



CHULA ENGINEERING  
Foundation toward Innovation



## UNESCO Chairs Webinar Report

UNESCO Chairs Webinar for World Water Day 2024

on “Water for Prosperity and Peace”

21 March 2024

**Water for prosperity and peace**



**Chula**  
Chulalongkorn University

**CHULA ENGINEERING**  
Foundation toward Innovation



**UNESCO Chairs Webinar Report**  
**UNESCO Chairs Webinar for World Water Day 2024**  
**on “Water for Prosperity and Peace”**  
**21 March 2024 (13.30-17.00, Bangkok Time)**

## Preface

In the past decades, world demand for water has increased and the signs of a looming water crisis are clearly evident. Since water is essential to every aspect of life, the crisis affects everything – from health to human rights, the environment to the economy, poverty to politics, and culture to conflict. The crisis is also well beyond the scope of any individual or sector and cannot be dealt with in isolation. The need for integrated and cooperative mechanisms, institutions, and solutions for shared water resources to become a catalyst to efficiently manage disputes over water for regional peace and development through inclusive participative management of water resources is necessary.

The report summarized the essence and highlights of key presentations from the webinar and related information. The presentation materials and video clips are also available through the links provided in the Annex.

Sucharit Koontanakulvong  
Aksara Putthividhya  
Chulalongkorn University  
April 20, 2024

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## **Executive Summary**

To honor World Water Day 2024, Chulalongkorn University with UNESCO Bangkok, Jakarta, HQ, National Research Council of Thailand, Asia Pacific Centre for Ecohydrology (APCE) - UNESCO C2C, Indonesia, the Regional Humid Tropics Hydrology and Water Resources Centre for South-East Asia and the Pacific (Humid Tropics Centre Kuala Lumpur, HTC), Malaysia, together successfully organized the UNESCO Chairs Webinar on Water for Peace and Prosperity on March 21, 2024 with special congratulation Speech delivered by Ms. Soohyun Kim, Director, UNESCO Office Bangkok (Thailand). Followed by honorable presentations by representative water experts from Thailand, Indonesia and Malaysia in the area of water planning and innovations to mitigate the adverse effects from climate change. Case studies from ASIA in the area of Groundwater (China), Water Infrastructure Improvement (Japan), Sponge City Concept (Australia). Case Studies from ASEAN are in the area of IOT application to help solve social conflict (Thailand), hydropower development in the WEF nexus (Indonesia) and River care under NbS solutions (Malaysia) with more than 190 international participants joined worldwide.

## **Opening session**

### **a) Congratulation Speech by Ms. Soohyun Kim, Director, UNESCO Office Bangkok (Thailand)**

Dear Distinguished partners, water experts, colleagues, and friends,

I am pleased to welcome you to today's webinar marking World Water Day 2024, where we will delve into this year's pressing theme of Water for Peace.

Water is indispensable for our existence. It sustains agriculture, fuels industries and supports ecosystems. However, its distribution across the globe is far from equitable, leading to disparities, tensions and disputes over accessible water supplies and control. Climate disruptions are affecting the planet's hydrologic cycle, worsening extreme weather events such as floods and droughts, altering rainfall patterns, melting glaciers and leading to higher temperatures and increased water demands.

Throughout history, water has been a catalyst for both cooperation and conflict. From ancient city states of Uruk and Lagash in Mesopotamia to modern day disputes over shared river basins, the narrative of water related conflicts is

deeply ingrained in human history. Our limited and precious freshwater resources have become triggers, weapons, and casualties of war and conflicts. As we look to the future, projections indicate that these conflicts will only escalate unless urgent action is taken.

Meeting this challenge will require concerted effort by the international community to ensure universal access to safe and affordable water and sanitation by 2030. This is why this year's United Nations World Water Development Report, coordinated by UNESCO on behalf of the UN water family, calls attention to the complex and interlinked relationships between sustainable water management, prosperity and peace. It also highlights how progress in one dimension can have positive, often dramatic, repercussions on the others.

At UNESCO, we have long been convinced of the value of this interlinked approach, whether through our intergovernmental hydrological program, which over 5 decades has gradually brought together 169 national committees, or with the UNESCO World Water Assessment Program, the 29 independent UNESCO water centers and the 70 UNESCO university chairs and water globally, one of whom joins us today. Much remains to be done, especially in the management of transboundary basins and aquifers.

This is why the Transboundary Water Corporation coalition was launched in December 2022 at the UN Water Summit on Groundwater Organized by UNESCO in Paris, The coalition aims to encourage cooperation between countries that share aquifers, lakes, and river basins. The Coalition serves as a space for exchange where joint decisions allow equitable and sustainable use of resources in our region.

