention forms the overall legal instrument for cooperation on transboundary water management in the Danube River Basin. The Convention was signed on June 29, 1994, in Sofia (Bulgaria) and came into force in 1998. Based on this document, the International Commission for the Protection of the Danube River (ICPDR), with 13 cooperating states and the European Union, was established in practice. The ICPDR makes recommendations for improving water quality, developing mechanisms for flood and industrial accident control, agreeing on standards for emissions, and ensuring that these measures are reflected in the cooperating states' national legislations and applied in their policies.

To meet the needs of this single basin-wide management plan, each country is in the process of preparing national reports (roof reports) which give

an overview of WFD issues such as the pressures on the surface and groundwater resources and related environmental impacts that will form the basis of the river basin management plan. In the 1990s, countries of the DRB took significant steps to improve the management of the Danube with recognition of the growing regional and transboundary character of water management issues and related environmental issues. In 1991, the Environmental Program for the Danube River Basin (EPDRB) was established in Sofia, Bulgaria by the countries of the DRB, together with international institutions and NGOs, to start an initiative to support and enhance actions required for the restoration and protection of the basin. This was followed by the Convention on Cooperation for the Protection and Sustainable Use of the Danube River Basins signed in June 1994. It was signed by 11 states and the European Union and provided the legal basis for the protection and use of water resources in the basin.

## Water Use Practices

The Danube plays an important role in the development of the region, as its communities rely on it for water supply (domestic, agricultural and industrial), power generation, navigation, waste disposal, and recreation. The Danube waters have also been intensively harnessed for hydroelectricity (particularly in Austria and Germany) and irrigation schemes for agricultural developments (especially in the middle and lower basins).

The need for water storage in the face of seasonal variations and to generate hydropower have led to dam building across the basin. Between 1950 and 1980, 69 dams with a total volume exceeding 7.3-billion-meter cube were constructed on the Danube River. Groundwater resources represent as much as 30 percent of the total internal renewable water resources of some DRB countries. Aquifers are the main resources of drinking water while some have permeable aquifers, which are highly vulnerable to pollution from point and nonpoint resources. The extent of hydro-morphological changes for navigation environmental has had a major impact on natural floodplains and their ecosystems. In many places along the river floodplains, meanders have been cut off from the

river system. However, as a result, 80 percent of the historical floodplain of the larger rivers of the basin has been lost over the last 150 years. The loss of this area has led to a reduction of flood retention capacity and floodplain habitat. Some of the remaining areas have either received protection status under different national or European legislation or international conventions, while other areas remain vulnerable.

## Civil societies and Private Institutions Environmental Experiences

The Regional Environmental For Central and Eastern Europe (REC), and the Danube Environmental Forum (DEF) represent nearly 200 NGOs across the region. The aim is to protect the Danube River and its tributaries, their biodiversity, and resources, through enhancing cooperation among governments, non-governmental organizations, local people, and all kinds of stakeholders towards sustainable use of natural ecosystems. Many of these institutions are participants in the annual Danube Day festivities marking the signing of the Danube Convention and celebrating the river, its ecology, and its people. Festive events, festivals, public meetings, and educational events take place along the river and Danube Day is described as a powerful tool for enhancing the "Danubian identity of people living in the basin, demonstrating that despite their different cultures and histories they have a shared responsibility to protect their precious resource."

There is also increasing involvement from the private sector. At the basin level, the most visible private company involved in water resources management is the multinational Coca-Cola. Coca-Cola protects the Danube River Water Basin and it is committed to business approaches that preserve the environment and integrate principles of environmental stewardship and sustainable development into its business decisions and processes. At the local level, the company is piloting a number of water-themed sustainability projects, across the basin in partnership with local authorities and NGOs. Coca-Cola is also a major sponsor of Danube Day.

*Part two continues on page 17*

# ከህዳሴው ግድብ ሶስተኛው ሙሌት በኋላስ?

መሐመድ አል-አሩሲ  
የኢትዮጵያ ፓርላማ አባል

@Alarusi1



ይህ ርዕስ በህዳሴው ግድብ ጀርባ ካለው በቢልዮን ከሚቆጠረው ውሀ ሊበልጥ የሚችል ዝርዝሮች የያዘ ርዕስ ነው ማለት ይቻላል! በህዳሴው ግድብ ላይ እውቀት ያላቸው ፍትሃዊ ባለሙያዎች ይህ ርዕስ ልክ በሱዳንና በግብፅ ወንድሞቻችን ላይ እደሚዘንበው ዝናብ አስፈላጊ መሆኑን በአንድ ድምፅ ተስማምተዋል።

