### Tuesday Room B4 d 1.10 | ASSET MANAGEMENT AND OPTIMISATION MODELLING 13:30 -15:00 **Technical Optimisation** Chairs: Zoran Kapelan, Netherlands and Amin Ebrahim Bakhshipour, Germa A Case for digital twins used for effective asset monitoring on deep aquifer boreholes, 13:30-13:50 Carike Anker, Stellenbosch University, South Africa Modeling of degradation pattern in cast iron water mains, Navid Arani, Fleming College 13:50-14:10 Innovative digital tools to assess impacts of land subsidence and subsurface properties 14:10-14:30 on water management, Neils Broge, Geopartner Inspections, Denmark Predicting sewer structural condition using machine learning algorithms, Lam Nguyen, 14:30-14:50 Norwegian University of Science and Technology, Norway --- POSTERS-Seven years of experience with asset management, digitalization, and long-term 14:50-14:55 investment planning, Benny Nielsen, Herning Vand, Denmark Cost optimization of water main condition assessment and asset management, Reza 14:55-15:00 Moslemi, Fleming College, Canada Tuesday Room C2 1.4 | DEVELOPING CONSENSUS AND GOOD PRACTICES 13:30 -15:00 Workshop FOR DIGITAL TWIN APPLICATIONS — A **Digital Twins** Chairs: Elena Torfs, Belgium and Borja Valverde-Pérez, Denmark The workshop brings together water professionals from different backgrounds (academics, utilities, etc.) and sectors (wastewater, urban drainage, drinking water, etc.) to build consensus on the state-of-the art, challenges, and good practises in the application of digital twins. Discussions will be built around real cases of successful digital twin projects in different water domains for design, control, and decision-making. Speakers: Elena Torfs, Ghent University (BE), Borja Valverde-Pérez, Technical University of Denmark (DK), Peter Mikkelsen, Technical University of Denmark (DK), Niels Nicolaï, Gigi Karmous-Edwards, Agnethe Nedergaard Pedersen, VCS Denmark (DK), Saba Daneshgar, Ghent University (BE), Andrew Smith, Anglian Water Services (UK), Peter Alexander Stentoft, Krüger (DK) & Bruce Johnson, Jacobs, (US) Tuesday Room B3 f 6.6 | STRATEGIC DIGITAL CONTROL OF WATER MANAGEMENT 13:30 -15:00 **Technical Digital control** Chairs: Mads Leth, Denmark and Elif Erdem, Turkey How digital transformation streamlines sewer infiltration-inflows management, Anna 13:30-13:50 Ohlin Saletti, Chalmers University of Technology, Sweden Towards Soil Aquifer Treatment (SAT) optimization: a SAT Basin dynamic simulation with 13:50-14:10 a machine learning prediction model for the infiltration rate, Roy Elkayam, Mekorot water company, Israel Comparing disposal strategies for arsenic-rich water treatment residuals using life cycle assessment, Case van Genuchten, Geologic Survey of Denmark and Greenland, Denmark Delivering Strategic water supply resilience in the UK - water recycling solutions for London, Christopher Kyne, Jacobs, United Kingdom --- POSTERS ----Level of water stress: the contribution by reductions in the water loss in Brazilian water supply systems, Marcelo Libânio, UFMG, Brazil Mapping pharmaceuticals in the environment using sales data and modelling — a risk 14:55-15:00 assessment tool, Kristina Buus Kjær, DHI, Denmark

### 4.5 | EXPLORING FRAMEWORK CONDITIONS FOR UTILITIES TO REDUCE GHG EMISSIONS

Workshop

Room B3 c

Tuesday 13:30 -15:00 **GHGs** 

Chairs: Jonathan Jene, Germany and Carlos Diaz, United Kingdom

The Paris Agreement requires all sectors to contribute to greenhouse gas (GHG) emissions reductions. Although the (urban) water sector is strongly vulnerable to the impacts of climate change (CC) and therefore a priority for adaptation, it also has to contribute to mitigation, as water and wastewater utilities (WWU) can generate a significant share of municipal GHG-emissions. Since 2013, the WaCCliM-project, jointly implemented by IWA and GIZ on behalf of the German Ministry for the Environment (BMU), has been working on the development and implementation of solutions for WWU

to become climate-smart and has accumulated strong expertise, especially concerning framework conditions for successful implementation. This session aims to showcase good practises for incentivizing GHG-measurement and mitigation action in the water sector and enable conditions for making actions visible at national and international climate policy and finance levels.

