

無可替代的水價值

# Irreplaceable Water Value

INTERNATIONAL FORUM 2021

經濟、環境、科技、文化

10月  
Oct. 14-16



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# Irreplaceable Water Value

INTERNATIONAL FORUM 2021

## About Water Leaders Summit

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Water is life. Water has nourished life on earth since the beginning of time. Leonardo DaVinci said, “Water is the driving force of all nature.” The poet W. H. Auden said, “Thousands have lived without love, not one without water.” Water is Earth’s most precious resource, shared by past and future generations of human beings.

Even though it is agreed that water is a shared resource, people have often taken water for granted. Water is viewed as a cheap commodity, because it is so readily available. All one needs to do is to turn on the faucet and out it flows. We have overlooked the valuable role that water plays in environmental, economic, social and cultural development. On World Water Day in 2021, the United Nations addressed the value of water. The wasteful and careless use of water stems from the fact we all too often think of water exclusively in terms of its cost price, without realizing its tremendous value, which is impossible to price. The UN called on the nations of the world to rise to SDG6, to cherish and value water.

Climate change, population growth and economic development have depleted the world’s water resources. All countries of the world regard water as strategic national resources. In the first half of 2021, Taiwan faced severe drought, and the consequences of the drought was far-reaching. Without a steady supply of water, Taiwan’s Hsinchu Science Park would not be able to supply the world’s hi-tech industries with critical key components. Thanks to a dedicated water pipeline and inter-regional water resource allocations, the semiconductor foundries in the Hsinchu Science Park were able to operate without interruptions.

We must acknowledge water’s immense value and change the way that we think about and utilize water. Through cross-discipline, inter-organizational and public/private cooperation, we can transform troubled waters (floods) into gentle water (reservoirs of water), and convert waste water into “blue gold.” Sustainable, innovative and forward-looking water policies must be developed to serve the public, the society and the nation.

The value of water is impossible to price. The importance of water cannot be replaced by any other resource. The International Forum on the Irreplaceability of Water resonates with the UN’s “2021 World Water Day” message, calling on all sectors to reassess the value of water from environmental, economic, technological and cultural perspectives. Taiwan is committed to working with the rest of the world to address the issues, and to push for cooperation among industry, government and academia to develop sustainable water policies and preserve water, the world’s most precious resource, for generations to come.

# Program at a Glance

## Oct. 14-16

Room	Thursday Oct. 14	Friday Oct. 15		Saturday Oct. 16
	14:00~17:15	09:00~12:00	14:00~17:00	09:00~12:00
R101A	Water Leaders Summit Irreplaceable Water Value	Water and the Environment(1)- Mechanisms of Land Subsidence and Groundwater Salinity	Water and the Environment(2)- Nature-Based Solutions: Trends and Challenges	Water and the Environment(3)- Technology Forum for Water Quality Improvement and Pollution Reduction on Reservoir Watershed
R101B		Water and the Culture(1)- The Practice of Transparency, Accountability and Public Participation to the Application of Government Procurement Integrity Platform	Water and the Culture(3)- Discussion on Enterprise Water Resources Management from the Aspect of ESG	
R101C		Water and the Culture(2)- Coexistence between Water Management of Jianan Irrigation Channel and Cultural Heritage Revitalization	Water and the Economy(1)- TW-NL Water Challenges Conference: Request for Effective Solution!	Water and the Economy(3)- Water Values and Business Opportunities in ASEAN Countries
R101D		Water and the Technology(1)- 2021 Workshop on Smart Water Management	Water and the Economy(2)- Emerging Desalination Technologies and Prospects for Brackish Water Desalination	Water and the Economy(4)- Decentralized Rainwater Harvesting System to Reduce Climate Change Vulnerability
R201A			Water and the Technology(2)- Taiwan-Japan Exchange : Disaster Response Technology	Water and the Technology(4)- Introduction of Risk Management Strategy for Dam Safety Assessment
R102		Water and the Technology(3)- 2021 International Seminar for Trenchless Technology in Taiwan(R.O.C.)		

## Session Guide

### Water and the Environment

Date	Time	Category	Venue
Oct. 15	09:00-12:00	Mechanisms of Land Subsidence and Groundwater Salinity	R101A
Oct. 15	14:00-17:00	Nature-Based Solutions: Trends and Challenges	R101A
Oct. 16	09:00-12:00	Technology Forum for Water Quality Improvement and Pollution Reduction on Reservoir Watershed	R101A

### Water and the Culture

Date	Time	Category	Venue
Oct. 15	09:00-12:00	The Practice of Transparency, Accountability and Public Participation to the Application of Government Procurement Integrity Platform	R101B
Oct. 15	09:00-12:00	Coexistence between Water Management of Jianan Irrigation Channel and Cultural Heritage Revitalization	R101C
Oct. 15	14:00-17:00	Discussion on Enterprise Water Resources Management from the Aspect of ESG	R101B

### Water and the Technology

Date	Time	Category	Venue
Oct. 15	09:00-12:00	2021 Workshop on Smart Water Management	R101D
Oct. 15	09:00-12:00	Taiwan-Japan Exchange : Disaster Response Technology	R201A
Oct. 15	09:00-12:00	2021 International Seminar for Trenchless Technology in Taiwan(R.O.C.)	R102
Oct. 15	14:00-17:00	Introduction of Risk Management Strategy for Dam Safety Assessment	R201A

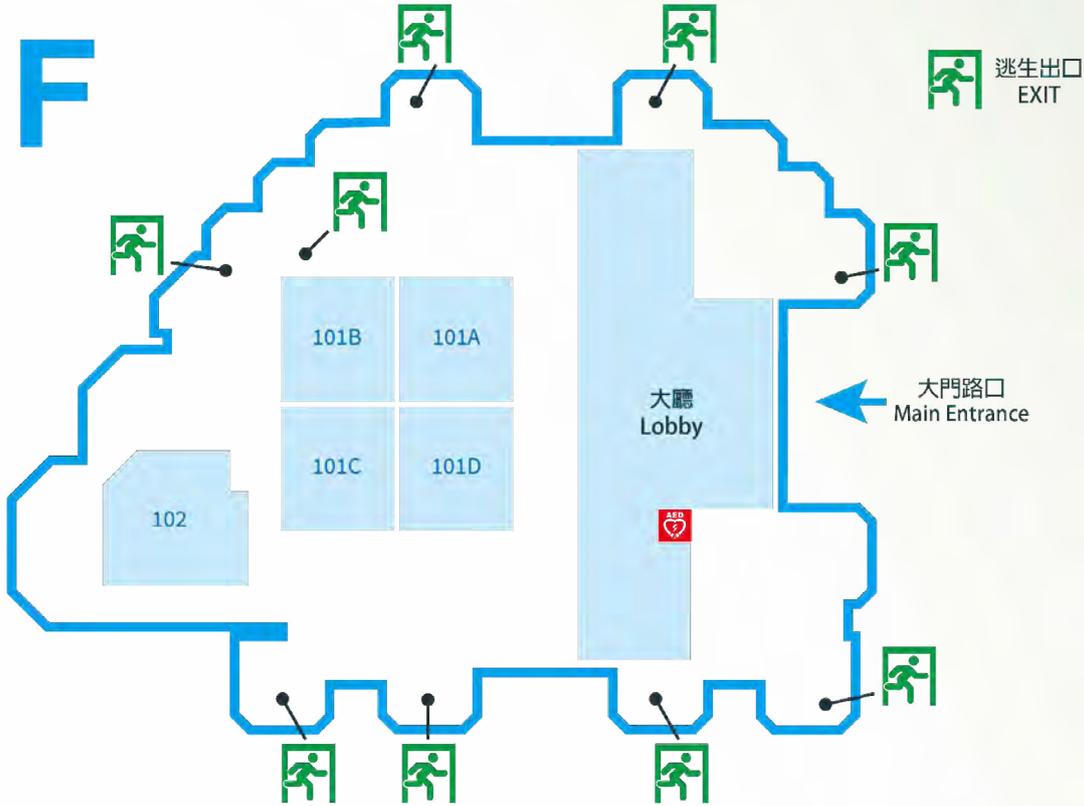
### Water and the Economy

Date	Time	Category	Venue
Oct. 15	14:00-17:00	TW-NL Water Challenges Conference: Request for Effective Solution!	R101C
Oct. 15	14:00-17:00	Emerging Desalination Technologies and Prospects for Brackish Water Desalination	R101D
Oct. 16	09:00-12:00	Water Values and Business Opportunities in ASEAN Countries	R101C
Oct. 16	09:00-12:00	Decentralized Rainwater Harvesting System to Reduce Climate Change Vulnerability	R101D

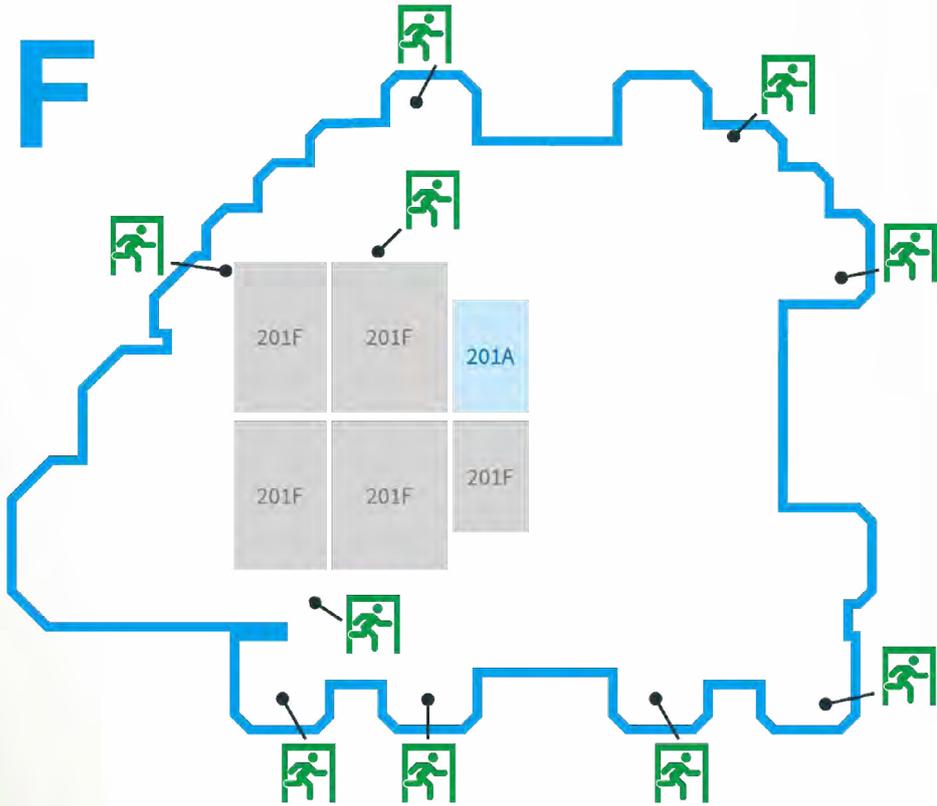
# Floor Plan

Taipei International Convention Center

## 1F



## 2F



# Water Leaders Summit

## Moderators

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### Chien-Hsin Lai

#### Director-General, Water Resources Agency, MOEA.

Dr. Lai has been the Director-General of WRA since 2016. Responding to climate change, he accomplished legal works of Reclaimed Water Resources Development Act and Runoff Distribution and Outflow Control policy. He also promotes Forward-looking Infrastructure Development Program for water environment to establish industrial sustainability and water resilience in Taiwan.



### Fang-Yu Chen

#### Director, Future City of Common Wealth Group

Prior to the director of Future City, I have dedicated to media industry over 22 years, and worked for the local major players. I've covered management, education and medical technology fields, and interested in media's digital transformation.

## Speakers

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### Quentin Grafton

#### Professor at Australian National University; Chairholder UNESCO Chair in Water Economics and Transboundary Water Governance

Professor Quentin Grafton is a professor of Economics, Australian Laureate Fellow, Convenor of the Water Justice Hub, and Director of the Centre for Water Economics, Environment and Policy (CWEEP) at the Crawford School of Public Policy at the Australian National University. He was appointed the Chairholder, the UNESCO Chair in Water Economics and Transboundary Water Governance and served as Executive Director at the Australian National Institute of Public Policy (ANIPP) between 2013 and 2014. He currently serves as the Director of the Food, Energy, Environment and Water Network. His current research topics mainly include Food, energy, environment and water opportunities, trade-offs and challenges, Optimal investment in water supply, and COVID-19 control and economy-wide effects.



### Kala Vairavamoorthy

#### Executive Director, International Water Association

Kala Vairavamoorthy is an internationally recognized water resource management expert, with particular expertise in urban water issues. He combines a strong engineering background with practical international experience. He has published extensively and has a strong international profile working closely with the World Bank, UN-Habitat, UNESCO, GWP, SIWI and the EU. This includes leading several urban water management projects for the World Bank, African Development Bank, Asian Development Bank and DFID. Kala is currently Professor (adjunct) at the Indian Institute of Technology, Madras (IITM).



