

Evaluation of Current State of Water Infrastructures and Management in the Euphrates-Tigris Basin

zoom



A roadway from analysis to diplomacy

March 30th 2021 Ankara-Turkey

WEBINAR



REPORT

March 30 2021





Think Forward . Lead Forward

Will Post-War Reconstruction Serve Water Needs in the Middle East ?



Invitation

WEBINAR March 30 2021

EVALUATION of CURRENT STATE of WATER INFRASTRUCTURE and MANAGEMENT
in the
EUPHRATES -TIGRIS BASIN
A roadway from analysis to Diplomacy

Date: 30th March 2021
Time: 14:00 (GMT+3)

Organised by
Hydropolitics Academy ,Turkey
www.hpacenter.org

Hydropolitics Academy, Turkey would like to thank all of the speakers and attendees for their contribution to the webinar

March 30 2021





Prof. Dr. Mara Tignino
Geneva Water Hub/
University of Geneva



Dr. Martina Klimes
SIWI



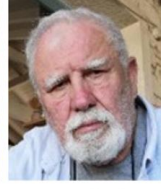
Dr. Fadi Comair
UNESCO IHP



Dr. Azzam Alwash
Iraq NATURE



JD Frederich Lorenz
Univ. of Washington



MA Kamal Jalouqa
HPA, Turkey



**EVALUATION of CURRENT STATE of WATER INFRASTRUCTURE and
MANAGEMENT**

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**Webinar on
EVALUATION of CURRENT STATE of WATER INFRASTRUCTURE and
MANAGEMENT**

in the

EUPHRATES -TIGRIS BASIN

A roadway from analysis to Diplomacy

By Hydropolitics Academy of Turkey

March 30 / 2021 (14.00 -16.00 GMT + 03.00)

Introductory note:

The Euphrates-Tigris basin has been the cradle of many civilizations of Anatolia, the Land between the two rivers, and the fertile crescent throughout the history of mankind. The two rivers and their tributaries have been the source of life in otherwise arid lands of Mesopotamia, and has been subjected to many threats lately due to climate change and political-security, which adversely affected the balances of water distribution between riparian states, human habitation, and necessitated a rethink of existing relationships and hydro policy and diplomacy.

As the authors of Strategic Waters, Lorenz F. and Ericson E. inquire: Is it likely that the Euphrates-Tigris River system will dry up? Certainly not, but it seems certain that within the next 10 to 20 years that the water usage and demand by the riparian nations of Turkey, Syria, and Iraq will exceed the supplies. Increased levels of pollution will make the management of the limited supply of Euphrates-Tigris water even more difficult for the nations that rely on it. The riparian nation that will be most affected by the impending crisis is the one farthest downstream—Iraq.

This webinar is organised by the Hydropolitics Academy, the water think tank based at Ankara-Turkey, which has also organised seminars, round table meetings and webinars on the issues and subjects related to water resource related diplomacy in the region.

The webinar will cover the following topics:

- *The legal, political and institutional setups related to water resource management between riparian states.*
- *The infrastructure constructed by the riparian states, its current condition and what damages has been caused by the security, political instability over the last decade.*
- *How technology and the science community can help facilitating an evaluation of the efficiency of the infrastructure and policy making among riparian states.*
- *What political, policy, institutional and cooperation setups will be needed to sustain fair shares of the water resources, and what macro-economy atmospheres need to be created.*

Guest speakers:



Dr. Fadi Georges Comair Water diplomat and international negotiator specialized in the Middle East region. Member of the French Overseas Academy of Sciences and Water Academy in France. **President of UNESCO's IHP Council**

Topic: “Intergovernmental Hydrological Program Strategy”



Prof. Dr. Mara TIGNINO Lead Legal Specialist, Platform for International Water Law, Geneva Water Hub Reader, Faculty of Law and Institute for Environmental Sciences, University of Geneva

Topic: "Water rights under international law, particularly in conflict-affected regions, the Euphrates-Tigris Basin as an example".



Dr. Martina Klimes, Advisor, Water and Peace Transboundary Water Cooperation Dept. | Stockholm International Water Institute (SIWI)

Topic: "Towards Sustainable Cooperation in Euphrates Tigris Region: Water as a Dialogue Entry Point".



Azzam Alwash Founder and CEO, Nature Iraq, Member of the Board of Trustees of the American University of Iraq – Sulaimani,

Topic: "A General evaluation of the water infrastructure in the Euphrates-Tigris Basin"

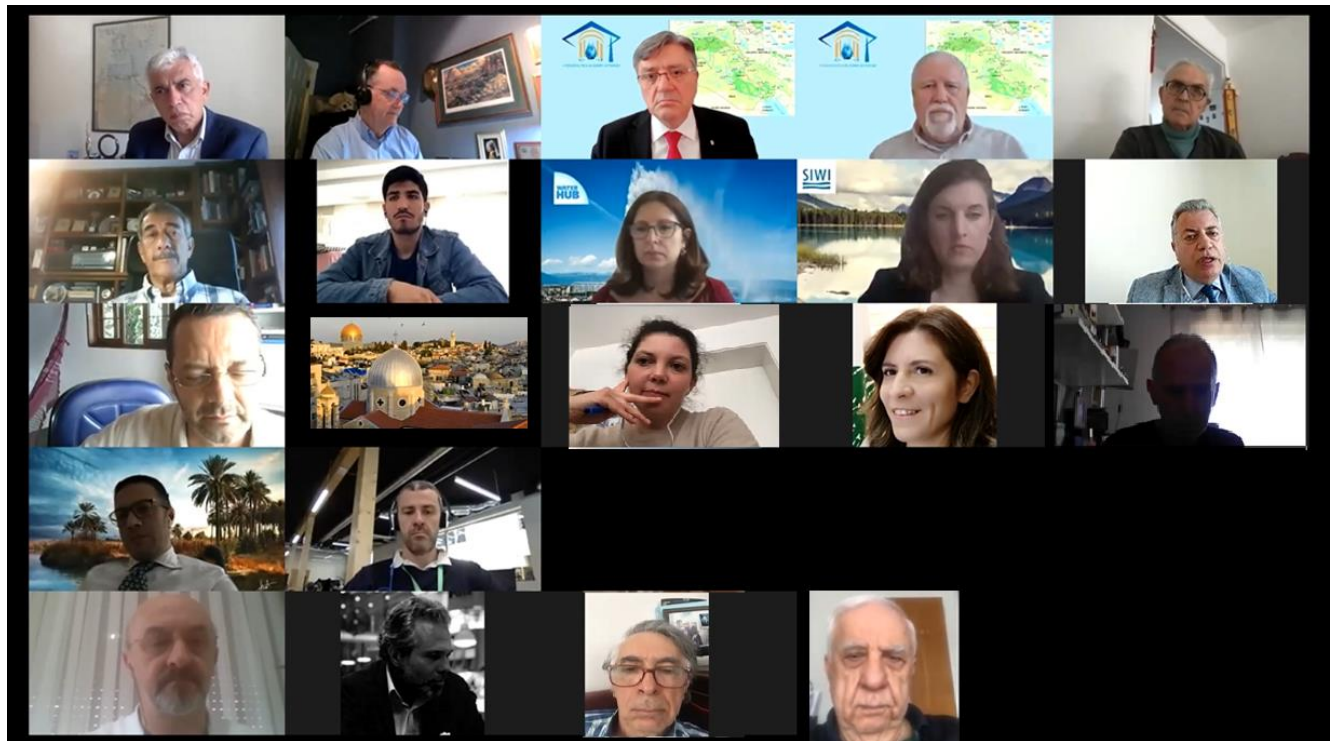


Frederick Michael Lorenz, JD LL.M.
Senior Lecturer, Jackson School of International Studies
University of Washington, Seattle USA

Topic: "The Role of Turkey in Promoting Integrated Development in the E-T Basin."



M.A. Kamal Jalouqa-Hydropolitics Academy - **Moderator**



Welcoming Speech by Dursun YILDIZ HPA President

Distinguished guests, speakers, and participants to the webinar on Water Resources Infrastructure Evaluation in the Euphrates-Tigris Basin, the third of its kind we at the Hydropolitics Academy of Ankara-Turkey have organized in the last several weeks.



Ladies and Gentlemen,

At the beginning of this important gathering of experts on water resource management and diplomacy, allow me to highlight some of the topics that we see important at this time of rethinking the steps ahead in our region.

We, at the Hydropolitics Academy believe that the efforts of our bilateral states of the transboundary water resources of our region can only be intensified and given momentum by the activities of the scientific community and the organizations that represent the civil interests of our nations.

It is also our belief, and I believe, are the beliefs of you ladies and gentlemen, that these times are valuable for our nations, in making a joint understanding of the need for an agreed work plan that may lead to an institutional setup.

