

# Programme Overview

## Day 1, Sunday (15<sup>th</sup> January)

10:30	<b>Workshop 1</b> Desalination for Water Reuse	<b>Workshop 3</b> Novel and Innovative Solutions for Safe Water Reuse
12:00	Lunch	
14:00	<b>Workshop 2</b> Best Practice and Novel Strategies for Industrial Water Reuse (90 min)	<b>Workshop 4</b> Minimizing Occupational Risks in Wastewater Treatment: the Role of Technology-based Wastewater Safety Planning (180 min)
18:00	Welcome Reception	

## Day 2, Monday (16<sup>th</sup> January)

	Opening Ceremony		
09:00	Welcome Address		
09:40	Welcome Lectures		
10:10	Conference Introduction		
10:20	Tea/Coffee Break with Posters and Exhibitions		
10:50	Plenary 1		
11:20	Water Reuse in Developing Countries	Non-potable Water Reuse	Innovative Technologies and Applications
12:40	Lunch Break with Posters and Exhibitions		
14:00	Water Reuse in Developing Countries	Potable Water Reuse	Innovative Technologies and Applications
15:10	Tea/Coffee Break with Posters and Exhibitions		
15:40	Water Reuse in Developing Countries	Potable Water Reuse	Innovative Technologies and Applications
17:00	2025 IWA Reuse Conference - Candidate Presentation		

## Day 3, Tuesday (17<sup>th</sup> January)

09:00	Plenary 2		
09:30	Water Reuse in Developing Countries	Agricultural Reuse	Antimicrobial Resistance
10:30	Tea/Coffee Break with Posters and Exhibitions		

11:00	<b>Integrating Water Reuse in Existing Systems</b>	<b>Agricultural Reuse</b>	<b>Concentrate and Residual Management/ZLD</b>
12:20	Lunch Break with Posters and Exhibitions		
14:00	<b>Regulation and Governance</b>	<b>Agricultural Reuse</b>	<b>Concentrate and Residual Management/ZLD</b>
15:10	Tea/Coffee Break with Posters and Exhibitions		
15:40	<b>Regulation and Governance</b>	<b>Urban Water Reuse</b>	<b>Concentrate and Residual Management/ZLD</b>
17:00	Plenary 3		
17:30	IWA Water Reuse Specialist Group Meeting		
19:00	Conference Dinner		

**Day 4, Wednesday (18<sup>th</sup> January)**

9:00	Plenary 4		
09:30	<b>Water Energy Food Nexus</b>	<b>Managing Water Reuse in Fast-growing Megacities</b>	<b>Smart and Digital Water Reuse</b>
10:30	Tea/Coffee Break with Posters and Exhibitions		
11:00	<b>Risk Management</b>	<b>Industrial Reuse</b>	<b>Smart and Digital Water Reuse</b>
12:40	Lunch Break with Posters and Exhibitions		
14:00	<b>Risk Management</b>	<b>Industrial Reuse</b>	<b>Workshop 5 Collaboration as the Key to Successful Water Reuse Projects (90 min)</b>
15:10	Tea/Coffee Break with Posters and Exhibitions		
15:40	Plenary 5		
16:10	Closing Ceremony		
16:40	End of Conference		

**Day 5, Thursday (19<sup>th</sup> January)**

<b>Technical Tour 1</b>	<b>Technical Tour 2, tbc</b>
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# Programme

## Sunday

	<b>Workshop – Track 1</b> <i>Desalination and Industrial Water Reuse</i>	<b>Workshop – Track 2</b> <i>EU-India Cooperation in Water Reuse</i>
10:30	Desalination for Water Reuse (90 min)	Novel and Innovative Solutions for Safe Water Reuse in India (90 min)
12:00	<b>Lunch</b>	
14:00	Best Practice and Novel Strategies for Industrial Water Reuse (90 min)	Minimizing Occupational Risks in Wastewater Treatment: The Role of Technology-based Wastewater Safety Planning (180 min)
18:00	Welcome Reception	

## Monday – Morning

	<b>Opening Ceremony</b>
09:00	<b>Welcome Address</b>
09:40	<b>Welcome Lectures</b>
10:10	<b>Conference Introduction</b>
10:20	<b>Tea/Coffee Break with Posters and Exhibitions</b>
10:50	<p style="text-align: center;"><b>Plenary 1</b></p> <p><b>Transitioning to Circular Economy – Innovations Valuing Wastewater and Sludges in Africa</b></p> <p>Akiça Bahri, National Agricultural Institute of Tunisia, Tunis, Tunisia Chair: Josef Lahnsteiner, VA TECH WABAG, Austria</p>

## Water Reuse in Developing Countries

Chair: Ligy Philip, IIT Madras, India

11:20 **Windhoek's Multiple Barrier Approach for Resilient DPR**  
B. Ndaitwah<sup>1</sup>; T. Honer<sup>1</sup>; L. Narib<sup>2</sup>; S. Husselmann<sup>2</sup>; J. Lahnsteiner<sup>3</sup>; Y. Poussade<sup>4</sup>;  
<sup>1</sup>WINGOC, Namibia; <sup>2</sup>City of Windhoek, Namibia; <sup>3</sup>VA TECH WABAG, Austria; <sup>4</sup>Veolia Water, France

11:40 **Exploring Potential of Water Reuse in India**  
D. P. Mathuria<sup>1</sup>; S. Palit<sup>1</sup>; K. S. Sarath<sup>1</sup>; <sup>1</sup>National Mission for Clean Ganga

12:00 **Characterization and Analysis of Graywater**  
S. Dasgupta<sup>1</sup>; Z. P. Bhathena<sup>1</sup>; <sup>1</sup>Department of Microbiology, Bhavan's College, Mumbai, India

12:20 **Operating Experience of Koyambedu TTRO Plant - A Case Study**  
K. Syed Amir Basha<sup>1</sup>; P. S. S. Murugan<sup>1</sup>; <sup>1</sup>VA TECH WABAG Ltd., Chennai, India

12:40 **Lunch Break with Posters and Exhibitions**

## Plenary 1

10:50 **Transitioning to Circular Economy – Innovations Valuing Wastewater and Sludges in Africa**  
Akiça Bahri, National Agricultural Institute of Tunisia, Tunis, Tunisia  
Chair: Josef Lahnsteiner, VA TECH WABAG, Austria

## Non-potable Water Reuse

Chair: Esper Ncube, Rand Water, South Africa

11:20 **Provision of Reclaimed Water as an Alternative Water Resource for Non-potable Applications Using a Hybrid Membrane-ozonation System**  
J. Ahmadi<sup>1</sup>, U. Hübner<sup>1</sup>, C. Schwaller<sup>1</sup>, J. Ho<sup>1</sup>, J. E. Drewes<sup>1</sup>; <sup>1</sup>Urban Water Systems Engineering, Technical University of Munich, Germany

11:40 **Industrial Water Reclamation for Non-potable Reuse at Ujams in Windhoek, Namibia**  
J. Villet<sup>1</sup>; T. Honer<sup>1</sup>; D. Le Maoût<sup>2</sup>; J. Lahnsteiner<sup>3</sup>; <sup>1</sup>UWTC, Windhoek, Namibia; <sup>2</sup>Veolia Water, France; <sup>3</sup>VA TECH WABAG, Austria

12:00 **Performance of Pilot Scale Hybrid Constructed Wetland for Greywater Treatment**  
M. K. Ravichandran<sup>1</sup>; L. Philip<sup>1</sup>; <sup>1</sup>IIT-Madras, Chennai, India

12:20 **Mechanistic Modelling of Chlorine Decay in Reclaimed Water Containing Ammonia**  
R. M. C. Viegas<sup>1</sup>; J. Costa<sup>1,2</sup>; E. Mesquita<sup>1</sup>; F. Ferreira<sup>2</sup>; M. João Rosa<sup>1</sup>; <sup>1</sup>Water Quality and Treatment Laboratory, Urban Water Unit, Hydraulics and Environment Department, LNEC; <sup>2</sup>CERIS, Instituto Superior Técnico, University of Lisbon, Portugal