### Sophia Cheng

#### Chief Investment Officer, Cathay Financial Holdings

Sophia Cheng is the Chief Investment Officer of Cathay Financial Holdings. Sophia has nearly 30 years of experience in research and investment and also proactively participates in forming government policies. In the recent years, she has also been actively promoting sustainability, ESG investing and corporate engagement in Taiwan. She has been appointed as Chair of Asia Investment Group in Climate Change (AIGCC) since 2018. Sophia was selected as 2019 Asia's Top Sustainability Superwomen and 2021 Global Top 50 Women in Investment Management.



### Kirk E. Gibbs

#### Commander and Division Engineer USACE Pacific Ocean Division

Kirk E. Gibbs is the Commander and Division Engineer of the Pacific Ocean Division, U.S. Army Corps of Engineers. As the Division Engineer, he is responsible for the engineering design, construction and real estate management for the Army, Air Force, and certain Department of Defense activities in the Indo-Pacific Region. Pacific Ocean Division administers the Corps' federal water resource development program and waters and wetlands regulatory programs in Alaska, Hawaii, and US territories. Pacific Ocean Division also supports U.S. interagency and international programs throughout the Indo-Pacific region in Integrated Water Resource Management policy, other humanitarian assistance and emergency preparedness programs.

## Water Leaders Summit Irreplaceable Water Value



Oct. 14<sup>th</sup> 14:00-17:15



R101

Time	Program	Speaker	Topic
13:00-14:00	Registration		
14:00-14:05	Opening Remarks		
14:05-14:15	Welcome Remarks		
14:15-14:25	Introduction	<b>Chien-Hsin Lai</b> Director-General, Water Resources Agency, MOEA	
14:25-14:55	Keynote Speech	<b>Quentin Grafton</b> Chairholder UNESCO Chair in Water Economics and Transboundary Water Governance	<b>Water Pricing for the Future</b>
14:55-15:25	Keynote Speech	<b>Kalanithy Vairavamoorthy</b> Executive Director, International Water Association	<b>Building Back Better? Time to Reframe the Water Agenda</b>
15:25-15:35	Break		
15:35-16:05	Keynote Speech	<b>Sophia Cheng</b> Chief Investment Officer, Cathay Financial Holdings	<b>The Driving Force for Corporates' Valuing Water Actions</b>
16:05-16:35	Keynote Speech	<b>Kirk E. Gibbs</b> Commander and Division Engineer USACE Pacific Ocean Division	<b>USACE Integrated Water Resource Management: Approaches to Drought and Climate Resilience</b>
16:35-17:15	Panel Discussion		
17:15	Farewell		

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# ***Daily Program***

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## Daily Program

### Moderators

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#### **Hung-Pu Huang**

##### **Deputy Director of Water Resources Agency, MOEA**

Mr. Huang was in charge of several important water resources engineering plans, such as constructions of Hushan Reservoir, Niaozueitan Artificial Lake, and some reservoir renewal projects. He also developed the regulations and systems of emergency management during drought in Taiwan and involved in the Shihmen Reservoir Remediation Project.



#### **Chuen-Fa Ni,**

##### **Distinguished Professor & Director, Graduate Institute of Applied Geology, National Central University**

Dr. Ni is the director of the Institute of Applied Geology, National Central University. His main research themes are numerical modeling of hydro-mechanical-chemical processes in porous and fractured media, hydraulic tests and inverse problems, groundwater and surface water interactions, submarine groundwater discharge, and IoT groundwater monitoring.

### Speakers

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#### **Richard G. Taylor**

##### **Professor of Geography, University College London (UCL)**

Richard Taylor is a Professor of Hydrogeology at University College London in the United Kingdom and an Adjunct Professor of Hydrogeology at Makerere University, Uganda. He has worked across tropical Africa and South Asia to inform strategies to expand and sustain access to safe water for drinking and food production. He leads major internal consortia funded by The Royal Society and research councils in the United Kingdom and Canada. From 2009 to 2018, he led a global commission on Groundwater and Climate Change and is currently a Contributing Author to two chapters of the upcoming 6th Assessment Report of the IPCC.



#### **Liang-Cheng Chang**

##### **Professor, Department of Civil Engineering, National Yang Ming Chiao Tung University, Taiwan.**

Prof. Chang is the chairman of Taiwan society of groundwater resources and hydrogeology and former department chair of civil engineering in NCTU. He has dedicated to conjunctive use of surface and subsurface water, groundwater and contaminants transport modeling, water resources system modeling and planning, parameters identification of groundwater model.



#### **Alexander H.-D. Cheng**

##### **Emeritus Dean of Engineering and Professor of Civil Engineering, University of Mississippi, USA**

Alexander Cheng was the Dean of Engineering, and Professor of Civil Engineering at the University of Mississippi. He retired in 2020. He obtained his Ph.D. from Cornell University, M.S. from University of Missouri, and B.S. from National Taiwan University. His research covers groundwater flow, saltwater intrusion, boundary element method, and poromechanics. He has authored and coauthored 5 books, including Modeling Groundwater Flow and Contaminant Transport, Multilayered Aquifer Systems, and Poroelasticity, edited four books, including Seawater Intrusion in Coastal Aquifers—Concepts, Methods, and Practices, and published more than 180 journal articles.



#### **Cheng-Yu Ku**

##### **Distinguished Professor & Vice President for General Affairs, National Taiwan Ocean University**

Cheng-Yu Ku is the Distinguished Professor of the National Taiwan Ocean University (NTOU). Professor Ku is widely regarded as a leading expert in geotechnical engineering especially on hydrogeology, groundwater numerical modeling, and the meshless methods. Professor Ku also serves as the Vice President for General Affairs, Office of the General Affairs, NTOU. He has received numerous awards and recognition for his strong commitment to teaching and his profession, including the NTOU Distinguished Professor Award in 2019, the NTOU Distinguished Teaching Award in 2017, 2018 Excellent Paper Award in Taiwan Rock Engineering Symposium.

## Water and the Environment (1)

### Mechanism of Land Subsidence and Groundwater Salinization

 Oct. 15<sup>th</sup> 09:00-12:00  R101A

Time	Topic	Moderator/Speaker
09:00-09:05	Introduction by Moderator	<b>Hung-Pu Huang</b> Deputy Director of Water Resources Agency, MOEA
09:05-09:35	Enhanced Capture of Monsoonal Flows by Groundwater Withdrawals in Asian Deltas: a Nature-based Adaptation to Climate Change	<b>Richard G. Taylor</b> Professor of Geography, University College London, UK
09:35-10:05	The Groundwater Resources and Management Principles in Taiwan	<b>Liang-Cheng Chang</b> Professor, Department of Civil Engineering, National Yang Ming Chiao Tung University
10:05-10:25	Break	
10:25-10:30	Introduction by Moderator	<b>Chuen-Fa Ni</b> Distinguished Professor & Director, Graduate Institute of Applied Geology, National Central University
10:30-11:00	Land Subsidence and Salt Water Intrusion in Coastal Plains	<b>Alexander H.-D. Cheng</b> Emeritus Dean of Engineering and Professor of Civil Engineering, University of Mississippi, USA
11:00-11:30	Reviewing and Characterizing Regional Land Subsidence in Yunlin County, Taiwan	<b>Cheng-Yu Ku</b> Distinguished Professor & Vice President for General Affairs, National Taiwan Ocean University
11:30-12:00	Panel Discussion	
12:00	Lunch	

## Daily Program

### Moderators

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#### Chien-Hsin Lai

##### Director-General, Water Resources Agency, MOEA

Dr. Lai has been the Director-General of WRA since 2016. Responding to climate change, he accomplished legal works of Reclaimed Water Resources Development Act and Runoff Distribution and Outflow Control policy. He also promotes Forward-looking Infrastructure Development Program for water environment to establish industrial sustainability and water resilience in Taiwan.

### Speakers

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#### Chien-Hsin Lai

##### Director-General, Water Resources Agency, MOEA

Dr. Lai has been the Director-General of WRA since 2016. Responding to climate change, he accomplished legal works of Reclaimed Water Resources Development Act and Runoff Distribution and Outflow Control policy. He also promotes Forward-looking Infrastructure Development Program for water environment to establish industrial sustainability and water resilience in Taiwan.



#### Ming-Chian Cheng

##### Director-General, Agency Against Corruption, Ministry of Justice

- LL.B., Department of Law, National Chung-Hsing University
- Chief Prosecutor, Taiwan Tainan District Prosecutors Office
- Chief Prosecutor, Taiwan Yunlin District Prosecutors Office
- Deputy Director-General, Agency Against Corruption, Ministry of Justice
- Chief Secretary, Agency Against Corruption, Ministry of Justice
- Deputy Director-General of Department of Legal Affairs, Ministry of Justice



#### Kevin I. J. Yeh

##### Professor, Department of Public Policy and Management, Shih Hsin University

- Director of Public Affairs Office, Shih Hsin University
- Chief Secretary of Shih Hsin University
- Chair of the Department of Public Policy and Management, Shih Hsin University
- Executive Director of Transparency International Taiwan
- Chair of Department of Business Administration, Shih Hsin University
- Assistant Professor of the Department of Public Policy and Management, Shih Hsin University
- Standing Board Member of Transparency International Taiwan



#### A. J. BROWN

##### CHAIR, TRENDS & VISION COMMITTEE, TI BOARD

##### Professor of Public Policy & Law, Griffith University, Australia

Professor A J Brown is leader of the Centre for Governance & Public Policy's public integrity and anti-corruption research program, and professor of public policy and law in the School of Government & International Relations.

A 25-year veteran of developments in Australia's integrity systems, since 2010 he has been a board member of Transparency International Australia, the world anti-corruption organization, and in 2017 and again in 2020 was elected to Transparency International's global board, where he led the development of its worldwide strategy 'Holding Power to Account, 2021-2030'.



#### Binayak Das

##### Regional and Programme Coordinator – South Asia, Integrity Tools, Water Integrity Network

Binayak is responsible for the development, adaptation, and promotion of water integrity tools, and manages tools-related collaborations. He also manages water integrity programmes in Bangladesh, and Nepal. He has over 17 years of experience working on the subjects of water and environmental management.



#### Armin Bigham Ghazani

##### Founding member of SWIM(Solution for Water Integrity and Management)

Armin is a Hydro Scientist with a background in Environmental Engineering, particularly interested in Transboundary Water Arrangements in the MENA region. His German-Iranian background and experience of living eight years in the United Arab Emirates help him understand the complex political, social, and geographic dynamics of the Middle East. From his work experience in the Federal Ministry of Migration and Refugees in Germany and his attendance at various political conferences, Armin offers a vast political knowledge. Since 2020, Armin focuses his research on the concept of hydro-hegemony looking at the layered nature of water-related conflicts and political strategies at different levels in the Euphrates-Tigris-Basin.

## Water and the Culture (1)

### 2021 The Practice of Transparency, Accountability and Public Participation to the Application of Government Procurement Integrity Platform

 Oct. 15<sup>th</sup> 09:00-12:00  R101B

Time	Topic	Moderator/Speaker
09:30-09:35	Opening Remarks	<b>Chien-Hsin Lai</b> General-Director, Water Resources Agency, MOEA
09:35-09:40	Welcome Remarks	<b>Ming-Chian Cheng</b> General-Director, Agency Against Corruption, MOJ
09:40-09:50	Video Sharing	<b>A Promotion Film for Government Procurement Integrity Platform</b>
09:50-10:30	<b>The Practice of Transparency, Accountability and Public Participation to the Application of Government Procurement Integrity Platform</b>	<b>Chien-Hsin Lai</b> General-Director, Water Resources Agency, MOEA
10:30-12:00	<b>Panel Discussion</b>	
12:00	<b>Farewell</b>	

## Daily Program

### Moderators

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#### Hua-Ping Tsao

**Deputy Director General, Water Resources Agency, MOEA**

Deputy Director Hua-Ping Tsao has been engaged in water conservancy for 39 years, mainly dedicated to flood prevention and water control. Since 1999, he has planned and promoted important national construction such as rivers, regional drainage and seawall improvement plans to effectively enhance Taiwan's overall water environment. In addition, since 2014, he drew up a comprehensive river basin management plan and a forward-looking water environment construction plan, combined with various ministries and committees to jointly implement related work, and continued to move towards the goal of resilience adjustment and sustainable development.



#### Lung-Chih Chang

**Director of the National Museum of Taiwan History**

Dr. Lung-chih Chang is Director of the National Museum of Taiwan History and Associate Research Fellow and former deputy Director of the Institute of Taiwan History, Academia Sinica, Taiwan. He received his Ph. D. in History and East Asian Languages from Harvard University. Dr. Chang has been the visiting scholar in Tokyo University, Cambridge University and Heidelberg University. His research interest includes social and cultural history, comparative colonialism, historiography and public history. He is now working on a manuscript about historiography and public memory in contemporary Taiwan.

### Speakers

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#### Yan-Hsing Chen

**Station master of Lung-tien Station, Chianan Management Office, Irrigation Agency, Council of Agriculture, Executive Yuan.**

Chen graduated with a master's degree in Water Resources Engineering from National Cheng Kung University. Since 1989, Chen engaged in the work of irrigation management, farm land consolidation and Wusanto Reservoirs management. Now Chen is the Station master of Lung-Tien Station, still devoted himself to hydraulic engineering in the front line.



