Policy and Technical Solutions for Water Data Diplomacy and Exchange

Africa Hydrology Dialogue Session: Program, Speaker Biographies, and Resources

at the 2024 Africa Water Week and Cairo Water Week in Cairo, Egypt

Convened at the Cairo Triumph Luxury Hotel

Tuesday, October 15, 2024 | 9:30 – 13:00 | MONACO C Conference Room

Session Conference Page: https://platform.cairowaterweek.eg/sessions/265

Session will take place in English with French and Arabic interpretation.

Online participation available: https://cairowaterweek.zoom.us/j/83219134761

Co-convening partner and representatives:

- **Center for Geospatial Solutions at the Lincoln Institute of Land Policy**; Dr. Faith Sternlieb
- **World Meteorological Organization**; Washington Otieno
- **Permanent Joint Technical Committee for Nile Waters**, Eng. Saama Elbarody
- **International Centre for Water Resources and Global Change**; Dr. Stephan Dietrich
- **United Nations Economic Commission for Europe**; Dr. Komlan Sangbana
- **Women in Water Diplomacy Network and Environmental Law Institute**, Elizabeth A. Koch

Session Objectives:

In alignment with the overarching objective of the Africa Hydrological Dialogue, this session seeks to:

- Actively engage a range of key stakeholders and experts in a constructive dialogue around the theme of water data exchange.
- Share experience with regards to opportunities and challenges of water data exchange in a variety of contexts and scales.
- Identify and explore innovations impacting water data exchange today (i.e. satellite data, AI, citizen science).
- Consider how water diplomacy approaches can support water data sharing processes.

Session Summary:

In this two-part session, the co-convening partners will engage expert decision-makers and session participants in an ***experience exchange dialogue on water data exchange and explore application of water diplomacy approaches*** to supporting dialogue, trust-building, and exchange within hydrological and meteorological services at local, national, and regional levels with focus on Africa. Part 1 of the session will share new research related to good practice in data-sharing and consider how water diplomacy can support data-sharing processes. Reflections will be invited from a panel of experts elevating a variety of perspectives (context, scale, government, inter-government, global, civil society, etc.). Part 2 will provide an update on the current state of water data exchange at various scales and invite session participations to engage in an interactive exercise to explore water data exchange in practice and provide input into the WMO Unified Data Policy's draft classification for prioritized data exchange. This event is open to all participants of the African Hydrological Dialogue, Africa Water Week, and Cairo Water Week conference participants joining in-person and online including formal and informal water and policy decision makers, researchers, and practitioners among others.

Session program, short speaker biographies and additional resources are included below.

In partnership with:

TIME	Session Program
9:30	**Part 1: A New Era for Water Data Diplomacy? Welcome and Introduction** **Dr. Faith Sternlieb**, Associate Director, Global Engagement, Internet of Water, Center for Geospatial Solutions, Lincoln Institute of Land Policy
9:40	**Ignite Speech: Good Practices and Lessons Learned in Data-sharing in Transboundary Basins** **Dr. Komlan Sangbana**, Legal Officer, United Nations Economic Commission for Europe
9:55	**Experience Exchange Panel: Integrating Data into Diplomacy and Diplomacy into Data.** *Panelists will share experience from local, national, and regional perspectives around the opportunities and challenges for improved water data exchange leveraging the tools of diplomacy, with focus on Africa.* Facilitated by **Jessica Troell**, Senior Attorney and Director, International Water Program, Environmental Law Institute **Expert Panelists:** • **Dr. Tahani Sileet**, AMCOW Technical Advisory Committee Chairperson and Minister Assistant for International Cooperation at Ministry of Water Resources and Irrigation, Egypt • **Harriette Okal**, Research Fellow/Associate Scientist (Water Systems), Stockholm Environment Institute Africa • **Eng. Abdelrahman Saghayroon Elzein,** Director General for Nile Waters Affairs of Sudan's Ministry of Irrigation and Water Resources and the executive director of PJTC in Sudan • **Betty Nangira**, National Meteorological Authority, Uganda **Facilitated Discussion**: Session participants are invited to join in the discussion *and share experience.*
11:00	**Networking Break**
11:30	**Part 2: Hydrological Data Management and Water Data Exchange.** *In this 30-minute exercise, session participants will work in small groups to share their experiences and perspectives on data diplomacy.* **Dr. Dominique Bérod**, Head, Earth System Monitoring Division at World Meteorological Organization, and **Philipp Saile,** Coordinator, GEMS/ Water Data Center, hosted by the International Centre for Water Resources and Global Change.
11:45	**Exercise: Mapping Water Data Management and Exchange** *In this exercise, session participants will work in small groups and in plenary to discuss different approaches to water data exchange and provide input into the WMO Unified Data Policy's draft classification of core & recommended hydrological data.* **Exercise Introduction and facilitation by**: **Dr. Stephan Dietrich**, the International Centre for Water Resources and Global Change and **Dr. Faith Sternlieb**, Associate