This will utilize the best technological achievements in water resource management and utilization in agriculture, urban development and industry. Putting all these developments into action will depend on the contributions you, and your organizations can provide.

We are happy to hear that some positive steps have been agreed upon in the first International Water Conference that took place last week in Baghdad,

One of our distinguished speakers of today, Dr. Martina Klimes has attended the conference .we expect some further details of these decisions from her.

Several years ago Turkey has declared that: We are ready to use water resources for peace and stability in the region, based on a water and land management plan and program. And I believe, that, It is our duty as experts, civil societies, and scientific institutions to help create that an updated program and work plan.

Our efforts in this regard, should not be discouraged by the fact that our region has a very dynamic structure in terms of political and social relations, that has occasionally led to conflicts between riparian states. Instead, these facts must make us more willing, to make the best use of the interests of the young populations of our region. Especially in creating an atmosphere of cooperation in agricultural production, trade, and economic development with regional development project in nexus approach.

I wish you luck, our dear speakers and participants in taking benefit of this opportunity and make contributions that may lead to the creation of frameworks for a better future in our region.

Welcome again, and best wishes for a successful webinar.

PRESENTATIONS



Dr. Fadi Georges Comair Water diplomat and international negotiator specialized in the Middle East region. Member of the French Overseas Academy of Sciences and Water Academy in France. **President of UNESCO's IHP Council**

Topic: "Intergovernmental Hydrological Program Strategy"

United Nations Educational, Scientific and Cultural Organization • **Intergovernmental Hydrological Programme**

HPA
Think Forward, Lead Forward

The strategic plan for the ninth phase of IHP-UNESCO
Science for a water secure world in a changing environment (2022-2029)

Prepared by
Dr. Fadi Georges Comair
President of UNESCO's IHP Council



key water priority area agenda 2030

- Scientific research and innovation
- Water education in the fourth industrial revolution
- Bridging the water knowledge gap
- Inclusive water management under conditions of global change
- Water governance based on science for mitigation, adaptation and resilience

- A- Strategic Plan Identifying water-related priority for Member States
- B- Operational-Implementation Plan with a financing strategy

Strategic plan purpose:

- To outline compelling and strategic forces to the IHP-UNESCO force 2022-2029 period.
- To represent a methodological response towards transdisciplinarity aimed to generate solutions for a water secure world in a complex context





Priority area 1:


scientific research and innovation

The development of hydrological science and research has provided practical knowledge and information for society about:

- 1- Water fluxes
- 2- Transport and management

-Increasing and uncertain environmental changes demand for a continued effort on research innovation and application

-Scientific research incorporating human interaction with nature in the context of water sciences and management problems provide fundamental feedback to water resources management, along with the application of new tools, approaches and technologies.



Priority area 2: Water Knowledge and Education in the fourth Industrial Revolution

- The success of Agenda 2030 for Sustainable Development and water related SDGs' and associates targets depends on a profound transformation of human values and consequently human behavior and activities, directly impacting how we live our lives.
- Achieving that end can only be envisioned when society recognizes the need to reintegrate itself with nature in a way to outrace a common understanding of the importance and limits of our natural resources based on improving the quality of our life.
- Water education at all levels for an improved water culture in a context of global change is a formidable tool for member states to practice
 - Inclusive, evidence based water governance and management in order to move towards resilient and sustainable societies.
- It is a tool that encourages the engagement of all sectors of society to adapt to sustainable consumption and production patterns.

Priority area 3: bridging the data-knowledge gap

- Transparency and accessibility to data are among the main pillars of sustainable advancement of open science –accruing commitment to UNESCO
- Hydrological measurements are essential for decision-making and sustainable water resources management
- The absence or inaccessibility of comprehensive long-term data about water quantity and quality often leads to partial or ineffective management and investments.
- Sufficient and accessible data needs to be ensured and in many cases improved.
- An appropriate data network needs to be established in order to enable data access from transboundary sources to all the interested users.



Priority area 4: inclusive water management under global changes conditions

- **Healthy and clean rivers, lakes, wetlands, aquifers and glaciers do not just supply safe drinking water, safeguard biodiversity and maintain all ecosystems in the planet; they also support agriculture, hydropower, industry, communications and transportation of goods.**
- **Global change is simultaneously a threat and an opportunity for inclusive water management.**
- **Integrative approach perspective using the Nexus of Water, Energy and Food also means achieving water security at the governmental level.**

Priority area 5: water governance based on science for mitigation, adaptation and resilience



Water governance refers to the political, social, economic, legal, and administrative systems in place that influence water's access and use, protection from pollution, and management in general.

It determines the equity and efficiency in water resource and services allocation and distribution, and balances water use between socio-economic activities and the goods and services provided through ecosystem preservation.

It includes formulation, establishment, and implementation of water policies, with clear and practical standards based on science, including water ethics, legislation and institutions, and the roles and responsibilities of all stakeholders. Good water governance requires the promotion of additional research to face the challenges of mitigation and adaptation to climate and other global changes as well as developing affordable technologies in order to provide solutions to all.



The way forward

This ninth phase of IHP-IX will cover the next eight years almost until the end of agenda 2030. It is designed to support Members States in achieving SDG6 and other water related SDGs and international water-related agendas towards a water secure world and resilient societies. Its implementation will among others contribute to the UN SDG6 Global Accelerator Framework and the UN Water Action decade (2018-2028).

Its success should be measured based on the progress made by Members States in addressing global complex interlinkages and water challenges by people and institutions having adequate capacity and scientifically based knowledge to make informed decisions on water management and governance to attain sustainable development and to build resilient societies.

The overall implementation of IHP-X will be led by UNESCO's Water Family and will benefit from partnerships with UN-Water and its members, academic and scientific organizations and associations, Intergovernmental organizations, regional, or national organizations, Non-Governmental organizations, global funds, research/ academia and the private sector.



An active implementation plan

All Members States and the UNESCO Water family comprising the national IHP committees, the centres, chairs, flagships/initiatives and WWAP and key partners will be mobilized in the preparation of the operational-implementation plan.

In line with the intergovernmental nature of IHP and the recommendations of the mid-term external evaluation of IHP-VII, Members states and their related UNESCO water family entities should play a key role in the implementation of the operational plan by identifying outputs for which they can actively contribute to and/or provide (co)-leadership.



Thank you for your attention!

Dr. Fadi Georges Comair
President of UNESCO's IHP Council



Prof. Dr. Mara TIGNINO Lead Legal Specialist, Platform for International Water Law, Geneva Water Hub Reader, Faculty of Law and Institute for Environmental Sciences, University of Geneva

Topic: "Water rights under international law, particularly in conflict-affected regions, the Euphrates-Tigris Basin as an example".

WATER RIGHTS UNDER INTERNATIONAL LAW, PARTICULARLY IN CONFLICT AFFECTED REGIONS, THE EUPHRATES-TIGRIS BASIN AS AN EXAMPLE

30 March 2021

Dr. Mara Tignino

Lead Legal Specialist, Platform for International Water Law, Geneva Water Hub
Reader, Faculty of Law and Institute for Environmental Sciences, University of Geneva



Outline

1. Definition of water rights
2. Water rights under international water law
3. Core principles and obligations of international water law
4. Examples and good practices

Section 1: Definition of water rights



Discussing Water Rights, A Western Pastime

Definition of the concept of water rights

- There is no universally agreed definition of the term “water rights”
- A water right is defined as a legal right to abstract and use a quantity of water from a natural source such as a river, stream or aquifer
- Water rights should go beyond an entitlement to a mere quantity of water to include its flow and quality

FAO Legislative Study, 2006



Status of water rights

- Water rights are legal rights
- Water rights should be distinguished from the human right to water
- Water rights over transboundary waters are exercised in accordance with principles and obligations of international water law

FAO Legislative Study, 2006



Section 2: Water rights under international water law



<https://www.circleofblue.org/>

Water rights under international water law

- International water law is the branch of international law that governs the uses, protection and management of transboundary waters
- Principle of "restricted territorial sovereignty" : a state is free to use its territorial waters, provided that it in no way prejudices the rights and uses of other riparian states
- Principle codified through declarations, treaties, case law and the practice of joint basin organizations

Codifications of international water law

- 1966 ILA Helsinki Rules on the Uses of the Waters of International Rivers
- 1997 Convention on the Law of the Non-navigational Uses of International Watercourses
- 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes



Soft law instruments

Sustainable Development Goals (SDGs)

6.5.1: Degree of integrated water resources management implementation

6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation



Section 3: Core principles and obligations of international water law



Source: <https://www.e-ir.info/2015/07/22/transboundary-water-governance-in-the-euphrates-tigris-river-basin/>

Core principles and obligations of international water law

- Principle of equitable and reasonable utilization
- Obligation not to cause significant harm
- Obligation to protect the ecosystems of transboundary waters
- Procedural obligations