#### Chung-Hsieh Shih

**Structural Engineer of Justin C.H. Shih Structural Engineer & Associates**

Dr. Shih graduated with PhD degree in Architecture from National Cheng Kung University. Shih is good at structural design, structure retrofit, monuments restoration. Shih now assumes the office of monuments restoration engineering class, Council for Cultural Affairs, Executive Yuan.



#### Chun-His Wang

**Assistant professor of Graduate Institute of Folk Arts and Cultural Heritage, National Taipei University**

Ph. D. of National Cheng Kung University, Tainan, Taiwan. He is the assistant professor of Graduate Institute of Folk Arts and Cultural Heritage, National Taipei University, Taiwan. His research interests are cultural heritage, cultural landscape, and the World Heritage. He is the member of cultural heritage council of several cities and counties in Taiwan. He is also the member of ISCCL (International Scientific Council of Cultural Landscape) and ICOMOS (International Council of Monument and Site). He also involved in several management plan projects of cultural landscapes in Taiwan.



#### Yu-Chen Chien

**Assistant professor, Department of Cultural Assets and Reinventio, Fo Guang University (Taiwan)**

Chien graduated with PhD degree in Architecture from The University of Tokyo. Chien is good at civil engineering history and heritage, river and hydraulic engineering history, water culture and heritage, historical ports and port city history. Chien used to be the postdoctoral researcher at the Institute of Taiwan History Academia Sinica and also an adjunct assistant professor at Department of Landscape Architecture with Chinese Culture University. Now he is a visiting researcher of Tokyo National Research Institute for Cultural Properties.

## Water and the Culture (2)

# Coexistence between Water Management of Jianan Irrigation Channel and Cultural Heritage Revitalization

 Oct. 15<sup>th</sup> 09:00-12:00  R101C

Time	Topic	Moderator/Speaker
09:00-09:05	Opening Remarks	<b>Hua-Ping Tsao</b> Deputy Director General, Water Resources Agency, MOEA
09:05-09:35	The Operation and Management Practice of Chia-Nan Irrigation Channel.	<b>Yan-Hsing Chen</b> Station master of Lung-tien Station, Chianan Management Office, Irrigation Agency, Council of Agriculture, Executive Yuan.
09:35-10:05	The Experience of the Aqueduct Bridge of Tsengwen River Rehabilitation	<b>Chung-Hsieh Shih</b> Structural Engineer of Justin C.H. Shih Structural Engineer & Associates
10:05-10:20	Break	
10:20-10:30	Introduction by Moderator	<b>Lung-chih Chang</b> Director of the National Museum of Taiwan History
10:30-11:00	Conservation Challenges of Cultural Heritage Regarding Hydraulic Engineering and River – an Observation Through Legislation and Operation	<b>Chun-His Wang</b> Assistant professor of Graduate Institute of Folk Arts and Cultural Heritage, National Taipei University
11:00-11:30	The Sustainable Way for the Conservation of Water (Hydraulic Engineering) Heritage with the Flood Control and River Improvement: Methods, Thinking and Prospect	<b>Yu-Chen Chien</b> Assistant professor, Department of Cultural Assets and Reinventio, Fo Guang University (Taiwan)
11:30-12:00	Panel Discussion	

# Daily Program

## Moderators

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### Yi-Fung Wang

#### Deputy Director General, Water Resources Agency, MOEA

Deputy Director Yi-Fung Wang received his Ph.D. degree in Civil Engineering at National Taiwan University. He was awarded by the Water Resource Agency as Outstanding Personnel in 2001 and by the Ministry of Economic Affairs as Model Civil Servant in 2010. Dr. Wang's dedication in Water Resource Agency are respectable including development of science and technology in water resources, water conservation, water-saving policy, inundation warning system, and emergency response to drought.



### Nai-Fang Chou

#### Professor, Department of Hydraulic and Ocean Engineering, National Cheng-Kung University

Prof Chou was an engineer of the Hydraulic Engineering Section, Sinotech Engineering Consultants, Inc. in 1981. He served as the heads of the Department of Hydraulic and Ocean Engineering, Research Center of Water science and technology of the National Cheng Kung University. He was a member of several committees of the Executive Yuan, National Development Council, Ministry of Economic affairs (MOEA) of Taiwan. He was honored for Da-Yu prize of MOEA in 2020. He studied smart water management for reservoir operation, regional water resources allocation, irrigation and drainage systems in recent years.

## Speakers

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### Chen-Yuan Chien

#### Deputy Chief Engineer, Water Resources Agency, MOEA

He is now serving as a deputy chief engineer of Water Resources Agency, Ministry of Economic Affairs. More than 25 years of experience in water resources planning, water resources construction, dam safety evaluation and water resources management. He has extensive experience in the field of Water Resources Management in Taiwan.



### Alexander B. Smith

#### Deputy Area Manager, Bureau of Reclamation, Phoenix Area Office

Alex worked for the Arizona Game and Fish Department and as a private consultant. Alex began his career with Reclamation in June 2010. Alex was promoted to Deputy Area Manager in June 2015 and is involved in many key water issues within the state of Arizona including oversight of the Salt River Project and the Central Arizona Project, New Mexico Unit, and implementation of the Arizona Water Settlements Act.



### Cinisani M. Tfwala

#### Agronomist, Soils and Irrigation, Ubombo Sugar Ltd (ILLOVO), Eswatini

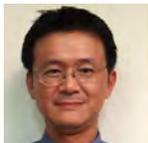
Dr. Tfwala is an Agronomist at Ubombo since November 2020. Previously he was working at the Research Centre, Ministry of agriculture for fifteen years. The last three years at research he was a senior research officer, after having been a research officer for nine years. Dr. Tfwala was a research assistant in the first three years of employment at the Research Centre. His focus research area was Soil and Water Management. He also did research on drought tolerant crops.



### Li-Chiu Chang

#### Professor, Department of Water Resources and Environmental Engineering, Tamkang University

She also served as Director at the Information Center for Water Environment (ICWE). Her current research interests include reservoir operation, water resources management, artificial intelligence, smart city flood forecasting, deep learning for typhoon satellite images and data mining. She has published over 60 technical and scientific papers in peer-reviewed journals and co-authored a textbook entitled Introduction to Artificial Neural Networks: Principles and Applications. She has coordinated more than 20 government projects related to developing and designing real-time engines for reservoir flood operation and an integration platform for intelligent city flood warning systems in Taiwan.



### Yi-Sheng Lin

#### Chief of Water Hazard Mitigation Center, Water Resources Agency, MOEA

1.Chief of Planning Section, the 10th River Management Office, Water Resources Agency, Ministry of Economic Affairs 2.Chief of Construction Section, the 10th River Management Office, Water Resources Agency, Ministry of Economic Affairs 3.Senior Engineer, Water Resources Agency, Ministry of Economic Affairs 4.Chief of Water Hazard Mitigation Center, Water Resources Agency, Ministry of Economic Affairs



### Chih-Hung Tan

#### CTO, Agricultural Engineering Research Center

Dr. Tan specializes in Remote Sensing, GIS applications in water resources planning, hydrology, irrigation and drainage technologies, IoT, big data analysis, etc. He is now serving as the Chief Technology Officer of the Agricultural Engineering Research Center, and responsible for the implementation of the International Cooperation and Exchange Programs.



### Shih-Hsiang Lin

#### System Design Engineer, Concord Technology Co.,LTD

Sam is a design engineer of water treatment system. He received M.S. degree in Civil and Environmental Engineering from University of Wisconsin-Madison, United States and B.S. degree of Environmental Engineering from National Cheng Kung University, Taiwan.

Experiences include Ultra Pure Water System, chemical mechanical polishing (CMP) wastewater reclamation, fluorine-containing wastewater reclamation, high mobility water purification system and moving bed biofilm reactor.

# Water and the Technology(1) 2021 Workshop on Smart Water Management

## Agenda

 Oct. 15<sup>th</sup> 09:00-11:30  R101D

Time	Topic	Moderator/Speaker
09:00-09:05	Opening Remarks	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA <b>Representative of International Cooperation and Development Fund</b>
09:05-09:20	Taiwan's Water Resources Policy and How to Respond to Water Shortages from 2020 to 2021	<b>Chen-Yuan Chien</b> Deputy Chief Engineer, Water Resources Agency, MOEA
09:20-09:35	Water Supply Projects in an Arid Zone of Southwestern United States	<b>Alexander B. Smith</b> Deputy Area Manager, Bureau of Reclamation, Phoenix Area Office
09:35-09:50	Variability of Droughts in Southern Africa	<b>Cinisani M. Tfwala</b> Agronomist, Soils and Irrigation, Ubombo Sugar Ltd
09:50-10:00	Q&A	<b>1. Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA <b>2. Nai-Fang Chou</b> Professor, Department of Hydraulic and Ocean Engineering, National Cheng-Kung University <b>3. Speakers</b>
10:00-10:15		<b>Break</b>
10:15-10:30	Taiwan Towards Intelligent City Flood Warning Systems	<b>Li-Chiu Chang</b> Professor, Department of Water Resources and Environmental Engineering, Tamkang University
10:30-10:45	Water Situation Monitoring Technique and Application	<b>Yi-Sheng Lin</b> Chief of Water Hazard Mitigation Center, Water Resources Agency, MOEA
10:45-11:00	Smart Irrigation Management	<b>Chih-Hung Tan</b> Chief Technology Officer, Agricultural Engineering Research Center
11:00-11:10	Introduction of Qwater- A High Mobility Water Purification System	<b>Shih-Hsiang Lin</b> System Design Engineer, Concord Technology Co.,LTD
11:10-11:20	Q&A	<b>1. Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA <b>2. Nai-Fang Chou</b> Department of Hydraulic and Ocean Engineering, National Cheng-Kung University <b>3. Speakers</b>
11:20-11:30	Closing Remarks	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA <b>Representative of International Cooperation and Development Fund</b>

# Daily Program

## Moderators



### Yuan-Peng Lin

#### Chief Engineer, Water Resources Agency, MOEA

Lin becomes Chief Engineer of Water Resources Agency since 2021. He is dedicated to implementing projects of water resources development and management, construction of flood prevention, water work facility operation and management, rehabilitation and safety assessment of reservoir, water resources allocation during drought, and water supply.



### Chjeng- Lun Shieh

#### Professor of Department of Hydraulic and Ocean Engineering, National Cheng Kung University

- 1.Education** | Ph.D., Civil Engineering, Kyoto University, Japan (1989/07)
- 2.Position** | · Professor of Hydraulic and Ocean Engineering National Cheng Kung University · Emeritus Director of Disaster Prevention Research Center, NCKU · Emeritus Director of Disaster Prevention Education Center, NCKU · Members of Central Disaster Prevention and Response Council · Emeritus Director-General, Taiwan Disaster Prevention Society
- 3.Researches** | Hydraulic engineering: River Engineering, Reservoir Sediment, River Mouth and Coast Protect · Soil and water conservation: Debris flow, Landslide · Disaster management: Disaster Resistant Community, Resilient city, Disaster warning system, Evacuation System, Risk Management
- 4.Recent works** | International Training Courses of Disaster Risk Management with Universitas Gadjah Mada (Indonesian), Universiti Teknologi Malaysia (Malaysia), Tribhuvan University(Nepal), University of Tsukuba (Japan)

## Speakers



### Takayuki KUBO

#### Senior Deputy Director, River Management Office, River Environment Division, Water and Disaster Management Bureau, MLIT

Current work: Risk management related to rivers, trying to further improve the system of flood forecasting and risk indication.

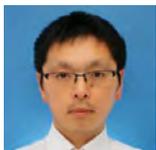
Past work: planning, construction and maintenance of rivers, both institutional design and field work. Systems such as bidding and contracting for public works.



### Jong-Wei Lee

#### Chief Engineer, ChongJun Engineering Consultants Co., Ltd.

Mr. Lee has complete water conservancy practical experience and qualifications, and he has personally built a flood forecasting system during his service in the 10th River Management Office, the flood forecasting system has been successfully operated for 17 years. Mr. Lee has also served as many government officials, such as director of Water Resources Bureau of Kaohsiung City Government, advisory officer of Taipei City Government, directory of Department of Water Resources in Taoyuan City Government, directory of Water Resources Department of Taipei County Government, and chief director of Planning Section of the 10th River Management Office, WRA.



### Mao SUZUOKI

#### Senior Deputy Director, Flood Risk Reduction Policy Planning Office, River Environment Division, Water and Disaster Management Bureau, MLIT

Specialty: Disaster prevention.

Past work: river planning and flood control measures for the Hii River in Izumo and the Takahashi River in Okayama, creation of a system for bidding and contracting for public works, development of agricultural land in mountainous regions, etc.