ሳይንሳዊና ቴክኒካል ትንተናዎች ኢትዮጵያ ለጎረቤት ሀገራትና ለአለም አቀፉ ማህበረሰብ የገባችው ቃል ማረጋገጥ ካልቻሉ በቴሌቪዥን እና በተለያዩ ሚዲያዎች ከመታየት ውጭ ምንም ነገር አላበረከቱም ማለት ይቻላል።

አሁን ለአስርት አመታት አልፎ ተርፎም ለዘመናት አብረን የተጓዘንበት መስቀለኛ መንገድ ላይ ነን። ያለፉት ዓመታት ያጋጠሙን ችግሮች ሁሉ ምንም እንኳን ባያስታውቀንም ይበልጥ እንድንቀራረብ አድርጎናል።

እናም በማንኛውም መልኩ የአንዱ የጠይሟ አህጉራችን ክፍል ድል ቢያገኝ፤ ደስታው ሌሎቹን የአህጉሪቱ ክፍሎች ሁሉ ያዳርሳል።

የበላይ መሪ የሆነች ትልቅ ተስፋ ያላት አህጉር አላችን ...

አፍሪካ... የአለም ገነት...

ታዲያ ያለ ኢትዮጵያ ግብፅ እና ሱዳን የምንኮራበት አፍሪካ ልትኖር ትችላለች???

የሰላም መርከቦች በአቢሲኒያ ከፍታዎች በጥቁር አባይ ዳርቻ ላይ አርፈው ኢትዮጵያዊያን ከግብፅና ከሱዳን ጋር ውህደት፣ ትብብር እና የጋራ ተጠቃሚነት እንዲኖር ጥሪ አቅርበዋል።

እኔ እዚህ የእነዚህን ስማቸው ብቻ የሚበቃ ሶስት ሀገራት ታሪካዊ ታላቅነት ለመዘርዘር አይደለም የቀረብኩት። በጌታ ፈቃድ ሦስተኛው ሙሌት ከተጠናቀቀ በኋላ አድማሱ ተከፍቶ ከመጣላት እና ካለመግባባት ይልቅ ትብብር እና አንድነት ከረጅም ጊዜ በፊት መጀመር እንደነበረብን ግልፅ ያደርግልናል። እነዚህ የብልጽግና እና የዘላቂ ልማት ሰንደቅ ዓላማዎች የሚውለበለቡባቸው አድማሶች ናቸው።

ከሦስተኛው ሙሌት በኋላ፣ አሁንም ያልተስማማንባቸውን ነጥቦች መከለስ ይጠበቅብናል። የህዳሴ ግድብ አስከፊ አደጋ ነው እያለ ጉዳቱን ሲጠብቅ የነበረ አሁን በተጨማሪም የህዳሴውን ግድብ ጥቅምና አዋጭነት መዳሰስ ችሏል!

እንዲሁም የህዳሴው ግድብ ካለቀ በኋላ ጥማትን እና ሞትን ሲጠብቅ የነበረ ሁሉ። በአላህ ፈቃድ ወሀው ኤሌክትሪክ ካመረተ በኋላ የህዳሴው ግድብ በሮች ወሀው በአግባቡ እንዲደርሳቸው አድርጎ ተስፋ የቆረጠውን ሁሉ በኤሌክትሪክም በውሀም ማስደመም ችሏል።

የከፋት መንገዶች ይፈረሳሉ የመልካምነት መንገዶች ጸንተው ይቆያሉ። ስለዚህ በግብፅ እና በሱዳን ያላችሁ ወንድሞች ለሀገራችንና ለህዝቦቻችን ወደሚጠቅም ትብብር እንድትመጡ ጥሪ አቀርባለሁ። ያለፈውን አልፈን አሁን ያለውን በጋራ እንገንባ።

የአገሪቻቸውን ጥቅም ከግለሰቦች ጥቅም በላይ የሚያሳስባቸው አገሮች እንዴት ልዩ ናቸው? እስኪ ጮክ ብለን እንበል። የህዳሴው ግድብ የሚያስተላስረን ፕሮጀክት ነው።

# Another Milestone in Ethiopia's GERD project: a discussion with Professor Yacob Arsanoo



**Dr. Yacob Arsanoo**

Associate Professor at Addis Ababa University's School of Political Science and International Relations (AAU- PSIR)

On the occasion of the completion of the third filling of the Grand Ethiopian Renaissance Dam (GERD) Horn Review discussed with Professor Yacob Arsanoo the technical, cooperative, and policy issues surrounding the dam.

**Horn Review:** The Egyptian Ministry of Foreign Affairs has reported that Ethiopia wrote a letter to Egypt on August 2nd stating that it would be filling the dam in the months of August and September. However, Ethiopia completed filling the dam 15 days earlier, on July 18. What is your opinion on this matter?