The principle of equitable and reasonable use

- A riparian state has the right to use a watercourse in a manner that is equitable and reasonable vis-à-vis other riparian states
- No internationally universally accepted criteria for allocating shared water resources
- Some criteria and factors to consider are included in Article 6 of the 1997 UN Watercourses Convention



The principle of equitable and reasonable use in the Euphrates and Tigris basin

- The equitable and reasonable utilization principle is part of customary international law
- In the Euphrates-Tigris river basin: in June 2018, provisional stop in the filling of the reservoir of the Ilisu dam



Obligation not to cause significant harm and protection of water ecosystems

- Prevention of transboundary impact
- Not an absolute obligation but a requirement of due diligence
- The type of harm to be avoided is significant harm to either the quantity or the quality
- Part of customary international law



Obligation to protect the ecosystems

- The ecosystem of the Euphrates-Tigris river basin includes the Mesopotamian marshes
- Severe pollution of both rivers, salinity increase and severe deterioration of the marshlands
- Any future agreement among the riparian countries should include the issue of the environmental protection of the Euphrates-Tigris river basin



Procedural obligations

- Obligation to exchange regularly data and information
- Obligation of notification of planned measures
- Obligation to conduct an environmental impact assessment
- Duty to enter into consultations and negotiations with co-basin states



Cooperation between Turkey and Iraq on the Euphrates-Tigris river basin

- 2009 Bilateral Memorandum of Understanding (MoU)
- Revision of the MoU in 2014: further cooperation on joint projects and future definition of water share for each country in both rivers
- Establishment of the Joint Technical Committee (JTC) in 1983: participation of the three riparian states (Turkey, Iraq and Syria): the mandate consists of mainly technical exchanges over water development projects



Section 4: Examples and good practices



<https://www.brazos.org/About-Us/News/News-Room/Resource-Library/Texas-Water-Know-Your-Rights>

Exemples and good practices

Tripartite Interim Agreement between Mozambique, South Africa and Swaziland for cooperation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses (2002)

- Protection and sustainable utilization of the water resources of the two rivers
- Establishment of a joint body for cooperation: the Tripartite Permanent Technical Committee

Exemples and good practices

Framework agreement on the Sava river basin between Bosnia and Herzegovina, Croatia, Slovenia and Federal Republic of Yugoslavia (2002)

- Sustainable management of the water resources: principle of reasonable and equitable utilization of waters, no-harm rule, and co-operation of transboundary impact, cooperation with national and international bodies
- Areas of co-operation: the regime for navigation, sustainable water management and the establishment of Sava River Basin Management Plan
- Mechanism of cooperation: the International Sava River Basin Commission



Thank you for your attention!

Platform for International Water Law

www.unige.ch/droit/eau

Mara Tignino

Mara.tignino@unige.ch





Dr. Martina Klimes, Advisor, Water and Peace Transboundary Water Cooperation Dept. | Stockholm International Water Institute (SIWI)

Topic: “Towards Sustainable Cooperation in Euphrates Tigris Region: Water as a Dialogue Entry Point”.

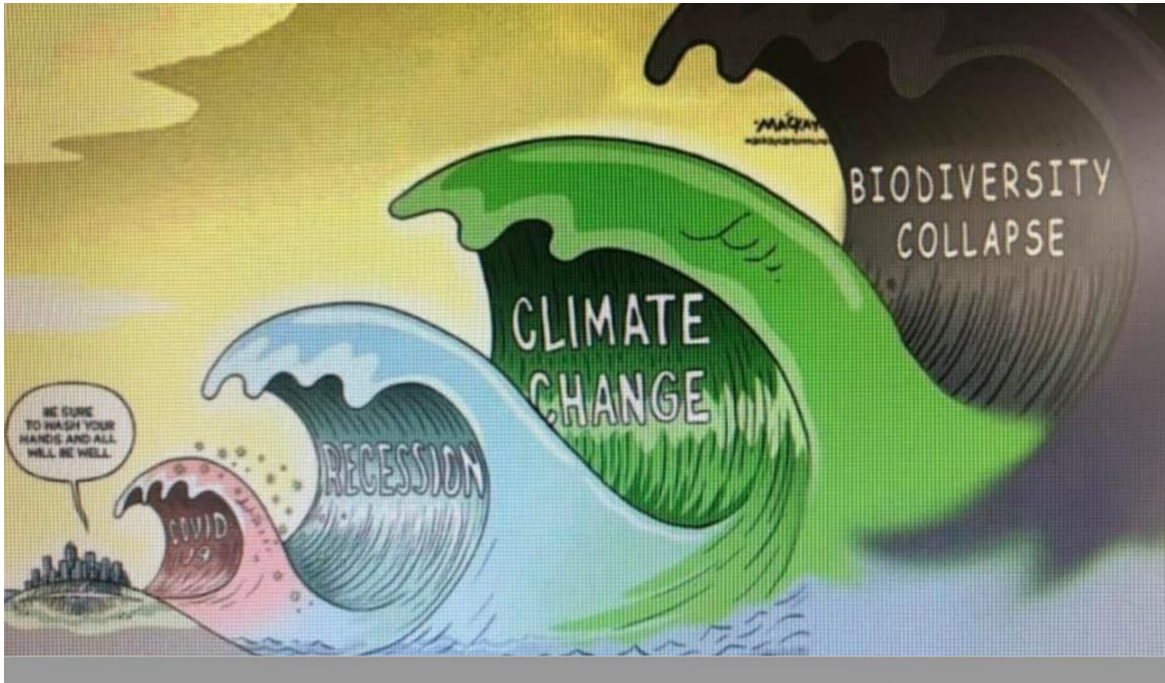
Towards Sustainable Cooperation in Euphrates and Tigris Region: Water as a Dialogue Entry Point

Dr Martina Klimes

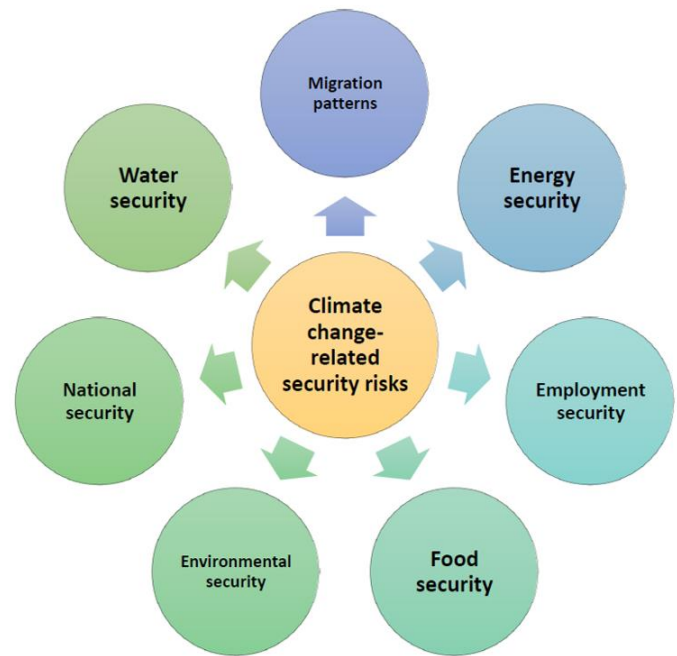
Advisor, Water and Peace, Stockholm International Water Institute (SIWI)/International Centre for Water Cooperation (ICWC)

Hydropolitics Academy, Turkey, March 30, 2021

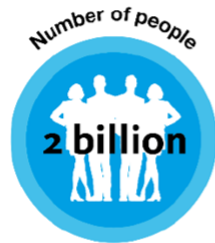




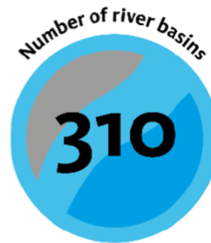
Climate and security dimension



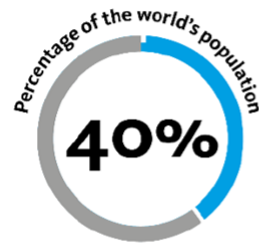
Transboundary Waters Overview



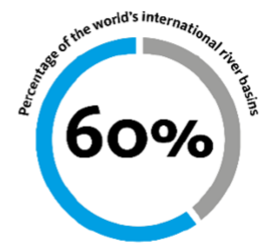
that depend on groundwater,
sourced from transboundary
aquifer systems



considered
transboundary in nature
(crossing the political
boundaries of 2+ countries)