### Chi-Ming, Peng

#### Founder & CEO

Ph.D., Atmospheric Science, National Central University (1999)

•YAHOO TV, Host (2016-) •Open Government Partnership, Chairman (2016-) •Taiwan Association of Disaster Prevention Industry, Chairman (2019-) •Climate Without Borders, Sponsor (2017-) •Organization for Data-driven Application, Chairman (2013-) •Executive Yuan, Legal Consultant( 2012-) •CTBC Business school, Distinguished Professor (2018) •National Central University, Adjunct Assistant Professor (2010-)



### Yuki OTSUBO

#### Senior Deputy Director, River Information Planning Office, River Planning Division, Water and Disaster Management Bureau, MLIT

2019 - Present Senior Deputy Director, River Information Planning Office, MLIT

2017 - 2019 Deputy Director, Electricity and Telecommunication Office, MLIT

2014 - 2017 Deputy Director, New and Renewable Energy Division, METI

2012 - 2014 Director, Information and Communication Technology Division, Kyushu Regional Bureau, MLIT

## Water and the Technology(2)

### Taiwan-Japan Exchange : Disaster Response Technology

 Oct. 15<sup>th</sup> 09:00-11:20  R201A

Time	Topic	Moderator/Speaker
9:00-9:10	Opening Remarks	<b>1.Yuan-Peng Lin</b> Chief Engineer, Water Resources Agency, MOEA <b>2.Chjeng- Lun Shieh</b> Professor, NCKU <b>3.Hirokazu TSUKAHARA</b> President, RFC
9:10-9:35	Implementation of New Real-Time Flood Forecasting	<b>Takayuki KUBO</b> Senior Deputy Director, River Management Office, River Environment Division, Water and Disaster Management Bureau, MLIT
9:35-10:05	Establishment and Application of Real-Time Automatic Hydrodynamic Flood Forecasting System for a River Basin	<b>Jong-Wei Lee</b> Chief Engineer, ChongJun Engineering Consultants Co., Ltd.
10:05-10:15	Break	
10:15-10:40	Flood Risk Simulation Systems by Point in Japan	<b>Mao SUZUOKI</b> Senior Deputy Director, Flood Risk Reduction Policy Planning Office, River Environment Division, Water and Disaster Management Bureau, MLIT
10:40-11:10	Drought Adaptation under Climate Change	<b>Chi-Ming Peng</b> Founder & CEO, WeatherRisk Explore Inc.
11:10-11:35	The Water Level Gauge for Crisis Management (the 3L water level gauge) and the River Information System in Japan.	<b>Yuki OTSUBO</b> Senior Deputy Director, River Information Planning Office, River Planning Division, Water and Disaster Management Bureau, MLIT
11:35-12:00	Discussion	

# Daily Program

## Moderators



### Yi-Fung Wang

#### Deputy Director General, Water Resources Agency, MOEA

WANG graduated from NCKU and possess NTU PhD. Working for Water Resources Agency (WRA) more than 24 years, Water policy planning, source water conservation, Tap water management, advanced water technology development and typhoon-cloudburst disaster management are major responsibilities.



### Keh-Jian Shou

#### Distinguished Professor, Department of Civil Engineering, National Chung-Hsing University

His is now the Vice Chairman of ISTT, the Honorary Chairman of Chinese Taipei Society for Trenchless technology (CTSTT), elected Vice President (Asia) of International Society for Soil Mechanics and Geotechnical Engineering (2022/4-), and past President of Taiwan Geotechnical Society. His experience includes:

1. Visiting Professor, CNR/IRPI, Italy (2013/9-2014/2)
2. Senior Principal Engineer, Shannon & Wilson, Seattle, USA (2008/2-2008/9)
3. Visiting Professor, TTC, Louisiana Technical University, USA (2006/1-2006/2)
4. Visiting Professor, RCUSS, Kobe University, Japan (2003/10-2004/3)
5. Research Engineer, CSIR/Miningtek, South Africa (1998/2-1999/1)
6. Geotechnical Engineer, National Expressway Engineering Bureau, Taiwan (1993-1994)

## Speakers



### Yi-Fang Shih

#### Chairman of the Board CECI Engineering Consultants, Inc., Taiwan

Dr. Shih is currently the Chairman of CECI Engineering Consultants, Inc., Taiwan and leads two thousand professional engineers to engage in the planning, design and supervision of various public projects and infrastructure construction. Dr. Shih has served as the President of the Chinese Institute of Engineers since 2020. The Institute is the largest engineering academic organization in Taiwan, actively introducing new engineering technologies, promoting international talent exchanges and improving the engineering education environment. Dr. Shih has also served numerous terms as the Chairman of the Taiwan Professional Civil Engineers Association and was a member of the 9th Legislative Yuan.



### Jari Kaukonen

#### Chairman, International Society for Trenchless Technology (ISTT)

Jari Kaukonen is a B.Sc. (CE) and working now after 50 years work for different companies in his own company Kaukotek Oy in Finland, as a senior advisor. He has been active in trenchless technology since 1982. He joined ISTT as an individual member in London 1987 and has been a member until the joining of Finnish Society for Trenchless Technology. He has experience as a contractor, designer, consultant and property owner. He was a founding member of Finnish Society for Trenchless Technology (1999) (FiSTT) and he has been a member of the National board from the beginning. In addition Jari has served the membership as secretary and treasurer and since 2011 as chairman until the year 2019. He has been active by consulting the water sector frequently whenever new guidance is to be written in demonstrating and guiding people how to manage with trenchless technology. He has served also as a keynote speaker and lecturer for many conferences in Finland and abroad. He was elected to the executive Sub Committee during the ISTT board meeting in Madrid 2014. He was elected as a vice chairman of ISTT in Beijing 2016 and chairman in Cape Town 2018.



### Jia-Rung Lee

#### President Taiwan Water Corporation

Vice President, Taiwan Water Corporation  
 Chief engineer, Taiwan Water Corporation  
 Director, Department of Public Works, Taiwan Water Corporation  
 Director, First Branch, Taiwan Water Corporation  
 Director, Ninth Branch, Taiwan Water Corporation  
 Deputy Director, Department of Water Supply, Taiwan Water Corporation



### Shu-Chuan Tseng

#### Director, Sewage System Office, Construction and Planning Agency, Ministry of the Interior

Deputy Director, Sewage System Office  
 Captain, Sewage System Office  
 Deputy Captain, Sewage System Office  
 Section Chief, Sewage System Office



### Ian Ramsay

#### Vice Chairman, UKSTT

Ian Ramsay graduated from the University of Newcastle UK and has been involved in trenchless technology since 1996. He has mainly worked in sewer rehabilitation involving cured-in-place technology, from small to large diameter pipes. Mainly on the supply side but also as a project manager. He has worked around the world specifically in Asia, USA and Europe and has presented several master classes on condition assessment and CIPP best practices throughout the world as well as writing several international technical papers. Mr. Ramsay is currently vice chair of the UKSTT and was a past chair from 2012-2014. He is also an independent consultant for trenchless technology. Mr. Ramsay was elected to the ISTT Board of Directors in November 2020.

## Water and the Technology(3) 2021 International Seminar for Trenchless Technology in Taiwan(R.O.C.)

 Oct. 15<sup>th</sup> 09:00-12:00  R102

Time	Topic	Moderator	Speaker/VIP
09:00-09:15	Welcome Remarks	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA	<b>Chien-Hsin Lai</b> Director General, Water Resources Agency, MOEA  <b>Nan-Tzer Hu</b> Chairman, Taiwan Water Corporation
09:15-10:05	Problems and challenges of UnderSea Water Supply pipelines - Example From mainland to Kinmen	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA	<b>Yi-Fang Shih</b> Chairman, CECI ENGINEERING CONSULTANTS, INC., Taiwan
10:05-10:20	Development of ISTT and Trenchless Technologies	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA	<b>Jari Kaukonen</b> Former Chairmen ,the International Society for Trenchless Technology
10:20-10:35	Break		
10:35-11:10	Current Status and Prospects of No-dig Construction Method Applied in Water Supply Project	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA	<b>Jia-Rung Lee</b> General Manager, Taiwan Water Corporation
11:10-11:45	How to Make Sewers More Resilient	<b>Yi-Fung Wang</b> Deputy Director General, Water Resources Agency, MOEA	<b>Shu-Chuan Tseng</b> Director, Sewage System Office Construction and Planning Agency Ministry of the Interior
11:45-12:00	CIPP Quality Assurance Based Around a Performance Specification and Site Evaluation	<b>Keh-jian Shou</b> Professor ,Department of Civil Engineering, National Chung-Hsing University, Taiwan & Honorary Chairman, CTSTT	<b>Ian Ramsay</b> Deputy chairmen , UKSTT
12:00	Lunch		

## Daily Program

### Moderators

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#### **Meng-Yuan Tsai**

##### **Secretary General of Water Resources Agency, MOEA**

Secretary general (2021/01- present)

Deputy general engineer (2016/01-2021/01)

Division chief of river and coast division (2010/07-2016/01)

Deputy division chief of river and coast division (2008/10-2010/07)

Senior engineer of river and coast division (2006/06-2008/10)

Section chief of planning division (2002/03-2006/06)



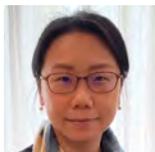
#### **Wei-Cheng Lo**

##### **Distinguished Professor and Associate Vice President, National Cheng Kung University**

Professor Lo received his Ph.D. degree from U.C. Berkeley, USA in 2003. He is currently Distinguished Professor and Associate Vice President for Academic Affairs at National Cheng Kung University. He has worked in the research field of disaster prevention and mitigation technology for more than 15 years. Professional experiences for this work include Member for Panel of Experts for Disaster Prevention, Executive Yuan, as well as Coordinator for Division of Disaster Prevention Technology, Minister of Science and Technology, Taiwan. He has served as Associate Editors for many internationally high-quality peer-review journals, such as Advances in Water Resources and Journal of Hydrology.

### Speakers

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#### **Kuei-Hsien Liao**

##### **Associate Professor, National Taipei University Convener, Taiwan Rivers Network**

Prof. Liao has championed for resilience-based flood risk management for over a decade, calling for a paradigm shift to flood adaptation that can achieve both flood safety and ecological sustainability. Lately she also actively promotes the need for holistic spatial planning to create blue prints for river enhancement works. She also serves as the convener of the Taiwan Rivers Network, an NGO which champions for the conservation and restoration of river health in Taiwan.



#### **Sue-Ching Jou**

##### **Professor, Department of Geography, National Taiwan University**

Dr. Jou is Professor of Urban Geography at NTU and has worked on participatory river governance and NbS for climate change adaptation for a decade. She has been dedicated to interdisciplinary education and research, so as science-policy-practice nexus for years, which give her the 2017 NTU Outstanding Social Services Award. She has been served as member of the Board of Directors, National Science and Technology Center for Disaster Reduction since 2015. She was chairs of Department of Geography and International Degree Program in Climate Change and Sustainable Development, and Associate Dean of College of Science at National Taiwan University.



#### **Nikolaos Nikolaidis**

##### **Professor, School of Environmental Engineering, Technical University of Crete, Greece**

Nikolaos Nikolaidis is a professor in the School of Environmental Engineering, has served as the Deputy Rector for Financial Planning and Development of the Technical University of Crete and is the Director of HersLab. Prior to joining TUC, he was a professor and director of the Environmental Engineering Program at the University of Connecticut, USA.



#### **Tom Wilms**

##### **Nature-based Solutions expert Witteveen+Bos**

Tom Wilms is an expert in Nature-based Solutions at Witteveen+Bos. He is MSc in Civil Engineering at the Delft University of Technology and has been engaged with sustainable development projects for more than 15 years. His showcase is the Building with Nature (BwN) coastal development project near Semarang, at the north coast of Java (Indonesia) from 2015 to 2021.

## Water and the Environment (2)

### Nature-Based Solutions: Trends and Challenges

 Oct. 15<sup>th</sup> 14:00-17:00  R101A

Time	Topic	Moderator/Speaker
14:00-14:05	Introduction by Moderator	<b>Meng-Yuan Tsai</b> Secretary General, Water Resources Agency, MOEA
14:05-14:35	Towards Holistic Spatial Planning for River Revitalization in Taiwan	<b>Kuei-Hsien Liao</b> Associate Professor, Graduate Institute of Urban Planning, National Taipei University Convener, Taiwan Rivers Network
14:35-15:05	The Institutionalization of Nature-based Solutions: Barriers and Opportunities	<b>Sue-Ching Jou</b> Professor, Department of Geography, National Taiwan University
15:05-15:25	Break	
15:25-15:30	Introduction by Moderator	<b>Wei-Cheng Lo</b> Distinguished Professor and Associate Vice President, National Cheng Kung University
15:30-16:00	Implementing NBS: A Road Paved with Challenges	<b>Nikolaos Nikolaidis</b> Professor, School of Environmental Engineering, Technical University of Crete, Greece
16:00-16:30	How to Design and Implement Nature-based Solutions (NBS)	<b>Tom Wilms</b> Nature-based Solutions expert Witteveen+Bos
16:30-17:00	Panel Discussion	
17:00	Farewell	

## Daily Program

### Moderators

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#### **Kuang-Chih Chang**

**Deputy Chief Engineer, Water Resources Agency, MOEA**

Chang has dedicated himself to WRA for 28 years, has become Deputy Chief Engineer since 2019. With master's degree in Civil Engineering from National Taiwan University, he specializes in water policy, river management, promotion of spring water and reclaimed water.



