

Hydro-egoism and Misinformation in the way of Nile/GERD Negotiation: Transcending the Traditional Approaches to a Long-term Progressive Cooperation

Semu Moges (Ph.D., P.E.)

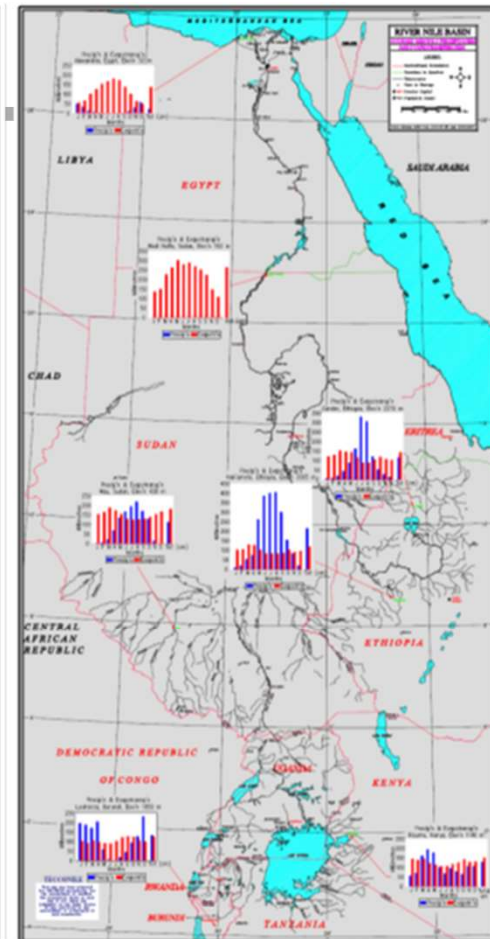
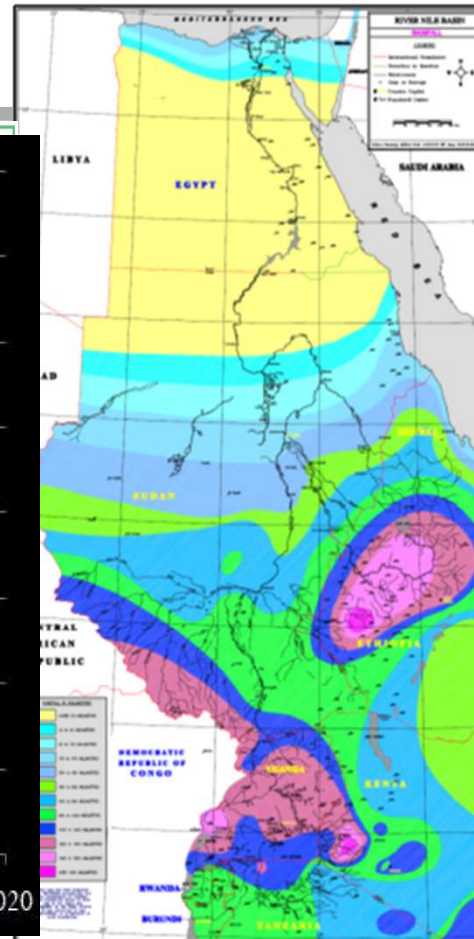
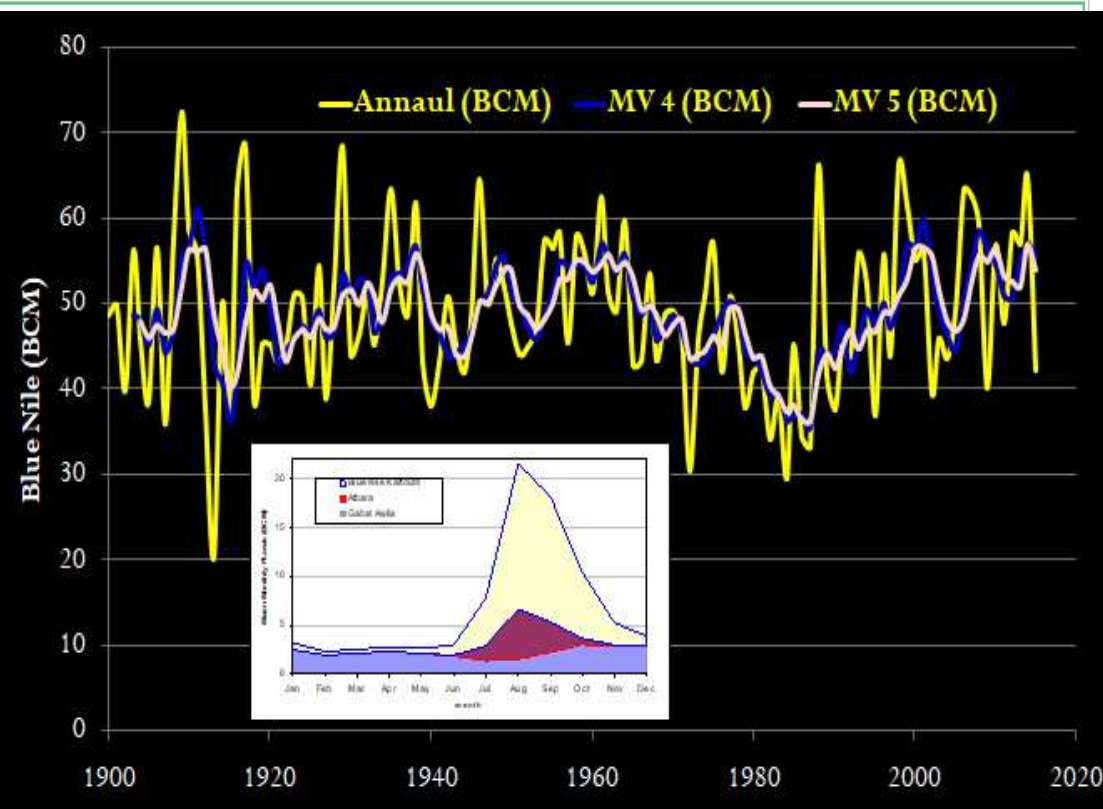
**Consultant and Research Professor, University of Connecticut
(UCONN)**

Contents

1. The Nile Challenge: Nile Basin in one Box
2. The Nile Hydrology and Water Resources
3. Hydro-hegemony, Hydro-egoism, Hydro-solidarity
4. Misinformation/Disinformation
5. Breaking the Mold: **Managing/Containing Hydro-egoism**
6. Summary/Conclusion

