IWA World Water Congress & Exhibition

Water for Smart Liveable Cities

Congress Programme & Exhibition Catalogue

www.worldwatercongress.org

COPENHAGEN DENMARK 11-15 SEPTEMBER 2022

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Let’s Solve Water
The Capital Region of Denmark

The Capital Region of Denmark runs and develops Denmark's largest healthcare system. Hospitals and institutions have large impacts on the environment and climate, so we work actively to implement activities with respect to the environment and sustainability. Our focus is on developing a Region for the next generation. We introduce energy-efficient hospitals, protect the Region's groundwater from soil contamination, and help develop a climate-adapted Region in cooperation with municipalities, businesses, and knowledge institutions. We have great experience in removing the risk from soil contamination and thereby protecting the groundwater, human health, and nature.

Visit us at the Danish Pavilion

We invite you to visit our pavilion in the Exhibition. There, you will see a model in 3D of our work to remove chemical solvents from contaminated groundwater and bring it up to drinking water quality. You can also hear how we protect groundwater, people, and nature from contaminated soil and about our work on climate adaptation and purification of used hospital water.

The Groundwater Forum:
Monday 12th September

This Forum aims to promote groundwater as a critical resource to achieve the Sustainable Development Goals and safe drinking water for all. It will provide examples from around the globe on the management of groundwater quantity and quality. The programme headlines are:

• Groundwater Management
• Groundwater Sustainability
• Protection of Groundwater Quality

Technical Tour:
Groundwater – From Well to Tap
Wednesday 14th September

Visit a Danish waterworks that produces drinking water from groundwater and learn how the Capital Region of Denmark protects groundwater from contaminated sites.

www.regionh.dk
# Welcome to Denmark

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[www.regionh.dk](http://www.regionh.dk)
Welcome to Denmark

As a relatively small country, Denmark is particularly proud to be the host for the IWA World Water Congress & Exhibition 2022. The COVID-19 pandemic forced us to postpone this important event, which was originally scheduled to take place in 2020. It is our utmost pleasure to finally be able to welcome you all in Copenhagen for the first ever World Water Congress in the Nordic region!

It is fantastic to meet you here face to face and be able to connect with water professionals from all over the world. I hope that all of you will use this chance to make new connections, have informal discussions, and network with the global water community. I hope that you will enjoy the extraordinary facilities at the Bella Center and the cozy and wonderful city of Copenhagen.

What particularly characterises this edition of the Congress is the closely-knit collaboration between the Nordic countries, an innovative region that is a true advocate of sustainable living. That is why you will witness a strong representation and presence from all the Nordic and Baltic countries during the event.

Additionally, it is a great pleasure for me to announce that in the 2022 Congress, special attention has been placed on young water professionals and students. Besides an extensive programme prepared by the IWA Young Water Professionals, DTU Skylab has contributed to the innovation itinerary with the Next Generation Water Action and the World Water Camp initiatives, bringing in many Master’s and Bachelor’s level students to experience water for smart liveable cities and develop their knowledge and skills. These initiatives will profoundly shape both future industry congresses, but most importantly our water leaders of the future.

My hope for this Congress is to see much-needed international cooperation and new multidisciplinary partnerships. We need each other if we are to deliver water-wise solutions and achieve the goals of the UN 2030 Agenda for Sustainable Development, leaving no one behind. So, I strongly encourage you to make the most out of this global water event: now is the time engage, connect, and speak up for a water-wise world!

Anders Bækgaard, Congress President

Over a hundred committed water organisations and individuals who are part of the Host Country Committee have dedicated their time and energy over many months in what has been a huge contribution to delivering an extraordinary IWA World Water Congress & Exhibition 2022 in Copenhagen. In addition to the technical sessions and workshops, there will be a comprehensive range of forums, side events and activities addressing global water challenges in cross-sectoral interactions, giving huge value to being present here in Copenhagen.

For the first time ever at an IWA Congress, there will be a political summit, focused on Water for Smart Liveable Cities and the SDGs, involving national politicians, mayors, and leading figures in the sector. This aims to add much-needed momentum to commitments to progress water in the global political agenda.

As 2022 is the year of groundwater, we have organised a special forum to address the challenge of securing clean and healthy groundwater for future generations. In Denmark our entire drinking water supply comes from groundwater, and we have a long tradition of working on groundwater protection.

We cannot solve global challenges alone and for this reason we have invited other sectors, such as food and energy, to discuss together with us at a forum for industrial water users the most important challenges affecting us all: energy efficiency, water consumption, and sustainability.

This edition of the Congress has a special emphasis on the crucial role of utilities. On Tuesday and Wednesday, we have activities and workshops tailored for utility staff both at the operational and managerial levels. A Utility Leaders Forum will be conducted, providing a dedicated place for utilities to connect. There will also be a recognition programme to celebrate Climate Smart Utilities.

Additionally, a range of technical tours showcasing Nordic water solutions have been organised to guide you through a living water lab in Denmark and beyond! A famous Hans Christian Andersen quote says: to travel is to live. I strongly believe that you have made the right choice by travelling all the way to Copenhagen! I wish you all a very fruitful week ahead for knowledge exchange, networking, and meeting new and old water friends after such a long time.

Helle Katrine Andersen, Chair IWA-DK and Host Country Committee, COO DANVA
Welcome from the IWA President

On behalf of the International Water Association, our hosts – DANVA, and the beautiful city of Copenhagen, I am delighted to welcome you to the 2022 IWA World Water Congress & Exhibition.

For over 20 years, the biennial IWA World Water Congresses have served as pivotal moments for global, national and local water science and policy developments. The Congress has provided researchers, practitioners and wider decision makers with a much-needed space and opportunity to share experiences and challenges, articulate new solutions and goals, and engage in lively discussions that have positively impacted our world. This world-leading event provides a fantastic opportunity to network and share innovative ideas with colleagues.

The Intergovernmental Panel on Climate Change has made clear that urgent action is required if the world is to stave off climate disaster. Its reports also confirm that climate change will have a big impact on water security, compounding the challenges of meeting the Sustainable Development Goals. The need for new solutions and sharing of insights is therefore urgent too, given the existential threat of climate change and the task of achieving Goal 6 of the SDGs. It is therefore very appropriate that this year’s Congress will feature for the first time a high-level summit to help escalate action on the SDGs and climate change.

All elements of the wider programme each have their part to play. Delivering solutions for the complex water management problems we face today, and in the future, requires a focus on integrated water management that bridges the gaps between policy and practice, and between sectors. It also requires pioneering research and technological innovation to be combined with the best water management practices. The water sector must also embrace disruptive technologies and science and adopt them at a faster pace if we are to reap the full benefits of the opportunities before us.

The IWA World Water Congress & Exhibition offers a unique, cross-disciplinary opportunity for participation by all those who are contributing to solving the growing water challenges. Tailored forums for utilities, regulators and industries will provide platforms for focused deliberation. Many actors beyond the academic and practitioner worlds will attend, providing a great chance to raise awareness of issues and potential solutions. World-renowned keynote speakers will inspire change and spark ideas for a water-wise future. And importantly, young water professionals will be a core part of this Congress, providing fresh perspectives and offering chances for intergenerational discussions which are key for the future of water.

I wish all of you a successful time at this pivotal event.

Tom Mollenkopf, IWA President

Join the water journey

As IWA’s Executive Director, I am honoured to welcome you to Copenhagen for the 2022 World Water Congress & Exhibition. The event provides a much-needed opportunity to gather again and I am sure it will prove to be inspirational.

We are at a crossroads for the future of water. We have an opportunity to choose a new path, connecting with the ‘build back better’ and climate adaptation and mitigation agendas. Now is the time to provide innovative and dramatic solutions that can change the future of water for good and rise to the most pressing global challenges.

There are enormous opportunities for sustainable approaches and innovation in the world of water, sanitation and hygiene. In particular, digitalisation can drastically improve water asset management and reduce inefficiencies, while a circular economy approach in water can produce energy and recover resources contained in used water. The opportunities to innovate around sanitation are even more profound. There is great potential in non-sewered systems and technologies dealing with used water at a local level, promising a departure from traditional approaches, especially with solutions that can be embedded in the many locations where facilities are yet to be built.

The trending themes in the Congress programme clearly show the extent of these opportunities. As well as the core programme, forums and technical tours will add further coverage of research and insights into water developments and solutions, all complemented by the various networking and social activities, including the prestigious IWA awards.

I would like to take this opportunity to thank all the many people involved with the preparations for this event, especially our organising partner, DANVA, the organising and programme committees, and the supporting partners and sponsors. IWA, and the World Water Congress & Exhibition, are ready to address the water challenges we collectively face. We come together in Copenhagen to innovate and shape a better water future for all. We hope that you will enjoy and benefit from joining us on this journey.

Kala Vairavamoorthy, IWA Executive Director
WATER IS ESSENTIAL FOR LIFE!

Climate changes and rapid urbanisation make access to, distribution and handling of water critical.

In COWI, we are specialised in digital and optimised water management solutions for utilities, cities, transportation networks and industries.

We develop clean water resources, circular and innovative wastewater plants and combine our strong capabilities in planning with civil and marine engineering to make climate adaptation a lever for intelligent solutions that create green urban spaces and landscapes, support health, community and ensure more and better nature.

Meet us at the International World Water Conference in Copenhagen.

TOGETHER, WE SHAPE A SUSTAINABLE AND LIVEABLE WORLD.
Come and see our Smart Water products and great solutions for pressure management, leak repair and harsh environments.

Your eyes below ground
By installing AVK Smart Water sensors in the distribution network, utilities can achieve a transparent network. The sensors make it possible to remotely monitor the network and diagnose problems as well as manage maintenance issues and optimise the entire network’s efficiency.

REDUCE WATER LOSS AND IMPROVE EFFICIENCY

Come and see our Smart Water products and great solutions for pressure management, leak repair and harsh environments.
The Capital Region of Denmark runs and develops Denmark’s largest healthcare system. Besides this important task, our focus is on developing a Region for the next generation. To fulfil this goal, we protect the Region’s groundwater from old polluted sites and help develop a climate-adapted Region across the borders of municipalities.

The IWA World Water Congress & Exhibition is an opportunity for us to show the many water-competences in the Region, e.g., our skills in innovating new methods of removing soil contamination, our hospital wastewater treatment plants and some of the Region’s climate adaptation projects.

Grundfos pioneers solutions to the world’s water and climate challenges and improves quality of life for people. We develop, produce and sell pump solutions which help reduce water-related challenges. We create research and product development based solutions to meet growing demands for minimising the consumption of resources and emission of CO₂.

We provide expertise in energy- and water efficient solutions and systems for a wide range of applications, including water supply, water treatment and waste water, industries and buildings.

An annual production of over 17 million units positions the Grundfos Group as one of the world’s largest pump manufacturers with 20,000 employees in 56 countries.

Copenhagen is a growing metropolitan area with an ambitious approach to urban planning and green living. We will particularly focus on the development of industrial clusters, i.e. existing commercial areas that have a competitive advantage. This will be done by strengthening dialogue with the business community, and by building partnerships with both commercial and knowledge institutions. Our primary focus is on the Cleantech, Healthtech and the Creative clusters. We aim to work together with global metropolises, sharing solutions and inspiring efforts to realise the overarching goal on a more sustainable world by 2030.

At Kamstrup, we believe no one should have to question their access to clean water. For over 15 years, we have partnered with water utilities worldwide to help them solve their challenges by delivering reliable, cost-effective ways to measure and manage water consumption. Our smart metering solutions empower utilities to reduce water loss and optimize operations. Whether one or a million, intelligence from our meters lights up the distribution networks that supply communities every day. Our sponsorship with the IWA grows from our shared belief that data and digital solutions are key to addressing the industry’s challenges and SDG targets.

Xylem (XYL) is a leading global water technology company committed to solving critical water and infrastructure challenges with innovation. Our 17,000 diverse employees delivered revenue of $5.2 billion in 2021. We are creating a more sustainable world by enabling our customers to optimise water and resource management, and helping communities in more than 150 countries become water-secure. Join us at www.xylem.com.
TOGETHER, WE SHAPE A SUSTAINABLE AND LIVEABLE WORLD

Liveable cities around the globe require proper sanitation, sewerage treatment and reliable clean water supplies. In COWI, we shape a future where people and societies grow and flourish. We co-create sustainable solutions within all aspects of water development and climate protection and advise our customers on environmentally sound water solutions.

DANVA is a national association for more than 100 Danish Water and wastewater utilities. DANVA unites all water utilities involved in the daily supply of clean drinking water, wastewater management and flood prevention based on traditional and innovative methods for adapting to climate change. Members of DANVA are also actively engaged in climate change adaptation and mitigation. DANVA supports all water utilities involved in developing and implementing innovative water solutions for Denmark and the rest of the world.

EasyMining is an innovation company dedicated to closing nutrient cycles. We are owned by the Swedish environmental company Ragn-Sells. Our objective is to create new circular material flows in an efficient commercial way. We do this by inventing and implementing new technology that uses chemical solutions to recycle important materials.

Kemira is a global leader in sustainable chemical solutions for water intensive industries. With over 100 years of history and chemistry expertise, our products help our customers to improve their product quality, process and resource efficiency. Our focus is on pulp & paper, water treatment and energy industry.

At Per Aarsleff, our expertise is to devise, plan and implement large-scale projects within infrastructure, No-Dig, climate change adaptation, the environment, energy and construction – from design to handing-over. Our point of departure is a strong position in Denmark and the Baltic Sea region, and we solve projects in most parts of the world.

Ramboll is a global architecture, engineering and consultancy company founded in Denmark in 1945. The 1000 consultants in Ramboll’s global water division create value for clients and society by converting challenges related to water and climate change into great opportunities and sustainable solutions. We call it: Bright ideas. Sustainable change.

SUEZ, a major player in environmental services for over 160 years, has supported local authorities and industries in managing the essential services of water and waste. SUEZ rely on the expertise and commitment of its 35,000 employees to offer high value-added and customised environmental solutions to all.
Coffee Break Sponsors

AFRY

AFRY provides clients across the globe with top-class engineering, technical advisory and management consultancy services for water. We accelerate the transition towards a sustainable society. We are 17,000 devoted experts in infrastructure, industry, energy and digitalisation, creating sustainable solutions for generations to come. Making Future.

ARUP

Dedicated to sustainable development, Arup is a collective of designers, consultants and experts working globally. Founded to be humane and excellent, we collaborate with our clients and partners using imagination, technology, and rigour to shape a better world.

Danfoss

For more than 50 years, Danfoss has contributed globally to meeting the need for energy-efficient infrastructure, connected systems, integrated renewable energy, and decarbonisation solutions. Danfoss engineers a better tomorrow for the water and wastewater sector, with technology including quality application-optimised drives, pressure transmitters and switches.

Eurofins

Eurofins is the world leader in food, environment and agroscience CRO services. We offer a portfolio of 200,000 analytical methods for evaluating the safety, identity, composition, origin and purity of biological substances. The Group objective is to provide its customers with high-quality services and accurate results on time.

IDRICA

Idrica is the leading international company specialising in water cycle management. Our unique value proposition is based on the efficiency and quality of our services and the GoAigua smart solution for the digital transformation of the sector.