#### **Eugene Chien**

**Ambassador-at-large, Taiwan R.O.C**

**Chairman and president, Taiwan Institute for Sustainable Energy (TAISE)**

Twice elected legislator, EPA Minister, Transportation and Communications Minister, and Foreign Minister, currently Chairman in Alliance for Sustainable Development Goals (A·SDGs), which hosted the Global Corporate Sustainability Forum. Also Chairman of Telecommunication & Transportation Foundation (TTF), CTCI Education Foundation(CTCIEF) and Center for Corporate Sustainability(CCS).

### Speakers

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#### **Ross Hamilton**

**Senior Advisor, UNGC CEO Water Mandate**

Mr. Hamilton has over 20 years of international experience in sustainability including helping organizations respond to water-related business risks. He is a senior advisor to both the UN Global Compact CEO Water Mandate and Pacific Institute, a Senior Advisor Climate Resilience to the International Finance Corporation (IFC), and a board member of the Global Water Partnership (GWP). His publications include, "Setting Site Water Targets Informed by Catchment Context: A Guide For Companies" and "Corporate Water Resilience in an Uncertain Future." Ross holds a MSc in sustainability management from Curtin University and BSc from Monash University.



#### **Eugene Chien**

**Ambassador-at-large, Taiwan R.O.C**

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#### **Joseph N.C. Huang**

**Chairman of E.SUN Commercial Bank**

Joseph N.C. Huang, Chairman of E.SUN Commercial Bank, is committed to making E.SUN the best bank in Taiwan with his professional, passionate and persistent leadership. He leads E.SUN in its pursuit of excellence by cultivation in local market, expansion in Asia and development in innovation. Under his management, E.SUN has awarded the best bank for 10 times and included in Dow Jones Sustainability World Index for 7 times. Joseph himself has received several awards and recognitions, including Best CEO in Asia Pacific from The Asian Banker, Best CEO in Asia from The Asset 6 years in a row, and Best CEO in Taiwan from The Institutional Investor.



#### **Arthur Chuang**

**Vice President, Facility Division, Taiwan Semiconductor Manufacturing Company**

Arthur Chuang is Vice President of Facility Division at Taiwan Semiconductor Manufacturing Co. Ltd. (TSMC). He has devoted himself to the semiconductor industry for 30 years. With his experience and expertise in fab construction, high-tech facilities, environmental protection and energy saving, Arthur not only contributes to TSMC's stable and high efficient facilities for advanced process and capacity expansion, but also to the innovation and value enhancement of semiconductor industry.

## Water and the Culture (3)

### Discussion on Enterprise Water Resources Management from the Aspect of ESG

 Oct. 15<sup>th</sup> 14:00-17:00  R101B

Time	Topic	Moderator/Speaker
14:00-14:05	Introduction by Moderator	<b>Kuang-Chih Chang</b> Deputy Chief Engineer, Water Resources Agency, MOEA
14:05-14:35	Practical Approaches for Building Private Sector Water Resilience	<b>Ross Hamilton</b> Senior Advisor, UNGC CEO Water Mandate
14:35-15:05	Water Challenges under Climate Change	<b>Eugene Chien</b> Chairman and president, Taiwan Institute for Sustainable Energy (TAISE)
15:05-15:25	Break	
15:25-15:30	Introduction by Moderator	<b>Eugene Chien</b> Chairman and president, Taiwan Institute for Sustainable Energy (TAISE)
15:30-16:00	Moving Capital to Sustainability	<b>Joseph N.C. Huang</b> Chairman of E.SUN Commercial Bank
16:00-16:30	TSMC Water Resource Management Strategy and Development Plan	<b>Arthur Chuang</b> Vice President, Facility Division, Taiwan Semiconductor Manufacturing Company
16:30-17:00	Panel Discussion	

# Daily Program

## Moderators



### **Chien-Hsin Lai** Director-General, Water Resources Agency, MOEA

Dr. Lai has been the Director-General of WRA since 2016. Responding to climate change, he accomplished legal works of Reclaimed Water Resources Development Act and Runoff Distribution and Outflow Control policy. He also promotes Forward-looking Infrastructure Development Program for water environment to establish industrial sustainability and water resilience in Taiwan.



### **Guido Tielman** Representative of Netherlands Office Taipei

Before taking up his current assignment as the Representative of the Netherlands Office Taipei, Guido Tielman has worked with Dutch representations in Brussels, North-Macedonia, Chongqing and Mumbai and also for a few stints in The Hague. His expertise includes European Union related issues and promoting trade and investment in an Asian context. It is almost 30 years to the day that Guido returns to Taiwan. From 1991-1992, he obtained a one-year scholarship at the Political Science Faculty of the National Taiwan University, having finished his master's degree in Sinology at the University of Leiden prior to that.

## Speakers



### **Ming-Cheng Chen** Senior Engineer, Water Resources Agency, Ministry of Economic Affairs

Mr. Chen has worked in the Water Resources Agency of the Ministry of Economic Affairs for more than 13 years. During the period, Mr. Chen has been in the Water Management Department for 11 years and was mainly responsible for monitoring, analysis, early warning and mitigation measures for drought and water supply.



### **Hans Brouwer** Program manager

Since 1996 Hans Brouwer works at Rijkswaterstaat in large scale infrastructural projects. From 2001 until 2018 he has been involved in the Programme Room for the River as member of the management team. Steering individual projects he has been responsible for design and construction of a third of the programme. Furthermore he was – a.o. – responsible for decision making procedures (environmental impact assessments), stakeholder management, governance, licensing and ecology. As a spokesperson he discussed Room for the River with many politicians and journalists, national as well as international.

In 2019 he joined the management of the Program Integrated Rivermanagement (IRM). In IRM he is foremost responsible for designing stakeholder management.



### **Dennis van Peppen** Dennis van Peppen, Deputy Special Water Envoy, Netherlands Enterprise Agency, RVO

Dennis van Peppen, manager of global issues and water at Netherlands Enterprise Agency (RVO). During trade missions Mr. Van Peppen also functions as Deputy Special Envoy for International Water Affairs of the Government of the Netherlands. He is an experienced project and programme management experience in both public and private sector, who has a passion for water management but also for international development, international politics and international political economy. He holds a master's degree in International Relations of the University of Amsterdam.



### **Marjan Kreijns** Director, The Green Village

Marjan Kreijns is a Project manager with 25 years of experience in the academic society. Started her career at the International Institute for Geo-information Science and Earth Observation (ITC) of The University Twente as lecturer/researcher in natural resource management. In 2011 she returned to the Netherlands and joined the Valorisation Centre of Delft University of Technology (TU Delft) working as project manager and team leader of projects in water and climate, both in NL as well as in Asia and Africa. In December 2012 she became the Head of the Department of Project Management and is leading a team of 40 Project Managers with very diverse project portfolio's. She is the project director of the VPDelta programma for innovations in the water sector ([www.vpdelta.nl](http://www.vpdelta.nl)) and in October 2019 she was appointed as Director of the Green Village, a fieldlab at TU Delft for sustainable innovations.



### **Tjitte Nauta** Regional Manager Asia

Mr. Nauta has a broad experience in the fields of Integrated Water Management, WRM action planning, flood risk management, capacity building and mathematical modelling and monitoring studies. His consultancy experience as expert advisor and project manager at Deltares includes studies on mentioned aspects for freshwater and coastal water systems in numerous countries.



### **Suan Tie Pwa** project manager

Suan Tie Pwa is a senior hydraulic engineer and project manager in infrastructure, water management and flood risk management. His expertise has been applied in policy development, design and engineering, procurement and construction in e.g. Integrated Coastal Zone projects and River Basin management projects. Related to these subjects he has also been engaged with institutional development, public participation, and legislation and regulation. The projects have been carried out worldwide in amongst others the Netherlands and Southeast Asia.



### **Chao-Yung Huang** Director or New Business Dept/Managing Editor of CSR@CW Channel, of CommonWealth Magazine

Served as Director of CRM and Strategy Development Group of News Department of United Daily News, Group Leader of Economics Group of United Daily News, Chief Editor of the Editorial Department of Common Wealth Magazine.

Award: Cross-Strait News Report Award, Modern Financial News Award, Global Chinese Sustainability Report Award, United Newspaper Department Positive Change Award, etc.

From the process of reporting on social enterprises and participating in social enterprise activities, we can see that more and more organizations can efficiently mobilize resources while solving social problems. We also see that traditional profit-oriented enterprises are increasingly adopting corporate social responsibility (CSR). Combined with the development of core capabilities, a new human society responsible for the natural and social environment is gradually taking shape.



### **ChiaNing Yang, PhD** Engineer, Engineering Aesthetics Center, Sinotech Engineering Consultants

Dr. Yang specializes in fluvial geomorphology, ecological engineering and environmental planning. She has dedicated for over a decade in the multi-disciplinary intergration for stream restoration. She obtained her PhD in landscape architecture and environmental planning from University of California, Berkeley and Master's degree in civil engineering from University of Tokyo.

## Water and the Economy (1)

### TW-NL Water Challenges Conference: Request for Effective Solution!

 Oct. 15<sup>th</sup> 14:00-17:00  R101C

Time	Topic	Moderator/Speaker
15:30-15:40	Opening remarks	<b>Chien-Hsin Lai</b> Director-General, Water Resources Agency, MOEA  <b>Guido Tielman</b> Representative Netherlands Office Taipei
15:40-16:00	Flood Prevention and Drought Resistance Facing Challenges of Climate Change in Taiwan	<b>Ming-Cheng Chen</b> Senior Engineer, Water Resources Agency, MOEA
16:00-16:15	Dutch's key successful factor on the Room for the river program	<b>Hans Brouwer</b> river manager, Rijkswaterstaat (RWS)
16:15-16:30	Dutch instrument on water management and international cooperation	<b>Dennis van Peppen</b> Water Envoy, Netherlands Enterprise Agency, RVO
<b>Panel Discussion</b>		
16:30-17:20	<ul style="list-style-type: none"> <li>• <b>Marjan kreijns</b>, Director of green village, TU Delft</li> <li>• <b>Tjitte Nauta</b>, Regional manager Asia, Deltares</li> <li>• <b>Suan Pwa</b>, Project manager, Witteveen+bos</li> <li>• <b>Bikoffee Huang</b>, Director, CSR@ CommonWealth Magazine</li> <li>• <b>ChiaNing Yang</b>, Engineer, Engineering Aesthetics Center, Sinotech Engineering Consultants</li> </ul>	
17:20	Farewell	

# Daily Program

## Moderators

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### Chen-Yuan Chien

**Deputy Chief Engineer, Water Resources Agency, MOEA**

A deputy chief engineer of Water Resources Agency with more than 25 years of experience in water resources planning, water resources construction, dam safety evaluation and water resources management.



### Chih-Pin Huang

**University Chair Professor  
National Yang-Ming Chiao Tung University (NYCU)**

Dr. Huang received his Ph.D. from the University of Delaware, and then joined the faculty at NYCU in 1990. He was just awarded International Honorary Member of AAEEES for his thoughtful leadership in bringing together diverse approaches to environmental engineering and science to protect the environment. Dr. Huang is the recipient of the Merit Research Fellow Award of the Ministry of Science and Technology, the Tung-Ho Outstanding Research Award etc. He has also been named Research Fellow of MOST and University Endowed Chair Professor, and he has received Outstanding Research Awards three times from the National Science Council.

## Speakers

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### Kuo-Lun (Allan) Tung

**Distinguished Professor, Department of Chemical Engineering, National Taiwan University (NTU)  
Deputy Director, WINNER Center, NTU**

Kuo-Lun (Allan) Tung, is now a Distinguished Professor of Department of Chemical Engineering at National Taiwan University (NTU) in Taipei, Taiwan. Before joining NTU since August 2012, he was the Director of the R&D Centre for Membrane Technology at Chung Yuan University from 2009 to 2012, with a specialty of research and development on membrane filtration applications for water and wastewater treatment for 20 years. He is now serving as the editor of the Separation and Purification Technology journal and the fellow as well as the vice chair of the membrane technology specialist group in international water association (IWA).



### Wang-Kuan Chang

**Deputy Division Director, Material and Chemical Research Laboratories, Industrial Technology Research Institute**

Dr. Chang has devoted to water technology development covering a wide range of approaches. By working with various research organizations and industrial partners enable his team to establish core competence of water system developments and applications. He has been awarded Outstanding Research and Service award and Business Startup award by MOEA, Taiwan. He was also awarded for R&D contribution, Technology Application and Promotion, Excellent Patent by ITRI. Up to now, he has had 60 Patents awarded and has published over 30 refereed papers and 60 conference papers in water research and applications.



### Kuang-Ping Chiu

**Executive Director, AECOM Singapore Pte Ltd.**

Dr. Chiu has over 20 years' experience in water and wastewater treatment technologies, concept design, and project management. She obtained her PhD in Civil Engineering from Purdue University in the US and has project experiences in North America, Middle East and Asia Pacific. She is a certified PMP, a PE of California in the US and a certified LEED AP.