12:40

Lunch Break with Posters and Exhibitions

	<b>Plenary 1</b>
10:50	<b>Transitioning to Circular Economy – Innovations Valuing Wastewater and Sludges in Africa</b> Akiça Bahri, National Agricultural Institute of Tunisia, Tunis, Tunisia Chair: Josef Lahnsteiner, VA TECH WABAG, Austria
	<b>Innovative Technologies and Applications</b> Chair: Nupur Bahadur, TERI, Delhi, India
11:20	<b>Chemical-free UV Driven AOPs for Micropollutant Abatement - Not a Fiction Anymore</b> W. Gernjak <sup>1</sup> ; <sup>1</sup> ICRA - Catalan Institution for Water Research, Girona, Spain
11:40	<b>Solar Photocatalysis as Advanced Wastewater Treatment Enabling Agricultural Water Reuse</b> J. Wolters <sup>1</sup> ; L. Wacker <sup>1</sup> ; S. Schiwy <sup>2</sup> ; D. Bastian <sup>1</sup> ; B. M. Aumeier <sup>1</sup> ; H. Hollert <sup>2</sup> ; T. Wintgens <sup>1</sup> ; <sup>1</sup> Institute of Environmental Engineering (ISA), Germany; <sup>2</sup> Institute of Ecology, Evolution and Diversity, Germany
12:00	<b>Upstream ozone vs downstream UVAOP for 1,4-dioxane removal in high-bromide O3-BAC-GAC-UV based potable reuse</b> M. Pearce <sup>1</sup> ; S. Hogard <sup>1</sup> ; E. Rosenfeldt <sup>1</sup> ; C. Bott <sup>1</sup> ; <sup>1</sup> HRSD Virginia Tech, USA
12:20	<b>Wastewater Reuse Using a Hybrid Solar vis-LED-photocatalytic Metal Foam Membrane Reactor to Reduce CO<sub>2</sub>-footprint</b> H. Mamane <sup>1</sup> ; <sup>1</sup> Faculty of Engineering Wolfson Building, Tel Aviv University, Israel

12:40

Lunch Break with Posters and Exhibitions

## Monday - Afternoon

	<b>Water Reuse in Developing Countries</b> Chair: Srikanth Mutnuri, BITS Pilani, Goa, India
14:00	<b>Keynote 1</b> <b>Phycoremediation of Greywater Using Microalgae</b> S. Mohan, IIT Madras, Chennai, India
14:30	<b>A Comparative Investigation of the Removal Efficiency, Cost and Operation of Conventional Direct Potable Reuse Technology and Biotechnology</b> M. Schalkwyk <sup>1</sup> ; S. Getahun <sup>2</sup> ; L. Orsini <sup>3</sup> ; <sup>1</sup> Umgeni Water; <sup>2</sup> University of Kwa-zulu-Natal; <sup>3</sup> University of Birmingham
14:50	<b>Artificial Recharge of Ground Water Using Reclaimed Water from STP</b> B. K. Kumaran <sup>1</sup> ; R. Shrinidhi Kasthuri <sup>1</sup> ; <sup>1</sup> VA TECH WABAG Ltd., Chennai, India

15:10

Tea/Coffee Break with Posters and Exhibitions

*Water Reuse in Developing Countries*

Chair: Daphne Keilmann-Gondalekar, tbc, Technical University of Munich, Germany

15:40

**ANDICOS a Waste Water Treatment Approach that Promotes Water Reuse and Energy Recovery**

S. Van Ermen<sup>1</sup>; L. Diels<sup>2</sup>; P. Bose<sup>3</sup>; S. Shah<sup>4</sup>; P. Campling<sup>1</sup>; <sup>1</sup>VITO Flemish Institute for Technological Research; <sup>2</sup>University Antwerp; <sup>3</sup>Department of Civil Engineering, Indian Institute of Technology Kanpu; <sup>4</sup>Ion Exchange

16:00

**Optimization of High Rate Algal Ponds Design and Operation to Enhance Wastewater Reuse and Biomass Production**

E. Uggetti<sup>1</sup>; A. Ortiz<sup>1</sup>; R. Díez-Montero<sup>1</sup>; N. Khalil<sup>2</sup>; J. García<sup>1</sup>; <sup>1</sup>Universitat Politècnica de Catalunya; <sup>2</sup>Aligarh Muslim University

16:20

**Removal of Heavy Metals in Modified Constructed Wetlands Using Activated Carbon and Zeolite**

L. Ofiera<sup>1</sup>; F. Voss<sup>1</sup>; P. Bose<sup>2</sup>; C. Kazner<sup>1</sup>; L. Marco<sup>1</sup>; <sup>1</sup>Hochschule Bochum, Department of Civil and Environmental Engineering, Germany; <sup>2</sup>Indian Institute of Technology Kanpur; India

16:40

**A Fallacy in Wastewater Demand: The Case of Rajkot, Gujarat**

A. Sanjeev<sup>1</sup>; <sup>1</sup>People in Centre Consulting, India

17:00

2025 IWA Reuse Conference - Candidate Presentation

**Potable Water Reuse**

Chair: Josef Lahnsteiner, VA TECH WABAG, Austria

14:00

**Keynote 2**

**Best (and worst) Practices for Public Acceptance of Reuse**

Melissa Meeker, The Water Tower, USA

14:30

**Process Benefits of Ozone BAC as Pretreatment to Membrane Based Advanced Treatment for Potable Reuse**

R. S. Trussell<sup>1</sup>; <sup>1</sup>Trussell Technologies, San Diego, USA

14:50

**Improving Implementation of Managed Aquifer Recharge (MAR) Systems by Utilizing Updated Pathogen Removal Knowledge**

V. Zhiteneva<sup>1,2</sup>; J. Mosher<sup>3</sup>; C. P. Gerba<sup>4</sup>; T. Rauch-Williams<sup>3</sup>; J. E. Drewes<sup>1</sup>; <sup>1</sup>Urban Water Systems Engineering, Technical University of Munich; <sup>2</sup>Kompetenzzentrum Wasser Berlin; <sup>3</sup>Carollo Engineers, Inc., Colorado, USA; <sup>4</sup>Department of Environmental Science, The University of Arizona

15:10

Tea/Coffee Break with Posters and Exhibitions

## Potable Water Reuse

Chair: Melissa Meeker, The Water Tower, USA

- 15:40 **A Focus on Pathogen Reduction and Innovations in System Monitoring in Membrane Bioreactors**  
S. Katz<sup>1</sup>; K. Peach<sup>1</sup>; P. Côté<sup>2</sup>; <sup>1</sup>SUEZ Water Technologies and Solutions, Canada; <sup>2</sup>COTE Membrane Separation Ltd., Canada
- 16:00 **Validating Pathogen Removal in Ozone-Biofiltration Advanced Treatment Trains**  
S. Hogard<sup>1</sup>; R. Pearce<sup>1</sup>; R. Gonzalez<sup>1</sup>; C. Bott<sup>1</sup>; <sup>1</sup>Virginia Tech, USA
- 16:20 **Reducing Life-cycle Cost of Groundwater Recharge and Drinking Water Augmentation**  
V. Sundaram<sup>1</sup>; G. Salazar-Benites<sup>2</sup>; <sup>1</sup>AECOM, USA; <sup>2</sup>Hampton Roads Sanitation District SWIFT Research Center, USA
- 16:40 **Contaminants of Emerging Concern Removal in Windhoek's New Goreangab Water Reclamation Plant**  
T. Honer<sup>1</sup>; B. Ndaitwah<sup>1</sup>; Y. Poussade<sup>2</sup>; J. Lahnsteiner<sup>3</sup>; <sup>1</sup>WINGOC, Namibia; <sup>2</sup>Veolia Water, France; <sup>3</sup>VA TECH WABAG, Austria
- 17:00 2025 IWA Reuse Conference - Candidate Presentation

