



International Conference on  
**Circular Economy for Climate and Environment CECE2024**  
 (29 Sep – 2 Oct 2024), UTS Aerial Function Centre

**Day 1: Sunday 29 September 2024**

2:00 PM	<b>Registration</b>
	CECE venue: Aerial Function Centre, UTS Building 10, Level 7, 235 Jones St, Ultimo, NSW 2007
5:00 – 8:00 PM	<b>Networking event with drinks</b>

**Day 2: Monday 30 September 2024**

7:30 AM	<b>Registration</b>		
8:30 AM	<b>Opening ceremony</b>		
9:00 AM	<b>Plenary Session 1: Circular economy and Climate change: The role of technology</b> Chair: <b>Lisa McLean</b> , Circular Australia		
	Engineering circular solutions for agriculture <b>Bernadette McCabe</b> , University of Southern Queensland, Australia		
	Designing knowledge infrastructure for a better city, with a circulation economy <b>Jaeweon Cho</b> , Ulsan National Institute of Science and Technology, South Korea		
	Revisiting Resource Recovery from Used Water in the Net-Zero Emissions Era <b>Liu Ye</b> , University of Queensland, Australia		
10:15 AM	<b>Panel discussion 1: Circular Economy in operations</b> Panellists: Jaeweon Cho (UNIST), Liu Ye (UQ), Bernadette McCabe (USQ), Melita Jazbec (Institute for Sustainable Futures, University of Technology Sydney), Liana Downey (Blueprint Institute), Stefano Fregua (University of Melbourne), Jenni Philippe (Aurecon) Moderator: <b>Lisa McLean</b> , Circular Australia		
11:00 AM	<b>Morning tea break (with light breakfast)</b>		
	<b>Room 1 (Broadway)</b>	<b>Room 2 (Jones)</b>	<b>Room 3 (Harris)</b>
11:30 AM	Session 1: Circular economy Chairs: Amit Chanan, Biplob Pramanik, RMIT	Session 2: Climate change Chairs: Thomas Gao, Yu-Jung Liu	<b>Workshop 1:</b> Circular Economy frameworks, standards and matrices  Facilitator: Lisa McLean, Circular Australia
	Circular economy in Fiji Water (keynote) <b>Amit Chanan</b> , Water Authority of Fiji, Fiji	Tackling Climate and Environment Challenges with Science and Technology – The Approach by NSW Chief Scientist & Engineer Office (keynote) <b>Thomas Gao</b> , NSW Office of Chief Scientist & Engineers, Australia	
	The Role of Water Utilities in a Circular Economy <b>Phil Woods</b> , Taswater, Australia	Transitioning Beyond the Linear Material use Model in Construction <b>Maurice Lake</b> , Stonelake Group of companies, Australia	
	Tackling Unbalanced Development for Circular Economy in China <b>Haodong Gu</b> , Shanghai University, China	Agrivoltaics: assessing the suitability of innovative multi-land-use systems that integrate food, energy, and water outcomes for Australian agriculture <b>Angus Dunne</b> , Australian National University, Australia	
	Circular Economy Hub Options Analysis <b>Genevieve Daneel/Justin Franklin</b> , Sydney Water, WUS, Jacobs Australia	Extreme events enhanced by climate change and its impact on surface water quality and drinking water supply <b>A S M Mohiuddin</b> , Sydney Water/UTS, Australia	
	Machine learning for nutrient recovery in the smart city circular economy <b>Allan Soo</b> , University of Technology Sydney, Australia	Environmental impacts and energy consumption of electrode materials during electrochemical oxidation of ciprofloxacin <b>Yu-Jung Liu</b> , Taipei Medical University, Taiwan	
12:50 PM	<b>Lunch break</b>		