In Southeast Asia, where more than 70 million people depend on transboundary rivers like the Mekong, Regional Corporation is paramount. By fostering trust and unity among and across the wider ASEAN region, we can close development gaps and address common challenges.

UNESCO's ongoing work in the Asia Pacific region demonstrates the transformative power of effective water governance and policy reforms. By attracting private investment and leveraging technological innovations, we can accelerate progress towards access to quality water supply services.

Technologies such as digitalization and advanced modeling tools offer promising regional solutions from managing water resources more effectively. By harnessing the power of data and technology, we can optimize water use,

minimize waste, and mitigate the impacts of climate change. Progressive policy and institutional reforms are also needed to promote integrated water resources management.

Water, a vital common good of humanity, should never be used as a weapon of war.

On this World Water Day, let us recommit ourselves to the principles of cooperation and peace.

Water, with its global cycle transcending borders, serves as a potent symbol of our shared humanity.

By embracing cooperation and dialogue, we can transform water from a source of conflict into a catalyst for corporation, peace and prosperity, not conflict and war.

Together, let us make it so. My sincere thanks to our webinar partner Chulalongkorn University, and all distinguished water experts for their contributions to today's vital discussion. Thank you.

**b) Opening Speech by Prof. Dr. Supot Teachavorasinskun,  
Dean of Faculty of Engineering, Chulalongkorn University**

Dear Ms. Soohyun Kim, Director, UNESCO Office in Bangkok (Thailand),  
Distinguished keynote speakers, and all honorable guests.

It's my utmost honor and pleasure to extend a warm welcome to each of you to the UNESCO Pre-Launch Webinar on Policy Briefs on Partnership and Cooperation Enhancement in Water Management in the Asia Pacific region.

A critical factor in achieving SDG 6 lies in the collaborative efforts of organizations and research institutions worldwide, both within and outside the water community, to unite in partnerships and cooperation, thus accelerating progress.

In alignment with this monumental endeavor, the forthcoming policy briefs on Public-Private Partnerships (PPP) for water management, a collaborative initiative between UNESCO, ONWR, and Chulalongkorn University, will delve into the imperative of forging partnerships and fostering cooperation crucial for the Asia Pacific region to attain its water management goals within the broader context of sustainable development.

Our esteemed Faculty has long been immersed in water management research, encompassing both technical and managerial facets. We have served

as a platform for academic discourse in the realms of water resources and water disaster management under climate change, exemplified by our hosting of international conferences in 2015, 2017, 2019, and 2022. Additionally, our University is committed to promoting a sustainable environment, as evidenced by our focus on campus sustainability in accordance with SDG criteria.

Since water is essential to every aspect of life, the crisis affects everything from health to human rights, the environment to the economy, poverty to politics, and culture to conflict. The crisis is also well beyond the scope of any individual or sector and cannot be dealt with in isolation. The need for integrated and cooperative mechanisms, institutions, and solutions for shared water resources to become a catalyst to efficiently manage disputes over water for regional peace and development through inclusive participative management of water resources is necessary.

Through inclusive participation from all stakeholders, sustainable development becomes a tangible reality. This underpins the significance of our gathering today for the UNESCO webinar, where we convene to exchange insights, glean knowledge from our collective experiences, and endeavor to ensure water emerges as the most sustainable resource for all stakeholders, fostered by enhanced partnerships and collaborations to achieve SDG 6 goals.

Lastly, I am optimistic that the discussions stemming from this webinar will serve as a catalyst for significant strides towards a better world characterized by increased partnership, collaboration, and sustainability, not only for us but also for future generations to come.

Once again, I extend my heartfelt gratitude to each of you for your participation. I also wish to highlight the importance of the additional information provided, including the objectives of the event, which aim to gather water sector representatives from various stakeholders to promote interactions and cooperation under the water for prosperity and peace development concept. This gathering seeks to support SDG 6 achievement through real case studies, policy support, and potential collaborations among countries in the region and the UNESCO Chairs network. Your presence and contributions today are invaluable as we collectively work towards a more sustainable future. Thank you, and I warmly welcome you to the UNESCO Chairs webinar today.



## **Session 1: Executive**

### **1-1 Topic: Data-Driven Solutions in Thailand Water Management and Policy : Addressing Hydrological Challenges for Uncertain Future**

**Presenter:** Dr. Somkiat Prajamwong  
Senior Expert, National Water Resources Committee, Thailand.  
Former Secretary General, Office of National Water Resources (ONWR), Thailand.