## Innovative Technologies and Applications

Chair: Cristoph Schwaller, Technical University of Munich, Germany

- 14:00 **Keynote 3**  
**Electrocatalytic Membrane Filtration for Removal of Perfluoroalkyl Substances**  
Kwang-Ho Choo, Kyongpook National University, Daegu, Korea
- 14:30 **Removal of Organic and Inorganic Compounds in a Synthetic Textile Effluent by Electrochemical Technology Using a Graphene-coated Electrode**  
O. Garcia-Rodriguez<sup>1</sup>; X. Y. Liao; J. Tan, O. Lefebvre; <sup>1</sup>National University of Singapore
- 14:50 **Anaerobic Electrochemical Fluidized Membrane Bioreactor for Simultaneous Recovery of Reclaimed Water and Energy from Domestic Wastewater**  
K. P. Katuri<sup>1</sup>; H. Anandarao<sup>1</sup>; Y. Singh<sup>1</sup>; P. E. Saikaly<sup>1</sup>; <sup>1</sup>Biological and Environmental Science and Engineering Division, Water Desalination and Reuse Center, King Abdullah University of Science and Technology, KSA
- 15:10 Tea/Coffee Break with Posters and Exhibitions

<b>Innovative Technologies and Applications</b>	
Chair: Uwe Hübner, Technical University of Munich, Germany	
15:40	<b>Minimal Backwashing Impacts Breakthrough of Granular Activated Carbon Filters in Advanced Waste Water Treatment</b> B.M. Aumeier <sup>1</sup> ; P. Jans <sup>1</sup> ; D. Hillebrandt <sup>2</sup> ; E. von Lieres <sup>3</sup> ; T. Wintgens <sup>1</sup> ; <sup>1</sup> RWTH Aachen University, Institute of Environmental Engineering; <sup>2</sup> Niersverband, Department Wastewater; <sup>3</sup> Forschungszentrum Jülich, Institute of Bio- and Geosciences
16:00	<b>Biological Oxygen-dosed Activated Carbon (BODAC) Filters in the Ultrapure Water Production Process</b> A. Larasati <sup>1</sup> ; S. Pinela <sup>1,2</sup> ; O. Bernadet <sup>1,3</sup> ; R. Meulepas <sup>1</sup> ; M. C. Gagliano <sup>1</sup> ; <sup>1</sup> Wetsus, European centre of excellence for sustainable water technology; <sup>2</sup> Environmental Technology, Wageningen University & Research; <sup>3</sup> Engineering and Technology Institute Groningen, University of Groningen, The Netherlands
16:20	<b>Persistence of SARS-CoV-2 in Wastewater - Implications for Water Reuse</b> S. Sherchan <sup>1</sup> ; <sup>1</sup> Morgan State University, USA
16:40	To be decided
17:00	2025 IWA Reuse Conference - Candidate Presentation

## Tuesday – Morning

<b>Plenary 2</b>	
09:00	<b>Potable Reuse in California</b> Shane Robert Trussell, Trussell Technologies, San Diego, USA Chair: Jörg Drewes, Technical University of Munich, Germany
<b>Water Reuse in Developing Countries</b>	
Chair: Akiça Bahri, National Agricultural Institute of Tunisia, Tunis, Tunisia	
09:30	<b>Waste Stabilization Ponds For Water Reuse: First Systematic Evaluation Of Nine Urban Communities In Namibia</b> J. Sinn <sup>1,2</sup> ; S. Agrawal <sup>2</sup> ; L. Orschler <sup>2</sup> ; S. Lackner <sup>2</sup> ; <sup>1</sup> KfW Development Bank Frankfurt; <sup>2</sup> Technical University of Darmstadt, Department of Civil and Environmental Engineering Sciences, Germany
09:50	<b>Water Reclamation in Maputo, Mozambique - The Case of Carwash Industry</b> N. Jehan Gulamussen <sup>1</sup> ; <sup>1</sup> Eduardo Mondlane University, Mozambique
10:10	<b>The Challenges of Water Reuse in an Algerian Oasis Pioneer Front</b> S. Bekaddour <sup>1</sup> ; <sup>1</sup> National Higher School of Agronomy ENSA ex INA, Algeria
10:30	



## Tea/Coffee Break with Posters and Exhibitions

### Integrating Water Reuse in Existing Systems

Chair: N. N.

11:00 **Innovative Concept for Water Reclamation and Reuse for Agricultural and Urban Landscape Irrigation Purposes in Northern Franconia, Germany**

C. Schwaller<sup>1</sup>; J. E. Drewes<sup>1</sup>; <sup>1</sup>Chair of Urban Water Systems Engineering, Technical University of Munich, Germany

11:20 **Functionality and Effect of Filter Module for a Recycling Shower System**

T. Pérez Guillemette<sup>1</sup>; <sup>1</sup>DTU Environment, Denmark

11:40 **Closing The Loop - A Conceptual Approach for Water Reuse as an Alternative Water Resource In Germany**

J. Bräcker<sup>1</sup>; <sup>1</sup>University of Duisburg-Essen, Germany

12:00 **The Bacterial Community In Water Through A Pilot Scale Wastewater Treatment Facility Consisting Of Direct Membrane Filtration And Granular Activated Carbon**

M. Takman<sup>1</sup>; C. Paul<sup>2</sup>; S. Gidstedt<sup>1</sup>; M. Cimbritz<sup>1</sup>; Å. Davidsson<sup>1</sup>; <sup>1</sup>Department of Chemical engineering, Lund University, Sweden; <sup>1</sup>Department of Building and Environmental Technology and Department of Chemistry, Lund University, Sweden

12:20

## Lunch Break with Posters and Exhibitions

### Plenary 2

9:00 **Potable Reuse in California**

Shane Robert Trussell, Trussell Technologies, San Diego, USA  
Chair: Jörg Drewes, Technical University of Munich, Germany

### Agricultural Reuse

Chair: Stevo Lavrnica, <sup>1</sup>Department of Agricultural and Food Sciences, University of Bologna, Italy

09:30 **Agricultural Water Reuse in Brandenburg, Germany: Potentials for Point-of-use Reuse Concepts and Extensive Risk Assessment for Fate of Organic Micro-pollutants**

D. Dittmann<sup>1</sup>; M. Thalmann<sup>2</sup>; A. Seelig<sup>3</sup>; T. Wilkes<sup>1,4</sup>; V. Junghans<sup>5</sup>; S. Klitzke<sup>1</sup>; A. Peters<sup>2</sup>; J. Haberkamp<sup>4</sup>; T. Reemtsma<sup>3</sup>; A. S. Ruhl<sup>1,6</sup>; <sup>1</sup>German Environment Agency; <sup>2</sup>Technische Universität Braunschweig; <sup>3</sup>Helmholtz Centre for Environmental Research – UFZ; <sup>4</sup>Münster University of Applied Sciences, IWARU; <sup>5</sup>Humboldt-Universität zu Berlin; <sup>6</sup>Technische Universität Berlin, Germany

