

ReSAGPAPR WG Newsletter

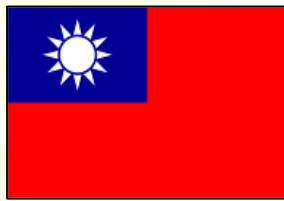
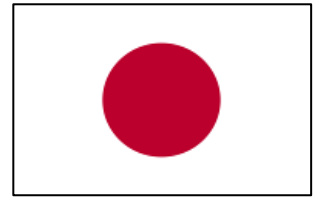
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Soil and Groundwater Pollution of Asian and Pacific Region

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Member Countries



Chairman of ReSAGPAPR WG

Dr. Tsair- Fuh Lin

Chair, Working group on the Remediation of Soil and Groundwater Pollution of Asian and Pacific Region

Distinguished Professor, Department of Environmental Engineering, and Vice President for Research and Development
National Cheng Kung University



Program of 2024 International Technical Exchange on Emerging Contaminants and Remedial Practice

Date: June 26 (Thu.)-27 (Fri.), 2024

Venue: 1st Lecture Room, International Conference Hall, Kuang-Fu Campus, National
Cheng Kung University (No.1, University Road, Tainan City)

Day 1: 09:00 AM to 17:00 PM (Taiwan Time), June 26 (Thu.), 2024

Time	Topic	Moderator/Speaker
08:45-09:00	REGISTRATION	
09:00-09:30	OPENING REMARKS: Minister, Taiwan MOENV- Mr. Chi-Ming Peng Assistant Administrator, USEPA- Jane Nishida OUP PHOTOS	Moderator: Tsair-Fuh Lin and Wen-Che Ho National Cheng Kung University
09:30-09:35	Break	
09:35-10:35	PFAS OVERVIEW Physical/Chemical Properties, Sources and Prevalence, Toxicology, Analytical Methods, Sampling Procedures/Materials, Regulatory Standards, Programmatic Developments	Moderator: Liang-Ming Whang National Cheng Kung University Speaker: Jim Cummings and Arryn Jones USEPA
10:35-10:50	Tea Break	
10:50-11:35	DRINKING WATER TECHNOLOGIES Granular Activated Carbon (GAC), Ion Exchange Resin (Ix), Reverse Osmosis (RO)	Moderator: Wan-Ru Chen National Cheng Kung University Speaker: Nick Dugan, USEPA
11:35-12:00	Q & A	Liang-Ming Whang Wan-Ru Chen
12:00-13:30	Lunch Technology Exhibition for Soil and Groundwater Protection and Remediation	

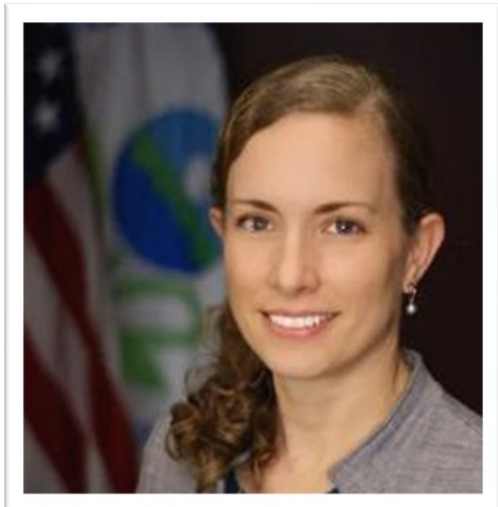
Time	Topic	Moderator/Speaker
13:30-14:00	AUSTRALIAN PERSPECTIVE ON PFAS NEPM and Other Regulations, Main Problem Areas, Technology Development/Status, Downhole Foam Fractionation Reactor, Case Studies of Remedial Actions	Moderator: Kuei-Jyum Yeh National Ping Tung University Speaker: Ian Phillips and Emily Brown Photon Water
14:00-15:00	PFAS TECHNOLOGIES SEPARATION/SEQUESTRATION Surface Activated Foam Fractionation (SAFF), Colloidal Activated Carbon Injection, Thermal Desorption (ex situ and in situ), Solidification/Stabilization, Phytoremediation/Nature-Based Solutions	Moderator: Yun-Jie Lai Apollo Technology Speaker: Dora Chiang Jacobs Engineering
15:00-15:30	Tea Break	
15:30-16:30	GREEN AND SUSTAINABLE REMEDIATION	Moderator: Kuei-Jyum Yeh National Ping Tung University Speaker: Bill Diguiseppi. Jacobs Engineering
16:30-16:50	Q and A	Kuei-Jyum Yeh Yun-Jie Lai
16:50-17:05	Introducing the AI Geofencing for Combating Illegal Dumping	Fan Feng-Min Taiwan MOENV
17:05	End of 1 st day	