	Director, Global Engagement, Internet of Water, Center for Geospatial Solutions, Lincoln Institute of Land Policy.
	
	Key questions to be explored in this exercise include:
	• *Based on your experience, what are the information needs:*
	  ○ At different scales (country to catchment to global)?
	  ○ For different applications (observational data, aggregated or indicators based on observations) ?
	• Which data sharing efforts respond to those needs?
	
	• What types of diplomatic processes and tools can be leveraged to support improved information sharing?

12:50	**Closing Reflection** **Dr. Aref Gharib**, Chairman, Nile Water Sector-MoWRI, Permanent Joint Technical Commission (PJTC) and Egypt's hydrological advisor to the WMO *All session participants are invited to complete a short exit survey at the close of the session.*

Collected Speaker Short Biographies

Alphabetical order by first name.

Eng. Abdelrahman Saghayroon Elzein is the Director General for Nile Waters Affairs of Sudan's Ministry of Irrigation and Water Resources and the executive director of PJTC in Sudan. Eng. Abdelrahaman (B.Sc. Civil Eng., M. Sc. WRE) is a senior hydrologist with 33 years of professional experience in Water Resources, specialized in Surface Hydrology, Hydrometry, River Flow Forecasting, Integrated Water Resources Management (IWRM) and Decision Support Systems (DSS). His professional experience includes joining *Sudan's Flood Early Warning System (FEWS) Unit*, implemented by DELFT Hydraulics-The Netherlands. Regionally, he participated in and contributed to the development of Nile Decision Support Tool *(FAO-Nile Basin Water Resources Project)*, Nile Decision Support System and Nile Water Resources Atlas *(Nile Basin Initiative)*. He seconded to Dams Implementation Unit as *Chief Hydrologist*, representing clients in the hydrological studies of 14 dams undertaken by Layemer and SMEC Consultants in Main Nile and River Atbara, North Sudan (Dal, Kadjar, Merowe, Dagash, Mugrat, Shereq, Sabaloqa, Roseiris Heightening and Upper Atbara) and in Bahr El Jebel, South Sudan (Fola, Lakki, Shokoli, Bedden and Juba Barrage). In his role as *Manager of Water Harvesting Project-Phase I*, he supervised the execution of Water Harvesting Contracts, implemented by Dams Implementation Unit in 17 States. His experience also includes the establishment and management of Hydrology and DSS Centre, under *Hydrological Information System Project*. The main features of the project included the design and implementation of the Hydrometric Network, Telemetry System, and DSS, as well as capacity development.

Dr. Aref Gharib is a highly experienced Water Resources and Irrigation Engineer with over 32 years of experience in integrated water resources planning and management. His expertise spans project management, supervision, and implementation of water resource policies, including surface and groundwater management, flood control, and rainwater harvesting. He holds a Ph.D. in Water Resources Management from Cairo University, a Master's degree from Luneburg University in Germany, and a Bachelor's degree in Civil Engineering from Cairo University. Dr. Gharib has held leadership roles, including Chairman of the Nile Water Sector (NWS) and the Permanent Joint Technical Commission for Nile Waters (PJTC), where he has coordinated transboundary water management efforts. Throughout his career, He has been actively involved in defining and coordinating water resources projects and liaising with international funding agencies and stakeholders. He has collaborated with various organizations, including the World Bank, United Nations, International Commission on Large Dams (ICOLD), Inter-Islamic Network on Water Resources Development and Management (INWRDAM), the Board of Governors of the Arab Water Council, and the World Water Council. His work on multiple projects has focused on the sustainable development of water resources across the Nile region. Dr. Gharib's career reflects a deep commitment to enhancing water resource management in the Nile Basin, contributing to Egypt's strategic interests in the region, and fostering sustainable development across international borders.