**Effect of Irrigation With Treated Domestic Waste Water and Fertilization Scheduling on Vegetative Growth and Yield of Guava**  
P. Sankapal<sup>1</sup>; S. Kolekar<sup>1,2</sup>; R. Borgaonkar<sup>1,3</sup>; M. Kshirsagar<sup>1</sup>; G. Pophali<sup>4</sup>; R. Bresciani<sup>5</sup>; F. Masi<sup>5</sup>; A. Rizzo<sup>5</sup>; S. Patil<sup>6</sup>; U. Kadam<sup>6</sup>; D. Panse<sup>3</sup>; K. Khare<sup>1</sup>; <sup>1</sup>Symbiosis International University, Pune; <sup>2</sup>Indian Institute of Technology, Mumbai; <sup>3</sup>Ecosan Services Foundation; <sup>4</sup>CSIR-National Environmental Engineering Research Institute, Nagpur; <sup>5</sup>IRIDRA S.r.l.; <sup>6</sup>Department of Irrigation and Drainage, Dr Babasaheb Sawant Kokan Krishi Vidyapeeth, Dapoli

**Reclaimed Wastewater Reuse in Viticulture: Social and Physical Singularities of Water**  
A. L. Collard<sup>1</sup>; P. Garin<sup>1</sup>; N. Ait-Mouheb<sup>1</sup>; <sup>1</sup>INRAE, UMR G-EAU, University of Montpellier, France

10:30 **Tea/Coffee Break with Posters and Exhibitions**

**Agricultural Reuse**  
Chair: Heather N. Bischel, University of California, Davis, USA

**Decentralized Wastewater Treatment with a Small-scale Membrane Bioreactor for Agricultural Water Reuse**  
11:00 J. Haberkamp<sup>1</sup>; C. Tievesch<sup>1</sup>; M. Roß<sup>2</sup>; R. Eschrich<sup>3</sup>; E. Sandyk<sup>3</sup>; D. Dittmann<sup>3</sup>; A. Fischer<sup>4</sup>; M. Werner<sup>4</sup>; A. S. Ruhl<sup>2</sup>; <sup>1</sup>Münster University of Applied Sciences, IWARU; <sup>2</sup>Technische Universität Berlin; <sup>3</sup>German Environment Agency; <sup>4</sup>Mann & Hummel Water & Fluid Solutions GmbH, Germany

**Soil Microbial Community and Pathogens Variation during Lettuces Drip Irrigation by Raw And Reclaimed Wastewaters**  
11:20 V. Moulia<sup>1,2,3</sup>; N. Ait-Mouheb<sup>1</sup>; G. Lesage<sup>2</sup>; J. Hamelin<sup>3</sup>; N. Wéry<sup>3</sup>; M. Heran<sup>2</sup>; <sup>1</sup>INRAE, UMR G-EAU, University of Montpellier; <sup>2</sup>IEM, University of Montpellier; <sup>3</sup>IEM, University of Montpellier, France

**Irrigation of Agroforestry System with Reclaimed Water from Full-scale UASB-CW System Treating Domestic Wastewater**  
11:40 T. Seintos<sup>1</sup>; A. Koukoura<sup>2</sup>; E. Statoris<sup>1</sup>; C. Noutsopoulos<sup>1</sup>; D. Mamais<sup>1</sup>; E. Masi<sup>3</sup>; A. Stasinakis<sup>2</sup>; S. Malamis<sup>1</sup>; <sup>1</sup>National Technical University of Athens, School of Civil Engineering; <sup>2</sup>Water and Air Quality Laboratory, Department of Environment, University of the Aegean; <sup>3</sup>Iridra Srl

**RichWater® SBR as a Competitive Option for Wastewater Treatment and for the Use of Reclaimed Water In Agriculture**  
12:00 A. Caballero<sup>1,2</sup>; A. Lorenzo<sup>1,3</sup>; P. Zapata<sup>1</sup>; <sup>1</sup>BIOAZUL S.L.; <sup>2</sup>Department of Biochemistry and Molecular Biology, University of Sevilla; <sup>3</sup>Department of Agricultural Economics, Finance and Accounting, University of Córdoba, Spain

12:20 **Lunch Break with Posters and Exhibitions**

**Plenary 2**  
9:00 **Potable Reuse in California**  
Shane Robert Trussell, Trussell Technologies, San Diego, USA  
Chair: Jörg Drewes, Technical University Munich, Germany

## Antimicrobial Resistance

Chairs: Nobert Kreuzinger, tbc, Vienna University of Technology, Austria

09:30 **Sequential Managed Aquifer Recharge as a Multi-objective Treatment Process to Remove Pathogens and Trace Organic Chemicals in Potable Reuse**  
U. Hübner<sup>1</sup>; J. Ho<sup>2</sup>; S. Karakurt-Fischer<sup>1</sup>; J. Müller<sup>1</sup>; A. Tiehm<sup>2</sup>; J. E. Drewes<sup>1</sup>; <sup>1</sup>Technical University of Munich, Chair of Urban Water Systems Engineering; <sup>2</sup>DVGW-Technologiezentrum Wasser (TZW), Department of Microbiology and Molecular Biology, Germany

09:50 **Following Antimicrobial Resistance Through a Multi-Barrier Treatment Facility for Direct Potable Reuse**  
L. Wallmann<sup>1</sup>; J. Krampe<sup>1</sup>; J. Lahnsteiner<sup>2</sup>; E. Radu<sup>1</sup>; P. van Rensburg<sup>3</sup>; K. Slipko<sup>1</sup>; N. Kreuzinger<sup>1</sup>; <sup>1</sup>Technische Universität Wien, Institute for Water Quality and Resources Management, Austria; <sup>2</sup>VA TECH WABAG, Austria; <sup>3</sup>City of Windhoek, Namibia

10:10 **Removal Efficiency Database to Support Decisions for Water Reuse in the Context of the Spread of Antibiotic Resistance in the Environment**  
T. U Berendonk<sup>1</sup>; A. Chandrasekar<sup>1</sup>; E. Cytryn<sup>2</sup>; D. Kneis<sup>1</sup>; <sup>1</sup>Institute of Hydrobiology, Technische Universität Dresden; <sup>2</sup>Institute of Soil, Water and Environmental Sciences, Volcani Institute, Agricultural Research Organization, Germany

10:30 **Tea/Coffee Break with Posters and Exhibitions**

## Concentrate and Residual Management/ZLD

Chair: Paul Schausberger, UNIHA Wassertechnologie GmbH, Linz, Austria

11:00 **Advanced Water Reclamation Process to Reuse High Salinity Wastewater for Irrigation Purposes**  
M. Pastur<sup>1</sup>; E. Mena<sup>2</sup>; B. Lefevre<sup>3</sup>; J. Cortina<sup>4</sup>; J. López<sup>4</sup>; C. Castro-Barros<sup>1</sup>; J. Tobella<sup>1</sup>; A. Romero<sup>5</sup>; <sup>1</sup>Cetaqua, Carretera d'Esplugues; <sup>2</sup>Empresa Municipal de Aguas y Saneamiento de Murcia; <sup>3</sup>AQUATEC; <sup>4</sup>Chemical Engineering Department, Multiscale Science and Engineering Research Center, Barcelona TECH UPC; <sup>5</sup>Cetaqua, Water Technology Center, Spain

11:20 **Cost Optimisation by Using Ultra High-pressure Reverse Osmosis Membranes in ZLD Plant**  
M. Vasudevan<sup>1</sup>; R. Franks<sup>2</sup>; Y. Tomi<sup>3</sup>; R. Yeleswarapu<sup>1</sup>; <sup>1</sup>India Branch, Hydranautics Inc.; <sup>2</sup>Hydranautics Inc.; <sup>3</sup>Membrane Division, Nitto Denko Corporation

11:40 **Successful Implementation of Water Reuse and Zero Liquid Discharge Supporting Industrial Development in Water Scarce Areas**  
Y. Poussade<sup>1</sup>; A. Brahim<sup>2</sup>; T. Bensaid<sup>2</sup>; <sup>1</sup>Veolia France; <sup>2</sup>Veolia Industries Maroc