She is the project director of AECOM process design team for the Keppel Marina East Desalination Plant.



### Boris Liberman

**VP, CTO Membrane Technology  
IDE Water Assets LTD**

Leads the company's R&D activities in the reverse osmosis, forward osmosis and pressure-retarded osmosis fields. Responsible for development of new technological processes incorporated in designs of mega size desalination plants, for example :

- Carlsbad SWRO 204,412 m<sup>3</sup>/day plant
- Sorek SWRO 624,000 m<sup>3</sup>/day plant
- Cape Preston SWRO 140,000 m<sup>3</sup>/day plant
- Hadera SWRO 440,000 m<sup>3</sup>/day plant
- Ashkelon SWRO 330,000 m<sup>3</sup>/day plant

## Water and the Economy (2)

### Emerging Desalination Technologies and Prospects for Brackish Water Desalination

 Oct. 15<sup>th</sup> 14:00-17:00  R101D

Time	Topic	Moderator/Speaker
14:00-14:05	Introduction by Moderator	<b>Chen-Yuan Chien</b> Deputy Chief Engineer, Water Resources Agency, MOEA
14:05-14:35	Solar-Assisted Membrane Distillation for Water Production	<b>Kuo-Lun Tung</b> Distinguished Professor, Department of Chemical Engineering, National Taiwan University (NTU)
14:35-15:05	Desalination Technology with Low Energy Consumption: Developments and Applications	<b>Wang-Kuan Chang</b> Deputy Division Director, Material and Chemical Research Laboratories, Industrial Technology Research Institute
15:05-15:25	Break	
15:25-15:30	Introduction by Moderator	<b>Chih-Pin Huang</b> University Chair Professor National Yang-Ming Chiao Tung University (NYCU)
15:30-16:00	Desalination with the Environmental Friendly Design- the Keppel Marina East Desalination Plant	<b>Kuang-Ping Chiu</b> Executive Director, AECOM Singapore Pte Ltd
16:00-16:30	Reducing Environmental Impact in Desalination	<b>Boris Liberman</b> VP, CTO Membrane Technology IDE Water Assets LTD
16:30-17:00	Panel Discussion	
17:00	Farewell	

# Daily Program

## Moderators

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### Yao-Cheng Jhuang

**Deputy Chief Engineer, Water Resources Agency, MOEA**

A deputy chief engineer of Water Resources Agency with more than 25 years of experience in formulating and promoting flood policies and plans.



### Chih-Ping Lin

**Distinguished Professor & Director of Disaster Prevention and Water Environment Research Center, National Yang Ming Chiao Tung University**

Prof. Lin is in the area of geotechnical engineering with main research areas in engineering monitoring based on electromagnetic waveguide and engineering geophysics. In addition to his academic position, he currently also serves as the global vice chair of Near-surface geophysics Technical Section of Society of Exploration Geophysicists. His research includes advancing non-destructive inspection and monitoring techniques for dam safety.

## Speakers

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### Scott Stevens, P.E.

**Technical Specialist, Bureau of Reclamation, Technical Service Center**

Scott Stevens received his B.S. degree in Civil Engineering from Colorado State University. Scott has over thirty-two years of civil engineering experience, most of which has been with the Bureau of Reclamation. Scott is currently a Technical Specialist in the Geotechnical Engineering Division at Reclamation, responsible for facilitating risk analyses and leading and peer reviewing geotechnical evaluations and designs for Reclamation embankment dams. He has extensive knowledge of Reclamation's dam safety program, serves on Reclamation's Risk Cadre, and has been a member of the Dam Safety Advisory Team for more than 12 years.



### Jian-Kwei Lou

**Independent International Dam Safety and Risk Management Consultant**

B.Sc., Cheng Kung University, Taiwan, 1963

Ph.D., University of British Columbia, Canada, 1968

1974-2006: Principal Geotechnical Engineer, BC Hydro, Canada

2006-2021: International Dam Safety and Risk Management Consultant, World Bank, BC Hydro Canada, Ministry of Water Resources China, and Sinotech Engineering Consultants Taiwan

A Specialist Geotechnical Engineer with 48 years of experience in design, construction quality control, safety review, performance monitoring, and risk assessment and management of dams in Canada, China and Taiwan.

He has organized and participated dam safety seminars in Canada, China and Taiwan and successfully transferred Canadian and international dam safety and risk management experiences to many countries.



### Hsuan-Mei (Sunny) Hsiao

**Associate Engineer, Southern Region Water Resources Office, Water Resources Agency**

Ms. Hsiao got her master degree of science from the National Taiwan University in 2009 and became a government employee of the water resources agency in 2010. While she was in Nouthern Region Water Resources Office, she had been working on water resources management and drought emergency response. She transferred to Nouthern Region Water Resources Office in 2013, and now she focuses on reservoir safety assessment, reservoir risk analysis, modification of reservoir operation directions and gate operation rules.



### Hsien-Chang Kao

**Deputy Director, Sinotech Engineering Consultants, Inc.**

Mr. Kao joined Sinotech Engineering Consultants, Inc. (Sinotech) as a geotechnical engineer after he got his master degree of civil engineering from the National Taiwan University (NTU) in 1988, and he went back to NTU for Ph.D. programme as an on job training student in 2012. He has participated for the design and laboratory testing of dozens of hydropower projects and tunnels in the past 33 years. Since 2006, he has been focused on the risk management of dams and tunnels. He has been invited by China, Indonesia, Laos and Korea to introduce Taiwan dam risk management experiences.

## Water and the Technology (4)

### Introduction of Risk Management Strategy for Dam Safety Assessment

 Oct. 15<sup>th</sup> 14:00-17:00  R201A

Time	Topic	Moderator/Speaker
14:00-14:05	Introduction by Moderator	<b>Yao-Cheng Jhuang</b> Deputy Chief Engineer, Water Resources Agency, MOEA
14:05-14:35	The Evolution of the Reclamation's Dam Safety Risk Management and Best Practice	<b>Scott Stevens</b> Technical Specialist, Bureau of Reclamation, Technical Service Center
14:35-15:05	BC Hydro Dam Risk Assessment and Management	<b>Jian-Kwei Lou</b> Independent International Dam Safety and Risk Management Consultant
15:05-15:25	Break	
15:25-15:30	Introduction by Moderator	<b>Chih-Ping Lin</b> Distinguished Professor & Director of Disaster Prevention and Water Environment Research Center, National Yang Ming Chiao Tung University(NYCU)
15:30-16:00	The Implementation of Zengwen Reservoir Risk Analysis (PFMA and Best Practice)	<b>Hsuan-Mei Hsiao(Sunny)</b> Associate Engineer, Southern Region Water Resources Office, Water Resources Agency,MOEA
16:00-16:30	Feitsui Dam Risk Analysis -PFMA Based on FMECA	<b>Hsien-Chang Kao</b> Deputy Director, Sinotech Engineering Consultants, Inc.
16:30-17:00	Panel Discussion	
17:00	Farewell	

# Daily Program

## Moderators

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### Liang-Ping Chang

**Deputy Chief Engineer/Water Resources Agency, MOEA**

Received his Master's Degree in Civil Engineering, National Pingtung University of Science and Technology, NPUST. And now he is the Deputy Chief Engineer of the Water Resources Agency. He was awarded for his work on Implementation of river dredging and post-disaster reconstruction of embankment after the Typhoon-Morakot-caused flood (August 8 flood) in 2009. In less than two years, nearly 60 million cubic meters of soil and rock were dredged, it was ranked first in the country. He was elected as a national model civil servant in 2010.



### Shao-Hua (Marko) Hsu

**Professor, Dept. of Water Resources Engineering & Conservation, Feng Chia University**

Professor on river, groundwater, and water-quality of watershed. Work with NGOs and communities trying to restore ecosystem in local rivers for approaching a sustainable, green city. Prefer Nature Based Approach or Design with Nature to solve engineering problems and trying to replace Grey Infrastructures by Green ones.

PhD, Civil/Environmental Engineering, Univ. of Iowa, USA

Secretary, College of construction and development, Feng Chia Univ., Taichung, Taiwan

Visiting scholar: Michigan State University, USA. Techn. Univ. of Braunschweig, Germany. Kyushu University/ Hokkaido University, Japan. Wuhan University, China. Adjunct professor: Ton Duc Thang University, Vietnam.

## Speakers

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### Yen-Shuo Su

**Chief of Branch , Wenshan Branch, Tea Research and Extension Station**

- 1.Tea Research and Extension Station. Assistant Researcher.
- 2.Tea Research and Extension Station. Yuchih Branch Tea Agronomy Section. Associate Researcher. Head of Tea Agronomy Section.
- 3.Tea Research and Extension Station. Yuchih Branch Tea Processing Section. Associate Researcher. Head of Tea Processing Section.
- 4.Tea Research and Extension Station. Wenshan Branch. Associate Researcher. Chief of Branch.



### Jr-Chuan Huang

**Professor, Dept. of Geography, National Taiwan University**

Professor Jr-Chuan Huang has a background on hydrology and biogeochemistry and focuses on the dynamics of water, sediment, nutrient transport under various environment changes in Taiwan. Since 2018, he published 19 SCI-indexed papers in hydrology and biogeochemistry and has been cited over 600 times (h-index: 18). Recently, he was invited be visiting professor in China and Japan. He also got a project from Belmont Forum to seek a pathway for sustainability.



### Chia-Chun Ho

**Associate Professor, National Taiwan University of Science and Technology, Civil and Construction Engineering Department**

- Associate Professor, National Taipei University of Technology
- Postdoctoral Research Fellow, National Taiwan University
- Postdoctoral Research Fellow, Joseph Fourier University, France
- Design Engineer, GIBSIN Engineers, Ltd.



### Chi-Feng Chen

**Professor, Chinese Culture University**

Dr. Chi-Feng Chen is a professor in the Department of Land Resources in Chinese Culture University (PCCU). Dr. Chen's research interests are focus on environmental management and environmental impact assessment, especially on water resources and water quality management. She has published dozens of academic papers in international journals and has implemented 4 to 6 projects every year in water and environmental fields.



### Tsung-Yu Lee

**Associate Professor, Department of Geography, National Taiwan Normal University**

Tsung-Yu Lee is an associate professor in Department of Geography, National Taiwan Normal University. He is interested in calculating fluvial material fluxes from land to ocean and understanding the effects of natural variability and human activities on the spatial and temporal changes of water qualities in river basins.

# Agenda

## Water and the Environment (3) Technology Forum for Water Quality Improvement and Pollution Reduction on Reservoir Watershed

 Oct. 16<sup>th</sup> 09:00-12:10  R101A

Time	Topic	Moderator/Speaker
09:00-09:20	Opening	
09:20-09:25	Introduction by Moderator	<b>Liang-Ping Chang</b> Deputy Chief Engineer/Water Resources Agency, MOEA
09:25-09:50	Development and Application of Low Phosphorus Fertilizer in the Catchment Area of Feicui Reservoir.	<b>Yen-Shuo Su</b> Chief of Branch , Wenshan Branch, Tea Research and Extension Station
09:50-09:55	Introduction by Moderator	<b>Liang-Ping Chang</b> Deputy Chief Engineer/Water Resources Agency, MOEA
09:55-10:20	Sources of N Pollutants and the Corresponding Responses in Taiwan Watersheds	<b>Jr-Chuan Huang</b> Professor, Dept. of Geography, National Taiwan University
10:20-10:30	Break	
10:30-10:35	Introduction by Moderato	<b>Shao-Hua (Marko) Hsu</b> Professor, Dept. of Water Resources Engineering & Conservation, Feng Chia University
10:35-11:00	The strategies of Agricultural Non-point Source Pollution on Reservoir Watershed	<b>Chia-Chun Ho</b> Associate Professor, National Taiwan University of Science and Technology, Civil and Construction Engineering Department
11:00-11:05	Introduction by Moderato	<b>Shaohua Marko Hsu</b> Professor, Dept. of Water Resources Engineering & Conservation, Feng Chia University
11:05-11:30	Assessment of Optimal Bioretention Cell for Tea-farms Pollution Reduction	<b>Chi-Feng Chen</b> Professor, Chinese Culture University
11:30-11:35	Introduction by Moderato	<b>Shao-Hua (Marko) Hsu</b> Professor, Dept. of Water Resources Engineering & Conservation, Feng Chia University
11:35-12:00	Establishment of Sustainable Agricultural Practices via Understanding the Losses of Fertilizer: From a Model Prospective	<b>Tsung-Yu Lee</b> Associate Professor in Department of Geography, National Taiwan Normal University
12:00-12:10	Panel Discussion	
12:10	Farewell	

## Daily Program

### Moderators

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#### Chun-Ling Kuo

##### Director, Planning Division, Water Resources Agency, MOEA

During her tenure as the director of Planning Division, Director Kuo promoted the water policies and held international forums and water exhibitions. In the position of the chief of Water Hazard Mitigation Center, Director Kuo has successfully implemented the emergency response to floods and droughts, such as the 0823 flood in 2018. In the period of Hydrology Division, Director Kuo has employed the prevention and control of land subsidence as the position of section chief to mitigate the subsidence problem along the High-speed Rail in Changhua- Yunlin area.