Betty Nangira, Meteorologist at the Uganda National Meteorological Authority, holds a Bachelor's degree in Environment and Management and is currently pursuing a Master's degree in Climate Science and Disaster Risk Management. With 5 years of experience in data collection in the observation section and 10 years in meteorological weather forecasting, Betty has been responsible for public weather forecasting, issuing weather alerts, weather sensitization, delivering weather briefings to pilots, and engaging in community outreach. She has served as the Project Coordinator for the Daraja Project, focusing on community outreach, resilience, adaptation, and mitigation, and is the focal link person for the Hydrosos Project, which involves drought and flood prediction, anticipatory action, and preparedness.

Dr. Dominique Bérod is the Head of the Earth System Monitoring Division at the World Meteorological Organization. Dr. Bérod is responsible for WMO activities on monitoring and information systems on water, cryosphere, and ocean. Before joining WMO in June 2016, he was in 2015 the senior expert for the Water, Cold Regions, and Disasters activities at the intergovernmental Group on Earth Observations (GEO) Secretariat. From 2008 to 2014, he served as the Head of the Swiss National Hydrological Service, in charge of water monitoring, flow forecast, water information systems and applied research. He was also the President of the Swiss commission of Hydrology and was the Regional Hydrological Advisor of the World Meteorological Organization for Europe, Middle East, and the Caucasus. Until 2008, he was the Head of the flood protection unit in the canton of Wallis, Switzerland. There, he was responsible for flood mitigation and river restoration projects, including flood forecast and warning as well as hazard mapping. Dr. Bérod holds a Master's degree in Environmental Engineering from the Swiss Institute of Technology at Lausanne (EPFL, 1989) and a PhD in Hydrology from the same university, in collaboration with the Louisiana State University at Baton Rouge, USA (1994).

Dr. Faith Sternlieb is the Associate Director for Global Engagement for the Internet of Water Initiative at the Lincoln Institute of Land Policy's Center for Geospatial Solutions. She provides support to international and indigenous communities, including a NOAA initiative, Data Access for Urban Climate Resilience for Early Warning Systems in Africa. Faith received a bachelor's degree in anthropology and Latin American languages from the University of Maryland. She earned both a master's degree in agriculture through the Peace Corps Masters International Program, and a Ph.D. in earth sciences with a watershed specialty from Colorado State University. Her post-doctoral work through the U.S. Department of State, Office of the Geographer, was on the Secondary Cities project, where she facilitated teams from under-served, rapidly growing cities across the globe to collect and curate geospatial data for participatory mapping to help them better prepare for uncertain futures. Her tenure at the Lincoln Institute of Land Policy included work with the Babbitt Center for Land and Water Policy (where she led Growing Water Smart, a program that helps communities integrate their land and water planning) and with CGS, where she convened the Internet of Water Coalition and co-founded the North American branch of the Women in Water Diplomacy Network. In her role as Associate Director of Global Engagement for the Internet of Water, she continues to work with diverse communities on land and water equity, sustainability, and climate resilience. This work includes engaging in private-public partnerships within local and global geographies and facilitating water data policy and technical solutions through diplomacy.

Harriette Okal is a Research Fellow/Associate Scientist (Water Systems) at SEI Africa. Harriette has over 6 years of experience and is a dynamic water scientist with a strong dedication to advancing sustainable water resource management. Currently pursuing a PhD in Hydrology at Rhodes University, she possesses a diverse skill set, excelling in hydrological modelling, remote sensing, GIS, and climate change. She has contributed significantly to the field, evidenced by impactful publications on drought assessment, land degradation and local capacity building in Sub-Saharan Africa. She also has a keen interest in nature-based solutions and green infrastructure, as well as biodiversity conservation and ecology. Harriette's expertise extends beyond academia to mentorship, highlighting her commitment to capacity building and community engagement. Active participation in global and local conferences underscores her thought leadership and advocacy for strategic investments in African water and climate expertise. Okal stands out as a versatile professional addressing diverse water challenges with a collaborative spirit.