1:50 PM	<b>Session 3: Circular economy</b> Chairs: Liana Downey, Sanjay Kumarasingham	<b>Session 4: Water, Energy &amp; environment</b> Chairs: Mufid Noufal, Mike Duke	<b>Session 5: Resource recovery</b> Chairs: Alicia An, June-Seok Choi
	Putting the economy in “circular economy” (keynote) <b>Liana Downey</b> , Blueprint Institute, Australia	Water efficiency: City of Sydney (keynote) <b>Mufid Noufal</b> , City of Sydney, Australia	Innovative Approaches in Membrane Distillation for Enhanced Ammonia Removal and Recovery from Wastewater Streams (keynote) <b>Alicia An</b> , Hong Kong University of Science and Technology (HKUST), Hongkong
	Reflections on leadership to value water (keynote) <b>Sanjay Kumarasingham</b> , Ganden Engineers and Project Managers, Australia	Applying the circular economy concept in the conversion of cyanobacterial nuisances into bio-based energy (keynote) <b>Mikel Duke</b> , Victoria University, Australia	Introduction and Future Plans of the Green Desalination Research Lab: A Crucial Step Towards Circular Economy (keynote) <b>June-Seok Choi</b> , Korean Institute of Civil Engineering and Building Technology, KICT, Korea
	What if companies drive corporate strategy with circular design principles? <b>Susan McHattie</b> , Nortoncrumlin, Australia	Effectiveness of grease interceptors in food service establishments for controlling fat, oil and grease deposition in the sewer system <b>Biplob Pramanik</b> , RMIT University, Australia	Malabar WRRF Biomethane Injection Project <b>Praby Sasson</b> , Sydney Water, Australia
	Reimagining cities with a circular economy lens <b>Valentina Petrone</b> , NSW Department of Communities and Justice, Australia	Valorization of liquid anaerobic digestate into N-P-K fertilizers by biological nitrification <b>Andrea Merenda</b> , University of Technology Sydney, Australia	Enhanced Energy Performance with Solid Digestate-Derived Biochar Adsorbent in Solid Recovered Fuel <b>Yu-Chieh Ting</b> , National Taiwan University, Taiwan
	Barriers to Economic Circularity in Australia <b>Ned Wales/Victoria Vega Garcia</b> , Bond University, Australia	Enhancing Nitrogen Removal Performance from Low C/N Municipal Wastewater through Anammox Self-Enrichment Using a Pilot-Scale Hybrid MABR System <b>Hsin-Chieh Lin</b> , National Taiwan University, Taiwan	Development of High-Value Bimetallic Catalysts from Metal-Contaminated Water <b>Hojung Rho</b> , University of Science and Technology, Korea
	Exploring the Influence of External Factors on Transparency in the Fashion Apparel Supply Chain in Asia-Pacific Region: A PESTEL Framework Analysis. <b>Chanuthi Rajapaksha</b> , Yokohama City University, Japan	Effects of surfactants on polyamide thin-film composite membranes fabricated by co-solvent assisted interfacial polymerization for the treatment of semiconductor wastewater <b>Jeonghoo Sim</b> , Myongji University, Korea	Agile Recycling Technology for Organics <b>Justin Frank</b> , Goterra, Australia
3:30 PM	<b>Afternoon tea break</b>		
4:00 PM	<b>Poster Session</b>  (Chairs: Mikel Duke and Andrea Merenda)		<b>Workshop 2: The Future of Renewable Technology Waste Management</b>  Facilitator: Kaveh Khalilpour (UTS) and Thomas Gao (NSW Office of the Chief Scientist and Engineers)
6 – 9 PM	<b>Gala Dinner and Circular Award Ceremony</b>		