Speakers: Jonathan Jene, German Cooperation for Development Cooperation (DE), Carlos Diaz, IWA (UK), Friedrich Hetzel, DWA (DE), Salam Al-Momany, German Cooperation for Development Cooperation (JO), Diego Polania, CRA (CO), Pericles S Weber, Igua Saneamiento (BR), Sarah Bergado, Manila Water (PH) & Zoe Czempinski, Yarra Valley Water (AU)

> Tuesday Room B3 b 13:30 -15:00 **Technical Nature impacts**

4.4.4 | PLANNING IN RESPECT OF NATURE IMPACTS

Chairs: Konstantinos Pragkastis, Iceland and Patrick Waweru Mwangi, Kenva

From increased flood risks to more attractive cities - how Buenos Aires and Copenhagen Adapts to climate change by re-embracing their waterways, Mariano Kristoff, Ciudad Autónoma de Buenos Aires, Argentina

A decision-support tool for area estimation of nature-based solutions to meet the EQS, early in the planning process, Linnea Lundberg, Sustainable Waste and Water, City of Gothenburg, Sweden

Compensation for influences of climate changes and morphological changes on future storm surge levels in the Limfjord, Jørgen Nørgaard, Ramboll, Denmark

Influence on nature and biodiversity in denmark from climate induced sea level rise, Torben Ebbensgaard, COWI A/S, Denmark

---- P O S T E R S ----

Quantifying the services provided by vertical, evaporation-based blue green infrastructure, Mark Randall, University of Copenhagen, Denmark

14:50-14:55

13:50-14:10

### 6.2 | GROUNDWATER MANAGEMENT — KEY'S TO SDGS

Chairs: Stephen Foster, United Kingdom and Julia Gathu, Kenya

Water sector governance & operations — the Danish model, Peter Mikkelsen, Technical University of Denmark, Denmark

Towards water security and climate resilience in Kenya Through effective water resources management and planning, Mekuria Beyene, DHI, South Africa

Building sustainable water services: subsidiarity, multi-level governance and resilience approach, Jarmo Hukka, Tampere University, Finland

Lowering of groundwater levels and their effect on water, sanitation and hygiene services in the savelugu district, northern region of Ghana, Albert Acheampong, KNUST (RWESCK) (World Vision Ghana), Ghana

- POSTERS -

An investigation of unexplained exceedances of DOC and fluoride from landfill at Kvio in Norway, Lelum Manamperuma, Aquateam COWI AS, Norway

The web-based OMEGA Platform for supporting reservoir management in Portugal, Ana Oliveira, Instituto Superior Técnico, Portugal

Tuesday

13:30 -15:00 **Groundwater** 

14:55-15:00

Room B3 e

**Technical** 

## UTILITY LEADERS FORUM II — ACCELERATING ADOPTION OF INNOVATION

Room A2 Forum Tuesday 13:30 -15:00 Innovation

Chair: Jonathan Clement, IWA LET Chair

Igniting talks:

Claus Homann, CSO/COO, Aarhus Water, Denmark, Chris Rockey, Director South West Water, UK, Bernard Koh, Assistant CE, PUB Singapore, Dr Asma El Kasmi, Director Cooperation and Communication, ONEE, Morocco, Rik Thijssen, Director Business Development & Innovation, Vitens NL