NIRAS

NIRAS is an international, multidisciplinary consultancy company with more than 2,400 employees. We work within multiple areas from processing plants and construction over energy, water, environment, and infrastructure to third world aid and urban planning. We always strive to achieve the optimal solutions across disciplines with a focus on sustainability and digitalisation.

Silhorko-Eurowater (EUROWATER)

Silhorko-Eurowater (EUROWATER) brings years of experience and specialised know-how within high-quality water treatment. EUROWATER supplies customers in a broad range of industries and application areas, including power-to-x, boiler water, process water, cooling water, rinse water, district heating, and drinking water. Today, EUROWATER is a part of the Grundfos Group.

Vewin

Vewin is the national association of water companies in the Netherlands. The principal task of Vewin is to represent the interests of its members in The Hague and Brussels. Our aim is to establish and maintain favourable conditions for the continuous production of good drinking water.
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- Danish Export Association
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Sanz Miguel Angel
Sealand Sun
Sebastian Schmuck
Selvakumar Rajendran
Seydou Dicko
Seyed Ali Ghassemi
Shaahin Nazarpour Tameh
Shahed Almasri
Sharanya Setherum
Sharon Archie
Shasha Chirinos
Shervin Hashemi
Sibusiso Mnguni
Siddhartha Roy
Siva Rama Satyam Bandaru
Slobodan Zlatković
Sofia Georgaki
Somayeh Mazluminezhad
Soomer Regina
Stephan Köhler
Stephan Foster
Subbalakshmi Lokanadhan
Sujana Dhar
Suparama Katayani
Susana Rodriguez-Couto
Susana Lardies
Suzanne Wheeler
Sylvain Donnaz
Sylvie Baig
Tadashi Toyama
Taher Ahmadzadeh Kokya
Takao Murakami
Takashi Azuma
Tamas Huzsvar
Tanyo Patrick Bertrand Horo
Tao Liu
Tapio S. Kaitto
Tarik Eljaddi
Taylan Dolu
Teodor Popa
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Theis Raaschou Andersen
Thiago Bressani Ribeiro
Thierry Ribeiro
Thomas Hillenbrand
Thomas Walter Ertl
Tin-Lai Lee
Titus Cooray
Tone Muthanna
Torben Lund Skovhus
Tricia Chin
Troy Tao
Tsunao Matsumoto
Ulrike Gayh
Unai Iriarte
Upendra Patel
Val Frenkel
Vania Serrão Sousa
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Wolfgang Uhli
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Yair Farber
Yan Zhou
Yanchen Liu
Yang Villa
Yang Song
Yannick Gourbeyre
Yaoping Chen
Yaroslav Olach
Yejin Kim
Yonik Meilawati Yustiani
Yoshikiko Matsui
Yves Andres
Zaakirah Delair
Zhigang Yu
Zhiyao Wang
Zohre Kurt
CLOSING NUTRIENT CYCLES

If we are serious about creating a sustainable society, we have to start using the raw materials we already have, again and again.

EasyMining’s solutions reduce the environmental impact by detoxifying and recovering critical nutrients that can replace virgin resources.

Our Nitrogen removal and recovery process makes it possible to reuse the nitrogen from liquid waste streams and our Ash2Phos process recovers more than 90% of the phosphorus in the sewage sludge ash, producing one of the cleanest phosphorus products on the market.

By using our techniques - today’s wastewater treatment plants can become tomorrow’s resource plants.

Come visit us in our stand C2-329 to learn more about our processes and how they can benefit your business.

Digital solutions for water-intensive industries

MAXIMIZE YOUR WATER TREATMENT PROCESS EFFICIENCY, IMPROVE SUSTAINABILITY PERFORMANCE, AND ENSURE COMPLIANCE WITH ALL RELEVANT REGULATIONS AND STANDARDS, USING A COMBINATION OF OUR HIGH-QUALITY CHEMICALS, DIGITAL TECHNOLOGIES, AND 100+ YEARS OF EXPERTISE.

- PRIMARY TREATMENT
- SLUDGE DEWATERING
- PHOSPHORUS REMOVAL
- WASTEWATER DISINFECTION
- ODOR AND CORROSION CONTROL

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Thematic Tracks
Shaping the future of water management

**Track 1**
Water Utility Management
The water sector needs to improve utility management to guarantee efficient operations. This covers a wide range of actions, from infrastructure development for water supply to improvement in public-private sector cooperation, up to the management of the full urban water cycle. The need to maintain high performance while implementing environmentally sustainable models for water management will affect future developments in water utilities’ strategies.

**Track 2**
Wastewater Treatment & Resource Recovery
Wastewater management and resource recovery face many challenges and opportunities. Before returning to the water cycle (rivers, lakes, estuaries, oceans), wastewater needs to be treated via biological or physicochemical treatments, or a combination of these, to be safely discharged with an acceptable impact on the environment. In this process, wastewater is recognised as a valuable source of renewable resources. It is therefore crucial to adapt wastewater facilities to ensure the recovery of energy and valuable compounds, including water itself. For this purpose, it is also critical to emphasise the significance of digital technology, which may be utilised in daily operations to increase efficiency.

**Track 3**
Drinking Water & Potable Reuse
Potable water reuse refers to the process of using treated wastewater for drinking water. This represents a practical source of drinking water in response to growing pressures on available water resources. The optimisation of potable water reuse practises necessitates effective drinking water production technologies as well as efficient distribution systems. To ensure this, as well as high water quality standards, an in-depth investigation of water management and sociopolitical aspects is needed. These can also be facilitated by the use of digital tools and technologies.

**Track 4**
City-scale Planning and Operations
Cities all over the world are facing challenges in terms of climate change, increased urbanisation, pressure on resources and rising demand for liveable cities. Addressing these challenges requires an adaptation of current city planning to include a more resilient design. Smart, resilient, and liveable cities must thus be created through collaboration between various sectors of society (for example, water management, infrastructure, operations, and city planning). Within this context, digital solutions can also enable the transformation towards sustainability, liveability, and, therefore, the SDGs.

**Track 5**
Communities, Communication & Partnerships
The people that comprise society are at the heart of the transition to a more sustainable and resilient future. The water sector, like every other sector, must guarantee that societal demands are addressed and that the well-being of society is the primary focus and motivator of decision-making. To do this, it is critical to examine cross-sectoral planning as well as ensure that incentives are spread evenly throughout communities. This track will look at how local and regional governments, utilities, professional groups, the community, and private-sector partners may effectively collaborate to enhance effectiveness and produce better overall outcomes for their communities.

**Track 6**
Water Resources & Large-Scale Water Management
Exploiting the potential of water resources (e.g., groundwater and surface water) necessitates proper management of such resources. Water management, in particular, needs to involve water quality and quantity monitoring, as well as treatment strategies for contaminated water resources, in order to assure their availability in an environmentally sustainable way.
## Programme Book

<table>
<thead>
<tr>
<th>Track 1</th>
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<td>CITY-SCALE PLANNING AND OPERATIONS</td>
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<th><strong>Monday 12 September</strong></th>
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<th><strong>Thursday 15 September</strong></th>
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<td><strong>KEYNOTE PLENARY</strong></td>
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<td>**EXHIBITION OPENING &amp;</td>
<td><strong>GALA DINNER</strong></td>
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<td>WELCOME RECEPTION**</td>
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### Monday 12 September 2023

**Schedule**

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<tr>
<th>Time</th>
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<td>A2</td>
<td><strong>CONGRESS HALL A1 — KEYNOTE PLENARY</strong> — Prof Rohit T Aggarwala</td>
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<td>HIGH-LEVEL SUMMIT — GROUNDWATER FORUM I — NATURE BASED SOLUTIONS WORKSHOP</td>
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<td>SESSION 2</td>
<td>HIGH-LEVEL SUMMIT — GROUNDWATER FORUM II — PROFESSOR GUSTAF OLSSON</td>
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<td>SESSION 3</td>
<td>HIGH-LEVEL SUMMIT — GROUNDWATER FORUM III — PROFESSOR GUSTAF OLSSON</td>
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<td><strong>CONGRESS HALL A1 — KEYNOTE PLENARY</strong> — Nathalie Olijslager</td>
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**Workshops and Technical Sessions**

**Technical Session 1**

- **5.1** Bottom-up resilience planning across the water cycle
- **5.2** Incentives and drivers to enable change

**Workshop 1**

- **5.1** How the water industry can support women internationally
- **5.2** New services and perspectives for water utilities

**Technical Session 2**

- **4.2** Drivers and hazards at city scale
- **4.3** Microbial and chemical risks for city planning

**Workshop 2**

- **4.4** Evaluation criteria and approaches for tools in NbS planning
- **4.5** Flood risk management

**Technical Session 3**

- **2.5** Future challenges for removal of micropollutants in wastewater treatment plants
- **2.6** Surface water issues related to ecosystem, recreation, drinking water source and monitoring

**Workshop 3**

- **2.7** Nature-based Solutions for climate-resilient cities in developing countries under change
- **2.8** Water security and sanitation challenges in the small island states

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**Keynote Plenaries**

- **Prof Rohit T Aggarwala**
- **Nathalie Olijslager**
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<tr>
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<td>UTILITY LEADERS FORUM I</td>
<td>FORUM FOR INDUSTRIAL WATER USERS I</td>
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<td>UTILITY LEADERS FORUM III</td>
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17:30 - 18:20 | CONGRESS HALL A1 — KEYNOTE PLENARY — Oliver Grievson and Enrique Cabrera Rochera | B4 b | B4 c | B4 d | B3 a | B3 b | B3 c | B3 d | B3 e | B3 f | B3 g |

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<tr>
<td>TECHNICAL 5.3 Enabling health, well-being and liveability outcomes</td>
<td>WORKSHOP 5.7 Creating an effective innovative eco-system. How the UK enhances &amp; enables innovation and what we can continue to learn</td>
<td>TECHNICAL 1.9 Asset management and optimisation innovation</td>
<td>TECHNICAL 4.1 Data driven modelling at city scale</td>
<td>WORKSHOP 4.4 Tapping the value of urban drainage systems (UDS) data</td>
<td>TECHNICAL 2.4.3-1 PFAs as emerging contaminants of concern</td>
<td>TECHNICAL 6.1 Groundwater holistic approaches and regulation for water security</td>
<td>TECHNICAL 2.3.3 Nanomaterials and nanotechnology</td>
<td>TECHNICAL 1.6 Sustainable utility management - the Nordic experience</td>
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<td>TECHNICAL 5.4 Partnerships and cooperation in and beyond the water sector</td>
<td>WORKSHOP 1.5 Research to technology - turning high impact research into breakthrough technology</td>
<td>TECHNICAL 1.10 Asset management and optimisation modelling</td>
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<td>WORKSHOP 4.5 Exploring framework conditions for utilities to reduce GHG emissions</td>
<td>TECHNICAL 2.4.3-2 Micropollutants as emerging contaminants of concern</td>
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<td>TECHNICAL 6.6 Strategic digital control of water management</td>
<td>TECHNICAL 1.7 Sustainable utility management</td>
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<td>WORKSHOP 5.2 Towards climate smart utilities</td>
<td>TECHNICAL 6.7 Water stress, droughts and floods, including impact of climate change</td>
<td>TECHNICAL 1.11 Asset management and optimisation case studies</td>
<td>WORKSHOP 4.9 Groundwater management for climate change adaptation</td>
<td>WORKSHOP 2.3 High value products based on carbon in wastewater - how do we select and is it sustainable?</td>
<td>TECHNICAL 2.4.3-3 Pharmaceuticals as emerging contaminants of concern</td>
<td>WORKSHOP 6.3 Groundwater — resilience approaches</td>
<td>TECHNICAL 1.8 Greenhouse gas emissions in Denmark</td>
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<td>REGULATORS FORUM I</td>
<td>Upscaling Faecal Sludge and Septage Management (FSSM) to City Wide Inclusive Sanitation (CWiS): Experience from India (state of Uttar Pradesh) and Global South</td>
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<td>INNOVATORS PLATFORM II</td>
<td>TECHNICAL 6.11 Circular economy 1</td>
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<td>INNOVATORS PLATFORM III</td>
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<td>WORKSHOP 5.2 Global megatrends and what comes of tomorrow</td>
<td>TECHNICAL 1.16 COVID-19 pandemic scientific responses at utility level</td>
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<td>WORKSHOP 5.3 The future of water cooperation programmes: how to ensure equal access to the best available solutions and technology</td>
<td>TECHNICAL 4.4.7 The urban water cycle: monitoring and modelling</td>
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<td>WORKSHOP 5.4 Water oriented living labs as a mean to engage stakeholders in the development and demonstration of water technologies</td>
<td>WORKSHOP 4.10 Systemic management for water wise cities - Scandinavian experiences</td>
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<td>WORKSHOP 5.5 Online and hybrid approaches to knowledge exchange and capacity building for Water Operator Partnerships (WOPs)</td>
<td>WORKSHOP 4.10 Systemic management for water wise cities - Scandinavian experiences</td>
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| 09:50 - 10:30 | Session 1 | REGULATORS FORUM IV | TECHNICAL 6.13 Integrated assessment  
TECHNICAL 2.1.4-1 Aerobic granular sludge  
TECHNICAL 2.4.1 Dedicated treatment  
WORKSHOP 6.16 Holistic approaches to solving conflicts about water  
WORKSHOP 3.4 Leading edge sand filtration |
| LUNCH     |         |                                 |                                                                               |
| 12.00 - 13.30 |         | REGULATORS FORUM V | CLIMATE SMART UTILITIES RECOGNITION PROGRAMME  
WORKSHOP 5.6 Innovation & entrepreneurship: developing entrepreneurial capabilities for the water sector  
WORKSHOP 2.5 Aerobic granular sludge: intensifying and greening WWTPs  
TECHNICAL 2.3.4 Other physico-chemical treatment techniques  
TECHNICAL 3.11 Microbial, chemical, and by-product risk and management  
WORKSHOP 3.1 5G health related water microbiology and WHO workshop: recreational water quality translating science to policy |
| 13:30 - 15:00 | Session 2 |                                 |                                                                               |
| 15:15 - 16:45 |         | CONGRESS HALL A1 — CLOSING CEREMONY | including Harremoës Lecture                                                   |
| EVENING   |         |                                 |                                                                               |
| B4 b      | B4 c    | B4 d                            | B3 a                            | B3 b                            | B3 c                            | B3 d                            | B3 e                            | B3 f                            | B3 g                            |
| CONGRESS HALL A1 — KEYNOTE PLENARY | Gertjan Medema |
| WORKSHOP 5.5 Reaching out for the water wise generation | |
| WORKSHOP 1.3 Advancing coastal resiliency for imperiled barrier island systems | |
| TECHNICAL 1.4 Optimisation of water distribution networks | |
| TECHNICAL 1.3 Collaboration of water utilities and authorities in crisis | |
| TECHNICAL 4.12 Transitioning to and implementation of sustainable and water wise cities | |
| WORKSHOP 2.4 Microplastics in wastewater and biosolids | |
| WORKSHOP 6.12 UNFC System for Groundwater-Resource Projects | |
| WORKSHOP 6.13 How to operationalise integrated urban water management — a five-step guide | |
| WORKSHOP 6.19 Governance and transition to a circular economy in public water services | |
| WORKSHOP 1.5 Water in circular economy and resilience: an opportunity to transform urban water services | |
| WORKSHOP 3.5 An innovative paradigm in water informatics for smart city applications | |
| TECHNICAL 1.1 Are you adequately assessing your water losses? Learn to use the WL performance indicators | |
| TECHNICAL 1.14 Integration of decentralised solutions in a centralised system | |
| TECHNICAL 4.4 Holistic urban water management planning | |
| WORKSHOP 4.7 Sanitation in urban informal settlements | |
| WORKSHOP 4.8 Actionable pathway to implementation of Nature-based Solutions | |
| WORKSHOP 6.18 Lifecycle system thinking and system boundaries for sustainability assessment of water management | |
| WORKSHOP 1.4 The digital worker — challenges and lessons learned by international utilities | |
| CONGRESS HALL A1 — CLOSING CEREMONY | including Harremoës Lecture |
| GALA DINNER |
Business Forums

Learn about challenges and innovations

The Business Forums are a full component of the technical programme of the IWA World Water Congress & Exhibition and provide a series of sessions where sponsors and exhibitors present their innovations and projects that contribute to shaping our water future.