*Answer:* As the owner of the dam, it is Ethiopia's commitment to notify the lower Nile riparian states of its plans to fill the dam before doing so. Egypt's accusation that "Ethiopia's dam should not be filled" or complaints of receiving the letter after the dam has already been filled is simply a weak argument. The very purpose of building a dam is to fill it with water. Ethiopia has the right to build the dam and fill it with water, without causing significant harm to downstream countries. So, Ethiopia is filling the dam parallel to the construction as agreed in the Declaration of Principles of March 2015. When the dam is fully completed, it will help avoid annual floods in the rainy season in downstream countries. Ethiopia should be thanked for this and many other benefits the GERD brings to Egypt and Sudan. I do not think Ethiopia should be accused by Egypt since this is the third filling, not the first. In my view, accusations from the Egyptian side are simply baseless.

**Horn Review:** Professor, according to Asharq al-awsat news, this third filling, more than the previous ones, is expected to create more

tension. Do you think there is some truth to that statement?

*Answer:* I do not think so. More than 80 percent of the construction of the dam has been completed since 2011, and the dam is now in its third round of filling. This is neither abrupt nor unexpected. Ethiopia didn't flippantly start filling the dam. The dam was built for the sole purpose of filling it and producing electricity. When the first and second phases of filling took place, the countries on the lower river basin were made aware of the annual filling schedule. The third filling was executed in a similar manner.

Since the filling of the dam will not cause water depletion in Egypt or Sudan, they will not be affected by the filling of the third round. So, since there will be no water reduction expected, I don't think this 3rd filling poses a problem; disagreement or controversy is unnecessary.

**Horn Review:** Just to follow up on this question, to the best of your understanding, what are the significance and implications of Egypt's claim of "historical rights?" Is there a precedent of historical rights over transboundary resources?

*Answer:* Because the agreements signed by Egypt with the British in 1929 and with the Sudanese in 1959, are not related to Ethiopia and other Nile riparians, Egypt and Sudan should not claim to be the sole proprietors of the Nile waters. The Nile is a

shared resource by all riparian nations and is meant to be utilized by all parties equitably and reasonably. It should, instead, be advocated for joint use of this precious resource amongst all parties.

Since it is the resource of the watershed countries, all parties involved are entitled to fair and equitable usage. Therefore, it is unjustified for one or two parties to monopolize the shared resource. Ethiopia and other upstream countries cannot be bound by the unilateral agreements of Egypt and Sudan between themselves or with an external actor in the Nile basin.

The international experience is that countries in respective river basins agree to utilize their shared resources jointly and collaboratively. They establish common principles and institutional mechanisms. For instance, the Mekong river basin riparian nations have established the Mekong River Basin Commission. Similarly, the riparian nations of the Senegal river basin have established Senegal River Basin Commission. Elsewhere in Europe, the Rhine and Danube riparian nations have respective river basin commissions for each of the shared rivers. Nowhere in the world, a single riparian country claims a monopoly of shared river waters. It is only in the Nile Valley, that the Egyptian party insists that the other riparian countries be governed by Egypt's rules and interests.

**Horn Review: What is the general guideline for utilizing a shared resource? Particularly as it relates to lower riparian countries?**

Answer: According to the UN Convention on Non-navigational Uses of International Water Courses, which was adopted in 1997, as well as the Cooperative Framework Agreement -CFA, which is an agreement that the Nile Basin countries signed in 2010, the use of shared waters should be reasonable and equitable between the riparian countries. It is accepted that if one country uses the shared waters, that country is required to be cautious not to inflict significant harm to other riparian countries. The three-round fillings of GERD in 2020, 2021, and 2022 have not caused any damage to Egypt and Sudan. There is no evidence for any presumed claims of harmful effects of the three GERD fillings.

This Declaration of Principles which was signed by the Presidents of Egypt and Sudan and the Prime Minister of Ethiopia in March 2015 is an excellent example of transboundary river development cooperation. In this agreement, many provisions indicate beneficial interests to all three parties. The understanding is that Ethiopia owns and manages the GERD and, upon completion "priority will be given to downstream countries to purchase power generated from GERD". As you know, the filling process goes in tandem with the progress of the construction, in accordance with the Declaration of Principles. Thus far, I am yet to see anything that Ethiopia has done to undermine the agreement. So far, there is no evidence that the water going to Sudan and Egypt has been significantly reduced, blocked, or put in jeopardy.

It is open fact that Sudan suffers from cyclical annual Nile flooding in the months of summer., However, as a result of the commencement of the staged GERD filling destruction to life and property has been relatively minimal in downstream Sudan.