that relies on these rivers as a
primary source of freshwater

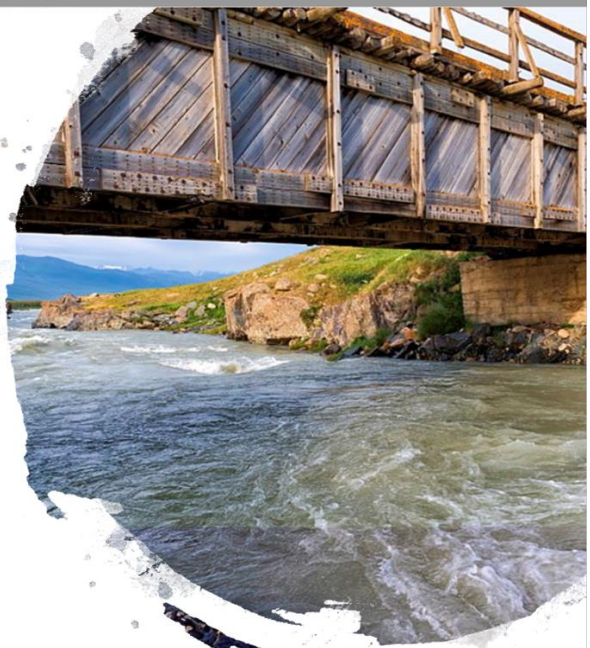


that lacks any type of cooperative
management framework

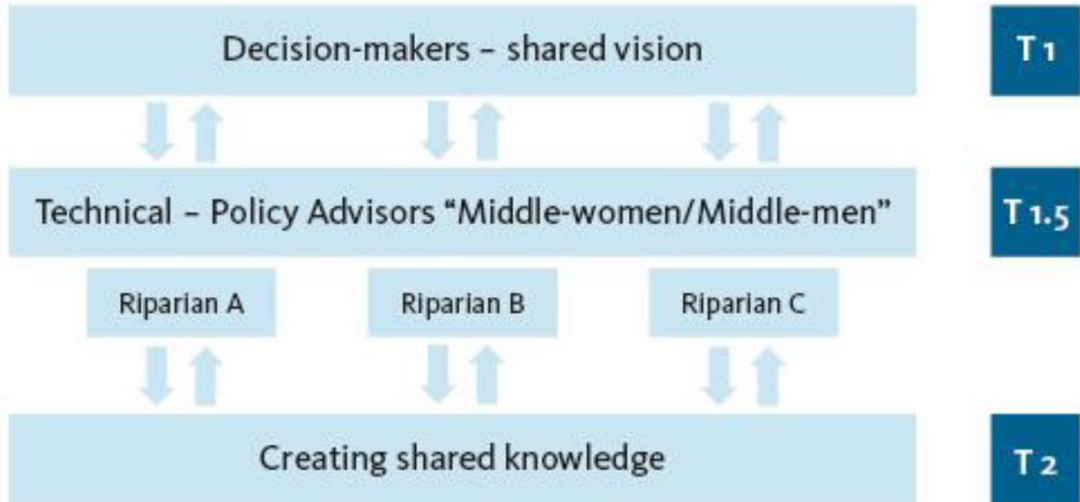
What is water diplomacy?

Water diplomacy as a **process** leading towards establishing and/or enhancing cooperation over shared freshwater resources:

- among wide range of actors at **multiple levels**
- formal and informal (T1.5 & T2)
- **informed by technical tracks** as it relies on its data.
- intra and inter-state



Dialogue nexus – track linkages

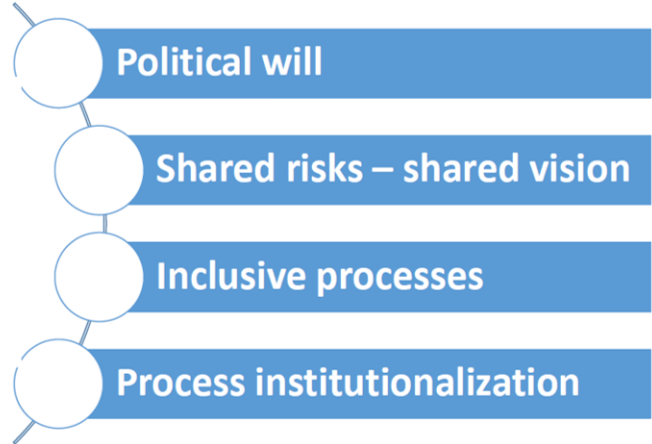


Trends in Water Diplomacy



- 
Context matters – climate-related security risks – what do we know about our future?
- 
Inclusive processes and the importance of non-state actors
- 
Communication and public awareness cannot be underestimated

Towards sustainable cooperation in Euphrates and Tigris - HOW?



Collaborative Programme Euphrates and Tigris (CPET, 2013-2018)



Overall objectives

- **Improved dialogue and trust** in the Euphrates and Tigris region on water management
- **Increased information and knowledge based on ground-truth data** to provide evidence on water use, services and impacts in the Euphrates and Tigris region

Task Forces (working groups)

1. **Hydrology and Climate Change**
2. **Hydropower**
3. **Agriculture Water Productivity**
4. **Water Quality**
5. **Marshlands**
6. **Socio-economics**



CPET Main Achievements

- Trust improved as the programme moved forward - **building relations**
- Good scientific background and better understanding of the main challenges/shared risks and the current status of the Euphrates and Tigris region – **knowledge sharing**
- Shared preliminary knowledge on future planning/options for the region – **shared vision**

SIWI Water Diplomacy engagement examples

Dialogue facilitation

- Regional networks – T1.5, T2
- Regional Planning Processes
- Study Tours

Generation of shared knowledge

- Joint research and analysis/ science diplomacy
- Joint Capacity building
- Sharing of knowledge resources

External actors and opinion-builders

- Donor network meetings
- Media and Communication Resilience Training



Thank you

ww.siw.org
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United Nations
Educational, Scientific and
Cultural Organization





Azzam Alwash Founder and CEO, Nature Iraq, Member of the Board of Trustees of the American University of Iraq – Sulaimani,

Topic: “A General evaluation of the water infrastructure in the Euphrates-Tigris Basin”

1- water resources management in Iraq historically mainly focused on flood management and protecting cities from the ravages of spring floods. Irrigation and land reclamation were secondary objectives.

2 - mid-fifties saw the first dams intended for hydroelectric and irrigation purposes.

3- the result of flood management frame if the mind is the creation of large lakes that get filled with spring meltwater but then much water is lost due to evaporation is large due to shallowness of the topography of the sedimentary plains of Iraq and the high temperature and arid weather conditions.

4- the majority of domestic water distribution networks in Iraq are circa the mid-twentieth century. As a result and due to time passage and the salty nature of the soils, the network is corroded and treated water that is pumped into the network becomes contaminated with groundwater that is polluted. This is exasperated by the elimination of high water tanks that pressurized the network in the past for during the Iraq Iran war those tanks were targeted by Iran's Air Force which forced the Iraqi government to resort to the use of the booster pumps that are in need of electricity and spare parts, both of which are lacking

5- There are very few if any sewage treatment plants in Iraq. Thus dilution was the solution to pollution. Now with less water, there is annual fish kills due to high water temperature in summer coupled with bacteria and algae growth that deplete the oxygen.

6- With the expected drop in oil prices as well as population growth, the budget deficit is going to be larger with time with less money available in due time to renew or improve the networks and/or electricity supply not to mention agricultural irrigation projects or e biodiversity of the marshes or stopping the salt wedge from penetrating up what al-Arab.