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# Cross-cutting themes

Selected sessions with a focus on cross-cutting topics

## Digital Water

### Monday 12 September

**SESSION 1**
- TS 2.5.1 Sewer Corrosion and Odour Management | 10:30-12:00, Room B5a
- TS 1.12 Infrastructure Rehabilitation | 10:30-12:00, Room B4d
- TS 1.21 Integrated Digital Water Utility | 10:30-12:00, Room B3a

**SESSION 2**
- TS 5.2 Incentives and Drivers to Enable Change | 13:30 – 15:00, Room B4b
- TS 4.4.8 Innovative Modelling Tools for Urban Water Systems | 13:30 – 15:00, Room B4c
- TS 1.19 Digital Business Management Approaches at Utility Scale | 13:30 – 15:00, Room B3a

**SESSION 3**
- TS 1.13 Sewer Overflow Management at Utility Level | 15:45 – 17:15, Room B4d
- TS 1.20 Utility-scale Data Collection, Visualisation and Utilisation | 15:45 – 17:15, Room B3a
- TS 6.5 Technical Achievements for Surface Water Control | 15:45 – 17:15, Room B3e

### Tuesday 13 September

**SESSION 1**
- TS 1.9 Asset Management and Optimisation Innovation | 10:30-12:00, Room B4d
- TS 4.4.1 Data Driven Modelling at City Scale | 10:30-12:00, Room B3b
- WS 4.4 Tapping the Value of Urban Drainage Systems (UDS) Data | 10:30-12:00, Room B3c

**SESSION 2**
- WS 1.4 Developing Consensus and Good Practices for Digital Twin Applications A | 13:30 – 15:00, Room C2
- TS 1.10 Asset Management and Optimisation Modelling | 13:30 – 15:00, Room B4d
- TS 6.6 Strategic Digital Control of Water Management | 13:30 – 15:00, Room B3f

**SESSION 3**
- WS 1.4 Developing Consensus and Good Practices for Digital Twin Applications B | 15:45 – 17:15, Room C2
- TS 3.8 Nonrevenue Water, Leakage Management and Intermittent Water Supply | 15:45 – 17:15, Room B5b
- TS 6.3 Groundwater - Resilience Approaches | 15:45 – 17:15, Room B3f

### Wednesday 14 September

**SESSION 1**
- WS 1.4 Skills for A Digital Water Future | 10:30-12:00, Room C2
- TS 2.6 Digital Tools for Wastewater Process Optimisation | 10:30-12:00, Room B5a
- TS 3.14 Digital Water | 10:30-12:00, Room B4a
- WS 1.4 Digital Water: Benefits and Return on Experience for the Water Sector | 10:30-12:00, Room B3d

**SESSION 2**
- TS 2.6 Data-driven Tools for Wastewater Treatment Processes | 13:30 – 15:00, Room B5a
- TS 4.4.10 Digital Water Cities | 13:30 – 15:00, Room B3b

**TS: Technical Session**
- WS: Workshop

### Thursday 15 September

**SESSION 2**
- WS 1.4 The digital worker - Challenges and lessons learned by international utilities | 13:30 – 15:00, Room B3f
- WS 3.5 An innovative paradigm in water informatics for smart city applications | 13:30 – 15:00, Room B4b
## Cross-cutting themes

Selected sessions with a focus on cross-cutting topics

### Utility Management

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<td>WS 6.5 Earth Observation for Water Management - Building a Community of Practice</td>
<td>WS 3.5 Prevention and Management of Taste-and-Odour Events in Supplies</td>
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<tr>
<td>TS 3.12 Water Management: Source to Consumer</td>
<td>WS 1.2 Methodology and Context for Quantifying Your Sewer Methane</td>
<td>TS 1.3 New Services and Perspectives for Water Utilities</td>
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<tr>
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<td>TS 1.19 Digital Business Management Approaches at Utility Scale</td>
<td>TS 1.13 Sewer Overflow Management at Utility Level</td>
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<tr>
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<td>TS 1.18 Utility Responses and Adaptation to Climate Change Impacts</td>
<td>TS 1.20 Utility-scale Data Collection, Visualisation and Utilisation</td>
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<td>WS 4.1 The Role of Water and Wastewater Utilities in Supporting Sustainable Development Goals</td>
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<td>TS 4.4.5 Flood Risk Management</td>
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#### Tuesday 13 September

**ALL DAY**

Utility Leaders Forum
10:30 – 17:15, Room A2

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<td>TS 3.8 Nonrevenue Water, Leakage Management and Intermittent Water Supply</td>
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<td>TS 1.5 Utilities Water Reuse Throughout the Water Cycle</td>
<td>WS 4.5 Exploring Framework Conditions for Utilities to Reduce GHG Emissions</td>
<td>TS 5.2 Towards Climate Smart Utilities</td>
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<td>TS 1.6 Sustainable Utility Management - The Nordic Experience</td>
<td>TS 1.7 Sustainable Utility Management</td>
<td>TS 1.11 Asset Management and Optimisation Case Studies</td>
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<td>13:30 – 15:00, Room B3g</td>
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**Wednesday 14 September**

**ALL DAY**
Utility Leaders Forum
10:30 – 15:00, Room A2

**SESSION 1**
TS 5.5 WASH and Community-scale Water Management
| 10:30-12:00, Room B4b
TS 1.1 Non-revenue Water - Case Studies
| 10:30-12:00, Room B4d
TS 1.16 COVID-19 Pandemic Scientific Responses at Utility Level
| 10:30-12:00, Room B3a
WS 1.1 The Road towards Climate and Energy Neutral Water Utilities
| 10:30-12:00, Room B3g

**SESSION 2**
WS 1.1 Non-Revenue Water Management in Low and Middle Income Countries – A
| 13:30-15:00, Room B4d
TS 1.17 COVID-19 Pandemic Impacts and Case Studies at Utility Level
| 13:30-15:00, Room B3a
WS 1.1 Water Efficiency: The Fastest, Cheapest, Largest Source of New Water
| 13:30-15:00, Room B3g

**SESSION 3**
WS 1.2 Sustainable Small Wastewater Treatment Plants: Present, Future, Opportunities and Challenges
| 15:45 – 17:15, Room B3g

**Thursday 15 September**

**SESSION 1**
TS 1.4 Optimisation of Water Distribution Networks
| 10:30-12:00, Room B4d
WS 1.3 Collaboration of Water Utilities and Authorities In Crisis
| 10:30-12:00, Room B3a
| 10:30-12:00, Room B3e
WS 1.5 Water in Circular Economy and Resilience: An Opportunity to Transform Urban Water Services
| 10:30-12:00, Room B3g

**SESSION 2**
Climate Smart Utilities Recognition Programme
| 13:30-15:00, Room C1
TS 1.2 Utility Efficiency and Excellency
| 13:30-15:00, Room B4c
WS 1.1 Are You Adequately Assessing Your Water Losses? Learn to Use the WL Performance Indicators
| 13:30-15:00, Room B4d
TS 1.14 Integration of Decentralised Solutions in a Centralised System
| 13:30-15:00, Room B3a
TS 4.4.6 Holistic Urban Water Management Planning
| 13:30-15:00, Room B3b
# Cross-cutting themes

Selected sessions with a focus on cross-cutting topics

## Circular Economy

### Monday 12 September

**SESSION 1**  
TS 2.2.1-1 Water Reclamation for Non-potable Reuse | 10:30 – 12:00, Room B3e  

**SESSION 2**  
WS 1.1 Nature Based Solutions - A Way to Make our Cities Circular | 13:30 – 15:00, Room C2  
TS 2.2.1-2 Water Reclamation for Non-potable Reuse | 13:30 – 15:00, Room B3e  

**SESSION 3**  
TS 3.5 Decentralised Solutions and Potable Water Reuse | 15:45 – 17:15, Room B5b

### Tuesday 13 September

**SESSION 1**  
TS 2.4.2-1 Biosolids Management & Reuse | 10:30 – 12:00, Room B5a  
TS 1.5 Utilities Water Reuse Throughout the Water Cycle | 10:30 – 12:00, Room B3a  

**SESSION 2**  
TS 2.4.2-2 Biosolids Management & Reuse | 13:30 – 15:00, Room B5a  
WS 1.5 How to Build Integrative, Regional Strategies for Responsible Water Reuse? | 13:30 – 15:00, Room B3a

**SESSION 3**  
WS 1.2 On-site Reuse of Water Across the World | 15:45 – 17:15, Room B3a  
WS 2.3 High Value Products Based on Carbon in Wastewater - How do we Select and is it Sustainable? | 15:45 – 17:15, Room B3e

### Wednesday 14 September

**SESSION 1**  
TS 2.2.3-1 Recovery of Nutrient and Chemicals-Group 1 | 10:30 – 12:00, Room B3e

**SESSION 2**  
TS 6.11 Circular Economy 1 | 13:30 – 15:00, Room C2  
TS 2.2.2-1 Energy Efficiency and Recovery-Group 1 | 13:30 – 15:00, Room B3d  
TS 2.2.3-2 Recovery of Nutrient and Chemicals-Group 2 | 13:30 – 15:00, Room B3e

**SESSION 3**  
TS 6.12 Circular Economy 2 | 15:45 – 17:15, Room C2  
TS 3.9 Emerging Pathogens and Their Management in Drinking Water and Water Reuse | 15:45 – 17:15, Room B5b  
TS 2.2.2-2 Energy Efficiency and Recovery-Group 2 | 15:45 – 17:15, Room B3d  
TS 2.2.3-3 Recovery of Nutrient and Chemicals-Group 3 | 15:45 – 17:15, Room B3e

### Thursday 15 September

**SESSION 1**  
WS 6.19 Governance and Transition to a Circular Economy in Public Water Services | 10:30 – 12:00, Room B3f  
WS 1.5 Water in Circular Economy and Resilience: An Opportunity to Transform Urban Water Services | 10:30 – 12:00, Room B3g

**SESSION 2**  
WS 6.16 Lifecycle System Thinking and System Boundaries for Sustainability Assessment of Water Management | 13:30 – 15:00, Room B3e
### Monday 12 September

**SESSION 1**  
Nature-based Solutions Workshop  
10:30 – 12:00, Room C0  
TS 5.1 Bottom-up Resilience Planning Across the Water Cycle  
10:30 – 12:00, Room B4b

**SESSION 2**  
WS 1.1 Nature-based Solutions - A Way To Make Our Cities Circular  
13:30 – 15:00, Room C2  
WS 1.2 Methodology and Context for Quantifying Your Sewer Methane  
13:30 – 15:00, Room B4d  
WS 4.2 Evaluation Criteria and Approaches for Tools in NbS Planning  
13:30 – 15:00, Room B3c  
TS 1.18 Utility Responses and Adaptation to Climate Change Impacts  
13:30 – 15:00, Room B3g

**SESSION 3**  
TS 4.4.5 Flood Risk Management  
15:45 – 17:15, Room B3b  
WS 4.3 Nature Based Solutions for Climate-resilient Cities in Developing Countries Under Change  
15:45 – 17:15, Room B3c  
WS 1.3 Innovative Approach to Nature-based Solutions for Urban Climate Resilience  
15:45 – 17:15, Room B3g

### Tuesday 13 September

**SESSION 1**  
TS 1.6 Sustainable Utility Management - The Nordic Experience  
10:30 – 12:00, Room B3g

**SESSION 2**  
TS 5.4 Partnerships and Cooperation in and beyond the Water Sector  
13:30 – 15:00, Room B4b  
TS 4.4.4 Planning in Respect of Nature Impacts  
13:30 – 15:00, Room B3b  
WS 4.5 Exploring Framework Conditions for Utilities to Reduce GHG Emissions  
13:30 – 15:00, Room B3c  
TS 1.7 Sustainable Utility Management  
13:30 – 15:00, Room B3g

**SESSION 3**  
TS 4.5.1 Partnerships and Cooperation  
15:45 – 17:15, Room B3e  
WS 6.6.2 Towards Climate Smart Utilities  
15:45 – 17:15, Room B4b  
TS 6.7 Water Stress, Droughts and Floods, Including Impact of Climate Change  
15:45 – 17:15, Room B4c  
WS 4.9 Groundwater Management for Climate Change Adaptation  
15:45 – 17:15, Room B3c  
TS 6.3 Groundwater - Resilience Approaches  
15:45 – 17:15, Room B3f

### Wednesday 14 September

**SESSION 1**  
TS 6.8 Water Resource Management and Adaptation to Climate Change Impacts  
10:30 – 12:00, Room B3f  
WS 1.1 The Road Towards Climate and Energy Neutral Water Utilities  
10:30 – 12:00, Room B3g

**SESSION 2**  
WS 4.6 Water for Smart Liveable Cities  
13:30 – 15:00, Room B3c  
TS 6.9 Catchment Management and Natural Capital Approaches on Different Scales  
13:30 – 15:00, Room B3f

**SESSION 3**  
TS 1.15 Management of Extreme Events  
15:45 – 17:15, Room B3a  
TS 4.4.11 Nature-based Solutions, Sponge Cities and Blue-Green Infrastructure  
15:45 – 17:15, Room B3b

### Thursday 15 September

**SESSION 1**  
TS 6.13 Integrated Assessment  
10:30 – 12:00, Room C2  
TS 1.3 Advancing Coastal Resiliency for Imperilled Barrier Island Systems  
10:30 – 12:00, Room B4c  
TS 4.4.12 Transitioning to and Implementation of Sustainable and Water Wise Cities  
10:30 – 12:00, Room B3b

**SESSION 2**  
TS 1.14 Integration of Decentralised Solutions in a Centralised System  
13:30 – 15:00, Room B3a  
TS 4.4.6 Holistic Urban Water Management Planning  
13:30 – 15:00, Room B3b  
WS 4.8 Actionable Pathway to Implementation of Nature-based Solutions  
13:30 – 15:00, Room B3d
**Information**

**Practical & useful**

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**Useful Information**

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For questions about accommodation, please visit https://worldwatercongress.org/accommodation-copenhagen/ or go to the registration desk.

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Get your morning coffee, lunch and afternoon coffee at one of the food stations, which are conveniently located throughout the exhibition hall.

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- Wednesday 14 Sept — 08:00 / 18:30
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**WIFI DETAILS:**
WIFI is free for all attendees

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Floorplan

to the Congress

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Keynote Speakers
and Plenary Panel Discussions

Prof. Jason Eric Box
Glaciology and Climate, The Geological Survey of Denmark and Greenland (GEUS), Denmark.