**Seeded Membrane Distillation Crystallization for Hypersaline Brine Treatment**  
12:00 S. Flatscher<sup>1</sup>; M. Rezaei<sup>2</sup>; F. Hell<sup>3</sup>; M. W. Hlawitschka<sup>1</sup>; J. Lahnsteiner<sup>3</sup>; <sup>1</sup>Institute of Process Engineering, Johannes Kepler University Linz; <sup>2</sup>GIG Karasek GmbH; <sup>3</sup>VA TECH WABAG, Austria

12:20 **Lunch Break with Posters and Exhibitions**

## Tuesday – Afternoon

**Regulation and Governance**  
Chair: Pierre van Rensburg, City of Windhoek, Namibia

**Keynote 4**  
14:00 **South African Water Reuse Programme**  
Johann Lubbe, Southern African Development Bank, South Africa

14:30 **Multi-agency Water Reuse Programs: Lessons for Successful Collaboration**  
E. Rosenblum<sup>1</sup>; <sup>1</sup>Enviroinspectives, USA

14:50 **Developing DPR Regulations in California: Findings from State Research Efforts**  
B. Pecson<sup>1</sup>; A. Olivieri<sup>2</sup>; A. Kaufmann<sup>1</sup>; <sup>1</sup>Trussell Technologies; <sup>2</sup>EOA, Inc., USA

15:10 **Tea/Coffee Break with Posters and Exhibitions**

**Regulation and Governance**  
Chair: Eric Rosenblum, Water Resource Consultant, USA

15:40 **Perceived Drivers and Barriers in the Governance of Wastewater Treatment and Reuse in India: Insights from the EU-India Pavitra Ganga Project**  
G. Cuadrado-Quesada<sup>1</sup>; L. Breitenmoser<sup>2</sup>; Mr. Anshuman; N. Bassi; N. B. Dkhar; S. Kumar; M. Phukan; A. Naga Babu; A. Kierstein; H. De Schamphelaere; P. Campling; C. M. Hooijmans<sup>1</sup>; <sup>1</sup>IHE Delft, Institute for Water Education; <sup>2</sup>Institute for Ecopreneurship, School of Life Sciences, University of Applied Sciences and Arts Northwestern Switzerland

16:00 **Wastewater Reuse in Food and Pandemics**  
P. W. M. H. Smeets<sup>1</sup>; R.P. Bartholomeus<sup>1,2</sup>; N. Koeman<sup>1</sup>; A. Hockin; <sup>1</sup>KWR Water Research Institute; <sup>2</sup>Soil Physics and Land Management Group, Wageningen University, The Netherlands

16:20 **A Communication Strategy for Water Reuse in South Africa**  
J. C. Slabbert<sup>1</sup>; N. Kalebaila<sup>2</sup>; <sup>1</sup>BHI32; <sup>2</sup>Water Research Commission, South Africa

16:40 **Stormwater Management with Source and Regional Control Measures**  
T. Tanyimboh<sup>1</sup>; <sup>1</sup>University of the Witwatersrand, Johannesburg, South Africa

	<b>Plenary 3</b>
17:00	<b>The New EU Regulation on Minimum Requirements for Water Reuse and It's Implementation</b> Jörg Drewes, Technical University of Munich, Germany Chair: Stuart Khan, University of New South Wales, Sydney, Australia
17:30	IWA Water Reuse Specialist Group Meeting
19:00	Conference Dinner

**Agricultural Reuse**  
 Chair: Jörg Drewes, Technical University of Munich, Germany

	<b>Keynote 5</b>
14:00	<b>Resource Recovery from Septage for Agriculture</b> Srikant Mutnuri, BITS Pilani, Goa, India

	<b>Domestic Wastewater Treatment Through a Combination of UASB and Constructed Wetland for Agricultural Reuse</b>
14:30	S. Lavrnić <sup>1</sup> ; A. Foglia <sup>2</sup> ; G. Mancuso <sup>1</sup> ; E. Marinelli <sup>2</sup> ; F. Fatone <sup>2</sup> ; A. Toscano <sup>1</sup> ; <sup>1</sup> Department of Agricultural and Food Sciences, Alma Mater Studiorum - University of Bologna; <sup>2</sup> Department of Science and Engineering of Materials, Environment and Urban Planning-SIMAU, Faculty of Engineering, Marche Polytechnic University, Ancona, Italy

	<b>Advanced Water Reclamation Process to Reuse High Salinity Wastewater for Irrigation</b>
14:50	M. Pastur <sup>1</sup> ; E. Mena <sup>2</sup> ; B.Lefevre <sup>3</sup> ; J. Cortina <sup>4</sup> ; J. López <sup>4</sup> ; C. Castro-Barros <sup>1</sup> ; J. Tobella <sup>1</sup> ; A. Romero <sup>1</sup> ; <sup>1</sup> Cetaqua, Water Technology Center, Spain; <sup>2</sup> Empresa Municipal de Aguas y Saneamiento de Murcia; <sup>3</sup> AQUATEC, Proyectos para el sector del agua; <sup>4</sup> Chemical Engineering Department, Multiscale Science and Engineering Research Center, Barcelona

15:10 Tea/Coffee Break with Posters and Exhibitions

**Urban Water Reuse**  
 Chair: S. Mohan, IIT Madras, India

	<b>Innovative Urban Water Reuse Project for 400 Households and Local Industry, Including Nutrient and Energy Recovery (Run4Life And NEREUS)</b>
15:40	B. de Gusseme <sup>1,2</sup> ; D. Seutjens <sup>3</sup> ; L. Demolder <sup>3</sup> ; B. Buysschaert <sup>1,2</sup> ; W. Jacobs <sup>2</sup> ; P. de Smet <sup>3</sup> ; <sup>1</sup> Center for Microbial Ecology and Technology (CMET), Ghent University; <sup>2</sup> FARYS TMVW; <sup>3</sup> Clean Energy Innovative Projects cvba (CEIP)

16:00	<p><b>Decentralized Wastewater Treatment Using Combined Aerobic Granular Sludge and Gravity-Driven Membrane System</b>  M. Alia<sup>1,2</sup>; <u>Y. Singha</u><sup>1</sup>; M. Pronk<sup>3</sup>; M. van Loosdrecht<sup>3</sup>; Pascal E. Saikaly<sup>1</sup>; <sup>1</sup>Biological and Environmental Science and Engineering Division, Water Desalination and Reuse Center, King Abdullah University of Science and Technology; <sup>2</sup>Department of Civil, Structural &amp; Environmental Engineering, Trinity College Dublin, The University of Dublin; <sup>3</sup>Department of Biotechnology, Delft University of Technology</p>
16:20	<p><b>Water Reclamation and Reuse in Circular Cities</b>  <u>G. Langergraber</u><sup>1</sup>; N. Atanasova<sup>2</sup>; <sup>1</sup>University of Natural Resources and Life Sciences Vienna (BOKU); <sup>2</sup>Faculty of Civil and Geodetic Engineering, University of Ljubljana</p>
16:40	<p><b>Vital Urban Filter: A Novel Solution to Remove Micropollutants from Urban Streams for Healthy Reuse</b>  <u>E. Sithamparanathan</u><sup>1</sup>; K. Kujawa-Roeleveld<sup>1</sup>; N. Sutton<sup>1</sup>; H. Rijnaarts<sup>1</sup>; <sup>1</sup>Department of Environmental Technology, Wageningen University &amp; Research, The Netherlands</p>
17:00	<p style="text-align: center;"><b>Plenary 3</b></p> <p><b>The New EU Regulation on Minimum Requirements for Water Reuse and It's Implementation</b>  Jörg Drewes, Technical University Munich, Germany  Chair: Stuart Khan, University of New South Wales, Sydney, Australia</p>
17:30	IWA Water Reuse Specialist Group Meeting
19:00	Conference Dinner