2. Nile Basin Water Resources

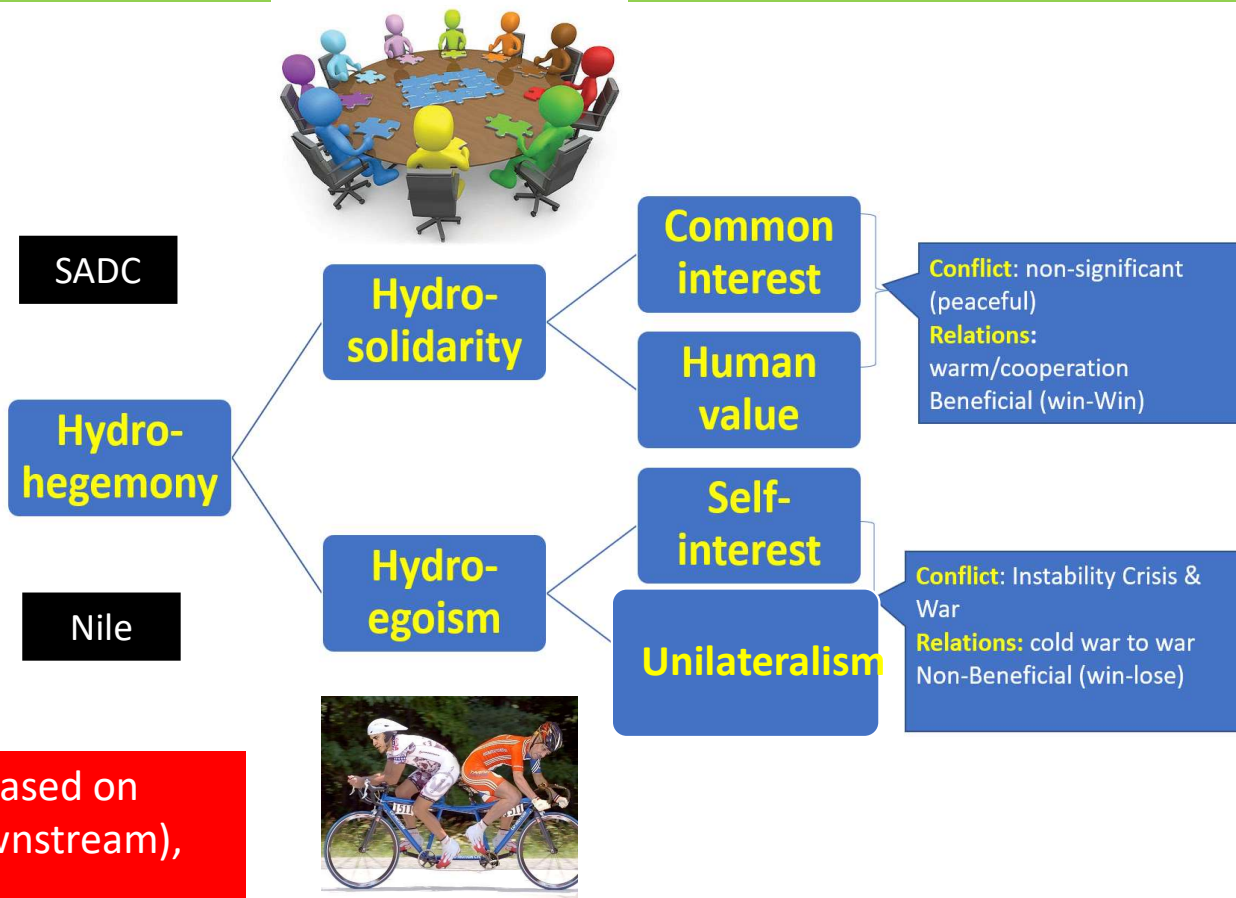
Three Water tower, two significant water users
- the Ecosystem and D/s countries



3. Hydro-Hegemony

- Indicates dominance of a country on other riparian countries
- It can be positive (**hydro-solidarity**) or negative (**Hydro-egoism**)

Hydro-solidarity: A broad term that integrates the concepts of IWRM, Frames water as a **common good**, mutual understanding, fraternity and ethical considerations (???)



Hydro-egoism refers to the control of water based on power, River-basin position (upstream vs. downstream), and potential to exploit water (Zeitoun 2005)

3.1 Hydro-egoism: What dictates Hydro-Hegemony in the Nile basin?

HYDRO - HEGEMONY

RIPARIAN
POSITION

Upstream /
Downstream

POWER

1st Dimension

Military
Economic

2nd Dimension

Active Stalling
Incentives

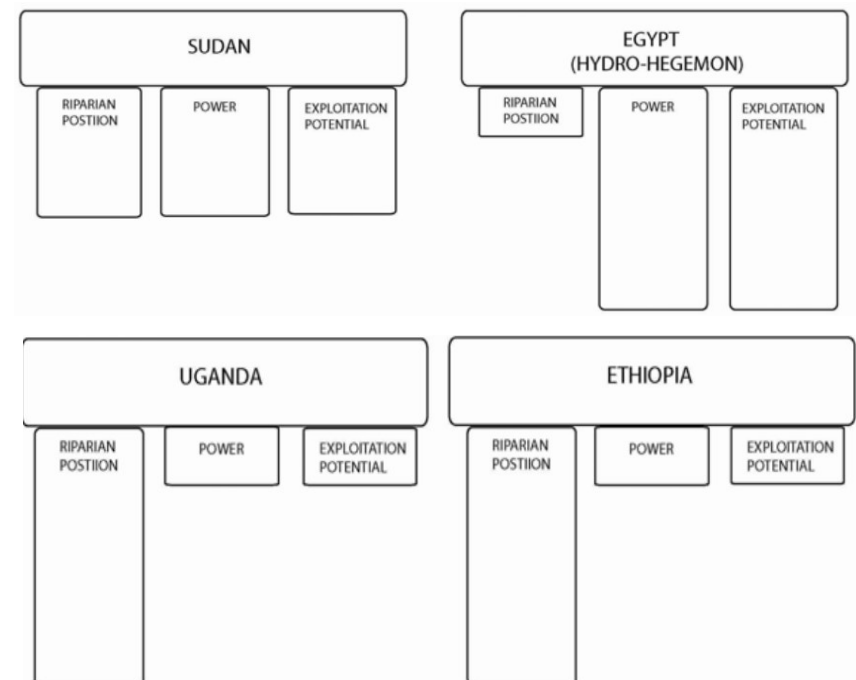
3rd Dimension

Securitization
Sanc 'd Discourse

EXPLOITATION
POTENTIAL

Infrastructure
Tech.capacity

Hydro-egoism in Nile (Zeitoun 2005)



3.2 Hydro-egoism: Manifestation in the Nile Basin

3.2.1 Basin Foreclosure and Harm

3.2.2 Unilateral Policies/ Developments

3.2.3 Stalling Negotiation

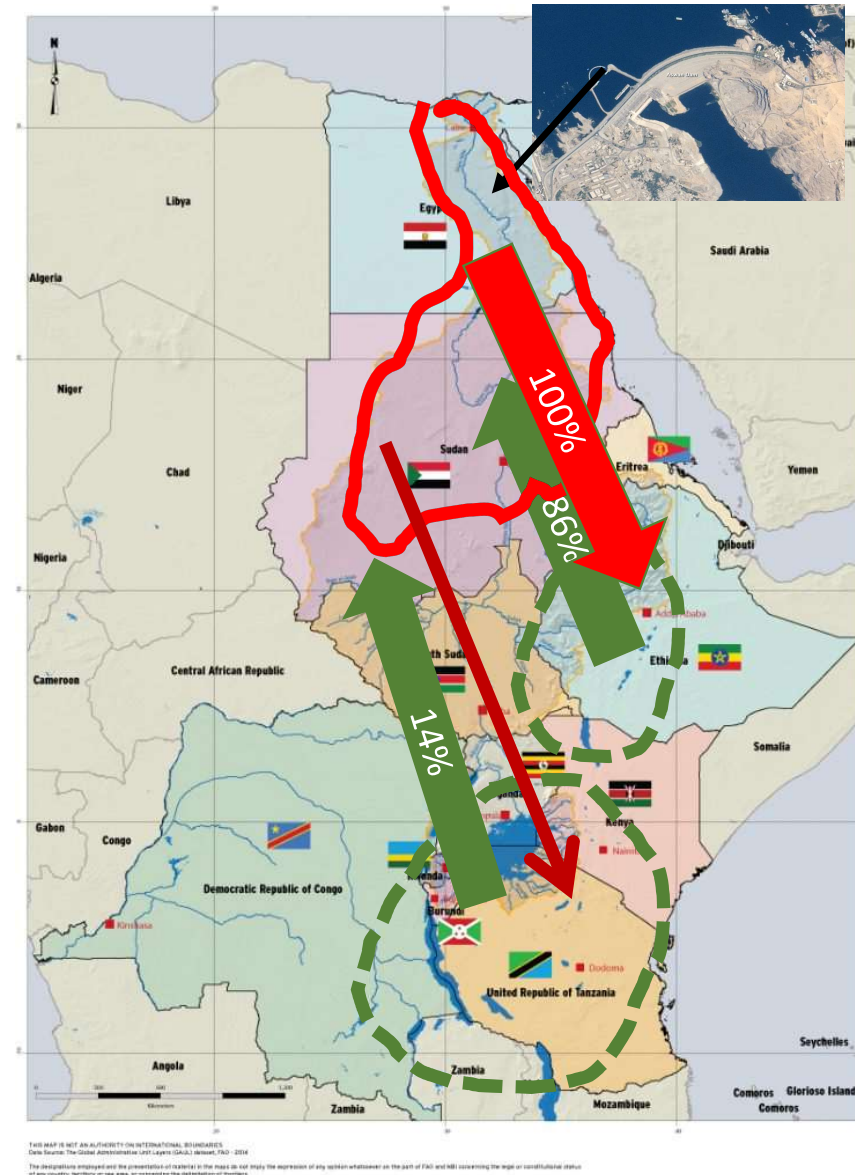
3.2.4 Securization/Militarization

3.2.5 Misinformation/Disinformation



3.2.1 Basin Foreclosure

- When one or more than one riparian country/ies control/utilize 100% of the transboundary river.
- Basin Closure is a cause for Significant Harm to riparian countries
- **The 100% utilization and Control by D/s countries is d/s foreclosure**
 - **Downstream Countries Significantly Harming Upstream countries by foreclosing future water use of upstream countries (Salman, 2016)**