Rapid Arctic Climate Change and Water Issues Around the World

SUNDAY 11 SEPTEMBER
CONGRESS HALL A1 | 16:00 — 18:00
DURING OPENING CEREMONY

Jason Box has studied the Greenland ice sheet as part of more than 20 expeditions in Greenland since 1994. Originally from the US, he is now a research professor with the Geological Survey of Denmark and Greenland (GEUS). Prior to Denmark, he gained a broad perspective in climate and water issues from university lecturing for 9 years while studying the Arctic. His work examines the interactions between elements of the ice atmosphere ocean system using a combination of remote sensing, atmospheric modeling, and in-situ ground truth measurements.

He is contributing author to the past three Intergovernmental Panel on Climate Change reports, a leading member of the Arctic Council’s Arctic Monitoring and Assessment Program (AMAP) and a former Chair of the Cryosphere Focus Group of the American Geophysical Union.

Prof. Rohit T Aggarwala
Commissioner for Environmental Protection, City of New York, United States

A Practical Perspective in Building Resilience Into Urban Water Management

MONDAY 12 SEPTEMBER
CONGRESS HALL | 09:00 — 09:50

Prof. Rohit T Aggarwala is a widely recognised expert on urban sustainability, technology, and mobility. He led the creation of the Mayor’s Office of Long-Term Planning and Sustainability under Mayor Michael R. Bloomberg, founded the environmental grant making programme at Bloomberg Philanthropies, and served as President of the Board of Directors of the C40 Cities Climate Leadership Group. He was part of the founding team at Sidewalk Labs—Google’s urban technology start-up—and more recently was a senior urban tech fellow at the Jacobs Cornell-Technion Institute. He has provided advice and assistance to a number of foundations and impact investment funds and chaired the Regional Plan Association’s Fourth Regional Plan for the New York region. Aggarwala holds a PhD, MBA, and BA from Columbia University and an MA from Queen’s University in Kingston, Ontario.

Panel Discussion

PANEL MODERATOR
Mark Fletcher, Global Water Leader, Arup, United Kingdom
Austin Alexander, Vice-president, Sustainability & Social Impact, Xylem, USA
Lynn Broaddus, Immediate Past President and Board Trustee, Water Environment Federation, USA
Chien-Hsin Lai, Director General, Water Resources Agency (WRA), Ministry of Economic Affairs (MOEA), Chinese Taipei
Tony Wong, Chief Executive of the Cooperative Research Centre for Water Sensitive Cities, Monash University, Australia
A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected

MONDAY 12 SEPTEMBER
CONGRESS HALL | 17:30 — 18:20

Nathalie Olijslager is an expert in Sustainable Economic Development, Economic Cooperation, and International Business. Nathalie started her career in the Dutch Ministry of Foreign Affairs after receiving her Master’s degree in International Economic Relations from Leiden University in The Netherlands and a one-year term at Beloit College in Wisconsin as a Fulbright Scholar. Since 2002, she has been involved in multiple roles for the Dutch Ministry of Foreign Affairs in various countries including South Africa, Hungary, USA, Switzerland and now in the Netherlands, where she has been appointed Program Director of the UN 2023 Water Conference, which is co-hosted by the Netherlands. Prior she was the Dutch Ambassador in Geneva. In her roles, she has worked as an account manager for multinational companies and large industrial water users such as Unilever, Heineken and AkzoNobel. She is passionate about water and sanitation issues, especially relating to women and youth.

Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge

TUESDAY 13 SEPTEMBER
CONGRESS HALL | 09:00 — 09:50

Dawn Martin-Hill (Mohawk, Wolf Clan) holds a PhD in Cultural Anthropology and is one of the original founders of the Indigenous Studies Program at McMaster University in Canada. She is the recipient of a US-Canada Fulbright award, Outstanding Teaching Award from the Aboriginal Institutes Consortium, and she has received grants from SSHRC, CIHR and the Ontario Trillium Foundation. Her research includes: Indigenous knowledge & cultural conservation, Indigenous women and the contemporary practice of Indigenous traditionalism. She has also produced three documentaries about historical traumas, indigenous knowledge and traditional practices. The latest film, “Sewatokwa’tshera’t: The Dish with One Spoon” (2008), is about the Haudenosaunee reclamation of traditional lands. Dawn is passionate about community empowerment, sustainability and traditional environmental conservation practices. Most importantly she is keen to share sustainable water solutions incorporating indigenous knowledge.
Keynote Speakers
and Plenary Panel Discussions

Oliver Grievson
Chair of IWA’s Digital Programme, Technical Lead at Z-Tech Control Systems

Enrique Cabrera Rochera
Senior Vice President of IWA, Professor at Universitat Politècnica de València

Farokh Laqa Kakar
Associate Environmental Engineer at Brown and Caldwell, Co-founder of Blue College

Digital Water Unpacked
TUESDAY 13 SEPTEMBER
CONGRESS HALL | 17:30 — 18:20

Oliver is a highly experienced water industry professional with particular skills in both process engineering and instrumentation. He has experience working in water & wastewater operations, managing the entire gamut of water operations from water resources, production and distribution through to wastewater collection and treatment. More recently Oliver joined Z-Tech Control Systems as Technical Lead, focusing on both instrumentation and the digital transformation of the water industry. He is passionate about digitalisation, smart water systems and technology. He recently became chair of the Steering Committee of IWA’s Digital Water Programme.

Enrique is a tenured full professor in fluid mechanics at the Universitat Politècnica de València. His activity revolves around urban water management and pressure hydraulics. More specifically on topics related to performance assessment, benchmarking, regulation of water services, digital water, water and energy and infrastructure asset management. In addition to the purely academic activity, his work in ITA is focused on training of water professionals (mostly through e-learning), consultancy and advisory roles in international projects and the research and development of new topics. Currently, he is the Senior Vice President of the International Water Association, sitting in the boards of directors of IWA and IWA Publishing.

Panel Discussion

Corinne Cheeseman, CEO, Australian Water Association, Australia

Pernille Ingildsen, Head of Projects, Hillerod Utility, Denmark

Ramón Dolz Mollá, CEO Spain & Latin America, Baseform, Spain

HP Nanda, Executive Vice President & Divisional CEO, Water Utility, Grundfos, USA

Uniting Youth for Water
WEDNESDAY 14 SEPTEMBER
CONGRESS HALL | 09:00 — 09:50

Dr. Farokh L Kakar is an environmental Engineer at Brown and Caldwell and Founder of Blue College of Water and Technology. Dr. Kakar has completed her master and doctoral studies in Civil Engineering at Ryerson University in Toronto, Canada. Her research mainly focused on resource recovery from waste. During her PhD, she has won the prestigious Vanier scholarship in Canada for academic excellence and leadership. Dr. Kakar is the first tech company owner, and the only female professor in their faculty back in Afghanistan. Dr. Kakar is the winner of more than 20 awards. She has a record of 5 book chapters, 20+ peer reviewed journal articles, and 20+ conference presentations in 4 years and was able to obtain a Ph.D. in less than 3 years. She has been a keynote, speaker and panelist for more than 20 conferences speaking about the circular economy, women & young water professionals’ role in water.

Panel Discussion

PANEL MODERATOR

Jacob Amengor, Water Quality Assurance Supervisor, Ghana Water Company Ltd., Ghana, Chair of IWA Young Water Professional community 2022-24

Inês Breda, Product and Process Manager, Filtration Technology, Silhorko-Eurowater A/S, Denmark, Member of the IWA Young Water Professionals Steering Committee

Andrea Montuori, Procurement Sustainability Manager, Xylem Inc., Switzerland

Yang Villa, Head of the Philippines, Isle Utilities, Philippines, Member of the IWA Young Water Professionals Steering Committee
Learning to Dance in the Rain — How to Thrive in an Era of Climate Change

WEDNESDAY 14 SEPTEMBER
CONGRESS HALL | 17:30 — 18:20

Paul is the Founder and CEO of BlueTech Research, the leading global intelligence firm focused on water innovation. He started his career in biochemistry working alongside pioneering environmentalists and researching the effects of deforestation on water quality. Later in his career, whilst working as an engineering consultant, he observed the prolonged length of time it took to bring water technologies to the marketplace, so he founded BlueTech Research in 2011 to support innovation.

Paul’s latest project “Brave Blue World” seeks to increase awareness of existing solutions to the water crisis, co-producing the documentary that has attracted support from a host of A-list celebrities. Paul regularly lectures and has recently spoken at Davos 2020, Web Summit 2020 and at Harvard and Cambridge Universities.

Paul now advises many global Fortune 500 firms including L’Oréal, Microsoft and PepsiCo on their water strategy policies and has completed a PhD in Water Innovation at Wageningen University.

Wastewater Gone Viral: Pandemic Signals From the Sewers

THURSDAY 15 SEPTEMBER
CONGRESS HALL | 09:00 — 09:50

Gertjan Medema is Principal Microbiologist at KWR Water Research Institute and Professor of Water & Health at Delft University of Technology, the Netherlands and Distinguished Hannah Visiting Professor at Michigan State University.

His research focuses on understanding the transmission of infectious diseases and antimicrobial resistance via water systems, and how this can be prevented. This includes the development of methods for detection and removal of pathogens such as viruses, bacteria, parasites and antimicrobial resistance in water, conducting Quantitative Microbial Risk Assessment and epidemiological research on the health effects of water systems, and providing advice for the design of safe water systems and policies. He recently initiated research on wastewater-based epidemiology of COVID-19. Gertjan is director of the WHO Collaborating Centre on Water Quality and Health at KWR and advises WHO and the European Commission on the microbial safety of water and water reuse, and on wastewater surveillance.

Panel Discussion

PANEL MODERATOR
Ana Soares, Professor of Biotechnology Engineering, Cranfield University, United Kingdom, IWA Fellow
Anna Delgado, Water Specialist, The World Bank, USA
David Flinton, Senior Vice President, Chief Innovation, Technology and Product Management Officer, Xylem, USA
Amanda Lake, Head of Carbon and Circular Economy - Water Europe, Jacobs, United Kingdom
Zhiyong Jason Ren, Department of Civil and Environmental Engineering, Princeton University, USA
Lila Thompson, Chief Executive, British Water, United Kingdom

Panel Discussion

PANEL MODERATOR
Joan Rose, Professor at Michigan State University, United States
Jay Bhagwan, Executive Manager: Water Use and Waste Management, Water Research Commission, South Africa
Jonathan Hoffmann, Administrative Engineer, Dept of Environment Protection, United States
Lasse Dam Rasmussen, Senior Scientist in Virology, Statens Serum Institut, Denmark
Ana Maria de Roda Husman, Head of Environmental Infectious Diseases at RIVM, Professor in Global Changes and Environmental Infectious Diseases at Utrecht University - Institute for Risk Assessment Science, Netherlands
Marta Vargha, Head of the Water Hygiene Department at National Institute for Environmental Health, Hungary
Congress Spotlights

Selected highlights of events during the Congress

Gala Dinner | Thursday 15 September, evening programme | Venue: Øksnehallen

The Gala Event at the IWA World Water Congress & Exhibition promises to be an outstanding evening.

In true IWA flair, the conference dinner is set to be the highlight of the social calendar, with fantastic entertainment accompanied by fine cuisine. Get your ticket online!

VENUE: ØKSNEHALLEN
DRESS CODE: SMART CASUAL

‘Into Dust’ Film Screening | Monday 12 and Wednesday 14 September, 17:15 | Room C2

Into Dust tells the true story of Perween Rahman, a woman who stood up for water in Karachi, Pakistan. And she ended up paying the ultimate price. The film is created by Academy Award-winning film director Orlando von Einsiedel and sponsored by the Grundfos Foundation. Set against the backdrop of the global water crisis, Perween's story highlights what can happen when a city runs out of water.

Panel debate: What can happen when a city runs out of water? | Tuesday 13 September, 17:30 | Room C2

Followed by ‘Into Dust’ film screening

According to the UN, more than 2 billion people live without access to safe water and 785 million lack access to basic water. The Grundfos Foundation decided to engage in this special film project to raise awareness about exactly this - and how it affects people. Using Into Dust as a platform, this panel debate focuses on the overarching theme of what it takes to make water work for everyone.
The 2022 Project Innovation Awards (PIA) | Tuesday 13 September 2022, 20:00 | Venue: Moltkes Palæ

Awarded biennially at the IWA World Water Congress & Exhibition, the Project Innovation Awards recognise and promote excellence and innovation in water management, research and technology. After a closely contested judging process featuring 203 entries from 52 countries, an expert judging panel has shortlisted entries for various award categories. The awards are presented at a prestigious black-tie event in front of an audience of water leaders from around the world. Get your ticket online!

VENUE: MOLTKES PALÆ

PrimeWater Meeting | Tuesday 13 September, 13:00 — 14:30 | Room 180

The PrimeWater meeting aims to introduce interested professionals to the PrimeWater Project, share with them new knowledge, showcase the well-developed PrimeWater virtual platform, and encourage engagement in the 'Earth Observation for water management' Community of Practice.

Enjoy an evening visit to Copenhagen’s Tivoli Gardens | Wednesday 14 September | Venue: The Tivoli Gardens

Immerse yourself in local culture and lifestyle for an evening at Tivoli Gardens in central Copenhagen!

This is a chance for an unforgettable visit to one of the world’s oldest theme parks – a magical place so full of wonder that it inspired Hans Christian Andersen and Walt Disney. A must-see for visitors to Copenhagen, Tivoli Gardens offers a range of diverse entertainment options suitable for all, including music, lush gardens, global and local food choices, and rides in the heart of the Danish capital.

We are pleased to offer specially-priced tickets giving entry to the park and the possibility to enjoy an unlimited number of rides.

Find out more: www.visitcopenhagen.com/copenhagen/planning/tivoli-gardens-gdk424504

Book your place online!
Cost for the evening: EUR 30
Programme Features

Programme features are an important part of the Congress to get an in-depth understanding of current trends, latest research, guiding strategies and leading practices. For more information please visit: https://worldwatercongress.org/forums/

SATURDAY 10 SEPTEMBER

Crowne Plaza Copenhagen Towers — Everest 2 | 09:00 — 15:00

Specialist Groups Leaders Forum

IWA’s 50 Specialist Groups (SG) are the core vehicle for member engagement and knowledge development. They connect people from across disciplines and across national boundaries to accelerate the science, innovation, and practise that can make a difference in addressing water challenges and pushing the sustainability agenda.

In order to enhance member engagement and empower our members, SGs and the IWA Secretariat need to work together to facilitate better networking and knowledge exchange mechanisms, allowing greater interaction, collaboration, and better access to the networks’ knowledge and expertise, both in strategic planning and implementation. The SG Leaders Forum is one of the best opportunities to discuss and work together on moving this effort further.

The SG Leaders Forum provides a unique face-to-face opportunity for IWA SG Leaders to communicate with one another and with the IWA Secretariat, discuss IWA strategy issues, exchange experiences on SG management and member engagement, and connect with other IWA vehicles. It strengthens all IWA SGs, TGs, and Clusters and helps to improve how groups can better contribute to the water sector by working together.