**Horn Review: Until this third filing, downstream states were involved in tripartite negotiations. However, due to civil unrest in Sudan, the African Union also blocked the country from further participating. So, how will the negotiations continue in this situation? If there is any negotiation to happen, what kind of step will be taken next? Is it only with the two of them or how can this work for Egypt says that Sudan must enter?**

Answer: Until April 2021, now, the Coalition Government of Sudan was attending the negotiation platform facilitated by the African Union together with Ethiopia and Egypt. But Egypt and Sudan are not willing to be on the negotiation stage putting up preconditions, and further stalling the negotiation process.

It is not the case that Egypt is not attending the negotiations because Sudan has been banned from the process due to the recent military takeover in Sudan. The actual fact is that together, Egypt and Sudan are making elaborate excuses for their refusal to proceed

with the talks under the auspices of the Africa Union. Ethiopia has clearly explained that it does not accept the binding agreement which was initially proposed by Egypt after the failed Washington talks in January 2020. The so-called binding agreement which is very strongly put forward by Egypt and Sudan would be suicidal to Ethiopia's sovereign rights over its national resources.

**Horn Review: Around 10% of the water reserve in Aswan High Dam is said to be reserved for Gulf states. Do you think this might be a complicating factor in potentially internationalizing the dispute?**

*Answer: I am not sure of the 10% figure. However, the water stored in the Aswan High Dam should, logically, be used by Egypt within the natural Nile basin. Egypt's poor water management is self-evident, and this goes against the principles of protecting and conserving of the shared waters by each of the riparian countries. Egypt has unilaterally crossed a portion of the Nile waters to the Sinai Peninsula which is located outside the Nile watershed. Ethiopia has long protested this action. Second, it is known that Egypt created a new valley in the west direction of the High Aswan Dam to create a new valley. It is an open secret that Egypt has a new plan to divert the Nile waters to the New mega city on the western reach of the Suez Canal. Ethiopia, along with other basin states continue to protest against the unilateral and wasteful utilization of the shared Nile water resources.*

**Horn Review: While we are on the subject of informal objections or complaints, Egypt often runs to the UN security council with every possible objection. Entertaining this as a neutral objection, a neutral subject, and what is the merit and downfall of international-level litigation?**

*Answer: So, if one country complains about another country's actions as it relates to shared transboundary waters, that country is expected to follow the procedure of the International Court of Justice when the case is subject to international litigation. Similarly, bringing the case to UN Security Council should qualify the merit of security threats. However, barring other countries from using the transboundary water resources within respective*

*territorial jurisdictions is a different ball game. Countries cannot go to ICJ or UNSC to protect their unlawful monopoly control of the otherwise shared waters. We are yet to see Egypt lodging a formal complaint to the concerned international tribunal because that course of action would not be in the best interest of either Egypt or Sudan. The previous two appeals of Egypt and Sudan to the UNSC did not induce the Council to consider the case as a matter of security. The Council, however, advised the parties to take the case to the AU forum as an "African problem" and a development issue.*

**Horn Review: We know that the GERD is being built by internationally acclaimed construction companies. However, Egypt and Sudan claim to worry about the safety and structural integrity of the Dam. Is there any merit to this concern?**

*Answer: Ethiopia, Egypt, and Sudan jointly created an International Panel of Experts, IPoE, in 2012 and 2013 which included expert members from each respective country, in addition to intellectually recruited technical experts based on international competence. The International Panel of Experts then did evaluate the dam project and made a report in 2013. The IPoE report that the dam is up to international standard, that it is of high quality; and that the safety of the dam should not be an issue of worry. The Egyptian experts duly signed the report alongside the rest of the IPoE members. Therefore, the Egyptian government has no credible reason or evidence to claim that the dam-building process is weak.*

*The IPoE didn't come to this conclusion on its own, they first analyzed all 153 documents Ethiopia has been using throughout the design and construction process. Additionally, IPoE members made an on-site visit to the dam site and inspected the setup in person, confirming that the dam meets international standards. I find the safety-related objections to the dam prejudicial, be it misguided.*

*On the occasion of the completion of the third filling of the Grand Ethiopian Renaissance Dam (GERD) Horn Review discussed with Professor Yacob Arsano the technical, cooperative, and policy issues surrounding the dam*

# Why is a large dam important for Ethiopia? Experiences from the Danube River

## Part Two

### Danube River Cooperation in Comparative Perspective

The Danube countries have a long history of cooperation, but by sharing experiences on cooperation, there is much the ICDPR can learn from the experiences of other water commissions. Danube cooperation is an example of what is possible under difficult circumstances. If the Danube states can overcome historical and contemporary challenges in managing the river, similar progress is possible in other regions of the world. International cooperation in the Danube River Basin has become a growing topic of interest for scholars and practitioners. The ICDPR receives visitors annually; researchers and professionals from river commissions visit Vienna to study cooperation on the most internationalized river basin in the world. This interest should not come as a surprise.