Roundtables and panel discussion facilitator: Helle Katrine Andersen, COO DANVA

# FORUM FOR INDUSTRIAL WATER USERS II — INCENTIVISING SUSTAINABILITY: FROM SDGS TO REGULATION & SUSTAINABLE TOOLS AND APPLICATIONS

Room A3
Forum

Room CO

Forum

Tuesday 13:30 -15:00 Industrial water

Through better water management, many industries can not only reduce their environmental impact and meet societal demands for clean water, but also improve process performance and ultimately reduce costs. The Forum for Industrial Water Users was formed to exchange ideas and approaches for industries to mitigate and overcome water-related challenges in a sustainable manner.

### **EMERGING WATER LEADERS FORUM II**

Chair: Emily Ryan, Australia

The Emerging Water Leaders Forum is an open platform for young and emerging water leaders to work with peers to start planning for the future of the water sector that they will lead. The topic of this year's Forum is Challenges in the Water Sector and How to Make an Impact as a Young Water Professional (YWP). Participants are invited to discuss and design solutions among their peers to address big challenges in the water sector across their region.

Tuesday 13:30 -15:00 YWPs

### GENDER EQUALITY, LEADERSHIP, AND INCLUSION IN THE WASH SECTOR

Room C1
Sanitation

Tuesday 13:30 -15:00 Gender equality

Chair: Siyka Radilova, United Kingdom and Prof. Juliet Willetts, Australia

Gender minorities are underrepresented in utilities, government and private enterprises in the water and sanitation sector. This workshop will equip participants with knowledge and skills to address this critical area, sharing the experiences of leading organisations and professionals in the field and strategies used to improve gender and inclusion in respective workplaces. A panel of sector actors will discuss the real-life challenges they have faced in creating change and disrupting the status quo, what it is to be a gender minority in the water and sanitation sector and recommendations on how to break the glass ceilings for the next generation to come.

Speakers: **Prof. Juliet Willetts**, University of Technology Sydney (AU), **Hasin Jahan**, WaterAid Bangladesh (BD), **Mathi Vathanan**, Housing & Urban Development Department, Odisha (IN), **Leticia Ackun**, African Water Association (AfWA) (CI), **Margaret Maina**, Women in Water and Sanitation (WIWAS) (KE)

Room C3

Room B5 a

**Technical** 

Tuesday 13:30 -15:00 Microbial ecology

2.1.6 | MICROBIAL ECOLOGY (COMMUNITIES, META-OMICS)

Chairs: Anu Kettunen, Finland and Mohammad Azari, Germany

Re-evaluation of the phylogenetic diversity and global distribution of the genus Candidatus Accumulibacter, Francesca Petriglieri, Aalborg University, Denmark

Novel PAOs play the key role to achieve combined biological short-cut nitrogen and phosphorus removal in the one-sludge system with side-stream sludge treatment, Liu Ye, Chalmers University of Technology, Sweden

Temporal and geographical impact of microbial immigration in wastewater treatment plants, Giulia Dottorini, Instituto Superior Técnico, Portugal

Viral diversity, dynamics, and host-associations in mesophilic anaerobic digesters, Oskar Modin, Marche Polytechnic University, Italy

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Nitrate removal from agro-industrial effluents using cork aerated saturated vertical-flow treatment wetland: analysing the microbial community involved in the nitrogen cycle, Jordi Morato, Universitat Politècnica de Catalunya (UPC-BarcelonaTech), Spain

One-stage nitrogen removal coupling partial nitritation, anammox and methanedependent nitrite|nitrate reduction (PNAM) in membrane biofilm reactor, Tao Liu, The University of Queensland, Australia

#### 2.4.2-2 | BIOSOLIDS MANAGEMENT & REUSE

Chairs: Srikanth Mutnuri, India and Matia Mainardis, Italy

Pyrolysis | Gasification: a hot approach to energy independence, resource recovery and decarbonization, Julian Sandino, Jacobs, *United States* 