MONDAY 12 SEPTEMBER

Room A2 | 10:30 — 17:15

High-Level Summit

WATER AS A KEY TO ACTION ON CLIMATE AND THE SDGS

Water is crucial for the life and functioning of cities. Water’s role in cities spans access to safe water and adequate sanitation through to enjoyment of a healthy environment. The urgency around water is particularly visible in the added risk of drought and flood due to climate change. The water sector also has an important part to play in contributing to reduction of global carbon emissions.

The Summit is organised by the International Water Association, Danish Water and Wastewater Association, the Municipality of Copenhagen, P4G and the Confederation of Danish Industry, in cooperation with the Ministry of Environment of Denmark and the Ministry of Foreign Affairs of Denmark. With a strong focus on cases, it will facilitate high-level contributions and debate around:

- Funding needs
- Governance
- Partnerships

Room A3 | 10:30 — 17:15

Groundwater Forum

The Capital Region of Denmark welcomes all groundwater-interested delegates to attend the Groundwater Forum. The Groundwater Forum aims to promote groundwater as a critical resource to achieve the Sustainable Development Goals and, critically, safe drinking water for all. The Forum will provide examples from around the globe on the management of groundwater quantity and quality.

Invited speakers will highlight challenges and solutions for sustainable groundwater exploitation. In three sessions, the Forum will explore and facilitate participant discussions on groundwater topics such as management and cooperation around scarce resources and competing interests, quantifying groundwater sustainability, risk assessment of emerging pollutants, sharing of groundwater data and more.

MONDAY 12 SEPTEMBER

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**TUESDAY 13 SEPTEMBER**

Room C0 | 10:30 – 15:00

**Emerging Water Leaders Forum**

The water sector faces significant dual challenges of an ageing workforce and a shortage of adequately skilled staff to meet Sustainable Development Goal 6 and the 2030 Agenda. To address the high standards and targets set under this goal, the sector needs to attract and support new talent development, retaining them in the sector. This new talent should be seen as emerging leaders, who should be encouraged and empowered to contribute to the sector’s advancements.

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 Young Water Professional**. Participants are invited to discuss and design solutions among their peers to address big challenges. The Forum will be an opportunity to voice your ideas and perspectives as a young water professional and break complex issues down into smaller components. You will practise your problem-solving skills whilst developing answers to the questions posed by senior and experienced professionals.

**TUESDAY 13 SEPTEMBER**

Room A3 | 10:30 – 17:15

**Industrial Water Users**

The Forum for Industrial Water Users was formed to exchange ideas and approaches on how the industry can mitigate and overcome water-related challenges in a sustainable manner. As water is always seen in the local context, the Forum will present different approaches from across the globe. Industrial water users account for around 20% on a global scale, or more than twice the total domestic water use, and in some countries, industry consumption counts for 50%, with considerable local impacts.

Core topics to be addressed at the Forum for Industrial Water Users will be:

- Perspectives on water stewardship
- Incentivising Sustainability: from SDGs to Regulation
- Sustainable tools and applications, including water efficiency and water reuse

The participants in the Forum are expected to be Sustainability/EHS responsible from food and other water-intensive industries, retailers, consumer organisations, academics doing research on water administration and technological solutions, NGOs, consultants within water management and efficiency, technology providers within water management and technical solutions.

**TUESDAY 13, WEDNESDAY 14 SEP**

Room A2 | 10:30 – 17:15

**Utility Leaders Forum**

The Utility Leaders Forum (ULF) is the international meeting of the global network of utility leaders. It gathers high-level representatives of utilities covering the provision of water, sanitation, and wastewater treatment services.

Utilities have the critical and ultimate responsibility to provide the infrastructure, systems, and governance to effectively manage water for the public. With growing populations, ageing infrastructure, and a changing climate, challenges over the past decade have increased significantly. Many utilities across the world have become very creative and innovative to implement novel and game-changing solutions to these challenges. Their invaluable insights and knowledge are seldom shared on a global platform, and utilities rarely come together to discuss how to go forward towards solutions. To that end, the Utility Leaders Forum (ULF) will be a central feature during the IWA World Water Congress & Exhibition.

The ULF will bring together, over the course of two days, some of the most prominent water utility leaders with the most impactful case studies to share experiences and knowledge. This will involve having an open, interactive, and structured dialogue around some of the most critical issues facing utilities. Importantly, this will be structured in a format that will facilitate participation from all attendees.
Programme Features

Programme features are an important part of the Congress to get an in-depth understanding of current trends, latest research, guiding strategies and leading practices. For more information please visit: https://worldwatercongress.org/forums/

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Operations Challenge

The Operations Challenge is inspired by a model developed by WEFTEC and made possible in collaboration with DANVA, WEF, Aarhus Vand, The Danish Society for Wastewater Technology, and our valued sponsors – Grundfos, Wavin, Carl Stahl and Tractel.

Teams consisting of three individuals will compete in three typical water sector skills to earn the highest score in each competition. Winners in each skills category and an overall winner will be awarded as part of the competition. The goal is to highlight the importance of daily professional operations and maintenance skills in water utilities. The competition will take place on 14 September 2022, with the option to participate in a one-day training the day before.

Key skills areas: Maintenance, Collection Systems, Safety.

Water Innovation Accelerator — Innovators Platform Workshop

The Innovators Platform is a collaborative effort to inspire innovation around water. It is being guided by a steering committee of individuals with a shared passion for innovation and is supported by the International Water Association. The Copenhagen event is being co-developed and facilitated by Water Valley Denmark and is receiving input from Singapore’s PUB.

The Innovators Platform frames innovation in a wide context, looking beyond technologies. It anticipates the broad benefits to society can be realised with innovation ‘through’ water.

In the co-learning activities during the Copenhagen event, international participants will hear project-based insights, inspirational talks, and a synthesis from the first Innovators Platform event, held during Singapore International Water Week in April 2022.

The programme for the participants will then include co-creation activities featuring group-based facilitated innovation dialogues that it is hoped will stimulate new and significant partnerships to carry forward innovative actions beyond the Copenhagen event.

Participants will explore opportunities arising from water’s potential to be a vehicle for transformation through the adoption of a circular economy water journey for climate change mitigation and adaptation, captured by the question:

What are the opportunities to benefit society by harnessing water’s potential to bring about circular economy transformations delivering climate change adaptation or mitigation?

The International Water Regulators Forum

The International Water Regulators Forum (IWRF) is the international meeting of the global network of regulators of IWA. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and wastewater treatment services. The Forum is a regulators-only event, except for its closing plenary.

During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations with roundtable discussions led by the speakers. The roundtable discussions provide an opportunity for participants and speakers to analyse and discuss in detail each topic, share comparative experiences, address proposed questions, and suggest one or more recommendations for consideration by the plenary.

The Forum consists of four sessions during the IWA World Water Congress & Exhibition 2022 where a highly prioritised agenda addressing current regulatory challenges and topics of interest to regulators will be delivered. The forum concludes with a closing plenary where discussions will be summarised and recommendations presented, providing an opportunity to engage with other relevant stakeholders and explore the interlinkages between regulation, science, policy and practice. The Forum is being shaped and steered by a diverse and motivated Programme Committee, a committed group of professionals consisting of high-profile members of the IWA Regulators Community.
Become an agent of change!

As an IWA member you can contribute towards a better water future. Join IWA and get access to a network of thought leaders, exclusive content and professional development.

Special 20% discount on individual memberships available until 30 October 2022 with the code: WWCE22IWA

Come meet us at the IWA stand and discover a world of opportunities!

Stand No. C2-322

IWA LAUNCHES NEW MEMBER ENGAGEMENT PLATFORM IN 2023!

Come visit us at the IWA Pavilion and experience it first-hand!
**Specialist Groups**

Task Groups and Clusters — Open meetings schedule

One of the unique strengths of IWA is bringing together experts from across the globe and specialisations. To facilitate this, IWA members organise themselves into Specialist Groups (SG), Task Groups (TG) and Clusters. IWA Specialist Groups are at the heart of the organisation’s mission and activities. Members of the group work on projects such as organising conferences, seminars, and workshops, as well as publishing books, reports, newsletters, and journal papers.

During the IWA World Water Congress, many Specialist Groups (SG), Task Groups (TG) and Clusters have open meetings to which all congress delegates are welcome. Do not miss this unique opportunity to connect and network with specialists and leaders in the respective fields, and to update your knowledge on the issues that interest you.

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**Design, Operation and Costs of Large Wastewater Treatment Plants**

**MONDAY 12 SEPTEMBER 10:30 — 12:00, ROOM 18**

The open meeting will provide an update on the group’s activities as well as the management structure. The primary focus will be on preparing for the next 5G conferences, which will be held in Budapest in 2024 and outside of Europe in 2026. We look forward to an interesting discussion and invite you to join us.

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**Water Reuse**

**MONDAY 12 SEPTEMBER 10:30 — 12:00, ROOM 19**

During our open meeting, we will introduce the Water Reuse Specialist Group as well as its nine working groups (Agricultural Irrigation, Water Reuse in Developing Countries, Industrial Reuse, Desalination, Urban Landscape Irrigation, Other Non-potable Reuse Practices, Potable Reuse, Young Water Reuse Professionals, Water Quality Management and Water Reuse Guidelines, and Social and Economic Dimensions of Water Reuse) for which we are looking for active members and group leaders. Furthermore, we will keep you updated on our activities, including the 13th IWA International Conference on Water Reclamation and Reuse, which will be held in Chennai, India on January 15—19, 2023.

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**Small Water and Wastewater Systems**

**MONDAY 12 SEPTEMBER 12:00 — 13:30, ROOM 18**

The open meeting of the SWWS specialist group will give an update on the work of the management committee and the upcoming joint SWWS and ROS conference. The formation of working groups within the specialist group will be discussed, and we will collect ideas for new activities in the group and how we can make the most of IWA Connect. We will also provide a link for on-line attendance. Everyone interested in small water and wastewater systems is warmly welcomed!

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**Institutional Governance and Regulation**

**MONDAY 12 SEPTEMBER 12:00 — 13:30, ROOM 19**

This open meeting will be held to engage with group members and discuss upcoming activities and areas of interest over the next year.

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**Efficient Urban Water Management**

**MONDAY 12 SEPTEMBER 15:45 — 17:15, ROOM 18**

This Specialist Group aims to encourage the interchange of knowledge, research, best practices, and programmes regarding efficient management and use of water in cities and towns. This includes topics such as: end-use efficiency; customer demand management; level of service; network asset management; water loss management; performance assessment; environmental impacts; economics; social preferences and involvement; water resource planning; and programme design.

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**Watershed and River Basin Management**

**MONDAY 12 SEPTEMBER 13:30 — 15:00, ROOM 18**

This open meeting will review the committee structure and membership. In addition, we will discuss upcoming activities, possible conference themes and locations, as well as the Basin Connected Cities Program.

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**Statistics and Economics**

**TUESDAY 13 SEPTEMBER 10:30 — 12.00, ROOM 18**

This will be our regular half-year (autumn) meeting of our Management Committee. All plans and ongoing activities of the SG will be discussed, including the installation of new officers for a new 4-year period. In addition, as needed, short meetings of our four regular working groups and one temporary working group will be held. The meeting is open to everyone.

Room 18 and Room 19 are located on the 1st floor of the Bella Center
Benchmarking and Performance Assessment
TUESDAY 13 SEPTEMBER
12:00 — 13:30, ROOM 18
This SG BPA open meeting will be an excellent opportunity to resume our pre-pandemic annual meetings. We will provide an update on group activities, plan our next SG Conference (PI2023) and formally introduce our new Management Committee.

Modelling and Integrated Assessment (MIA)
TUESDAY 13 SEPTEMBER
13:30 — 15:00, ROOM 18
The IWA Specialist Group on Modelling and Integrated Assessment (MIA) will present the Management Committee and its associated Young Water Professionals, how the MC works in order to move the MIA group forward and further strengthen its role in the coming years. Ongoing activities related to numerous Task Groups, Working Groups and webinars supported by MIA will be presented, as well as several important events and conferences that MIA will organise in the next few years. The group’s communication policy (including IWA Connect, open website, Twitter, LinkedIn, and YouTube) will also be discussed. As always, it will be possible for SG members to bring up their own topics and ideas for discussion during the open meeting. We hope to make the MIA Open Group meeting accessible on-line for those members not attending the IWA World Water Conference in Copenhagen. You are all very welcome!

Sustainability in the Water Sector
WEDNESDAY 14 SEPTEMBER
12:00 — 13:30, ROOM 18
During our open meeting, we will discuss: (1) our focus areas—Sustainable Development Goals, sustainable industrial water use, effective use of digital tools, professional development, and staff training; (2) SG activities—webinars on the role of water utilities in Africa in supporting the SDGs, a webinar in Spanish on industrial water use, webinars in both English and Spanish on empowering women in the water industry, and a book published by IWA Publishing on Sustainable Industrial Water Use, and; (3) our plans for the future. We are doing exciting and innovative work together and would love to include you.

Sludge Management
TUESDAY 13 SEPTEMBER
15:45 — 17:15, ROOM 18
The purpose of our open meeting is to offer an update on the group’s activities, conferences, projects, and other initiatives. Our main focus will be the planning of conferences for the year 2023. We are also actively looking for new members.

Disinfection
WEDNESDAY 14 SEPTEMBER
10:30 — 12:00, ROOM 18
Our open meeting will provide an update on group activities, conferences, projects, and other initiatives. The SG leader or representative will give a summary of Disinfection SG’s events and activities, including the 3rd Disinfection & Disinfection By-Products conference in Milan, Italy, June 2022, webinars, and the main content of the Disinfection Chapter in the IWA Global Trend Report. We will also invite some leading scientists to give speeches on the recent progress related to disinfection, such as the disinfection applications to fight against the COVID-19 pandemic.

Resource Oriented Sanitation
WEDNESDAY 14 SEPTEMBER
10:30 — 12:00, ROOM 19
This open meeting will give us an opportunity to discuss previous activities and the focus of SG-ROS. One of the topics will be the collaboration with SG SWWS in organising the next joint SWWS ROS specialist conference. Another topic will be the elections for the new management committee. We intend to have a hybrid meeting and we will provide a link for remote attendance. Everyone interested in the activities of IWA-ROS will be warmly welcomed to attend the meeting.

Groundwater Management
WEDNESDAY 14 SEPTEMBER
12:00 — 13:30, ROOM 19
With the Copenhagen Congress highly focused on groundwater, there is no better time to meet in person with current members of the SG and new members interested in joining the SG. This will be the first in-person meeting with group members under the new leadership elected just before COVID-19. It will be a good opportunity for members to bring in their input as we discuss future plans for the group.

Advanced Oxidation Processes
WEDNESDAY 14 SEPTEMBER
13:30 — 15:00, ROOM 18
The open meeting of the AOP SG will provide an update on the next AOP conference in 2023 as well as the group’s future activities. Interested delegates and SG members are welcome to attend the meeting for the purpose of sharing information and discussing trends in industrial water reuse.
This will be the first in-person gathering of the Task Group on Sustainable Water Use since it convened in Guayaquil in autumn 2019 at the IWA/IDB Innovation Conference. This meeting will be a chance to discuss the group’s accomplishments to date as well as possibilities to move the work forward. This will include a discussion of a proposal to form a new more specialised task group focused on sustainable water use and climate change considerations in the fashion, textile, and leather processing industries, which will be proposed as a joint initiative with the Alliance for Water Stewardship, with whom IWA has a Memorandum of Understanding for ongoing collaboration.