Jessica Troell is a Senior Attorney and has directed the Environmental Law Institute's International Water Program since its founding in 2006. Under her leadership, the Program has developed and implemented projects to define and track the legal recognition and protections for Indigenous and community-based water tenure; create realistic mechanisms for involving diverse stakeholders in water-related decision-making; identify and implement innovative water governance mechanisms to strengthen resilience of communities and countries in the face of climate change; build the legal and institutional capacity to manage transboundary water challenges; strengthen livelihoods and food security through more effective water management; and ensure that water management is effectively leveraged in fragile and post-conflict states to promote peacebuilding. Jessica works with NGOs, governments, the private sector, and universities to create, implement, and enforce sustainable water laws, policies, and management mechanisms. Jessica has supported the development and implementation of the Women in Water Diplomacy Network on behalf of ELI's International Waters Programme since inception in the Nile Basin in 2017.

Dr. Komlan Sangbana is a Legal Officer with the Secretariat of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE). He leads the Convention's engagement and accession processes in West and Central Africa and acts as the Thematic Lead of the sub-program area on the Development of Agreements and Establishment of Joint Bodies. He has over 15 years of experience in the practice of International Water Law, having previously worked in academia and consulted on water governance in Africa and Europe. A member of the African Society for International Law and the Platform for International Water Law (University of Geneva Law School), Mr. Sangbana holds a postgraduate degree in Public Law from the University of Lome (Togo) and a Doctorate in International Law from the University of Geneva (Switzerland).

Philipp Saile, has been Head of the GEMS/Water Data Centre (GWDC) at the International Centre for Water Resources and Global Change (ICWRGC) since its inception in 2014. He focuses on the monitoring, analysis, and assessment of freshwater quality worldwide. This work includes supporting environmental agencies in UN Member States to strengthen their water quality monitoring, data management and reporting capacities, and contributing to the UNEP Global Environment Monitoring System for Freshwater (GEMS/Water), including the reporting on SDG Indicator 6.3.2 on ambient water quality. He has 15 years of experience in international water cooperation, contributing to various UN-led water quality and water data exchange activities. He co-leads the Technical Advisory Committee of the World Water Quality Alliance (WWQA), which is working towards a global freshwater quality assessment. He co-chairs the UNESCO-IHP Flagship International Initiative on Water Quality (IIWQ) and is a member of the GEO's inland and coastal water quality initiative AquaWatch to promote the use of satellite-based water quality monitoring for national water quality management and international reporting. He also leads the WMO Task Team on WIS2 for Hydrology, which supports the development and implementation of the WMO Hydrological Observing System and promotes the interoperable exchange of hydrological observation and forecast data.

Dr. Stephan Dietrich, is the Deputy Director at the International Centre for Water Resources and Global Change (ICWRGC), a UNESCO Centre hosted by the German Federal Institute of Hydrology (BfG). Here, he coordinates the international data activities. Stephan is a geoscientist specialising in climate observations with a focus on water data and hydrological data services. His research focuses on hydrological data management and large-scale drivers of climate change, with an emphasis on impacts on the regional to global hydrological cycle. In his role as the Deputy Director, he is actively involved in intergovernmental water programmes at the United Nations and other international scientific collaborations, including WMO and UNESCO-IHP. He is especially engaged in international initiatives related to freshwater research, data sharing, research operationalisation and policy advice. Stephan coordinates the Global Terrestrial Network - Hydrology (GTN H, https://www.gtn-h.info) under the auspices of WMO and the Global Climate Observing System (GCOS) to promote collaboration between the different global water data centres. In this capacity, it is a member of the GCOS Terrestrial Observational Panel on Climate (TOPC). He co-chairs EURO-FRIEND-Water, one regional group of the UNESCO-IHP international flagship initiative FRIEND-Water (Flow Regimes from International Experimental and Network Data. Stephan is also coordinating author of "Closing the Water Cycle from Observations across Scales: Where Do We Stand?" Most recently, he is engaged in research and development projects around global drought forecasting systems.