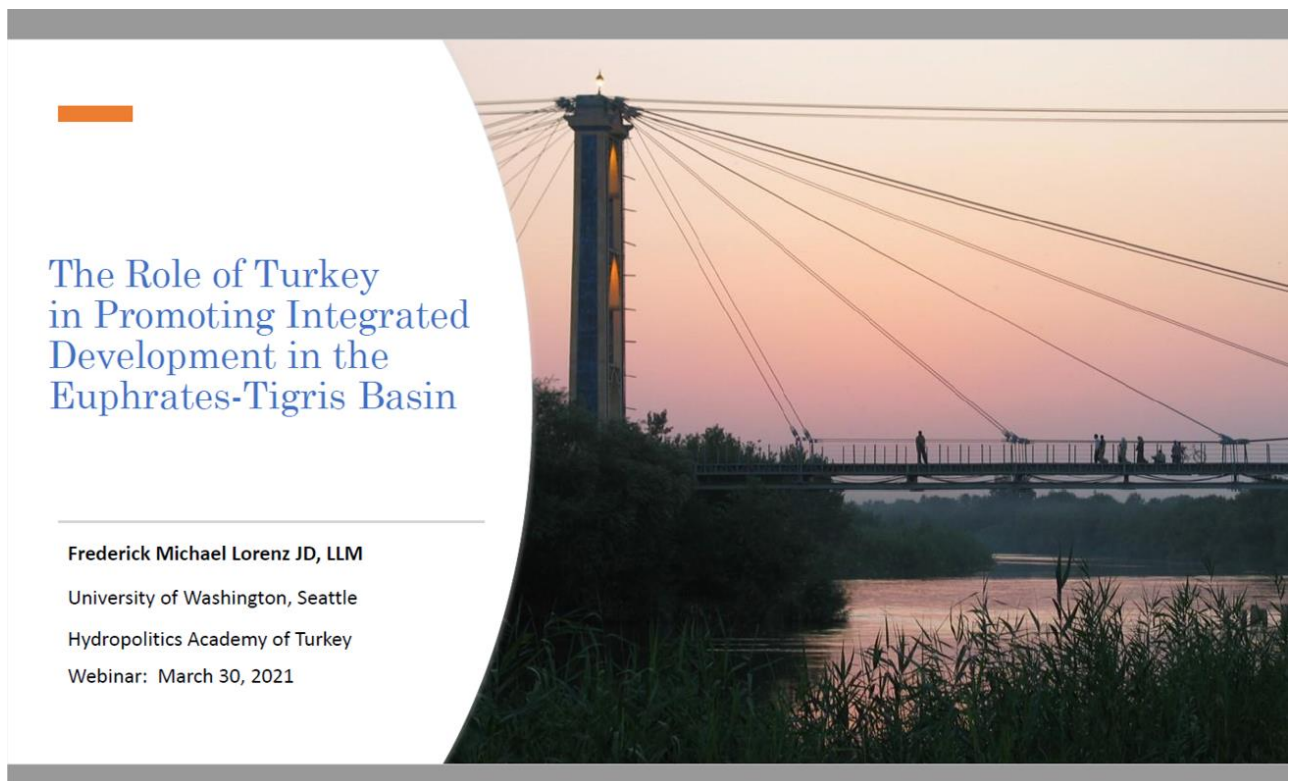
7- the hamlets and villages can be improved using hypotonic agricultural and biotechnology-based solutions not to mention PV and hydrogen generation through the creation of cooperatives that will be community-based solutions for sewage, drinking water, and electricity.

8- This is yet another opportunity to create codependence and integration through the transfer of technology and common management to the water resources of the headwaters of the Tigris and Euphrates to allow for saving the 8 billion cubic meters of water currently evaporating from Iraqi infrastructure designed for flood control.



Frederick Michael Lorenz, JD LLM
Senior Lecturer, Jackson School of International Studies
University of Washington, Seattle USA

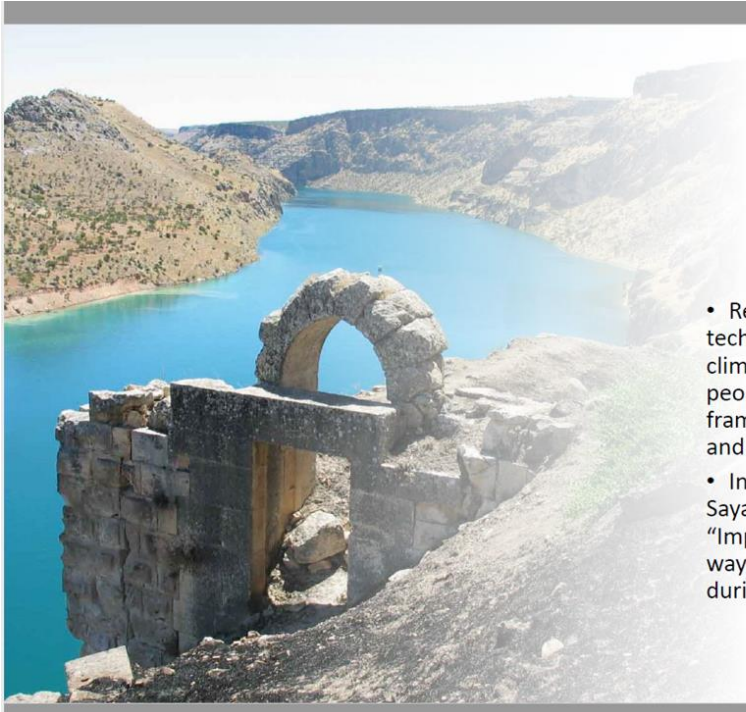
Topic: "The Role of Turkey in Promoting Integrated Development in the E-T Basin."



The slide features a background image of a suspension bridge at sunset. The sky is a mix of orange, pink, and purple, and the bridge's cables are silhouetted against it. The water in the foreground is dark, and there are some reeds or grasses in the lower right corner.

**The Role of Turkey
in Promoting Integrated
Development in the
Euphrates-Tigris Basin**

Frederick Michael Lorenz JD, LLM
University of Washington, Seattle
Hydropolitics Academy of Turkey
Webinar: March 30, 2021



The Imperfect Peace

- Recent HPA Report: Little is being done on technological advancement related to climate change. Politicians and technical people are lacking an effective institutional framework for work that may lead to joint, and country-level, programs...
- In a recent article, authors Kibaroglu and Sayan consider the current situation an “Imperfect Peace” and reflect on possible ways to improve the protection of water during and after armed conflicts.

Data, Science and Diplomacy

The connection between science, data and diplomacy has grown increasingly important as both the international relations between countries become more complex and scientific knowledge expands globally.

Two U.S.-based remote monitoring programs are making a major impact on the Mekong and Nile. They use open-source sensing devices and post the results online.

But the results have been controversial, with one or more parties refusing to accept the data.



Mekong Dam Monitor:
Stimson Center
USA

The Mekong Dam Monitor is an online platform which uses remote sensing, satellite imagery, and GIS analysis to provide near-real time reporting and data downloads across numerous previously unreported indicators in the Mekong Basin.

The platform is freely available for public use on the Mekong Water Data Initiative website and all research inputs are public-access resources.

STIMSON CHINA SIENGA FOUNDATION

Mekong Dam Monitor

VIRTUAL GAUGES | LANGCIANG CASCADE OPERATIONS (CHINA) | NATURAL RIVER FLOW MODELS | WETNESS, PRECIPITATION, TEMPERATURE ANOMALIES | BASIN-WIDE DAMS & CONNECTIVITY | ABOUT | METHODS

Home Profile Operating Curves/Time Series Compare Images Shape

Summary for Week of Mar 15 - 21, 2021

Virtual Gauges: Dams & Reservoirs

Mainstream Dams

Dam/Reservoir	Normal Max Level (masl)	Current Level (masl)	Change From Last Week
Wurongjiang Reservoir	1602	1601.96	release
Luli Reservoir	886	883.90	none
Huangping Reservoir	1610	1599.00	release
Dahuokou Reservoir	1472	1468.35	release
Maoxue Reservoir	1400	1393.74	release
Gongguosha Reservoir	1311	1306.01	none
Xiaolang Reservoir	1239	1217.28	release

Tributary Dams

Dam/Reservoir	Normal Max Level (masl)	Current Level (masl)	Change From Last Week
Xikamun 3 Reservoir	960	918.54	release
Nam Theun 2 Reservoir	538	538.68	release
Yai Falls Reservoir	225	226.28	release
Thoun Hin Boun Expansion Reservoir (Bam Crossing Dam)	465	482.13	release
Nam Ou 5 Reservoir	430	424.63	fill
Boun Khouk Reservoir	422	429.69	none
Thoun Hin Boun Reservoir	405	405.35	release
Nam Ngum 2 Reservoir	375	369.62	none

Virtual Gauges: Impact Areas

Site Name	Monthly Observed Avg	Current Level	Change
Tone Sap Bottleneck	5.80	6.60	down
Pak Chom (Thailand Border)	175.96	173.14	none
Kompong Khleing Village	7.76	7.43	down
Chiang Saen Farmed Islands	360.77	360.58	down