Metals and Related Substances in Drinking Water

Our open meeting will be held to welcome new members interested in joining the SG’s activities. Preliminary topics will be the upcoming conferences and webinars, an update on management structure, the formation of IWA working groups and joint ventures and the IWA Connect and how we can make the most of it.

Room 18 and Room 19 are located on the 1st floor of the Bella Center

Urban Drainage Joint IWA / IWHA

Our open workshop will be organised into two parts. In the first part, we will update our SG activities, such as conferences, projects, publications, future events, and other initiatives. We are also actively seeking new members, mainly among IWA and IWHA. During the second part, we will discuss the evolution of water quality vs life expectancy worldwide. Since ancient times, the need for healthy water has resulted in the development of various kinds of water supply and irrigation technologies. From prehistoric times, civilizations have developed water treatment technologies, including filtration and purification devices. The necessity for fresh water has influenced individual lives as well as communities and societies. By the beginning of the last century, intensive and effective efforts had been made internationally to improve water quantity. At the same time, human life expectancy has increased all over the globe, mainly in the developed world, at unprecedented rates. The beneficial effects of water quality and sanitation on human health and especially on life expectancy are significant future themes to be explored.

Urban Drainage Joint IWA / IWHA

Our open meeting will provide an update on the group’s activities and initiatives, new management structure, and future plans for the group, including synergies with other specialist groups. New members are always welcome.

Instrumentation, Control and Automation (ICA)

Our open meeting will provide an update on our group’s activities and initiatives, new management structure, and future plans for the group, including synergies with other specialist groups. New members are always welcome.

Health-Related Water Microbiology

Our open meeting will provide an update on our group activities, e.g., our Mini-Symposium Webinar Series, projects, and other initiatives. The members of the MT will update you on the planning of the 21st HRWM Symposium in Darwin in June 2023. Moreover, we will discuss the coming election of the Management Committee. This meeting will be a good opportunity for members to provide their input as we discuss future activities for the group. We are also actively looking for new members, especially from the YWP. Everyone interested in the field of health-related water microbiology will be warmly welcomed to attend the meeting.

Particle Separation

Open Workshop (5 hours) on the occurrence, threats, and treatment of micro/nano plastics in wastewater and surface water (possibly in collaboration with the Nano Particles SG).

Microbial Ecology and Water Engineering

This open meeting will provide existing and future group members with information on the activities of the MEWE Specialist Group over the last two years. We will also provide an update on the structure of the MEWE SG and potential opportunities to participate in MEWE activities. Our goal is to solicit ideas from existing and prospective members on how to improve the MEWE SG’s engagement and reach within the IWA community.
Pretreatment of Industrial Wastewaters

THURSDAY 15 SEPTEMBER
15:45 — 17:15, ROOM 18

This SG open meeting in Copenhagen will provide a place for older and new members to discuss the future and evolution of our strategic objectives; debate key areas presented by the Committee in the report on SG trends 2022; discuss options for our future conference for 2023/24; and find new regional Committee members to enhance our annual activities. Focus will also be made on the preparation of a newsletter for late autumn 2022 with volunteer contributions from those in attendance and members of the current committee.

Working Group on Nature-Based Solutions for Water and Sanitation

THURSDAY 15 SEPTEMBER
15:45 — 17:15, ROOM 19

Nature-Based Solutions (NbS) are increasingly seen as innovative solutions to manage water-related risks such as pollution, flooding, and water scarcity. IWA members have significant technical expertise that is contributing to this area, and the IWA working group on Nature-Based Solutions for Water and Sanitation is an opportunity to ensure IWA is at the forefront of this important topic. This WG aspires to be the IWA platform for promoting NbS, with the specific aim of exploring how SGs across IWA can come together on this topic.

IWA Publishing’s Journals — Now Fully Open Access

Open Access compliant with EC grants

Thanks to IWA Publishing’s Subscribe to Open (S2O) model, our full portfolio is now available as Open Access titles, publishing the latest research on our most valuable resource, water. Through the help of subscribing libraries and institutions, IWA Publishing has converted subscriber-only access to Open Access, making all journals free to readers and researchers worldwide.

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S2O is increasing the impact of water and wastewater publishing around the world.
- Free for everyone to access
- No APCs
- 33% increase in citations since its inception
Technical Tours

Visit the region’s leading water projects and facilities

Tour 1 | Groundwater

From well to tap – Groundwater protection and visit to Danish waterworks

WEDNESDAY 14 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 50 delegates

In Denmark, drinking water is based exclusively on groundwater. One of the features that makes it so unique is that chlorination is not necessary to achieve safe drinking water. This results from targeted groundwater protection, water safety plans, a dedicated water supply sector, and collaboration between regions, municipalities, waterworks, and the private sector. On this tour, participants will visit a small waterworks and they will be introduced to the Danish approach to groundwater protection by the Capital Region of Denmark and by Birkerød Waterworks.

*Participation with comfortable clothes is recommended.

Tour 2 | Wastewater & Resource Recovery

The future treatment plant is a water resource recovery facility

TUESDAY 13 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 100 delegates

Visit the full-scale living lab, Avedøre Wastewater Treatment Plant, where focus is on sustainable circular economy. The visit will include a guided tour of the facility where you will see and hear about:

- Recovery and use of phosphorus in sludge ashes.
- Carbon harvesting by prefiltration to increase biogas production and reduce energy consumption.
- The Biogas Park where biogas is upgraded to bio-natural.
- Nitrous oxide minimisation by online control, nitrogen removal and test facility for treatment of hazardous substances in wastewater.
- Next generation technology from our strategic cooperation under the name 3VAND: VCS Odense, Aarhus Vand, HOFOR and BIOFOS.

BOOK YOUR TOUR!

For further details on the tours please visit worldwatercongress.org/technical-tours/
Tour 3 | Water Loss

Combined technologies to fight global water loss

TUESDAY 13 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 40 delegates

Visit the demo-sites of the LEAKman project, a Danish joint partnership specialising in water loss reduction. Water scarcity and water loss are massive challenges for water utilities worldwide. Leakage levels in Danish drinking water networks are among the lowest worldwide, with an average loss of below 10%. This is the result of long-term efforts to establish strategic rehabilitation processes, good craftsmanship and accurate measurements of production as well as consumption.

Greater Copenhagen Utility (HOFOR – 5-minute walk from the exhibition) will provide an overview of LEAKman’s technical solutions. You will also meet the different stakeholders involved in the project, such as Leif Koch, AVK, HOFOR, Novafos, Grundfos, Aveva, Kamstrup, NIRAS and DTU. Afterwards, you will get the chance to visit two demonstration sites around Copenhagen. This bus tour will take you to Frederiksberg Utility and Novafos Utility. There, you will see and learn about the intelligent pump station and the demo-site showcasing pressure reduction valves, smart meters, antenna sites for collection of data, pressure sensors, and deployed noise loggers.

*Participation with comfortable shoes and jacket is recommended.

Tour 4 | Climate Change Adaptation

Creating liveable cities though climate change adaptation – The experience of Greater Copenhagen

WEDNESDAY 14 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 50 delegates

Most of Copenhagen has a combined sewer and storm water system based on underground pipes. Climate change has increased the intensity and frequency of heavy rainfall events that lead to combined sewer overflow and surcharge. To build a more resilient city, Copenhagen has chosen to complement existing infrastructure and to give priority to green-blue infrastructure to increase urban greenery and improve liveability.

The tour will visit five locations in the City of Copenhagen as well as Frederiksberg Municipality, where green-blue solutions have reshaped the city: Enghave Park, Carlsberg City, Lindevangsparken, Langelands Square, and The Climate Quarter at Østerbro.

The tour will feature technical presentations on advanced cloudburst management, technologies to close the water cycle and reuse storm and rainwater, the use of digitalisation to monitor and manage the complex urban hydrology, and an integrated urban greenery solution to mitigate climate change impact.

*Participation with solid footwear and weatherproof clothing is recommended.
Tour 5 | Climate Adaptation (boat tour)

The transformation of Copenhagen’s harbour area – Climate change adaptation, flood protection and improved liveability

TUESDAY 13 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 75 delegates

This technical tour will tell the story of the profound transformation of Copenhagen’s inner harbour and the companies, authorities, and research institutions that formed the ecosystem required for this transformation by providing expertise, technical solutions, and visions for a climate-proof, safe, and liveable urban harbour.

The topics of the tour include climate change adaptation in the proximity of the harbour; protection of the (bathing) water quality in the harbour; prevention of stormwater and combined sewer overflow; future and present storm surge protection measures in the historical context; and the integration of recreational activities in a former industrial harbour. The tour will also offer a chance to get to know Copenhagen’s main tourist sights from the waterside.

*Participation with solid footwear and weatherproof clothing is recommended.

Tour 6 | Water Quality and Climate Neutrality (boat tour)

Innovations for clean harbour water and climate neutral wastewater treatment

MONDAY 12 SEPTEMBER
13:00 — 17:15
Cost: 45 euro
Pax: Limit of 75 delegates

This boat tour will bring you through the harbour of Copenhagen to Greater Copenhagen’s largest wastewater treatment plant, BIOFOS Lynetten. The boat tour will introduce participants to the profound transformation of Copenhagen’s inner harbour from a dirty, industrialised area to a highly treasured recreational water body. The tour will also offer a chance to get to know some of Copenhagen’s main tourist sights from the waterside – including the Royal Palace and the statue of the Little Mermaid.

After the boat tour through the harbour, the boat will dock at Denmark’s largest wastewater treatment plant, Lynetten, where you will get a tour of the plant and meet the technical experts who contributed to the harbor’s transformations and the WWTP’s journey to become a resource recovery facility. A brand-new nitrogen recovery process will be featured. During the tour, you will also get insights into the next generation of technology from Denmark’s four largest water utilities: VCS Denmark, Aarhus Vand, HOFOR and BIOFOS.

*Participation with solid footwear and warm weatherproof clothing is recommended.

BOOK YOUR TOUR!

For further details on the tours please visit worldwatercongress.org/technical-tours/
Tour 7 | Wastewater and Nature Restoration *Full - Day Tour*

Fully covered wastewater treatment plant with ambitious goals and nature restoration of Frederiksborg Castle Lake

FRIDAY 16 SEPTEMBER
9:00 — 16:00
Cost: 45 euro
Pax: Limit of 50 delegates

Visit Denmark’s first fully covered WWTP – Solrødgaard – in the historic surroundings of Hillerød, north of Copenhagen. Hillerød Utility has established a greenfield wastewater treatment plant with ambitious energy and climate goals and a unique architecture. Among the design drivers have been: net-energy positive, CO₂ neutrality, optimal resource usability, symbiosis with private and public institutions, integration of the plant into the natural surroundings, and high working environment standards.

This visit will include a guided tour of the new green field WWTP and the Frederiksborg Castle Lake nature restoration project and will conclude with a guided tour of the historic castle (entrance fee is included in the price).

*Participation with warm comfortable clothing is recommended.

Tour 8 | Water in Industries *Full - Day Tour*

Visit to Kalundborg industrial symbiosis

FRIDAY 16 SEPTEMBER
9:00 — 16:00
Cost: 45 euro
Pax: Limit of 50 delegates

Visit the world’s first industrial symbiosis and experience first-hand how private enterprises are exchanging residuals and by-products from industrial production in closed cycles – with significant water savings as a result.

During this tour, you will be presented with an elaborate case of integrated water resource management around a lake that provides water for the industrial community. The visit includes a guided tour of a waterworks, which abstracts water from the lake and treats it to drinking water quality without the use of chlorine. You will also visit the largest heat pump in Denmark and an advanced wastewater treatment plant that removes pharmaceutical residues from wastewater using ozone. Representatives from the industries in the symbiosis will explain how the symbiosis was started and how continuous processes are keeping it alive and ensuring further development.
Tour 9 | Water for smart liveable cities *2 - Day Tour*

The Danish Experience

**FRIDAY 16 AND SATURDAY 17 SEPTEMBER**
9:00 — 17:15
Cost: 135 €
Pax: Limit of 50 delegates

Get the full experience of what the Danish water sector has to offer through this 2-day trip to Funen and Jutland, where you will experience a combination of some of Denmark’s leading projects in terms of wastewater treatment and resource recovery, climate change adaptation, and smart water solutions that help create attractive and liveable cities. This tour is also a great opportunity to experience some of Denmark’s cultural heritage. On day 1, you will depart from Copenhagen, with the first stop being the Ejby Mølle WWTP in Odense. There you will experience how energy consumption is reduced and green energy is produced from the sludge. The result is an energy self-sufficiency of 180%, enabling the utility to sell excess energy production to the local grid. The second stop is at The Climate City, Middelfart, where you will experience one of Denmark’s large-scale climate adaptation projects where rainwater has been disconnected from roads and sidewalks in an area of 450,000 m². Carlsberg’s water-efficient brewery, Fredericia, will be the third stop where state-of-the-art total water recycling technology has been installed, allowing Carlsberg to safely reuse 90% of the brewery’s process water. The day will conclude with a guided tour and dinner at LEGO House in Billund, followed by an overnight stay at Hotel LEGOLand.

Day two of the tour will feature the Billund Biorefinery in Billund, which is a demonstration plant for some of the best and most innovative Danish environmental technologies when it comes to treating biowaste and wastewater. Following that, AquaGlobe and Skanderborg Utility will be the second stop where you will see how a holistic approach to water solutions can impact the design of Smart Liveable Cities. Stop three will be at the integrated control and warning systems at the coastal city of Aarhus which aims to be a blue and green city. In the late evening, you will get the ferry and bus back to Copenhagen.

Tour 10 | Tour to Finland * Pre - Congress Tour *

Nordic technical tours

**SATURDAY 10 SEPTEMBER**
9:00 — 17:15
Cost: 45 euro
Pax: Limit of 80 delegates

Experience the Finnish way of sustainable water management – in one day!

Get the most out of your Nordic IWA 2022 experience with a one-day visit to Finland. On this full-day tour, you will learn about the best practises of the Finnish water sector while enjoying the city of Helsinki, the Nordic hub of design, culture, and urban nature.

The tour starts with inspiring presentations by world-class water experts. After lunch, you will get an introduction to Finnish way of sustainable water management and advanced Finnish water solutions in the form of site visits to Viikinmäki wastewater treatment plant. Viikinmäki WWTP, the largest treatment plant in the Nordics, treats around 270,000 m³ of wastewater every day, serving 900,000 residents.

Please note that the event takes place in Helsinki, Finland, one day before the main event in Copenhagen, Denmark. Participants are expected to coordinate their travel arrangements to Helsinki independently. The fee for the tour includes transports between Helsinki city center and Viikinmäki WWTP as well as coffee and lunch.

Photos: © Helsinki Region Environmental Services HSY
Tour 11 | Tour to Sweden * Post - Congress Tour *

Swedish living labs for a water smart future

FRIDAY 16 SEPTEMBER
9:00 — 17:15
Cost: 45 euro
Pax: Limit of 60 delegates

Get the most out of your Nordic experience with a one-day visit to Sweden.

At this tour, you will visit the cities of Malmö, Lund and Helsingborg and three exciting urban development areas where we work with storm and wastewater in new and innovative ways.