The experience of Danube River cooperation shows that decades of geopolitical tension, economic transformation, and cultural differences are not obstacles to basin-wide river cooperation (Ovodenko, 2013). Danube cooperation is an example of what is possible under difficult circumstances. If the Danube states can overcome historical and contemporary challenges in managing the river, similar progress is possible in other regions of the world.

Learning from cooperation. The ICDPR has a unique history that the Secretariat staff share with water professionals and interested researchers. Sharing the experience of Danube cooperation pays dividends. Scholars learn how international cooperation can emerge after contentious political conditions. Water professionals and practitioners learn what programs have worked well and the

ICPDR learns from the experiences of other river commissions.

What can a comparative perspective on Danube River cooperation provide for scholars and practitioners? The Danube Basin is not the only water basin in Europe with a complicated historical legacy. It is not the only water basin with several neighboring states maintaining different economies. And it is not the only water basin facing challenges such as climate change adaptation or nutrient pollution.

Looking at the Baltic Sea. The Baltic Sea area has shared a similar experience as the Danube Basin. Much like the Danube riparian states, the Baltic coastal states have overcome geopolitical disagreements. They have undergone economic transformations in the eastern half of the basin area. And the European Union has invested to improve environmental conditions and help economic recovery in former socialist states in each basin.



The Baltic states began with a convention in 1974 on the whole sea, although the ecological basin-wide perspective only followed under a 1992 convention. The Baltic states began to cooperate at the sea-wide level decades before the Danube states began to cooperate at the river-basin level. Danube states did not begin with a basin-wide perspective. They had previously made sub-basin and bilateral commissions before adopting the Danube River Protection Convention. The ICPDR and the Danube states have managed to create a robust basin-wide management system in a relatively brief period.



**They are balancing national and international efforts. HELCOM and the ICPDR have similar institutional structures. They are both decentralized...**

There are differences, however. The Baltic states have made a nutrient load reduction scheme that allocates maximum allowable inputs by country. It is an ambitious program that the Helsinki Commission (HELCOM) has revised in advance of this year's ministerial meeting. The Danube states have made nutrient inputs a major issue, but they have not allocated allowable inputs among countries. However, the Danube states have institutionalized their emphasis on public awareness-raising in the basin. Danube Day, the International Danube Art Master, and other events seek to enhance a basin-wide perspective on the river.

They are balancing national and international efforts. HELCOM and the ICPDR have similar institutional structures. They are both decentralized: the commissions rely on national experts to collect samples, provide national reports, and conduct national-level analyses. The national experts participate in working groups,

divided by specialization. The commissions have relatively few permanent staff because the commissions can follow through on their objectives and responsibilities in collaboration with national experts. These working groups have contributed to networks of association among national experts who might otherwise not have as much contact and exchange, at least not at such regular intervals and under institutionalized settings.

The European Union has played a growing role in each basin. It provides cohesion funds, contributes to environmental projects, and facilitates economic recovery and restructuring in each basin. It has also made harmonization a priority and legal requirement under the Water Framework Directive and the Marine Strategy Framework Directive. Much like the implementation of the Water Framework Directive in the Danube basin relies on the ICPDR, the implementation of the Marine Strategy Framework Directive in the Baltic Sea relies on HELCOM.

Cooperation has been beneficial for non-EU states in each basin. In the Danube Basin, Ukraine, Moldova, Serbia, and Bosnia and Herzegovina are not EU member states. In the Baltic Sea Basin, Russia is not an EU member state. Russia has benefited from participating in HELCOM, and Ukraine, Moldova, Serbia, and Bosnia and Herzegovina have benefited from participating in the ICPDR. These non-EU states have gained technical assistance and knowledge of technical issues. And the EU has engaged these countries through the ICPDR and HELCOM, as a party to the Helsinki Convention and the Danube River Protection Convention.

Working together to overcome challenges: Both basins face at least two similar challenges: nutrient loading and adaptation to climate change. The Danube states have recognized that agricultural loading in the river may rise because of growing agricultural production. The same is true in the Baltic Sea: governments acknowledge that eutrophication is a common threat to the environmental and ecological status of the sea. They now face an emergent issue because of climate change, which may contribute to volatile precipitation in each basin and more agricultural run-off. HELCOM and the ICPDR have each devoted more attention to the long-term challenges that climate change may

bring for the people in each basin. Cooperation in both basins has overcome challenges in the past and there is good reason to expect that it will meet new challenges in the future.