Dr. Tahani Sileet currently serves as the Chair of the African Minister Council On Water (AMCOW) Technical Advisory Committee and Minister Assistant for International Cooperation at Ministry of Water Resources and Irrigation, Egypt. She formerly served as the Head of the Central Department for External Cooperation in the Nile Water Sector on behalf of the Egyptian Ministry of Water Resources and Irrigation. She has represented the Ministry of Water Resources and Irrigation in many regional and international organizations including the Technical and Scientific Committee Member in the League of Arab States (LAS), the Water Expert Group Member in the Union for the Mediterranean (UfM), the Director of Nile Basin Initiative National Office and the Project Management Unit Director and Regional Coordinator of "Establishment of a Navigational Line Between Lake Victoria and the Mediterranean Sea (VICMED) Project". She is also appointed as the National Focal Point of Program Infrastructure Development in Africa (PIDA). She holds a PhD in Shared Water Resources Management, a M.Sc. In the "Impact of Climate Change and Sea Surface Temperature on the River Nile Flood Regime", an International Post Graduate Diploma in Shared Water Resources, and a Post Graduate Diploma in Irrigation and Drainage from Cairo University. She frequently publishes on many different topics related to Shared Water Resources Management with a focus on the Nile Basin. Dr. Sileet is a founding Member of the Women in Water Diplomacy Network and served on the Network's first Leadership Council.

Resources for ongoing learning provided by the session partners:

Updated Strategies for Monitoring and Assessment of Transboundary Rivers, Lakes and Groundwaters. January 2023. UNECE Water Convention. Available in English, French, Russian, Arabic.
Available at: https://unece.org/info/publications/pub/375468
The Water Convention hosted by the United Nations Economic Commission for Europe (UNECE) requires Parties to establish and implement joint programmes for monitoring transboundary waters including to exchange data and information to enable sustainable management and protection of shared water resources. This report provides guidance on monitoring, assessment, and data sharing in a transboundary context, to assist policy and decision-makers, representatives of joint bodies for transboundary water cooperation, and water managers responsible for establishing and carrying out cooperation between riparian countries in operationalizing cooperation over transboundary waters.

Good Practices and Lessons Learned in Data-sharing in Transboundary Basins. October 2024. UNECE Water Convention. Available in English, additional languages forthcoming.
Available at: *Details forthcoming at* https://unece.org/publications/oes/welcome
The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (the Water Convention), hosted by the United Nations Economic Commission for Europe (UNECE), provides a legal framework for monitoring, assessment and exchange of data and information in transboundary basins. It calls for all Parties to provide for the widest exchange of information, as early as possible, on issues covered by the provisions of the Convention. Furthermore, it requires Riparian Parties to establish and implement joint programmes for monitoring the conditions of transboundary waters and to exchange reasonably available data within the framework of relevant agreements or other arrangements. Good Practices and Lessons Learned in Data-sharing in Transboundary Basins presents a global collection of case studies related to different aspects of data and information sharing, building on real-life experiences across all levels. The publication provides a wide array of examples showing how monitoring and data-sharing

programmes can be implemented, and thus complements previously developed guidance materials on monitoring and assessment.

WMO Unified Data policy for the International Exchange of Earth System Data (the WMO Unified Data Policy). 2022. World Meteorological Organization (WHO).
Available at: https://library.wmo.int/records/item/58009-wmo-unified-data-policy
The WMO Unified Data Policy provides a comprehensive update of the international agreements guiding the exchange of weather, climate, and related Earth system data between the 193 Member States and Territories of WMO.

WMO Hydrological Observing System (WHOS)
Available at: https://community.wmo.int/en/activity-areas/wmo-hydrological-observing-system-whos
WHOS is a framework for hydrological interoperable data and metadata exchange and access linking heterogeneous data sources from multiple data providers. WHOS, a hydrological component of WIS2.0, is system of systems implemented using open standardization and brokering approaches for the benefiting of the National Meteorological and Hydrological Services, non NMHS data providers and users, and transboundary cooperation and providing visibility of data providers. WHOS does not impose any specific tools but encourages use of open standards, web services, systems. The core of WHOS is the DAB (Discovery and Access Broker) that implements access, semantic and discover broker; and WHOS ontology that maps various concepts.

The World Meteorological Organization's WMO Information System 2.0 (WIS 2.0) is the framework for WMO data sharing for all WMO domains and disciplines. It supports the **WMO Unified Data policy**, and the **Global Basic Observing Network (GBON)** and makes international, regional, and national data sharing simple, effective, and inexpensive. The idea that no Member should be left behind and the objective of lowering the barrier to adoption has been at the core of WIS 2.0 development. These objectives inspire the principles underpinning the WIS 2.0 technical framework, such as adopting open standards and Web technologies to facilitate sharing of increasing variety and volume of real-time data.