The first and second stops in the programme are connected to the project REWAISE. We will visit the newly built wooden parking building in Sege Park, Malmö, where storm water is collected for watering the green walls of the climate neutral building. The next stop is the Brunnshög park area in Lund, which is planned with sustainability and climate adaptation in focus and where we are testing membrane technique to purify storm water for new uses.

The third stop is Helsingborg city, where we have lunch and visit RecoLab. It’s a Living Lab focusing on urban development around water and sewerage, waste, energy and recycling. Recolab is the largest source-separated sanitation plant in the world using circular treatment to efficiently recycle greywater, blackwater and food waste. It is also one of the three nominees for the Global Water Awards 2022.

*The fee for the tour includes travel costs from and back to Copenhagen as well as coffee, lunch and Swedish fika.

BOOK YOUR TOUR!

For further details on the tours please visit worldwatercongress.org/technical-tours/
A MAJOR PLAYER IN ENVIRONMENTAL SERVICES FOR OVER 160 YEARS

SUEZ works every day to support local authorities and industries in managing the essential services of water and waste.

66 million
people served by drinking water production plants operated by SUEZ

2 million tons
of secondary raw materials produced

3.1 TWh
renewable energy produced

4.2 million tons of CO₂
emission reduced on behalf of our customers

35 000
employees committed to serving our clients to preserve the environment

Let’s meet and celebrate sustainability, innovation, and young talent!

- Proud host and sponsor of the official Young Water Professionals Dinner
- Co-organiser of the Industrial Water Users Forum
- Partner on the Next Generation Water Action initiative

Ramboll is a global architecture, engineering and consultancy company combining insights with the power to drive positive change for our clients, in the form of ideas that can be realised and implemented.

We call it: Bright ideas. Sustainable change.
Opening Ceremony
the IWA Awards, Exhibition Opening and Welcome Reception

Opening Ceremony | Sunday 11 September, 16:00 – 18:00 | Congress Hall A1

Prof. Jason Eric Box
Glaciology and Climate, The
Geological Survey of Denmark and Greenland (GEUS), Denmark.

The must-attend opening event of the Congress gets the week off to a start with a vibrant mix of insight, formalities, recognition and entertainment. High-level leaders will welcome participants and open the week’s discussions centred on the vital topic of water. The Opening Ceremony will feature entertainment from the Copenhagen Drummers.

To help set the scene for the week, leading scientist and researcher Professor Jason Box from the environmental community will give a speech on rapid Arctic climate change and water issues around the world. This focus on climate change will resonate with delegates from around the world representing the diverse mix of interests and specialisms coming together to participate in the wide range of activities included in the programme.

Professor Box has studied the Greenland ice sheet as part of more than 20 expeditions in Greenland since 1994. Originally from the US, he is now a research professor with the Geological Survey of Denmark and Greenland (GEUS).

Professor Box is a contributing author to the past three Intergovernmental Panels on Climate Change reports, a leading member of the Arctic Council’s Arctic Monitoring and Assessment Program (AMAP), and a former Chair of the Cryosphere Focus Group of the American Geophysical Union.

The case of the Arctic highlights the water challenges ahead due to climate change.
Exhibition Opening / Welcome Reception | Sunday 11 September, 18:00 – 20:00 | Exhibition Hall

A first chance for delegates to access the World Water Exhibition. This provides a platform to connect industry, business, technology, innovation, practice, and science in what will be a networking hotspot during the rest of the week. All lunches, coffee and tea breaks will be served in the Exhibition Hall, providing key opportunities to interact with solution providers.

Open to all Delegates and Exhibitors, the Welcome Reception provides an early opportunity to engage and network with other professionals in the water industry – reconnecting with friends and contacts or making new ones – in a comfortable and casual setting.

The 2022 IWA Awards

The Opening Ceremony is also the platform for presentation of a number of IWA’s most celebrated Awards. IWA Awards are a mechanism through which IWA encourages and rewards innovation and sets international benchmarks for innovative thinking and application of solutions for wise water management and practices. The ceremony will feature the IWA 2022 Global Water Award, Gender Diversity and Water Award, Young Leadership Award, and presentation of the IWA Water and Development Awards (Research and Practice).
DANVA and IWA-DK are proud to host the IWA World Water Congress & Exhibition 2022

**DANVA UNITES** all water utilities involved in the daily supply of clean drinking water, wastewater management and flood prevention.

**DANVA SUPPORTS** all water utilities involved in developing and implementing innovative water solutions for Denmark and the rest of the world.

**DANVA COMMUNICATES** about the value and impact of Danish water solutions that create better living conditions and contribute to growth in Denmark.

DANVA
The Danish Water and Wastewater Association
Monday, 12 September
10:30 - 12:00

**Session 1**

**HIGH-LEVEL SUMMIT — WATER AS A KEY TO ACTION ON CLIMATE AND THE SDGS**

**INNOVATIVE FINANCING FOR SDGS AND CLIMATE CHANGE ACTION**

Chair: Tom Mollenkopf, IWA President

Summit organised by the International Water Association, Danish Water and Wastewater Association, the Municipality of Copenhagen, P4G and the Confederation of Danish Industry, in cooperation with the Ministry of Environment of Denmark and the Ministry of Foreign Affairs of Denmark. With water prominent in the SDG and climate agendas, the Summit will contribute to a powerful message on the need for cities to elevate water as they pursue their ambitions to create smart and secure liveable cities for all.

The first session will focus on innovative financing for the SDGs and climate change action.

By invitation

Discussion facilitator: Corinne Trommsdorff, Water Cities

13:30 - 15:00

**Session 2**

**HIGH-LEVEL SUMMIT — WATER AS A KEY TO ACTION ON CLIMATE AND THE SDGS**

**URBAN WATER GOVERNANCE FOR SUSTAINABLE CITIES**

Chair: Diane D’Araças, former IWA President

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**Session 3**

**HIGH-LEVEL SUMMIT — WATER AS A KEY TO ACTION ON CLIMATE AND THE SDGS**

**PARTNERSHIPS FOR INNOVATION AND TECHNOLOGY SHARING**

Chair: Carl Emil Larsen, DANVA

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The third session will focus on partnerships for innovation and technology sharing.

By invitation

Discussion facilitator: Corinne Trommsdorff, Water Cities

17:30 - 18:20

**Keynote Plenary**

**Groundwater Forum I — Groundwater Management**

Chair: Ida Holm Olsen, Denmark

Introduction by Anders Baakgaard, IWA WWPC President and Dr Stephen Foster, IWA Groundwater Management Specialist Group: Groundwater Frontiers for a Sustainable and Resilient Future

Groundwater for Sustainable Development: Embracing the Challenges and Strengthening the Synergies, Dr. Karen G. Vilhøth, Director, Water Cycle Innovation, South Africa

Groundwater management in Kenya: opportunities and challenges, Julia Gathu, Operations Manager-Drilling for Life, Kenya and Secretary for the IWA Groundwater Management Specialist Group

Replenishing aquifers in water-scarce countries: assessing groundwater quality changes induced by the large-scale injection of reclaimed wastewater, Dr. Henning Prommer, Principal Research Scientist at CSIRO Land and Water, Australia, and Winthrop Research Professor at the University of Western Australia

**Groundwater Forum II — Groundwater Sustainability**

Chair: Katerina Tsitonaki, Denmark

Sustainable management of slow groundwater in a fast-changing world: challenges and opportunities, Mark Cuthbert, Principal Research Fellow & Reader, Cardiff University, UK

Sustainability assessment of groundwater use. How can we integrate long term water quality in the assessment?, Martin Rygaard, Associate Professor, Technical University of Denmark

The importance of groundwater in San Francisco and the Bay Area, California, Paula Kahoe, Director of Water Resources, SF Public Utilities Commission

**Groundwater Forum III — Protection of Groundwater Quality**

Chair: Martin Rygaard, Denmark

The impact of contaminated sites on groundwater. Risk assessment and decisions to treat or not, Niels Døssing Overheu, Researcher, Flemish Institute for Technological Research

Agriculture and drinking water from groundwater: vulnerability for diffuse pollutants, Ingeborg Joris, Agriculture and Drinking Water from Groundwater: Vulnerability for Diffuse Pollutants, Capital Region of Denmark

The challenge of PFAS in groundwater: lessons learned and best practice guidance from the United States, Seth Kellogg, Principal Geologist, Geosyntec

10:30 - 12:00

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POLICY TO PRACTICE DIALOGUE FOR NATURE-BASED SOLUTIONS

Chair: Karl Vigars, United States and Eric Tardieu, France

Nature-based solutions (NbS) have emerged globally as one of the key sustainable and affordable ways to fix the broken urban water cycle and to contribute to improve river basin – cities health. While appropriate public policies can be essential to mainstream the use of NbS, revisiting practical NbS implementation cases can provide important inputs to better understand how to properly shape these policies.

Based on case studies from different geographies and social and economic contexts, this session aims to discuss how to create an enabling environment for mainstreaming NbS in urban and basin water management, considering the various implementation scales, the multiple stakeholders involved, and the technological solutions available.

Speakers: Tony Wong, Sustainable Development, Monash University (AU), Katharine Cross, Australian Water Partnership (AWP)(AU), Hitesh Vaidya, National Institute of Urban Affairs (NIUA) (IN), Pawel Licznar, Retenija (PL), Kirsty Carden, University of Cape Town (ZA), Sophie Tremolet, The Nature Conservancy (TNC) (UK), Suresh Rohilla, International Water Association (IWA) (UK)

AQUARATING WORKSHOP

Chair: Corinne Cathala, United States

AquaRating is an evaluation tool that was developed by the IWA in close collaboration with IWA to improve water and sanitation utilities. The AquaRating standard consists of 12 assessment elements organised into 8 areas of evaluation as well as groups of best practices. AquaRating is based on three pillars consisting of performance indicators, good practices, and the reliability of the information through an audit.

The session will describe in detail the tool and will showcase its products as well as several case studies of water utilities from different regions of the world which have implemented the AquaRating tool.

Speakers: Corinne Cathala, IWA (UK), Carlos Diaz, IWA (UK), Francisco Cubillo, AquaRating (ES), Verónica Sánchez, EPMAPS-Quito, Fabio Hernandez, AyA Costa Rica (CR), Amit Chanan, Water Authority of Fiji (FJ), Daniela Patino Piñeros, WIN, Umbręb Allakulow, WIN, Brenda Aposthma, IWA (UK), Hector Barreda, OTASS Peru (PE)

AFRICA BUSINESS FORUM — ACCELERATING ACHIEVEMENTS TOWARD SDG6 IN AFRICA: KEY STAKEHOLDERS, METHODS AND FOCUS

Chair: Mugisha Silver, Uganda and Sylvain Usher, Côte d’Ivoire

The WHO/UNICEF joint report released in March 2022 found that achieving SDG targets in Africa will require a 12x increase in the current rate of progress on safely managed drinking water, a 20x increase in safely managed sanitation and a 42x increase in basic hygiene services. Indeed, in those 20 years, 411 million lacked basic water services, while 779 million lacked basic sanitation services and 839 million still lack basic hygiene services. In Africa, this could be explained by factors such as: (i) lack of skills, (ii) overlapping responsibilities in governance; as well as the Covid-19 pandemic. Hence, Africa is not on track to achieve SDG6 by 2030.

Some potential solutions include: (i) sharing best practices in the sector through Peer-to-Peer Learning Partnership; (ii) emerging new actors and new collaboration approaches; (iii) improving governance; and (iv) capacity building.

Presenters: Dr. Rachel Mbazirira, AMICOW, Nigeria: Governance and Institutions; Dr Eng. Simeon Kentack, AfWA, Côte d’Ivoire: Approaches and Methods; Yvonne Magawa, ESAWAS, Zambia: Framework and Regulations

Panelists: from NWSC, Uganda, SODECI and ONEP, Côte d’Ivoire, and the presenters
Monday | Programme

Keynote Plenary 09:00 - 09:50

Keynote: A Practical Perspective in Building Resilience into Urban Water Management, Prof. Rohit T. Aggarwala
Panel: Mark Fletcher, Austin Alexander, Lynn Broaddus, Chien-Hsin Liu, Tony Wong

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

5.8 | THE ART OF COLLABORATION: CROSSING BORDERS TO SOLVE SYSTEMS-BASED PROBLEMS

Chairs: Shannon Spurlock, United States and Eric Rosenblum, United States

Building water security and resiliency across a region requires deliberate, collective action. Decision-makers and practitioners must keep an eye on the needs of their immediate community while working toward more robust, regional solutions. With respect to water, agencies across the region can work together to identify their individual opportunities and constraints, and collaborate to achieve a multi-benefit outcome that simultaneously addresses many water, wastewater, and storm water challenges.

In this session, attendees will engage with each other to gain an understanding of the various aspects of collaboration, including regulation, governance, economics, management, and leadership. Roundtable exercises will build an awareness of how regional opportunities can be actualized when agencies work together for the collective good. Hypotheses will be presented, and participants will also have an opportunity to share their experiences with collaboration on a local, regional, and national scale.


Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

1.1 | NATURE-BASED SOLUTIONS — A WAY TO MAKE OUR CITIES CIRCULAR

Chairs: Guenter Langergraber, Austria and Theis Raaschou Andersen, Denmark

The workshop will discuss challenges, possibilities, drivers and implications when implementing NBs in the urban environment in order to make our cities circular in the context of case studies around the world.