3.2.2 Policies/Public Sentiments/Unilateral Developments

- 1959 Bilateral Agreement (NON-INCLUSIVE agreement)
- Continued Unilateral development particularly
 - Out of Basin Transfer Projects, [Toshka](#), [Al-Salam Senai Development](#), etc
- Claims and Counter claims of Ownership of the shared water resources
 - 2014 Egyptian Constitution and public sentiment,
 - Growing public sentiment as 'Abbay is my water' in Ethiopia against the government water policy

Basin Foreclosure: 1959 Nile Agreement between Sudan and Egypt

As the River Nile needs projects, for its full control and for increasing its yield for the full utilization of its waters by the Republic of the Sudan and the United Arab Republic on technical working arrangements other than those now applied :

And as these works require for their execution and administration, full agreement and co-operation between the two Republics in order to regulate their benefits and utilize the Nile waters in a manner which secures the present and future requirements of the two countries :

And as the Nile waters Agreement concluded in 1929⁴ provided only for the partial use of the Nile waters and did not extend to include a complete control of the River waters, the two Republics have agreed on the following :

No. 6519

UNITED ARAB REPUBLIC
and
SUDAN

Agreement (with annexes) for the full utilization of the Nile waters. Signed at Cairo, on 8 November 1959

Official text: Arabic.

Registered by the United Arab Republic on 7 February 1963.

RÉPUBLIQUE ARABE UNIE

WE THE PEOPLES OF THE UNITED NATIONS DETERMINED

to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind, and

to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and

to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and

to promote social progress and better standards of life in larger freedom,

3.2.3. Stalling Negotiation/Negotiated Agreements: JMP Project

<http://entro.nilebasin.org/index.php/projects/169-joint-multipurpose-program-jmp>

- organization enables investments to be jointly managed and coordinated within an institutional environment. It also formed working groups within this institution.
- **JMP successfully completed a scoping study.** This study, conducted by independent consultants, principally examined hydrological and water-resources matters to broadly establish a “development space.” This space allows for the examination of future water developments.
 - **JMP successfully completed thematic studies.** These studies led to papers on the financing, implementation, and broad legal requirements for development projects.
 - **JMP established a “no-borders” One System Inventory.** This inventory consisted natural resources and related information across the EN sub-basin.
 - **JMP identified the first phase of projects (JMP1) to mobilize stakeholder and investment consultants.** JMP1 projects are indentified as:
 - **“Anchor projects”** comprising a multipurpose dam and reservoir on the Blue Nile with associated hydropower facilities, a power transmission system, and catchm management associated with the reservoir and regional hotspots, and
 - **“Non-anchor projects”** comprising two components: sustainable watershed management and sedimentation management in the upstream catchments; and irrigation modernization and (selected) development for water productivity improvement.



**Opportunities for
Cooperative Water Resources
Development on the Eastern Nile:
Risks and Rewards**

**GERD: new norms of cooperation in
the Nile Basin?(Cascao and Alan,
2016)**

***Egypt declined to participate in the
JMP***

3.2.3. Stalling Negotiation/Negotiated Agreements: Cooperative Framework Agreement (CFA)



Agreement on the Nile River Basin Cooperative Framework

Article 14 Water Security



IN WITNESS WHEREOF the undersigned plenipotentiaries, being duly authorized by their respective Governments, have signed the present Framework.

Done at ENTebbe, UGANDA.

<p>Name: <u>AGATSE J. J. J.</u></p> <p>Title: <u>MINISTER OF WFP</u></p> <p>Date: <u>22/02/2011</u></p> <p>Republic of Burundi</p>	<p>Name: _____</p> <p>Title: _____</p> <p>Date: _____</p> <p>Democratic Republic of Congo</p>
<p>Name: _____</p> <p>Title: _____</p> <p>Date: _____</p> <p>Arab Republic of Egypt</p>	<p>Name: _____</p> <p>Title: _____</p> <p>Date: _____</p> <p>The State of Eritrea</p>
<p>Name: <u>ASEAN DINGAM</u></p> <p>Title: <u>MINISTER, MINOR</u></p> <p>Date: <u>14-05-10</u></p> <p>Federal Democratic Republic of Ethiopia</p>	<p>Name: <u>CHARITY K. NGILU</u></p> <p>Title: <u>MINISTER OF INTERIOR</u></p> <p>Date: <u>19 May 2010</u></p> <p>Republic of Kenya</p>
<p>Name: <u>Samuel K. K.</u></p> <p>Title: <u>MINISTER OF INTERIOR</u></p> <p>Date: <u>14-05-10</u></p> <p>Republic of Rwanda</p>	<p>Name: _____</p> <p>Title: _____</p> <p>Date: _____</p> <p>The Republic of Sudan</p>
<p>Name: <u>Mark James Munro</u></p> <p>Title: <u>MINISTER OF WATER</u></p> <p>Date: <u>14 May 2010</u></p> <p>The United Republic of Tanzania</p>	<p>Name: <u>Isaac Hwang Nkomo</u></p> <p>Title: <u>MINISTER OF INTERIOR</u></p> <p>Date: <u>14 May 2010</u></p> <p>Republic of Uganda</p>

Having due regard to the provisions of Articles 4 and 5, Nile Basin States recognize the vital importance of water security to each of them. The States also recognize that the cooperation management and development of waters of the Nile River System will facilitate achievement of water security and other benefits. Nile Basin States therefore agree, in a spirit of cooperation:

(a) to work together to ensure that all states achieve and sustain water security;

(b)* ...

The disputed 14 (b) and the resolution mechanism

[Article 14b]: Attachment

At the end of the negotiations, no consensus was reached on Article 14(b) which reads as follows: “not to significantly affect the water security of any other Nile Basin States”.

All countries [Burundi, DR Congo, Ethiopia, Kenya, Rwanda, Tanzania and Uganda] agreed to this proposal except Egypt and Sudan. To this effect, Egypt proposed that Article 14(b) should be replaced by the following wording:

“not to adversely affect the water security and current uses and rights of any other Nile Basin State”.

The Extraordinary Meeting of the Nile Council of Ministers held in Kinshasa, the Democratic Republic of Congo, on 22 May 2009 resolved that the issue on the Article 14(b) be annexed and resolved by the Nile River Basin Commission within six months of its establishment.