## Transnational Cooperation Program

The Danube Transnational Program (DTP) 2014-2020 covers the Danube River basin, which is the most extended in Europe and stretches from the Alps and the Carpathian to the river plain and its mouth in the Black sea. It has the same geographical scope as the EU Strategy for the Danube Region (EUSDR), supporting its implementation. For the period 2014-2020, the DTP focuses on four priority axes. Innovative and socially responsible Danube region; Environment and culture responsible Danube region; Better connected and energy responsible Danube region; Well-governed Danube region. During this period, the program is expected to promote: Research and innovation; Competences for business and social innovation; Sustainable use of natural and cultural heritage and resources; Transnational water management and flood risk prevention, disaster risk management; Environmentally-friendly, safe, and reliable transport systems; Energy security and energy efficiency; Intensified cooperation to increase management capacities of Priority Area Coordinators (PAC) to effectively implement the goals, targets and key actions of the EU Strategy for the Danube Region. As water represents an essential resource of the region, the DTP 2014-2020 deals with challenges related to climate change mainly in the context of transnational water management, flood mitigation, and related risk management. Climate change adaptation and disaster risk reduction are explicitly considered under priority, corresponding to the program's thematic objective on Environment and resource efficiency (TO6). In addition, the DTP addresses three horizontal thematic aspects highlighted in EU regulations including that sustainable development. Furthermore, contribution to enhanced awareness of adaptation to climate change and risk prevention is included among the projects' selection criteria.

## Macro-region Strategies

The EU Strategy for the Danube Region (EUSDR), adopted by the European Commission in December 2010 and endorsed by the European Council in 2011, is a macro-regional strategy that was jointly developed by the EC, Danube countries, and stakeholders to address common challenges together. The process seeks to create synergies and coordination between existing policies and initiatives taking place across the Danube region. The EU Action Plan for the EUSDR addresses climate change impacts on extreme weather events (floods, drought, forest fires, storms, erosion, icing, and water scarcity), hydrological cycles, precipitation patterns, and water level variations, which affect water management throughout the Danube River basin in manifold ways. Among the 11 priority areas of the EUSDR, climate change impacts and climate adaptation issues prominently feature in the environmental pillar of the strategy, which is composed of priority area 4 To restore and maintain the quality of waters (PA4), priority area 5 To manage environmental risks (PA5) and priority area 6 To preserve biodiversity, landscapes and the quality of air and soils (PA6).



**The Danube Transnational Program (DTP) 2014-2020 covers the Danube River basin, which is the most extended in Europe and stretches from the Alps and the Carpathian to the river plain and its mouth in the Black sea.**

Among these, PA5 has up to now the highest relevance to adaptation. Targets defined in PA5 include addressing the challenges of water scarcity and droughts and supporting the implementation of the Danube Flood Risk Management Plan, taking into account potential impacts of climate change and adaptation strategies. The EUSDR Action Plan

encourages actions related to adaptation within PA5 with the following foci: trans-boundary flood risk management plans at basin level, wetland, and floodplain restoration (as a means of passive flood protection and in the context of green infrastructure), trans-boundary flood alert systems, transnational cooperation of emergency response authorities, research on regional and local impacts of climate change as well as climate- and flood-proof spatial planning and construction activities. Due to geographic overlaps with other macro-regions, also the European Strategy for Alpine Space (EUSALP) and European Strategy for Adriatic-Ionian Region (EUSAIR) are to some extent relevant for transnational cooperation on adaptation in the Danube region.

## International Conventions and other Cooperation Initiatives

The main objective of the Danube River Protection Convention (DRPC) is to ensure that surface waters and groundwater within the Danube River basin are managed and used sustainably and equitably. The signatories of the convention have agreed to cooperate on fundamental water management issues. Climate change is addressed indirectly by aiming at, inter alia, the conservation, improvement, and reasonable use of surface waters and groundwater as well as at preventive measures to control hazards originating from accidents involving floods. The International Commission for the Protection of the Danube River (ICPDR) has been created for coordinating the implementation of the convention. In February 2010, Ministers and high-level representatives responsible for water management in the Danube countries and from the EU endorsed the Danube Declaration, which expresses the commitment to further reinforce transboundary cooperation on sustainable water resources management within the Danube River basin and emphasizes that adaptation measures are needed to avoid significant threats from climate change impacts. To take the required steps, the ICPDR was asked to develop a Climate Adaptation Strategy for the Danube River Basin.

To improve the coordination of transboundary water management activities also related to climate change adaptation and disaster risk reduction - in the Danube River basin, the ICPDR

and the EUSDR elaborated and agreed on a Joint Paper on Cooperation and Synergy for the EUSDR Implementation.