Natural Flow Model

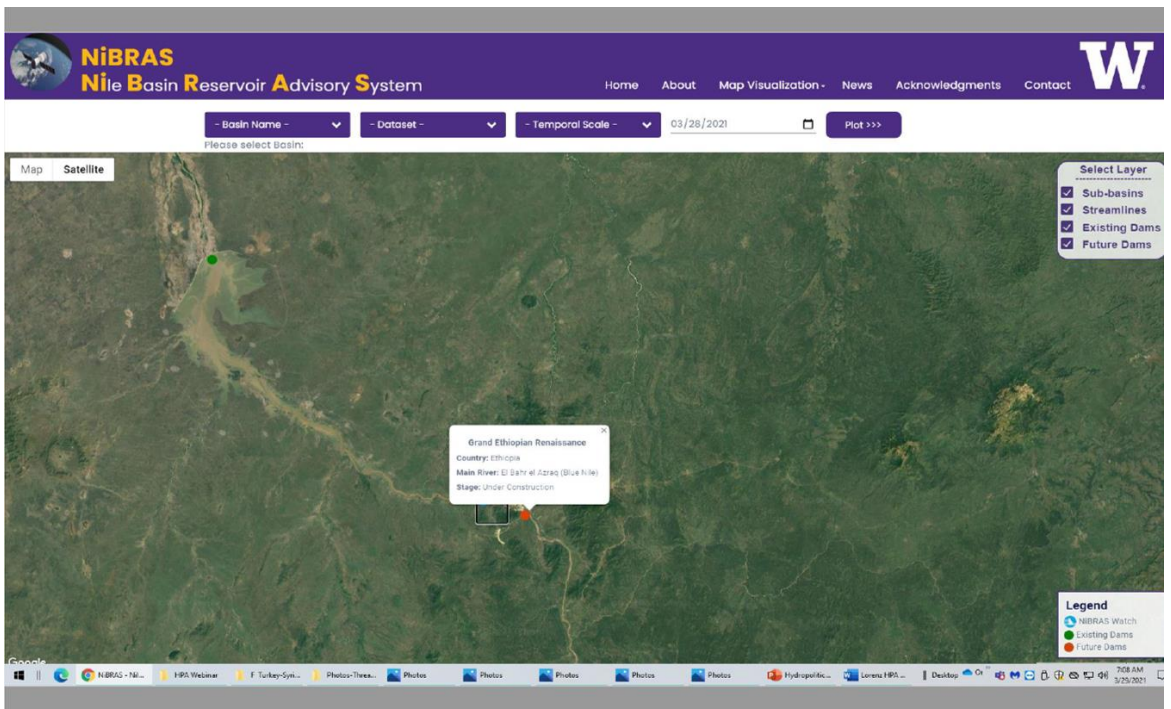
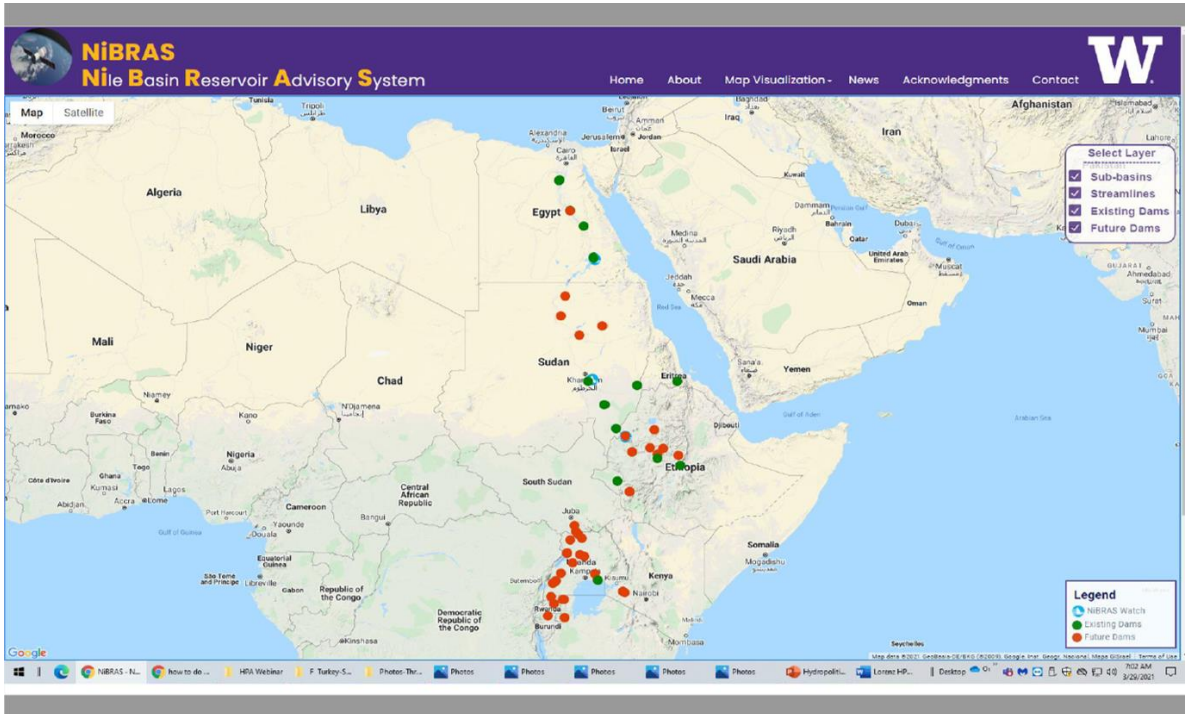
Gauge	Wetness Index Model (sumec)	MDC Gauge Reading (sumec)
Chiang Saen	1428	1382
Vientiane	3951.00	1954

Anomaly

Surface Wetness Anomaly for the week of Mar 15 - 21, 2021

Map of the Mekong basin showing wetness anomalies. Legend: 0.00 to 1.00. Scale: 0 to 200 km.

Powered by Esri





Water and Politics

The collection and dissemination of data on transboundary rivers have always been political.

For the Mekong: The US has now been accused of “employing surveillance tactics on another sovereign state's projects” and “gross interference in China's internal affairs.”

On the Nile: It is not certain that Egypt and Ethiopia will be willing to accept the outputs produced by NiBras, and Ethiopia may be reluctant to agree to “real-time” data that shows the water and flow details at the Grand Renaissance Dam.

A New Era of Water Science and Data Collection

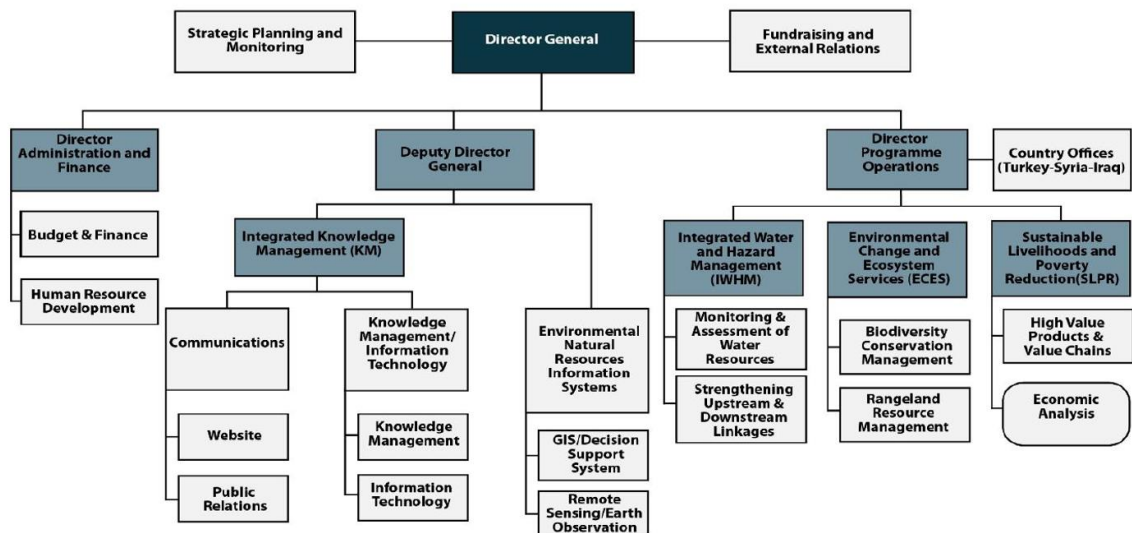
- Although Turkey has a sophisticated system to monitor and manage its water infrastructure, it has been historically reluctant to share water data, in terms of both water quantity and quality.
- But water science and remote sensing are quickly outpacing the ability of any nation to control the collection and dissemination of water data.


New Opportunities

- Collection and distribution of water data presents the diplomats' challenge, and innovative ways need to be found to deal with the emerging level of open-source data.
- Diplomacy is always a matter of finding the right opportunities, and the dynamics in the Euphrates-Tigris basin are entering a new phase.
- Proposal: The establishment of a development center for the riparian nations in the Euphrates-Tigris basin. A suggested name: The International Centre for Integrated Basin Development (ICIBAD; figure below).
- All three riparian countries would be asked to participate; Turkey would be the natural host and should be pleased to take the leadership role, displaying the highest level of expertise and experience.



International Centre for Integrated Basin Development al-markez al-dauli lil-taTuir al-mutkamala lil-hauad Uluslararası Entegre Havza Geliştirme Merkezi





Conclusions

- Without Turkey's participation, new platforms are likely to be established by external actors to conduct sophisticated real-time monitoring of Turkey's dams and reservoir operations.
- Turkey now has a unique opportunity to take the lead and establish a regional knowledge hub to include data collection and resource management. Climate change would be a major issue of study.
- This will be the best way to deal with the impending water shortage and promote integrated development in the Euphrates-Tigris Basin.
- The author can be contacted: lorenz@uw.edu



Webinar on Euphrates-Tigris Hydropolitics Academy of Turkey (HPA) March 30, 2021

Webinar Theme: A roadway from analysis to diplomacy

**Presentation by Frederick Lorenz JD, LLM Senior Lecturer,
Jackson School of International Studies, University of Washington,
Seattle USA lorenz@uw.edu**

Title: "The Role of Turkey in Promoting Integrated Development in the E-T Basin."