#### Tien-Jin Chang

##### Dean, College of Engineering, National Taipei University of Technology

Dr. Chang is the dean, college of engineering, National Taipei University of Technology and professor of the Institute of Environmental Engineering and Management. Prior to the current position, Prof. Chang was the head of Institute of Environmental Engineering and Management, president of the Chinese Institute of Environmental Engineering and Taiwan Water Environment Association. Prof's expertise includes water reclamation and reuse, advanced wastewater treatment and resource recovery.

### Speakers

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#### Eddy Setiadi Soedjono

##### Professor, Department of Environmental Engineering, Sepuluh Nopember Institute of Technology

Dr. Eddy Setiadi Soedjono is the professor in Department of Environmental Engineering, ITS. Prof. Soedjono is the head of research group of center for water and sanitation in tropical area in the Department of Environmental Engineering of Faculty of Civil, Environment and Geo Engineering from ITS. Prof. Soedjono's research is mainly dealing with domestic wastewater using appropriate technology for low income communities using community empowerment. Working in this field at least 15 years, Prof. Soedjono develops both national and international collaboration for proper access of water and sanitation for low income communities as this assess is one of the SDGs.



#### Bui Xuan Thanh

##### Associate Professor, Ho Chi Minh City University of Technology

Dr. Thanh is the Associate Professor, Faculty of Environment and Natural Resources, Ho Chi Minh City University of Technology, Vietnam. Prof. Thanh is also the head of department and Key Laboratory of Advanced Water Treatment Technology. His areas of expertise include Water and wastewater treatment processes, Solid waste treatment and management and Green technology for climate change adaptation.



#### Yi-Fang Shih

##### Chairman of the Board CECI Engineering Consultants, Inc., Taiwan

Dr. Shih is currently the Chairman of CECI Engineering Consultants, Inc., Taiwan and leads two thousand professional engineers to engage in the planning, design and supervision of various public projects and infrastructure construction. Dr. Shih has served as the President of the Chinese Institute of Engineers since 2020. The Institute is the largest engineering academic organization in Taiwan, actively introducing new engineering technologies, promoting international talent exchanges and improving the engineering education environment. Dr. Shih has also served numerous terms as the Chairman of the Taiwan Professional Civil Engineers Association and was a member of the 9th Legislative Yuan.



#### Chih-Pin Huang

##### President, Water Affairs Organization, Taiwan

Dr. Huang received the B.Sc. and M.S. degrees from NCKU in 1981 and 1983. He received his Ph.D. from the University of Delaware, and then joined the faculty at NYCU in 1990. From 2019, He became the President of Water Affairs Organization, Taiwan (WAOT). He just awarded International Honorary Member of AAEEES for his thoughtful leadership in bringing together diverse approaches to environmental engineering and science to protect the environment; for his pioneering leadership integrating sustainability into the practice of environmental engineering and science in Taiwan; and for his sustained leadership advancing the professional practice of environmental engineering and science.

## Water and the Economy (3)

### 2021 Water Values and Business Opportunities in ASEAN Countries

 Oct. 16<sup>th</sup> 09:00-11:40  R101C

Time	Topic	Moderator/Speaker
09:00-09:10	Opening Remarks	<b>1.Chun-Ling Kuo</b> Director,Water Resources Agency, MOEA <b>2. Tien-Jin Chang</b> Dean, College of Engineering, National Taipei University of Technology
09:10-09:35	The Situation of Wastewater Treatment and Business Market of Water Resources in Indonesia	<b>Eddy Setiadi Soedjono</b> Professor, Department of Environmental Engineering, Sepuluh Nopember Institute of Technology
09:35-10:00	The Situation of Water Recycle and Direction of Water Business Market in Vietnam	<b>Bui Xuan Thanh</b> Associate Professor, Ho Chi Minh City University of Technology
10:00-10:15	Break	
10:15-10:40	Applying Taiwan's New Water Resources Development Experience in the Context of the New Southbound Policy Industries' Water Demands	<b>Yi-Fang Shih</b> Chairman of the Board, CECI Engineering Consultants, Inc., Taiwan
10:40-11:05	Latest Water Purification Technologies Available in the Market.	<b>Chih-Pin Huang</b> President, Water Affairs Organization, Taiwan
11:05-11:30	Q&A	<b>1. Chun-Ling Kuo</b> Director,Water Resources Agency, MOEA <b>2. Tien-Jin Chang</b> Dean, College of Engineering, National Taipei University of Technology <b>3. Speakers</b>
11:30-11:40	Closing Remarks	<b>1. Chun-Ling Kuo</b> Director,Water Resources Agency, MOEA <b>2. Tien-Jin Chang</b> Dean, College of Engineering, National Taipei University of Technology

# Daily Program

## Moderators

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### Chao-Chun Chien

#### Division chief , Water Resources Agency, MOEA

Deputy Director, North District Water Resources Bureau, Water Resources Department, Ministry of Economic Affairs  
Head of Hydrological Technology Group, Water Resources Department, Ministry of Economic Affairs  
Head of the Conservation Business Group of the Water Resources Administration of the Ministry of Economic Affairs  
Shimen Reservoir Renewal and Improvement Project (Lateral Water Intake, Power Plant Sand Discharge Project, Zhongzhuang Adjustment Pool Project), Xinshan Reservoir Heightening Project, Luodong Barrage Project, Baoshan Second Reservoir Project, Long'en Weir Reconstruction Project.



### Chao-Hsien Liaw

#### Professor, Department of Harbor and River Engineering, National Taiwan Ocean University

Prof. Liaw serves as the president of Taiwan Green Infrastructure Association; vice president of Taiwan Green Building Association and president of International Rainwater Catchment Systems Association during the years of 2012-2016. He has dedicated to the rainwater harvesting systems planning and design for water supply and urban storm water management. He also assists in publishing "Rainwater Harvesting Systems Design Manual for Green Building" and "Flood Mitigation and Protection Manual in Community and Construction Sites" for Architecture and Building Research Institute, Ministry of the Interior.

## Speakers

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### Michael Smit

#### Deputy Chair, Rainwater Harvesting Australia

Michael Smit is Deputy Chair of Rainwater Harvesting Australia and the Co-Chair of the Australian Water Association Water Efficiency Specialist Network and is employed as the Technical and Sustainability Manager at Kingspan Water and Energy, the largest manufacturer of rainwater tanks in Australia. Michael has a science background and professional experience in rainwater harvesting, water conservation, natural resource management, and strategic and statutory land use planning. Michael believes Cities are integrated environmental, social and economic systems and all our actions should improve how urban systems perform. Michael has an Honors degree in urban planning including majors in economics and transport engineering and post graduate qualifications in urban design.



### Jun-Qi Li

#### Vice President, Beijing University of Civil Engineering and Architecture

As the director of key laboratory of urban stormwater system and water environment of Ministry of Education and the member of Sponge City Commission of Ministry of Housing and Urban Rural Development, Dr. Li dedicated urban stormwater control and sponge city development, water environment ecological technology, environmental policy and management for 20 years.



### Shih-Chi Lo

#### Director, Architecture and Building Research Institute (ABRI), MOI

Dr. Lo is the Director of environmental control division at the Architecture and Building Research Institute (ABRI), Ministry of the Interior (MOI). He earned Ph.D. degree in environmental engineering from the National Taiwan University. He has worked in ABRI since 1995. His recent research areas include green building, rainwater utilization, energy saving, carbon reduction, and intelligent control.

## Water and the Economy (4)

### Discussion on Decentralized Rainwater Harvesting System to Reduce Climate Change Vulnerability

 Oct. 16<sup>th</sup> 09:00-11:40  R101D

Time	Topic	Moderator/Speaker
09:00-09:05	Opening Remarks	<b>1.Chao-Chun Chien</b> Director, Water Resources Agency, MOEA <b>2. Chao-Hsien Liaw</b> Professor, Department of Harbor and River Engineering, National Taiwan Ocean University
09:05-09:35	Rainwater Harvesting in Urban Systems as a Response to Climate Change	<b>Michael Smit</b> Deputy Chair, Rain Harvesting Australia (Irrigation Australia Limited)
09:35-10:05	Summary of Sponge City Development and Analysis of the Outstanding Problems	<b>Jun-Qi Li</b> Vice President Beijing Architecture University
10:05-10:25	Break	
10:25-10:55	Challenges and Strategies for Water Saving and Carbon Reduction of Green Buildings in Taiwan	<b>Shih-Chi Lo</b> Director, Architecture and Building Research Institute (ABRI), MOI
10:55-11:30	Q&A	<b>1. Chao-Hsien Liaw</b> Professor, Department of Harbor and River Engineering, National Taiwan Ocean University <b>2. Speakers</b>
11:30-11:40	Closing Remarks	<b>1.Chao-Chun Chien</b> Director, Water Resources Agency, MOEA <b>2. Chao-Hsien Liaw</b> Professor, Department of Harbor and River Engineering, National Taiwan Ocean University

無可替代的水價值

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***Exhibition***

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## Exhibitor Profiles

### True Ten Industrial Co., Ltd.

• <http://trueten.com.tw>

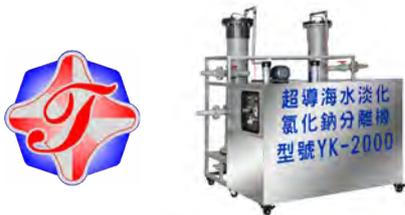
#### Company Profile

True Ten actively invested in green energy generation in the last 10 years, the development of superconducting desalination, siphon hydroelectric power generation and has a number of patents and results.

#### Product Description

##### Super conducting seawater desalination system

Desalination, water purification and Sodium chloride separation.



### BUILDING GREEN ECOLOGICAL CO., LTD.

• <https://www.ecozl.com/?Lang=enus>

#### Company Profile

Building Green dedicates sponge city material developing and takes two years to develop several our own water conservation/infiltration green infrastructure facilities all are manufactured in Taiwan.

#### Product Description

##### Water harvesting module

Water harvesting module made by recycled PP. Assembling water harvesting module on site become an underground stormwater tank and could suit for all current regulations. It's considered one of the best Solution of Sponge city (Stormwater management).



### Kmate

• <https://www.kmate.com.tw>

#### Company Profile

Kmate is a leader on Taiwan water treatment equipment and filter media. Aims to build product for efficiency, effectiveness and reliability and is backed by our commitment to excellence and dedication to customer service. Kmate will always be the professional water treatment partner to corporations!

#### Product Description

##### AFM Filter

AFM Filter is an activated filter media made from glass, developed as a replacement for sand or zeolite in any type of sand filters. Key Benefits is Resists biofouling and bio-coagulation or transient worm-hole channeling of unfiltered water and Does not need to be recharged or replaced for most applications.



### BRIGHT SHELAND INTERNATIONAL CO., LTD

• [www.filtrafine.com](http://www.filtrafine.com)

#### Company Profile

Bright Sheland International Co., Ltd (BSI) was established in 1985 as a filter manufacturer which focuses on industrial filtration and separation system. We are engaged in the research & development and production of industrial filters.

#### Product Description

##### Filter equipment

The function of the filter equipment is to purify liquid (gas) particulate impurities to meet the water (gas) requirements of the process, increase the production yield, and reduce the production cost after analysis and selection!



## Exhibitor Profiles

### Rauschert

• <https://rauschert.com/en/>

#### Company Profile

Rauschert was founded in 1898 and is a family-owned manufacturer for ceramic products, system for waste water filtration and engineering solutions worldwide. In Taiwan Rauschert is marketing complete ceramic membrane systems for waste water recycling in the textile industry.

#### Product Description

##### Ceramic membrane tube

Ceramic membrane tube is suitable for high temperature desizing and filtration of dyeing wastewater. It has the benefit of thermal energy reuse.

The ceramic membrane tube filtration system is suitable as one of the recycling schemes of textile process wastewater.



### IDE Technologies

• <https://www.ide-tech.com/es/>

#### Company Profile

A world leader in desalination and water treatment solutions, IDE is at the forefront of the development, engineering, construction and operation of enhanced desalination, industrial water treatment and water reuse facilities.

#### Product Description

##### Hadera Desalination Plant

Hadera Desalination Plant, Israel - An innovative plant that provides clean, potable water for over 1 million people in Israel. With an extremely narrow footprint, Hadera's desalination has one of the lowest-ever costs for high-quality desalinated water in BOT projects worldwide.



### Taiwan Environmental Righteousness Association

#### Company Profile

The alliance is a non-profit organization established in accordance with the law to cooperate with the national environmental sustainability policy, combining people and organizations engaged in small hydropower generation at home and abroad, to promote the vigorous development of Taiwan's small hydropower green energy industry.

#### Product Description

##### Handle speeches

Handle speeches, symposiums, seminars, forums or special studies related to Taiwan's small hydropower green energy industry.

Cultivate professional talents, hold technical training courses, and introduce relevant professional talents at home and abroad.