**The EU Action Plan for the EUSDR addresses climate change impacts on extreme weather events (floods, drought, forest fires, storms, erosion, icing, and water scarcity), hydrological cycles, precipitation patterns, and water level variations, which affect water management throughout the Danube River basin in manifold ways.**

The area of the Carpathian Convention is mainly included in the Danube transnational region. This sub-regional treaty was signed in 2003 by seven Carpathian States (Czech Republic, Hungary, Poland, Romania, Serbia, Slovak Republic, and Ukraine) and aims to improve the quality of life, strengthen local economies and communities, and conserve the natural values and cultural heritage of the Carpathian area. In 2011, the Convention established the Working Group on Adaptation to Climate Change to collect information and data on climate change, promote regional cooperation on adaptation in the mountains and develop joint projects. In 2014, the Strategic Agenda on Adaptation to Climate Change in the Carpathian Region was adopted. It includes policy recommendations, institutional change, and potential priority adaptation actions, and it calls upon countries, local and regional authorities, and other stakeholders to formulate policies and design strategies to adapt to climate change. Detailed information including links to the most relevant documents on adaptation in the Carpathian Mountains is provided by the Secretariat of the Carpathian Convention based on a submission from the Convention's Working Group on Adaptation to Climate Change.

## Adaptation Strategies and Plans

In response to the Danube Declaration, the Strategy on Adaptation to Climate Change of the ICPDR was adopted in December 2012. It provides the knowledge base and a strategic framework for integrating adaptation of the water sector to climate change into the implementation of the EU Water Framework Directive and the EU Floods Directive. On a more operational level, this is done by mainstreaming climate change adaptation into the Danube River Basin Management Plan (DRBM Plan) and the Danube Flood Risk Management Plan. Full

implementation of the DRBM Plan is an integral part of the EUSDR Action Plan, and the DRBM Plan is the main source of information for prioritizing and granting funding for measures in the Danube region.

The JOINTISZA (Strengthening cooperation between river basin management planning and flood risk prevention to enhance the status of waters of the Tisza River Basin) project (2017-2019) aims at further improving the integration of water management and flood risk prevention planning for the next river basin management planning cycle, in line with the relevant EU legislation. The project involves the joint efforts of the five countries that share the Tisza River Basin, including associated partners from Serbia and Ukraine. The ICPDR Tisza Group as well as the EUSDR PA4 (Water quality) and PA5 (Environmental risks) coordinators are closely involved in activities. The Secretariat of the Carpathian Convention is an associated strategic partner and acts as an advisor on issues related to climate change adaptation within the project.

Drought Risk in the Danube Region project (2017-2019) aims at increasing the capacity of the Danube region to manage drought-related risks by providing the following key outputs: A Drought User Service, which will enable more accurate and efficient drought monitoring and timely early warning; harmonized methodologies

for risk and impact assessments; and improved decision-making through introducing the drought management cycle. DriDanube supports implementation activities of PA5 on environmental risks of EUSDR and it contributes to the Integrated Drought Management Programme - Central and Eastern Europe (IDMP CEE). This is a regional initiative supporting the governments of Bulgaria, the Czech Republic, Hungary, Lithuania, Moldova, Poland, Romania, Slovakia, Ethiopia, and Ukraine in the development of drought management policies and plans.



**The main objective of the Danube River Protection Convention (DRPC) is to ensure that surface waters and groundwater within the Danube River basin are managed and used sustainably and equitably.**

Indeed the coming into force of the 2010 Cooperative Framework Agreement (CFA) would expedite cooperation on the protection and conservation of the Nile River through its permanent Nile River Basin Commission (NRBC).

But for genuine cooperation in the mitigation of environmental problems threatening the Nile ecosystem Egypt and Sudan should sign and ratify the CFA. By then blue peace can be born in the Nile River Basin Nations. For this to happen egoistically, selfishness and unilateral approaches should be thrown into the dustbin.

# ماذا بعد الملء الثالث لسد النهضة؟

محمد العروسي  
النائب في البرلمان الإثيوبي  
@Alarusi



التكامل والتعاون والمنفعة المتبادلة مع مصر والسودان!  
ولست هنا بصدد سرد العظمة التاريخية لكل دولة من الدول  
الثلاث ، فيكفيك من عظمتهم اسم كل منهن  
وحيثما يتم الملء الثالث تنتفح الأفاق بإذن ربها لتبرز لنا  
كيف أنا بحاجة إلى التعاون منذ أمد بعيد منا إلى التصارع  
والتغابن .  
إنها آفاق تلوح في فضائها رايات الإزدهار والتنمية  
المستدامة.  
وبعد الملء الثالث يقتضي بنا مراجعة أوراقنا التي لازلنا  
نراهن عليها.  
فمن كان يقول بأن سد النهضة خطر محقق قد بات يلمس  
واقعا منافع السد وجدواه بعد أن كان يرتقب ضره وأذاه!  
ومن بات يرتقب العطش على إثر قيام السد أسعفته بوابات  
سد النهضة بماء أجراه الله بإذنه وقوته بعد أن أمره الله بتوليد  
الطاقة من ماء غير آسن ، فأبهر اليأس بماء وكهرباء بعد  
أن ارتقب العطش واليوار...!  
أواصر الشر تتفكك وأواصر الخير تدوم ، فهلّموا أيها  
الأشقاء في مصر والسودان نحو التعاون إلى مافيه صلاح  
بلداننا وشعبونا.  
لنتجاوز الماضي ونبني الحاضر معا فما أرقى الأمم التي  
تغلب مصالح أوطانها على مصالح أفرادها ولنقل بصوت  
عال :  
سد النهضة رابطة تجمعنا .  
دمتم بخير