Executive Summary:

In our book *Strategic Water for Iraq* (2014), my co-author Edward Erickson and I inquired: “Is it likely that the Euphrates-Tigris River system will dry up? Certainly not, but it seems certain that within the next 10 to 20 years that the water usage and demand by the riparian nations of Turkey, Syria, and Iraq will exceed the supplies.” In 2021 the situation has become more critical, with sustained armed conflict and political instability limiting international cooperation. In a recent report, the Hydropolitics Academy of Turkey (HPA) found that “Little is being done on technological advancement related to climate change. Politicians and technical people are lacking an effective institutional framework for work that may lead to joint, and country-level, programs and projects needed to remedy the situation.” In a recent article, authors Kibaroglu and Sayan consider the current situation an “Imperfect Peace” and reflect on possible ways to improve the protection of water during and after armed conflicts.

Turkey has historically refused to “internationalize” the issues, preferring to deal unilaterally with Syria and Iraq. Although Turkey has a sophisticated system to monitor and manage its water infrastructure, it has been reluctant to share water data, in terms of both water quantity and quality. But water science and remote sensing are quickly outpacing the ability of any nation to control the collection and dissemination of water data. Recent examples from the Nile (NiBras) and the Mekong (the Mekong Dam Monitor) are ground-breaking developments. With enough political will, Turkey now has an opportunity to take a central role by establishing a regional center based on the ICIMOD model in Nepal. The new center can facilitate the exchange of experience and serve as a regional knowledge hub to deal with impending water shortage and promote integrated development in the Euphrates-Tigris Basin.

Background:

The introduction to this webinar notes that the two rivers and their tributaries have long been the source of life in otherwise arid lands of Mesopotamia. But recent threats from climate change and political insecurity have adversely affected the balances of water distribution between the riparian states. This requires a rethinking of existing relationships, developing technology, and diplomacy, particularly in the era of climate change. This presentation will focus on the

emerging field of Data, Science and Diplomacy, and make recommendations for Turkey to take a leading role in dealing with the problems.

The HPA completed a Webinar in February 2021 “Climate Change Effects on the Euphrates-Tigris Basin.” Some of the conclusions:

- Little is being done on technological advancement on tools related to climate change. Few programs and projects could be handed over to political circles for action, especially on multistate cooperation and joint projects.
- Politicians and technical people are lacking an effective institutional framework for work progress that may lead to joint, and country-level, programs and projects needed to remedy the situation.
- What is missing is mutual trust and a common understanding of the positions of each of the stakeholders. But the most important missing ingredient is lack of political will by the decision-makers.

In their recent article “The Imperfect Peace,” January 2021 special issue of *International Affairs*, Aysegül Kibaroglu and Ramazan Caner Sayan describe the current situation and provide a detailed history of cooperation and conflict over water in the region. They note that recent difficulties have centered around armed non-state actors and damage to water infrastructure. Now that the threat from ISIS has decreased, they note some progress in international cooperation. In 2019 Turkey and Iraq announced the establishment of a “Water Resources Center” in Baghdad.

<https://www.hurriyetdailynews.com/turkey-iraq-to-set-up-water-resources-center-145417>

But since that time there has been no reported progress, and political turmoil in Iraq will likely reduce the chances for sustainable international cooperation.

The New Frontier: Data, Science and Diplomacy

The connection between science, data and diplomacy has grown increasingly important as both the international relations between countries become more complex and scientific knowledge expands globally. The 2020 global pandemic has raised awareness of the importance of sharing scientific data on the international stage. The term "science and diplomacy," is now formally recognized as an area of study. An important resource is the publication *Science and Diplomacy* from the American Association for the Advancement of Science (AAAS.)

<http://www.sciencediplomacy.org/transboundary-issues-and-shared-spaces-education-resource>

“Transboundary issues and challenges involving the shared spaces between countries are among the high priority foreign policy issues for national governments. These issues not only present unique foreign policy challenges because of their proximate nature, but, given the strong domestic components, they have active and vocal domestic constituencies. These issues are often set in the context of the natural world, as is reflected in the adage “nature knows no boundaries,” whether it is aquatic or terrestrial ecosystems, outer space, or the shared air.”

Note this recent article from *Science and Diplomacy* published by the AAAS. <http://www.sciencediplomacy.org/article/2019/data-diplomacy>

“The emergence of data diplomacy also says something larger about the trajectory of diplomacy as a discipline. In a world filled with increasingly complex data, diplomacy plays out more often outside the bounds of the state and relies less often on the full-time professional diplomat as its principal agent. The need will only grow for new classes of data diplomats who can facilitate data-driven processes while developing safeguards to reassure and protect the public.”

Bridging Technology and Policy

Despite the scale of the threats posed by a climate change and a deteriorating water situation in the Euphrates-Tigris basin, there has been little in terms of effective international cooperation. In 2010 the United States Institute of Peace (USIP) identified several obstacles, including a rarely discussed factor: *Lack of open technical data*. A crucial roadblock is the “lack of agreement on actual flow levels and water quality because of deficient measurement technologies, limited public hydrological data, and insufficient technical expertise to make environmental and agricultural impact assessments based on generally accepted scientific standards.”

The USIP made a series of recommendations focusing on an approach based on regional scientific cooperation. Using examples of this type of cooperation from the Nile and Mekong, the USIP argued for a new approach that would provide a strong basis for economic growth and political stability. The remainder of this presentation will attempt to build on the USIP report and describe two of U.S.-based remote monitoring programs that are making a major impact on the Mekong and Nile. They use open-source sensing devices and post the results online.

The Mekong Basin:

In 2020 the US based Stimson Center and its partners launched [the Mekong Dam Monitor](#), (MDM) a near-real time data platform that uses remote sensing to bring “unprecedented transparency” to dam operations and water levels across the six countries of the Mekong basin: China, Myanmar, Laos, Thailand, Cambodia and Vietnam. The platform is freely available for public use on the U.S. State Department’s Mekong Water Data Initiative website.

An interactive map combines data from physical gauges and new “virtual gauges” to provide a single, easily scaled window into water availability, river level, and dam operations. The Monitor’s virtual gauges combine cloud piercing satellite imagery, GIS, and validation modeling to estimate dam and river levels in places where it has not been previously reported.

The “unprecedented transparency” of the MDM was not viewed in a positive light by China, the main upstream riparian on the Mekong. The US has now been accused of “employing surveillance tactics on another sovereign state's projects” and “gross interference in China's internal affairs.”

<http://www.chinadaily.com.cn/a/202012/15/WS5fd82c79a31024ad0ba9bed7.html>

The Nile Basin:

Challenges to manage and secure a sustainable water supply are becoming more acute in Egypt with the construction of new upstream transboundary water infrastructures in Ethiopia and Sudan. To understand the impact of such transboundary water projects on Egypt, a modeling tool was developed to simulate potential flow and reservoir scenarios inside Egypt without requiring on-site hydrologic or transboundary dam data.

The University of Washington developed the Nile Basin Reservoir Advisory System <http://students.washington.edu/dardiry/nibras/>. NiBRAS is a decision support system that intends to promote societal applications of satellite missions in water management practices. The NiBRAS system is designed to provide users with three main outputs:

- 1) Real-time monitoring of reservoir operation using a reservoir modeling approach;
- 2) Forecasting of reservoir outflow and storage change using global numerical weather prediction (NWP) model-based forecasts of the weather.
- 3) Assessment of reservoir operation under various scenarios (e.g., LULC, climate change, GW recharge, and transboundary dams).

Water data on the Nile is controversial, the problem relates to water measurements that might not be consistent with national interests. Ethiopia is now developing the Grand Renaissance Dam, but Egypt views the dam as a serious threat to sovereignty and water security. Egypt has resorted to veiled threats of military force to protect its rights.

<https://egyptindependent.com/egypt-warns-that-ethiopia-cannot-start-filling-gerd-under-any-circumstances/>

Despite the availability of engineering studies and a wide range of scientific data, the parties have been unable to agree on terms (and the underlying data) that meet the needs of all parties. The NiBRAS project is designed to provide open-source objective data that can assist in building international cooperation. It is not certain that the parties will be willing to accept the outputs produced by NiBras, and Ethiopia may be reluctant to agree to “real-time” data that shows the water levels at the Grand Renaissance Dam.