#### Contents

- Thailand Economy –GDP Structure by Sectors Production reveals the major water consumption by Agricultural Sectors (76%). National GDP in production varies geographically among sectors with the lowest from agricultural sector (8.6%), indicating that the agricultural sector is the most vulnerable among all with lowest economic productivity.
- Water is the main vector of climate change impacts.
- Climate change is considered the biggest contributor to hydrologic cycle, water availability, and environmental&socio-economic impacts (IPCC 2021). Global economic loss from disaster (e.g., floods and droughts) up to 440 billion USD in year 2011 was reported. At the same time, Thailand also experienced the big flood in Chao Phraya river basin). Projected world economic loss up to 5.60 trillion USD decrease in GDP is estimated in year 2050 from water risks (floods and droughts). With efficient water resources management, significant national incremental in GDP can be achieved from 1-6%.
- There is a negative and statistically significant impact on economic growth during El Niño, but the impact is by and large insignificant for La Niña. Both extreme El Niño and La Niña cause damage on economic growth, but the damage is far greater during El Niño than during La Niña; weak and moderate La Niña events produce a smaller benefit, which in amplitude is far smaller than the damage of weak El Niño events.

- Thailand's National Adaptation Plan (NAP) emphasizes on Water Resources Management under Threats and Uncertainties from Climate Irregularities.
- Addressing four major pain points in Thailand's water management:
  - Closing the Water Management Gaps
  - Investing for Water Security
  - Embracing Sustainability Trends to Build Resilience
  - Addressing Climate Change
- 3 Key elements for Thailand water management's actionable solutions and collaborative change to bridge major painpoints need to include: 1) Inclusiveness; 2) Integration; and 3) Universal approaches.
- Data-Driven Solutions for Water Management and Policy Addressing Hydrological Challenges for Uncertain Future are as follows:
  - Policy
    - Embracing Sustainability (SDGs)
    - 20-yrs Water Resources Master Plan
    - River Basin Master Plan
    - Building Water and Climate Resilience
  - Participation/Partnership
    - Public Participation
    - Public Acceptance
    - Community-Based Adaptation
    - Data Sharing
  - Economic
    - Water Pricing Reflecting Water Scarcity and Full Supply Costs
    - Water Trading
  - Innovations/Technologies
    - AI in Water
    - Flood/Drought Forecasting
    - Early-Warning System
    - Leak/Loss Management
    - Nature-Based Solutions
  - Finance
    - Water Funds
    - Integrated Budget (Central and Locals)

- Incentives
- Investing for Water Security
- Water Grids
- Institutions and Laws
  - Water Resources Act B.E. 2561
  - Water Institution Reform
  - Water Governance

**1-2 Topic: National Water Policy Security : Problem and Challenges Scoping**

**Presenter:** Prof. Dr. Ignasius D.A. Sutapa, MSc  
 Asia Pacific Centre for Ecohydrology (APCE) - UNESCO C2C,  
 Indonesia

**Contents**

- Water Stress by Country in 2040
- National Water Security Index
- Contribution of Water Resources to the National Development Dimension
- Trend of Rainfall Change in Indonesia
- Strategic Issues for the Water Sector in the New Era
- Closing Remarks
  - Even though the Indonesian government is fully concerned about climate change issues and problems and their impacts on water resources policy adjustment should be strengthened to achieve the SDGs target in the future
  - Understanding the water cycle and climate change will help using and managing water sustainably
  - Ecohydrology is a comprehensive approach to enhance sustainable management of water resources
  - The COVID 19 Pandemic tends to change people’s behavior, consumption adjustment, and priority orders that should be considered in the future;

### **1-3 Topic: Water Resources Sustainability and Innovation in Malaysia**

Presenter: Ir. Dr. Tan Woon Yang

Humid Tropics Centre KL (HTC KL), Malaysia

#### Contents

- National Water Balance Management System (NAWABS)
- National Water Balance Management System - 19 basins
- Output from Nawabs
- Outcomes
  - Predict imminent drought 2 months in advance
  - Issue warning 14 days in advance

### **Session 2: ASIA**

#### **2-1 Topic: Our recent study for water shortage development in last 100 years in Central Asia and Aral Sea**

Presenter : Professor Yonghui Yang

Center for Agricultural Research, IGDB, Chinese Academy, China.