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**Day 3: Tuesday 1 Oct 2024**

8:00 AM	<b>Registration</b>		
9:00 AM	<b>Plenary session 2: Circular economy and climate change: issues</b> Chair: <b>Django Seccombe</b> , Sydney Water		
	Unlocking the circular economy as Greater Sydney grows: Sydney Water's approach <b>Roch Cheroux</b> , Sydney Water, Australia		
	Let's start at the beginning <b>David Bergmann</b> , Southeast Water, Australia		
	Driving the circular economy of nutrients through demand: the case of phosphorus <b>Dana Cordell</b> , Institute of Sustainable Futures, University of Technology Sydney, Australia		
10:15 AM	<b>Panel discussion 2: Circular economy and climate change: issues</b> Moderator: Django, Sydney Water Panellist: Roch Cheroux, Dana Cordell, David Bergmann, Amit Chanan (Water Authority of Fiji).		
11:00 AM	<b>Tea break</b>		
	<b>Room 1 (Broadway)</b>	<b>Room 2 (Jones)</b>	<b>Room 3 (Harris)</b>
11:30 AM	<b>Session 6: Resource recovery</b> Chairs: Dharma Hagare, Andrea Merenda	<b>Session 7: Environmental health &amp; risks</b> Chairs: Stefano Freguia, Pema Dorji	<b>Workshop 3: Retrofitting circularity into wastewater treatment plant</b>  Facilitator: Amit Chanan, Water Authority of Fiji  <b>Workshop sponsored by IMM Consulting</b>
	Upcycling of Food Waste (keynote) <b>Dharma Hagare</b> , Western Sydney University, Australia	Medal-winners in the Olympics of urine technologies <b>Stefano Freguia</b> , University of Melbourne, Australia	
	Commercialisation of Food Waste to Animal Feed <b>Norm Boyle</b> , Food Recycle, Australia	Removal of PFAS from the landfill leachate (Invited speaker) <b>Pema Dorji</b> , Darwin City Council, Australia	
	Macroalgal Bioremediation - a fully circular and cost-effective solution to treat wastewater <b>Nicolas Neveux/Emma James</b> , Pacific Biotechnologies Australia Pty Ltd/Sydney Water, Australia	Human Health and Wellbeing Biomarkers in Untreated Wastewater <b>Jiaying Li</b> , University of Sydney, Australia	
	Resource Recovery from Challenging Hypersaline Solution Treatment by Membrane Distillation Crystallization <b>Youngkwon Choi</b> , Korea Institute of Civil Engineering and Building Technology, Korea	A review of the microbial health risks associated with the collection and processing of source-separated urine reused as fertilizer in agriculture <b>Johanna Engels</b> , Griffith University, Australia	
Effect of hydraulic retention time on urine nitrification in pilot-scale activated carbon incorporated membrane bioreactor and application on hydroponics <b>Weonjung Sohn</b> , University of Technology Sydney, Australia	Pathogen regrowth in mesophilic AD after feeding pre-treated sludge <b>Junfu Li</b> , University of Queensland, Australia		
12:50 PM	<b>Lunch break</b>		
1:50 PM	<b>Session 8: Environmental Technologies</b> Chairs: Sungyun Lee, Wei Wei	<b>Session 9: Circular Economy/climate change/environment/resource recovery</b> Chairs: Chia-Hung Hou, Saravanamuth Vigneswaran	<b>Workshop 4: Nutrient recovery</b>  Facilitators: Stefano Freguia (University of Melbourne) and Sanjay Kumarasingham (Ganden Engineers and Project Managers)
	Machine Learning in the Circular Economy: Research Trend and Applications (keynote) <b>Sungyun Lee</b> , Kyungpook National University, Korea	Capacitive Deionization for Water Reclamation and Resource Recovery: Current Perspectives Aiming for Strategic Futures (keynote) <b>Chia-Hung Hou</b> , National Taiwan University, Taiwan	
	Biotechnology to convert biowastes into fossil fuel substitute <b>Wei Wei</b> , University of Technology Sydney, Australia (Invited speaker)	Recovery of Rare Earth Elements from Mining Wastewater using Functionalised Nanomaterials: a solution towards circular economy (keynote) <b>Saravanamuth Vigneswaran</b> , University of Technology Sydney, Australia	
	Direct Lithium Recovery from Synthetic Lithium-Ion Battery Leachate through Membrane Separation Processes <b>Tsai-Hsuan Chen</b> , National Taiwan University, Taiwan	Towards E-waste Circular Economy: The Impact of Contemporary Human Dimensions <b>Amila K.S.U Kankanamge</b> , Charles Darwin University	
	Interfacial and Structural Engineering in MOF-based Mixed Matrix Membranes <b>Tao Li</b> , University of Adelaide, Australia	Towards a Circular Economy and Net Zero Through Carbon Stewardship <b>Russ Martin/Craig Bagnall</b> , Global Product Stewardship Council and SEATA Group, Australia	
	Molecular-based artificial neural networks for selecting deep eutectic solvents for water treatment applications <b>Ghaiath Almustafa</b> , Khalifa University, UAE	Novel integrated process for the circular economy of green hydrogen and resources from brine <b>Mohammad Mahbub Kabir</b> , Noakhali Science and Technology University, Bangladesh	
3:10 PM	<b>Afternoon tea break</b>		
3:40 PM	<b>Closing ceremony</b> Best Presentation Award, CECE2025		