	<p><b>Concentrate and Residual Management/ZLD</b>  Chair: Christina Jungfer, DECHEMA, Frankfurt, Germany</p>
14:00	<p style="text-align: center;"><b>Keynote 6</b></p> <p><b>N.N.</b></p>
14:30	<p><b>Improve The ZLD Plant Performance and Optimise the Cost by Innovative Membrane Technologies</b>  M. Vasudevan<sup>1</sup>; R. Franks<sup>2</sup>; Y. Tomi<sup>3</sup>; <u>R. Yeleswarapu</u><sup>1</sup>; <sup>1</sup>India Branch, Hydranautics Inc.; <sup>2</sup>Hydranautics Inc.; <sup>3</sup>Membrane Division, Nitto Denko Corporation, Japan</p>
14:50	<p><b>Evaluation of a Low-fouling High-pressure RO For a ZLD System Compared with a Conventional SWRO</b>  <u>Y. Tomi</u><sup>1</sup>; <sup>1</sup>Membrane Division, Nitto Denko Corporation, Japan</p>
15:10	Tea/Coffee Break with Posters and Exhibitions

	<p><b>Concentrate and Residual Management/ZLD</b>  Chair: Yvan Poussade, Veolia Water, Aubervilliers, France</p>
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15:40	<b>Innovative Brine Concentration Membranes To Lower The Cost of MLD/ZLD Treatment</b> M. M. Kulkarni <sup>1</sup> ; <sup>1</sup> DuPont, India
16:00	<b>Novel Antiscalant Deactivation In Mining Wastewater Effluent For Minimized zero liquid ZLD</b> B.C.Y. Lee <sup>1</sup> ; E.C.H. Tan <sup>1</sup> ; K. Hideyuki <sup>1</sup> ; S. Pietsch <sup>2</sup> ; <sup>1</sup> Kurita R&D Asia Pte Ltd; <sup>2</sup> Avista Technologies, Inc.
16:20	<b>Future-oriented Technologies and Concepts to Increase Water Availability by Water Reuse And Desalination</b> T. Track <sup>1</sup> ; <u>C. Jungfer</u> <sup>1</sup> ; <sup>1</sup> DECHEMA e.V., Water Technologies, Germany
16:40	<b>Jindal Steel and Power Coal Gasification Water Reclamation Plant, Angul – India</b> <u>V. Bharti</u> <sup>1</sup> ; <sup>1</sup> VA TECH WABAG, Pune, India
<b>Plenary 3</b>	
17:00	<b>The New EU Regulation on Minimum Requirements for Water Reuse and It's Implementation</b> Jörg Drewes, Technical University Munich, Germany Chair: Stuart Khan, University of New South Wales, Sydney, Australia
17:30	IWA Water Reuse Specialist Group Meeting
19:00	Conference Dinner

## Wednesday – Morning

<b>Plenary 4</b>	
09:00	<b>Asian Development Bank's initiatives to support water reclamation and reuse in South Asia</b> Norio Saito, Asian Development Bank, Manila, Philippines Chair: Shane Snyder, Nanyang Environment and Water Research Institute, Singapore
<b>Water Energy Food Nexus</b> Chair: Kwang-Ho Choo, Kyongpook National University, Daegu, Korea	
09:30	<b>Water Energy Nutrient Nexus - Sustainable Development of Rural Waste Water Treatment</b> <u>K. M. Kinuya</u> <sup>1</sup> ; <sup>1</sup> Nairobi City Water & Sewerage Company LTD, Kenya
09:50	<b>Estimating Potential Of Greenhouse Gas Emissions Reduction Using Water-Energy-Food Nexus Approach In Leh Town, Ladakh, India</b> <u>D. Keilmann-Gondalekar</u> <sup>1</sup> ; M. Lahmouri <sup>1</sup> ; J. E. Drewes <sup>1</sup> ; <sup>1</sup> Technical University of Munich, Germany
10:10	<b>Production Of High Value Bioresources From Treatment Wetland Biomass; "closing The Loop"</b> C. A. Arias <sup>1,2</sup> ; M. A. Rodriguez-Dominguez <sup>1,2</sup> ; <u>A. C. Acosta</u> <sup>1,2,3,4</sup> ; B. E. Bonefeld <sup>3</sup> ; P. Biller <sup>3</sup> ; M. Hanel <sup>1,2</sup> ; H. Brix <sup>1,2</sup> ; <sup>1</sup> Department of Biology, Section of Aquatic Biology, Aarhus

University, <sup>2</sup> Centre for Water Technology WATEC Aarhus University, <sup>3</sup>Centre for Circular Bioeconomy, Department of Bioengineering, Aarhus University, <sup>4</sup>.Technology Transfer Center (TTZ) Bremerhaven

10:30

### Tea/Coffee Break with Posters and Exhibitions

#### Risk Management

Chair: Stuart Khan, University of New South Wales, Sydney, Australia

11:00

#### Operational Monitoring of Enteric Viruses for DPR Compliance

S. Pooja<sup>1</sup>; M. Adelman<sup>1</sup>; L. Furatian<sup>1</sup>; J. Jacangelo<sup>1</sup>; <sup>1</sup>Stantec, USA

11:20

#### Evaluating Post-treatment Options after Ozonation Of Secondary Effluent

U. Mieke<sup>1</sup>; M. Stapf<sup>1</sup>; F. Knoche<sup>1</sup>; M. Lukas<sup>2</sup>; A. Bogusz<sup>3</sup>; I. Putna-Nimane<sup>4</sup>; S. B. Larsen<sup>5</sup>; R. Sehlén<sup>6</sup>; J. Nilsson<sup>6</sup>; S. Kharel<sup>7</sup>; K. Bester<sup>7</sup>; <sup>1</sup>Kompetenzzentrum Wasser Berlin gGmbH; <sup>2</sup>Umweltbundesamt, Berlin, Germany; <sup>3</sup>Institute of Environmental Protection, Warszawa, Poland; <sup>4</sup>Latvian Institute of Aquatic Ecology, Riga, Latvia; <sup>5</sup>Kalundborg Forsyning, Kalundborg, Denmark; <sup>6</sup>Tekniska Verken, Linköping, Sweden; <sup>7</sup>Aarhus University, Roskilde, Denmark

11:40

#### Refining Log-removal Estimates for Water Reuse QMRA

P.W.M.H. Smeets<sup>1</sup>; U. Mieke<sup>2</sup>; G.J. Medema<sup>1,3</sup>; <sup>1</sup>KWR Water Research Institute; <sup>2</sup>Kompetenzzentrum Wasser Berlin (KWB); <sup>3</sup>Department of Water Management; <sup>3</sup>Faculty of Civil Engineering & Geosciences, Delft University of Technology

12:00

#### Applying WHO's Multiple Barriers Approach for a Participatory and Integrated Risk Management in the Agricultural Reuse Project of Clermont-Ferrand (France)

A. Thomas<sup>1</sup>; R. Declercq<sup>2</sup>; E. Hassenforder<sup>3</sup>; G. Abrami<sup>1</sup>; P. Molle<sup>1</sup>; R. Lombard-Latune<sup>1</sup>; <sup>1</sup>INRAE; <sup>2</sup>ECOFILAE<sup>2</sup>; <sup>3</sup>CIRAD

12:40

### Lunch Break with Posters and Exhibitions

#### Plenary 4

09:00

#### Asian Development Bank's initiatives to support water reclamation and reuse in South Asia

Norio Saito, Asian Development Bank, Manila, Philippines

Chair: Shane Snyder, Nanyang Environment and Water Research Institute, Singapore

#### Managing Water Reuse in Fast-growing Megacities

Chair: Shane Robert Trussell, Trussell Technologies, San Diego, USA

9:30

#### A Proposed Road Map to Exploit Wastewater Treatment, Water Reuse and Resource Recovery Opportunities in Kanpur, India

A. Fenu<sup>1</sup>; H. De Schampelaere<sup>1</sup>; P. Bose<sup>2</sup>; S. Van Ermen<sup>3</sup>; P. Campling<sup>3</sup>; <sup>1</sup>Aquafin; <sup>2</sup>IIT Kanpur; <sup>3</sup>VITO