Integrated drying and pyrolysis of biosolids for optimal resource recovery, ground water, and climate protection, Christian Wieth, AquaGreen, Denmark

Characterisation of HTC-biocoal from sewage sludge, Aleksandra Lazic, Roslagsvatten AB

Cascade systems to recover resources from sludge by integrating pre-treatments to fermentation-based anaerobic process, Barbara Tonanzi, Water Research Institute C.N.R, Italy

Tuesday 13:30 -15:00 Biosolids

#### 3.4 | GROUNDWATER BASED PRODUCTION — II Chairs:

Room B5 b Technical Tuesday 13:30 -15:00

Groundwater based production

Irene Slavik, Germany and Loren Ramsay, Denmark

Reverse osmosis for groundwater treatment - challenges and opportunities for arsenic removal with chlorine, Vadim Malkov, Hach, United States

Anaerobic groundwater treatment: a modern take to this ancient drinking water source, Doris van Halem, *Delft University of Technology, Netherlands* 

Biological-adsorptive iron removal: sustainably producing drinking water from heavily iron-laden groundwater, David Geysen, Pidpa, Belgium

Does Softening with pellet reactors affect the functionality of biological sand filters? Mathilde Hedegaard, *Hofor AJS, Denmark* 

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Iron oxidizing bacteria build porous iron-coatings bridging biological and abiotic processes in groundwater biofilters, Simon Müller, *Delft University of Technology*, *Netherlands* 

Arsenic removal using electrocoagulation followed by hematite granular filter, Somaparna Ghosh, *IIT Bombay, India* 

# 6.5 | COORDINATED MANAGEMENT FROM SOURCE TO SEA — IN THE BALTIC SEA AND OTHER BASINS

Room B4 a **Workshop**  Tuesday 13:30 -15:00 Source to sea

Chairs: Torkil Jønch Clausen, Denmark and Agnieszka Ilola, Finland

Our seas suffer serious degradation from land-based activities in basins and cities; only holistic approaches from source-to-sea can reverse that. The Sustainable Development Goals on water (SDG 6) and oceans (SDG 14) need hand-in-hand implementation.

The Nordic/Baltic region is a case in point. Highly developed with strong governance frameworks and organizations to facilitate cooperation, ie. the EU Water Framework Directive, EU Strategy for the Baltic Sea Region and the Helsinki Convention, but still facing serious challenges related to water quality, eutrophication, plastics and pharmaceuticals, emerging pollutants, pesticides, urban water management etc.

We aim to discuss approaches to address burning water and environmental challenges from source to sea, with the Baltic Sea region as the prime example.

Speakers: Torkil Jønch Clausen, Sea Management (DK) & Agnieszka Ilola, Union of the Baltic Cities Sustainable Cities Commission (FI), Miriam Feilberg, Danva (DK), Lars Moeslund Svendsen, Ivar Annus, Frank Zhang, Despo Fatta-Kassimos, Kai Bester & Torgny Holmgren, Stockholm International Water Institute (SE)

# 5.4 | PARTNERSHIPS AND COOPERATION IN AND BEYOND THE WATER SECTOR

Room B4 b
Technical

Tuesday 13:30 -15:00 Partnerships

Chairs: Michiko Iwanami, Japan and Kopal Khare, India

Multi-agency water reuse programs: lessons for successful collaboration, Eric Rosenblum, Water Resource Consultant, United States

How understanding climate change adaptation partnerships can accelerate transition to water for smart liveable cities, Dorthe Selmer, Central Denmark Region, Denmark

Boosting rural productivity to achieve commercial viability of water systems, Anise Sacranie, Grundfos Holding A/S, Denmark

Think H<sub>2</sub>O! — An educational project to raise high school students' awareness of the future water challenges, Sandra Nordstrom, Sydvatten, Sweden

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The Leading Coalition — A CEO's View of How Cross Border Collaboration Works in Practice, Fionn Boyle, Anglian Water, United Kingdom