The World Meteorological Organization's WMO Information System 2.0 in a box (wis2box)
Available at: https://docs.wis2box.wis.wmo.int/en/1.0b8/
Wis2box is a Free and Open Source (FOSS) Reference Implementation of a WMO WIS2 Node. The project provides a plug and play toolset to ingest, process, and publish weather/climate/water data using standards-based approaches in alignment with the WIS2 principles. wis2box also provides access to all data in the WIS2 network. wis2box is designed to have a low barrier to entry for data providers, providing enabling infrastructure and services for data discovery, acc ess, and visualization. wis2box enables World Meteorological Organization (WMO) members to publish and download data through the WIS2 network. Learn more from countries currently sharing data on the WIS2 network (marked on the pictured map) by visiting https://demo.wis2box.wis.wmo.int

The Global Environment Monitoring System for Freshwater (GEMS/Water) is a programme that aims at collecting world-wide freshwater quality data to support scientific assessments and decision-making processes. In addition, GEMS/Water offers support and encouragement to developing countries wishing to establish monitoring programmes and conduct assessments of water quality, by providing capacity development via training, advice, and assessment tools. GEMS/Water was established in 1978 as an interagency programme under the auspices of the United Nations through the United Nations Environment Programme (UNEP), the World Health Organization (WHO), the World Meteorological Organization (WMO), and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

In June 2014, the first UN Environment Assembly (UNEA) in Nairobi (Kenya) endorsed GEMS/Water as one of the mechanisms to assist in achieving the SDGs. Special focus is on sub-target 6.3, aiming at improving water quality, and the corresponding indicator 6.3.2. Collected in the GEMStat database, the data of GEMS/Water is currently operated, hosted and maintained by the GEMS/Water Data Centre (GWDC) within the International Centre for Water Resources and Global Change (ICWRGC) in Koblenz, Germany. Learn more about GEMS/Water here: https://www.unep.org/explore-topics/water/monitoring-water-quality and visit the GEMStat Database here: https://gemstat.org/.

The Global Runoff Data Centre (GRDC) is an international data centre operating under the auspices of the World Meteorological Organization (WMO). Established in 1988 to support the research on global and climate change and integrated water resources management, it holds the most substantive collection of quality assured river discharge data on global scale. For the execution of its tasks and international recognition, GRDC is mandated by the World Meteorological Organization (WMO) in several resolutions. Through this multilateral and bilateral collaboration, the hydrological and meteorological services of WMO member states directly contribute to the successful operation of GRDC. **Available at**: https://grdc.bafg.de/

The International Soil Moisture Network (ISMN) is an international cooperation to establish and maintain a global in-situ soil moisture database. This database is an essential means for validating and improving global satellite products, and land surface, climate, and hydrological models. Soil moisture, which is the water stored in the upper soil layer, is a crucial variable in a wide variety of processes and applications, including numerical weather prediction, flood forecasting, agricultural drought assessment, water resources management, greenhouse gas accounting, civil protection, and epidemiological modeling of water-borne diseases. Therefore, the societal benefits of the International Soil Moisture Network are large. Currently the ISMN is being processed to work under the auspices of the WMO and FAO in the future to improve the international recognition. **Available at:** https://ismn.earth/en/

The Global Terrestrial Network – Hydrology (GTN-H) links existing networks and systems for integrated observations of the global water cycle. The network was established in 2001 as a "network of networks" to support a range of climate and water resource objectives, building on existing networks and data centres, and producing value-added products through enhanced communications and shared development. GTN-H works under the auspices of WMO and the Global Climate Observing System (GCOS) and is a gateway to a great number of global observing systems for hydrological data. You can find descriptions and links to all network partners of GTN-H and the hydrological data products developed under the cooperation of the network.
Available at: https://www.gtn-h.info/networks/

The Permanent Joint Technical Commission for Nile Waters (PJTC) is a joint body established by Egypt and Sudan according to 1959 agreement on the utilization of the Nile Waters. The PJTC is responsible for transboundary water cooperation between both countries as well as the cooperation between them and the rest of the Nile Basin countries in the field of shared water resources management & development. The (PJTC) plays a vital role in coordinating and overseeing various projects aimed at managing water resources effectively. The commission contributes significantly to collection and sharing of data and information in order to enable the commission to carry out its tasks, and to ensure the ongoing measurement and monitoring of the Nile and all its upper reaches.