Day2: 09:00 to 17:00 (Taiwan Time), June 28 (Fri.), 2024

Time	Topic	Moderator/Speaker
08:45-09:00	REGISTRATION	
9:00-9:45	PFAS TECHNOLOGIES – DESTRUCTION Super Critical Water Oxidation (SCWO), Hydro-thermal Alkaline Treatment (HALT), Electrochemical Oxidation	Moderator: Colin S. Chen National Kaohsiung Normal University Speaker: Bill DiGuseppi Jacobs Engineering
9:45-10:05	PFAS REMOVAL FROM FIRE FIGHTING EQUIPMENT	Moderator: Wen-Yao Liu Stantec Speaker: Bill DiGuseppi Jacobs Engineering
10:05-10:35	Tea Break	
10:35-11:00	RESOURCES US EPA, Interstate Regulatory and Technology Council (ITRC), DOD SERDP/ESTCP, State Programs	Moderator: Colin S. Chen National Kaohsiung Normal University Speaker: Aaryn Jones, USEPA
11:00-11:30	Q&A	Colin S. Chen Wen-Yao Liu
11:30-13:00	Lunch Technology Exhibition for Soil and Groundwater Protection and Remediation	

Time	Topic	Moderator/Speaker
13:00-14:00	PFAS TECHNOLOGIES– DESTRUCTION (CONT.) PFAS Non-thermal Plasma, Sonolysis, Thermal Plasma, Mechano-Chemical Ball-Milling, STAR/STARx (Smoldering), UV/Reductive Technologies, Electron Beam, Biological	Moderator: Tsair-Fuh Lin National Cheng Kung University Speaker: Dora Chiang Jacobs Engineering
14:00-15:00	CASE STUDIES/TREATMENT TRAINS L&RR Landfill National Priorities List (NPL) Site, ITRC Examples	Moderator: Bing-Nan Wang Sinotech Environmental Technology Speaker: Bill DiGuseppi and Aaryn Jones Jacobs Engineering , USEPA
15:00-15:30	Tea Break	
15:30-16:30	OTHER CONTAMINANTS OF INTEREST 1,4-Dioxane, Microplastics, 6-PPD/Quinone, Lithium, PAHs, Pesticides, etc.	Moderator: Tsair-Fuh Lin National Cheng Kung University Speaker: Aaryn Jones, Dora Chiang and Bill DiGuseppi Jacobs Engineering
16:30-17:00	Q&A	Tsair-Fuh Lin Bing-Nan Wang
17:00	End of Conference	

International Workshop: Invited Speakers



Aaryn Jones

Emerging Contaminants

Coordinator

US EPA Region 4, Atlanta, GA

Aaryn Jones is the Emerging Contaminants Coordinator for EPA Region 4 in Atlanta, Ga for 16 years. She advises senior leadership, leads stakeholder engagement on emerging contaminant issues, and serves as the regional point of contact for multimedia PFAS issues. She previously served as the Special Assistant to the Regional Administrator and as a physical scientist and enforcement officer in the Land, Chemicals, and Redevelopment Division, working on environmental enforcement and corrective actions.