Management of the advanced centre for water treatment Bilbao Bizkaia, Santos Paunero, Consorcio de Aguas Bilbao Bizkaia, Spain

### 1.5 | RESEARCH TO TECHNOLOGY — TURNING HIGH IMPACT RESEARCH INTO BREAKTHROUGH TECHNOLOGY

Room B4 c Workshop Tuesday 13:30 -15:00 R&D → impact

Chairs: David Garman, Australia and Avner Adin, Israel

This workshop will look at 3 areas that have had intensive research activity over recent years, with significant numbers of high-impact published papers. The presenters will show those advances that show a future as operational technologies and have the potential to become standard technologies.

Speakers: David Garman, Western Sydney University (AU) & Avner Adin, Hebrew University of Jerusalem (IL), Kangsheng (Alex) Liu, Helena Alegre, LNEC (PT) & Paul Reiter

# 1.5 | HOW TO BUILD INTEGRATIVE, REGIONAL STRATEGIES FOR RESPONSIBLE WATER REUSE?

Room B3 a **Workshop**  Tuesday 13:30 -15:00 Regional strategies

Chairs: Klaasjan Raat, Netherlands and Shafick Adams, South Africa

Participants will learn to see how water reuse can be part of a regional strategy to improve water system robustness and will discuss new ideas for strategies to improve water system robustness in their own region. Examples of regional strategies across the globe will be provided.

Speakers: Ruud Bartholomeus, KWR Water Research Institute & Wageningen University (NL), Han Vervaeren, De Watergroep (BE) & Heather Smith, Cranfield University (UK)

### 2.4.3-2 | MICROPOLLUTANTS AS EMERGING CONTAMINANTS OF CONCERN

Room B3 d **Technical**  Tuesday 13:30 -15:00 Micropollutants

Chairs: Gayh Ulrike, Germany and Fabio Polesel, Denmark

Approaching breakthrough: micropollutant removal through large-scale pilot tests with an MBR-GAC configuration at Syvab WWTP, Ross Roberts, IVL Swedish Environmental Research Institute, Sweden

Toxicity removal efficiencies from influent to effluent wastewater streams in Denmark, Mafalda Castro, *University of Copenhagen, Denmark* 

Micropollutant removal at river catchment scale — inventory, feasibility studies and pilot projects, Christoph Brepols, *Erftverband, Germany* 

Bioremediation of rapid sand filters for removal of organic micropollutants for drinking water production, Peer Timmers, KWR Water Research, Netherlands

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Micropollutant removal in conventional activated sludge process - comparison of efficiency with integrated ozonation and integrated activated carbon, Tahereh Faraji, SUEZ, Denmark

Environmentally friendly synthesized nano zero valent iron for the removal of micropollutants from wastewater, Constantinos Noutsopoulos, *National Technical University of Athens, Greece* 

#### 1.7 | SUSTAINABLE UTILITY MANAGEMENT

Room B3 g Technical Tuesday 13:30 -15:00 Sustainability

Chairs: Ed Smeets, Netherlands and Abdul Majeed Osman, Ghana

Prague Water Net Zero Strategy 2025 — methodology and roadmap, Martin Srb, Prozské vodovody a kanalizace, a.s, Czech Republic

Environmentally and socially responsible activated carbon filtration, Panu Laurell, Helsinki Region Environmental Services, Finland

Normalized approach for carbon footprint determination: long term measurements in real wastewater treatment plants, Enrico Marinelli, UNIVPM, Italy

Implementation at full scale of demand-driven biogas production from anaerobic digestion of sewage sludge, Mauro Lafratta, *University of Surrey | Thames Water Utilities, United Kingdom* 

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Methane emissions on small wastewater treatment plants, Johannes Blattenberger, Bundeswehr University Munich, Germany

Effect-based monitoring: perception and perceived barriers to implementation, Maria Eliza Nagel Hassemer, Veolia Research & Innovation, France