The presentation by Professor Yonghui Yang, delivered at the UNESCO Chairs Webinar on World Water Day 2024, emphasizes Land-Water-Food Nexus and the interdependence between water security and food security with the focus in Central Asia and Aral Sea. Food production is the largest water consumptive sector both surface and groundwater. The Aral Sea Basin in Central Asia is shared by five countries, including Uzbekistan, Kazakhstan, Turkmenistan, Kyrgyzstan, and Tajikistan. There are two large rivers which are Syr River and Amu River. The Aral Sea surface area has declined significantly from 1960 to 2010. Irrigated area expansion in the recent 100 years between 1910s to 2010s increased three times and resulting in 10 times increase of food production. Irrigated area for cotton increased five times from 500,000 ha to 2,500,000 ha from 1910s to 2010s and the cotton production increased 55%, especially in Uzbekistan and Turkmenistan. The expansion of irrigated area for cotton stopped around 1995 because of water shortage. Most of river flow has been used for irrigation. The Aral Sea surface area was only 8,300 km<sup>2</sup> in 2010s compared to 66,000 km<sup>2</sup> in 1930s while the irrigated area was expanded from 24,200 km<sup>2</sup> in 1930s to 80,500 km<sup>2</sup>. Central Asia exports a large amount of

cotton and wheat, especially to Asia and Europe, as a result, water for irrigation has been virtually exported.

The suggested solutions are collaboration on water resources management in the five countries, including water entitlement and water rights. Utilization of water saving, for example, drip irrigation could help reduce significant amount of water use. Most importantly, land expansion management among five countries is the key point since expansion of irrigated area results in increased water demand. The lesson learned from North China Plain where drip irrigation was implemented to save water; however, water use was not decreased because of expansion of irrigated area. Therefore, land expansion needs to be managed carefully with consideration of available water supply.

**2-2 Topic:     How we are renovating infrastructures like dams to maintain water resources and flood control capacity**

Presenter:     Professor Dr. Nasu Seigo  
                  Dean, School of Management, Kochi University of Technology,  
                  Japan

The presentation by Professor Seigo Nasu delivered at the UNESCO Chairs Webinar on World Water Day 2024, discusses river basin water management under climate change impact and history of policy to cope with floods and droughts in Japan. The development of River Act started in 1896 when the first River Act was established for flood control. In 1964, there was water shortage due to high economic growth, as a result, there was a lot of water resources development. In 1997, the government included participation of citizens in planning. During 1960's to 2000's, domestic and industrial water use tripled. Recently, domestic water use is stable and industrial water use was reduced by cyclic use of water. The industrial water recycled is now almost 80% and the water supply has been reduced.

For water resources allocation systems, and drought management, Practical Right to Use Water followed the historical use of water before the River Act established in Meiji Era, which is mostly used for agriculture. Right to Use Water can be categorized to 1) Right to Use Water with permission and 2) Practical Right to Use Water. Practical Right to Use Water also has to obtain permission, however, it is very difficult to change it for the other use. Before 1997, every development was planned by the central government. The new

system of River Basin Committee and participation of regional stakeholders was implemented in 1997. Initial plan is planned by river administration but opinions of residences, mayors, specialists have to be taken into account. Based on their opinions, initial plan will be reviewed and the river administration determines the final development plan. In case of drought, voluntary adjustment among stakeholders who have Right to Use Water are expected by River Act. Rule for water demand adjustment has to be made at each region since each region has its own complicated circumstances. Water demand adjustment committees are established at each river basin which consist of stakeholders.

Professor Nasu's research also includes simulations of climate change impacts in Shikoku Area. It is necessary to understand quantitatively the impacts to the socio economics part and lifestyle as a result of developing the integrated model named "End to end model" that consists of "scientific climate change model, hydrological model to predict water resource and its fluctuation, and social impact evaluation model", in the Yoshino river basin area. In order to form an agreement on regional policy, it is necessary to establish a regional management system by creating information of the policy impact and sharing them. For Sameura Dam, with the current dam operation rules and climate change projections during the period of 2046 – 2065, the 20-year average water levels of the dam are projected to be lower than that of 1981 – 2000 even though the rainfall is projected to increase more than 20%. The simulations also show that some floods cannot be controlled. The comparison of climate change impacts on drought between Shikoku-Chuo City (industry oriented) and Takamatsu City (service oriented) was also carried out. The results demonstrated that for Shikoku-Chuo City, drought level will be worse during 2046 – 2065 compared to 1981 – 2000; however, uncertainty will be relatively small. For Takamatsu City, drought level will remain the same; however, uncertainty will be relatively large. Importantly, socio-economic growth has a large impact on the industrial-oriented city while it has a small impact on the service-oriented city.