RESAG



Dora Chiang

Global Principal, PFAS and Emerging Contaminants

Jacobs

Dora Chiang is Global Principal for PFAS and Emerging Contaminants at Jacobs. She holds BS and MS degrees in Chemistry from Taiwan Chung Yuan University, and she has a Ph.D. in Environmental Engineering from Georgia Institute of Technology. She has 25 years of global experience in the areas of contaminated site investigation and remediation including a mega brownfield project working with World Bank to clean up a city-wide metal contamination in Hunan Province, China. Since 2000, she has collaborated with universities and clients to demonstrate innovative solutions for emerging contaminants such as 1,4-dioxane and PFAS. She is invited speaker at national and international conferences, author of multiple peer-reviewed journal articles, technical lead of numerous local, state, federal, industrial projects. She serves as principal investigator (PI) of multiple US DOD funded PFAS technology development projects. And Dora is also trainer and subgroup leader for the Interstate Technology and Regulatory Council (ITRC) PFAS team.



William Harris DiGuisseppi, PG

Principal Hydrogeologist

Global Emerging Contaminants Lead

Jacobs

Mr. DiGuisseppi is a Principal Hydrogeologist with 36 years of experience in environmental investigation and remediation, including over 10 years of PFAS-related assessment, investigation, and treatment work on over 1,000 potential PFAS release locations for the US government, Australian Defence, municipal and private sector facilities. Bill is also an Adjunct Teaching Professor at the Colorado School of Mines.

RESAG



Jim Cummings

Program Analyst

USEPA

Jim Cummings is in the Technology Assessment Branch in the Office of Site Remediation and Technology Innovation at EPA headquarters. He has over 25 years of experience in the development, evaluation and deployment of innovative tools for the characterization and remediation of hazardous waste sites. He provides technical support to federal and state RPMs in cleanup of wood treaters, former Manufactured Gas Plants (MGPs) and chlorinated solvent sites. Building on extensive experience in supporting selection and deployment of in situ thermal technologies, he prepared an EPA report on 'Lessons Learned in the Use of *In Situ* Thermal Technologies'. He has chaired sessions and presented at dozens of domestic and international remediation conferences. Recent interests include the use of combined remedies to exploit synergies among technologies and accelerate site closure. In a collaboration between EPA and the National Groundwater Association, he has moderated and presented at a series of Combined Remedy workshops around the country.



Ian Phillipps

Director & General Manager

Photon Water

Ian has a 30-year career across general management, technical sales, and operations leadership roles, having achieved results across both Australia and Asia in technical sales and sales management, supply chain operations, joint ventures, manufacturing, and multi-division business operations. Ian has worked in industries including renewable energy, mining, manufacturing, food & beverage, industrial, paper and resource management with a focus on water, wastewater, and hazardous liquid waste management.

He has held leadership roles in geographically diverse locations including Singapore and Japan, with an appreciation for working within global matrix business and functional structures. Ian has experience in building collaborative relationships with stakeholders and have delivered results in challenging business environments. Ian has also led organizational restructures in Asia and Australia.



Emily Brown

Water Remediation Engineer

Photon Water

Emily Brown is a Water and Remediation Engineer with the Photon Remediation Team. With a Bachelor of Chemical Engineering and Master's of Biomedical Engineering, she is well versed in the practicalities of novel remediation technology deployment. As a lead engineer in the Australian Government Department of Defence trial of in-situ electrochemical nanoremediation, Emily's onsite work and data analysis of trial results lead to her being awarded the Australasian Land and Groundwater Association Emerging Professional of the Year in 2022. Her work and Australian experience has seen her present in the US and Europe with a focus on academic research, emerging technologies, and field deployment.

RESAG



Nicholas R. Dugan

Environmental Engineer

USEPA

Nicholas Dugan is an environmental engineer in the US Environmental Protection Agency's Water Infrastructure Division. He has twenty-seven years of experience managing research projects and providing technical support related to the removal of a broad range of contaminants through a variety of drinking water treatment processes. He is currently leading a nationwide effort to deliver technical support to public water systems that are installing, or considering the installation of, PFAS removal processes. In this role, he works directly with EPA regions, state primacy agencies, and local governments to design and execute projects that meet the needs of the participating water systems while also producing information that will be useful for other systems in similar situations. In addition to the PFAS work, Nick has evaluated the control of Cryptosporidium, nitrate, perchlorate, cyanobacteria, and cyanobacterial toxins. He holds a BA in Economics from Carleton College, as well as BS and MS degrees in Civil and Environmental Engineering from the University of Cincinnati. He is also registered as a professional engineer in the State of Ohio.