3.2.4 Securitization of the Nile

- **Government level securitization**

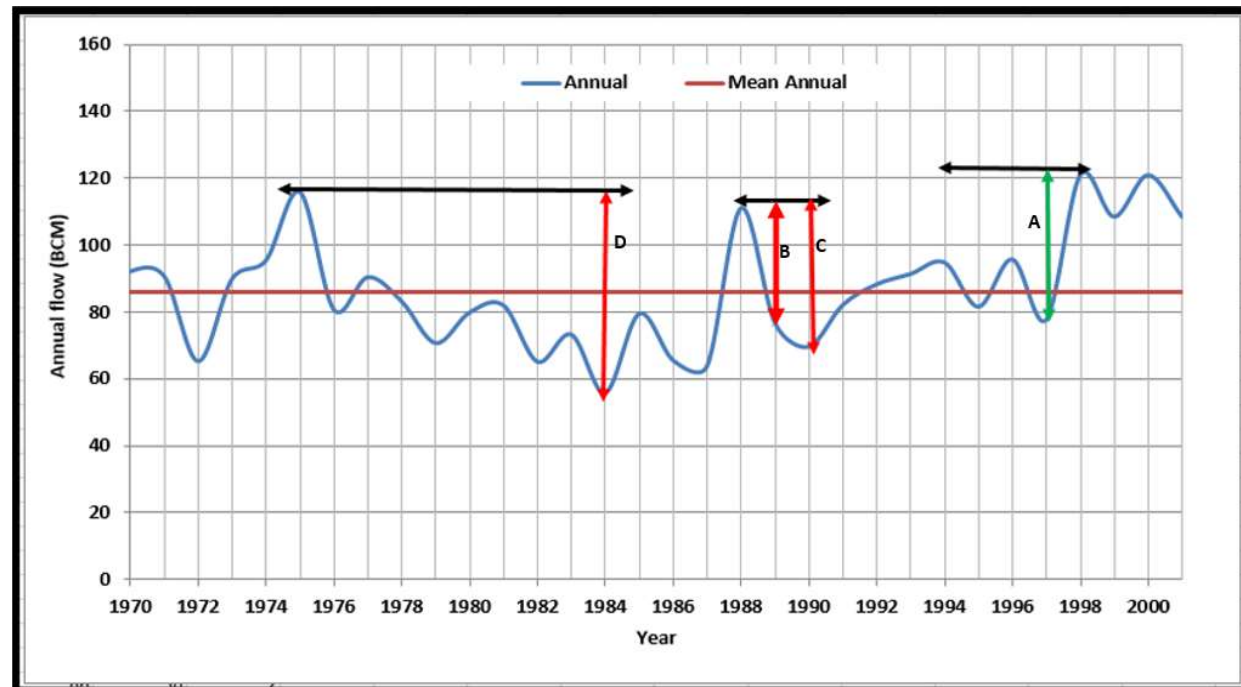
- Anwar Sadat in 1979: "The only matter that could take Egypt to war again is water,"
 - El-Sisi in Oct 2020: Egyptian water rights are 'national security issue' (<https://www.arabnews.com/node/1744841/middle-east>)
 - Egypt, Sudan agree water is 'a matter of national security' (<https://english.ahram.org.eg/NewsContent/1/64/405436/Egypt/Politics-/Egypt,-Sudan-agree-water-is-a-matter-of-national-s.aspx>)
- No or little knowledge of other riparian countries treating water as National security in the Nile basin
 - but growing tendency of securitization in many riparian countries



Stepping out of National Security/Nationalism (20th Century)
Rather Focus on Human Security (21st Century)

3.2.5 Misinformation & Disinformation

Hydrological variability
greater than the Mean
annual flow of Blue
Nile



Pseudo-Science: the Filling Misinformation

Could the mighty dams kill the mighty river Nile?

(<https://interactive.aljazeera.com/aje/2020/saving-the-nile/index.html>)

If Ethiopia fills the dam in:

7 years

Egypt could lose **22%** or 12 billion cubic meters of its total annual water budget.

Resulting in a loss of **30%** or 3 million acres of Egypt's agricultural area.

If the Dam is filled in five years

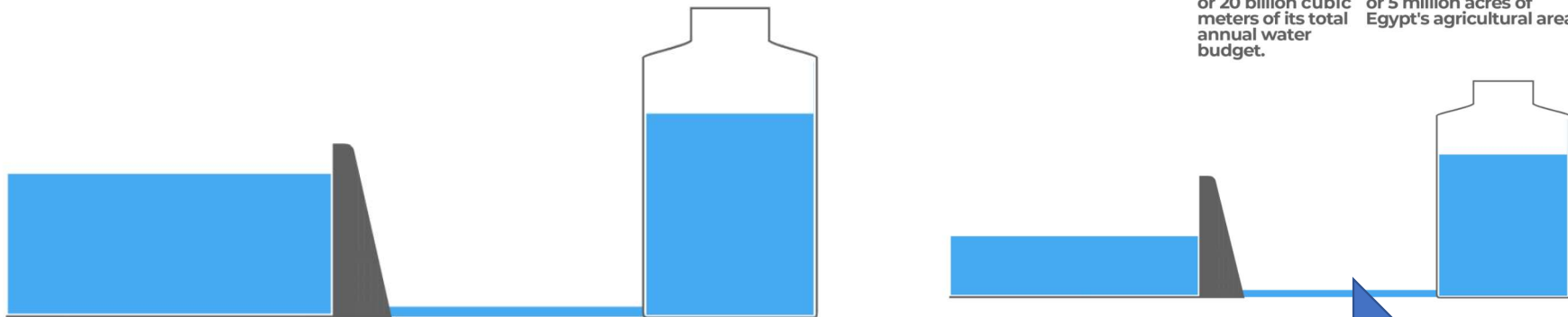
Filling the dam over five years would have yet more extreme consequences for Egypt. It could lose up to 20 billion cubic metres annually, or approximately 36% of its water share. Five million acres (20234sq kilometres), which is about half of Egypt's total agricultural area, could be lost.

If Ethiopia fills the dam in:

5 years

Egypt could lose **36%** or 20 billion cubic meters of its total annual water budget.

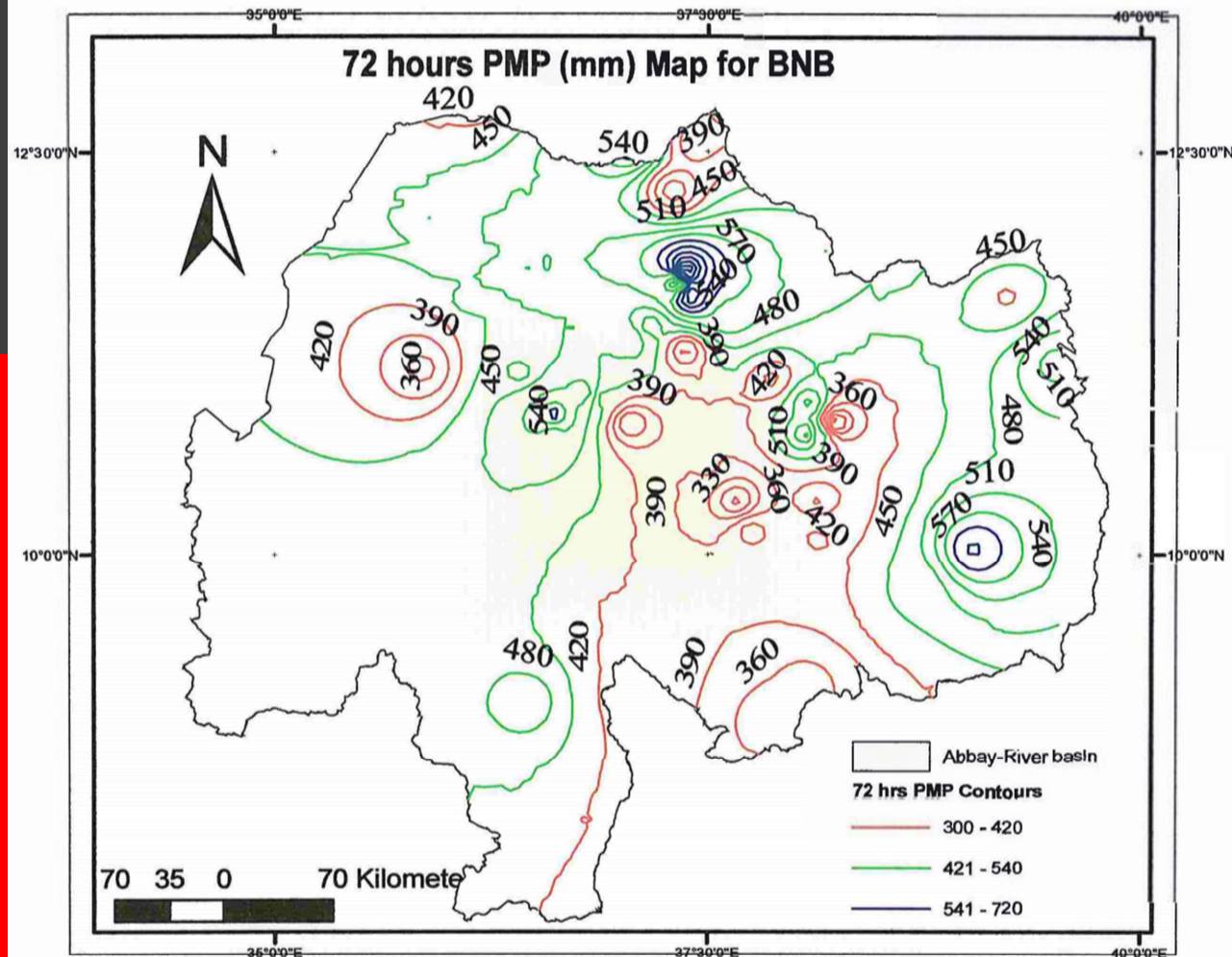
Resulting in a loss of **50%** or 5 million acres of Egypt's agricultural area.