The river improvement plans over the next 20 to 30 years have to be refined by taking into account the effects of climate change. More effective operation, taking into account current climate conditions and near-future climate change is necessary, including the renovation of infrastructures which is

the basic policy of Japan, not only for river management but for all infrastructures. The showcase is the renovation of Sameura Dam with consideration of climate change impacts to construct a new tunnel to increase flood control capacity.

**2-3 Topic: Sponge cities and the role of NbS in providing multiple benefits**

Presenter: Ms. Katharine Cross  
Monash University, Australia.

The presentation by Ms. Katharine Cross delivered at the UNESCO Chairs Webinar on World Water Day 2024, showcases sponge cities and the role of Nature-based Solutions (NbS) in providing multiple benefits. Sponge cities are designed to incorporate NbS to make cities resilient to flooding and other water-related challenges. Water sensitive urban design is an approach to urban design that considers the water cycle and incorporates practices and technologies including NbS to manage stormwater in an integrated and sustainable manner. NbS are solutions inspired and supported by nature. They are cost effective and provide environmental, social, and economic benefits and help build resilience. NbS can be part of hybrid approaches including green and grey infrastructure for flood, drought, and water quality. There is an opportunity for NbS since three quarters of 2050's infrastructure doesn't yet exist. NbS provide multiple benefits and can also support livability, sustainability, environment and biodiversity protection, health improvement, and economic growth. NbS can be applied across scales from building scale (e.g. green roof, rain gardens), neighborhood scale (street trees), precinct scale (parks with stormwater bioretention system), catchment scale (buffer zone with vegetation), and city scale (city as water supply catchment). To successfully implementing NbS, partnerships are key foundation principles. The development of sponge city can take place with ongoing dialogue and knowledge sharing to understand how best to design not only from engineering and hydrology perspectives but also ecological and social perspectives.

Water Sensitive Cities Australia (WSCA) is a multidisciplinary research-to-practice partnership within the Monash Sustainable Development Institute, Monash University (<https://wscaustralia.org.au/>). WSCA enables and supports NbS through Resilient Urban Centres and Surrounds (RUCaS) program. This program is working across the Greater Mekong region for climate resilient

communities, environments, and economies. The case studies under RUCaS developed in Vietnam and Thailand and applied the integrated urban flood management approach. There are five steps to develop options for implementing NbS in cities. The first step is to define urban system context to understand objectives and functions of urban areas now and for the future and consider climate vulnerability. Secondly, range of options are considered based on three-tiered strategy: prepare, respond and recover and a full spectrum of green, grey, and blue interventions as well as non-structural measures. The third step is to identify and value benefits and costs. Fourthly, options are evaluated and compared based on benefit-cost analysis. The final step is to identify appropriate financing and funding. WSCA works with stakeholders to identify location appropriate solutions which are effective, efficient, fair, and scalable. In Bangkok, WSCA works with Bangkok Metropolitan Administration (BMA) in Sukhumvit areas, On Nut and Makkasan to develop ideas for greener cities. WSCA supports BMA in the implementation of the Green Bangkok 2030 policy to increase access to parks and green spaces.

Achieving large scale applications for climate resilient and livable cities requires alignment of elements of policy regulation strategy, technical capability, and private and community supports.

### **Session 3: ASEAN**

#### **3-1 Topic: New technology introduced in an irrigation Project to solve water conflict**

Presenter: Assoc. Prof. Dr. Sucharit Koontanakulvong  
Chulalongkorn University, Thailand.

The presentation by Assoc Prof. Dr. Sucharit Koontanakulvong, delivered at the UNESCO Chairs Webinar on World Water Day 2024, showcases a groundbreaking irrigation project aimed at resolving water conflicts within the Thor Tong Daeng (TTD) Irrigation Project area in Kamphaeng Phet Province, Thailand. This initiative, part of the TSRI-NRCT Spearhead Research Program, focuses on enhancing water management efficiency at a local level and minimizing water losses through a variety of strategies. These include the implementation of automated systems for water release management, soil



moisture sensors, and water level monitoring, all aimed at achieving a significant reduction in water conveyance loss.

The project's objectives are ambitious, aiming not only to improve water management but also to address disparities in water resource access among the local agricultural communities. Covering an extensive area of approximately 88,110 hectares in the Ping River Basin, the initiative operates under a well-defined scope with a clear set of approaches. It integrates hardware installations like in-situ soil moisture sensors, software for water demand planning and feedback, and human ware through community-based action research. This multifaceted approach facilitates the enhancement of local water management efficiency by encouraging participation and integration among community leaders, farmers, and government staff.