Interesting Sidelights: International Workshop



Opening Remarks:

Taiwan MOENV: Minister - Mr. Chi-Ming Peng

US EPA: Assistant Administrator of International and Tribal Affairs – Jane Nishida



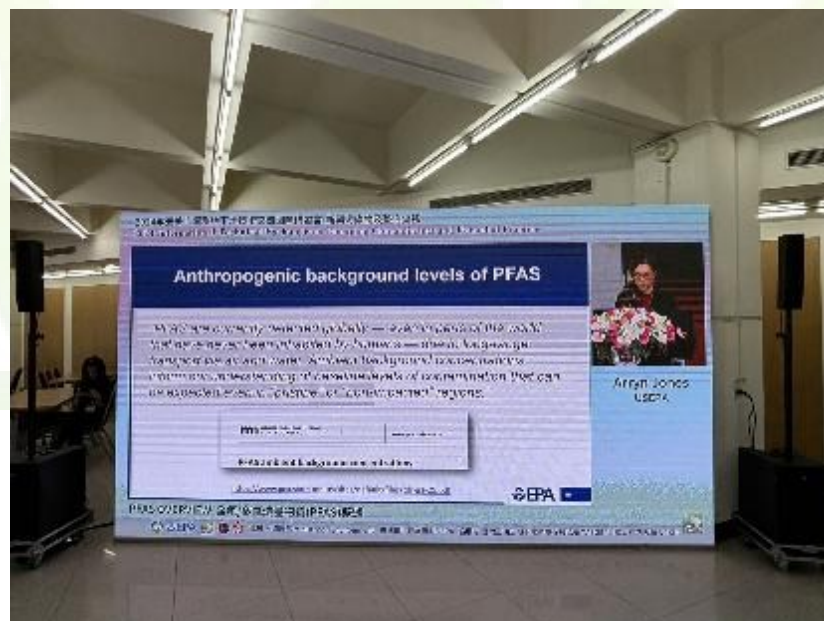
Group photo with delegates from all ReSAG member countries.



Workshop in Progress



Workshop in Progress



The live stream of the workshop on YouTube

Program of the 12th Business Meeting of ReSAGPAPR

Date: Wednesday, June 26, 2024

Venue: Shangri-La's Far Eastern Plaza Hotel, Tainan

Prof. Dr. Tsair-Fuh Lin, Chair of WG ReSAGPAPR

Time	Duration	Agenda	Moderator
09:30-09:40	10 min.	Registration and Social Networking	
09:40-09:50	10 min.	Welcome and Introductions	Tsair-Fuh Lin, Chair Jui-Hsiang Liu Deputy Director- General, EMB
09:50-10:10	20 min.	Country Report: Taiwan	
10:10-10:15	5 min.	Group Photo	
10:15-11:00	45 min.	Discussions and Updates on ReSAG Issues: (1) Annual Achievement Report (2) Future Plans (3) Establishment of Associate Committee Member (4) Election of Chair Country and Vice Chair Country for the 8th Term (2025-2026)	Tsair-Fuh Lin, Chair
11:00-11:10	10 min.	Promotion of Events Organized by Members	
11:10-11:20	10 min.	Time, Host and Country Report(s) for Next Meeting	
11:20-11:30	10 min.	Other Business and Closing	
11:30	--	End of Meeting	

Meeting Minutes of the 12th Business Meeting of ReSAGPAPR

Date:	June 26 (Wednesday), 2024	
Time:	9:30 am – 11:30 am (Time in Taiwan)	
Venue:	Shangri-La Far Eastern Hotel, Tainan	
Chair:	Prof. Tsair-Fuh Lin	
Participants (14 participants from 12 countries):	Australia	Mr. Andrew Pruszinski
	Korea	Mr. Wanho Joo
	Indonesia	Ms. Melda Mardalina / Ms. Mega Permata Rindi
	Japan	Mr. Teruyoshi Hayamizu
	New Zealand	Mr. Bruce Croucher
	Philippines	Ms. Engr. Jean C. Borromeo
	Sri Lanka	Mr. Bamunusinghe Arachchige Jayantha Priyal
	Taiwan	Mr. Jui-Hsiang Liu
		Prof. Tsair-Fuh Lin
		Dr. Hao-Chun Hung
		Dr. Chih Huang
	Thailand	Dr. Chayawee Wangcharoenrung
	Vietnam	Mr. Nguyen Nhu Trung