**Day 4: Wednesday 2 Oct 2024**

**Technical tours 9:00 AM – 12:00 PM**

Tour 1	Quakers Hill Water Recycling Plant
Tour 2	Malabar biomethane plant
Tour 3	Sircel Villawood (e-waste recycling and recovery)





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**Poster presentation**  
**30 Sep 2024, 4:00 – 6:00 PM**

Abstract #	Presenter	Poster Title
CECE24-P04	<b>Jonghun Lee</b> , Korea Institute of Civil Engineering and Building Technology, Korea	Research on Phased Application Technology of Semiconductor Industrial Wastewater Treatment for Circular Economy
CECE24-P05	<b>Hobin Jee</b> , Gyeongsang National University, Korea	Development of High-Performance a-GO/hBN-based Membrane for Organic Solvent Nanofiltration
CECE24-P06	<b>Ana Maria Caceres Ruiz</b> , Curtin University, Australia	Increasing Value Recovery from End-of-Life Tyres and Conveyor Belts in Australia: Insights from International Best Practices
CECE24-P07	<b>Kota Aizawa</b> , Tokyo University of Science, Japan	Preparation and properties of butene bridged silicon-based reverse osmosis membranes
CECE24-P08	<b>Niti Bhattarai</b> , University of Technology Sydney, Australia	Evaluating Urine-Based Microbially Induced Calcium-Carbonate Precipitation for Geotechnical Enhancement of Closed landfill Sites: Mechanical Properties and Microstructural Analysis
CECE24-P09	<b>Kazuki Yamamoto</b> , Tokyo University of Science, Japan	Development of sodium ion-selective nanofiltration membrane for wastewater treatment
CECE24-P10	<b>Tatsuya Iwashina</b> , Tokyo University of Science, Japan	Palladium recovery agents using azulene derivatives
CECE24-P11	<b>Yeshi Choden</b> , University of Technology Sydney, Australia	Optimization of Bromide selective composite electrode in membrane capacitive deionization.
CECE24-P12	<b>Amirhossein Shafaghat</b> , University of Technology Sydney, Australia	Sustainable Nutrient Recovery: Employing Membrane-Aerated Bioreactors for Effective Nitrification
CECE24-P13	<b>Nupur Khanna</b> , Icon Water, Australia	Spoil to Topsoil
CECE24-P14	<b>Mohsen Askari</b> , University of Technology Sydney	Sustainable Lithium Recovery: The Potential of Mexene Electrodes for Efficient Selective Extraction from Brine
CECE24-P15	<b>Minjeong Kim</b> , Myongji University, Korea	Evaluation of ANN, DNN, and RNN Algorithms for reverse osmosis-based shipboard seawater desalination
CECE24-P16	<b>Ana Maria Caceres Ruiz</b> , Curtin University, Australia	Implementing circular economy in regional Australia
CECE24-P19	<b>Xiaotong Cen/Min Zheng</b> , University of Queensland, Australia	Nanoscale zero-valent iron application in sewers: impact on sulfide and methane control and downstream wastewater treatment
CECE24-P24	<b>Juan Lucas</b> , Royal Botanic Garden Sydney, Australia	Anthroponics in a Circular Economy: Effect of urine fertiliser on the flowering and longevity of Pansy ( <i>Viola x wittrockiana</i> )
CECE24-P26	<b>Changkyoo Yoo</b> , Kyung Hee University, Korea	Schematic Evaluation on Sustainable Upgrading Technologies of Biogas-to-Hydrogen toward a Circular Economy
CECE24-P27	<b>Kangmin Chon</b> , Kangwon National University, Korea	One-step synthesis of magnetic biochars through co-pyrolysis of walnut shells and Fe-rich mine tails for adsorption capacity enhancement of polystyrene sulfonate microplastics
CECE24-S26	<b>I.B.P Adnyana</b> , Udayana University, Indonesia	Photothermal Characteristics Based Coffee Skin Activated Carbon on the Solar Interface Evaporation (SIE) for Seawater Purification of Remote Areas

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