Key activities of the project span technical installations, staff and user group training, and socio-economic assessments, all structured in phased implementations. Collaboration stands as a cornerstone of the initiative, fostering a network of capacity-building among human resources, forming local coaching teams, and facilitating water management teams at the village/district level. This collaborative framework aims to reduce conflicts in water allocation through continuous engagement across various stakeholders.

The results of implementing IoT technology and other interventions have been noteworthy, achieving a minimum of 15% reduction in irrigation water usage, increased household incomes from rice cultivation, and improved social dynamics within the community. The project has demonstrated that effective water and land management plans necessitate a blend of training, rule and regulation development, infrastructure improvements, and collaborative efforts to ensure equitable access to water resources.

In conclusion, the TTD Irrigation Project represents a successful model of how tracking systems, sensors, and active involvement of water user groups can significantly enhance water delivery efficiency, reduce distribution losses, facilitate knowledge transfer, and ultimately uplift farmer incomes and community well-being. The presentation acknowledges the collaboration and support from various Thai departments and organizations, highlighting the collective effort required to achieve sustainable water management solutions.

**3-2 Topic: Strengthen water resources management at the micro level to support sustainable renewable energy availability**

Presenter: Dr. Ir. Florentinus Budi  
Unika Soegijapranata-Semarang, Indonesia

The presentation by Professor Dr. Fl. Budi Setiawan, titled "Strengthening Water Resources Management at the Micro Level to Support Sustainable Renewable Energy Availability," delivered at the UNESCO Chairs Webinar on World Water Day, focuses on the potential and challenges of Micro Hydro Power Plants (PLTMH) in Indonesia. It emphasizes the significant untapped potential for electricity generation from water resources, particularly micro hydro, in Indonesia, where the potential reaches around 75,000 MW, highlighting regions such as Kalimantan, Sulawesi, and Java as key areas. The advantages of micro hydro electricity generation are underscored, including environmental friendliness, cost-effectiveness, reliability, reduced dependence on fossil fuels, and the ability to enhance access to electricity in remote areas. However, challenges such as high initial costs, reduced capacity during dry seasons, and the need for long-distance electricity distribution are also acknowledged.

A case study of the Kincang micro hydro power plant in Banjarnegara, Central Java, is presented to illustrate the practical application and benefits of PLTMH. The Kincang plant, which utilizes water from the Banjarcayana Irrigation Channel, reflects the Indonesian government's commitment to renewable energy development, supported by regulatory frameworks facilitating electricity sales to the national grid at predetermined prices.

The presentation concludes with a discussion on the low utilization rate of Indonesia's hydropower potential, currently at around 6%, and the importance of micro-scale initiatives to foster community participation and optimize renewable energy sources. The need for greater appreciation and encouragement of water energy use for clean energy production is highlighted, suggesting a priority for micro-scale strengthening and the development of independent power producers (IPPs) to improve the utilization of water resources for electricity generation in Indonesia.

**3-3 Topic: GEC's experiences in River Care Programme in Malaysia through Nature based Solutions (NbS)**

Presenter: Dr. Kalithasan Kailasam  
Global Environment Center, Malaysia

Dr. Kalithasan Kailasam's presentation at the UNESCO Chairs Webinar on World Water Day outlines the Global Environment Centre's (GEC) efforts in Malaysia to manage and conserve water resources through Nature-Based Solutions (NbS). It emphasizes Malaysia's reliance on rivers for 97% of its potable water, underlining the critical role rivers play in the nation's development and culture. The presentation showcases the natural characteristics of rivers, advocating for a harmonious coexistence between humans and these waterways, leveraging their self-care and purification capabilities.

GEC's River Care Program, grounded in NbS, aims to foster clean, healthy, and vibrant rivers through integrated basin management, stakeholder engagement, community participation, waste management, and biodiversity conservation. The approach balances hard, soft, and heart methodologies, promoting civic science and community reconnection with nature to instil a sense of ownership and responsibility towards river conservation.

Highlighted case studies include the Putrajaya Lake and Wetland, Malaysia's significant projects by the government, demonstrating the successful application of NbS for flood control, water filtration, recreation, and education. The overall message underscores the importance of NbS for sustainable river management, advocating for community-led initiatives, smart partnerships, and stakeholder collaboration as key to enhancing water security, biodiversity, and human well-being. The conclusion reiterates water as a vital, living heritage, urging a collective effort to reconnect with nature and adopt NbS for a cost-effective, sustainable path forward in river care and conservation.