Meeting Minutes:

1. Presentation 1 – Taiwan Country Report - Green and Sustainable Remediation in Taiwan
(Presented by Dr. Hao-Chun Hung)
 - 1) Contaminated sites considerations before remediation in Taiwan –
 - Mega sites and closed mining site
 - Factory, Gas station, Storage tanks and Industrial park
 - Farmland
 - Illegal dumping
 - 2) Definition of GSR in Taiwan
 - GSR should comply with regulatory standards for the protection of human health and the environment
 - Considering 3 aspects of sustainability
 - Environment- Reduce the environmental footprint and adverse effects

produced by remediation activities

- Social- Decision making for the consideration of human health and social justice by community involvement
- Economic - Evaluate the cost, benefit and economic effects of the alternatives

3) Tiered Evaluation of GSR in Taiwan

- Qualitative evaluation – Small size, short remediation sites
- Semi-Quantitative evaluation – Middle-size, groundwater-contaminated sites
- Quantitative evaluation – Mega sites

4) GSR Tools available in Taiwan

- Environmental Footprint calculator
 - Total emission of CO₂e, NO_x, SO_x, PM₁₀
 - Total use of energy and water
- Social aspect evaluation
 - Health risk calculation (residents and labor)
 - Accident risk of remediation labor
 - Life interference questionnaire
- Economic evaluation
 - Remediation Cost
 - Land value recovery
 - Input and output model for benefit assessment

5) Case of GSR & BMPs of a GW heavy metal contamination site

- Chemical production company
- Groundwater contamination (Cr, Ni, As, Hg and Pb)
- Small and restricted plume

6) BMPs of P&T

- Contamination transport simulation - extraction parameter optimization
- Pump out wastewater and merge it into the factory wastewater treatment system to reduce additional equipment installation
- Automatic and remote control, intermittent pumping, and operation during off-peak hours

7) Global trends of the environment

- Global climate change and extreme weather issues.
 - Raised awareness of GHGs emission
 - Driving force from SDGs, ESGs, and net-zero policy
- Deficiency of water resource and increasing need of groundwater
- Urbanization increased the land demand
 - Soil and the land is a non-renewable resource
 - Contaminated land redevelopment could be a solution, but the conflict between “development” and “environment” always exist.

- 8) Lesson learned and future perspectives
 - Critical Role of GSR: The sustainability of a site is largely determined by the choice of a remediation strategy, GSR provides a comprehensive assessment of remediation options, aiding in decision-making.
 - Don't only focus on the environment but also social and economic: it is easier to put your efforts into the environmental aspect, but the remediation of a site is strongly related to the people and their lives.
 - Stepping into GSRR: Now we start to consider the impact of extreme weather issues to the site remediation and incorporate resilient design into remediation.
- 9) Video-Green and Sustainable Remediation in Taiwan
2. Presentation 2 - Discussions and Updates on ReSAG Issues: (Presented by Prof. Tsair-Fuh Lin)
 - 1) Annual Achievement Report
 - ReSAG Business Meetings of Working Group on ReSAGPAPR
 - Five Business Meeting Since 2018 : 8th, 9th, 10th, and 11th (12th)
 - Virtual Meetings
 - 12 Virtual Meetings since 2019
 - Workshops
 - 4 International Workshops since 2018: 018, 2020, 2021 and 2022 (2024)
 - Training Courses
 - 4 International Training Courses since 2013: 2013, 2016, 2019, 2023
 - 2) Discussions on Future Plans of ReSAG (2024/2025)
 - Co-host a one-week training courses (workshop) in Taiwan, together with Taiwan MOENV, NSTC and NCKU for the young scholars and professionals from member countries in late 2024.
 - Hold the quarterly virtual meetings.
 - Organize the 13th Committee Business Meetings in Taiwan in 2025.
 - Update the website.
 - Strengthen bi- and tri-lateral activities among member countries.
 - 3) Establishment of Associate Committee Member
 - The associate committee members will be nominated through email and added to the website officially.
 - 4) Election of Chair Country and Vice Chair Country for the 8th Term (2025-2026)
 - Taiwan was nominated as the chair country for 2024 to 2025
 - Thailand and Indonesia, were nominated as Vice Chair Country for long-term participation and government promotion.
3. Promotion of Events Organized by Members:
 - 1) The 30th Symposium on Soil and Groundwater Contamination and Remediation (Japan)
 - Scheduled for June 25-26, 2025 in Kyoto, Japan
 - Registration for presentation will start in Dec. 2024
 - 2) The Australasian Land & Groundwater Association (ALGA) will be held in