The flow viability of the main Nile is more than the Mean flow of Blue Nile (> 49 BCM). The above fact is not Science but Pseudo-Science

Pseudo-Science: GERD Doesn't Resist High Flood

- Article published in [*Geometrics, Natural Hazards and Risk*](#) claim GERD is not flood resistant.
- The paper claims that the incidence of extreme rainfall event of more than **2500mm** in a few days will result in the Dam's failure ([full article: Remote sensing of the Grand Ethiopian Renaissance Dam: a hazard and environmental impacts assessment \(tandfonline.com\)](#))



Pseudo-Science: GERD Risky Dam (Seismic zone)

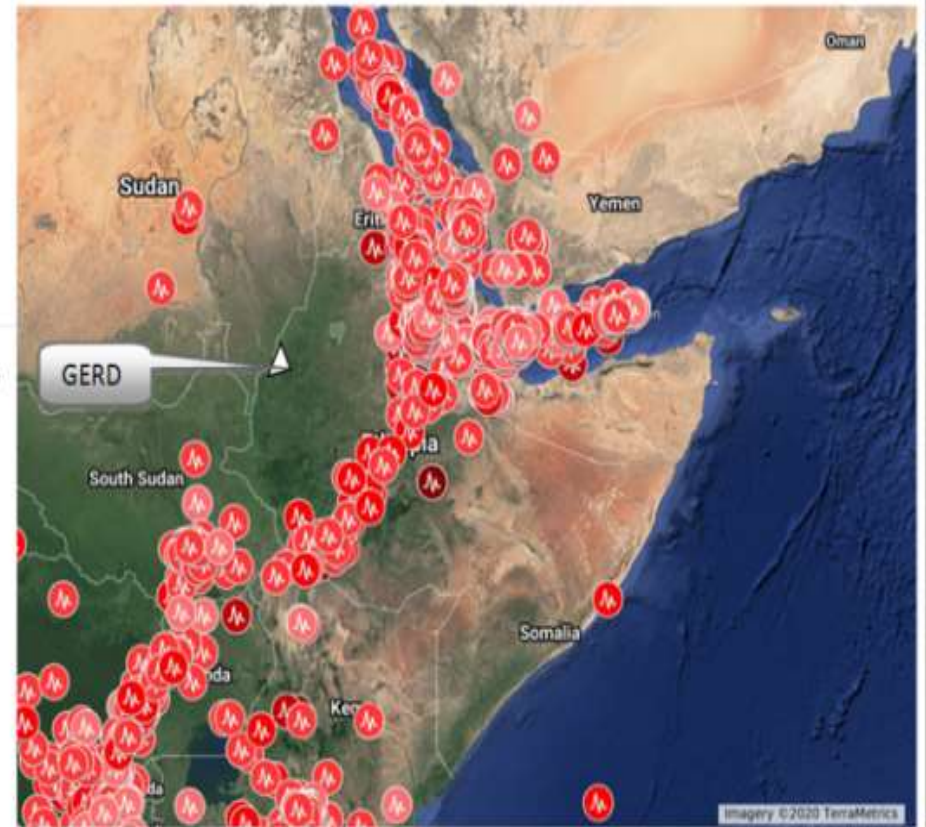
- GERD to collapse within years: int'l dam expert - Egypt Independent
- <https://www.tandfonline.com/doi/full/10.1080/19475705.2017.1309463>

USGS Nile EQ

query

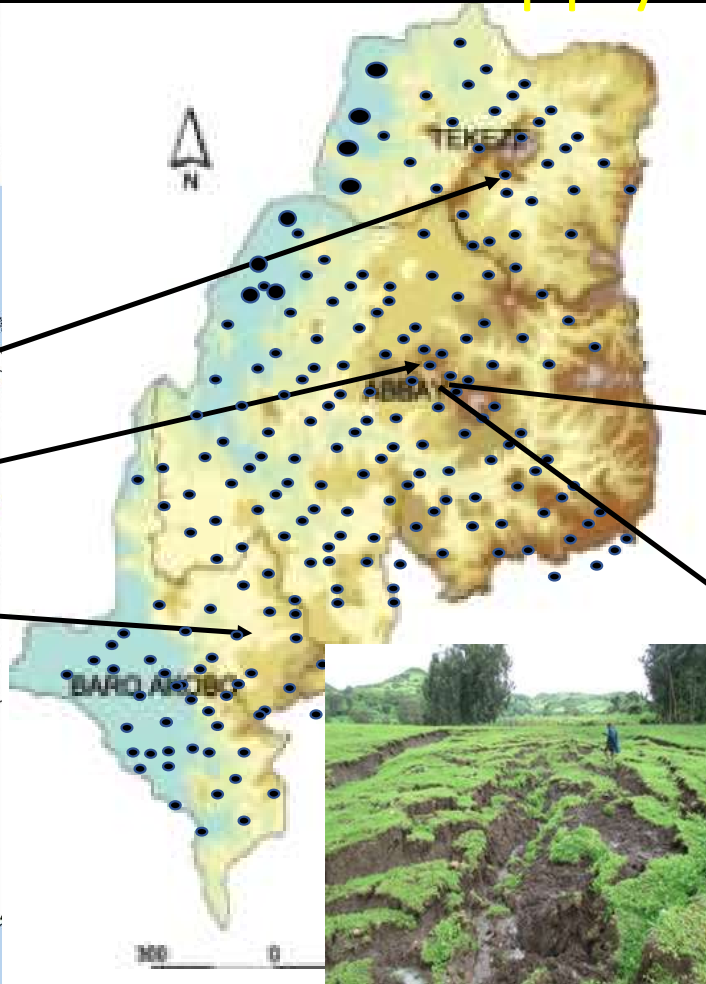
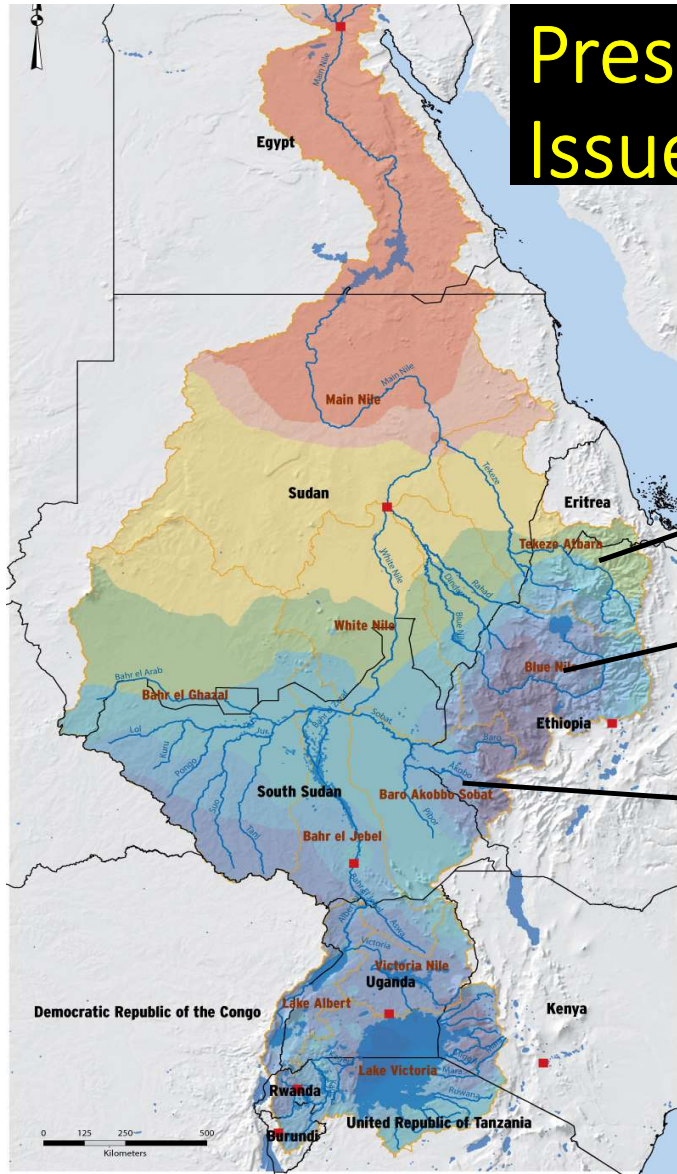
- 1.9-2.6
- 2.7-3.3
- 3.4-4.0
- 4.1-4.8
- 4.9-5.5
- 5.6-6.2
- 6.3-7.2