9:50

#### The North Georgia (US) Journey to Indirect Reuse: Legal Challenges, a 100 Year Drought, and an Oyster

M. Meeker<sup>1</sup>; <sup>1</sup>The Water Tower Institute, USA



10:10 **Sustainable Reuse of Treated Wastewater and Future Strategy Plan in Kuwait**  
S. M. AlMuzaini<sup>1</sup>; <sup>1</sup>Kuwait Institute for Scientific Research, Kuwait

10:30 **Tea/Coffee Break with Posters and Exhibitions**

### **Industrial Reuse**

Chair: Olivier Lefebvre, National University of Singapore, Singapore

11:00 **Wastewater Treatment and Recycle - An Overview of the Effluent Treatment/Water Recovery Plant for a Petrochemical Plant, India**  
V. Bharti<sup>1</sup>; Ab. Dwivedi<sup>1</sup>; Y. Prasad<sup>1</sup>; <sup>1</sup>VA TECH WABAG, India

11:20 **Treatment of Refinery Effluent Using a Membrane Separation for the Recycling and Reuse Of Water**  
P. S. Patila<sup>1</sup>; N. V. Thombre<sup>2</sup>; Y. Prasad<sup>2</sup>; A. V. Patwardhan<sup>1</sup>; <sup>1</sup>Department of Chemical Engineering, ICT, Mumbai; <sup>2</sup>VA TECH WABAG, India

11:40 **Case Study on Reclamation and Reuse of Purified Terephthalic Acid Plant Effluent at a Petrochemical Complex**  
D. Bene Peter Abraham<sup>1</sup>; V. Bharti<sup>1</sup>; S. Ramalingam<sup>1</sup>; <sup>1</sup>VA TECH WABAG, India

12:00 **Tertiary Treatment Using Ultrafiltration in an Existing STP for Industrial Reuse**  
D. Ramkumar<sup>1</sup>; V. Jothiprakash<sup>1</sup>; <sup>1</sup>Department of Civil Engineering, Indian Institute of Technology Bombay, India

12:40 **Lunch Break with Posters and Exhibitions**

### **Plenary 4**

09:00 **Asian Development Bank's Initiatives to Support Water Reclamation and Reuse in South Asia**  
Norio Saito, Asian Development Bank, Manila, Philippines  
Chair: Shane Snyder, Nanyang Environment and Water Research Institute, Singapore

### **Smart and Digital Water Reuse**

Chair: N. N.

9:30 **Scale Up of Baffled Membrane Bioreactor(B-MBR) Based on an Integrated Hydrodynamic-Biokinetic Model**  
N. Tamura<sup>1</sup>; N. Thanh Phong<sup>1</sup>; L. Zhang<sup>1</sup>; M. Yang<sup>2</sup>; M. Daza-Gomez<sup>2</sup>; U. Rehman<sup>2</sup>; W. Audenaert<sup>2</sup>; K. Kimura<sup>3</sup>; <sup>1</sup>Maezawa Industries Inc.; <sup>1</sup>AM-Team; <sup>3</sup>Division of Environmental Engineering, Hokkaido University

9:50 **Evaluation of Real-time Excitation-Emission Matrix (EEM) Measurement for Hygiene Safety Monitoring for Greywater Reuse**  
Y. Hu<sup>1</sup>; C. Jacquin<sup>1</sup>; <sup>1</sup>Eawag, Switzerland

### **Contribution of Modeling and Control for Improving Nutrient Recycling via Reuse**

10:10 J. Harmand<sup>1</sup>, F. Aichouche<sup>2</sup>, F. Corona<sup>3</sup>, A. Haddon<sup>4</sup>, M. Mulas<sup>4</sup>, O.B.L. Neto<sup>4</sup>, A. Rapaport<sup>2</sup>, S. Roux<sup>2</sup>, E. Thorin<sup>5</sup>; <sup>1</sup>LBE, INRAE, Univ. of Montpellier, Narbonne; <sup>2</sup>MISTEA, INRAE, Univ. Montpellier, Institut Agro; <sup>3</sup>School of Chemical Engineering, Aalto University; <sup>4</sup>Postgraduate Programme in Teleinformatics Engineering, Federal University of Ceará; <sup>5</sup>Mälardalen University, School of Business, Society and Engineering, Future Energy Center

10:30

Tea/Coffee Break with Posters and Exhibitions

### **Smart and Digital Water Reuse**

Chair: N. N.

11:00

### **Escherichia Coli Sensor for Quality Control of Reused Water**

S. Gómez-Cuervo<sup>1</sup>; <sup>1</sup>Asociación de Investigación Metalúrgica del Noroeste

11:20

### **Sensor Setpoints for Small-Scale Water Reuse Systems that Ensure Compliance with Microbial Water Quality Targets**

E. Reynaert<sup>1</sup>; F. Gretener<sup>2</sup>; T. R. Julian<sup>1</sup>; E. Morgenroth<sup>1</sup>; <sup>1</sup>Eawag; <sup>1</sup>ETH Zürich, Switzerland

11:40

### **Harvesting the Value of Wastewater to Preserve Freshwater Supply Through Circular and Digital Water Use Innovations**

J. Poinapen<sup>1</sup>; S. Seshan<sup>1</sup>; C. J. Teo<sup>1</sup>; <sup>1</sup>KWR Water Research Institute, Nieuwegein, The Netherlands

12:00

### **Artificial Neural Networks As A Tool For Optimization And Risk Management In Water Reuse**

M. Mohr<sup>1</sup>; M. Beckett<sup>1</sup>; S. Scherle<sup>1</sup>; A. Nink<sup>2</sup>; M. Besier<sup>2</sup>; <sup>1</sup>Fraunhofer IGB; <sup>2</sup>aquatune GmbH, Germany

12:40

Lunch Break with Posters and Exhibitions

## Wednesday – Afternoon

### **Risk Management**

Chair: Jörg Drewes, Technical University Munich, Germany

14:00

### **Keynote 7**

### **Quantitative Chemical and Microbial Risk Assessment to Support Purified Recycled Water in Australia**

Stuart Khan, University of New South Wales, Sydney, Australia

14:30 **Risk Management Associated with Loading of Emerging Contaminants in Waterways**  
V. Choudhary<sup>1</sup>; L. Philip; <sup>1</sup>Environmental and Water Resources Engineering Division, Department of Civil Engineering, IIT-Madras, India

14:50 **Wastewater Safety Planning in Kanpur, Uttar Pradesh: Approach and Learnings from the EU-India Pavitra Ganga Project**  
L. Breitenmoser<sup>1</sup>; C. Furlong<sup>2</sup>, C. Hugi; I. Parihar; M. K. Maurya; P. Bose; Anshuman; P. Campling; C. M. Hooijmans; <sup>1</sup>Institute for Ecopreneurship, School of Life Sciences, University of Applied Sciences and Arts Northwestern Switzerland (FHNW); <sup>2</sup>IHE Delft, Institute for Water Education

15:10 **Tea/Coffee Break with Posters and Exhibitions**

15:40 **Plenary 5**  
**Deployment of Best Available Technologies into Underserved Communities: Opportunities and Challenges**  
Shane Snyder, Nanyang Environment and Water Research Institute, Singapore  
Chair: Josef Lahnsteiner, VA TECH WABAG, Austria

16:10 **Closing Ceremony**

16:40 **End of Conference**

**Industrial Reuse**  
Chair: Thomas Track, DECHEMA, Frankfurt, Germany

14:00 **Keynote 8**  
**Electrochemical advanced oxidation processes for industrial water reuse: overview, challenges and perspectives**  
Olivier Lefebvre, National University of Singapore, Singapore