## **Session 4:**

### **Closing remarks by Dr. Sucharit Koontanakulvong, UNESCO Chair**

1) Findings from the webinar in each session can be summarized as follows:

#### Session 1 Executive session

- Data-Driven Solutions for Water Management and Policy, addressing four pain points (Thailand).
- Policy adjustment should be strengthened to achieve the SDGs target in the future, the COVID 19 Pandemic tends to change people's behavior, consumption adjustment, and priority orders that should be considered in the future (Indonesia).
- National Water Balance Management System - 19 basins, water priority, water appropriation, water quality, water audit (Malaysia)

#### Session 2 : ASIA session

- Water right or water entitlement among 5 countries, Water saving, for instance drip irrigation, Most important: no land expansion among 5 countries (China).
- Integration of countermeasures for each level/worst scenario since Nature becoming rough, Hazard Map is not enough to protect people. New Design Philosophy Necessary (Climate Change) (Japan).
- Using NBS to address urban water climate issues. exist. We need to integrate nature into infrastructure as we build it (Australia).

#### Session 3 ASEAN session:

- The combined scheme of hard, soft and people ware enhance water use efficient, reduce water conflict and increase farmer incomes (Thailand).
- It is necessary to encourage the use of water energy to produce clean energy. Micro-scale strengthening can be a priority to develop community participation (Indonesia).
- Nature-based solutions (NBS) can be vital to the sustainable river management (care) and use of nature for tackling socio-environmental challenges. Community can be main driver for this approach (Malaysia).

2) Announcement: Policy Brief on Partnership Enhancement in Water Management in Asia and the Pacific to be issued by UNESCO HQ, hopefully

publicized online within this year under our joint efforts from last year webinar.

- 3) Thanks to UNESCO Bangkok, Jakarta, HQ, National Research Council of Thailand, Asia Pacific Centre for Ecohydrology (APCE) - UNESCO C2C, Indonesia, the Regional Humid Tropics Hydrology and Water Resources Centre for South-East Asia and the Pacific (Humid Tropics Centre Kuala Lumpur, HTC), Malaysia and all honorable speakers, commentators and participants and Chulalongkorn University (CU)




### **Outputs of the Webinar**

- Support SDG6 achievement.
- Actual case studies on water management, especially for prosperity, conflict and dispute solving towards peace and cooperation initiative in Asia-Pacific countries.
- Policy support needed to enhance water prosperity, conflict and despite solving towards peace and cooperation.
- Embracing potential collaboration among countries in the region and UNESCO Chairs in the focus area of water management.

## Annex

### A) Webinar Program

UNESCO-CU World Water Day Webinar March 21, 2024				
Opening Session: Director, UNESCO Bangkok Dean of Engineering, Faculty of Engineering, Chulalongkorn University (13.30-13.45)				
Session 1: Executive (13.45-14.45)				
1	Thailand	“Data-Driven Solutions in Thailand Water Management and Policy : Addressing Hydrological Challenges for Uncertain Future” Dr. Somkiat Prajamwong	Senior Expert, National Water Resources Committee, Thailand. Former Secretary General, Office of National Water Resources (ONWR), Thailand.	
2	Indonesia	“National Water Policy Security : Problem and Challenges Scoping” Prof. Dr. Ignasius D.A. Sutapa, MSc	Asia Pacific Centre for Ecohydrology (APCE) - UNESCO C2C, Indonesia	
3	Malaysia	“Water Resources Sustainability and Innovation in Malaysia” Ir. Dr. Tan Woon Yang	Humid Tropics Centre KL (HTC KL), Malaysia.	
Session Q&A and Discussion				
Session 2: ASIA (14.45-15.45)				
1	China	“Our recent study for water shortage development in last 100 years in Central Asia and Aral Sea” Professor Yonghui Yang	Center for Agricultural Research, IGDB Chinese Academy, China.	
2	Japan	“How we are renovating infrastructures like dams to maintain water resources and flood control capacity “ Professor Dr. Nasu Seigo	Dean, School of Management Kochi University of Technology, Japan.	
3	Australia	“Sponge cities and the role of NbS in providing multiple benefits” Ms. Katharine Cross	Monash University, Australia	
Session Q&A and Discussion				