A map showing earthquake incidences from 1906 to May 3, 2020.

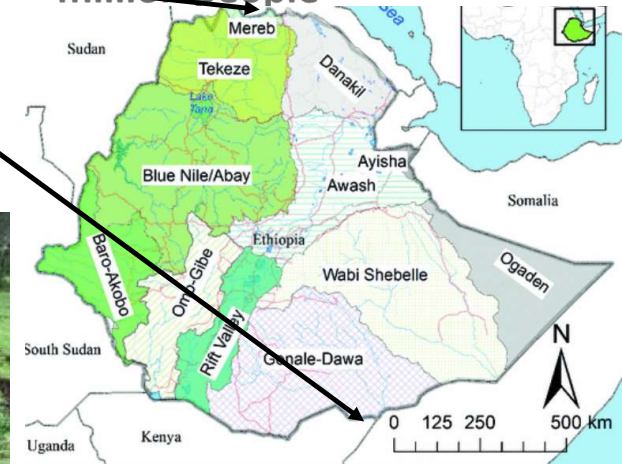


A map showing earthquake incidences from 1906 to May 3, 2020

Presenting GERD/Nile case as only Supply Issues than both Supply & Demand Mgt.



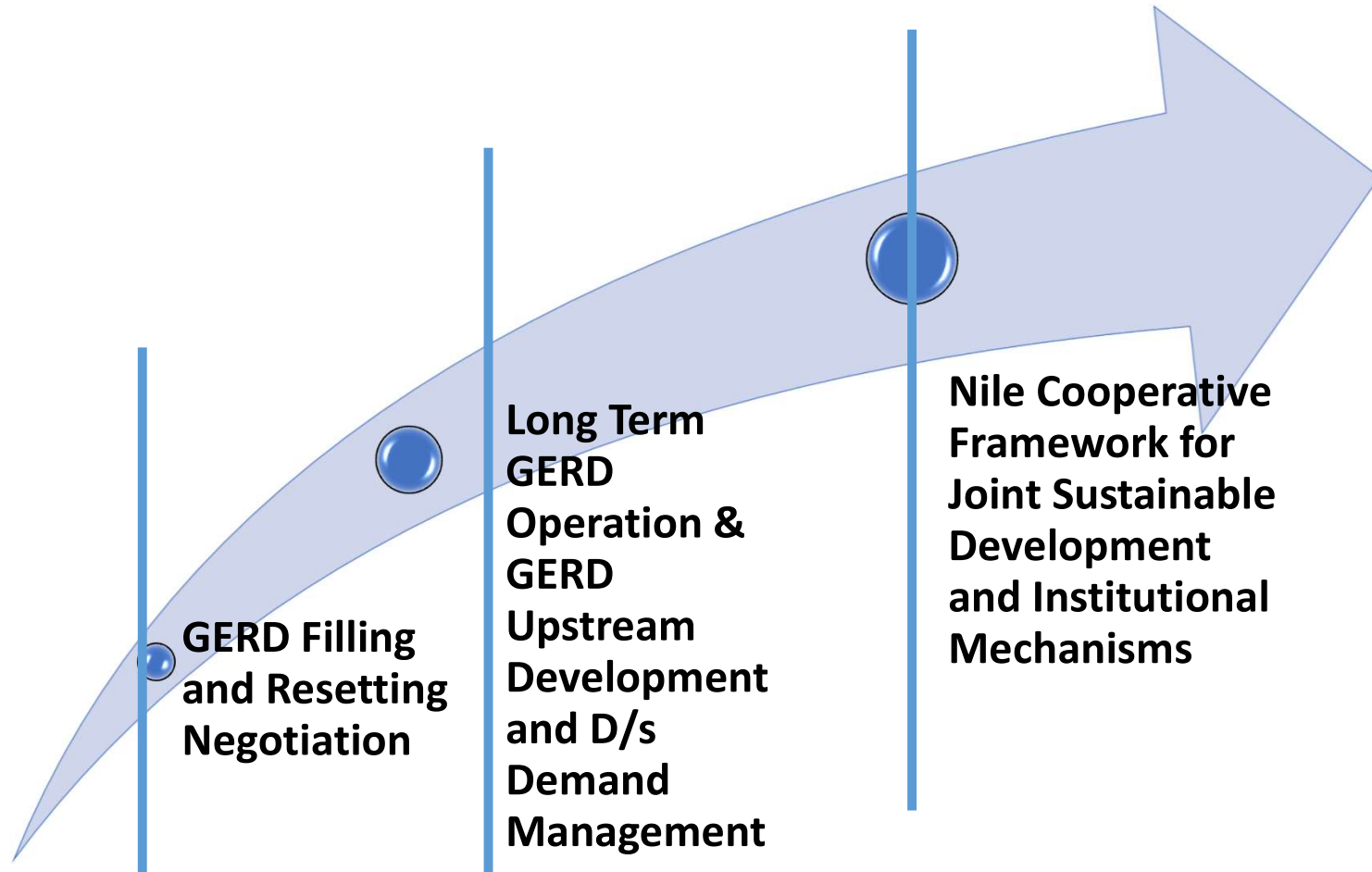
- Ethiopian Nile is 70% of Ethiopia's Surface Water
- > 40 million people in the water sheds of the Ethiopian Nile.
- Water-Energy-Food flux for Ethiopia for more than 105 million people