14:30 **Recovery of Values Streams from Fermentation Wastewater by Electrodialysis and Electrodialysis with Bipolar Membranes**  
K. Knezevic<sup>1</sup>, J. Krampe, N. Kreuzinger; <sup>1</sup>Institute for Water Quality and Resource Management, TU Wien, Austria

14:50 **Reshape Water Use at Dow's Key Water Stressed Sites in Europe**  
G. M. Chapanova<sup>1</sup>; C. Groot<sup>2</sup>; N. Van Belzen<sup>2</sup>; C. Kaisera<sup>1</sup>; F. Guertin<sup>3</sup>; C. Huth<sup>2</sup>; T. Diekow<sup>1</sup>; A. De Las Heras García<sup>2</sup>; Senthil<sup>4</sup>; <sup>1</sup>Dow Olefinverbund GmbH; <sup>2</sup>Dow Benelux BV; <sup>3</sup>The Dow Chemical Company, United States of America; <sup>4</sup>Water SME

15:10 **Tea/Coffee Break with Posters and Exhibitions**

	<b>Plenary 5</b>
15:40	<b>Deployment of Best Available Technologies into Underserved Communities: Opportunities and Challenges</b> Shane Snyder, Nanyang Environment and Water Research Institute, Singapore Chair: Josef Lahnsteiner, VA TECH WABAG, Austria
16:10	<b>Closing Ceremony</b>
16:40	<b>End of Conference</b>

	<b>Workshop 5</b>
14:00	<b>Collaboration as the Key to Successful Water Reuse Projects (90 min)</b> Organized by: Eric Rosenblum, Envirospectives, USA Moderator: Shannon Spurlock, Pacific Institute, USA Speakers: Akiça Bahri, National Agricultural Institute of Tunisia, Tunis, Tunisia Ligy Philip, IIT Madras, India Pierre van Rensburg, City of Windhoek, Namibia

15:10 Tea/Coffee Break with Posters and Exhibitions

	<b>Plenary 5</b>
15:40	<b>Deployment of Best Available Technologies into Underserved Communities: Opportunities and Challenges</b> Shane Snyder, Nanyang Environment and Water Research Institute, Singapore Chair: Josef Lahnsteiner, VA TECH WABAG, Austria
16:10	<b>Closing Ceremony</b>
16:40	<b>End of Conference</b>

## Thursday

<b>Technical Tour 1</b> Koyambedu Industrial WRP, Chennai	<b>Technical Tour 2</b> Indirect Potable Reuse Pilot Plant, Chennai, tbc
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# Workshops at the 13<sup>th</sup> IWA International Conference on Water Reclamation and Reuse

There will be five workshops, four on Sunday, 15 January 2023 and one on Wednesday, 18 January 2023 which is integrated in Conference Stream 3 (*Solving Water Reuse Bottlenecks*).

## Workshops on Sunday 15 January, 2023

Track 1: *Desalination and Industrial Water Reuse* – two consecutive workshops:

- Workshop 1 - Desalination for Water Reuse
- Workshop 2 - Best practice and Novel Strategies for Industrial Water Reuse

Track 2: *EU-India Cooperation in Water Reuse* – two consecutive workshops:

- Workshop 3 - Novel and Innovative Solutions for Safe Water Reuse in India
- Workshop 4 - Minimizing Occupational Risks in Wastewater Treatment: the Role of Technology-based Wastewater Safety Planning

## Workshop on Wednesday, 18 January 2023

- Workshop 5 - Collaboration as the Key to Successful Water Reuse Projects

*The participation in all five workshops is covered by the conference registration fee.*

### **Workshop 1 - Desalination for Water Reuse**

15 January 2023, 10:30 – 12:00

Organizer: Paul Schausberger, UNIHA Wassertechnologie GmbH, Austria in cooperation with Nitto Denko Corporation, Japan and VA TECH WABAG Ltd., India

#### Brief Description

The focus of this workshop is on applications for water and resource recovery using desalination/concentration. The team will reflect and debate on available desalination/concentration technologies and knowledge/technology gaps to be filled.

### **Workshop 2 - Best practice and Novel Strategies for Industrial Water Reuse**

15 January 2023, 14:00 – 15:30

Organizer: Olivier Lefebvre, National University of Singapore

#### Brief Description

A report of the World Bank Group entitled “Quality Unknown: the Invisible Water Crisis” opposes the “pollutants of poverty” (fecal coliforms, suspended solids and high organic content) that plague the poor economies to the “pollutants of prosperity” (pharmaceuticals, plastics, etc.) that arise from industrial processes. Untreated wastewater can have catastrophic

impact and the global industrial water sector ranks second in terms of water consumption only surpassed by agriculture, with an estimated 25% of the global water demand. In this context, the Water Reuse Specialist Group proposes a timely workshop to review the state of the art of water reuse across different industries, the key issues and challenges and take a look into the future of industrial water reuse. The audience will hear from practitioners and academics on the best practice and outlook to minimize the environmental impact of industrial water consumption and of its discharge into the environment.

Learning Outcomes for participants

1. To provide an overview of the feasibility of water reuse across different industries
2. To discover the best practice drawn from decades of practical experience
3. To identify the bottlenecks, future challenges and possible solutions to further reduce the environmental impact of the industry

### **Workshop 3 - Novel and Innovative Solutions for Safe Water Reuse in India**

15 January 2023, 10:30 – 12:00

Organizer: Dr. Nadeem Khalil (Aligarh Muslim University, India) and Dr. Guenter Langergraber (BOKU University Vienna, Austria) on behalf of the H2020 project PAVITR (Dr. Khalil and Dr. Langergraber are the Scientific Coordinators of the Indian and European part of PAVITR, respectively).

Brief Description

The main objective of this workshop is to bring together cross-sectorial groups and individuals involving scientists, experts, engineers, academia, and industry working in the field of wetlands for environmental protection and pollution control. The team will share the experiences, express the concerns and exchange the gaps pertaining to the research on nature based solutions for water reuse in India.

### **Workshop 4 - Minimizing Occupational Risks in Wastewater Treatment: the Role of Technology-based Wastewater Safety Planning**

15 January 2023, 14:00 -17:00

Organizers: Claire Furlong, Tineke Hooijmans (IHE Delft Institute for Water Education), Lena Breitenmoser (FHNW University of Applied Sciences and Arts, Northwestern Switzerland) & Mr Anshuman (TERI The Energy and Resources Institute), Purnendu Bose (IIT Kanpur)

Brief Description

This workshop presents international occupational safety and health guidelines for wastewater treatment workers and introduces technology-based wastewater safety planning as an occupational risk management approach. The teams will describe the major health hazards related to wastewater handling and discuss the role of risk management approaches and about the challenges associated with developing and implementing occupational safety and health guidelines in the Indian context.

We target water practitioners, policy makers, training institutions, international and national agencies, technology developers and academia.

## **Workshop 5 - Collaboration as the Key to Successful Water Reuse Projects**

18 January 2023, 14:00 - 15:30

Organizer: Eric Rosenblum, Envirospectives, USA in cooperation with US EPA National Water Reuse Action Plan

### Speakers:

Shannon Spurlock, Pacific Institute (USA)

Prof. Ligy Phillip, IIT-Chennai (India)

Dr. Akiça Bhari, Department of Agriculture-ret. (Tunisia)

Pierre van Rensburg, City of Windhoek (Namibia)

### Brief Description

Collaboration is a skill that can be learned. Five elements of impacting successful collaboration for water reuse include governance, regulation, economics, management and leadership. To improve their skills, participants will analyse these factors and discussed their application to hypothetical situations.

In this interactive session, participants will:

1. learn about the principles of successful collaboration;
2. hear from water professionals in the US, India, and elsewhere about their experience implementing collaborative water reuse programs; and
3. work together in small groups to identify and address challenges to hypothetical water reuse programs based on real-world scenarios.