عنوان تربعت تحته مليارات التفاصيل التي قد تفوق مليارات  
المياه في سد النهضة

لقد أجمع العارفون العادلون في قضية سد النهضة. منه على  
جدواه التي تنهمر كما الأمطار على أشقائنا في السودان  
ومصر.

وقد تظل التحليلات العلمية الفنية لا تراوح مكانها خلف  
شاشات التلفاز ووسائل الإعلام بمختلف أشكالها وألوانها إذا  
لم تثبت صحة الوعود الإثيوبية لدول الجوار والأسرة الدولية

إننا اليوم في مفترق طرق سلكتها سويا لعقود أو حتى قرون  
من الزمان

فكافة الإشكاليات التي حُضنا غمارها خلال السنون الغابرة  
جعلتنا أكثر قربا من بعضنا البعض حتى وإن لم نشعر بذلك  
في حقيقة الأمر

ولئن كان النصر حليفا لبقعة من بقاع قارتنا السمراء في أي  
أمر كان فإن فرحة الظفر به تتسع في كل بقاع القارة কিما  
شاءت لتحتل كافة البقاع الأخرى

وإن لم تبلغ مرادها هذا فإنها تحتفي بما

استطاعت احتلاله ...

قارة واعدة قائدة سائدة...

إفريقيا ... جنة الدنيا...

وأي إفريقية نتباهى بها دون إثيوبيا ومصر والسودان ؟

لقد أرسى مراكب السلام دعائمها على مرتفعات بلاد الحبشة  
في ضفاف النيل الأزرق ليطلق ربانها الإثيوبيون دعوات



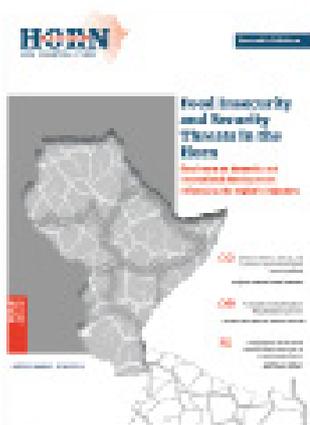
On the occasion of the first year since its founding, Horn Review will be hosting an award dinner in early November, 2022, for distinguished professionals in the following categories:

- Social Entrepreneur Award*
- Cultural Diplomacy to the Horn Award*
- Diaspora Initiative of the Year Award*
- Friends of Ethiopia Award*
- Lifetime Diplomat Award*
- Climate Justice Pioneer Award*

Distinction in each category is awarded to individuals and/or organizations with laudable contributions in research, advocacy, or service for the advancement of their community or country.

To send your nominations, or to learn more about the award categories, please email [awards@hornreview.org](mailto:awards@hornreview.org)





@HornReview



Horn Review



@Horn Review



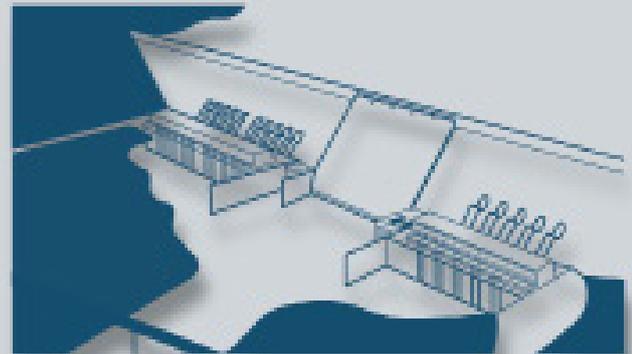
@horn\_review



info@hornreview.org



Behind Sapphire Addis Hotel,  
Bole Atlas, Addis Ababa



## Congratulations to all Ethiopians!

for reaching the crucial milestone of partial-power generation by Grand Ethiopian Renaissance Dam (GERD). This achievement is only the first fruit of the people's labor in their decades-long pursuit of clean and sustainable energy.



Read our previous issues on our website : [www.hornreview.org](http://www.hornreview.org)