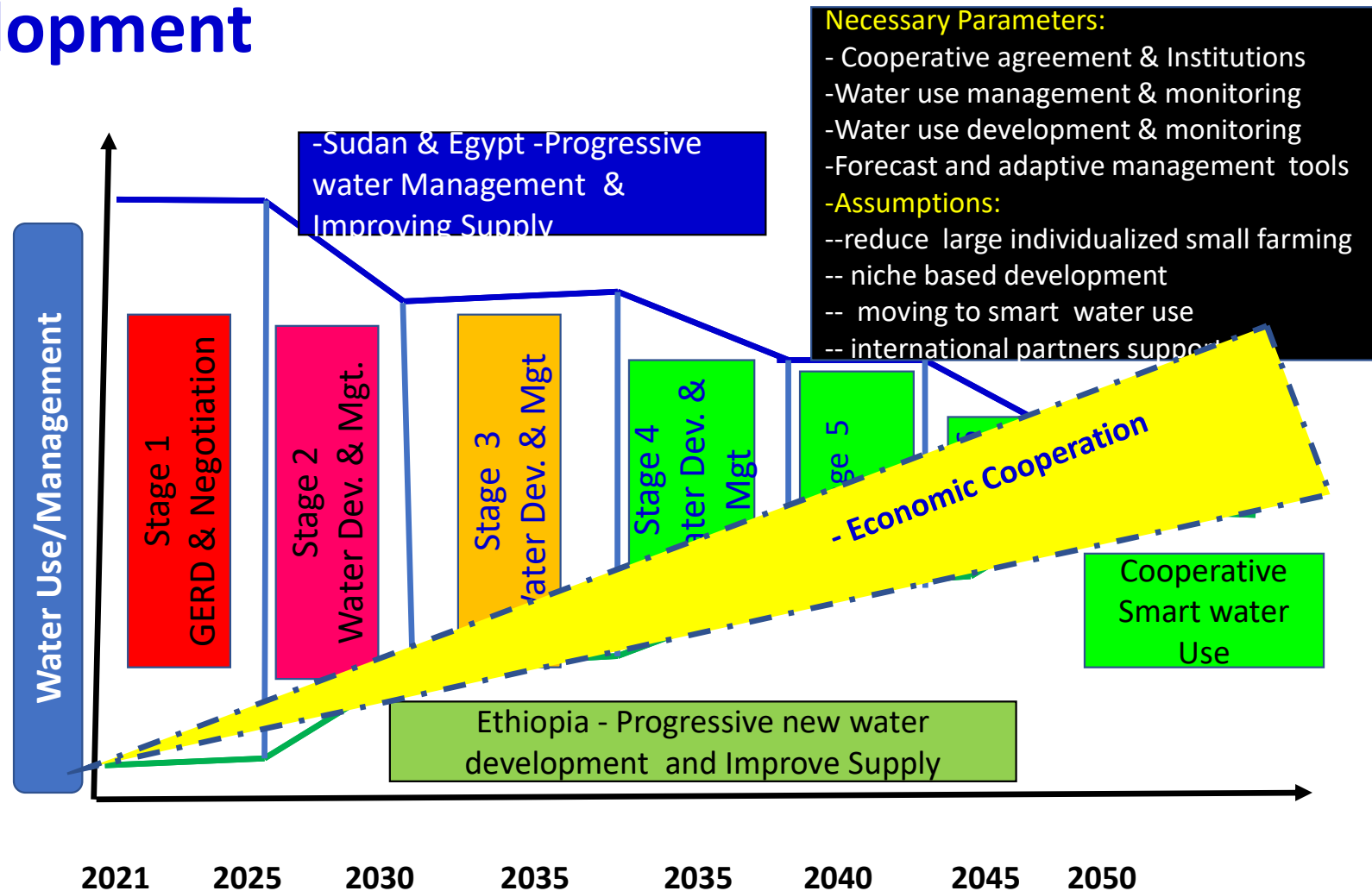
Breaking the Mold: Managing Hydro-egoism

- Internalize that the shared nature of the Nile resource (e.g., sign and ratify the CFA)
- Recognize the existing and growing **hydro-egoism** in the basin and break the Mold.
 - Hydro-solidarity tools (Scientific diplomacy, public diplomacy, transparent information exchange, etc)
- Jump into a Phased Cooperative Agreements
 - Adaptive, Dynamic and expressing the best agreement
- **Recognize there are TWO Paths for comprehensive Nile Agreement:**
 - *Water sharing path* or *Joint Development & Benefit Sharing Path*

Phased Cooperative Agreement – Long term Negotiation Perspective and phased Short term Decision Action



Phased Cooperative Demand Management & Development



Water Management: Large Scale Schemes

Smart Irrigation

General

- > 85% of the large irrigation schemes are gravity system

Egypt

- 40 BCM water can be saved from water losses (El-Nashar and Elyamany , 2018)

Sudan

- The irrigation Efficiency of in Gezira scheme average at 22% (Mohamed

2011

Smart Agriculture



Integrating Watershed Restoration & Enhancing Rainfall productivity

- The total rainfall in the basin exceeds 2000 BCM,
- The Sudan including South Sudan (51%), Ethiopia (23%) and Uganda (13%) generate over 87% of the total volume of rainfall (FAO, 2011)
- *Productive use rainfall – Soil moisture infiltration enhancement, supplementary irrigation and Watershed management*
- *Distributed rainfall harvesting dam in highlands*





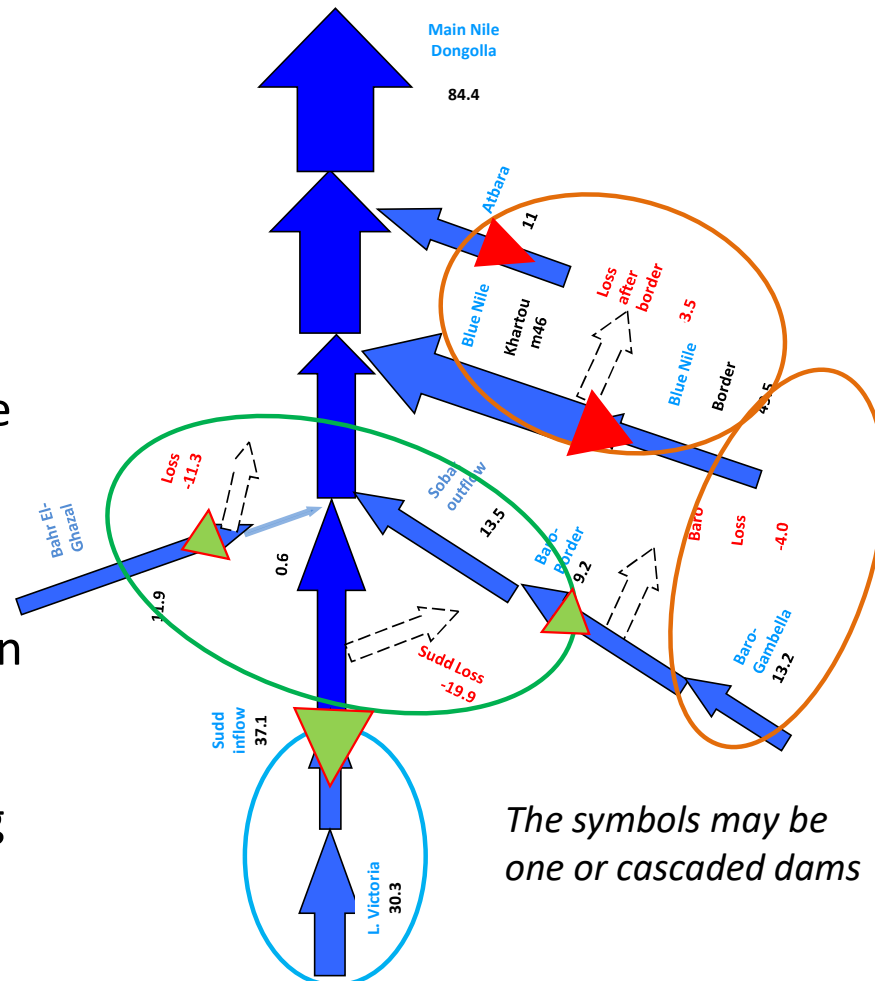
(Lake Tana Watershed Regreening Ethiopia's highlands: A new hope for Africa)



By Konstantin Krismer - Own work, CC BY 3.0, (Vietnam)
<https://commons.wikimedia.org/w/index.php?curid=15611681>

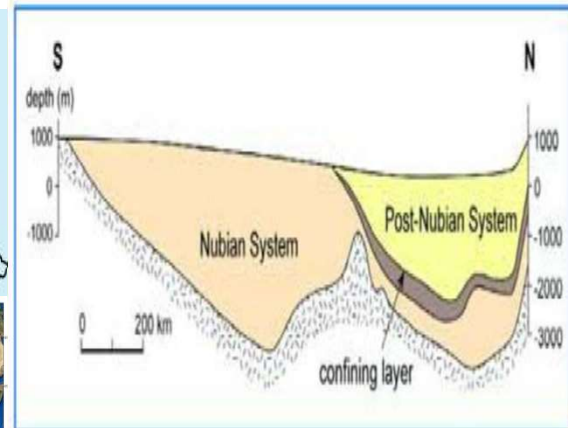
Water gain through 21st Century Storage Schemes