Session 3: ASEAN (Academics and Professionals) (15.45-16.45)				
1	Thailand	“New technology introduced in an irrigation Project to solve water conflict” Assoc. Prof. Dr. Sucharit Koontanakulvong	Chulalongkorn University, Thailand.	
2	Indonesia	“Strengthen water resources management at the micro level to support sustainable renewable energy availability” Dr. Ir. Florentinus Budi	Unika Soegijapranata-Semarang, Indonesia.	
3	Malaysia	“GEC's experiences in River Care Programme In Malaysia through Nature based Solutions (NbS)” Dr. Kalithasan Kailasam	Global Environment Center, Malaysia	
<b>Session Q&amp;A and Discussion</b>				
Closing Remarks		Dr. Sucharit Koontanakulvong, UNESCO Chair, Chulalongkorn University (16.45-17.00)		

## B) Presentation materials

[http://project-wre.eng.chula.ac.th/watercu\\_th/?q=node/45](http://project-wre.eng.chula.ac.th/watercu_th/?q=node/45)

## C) Presentation clips

<https://www.youtube.com/watch?v=I6sKT0-gEus&list=PL2qBZChb2KWLqFsioSI0ks8IordgHD46O>

## D) Speaker, Session Chair and Commentator list

### (1) Speakers

- 1-1 Dr. Somkiat Prajamwong, Senior Expert, National Water Resources Committee, Thailand.  
Former Secretary General, Office of National Water Resources (ONWR), Thailand
- 1-2 Prof. Dr. Ignasius D.A. Sutapa, MSc ,  
Asia Pacific Centre for Ecohydrology (APCE) - UNESCO C2C, Indonesia
- 1-3 Ir. Dr. Tan Woon Yang, Humid Tropics Centre KL (HTC KL), Malaysia
- 2-1 Professor Yonghui Yang, Center for Agricultural Research, IGDB, Chinese Academy, China.
- 2-2 Professor Dr. Nasu Seigo, Dean, School of Management, Kochi University of Technology, Japan

- 2-3 Ms. Katharine Cross, Monash University, Australia.
- 3-1 Assoc. Prof. Dr. Sucharit Koontanakulvong, Chulalongkorn University, Thailand.
- 3-2 Dr. Ir. Florentinus Budi, Unika Soegijapranata-Semarang, Indonesia
- 3-3 Dr. Kalithasan Kailasam, Global Environment Center, Malaysia

**(2) Session Chair :**

- 1. Assoc. Prof. Aksara Putthividhya, Ph.D., Chulalongkorn University, Thailand.
- 2. Asst. Prof Piyatida Ruangrassame, Ph.D., Chulalongkorn University, Thailand.
- 3. Dr. Pavisorn Chuenchum, Chulalongkorn University, Thailand.

**(3) Commentators**

Session 1

- 1. Professor Dr. Nasu Seigo, Kochi University of Technology, Japan
- 2. Professor Yonghui Yang, Chinese Academy, China

Session 2

- 1. Prof. Dr. Ignasius D.A. Sutapa, MSc. Asia Pacific Centre for Ecohydrology (ACE) - UNESCO C2C, Indonesia
- 2. Prof. Ming-Che Hu, National Taiwan University, Taiwan.

Session 3

- 1. Dr. Winai Chaowiwat, Hydro-Informatics Institute, Thailand.
- 2. Dr. Pham Nhan Quy, Hanoi University of Natural Resources and Environment, Vietnam.

**E) PR materials**

Program and register through <https://forms.gle/H89k5r4jUBXqEqSm6>

Webinar news: <https://www.eng.chula.ac.th/th/46237>

<https://www.facebook.com/photo/?fbid=748424117479023&set=pcb.748425177478917>

**F) Contact Information**

Associate Professor Dr. Sucharit Koontanakulvong  
UNESCO Chair, Faculty of Engineering, Chulalongkorn University  
Phrayathai Rd., Patumwan, Bangkok, Thailand 10330.  
[Sucharit.K@Chula.ac.th](mailto:Sucharit.K@Chula.ac.th), [www.ksucharit.com](http://www.ksucharit.com)



## G) Event pictures



Congratulation Speech by Ms. Soohyun Kim, Director, UNESCO Office Bangkok (Thailand)



Opening Speech by Prof. Dr. Supot Teachavorasinskun,  
Dean of Faculty of Engineering, Chulalongkorn University

# Closing Remarks

**Assoc Prof. Dr. Sucharit Koontanakulvong**  
UNESCO Chair, Chulalongkorn University  
Present at UNESCO Chairs Webinar 2024  
March 21, 2024



Closing remarks by Dr. Sucharit Koontanakulvong, UNESCO Chair



More than 190 international participants joined the webinar worldwide



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