Auckland in New Zealand, 22nd -24th of October, 2024.

3) The International Water Association Aspire conference, will be held in October, 2025 in New Zealand.

4. Other topics:

- Chairperson for the next meeting: Thailand
- Country report in the next meeting: Indonesia
- Time for the next meeting: September, 2024



Interesting Sidelights: The 12th Business Meeting of ReSAGPAP



Venue Decoration



Mr. Jui-Hsiang Liu, delegate of Taiwan
MOENV



Chair, Dr. Tsair-Fuh Lin



Meeting in Progress



Dr. Hao-Chun Hung, delegate of Taiwan
MOENV (Country Report)



Meeting in Progress



Dr. Chih Huang, delegate of Taiwan
Association of Soil and Groundwater
Environmental Protection



Group Photo

Program of 2024 Technical Forum

Date: Wednesday, June 26, 2024
 Time: 13:30PM-17:00PM, Taiwan Time (05:30-09:00 GMT)
 Venue: Shangri-La Far Eastern Hotel, Tainan
 Chairperson: Dr. Tsair-Fuh Lin

Time	Topic	Presenter
13:30-13:35	Opening and Remark	Prof. Kuei-Chun Yeh
13:35-14:00	Introducing the AI Geofencing for Combating Illegal Dumping	Ms. Fei-Ting Lin
14:05-14:20	Current Status of Environmental Technology Verification (ETV) of Soil and Groundwater Remediation in Taiwan	Dr. Ching-Ping Chu
14:20-14:30	Discussion	
14:30-14:40	Utilization of Incinerator Bottom Ash (IBA)- An Installation in Taiwan	Mr. John Huang
14:40-14:50	Status for Recycling of Treated Soils in Korea	Mr. Wanho Joo
14:50-15:00	Soil Washing Technology for Heavy Metal Contamination - A Plant with Reuse Permit	Mr. Leo Lin
15:00-15:10	Improvement of Thailand Regulation on Soil and Groundwater Contamination Control	Dr. Chayawee Wangcharoenrung
15:10-15:20	Application of Thermal Technology to Remediation of Soil contamination	Mr. Eric Kuan
15:20-15:40	Tea Break	
15:40-15:50	Management of Emerging Contaminants in Soil and Groundwater (Australia)	Mr. Andrew Pruszinski
15:50-16:00	Application of Soil Washing to TPH Contaminated soil - A case study	Mr. Bing-Nan Wang
16:00-16:10	Emerging Contaminants- A New Zealand Perspective	Mr. Bruce Croucher
16:10-16:20	Geoinformatic and Big Data Technology Application of Soil and Groundwater Pollution Management	Mr. Jiun-Yan Ye
16:20-16:30	Management of PFAS in Japan	Mr. Terry Hayamizu
16:30-16:40	Applications of Microfluidic Chip Sensor to Real-Time Monitoring for Heavy Metal in Water	Mr. Hans Chang
16:30-16:50	Discussion	
16:50	End of Meeting	

Interesting Sidelights of 2024 Technical Forum



Remarks by Prof. Kuei-Chun Yeh



Presentation by Section Chief Lin Fei-Ting



Forum in progress



Presentation by Mr. Teruyoshi Hayamizu
(Japan)



Forum in progress



Moderated by Mr. Bruce Croucher
(New Zealand)



Presentation by Mr. Jiun-Yan Ye
(Taiwan))



Group Photo