Technology for the Euphrates-Tigris:

In 2011, Sandia National Laboratories (SNL) began collaborating with scientists from the Iraqi Ministry of Water Resources (MOWR), the U.S. Department of State, and UNESCO to develop a decision support model for the Euphrates-Tigris basin, including Turkey, Syria, and Iraq. The project began in 2007 and included five modeling workshops between SNL and MOWR modelers. SNL included data and systems previously collected and developed at the U.S. Army Corps of Engineers Hydrologic Engineering Center between 2003 and 2007. The SNL project included an important capacity-building aspect where engineers from the MOWR were to be trained in the use of the modeling approaches and software to become capable of modifying the

existing model and building new models of their own. The primary competing uses for water in Iraq include municipal and industrial development, agriculture, power generation, and reestablishing the Mesopotamian Marshes of southern Iraq. This project was very promising at the time, but it failed to achieve its full potential. Political turmoil in Iraq and differences of opinion about project implementation were the primary obstacles.

Multiple programs in the US conduct worldwide monitoring of transboundary rivers. The National Aeronautics and Space Administration (NASA) collects earth data and reports the findings on its website, see

<https://earthdata.nasa.gov/learn/sensing-our-planet/crisis-in-the-crescent>

The US Geological Survey (USGS) now posts weekly precipitation information for the E-T Basin.

<https://earlywarning.usgs.gov/fews/search/Asia/Middle%20East/Iraq%20Tigris-Euphrates>

The following are some of the capabilities of these remote land and water information platforms:

- regional to local (even 1 meter resolution) water availability maps;
- monitoring and predicting drought processes;
- flood warning and inundation mapping;
- projected climate and land-use change impacts on water resources;
- estimates of crop yield production, irrigation mapping, and land-cover change use;
- satellite data to estimate evapotranspiration and consumptive water loss;

The technology seems to be moving faster than the diplomatic and policy apparatus in the region. The International Water Association (IWA) recently completed a report on Digital Water: Artificial Intelligence Solutions for the Water Sector.

https://www.hidropolitikakademi.org/uploads/editor/images/IWA_2020_Artificial_Intelligence_SCREEN.pdf

Unique Challenges and Opportunities in the Euphrates-Tigris Basin

International relations concerning transboundary water can only achieve positive outcomes if the political will exists. The parties in the Euphrates-Tigris Basin interact on water issues regularly, but on different levels—some public and some private. One important question is, how can the historic resistance of the basin countries to exchange data be changed? More importantly, why should Turkey participate in a new technical initiative in view of the traditional concern about “internationalizing” an issue that is firmly under Turkey’s control? What is the risk for Turkey?

The development of a program of data collection, collaborative modeling and management in the region could have unintended consequences. For example, the release of newly developed data might show that more water is available to “share” with downstream neighbors, leading to more demands from Syria and Iraq.

<https://ahvalnews.com/northern-syria/kurds-warn-water-crisis-northern-syria-blame-turkey-report>

It might also show that salinity levels as the Euphrates flows from Turkey to Syria and Iraq are

already high and projected to be much higher as agriculture further develops in Turkey. On the other hand, the data might show there is plenty of water in the Basin if Syria and Iraq use it more efficiently.

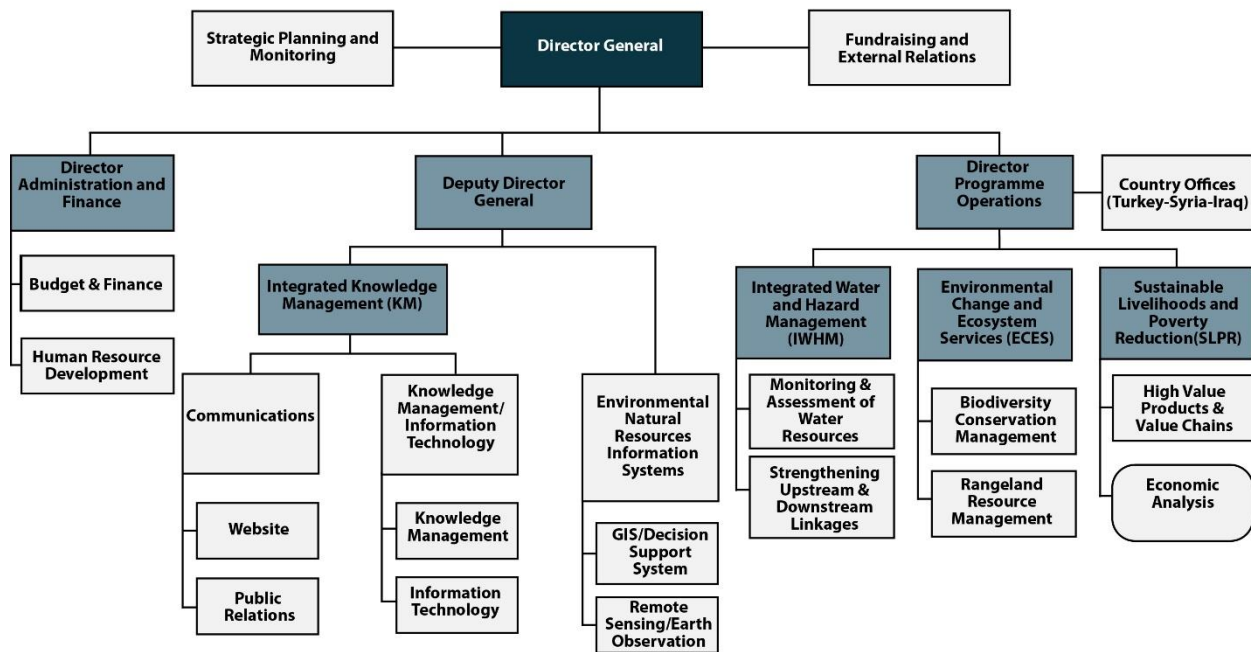
This presents the diplomats’ challenge, and innovative ways need to be found to deal with the emerging level of open-source data. Diplomacy is always a matter of finding the right opportunities, and the dynamics in the Euphrates-Tigris basin are certainly entering a new phase. The next section examines a unique opportunity for collaboration in the Euphrates-Tigris basin that could expand this new phase even further: the creation of an international center for the riparian nations modeled after one serving the Hindu Kush–Himalayan nations.

ICIMOD: A Model for the Euphrates-Tigris Basin

International Centre for Integrated Basin Development

al-markez al-dauli lil-taTuir al-mutkamala lil-hauad

Uluslararası Entegre Havza Geliştirme Merkezi



Located in Kathmandu, Nepal, the International Centre for Integrated Mountain Development (ICIMOD) is a knowledge development and learning facility serving the eight member countries of the Hindu Kush–Himalaya region: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. The developers of ICIMOD recognize that globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. They “support regional transboundary programs through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub.” ICIMOD is based on economic development and sharing of knowledge, with no powers to regulate water quantity or quality. This model could be more effective, and less threatening to Turkey, than the Nile and Mekong regimes that have been previously described.

In the 2014 book “Strategic Water,” mentioned earlier, the authors proposed the creation of a development center for the riparian nations in the Euphrates-Tigris basin. A suggested name: The International Centre for Integrated Basin Development (ICIBAD; figure below). All three riparian countries would be asked to participate; Turkey would be the natural host and should be pleased to take a leadership role, displaying the highest level of expertise and experience. ICIBAD would also facilitate the training of “new classes of data diplomats,” mentioned previously in the publication Science and Diplomacy.

A memorandum of understanding would carefully set out the responsibilities of the parties, and there could be multiple levels of data sharing, Turkey would have the latitude to retain the most “sensitive” data. A regular series of training programs would benefit all the riparian nations and draw international experts. Ideally, there would be a fulltime staff, and facilities could be based in Turkey, probably in Urfa, a fast-developing city at the center of the GAP region. As with ICIMOD, the center’s mission statement would be grounded in economic development and include the latest developments in dealing with climate change and the effects of globalization. At a time of increased political and military turmoil in the region, the economic model of the ICIBAD should prove to be the most effective approach. Coordinated action to mitigate the impact of climate change would be a theme to garner international support and attention.

Conclusion:

More needs to be done to advance multistate cooperation in the Euphrates-Tigris Basin. There is no effective institutional framework leading to joint, and country-level, programs. Water science and remote sensing are quickly outpacing the ability of any nation to control the collection and dissemination of water data. Without Turkey’s participation, new platforms are likely to be established by external actors to conduct sophisticated real-time monitoring of Turkey’s dams and reservoir operations like the projects on the Nile and Mekong. Turkey now has a unique opportunity to take the lead and establish a regional knowledge hub to include data collection and resource management. This will be the best way to deal with the impending water shortage and promote integrated development in the Euphrates-Tigris Basin.

Comments on this presentation are welcome. lorenz@uw.edu

March 25, 2021

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Evaluation of Current State of Water Infrastructures and Management in the Euphrates-Tigris Basin

zoom



A roadway from analysis to diplomacy

March 30th 2021 Ankara-Turkey

WEBINAR



REPORT

Hydropolitics Association

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