### RHYMEBUS CORPORATION

• <http://www.rhymebus.com.tw/en/index.php>

#### Company Profile

RHYMEBUS CORPORATION is a professional manufacturer of AC Inverter, Auxiliary Control Equipment, and Project Design of Automation Control System Integration.

#### Product Description

##### Hydropower inverter

The Hydropower inverter owns rectify, load variation control and intelligent control function. It adopts the active front end topology instead of bridge rectifier. The inverter actively makes the most effective control of impeller and generator in the hydropower system.



## Exhibitor Profiles

### Hsin Yung Chien Co., Ltd. (HYC)

• [https://www.hyc-king.com/index\\_en.php](https://www.hyc-king.com/index_en.php)

#### Company Profile

Taiwan's largest rubber conveyor belts manufacturer. Hsin Yung Chien Co., Ltd. (HYC) established in 1964 in Nantou, Taiwan. Our product line covers light, heavy and special conveyor belts, with a wide range of applications and has branched out into small hydropower industry.

#### Product Description

##### Inflatable rubber dam

Inflatable rubber dam is a hydraulic engineering structure used to block the flow of rivers. Not only improves the use of water resources, but also provides applications such as water storage, power generation, sand discharge, flood control, irrigation, water supply, habitat restoration and cityscape landscaping.



**HYC** 鑫永銓股份有限公司  
HSIN YUNG CHIEN CO., LTD.

### Hui-Min Environment Tech Corp.

• <https://www.huimin.com.tw/about-us-en>

#### Company Profile

Huimin environmental tech. corporation was established in 1997. Huimin has engaged in the professional environmental protection business and provides the industrial community with environmental engineering and related professional and technical services. We aim to protect the environment and improve the public's quality of life.

#### Product Description

##### Seawater desalination

Seawater desalination uses RO membrane for seawater, which is filtered through membrane at high pressure to produce desalinated water. In order to meet drinking water quality standards, RO water will be chlorinated before delivery to ensure cleanliness. It will be fed into a 50,000-ton tank and then tap water. Pipe Network.



### SEASON FARM TECHNOLOGY CO., LTD.

• <http://en.fefg.com.tw>

#### Company Profile

Season Farm Group has long been actively committed to solving the three major crises of human ecology, food shortage, health, and the development and integration of renewable energy, scientific and technological agriculture, healthy living, and a full range of solutions.

#### Product Description

##### Dual Self-Circulation Hydropower system

Dual Self-Circulation Hydropower system include Season Farm Green Energy Dual Self-Circulation Hydropower system, Straight pipe vertical hydraulic self-circulation Hydropower system, Season Farm Dual Engine Green Energy Power Generation System, and Season Farm Dual Engine Green Energy Power Generation System.



### FOREST WATER ENVIRONMENTAL ENGINEERING CO., LTD.

• [www.mfw.com.tw](http://www.mfw.com.tw)

#### Company Profile

The primary focus of Forest Water includes construction of sewage system, municipal waste water treatment, industrial waste water treatment, seawater desalination, and water purification. Meanwhile, Forest Water continues to involve in the field of waste recycling industry.

#### Product Description

1. Municipal Wastewater Treatment
2. Industrial Wastewater Treatment
3. Urban Sewage System
4. Sea Water Desalination
5. Organic Waste Disposal
6. Waste Recycle and Reuse
7. General Waste Disposal



# Exhibitor Profiles

## RIH DING WATER ENTERPRISE CO., LTD.

• <https://www.rihdng.com.tw/about/>

### Company Profile

Radium, in cooperation with the Taoyuan City Government, via a 100% owned subsidiary company "Rih Ding Water Enterprise Co., Ltd." is responsible for this project. The responsibilities include upgrading the Taoyuan sewer line throughout the city and increasing sewer line connectivity, improving the water quality of the service area and purification of river water.

### Product Description

#### BioNET and MBR water treatment technology

The company uses BioNET and MBR water treatment technology in the second phase of sewage treatment plant.



## Water Affairs Organization Taiwan (WAOT)

• <https://waot.org/>

### Company Profile

WAOT is the close co-work partner with industry, government department, university, and research institute to promote water industry. WAOT not only play as the exchange platform of international and domestic water business, but also introduce new technologies & facilities about water to members.

### Product Description

#### SMART WaterOps Service Platform

Providing innovative techniques and equipment improved solution for water environment and water resource utilization. First to demonstrate SMART WaterOps Service Platform, offers water treatment AI modeling and analysis services. Without setting up algorithm teams and AI experts, upload the data about equipment and water quality, members can easily build-up their own AI models and optimize the operational decision.



## GSD Enviro Tech (Taiwan) Co., Ltd.

• [www.gsd.net.tw](http://www.gsd.net.tw)

### Company Profile

GSD Enviro Tech provides water treatment customers with AIoT services integrated equipment management, operation optimization, IoT solutions, and artificial intelligent applications that enable customers to meet strict effluent standards while optimizing operational costs, carbon footprint and energy requirement.

### Product Description

#### SMART WaterOPS Service Platform

GSD's "SMART WaterOPS Service Platform" is a MLOps SaaS (software as a service) platform that helps water treatment members train their own AI models online easily and optimize operational decisions quickly.



## National Yang Ming Chiao Tung University - Environmental Technology & Smart System Research Center, NYCU-ETSS

• [http://etss.nctu.edu.tw/lab/index\\_en.html](http://etss.nctu.edu.tw/lab/index_en.html)

### Company Profile

NYCU-ETSS is based on the development of the water industry, devoted to researching and providing solutions for enterprise, and programmed the ETSS to explore the innovative techniques to the industry.

### Product Description

1. Catalytic Oxidative Activated Carbon
2. Toxicity Assessment of Discharged Effluent. ( Industrial Water/ Waste Water/ Seawater Brine)
3. Production technology for urban sludge-derived biochar
4. Application of metallic Nickel Foam electrode for ammonia electrooxidation



## Exhibitor Profiles

### Green Environmental Engineering Consultant Co., Ltd.

• <http://www.geec.com.tw/>

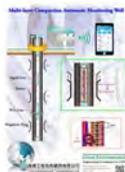
#### Company Profile

Green Environmental Engineering Consultant Co. LTD (GEEC) specializes in the application of multi-sensor monitoring system including InSAR, GPS, Leveling and Multi-layer compaction monitoring well in monitoring land deformation and deformation mechanism.

#### Product Description

##### Magnetic detect probe & IOT translate module

Base on the Hall effect, we design the multi-layer compaction automatic monitoring equipment to detect the magnetic from magnetic ring and simulate the magnetic curve. The equipment can automatic detect the position of magnetic ring at different epoch to calculate the compaction in land subsidence area.



### FINETEK CO., LTD.

• <https://www.fine-tek.com/main/index.aspx>

#### Company Profile

Act as an expert sensor manufacturer, FineTek provides advanced sensing technology with edge computing and wireless interoperability for diversity of industries, water resources and environmental applications.

#### Product Description

##### EPD

EPD offers the industry's widest range of liners, electrodes and sizes to meet the needs of even the most demanding process applications in sectors as diverse as chemical, power, oil & gas and metals & mining. The powerful transmitter is easy to use and provides the output signal that meets your needs.



### Energy Management System Co., Ltd.

• <https://www.ems.com.tw/en/>

#### Company Profile

Established in 1991, EMS (ENERGY MANAGEMENT SYSTEM Co., Ltd) is the first water meter manufacturer having HQ located in STSP (Southern Taiwan Science Park). With complete corporation structure composed of R&D offices, 2 manufacturing factories, Q&C Department, Marketing & Sales teams and After-sales teams, EMS aims to provide the satisfying services for clients.

#### Product Description

##### EMS smart-metering solutions

EMS smart-metering solutions, including accurate metering, IoT data transmission, and cloud data platform, has been realized in smart cities. The new solution has been awarded by Taiwan Excellence and implemented in ASEAN countries.



## Exhibitor Profiles

### Taiwan Water & Soil Instrumentation, Inc.

• <http://www.hycom.com.tw>

#### Company Profile

Specialized in designing and manufacturing innovative equipment for water and soil monitoring, TWSI has accomplished the following missions: Developed series of revolutionary instrument to provide solutions for growing demands of water and soil resource management and problems due to flood.

#### Product Description

##### Precision Sensors

Precision Sensors, Powered by Precision Sensors and Digital Wire Extensometer. It Can be applied to River / Canal Monitoring, Water Conservation, Water Resource Management, Water Purification Management and Disaster Early Warning.



### UnaBiz

• <https://www.unabiz.com>

#### Company Profile

A proven massive IoT service provider who specialises in sensor product design, manufacturing, and cloud platform services across a hybrid of low-power wide area (LPWA) technologies.

UnaBiz envisions a closely connected world powered by simple technology because we believe in "Less is More".

By uniting people and technology, UnaBiz aims to create an impact on a massive scale, to help every person and every organisation on the planet live smarter, simpler, and in a more sustainable way.



### ARBOR Technology Corp.

• <https://www.arbor-technology.com/gl/Home>

#### Company Profile

ARBOR is a global provider of dedicated industrial IoT computing and mobility solutions. ARBOR offers comprehensive system integration, customer-centric design services, embedded systems, automation products, and global logistics support.

#### Product Description

##### Smart water meter

Smart water meter reduces the time and manpower required for reading meter by manual labor, as well as keeps residents away from interference by manual meter reading. It does improve the service quality of water companies but also collect a variety of data to analyze for decision-making which helps with industrial development.



# Exhibitor Profiles

## Taipei Water Department

- <https://english.water.gov.taipei>

### Company Profile

Taipei Water Department (TWD) was established in 1907. It has been established for more than 100 years. The service area covers Taipei City, and parts of New Taipei City.

### Product Description

#### District Smart Metering (DSM)

By 2020, leakage rates of 379 DMAs (District Metering Areas) have been reduced less than 10% in Taipei. To keep the health of all the DMA after pipeline replacements, a long-term management of leakage-growth-monitoring also been undertaken, including those DMA replacement jobs currently carrying on..



#### Smart water service

Taipei city is actively promoting smart water meters (SWMs). Newly constructed buildings have been equipped with SWMs since 2020, including 35,000 SWMs having replaced traditional water meters in existing buildings and 15,000 of them are now under operational test. Applying SWMs with IoT technology and smart water management platform to assist customers with self-management of water usage, and provide abnormal water usage warning.

## Public Works Department (PWD), Taipei City Government

- <https://english.water.gov.taipei>

### Company Profile

Responsible for major public construction work in Taipei City. Composed of five offices such as the New Construction Office, Hydraulic Engineering Office, Parks & Street Lights Office, Sewerage Systems Office and Geotechnical Engineering Office.



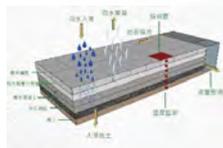
### Product Description

#### Innovative research • Future prospects

From 2019 to 2021, a total of 16 projects were subsidized, and 8 of them were in the field of water affairs, covering smart management, flood monitoring and early warning, climate change adaptation, autonomous disaster prevention, etc..

#### Permeable and Water Retention Design for City Sidewalk

Area of new permeable pavement (PP) is 171,240 m2 with annual addition rate of 25,000 m2/year; Maximum temperature reduction by PP was 1.4 °C and PP absorbed 41.8% of all precipitation.



#### The Automatic Control of Pumping Station

Equipped with remote monitoring, remote control, automatic operation, fire alarm and burglar proof security functions, which can effectively improve the operation performance of the pumping station.



#### Oasis in the Concrete Jungle

Re-examine and improve the space that has been over-disturbed by humans, and give the green land and waterfront a chance to breathe , and restore a new field of coexistence of life.



#### Underground Pipes Positioning: Development of Intelligent Inspection Device

Integrate multi-lens video cameras to capture the internal structure of underground pipes and an inertial measurement unit (IMU) to track the equipment to establish the pipe maps to develop an intelligent inspection device.



#### Yongchunpi and Sungai Wetland Park Construction Project

Combining ecology and water conservation ,the eco-friendly habitat ,thus accomplishing a complete urban ecological corridor.



# Conference Organization

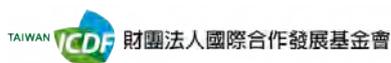
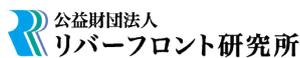
· Advisor



· Organizer



· Co-organizer



· Implementer





無可替代的水價值

# Irreplaceable Water Value

INTERNATIONAL FORUM 2021

經濟、環境、科技、文化

10<sup>th</sup>  
Oct. 14-16

Advisor  中華民國經濟部  
Ministry of Economic Affairs, R.O.C.

Organizer  經濟部水利署  
Water Resources Agency, MOEA

Co-organizer  中華國際對外貿易發展協會  
Taiwan External Trade Development Council  公益財団法人  
リバーフロント研究所  Netherlands  
Water Authority  MOST 科技部  臺中  國立成功大學  國立清華大學  TAISE

 ICDP 財團法人國際合作發展基金會  CIEP  台灣透明組織協會  臺灣水務產業發展協會  AECOM  國泰金控  國泰人壽

Implementer  CDRI