- 
 • *Energy and Ecosystem service storage dams* – regulated for energy, fishery and high return floods, ecosystem release
- 
 • *Energy and Flood storage dams* – regulated for large scale energy and flood protection, regulated downstream release
- Studies indicate more than **20 BCM** water can be added to the system plus benefits from fish farming and Energy



Water Supply: Non-Renewable -Aquifer Water Utilization

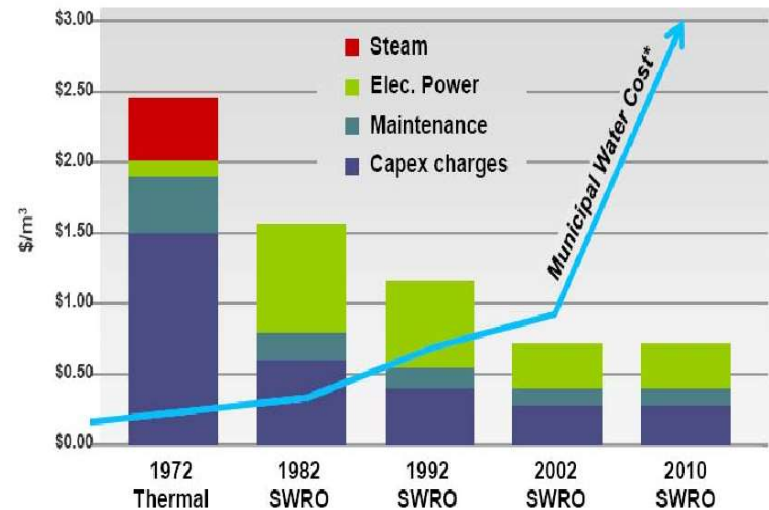
No	Stored GW (Km3)	Author	Remark
1.	15,000	Ambroggi (1966)	
2.	135,000	Gossel et al (2004)	
3.	457,550	CEDARE (2002)	
4	373,000	-do-	NSA (41.5%-Egypt, 36.6%-Libya; 9%-Sudan & 12.8%-Chad
5	84,600	-do-	PNA (46%-Egypt; 54% - Libya
6	14,818	Abu Zeid, 2003	Recoverable
7	543,500	-do-	Storage volume
8	60,000	Fatima (1999)	
9	372,950	Bakhabkhi (2011)	Total fresh GW
10	14,459	Bakhabkhi (2011)	Total recoverable fresh GW



-Even though the recoverable volume is uncertain, the potential as abatement for increase population is huge,
 -A study on the 100 thick aquifer in Egypt indicates a water yield in the order of 5000 Km³ (Bakhabkhi, 2006)

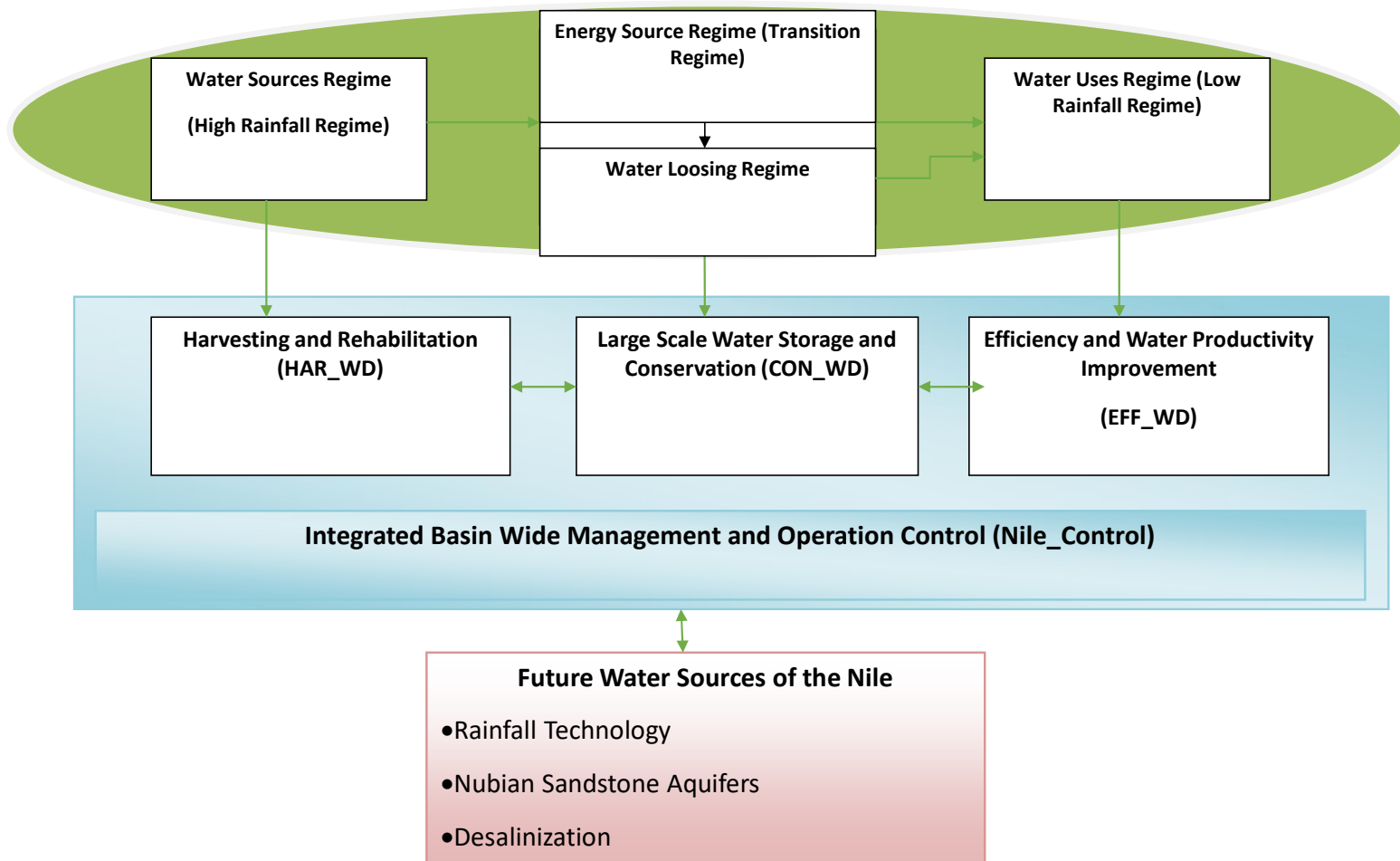
Water Supplies: Desalinization

- The total cost of desalinization has reduced to **0.6\$/m³** and adding 70% for distribution, the total cost is around **1.02\$/m³**
- Current municipal water supply cost reached **3.1\$/m³**
- Experience exists in 2008 about 3.1 Billion m³/yr in the Arabian Gulf and 800 Million m³/yr in the Mediterranean region (Waterline Report Series No. 9, 2008)



- Collective Regional Initiative such as Linking with Nile Basin Vision and funds and Technology can be acquired for large scale desalinization in coastline countries

Build Science based IWRM/WEF nexus



Infrastructure Investment for the Nile

- A **Marshall Scale** investment for Water Supply and Demand Management over the coming 2050
 - To create Nile Basin Commission (One River, One System and One People)
 - Create Monitoring and Forecasting tools
 - Distributed small scale to large scale water supply management and water demand management technologies



Conclusion

- In my view there is **no Water Scarcity, there is only Scarcity of willingness and Idea**
- Recognize the historical water injustices and emerging resentments & Hydro-egoism
- Depoliticize and Denationalize the Shared Resources
- Prioritize dialogue, phased agreement & Cooperation, Joint Investment and Economic cooperation
 - **Science based dialogue**
- Identify systemwide water supplies/gains and demand management (Water Saving practices)
- Hydro-Hegemon Egypt must reject Hydro-egoism and play a greater role in building **Hydro-solidarity** and work to shape **public opinions** in that direction