Speakers: Guenter Langergraber, Institute of Sanitary Engineering and Water Pollution Control, University of Natural Resources and LifeSciences (AU); Theis Raaschou Andersen, Research Centre for Built Environment, Energy, Water and Climate, VIA University College (DK); Mia Ria, Randers Municipality (DK); Natasa Atanasova, University of Liubjana (SI); Bart de Gussemere, Ghent (BE) & Anja Wejs, Riras (DK)

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

6.4 | SURFACE WATER ISSUES RELATED TO ECOSYSTEM, RECREATION, DRINKING WATER SOURCE AND MONITORING

Chairs: Karl Vigerstøl, United States and Farida Gitonga, Kenya

Becoming uncultured: daily recreational water quality monitoring and public notification at Chicago beaches using GPCR, Abhilasha Shrestha, University of Illinois Chicago, United States

A satellite-based approach to freshwater ecosystem monitoring and for SDG 6.6.1 progress reporting, Christian Tottrup, DHI, Denmark

Microbiological whole river surveys: lessons learned and future visions on faecal pollution and antimicrobial resistance analysis, Andreas Farknfilner, ITC Water & Health, K L Krems und TU Wien, Austria

Ensuring safe drinking water for the greater Toronto Area using the Lake Ontario Water Quality Forecasting System, Patrick Delaney, DHI Water and Environment, Inc, Canada

Digital models of algal bloom with sparse modeling and support vector machine, Yoheli Miura, Tohoku University, Japan

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, Nathalie Olijslager
Panel: Sylvain Usher, Brian Arbogast, Kate Medcalf, Jennifer Melwani, Mathivathanan Govindarajan

2.1.2-1 | ANAEROBIC DIGESTION AND ENHANCED PERFORMANCE

Chairs: Ioannis Alexiou, United Kingdom and Gabriel Capson Tojo, Spain

Fungal bioflocculation of Euglena gracilis: a rapidly harvesting method, Danielle Bansfield, Aalto University and the Finnish Environment Institute, Finland

Fungi-assisted bioflocculation as a promising strategy for microalgae harvesting: a statistical analysis of literature and experimental study, Jesna Fathima, IIT Hyderabad, India

The impact of concentration in electrolyte on ammonia removal in flow electrode capacitive deionization system, Kuo Fang, Zhonghua University, China

Innovative technology to remove nitrogen and produce climate friendly fertilizer, Anna Lundbohm, Rogan-Sells AB, Sweden

Effect of nutrient media on lipid content of microalgae: a statistical analysis, Asams MA, College of Engineering, Trivandrum, India

Anaerobic digestion of sewage sludge: semi full-scale thermophilic capacity experiment, Jesper Olsson, Kappalaförfundet, Sweden

Room C2 Workshop

2.1.2-2 | IMPROVED ANAEROBIC PROCESS

Chairs: Kwok-Wai Richard Tsang, United States and Pritha Chatterjee, India

Thermal and ultrasound pre-treatment prior to anaerobic digestion, Farokh Laqa Kaka, Ryerson University, Canada

Integration of anaerobic digestion and hydrothermal liquefaction for treatment of manure: the influence of microbial adaption, Leonidt Vergeynst, Aarhus University Centre for Water Technology (WATEC), Denmark

Model-based evaluation of full-scale anaerobic digester failure and recovery strategies, Rashesh Saagi, Lund University, Sweden

Graphene oxide amended sludge enhances micropluton removal during anaerobic digestion of waste activated sludge, Oriol Casabellsa, Institut Català de Recerca de l’Aigua, Spain

Machine learning prediction of biogas production, David Getreuer Jensen, EnviDan, Denmark

Demonstration of anaerobic wastewater treatment in the UK, Ana Soares, Cranfield University

Room C3 Technical
Keynote Plenary 09:00 - 09:50

Keynote: A Practical Perspective in Building Resilience Into Urban Water Management, Prof. Rohit T. Aggarwala
Panel: Mark Fletcher, Austin Alexander, Lynn Broadbent, Chen-Hsin Liu, Tony Wong

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

2.5.1 | SEWER CORROSION AND ODOUR MANAGEMENT

Chairs: Liu Ye, Australia and Irina Pulyakhina, Netherlands
Hydrogen sulphide control in sewer systems by gravity aeration, Jarmo Sallanko, AFRY Finland Oy, Finland
Sewer process modelling as a tool to predict and manage odour and corrosion in a drainage system, Esther Vellertsen, Eidsin, Denmark
Liquid H2S online measurement for optimized sewer system insights and H2S control, Marie Inzian, MACH, France
Network-wide control of sewer corrosion and odour by optimization of chemical dosing, Jürgen Li, the University of Queensland, Australia

Modelling the addition of liquid oxygen to prevent hydrogen sulphide production in a pressurized sewer using WEST, Fabio Polosol, DHI AJS, Denmark
Monitoring and predicting of NO emissions in wastewater treatment plants with adaptive data-driven soft-sensors, Pedram Ramin, Technical University of Denmark, Denmark

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

2.1.4-2 | BIOFILM REACTORS

Chairs: Kim Helleshøj Sørensen, Netherlands and Tao Liu, Australia
Nitrogen removal in MBBR plants at low temperatures - experiences from Norway, Halvard Bøggard, Aquateam COMW, Norway
Designing and building one of the largest MBBR-plants in the world - A SWOT analysis, Jonas Gruenestam, Kappelsholm, Sweden
Insight into performance in a hybrid membrane-aerated biofilm reactor-AO system under low carbon/nitrogen wastewater, Hsin-Chieh Lin, National Taiwan University, Chinese Taipei

Drivers and performance of full-scale membrane aerated biofilm reactor (MABR) for sustainable process intensification at existing WWTPs, Daniel Coutts, Suez, United States

Treatment of thermally pre-treated sludge reject water in a novel IFas-SBR process, Statiris Evangelos, National Technical University of Athens, Greece
Nitrogen removal and nitrous oxide emissions from MABR technology, Nerea Uri Carreño, VCS Denmark, Denmark

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

2.1.5 | MEMBRANE BIOREACTORS AND FOULING CONTROL

Chairs: Eduardo Subtil, Brazil and Rizza Ardiyanti, Norway
Brine recovery from hypersaline wastewater treatment after selective removal of the organics in a tubing bioreactor, Maria Concetta Tomei, Water Research Institute C.N.R, Italy
Quorum quenching (QQ) in anaerobic membrane bioreactor: isolation of novel QQ consortia and elucidation of comprehensive anti-fouling mechanisms, Boyan Xu, National University of Singapore, Singapore

Development of a hydrogen peroxide based cleaning strategy for ultrafiltration processes in wastewater treatment, Maximilian Werner, MANN+HUMMEL Water & Fluid Solutions, Germany

Odecy-D-O-Maltoside blocks bacterial appendage attachment to wastewater treatment membranes, Ekalak Khun, University of Nevada, Las Vegas, United States

Removal and recovery of ammonium from effluent of AnMBR treating domestic wastewater by polymer hydrogels, Melbo He, National University of Singapore, Singapore

Anti-fouling membranes based on PES and optimized ZnO|Cu|Fe3O4 catalyst under dark ambient conditions, Sheng-Jie You, Chung Yuan Christian University, Chinese Taipei

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, Nathalie Olijslager
Panel: Sylvain Usher, Brian Arboagata, Kate Medlicott, Jennifer Molwantwa, Mathivanathan Govindarajan

Programme Book
### Keynote Plenary 09:00 - 09:50

**Keynote:** A Practical Perspective in Building Resilience Into Urban Water Management, Prof. Rohit T. Aggarwala  
Panel: Mark Fletcher, Austin Alexander, Lynn Broaddus, Chien-Hsin Liu, Tony Wong

### Coffee Break 09:50 - 10:30

### Session 1 10:30 - 12:00

**3.12 | WATER MANAGEMENT: SOURCE TO CONSUMER**

**Chairs:** Regina Sommer, Austria and Xorse Doe-Bansah, Ghana  
**Room B4a Technical**

**Distribution network failures as threats for Finnish drinking water safety, Ilkka Miettinen, Finnish Institute for Health and Welfare, Finland**

**Case study on response to eutrophication of the New River, Belize, Stacey Alpuche, Ministry of Sustainable Development, Climate Change and Disaster Risk Management, Belize**

**Water demand management and use efficiency: customer metering & demand management, Ian Rodgers, Xylem Inc, United Arab Emirates**

**Comprehensive study on factors affecting consumers’ choice of bottled drinking water: a case study of Dar Es Salaam, Margaret Kironde, Water Institute, Tanzania**

**Statistical tools and water quality indices for the groundwater quality assessment and a case study of Dar Es Salaam, Margaret Kironde, Water Institute, Tanzania**

**Intermittent supply system challenges and optimisation: customer metering, Ian Rodgers, Xylem Inc, United Arab Emirates**

--- **POSTERS ---**

### Lunch 12:00 - 13:30

### Session 2 13:30 - 15:00

**6.5 | EARTH OBSERVATION FOR WATER MANAGEMENT — BUILDING A COMMUNITY OF PRACTICE**

**Chairs:** Apostolos Tzima, Greece and Katherine Cross, Australia  
**Room B4a Workshop**

This session will be an opportunity to discuss how the recently established IWA Earth Observation Community of Practice can contribute to overcoming barriers in the adoption of EO technologies.

**Speakers:** Apostolos Tzima, EMVIS (GR), Karthene Cross, Water Cities/ Australian Water Partnership (AU), Eva Haas, EDOMAP (DE) & Djialia Mutangampundu, African Water Association (CZ)

--- **POSTERS ---**

### Coffee Break 15:00 - 15:45

### Session 3 15:45 - 17:15

**3.5 | PREVENTION AND MANAGEMENT OF TASTE-AND-ODOUR EVENTS IN SUPPLIES**

**Chairs:** Ricard Devesa, Spain and Tsair Fuh-Lin, Chinese Taipei  
**Room B4a Workshop**

**Consumers associate off-flavours, bad tastes, or unexpected organoleptic changes in tap water with a health risk. As a result, they reject drinking it. International experts will give cutting-edge information about how to prevent, characterise, manage and minimise T&O and algal toxins events (source, treatment, network) and algal toxins. 4-5 talks (60 mins) followed by an open roundtable/discussion (30 mins) about key issues of the talks, their extrapolation, ideas, and solutions to classical problems and new challenges (i.e., climate change).**

**Speakers:** Tsair Fuh-Lin, National Cheng Kung University (TW), Zamyadi Arash, (AU) Jacqueline Frizenschaf, Water Research Australia (AU) & Yi-Ting Chen

--- **POSTERS ---**

### Break 17:15 - 17:30

### Keynote Plenary 17:30 - 18:20

**Keynote:** A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, Nathalie Olijslager  
Panel: Sylvia Usher, Brian Arbugas, Kate Medlicott, Jennifer Molwantwa, Mathivathanaman Govindarajan
Keynote Plenary 09:00 - 09:50

Keynote: A Practical Perspective in Building Resilience into Urban Water Management, Prof. Rohit T. Aggarwala
Panel: Mark Fletcher, Austin Alexander, Lynn Broadbent, Chen-Hsin La, Tony Wong

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

5.6 | YOUNG WATER ENTREPRENEURS: ENTREPRENEURSHIP AS A WAY TO BRIDGE RESEARCH AND PRACTICE

Chairs: Yang Villa, Philippines and Jacob Amengor, Ghana

For existing and novel technologies to turn into water solutions, YWPs must recognise their role in the co-creation process of end-user driven solutions and bring them to the market. The session aims to provide guidance to young water professionals by identifying the value proposition and the partnerships that can support the implementation of new water solutions. The session will include practical examples and propose next steps towards a stronger IWA network that can support entrepreneurship, business development, and water solution applications at both local and global scales.

Speakers: Pia Rask, Grundfos (DK), Wim Audenaert, AM Team (BE) & Lars Andersen, China Resources Management (DK)

1.12 | INFRASTRUCTURE REHABILITATION

Chairs: Cor Merks, Netherlands and Francis Mwai Karingithi, Kenya

Integrated radar and ultrasonic pipe scanner for condition-based maintenance of water and wastewater pipes, Andreas Rektor Dahl, Equinor AS, Norway

First impoundment response analysis of an earth dam using coupled numerical-soil computing technique, Mr. Jaffer Sooleh Safari, Yasar University, Turkey

An asset management-oriented methodology for sustainable pipe rehabilitation planning, Kristiane Jensen, Greater Copenhagen Utility, Denmark

Anticipated challenges and suggestive solutions for sewer network design in Cold Desert Region (Ladakh) of India, Anjali Bansal, Ramsol, India

— POSTERS —

Development and optimization of parametric tools and methods for the evaluation of the physical integrity of sewage networks, Aksumawit Tesfamariam, University of Oulu, Finland

JalTantra: a web-based open-source platform for water network optimal design, Abhishek Sinha, IIT Bombay, India

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

4.4.8 | INNOVATIVE MODELLING TOOLS FOR URBAN WATER SYSTEMS

Chairs: Martin Gambrill, United Kingdom and Juuling Li, Australia

Digital twins of urban drainage system — what about trust? Agnethe Pedersen, VCS Denmark, Denmark

Development of a ‘digital twin’ as part of a greater bulk water decision-support system (DS5) for the City of Cape Town, Petr Ingeldl, DHI, Czech Republic

Deep learning for modelling of urban drainage networks: a physics-informed surrogate model using measured and simulated data, Salar Haghhighatashar, Lund University, Sweden

Using data science to optimize meter asset management: a case study in 2 large utilities, Ian Rodgers, Xylem, Inc, United Arab Emirates

— POSTERS —

An automated SWMM toolkit for optimal planning and design of hybrid decentralized urban drainage systems, Amin Ebrahim Babhiliipour, TU Delft, Germany

IoT as an enabler for distributed online monitoring of the urban water cycle, Malte Ahm, Aarhus Vand, Denmark

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

1.13 | SEWER OVERFLOW MANAGEMENT AT UTILITY LEVEL

Chairs: Jean-Luc Bertrand-Krajewski, France and Vatsal Khandelwal, India

Future city flow - online value-based decision support for optimized real-time forecast and control of sewerage systems, Douglas Lumley, DHI Sverige AB, Sweden

A novel screening methodology to create a programme to progressively reduce pollution from combined sewer overflows (CSOs) using nature-based solutions, Eddison Roksaa, Jacobs, United Kingdom

Sewer overflow management at utility level: real time decision making, Ian Rodgers, Xylem Inc, United Arab Emirates

Infiltration and inflow water (I|I-water) and risk assessment, Kristin Jenssen Sola, Asker Municipality, Norway

— POSTERS —

Rainwater-basin monitoring and optimisation using machine learning, Peter Rasch, Dry A/S, Denmark

Using flow duration curves for evaluating the hydrological performance of green roofs, Eidah Abdalla, Norwegian University of Science and Technology, Norway

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, Nathalie Olijslager
Panel: Sylvain Usher, Brian Arboagast, Kate Medlicott, Jennifer Molwantwa, Mathivathanan Govindarajan

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## Monday | Programme

### Keynote Plenary
09:00 - 09:50

**Keynote:** A Practical Perspective in Building Resilience into Urban Water Management, **Prof. Rohit T. Aggarwala**

Panel: Mark Fletcher, Austin Alexander, Lynn Broaddus, Chien-Hsin Liu, Tony Wong

### Coffee Break
09:50 - 10:30

### Session 1
10:30 - 12:00

#### 1.21 INTEGRATED DIGITAL WATER UTILITY

**Chairs:** Zoran Kapelan, Netherlands and Kelvin Mwangi Wambui, Kenya

- How is digital transformation impacting the water utility sector? Insights from a worldwide online utility survey, Iva Daniel, Technische Universität Berlin, Germany
- Understanding the challenges and opportunities of smart water technology - water utility perspectives, Heather Smith, Cranfield University, United Kingdom
- Integrated urban wastewater management in Greater Copenhagen and its digital future, Barbara Greenhill, BIOFOS, Denmark
- WaterLAB and SuperDMA — R&D and demonstration platforms for smart water applications, Patryk Wojtowicz, Swerea IVF, Sweden

**POSTERS**
- Lessons learned from an ongoing digital journey in a smaller water utility, Annika Malm, Kungsbacka Municipality, Sweden
- LEAK365 full scale smart water leakage management, Thorkil Neergaard, Bronderslev Water Utility Ltd, Denmark

#### Lunch
12:00 - 13:30

#### Session 2
13:30 - 15:00

#### 1.19 DIGITAL BUSINESS MANAGEMENT APPROACHES AT UTILITY SCALE

**Chairs:** Dragan Savic, Netherlands and Antti Vuorela, Finland

- New trends in water utility management: how digitization of water and wastewater service can improve business operation, Alessandro Bettrì, Senior Water Resources Engineer, Italy
- From data to insights — utility management from a business intelligence perspective, Rasmus Dahl, Dryy, Denmark

**POSTERS**
- H2PORTO technological platform for the integrated management of Porto’s urban water cycle, Ruben Fernandes, Aguas e Energia do Porto, E.M. Portugal
- Data sharing in publicly owned utilities. why is that not a problem?, Anders Faber, BIOFOS, Denmark
- Comparative leakage detection accuracy analysis of different water network models using artificial neural network, Amlan Chakraborti, University of Calcutta, India

**Panel:** Sylvain Usher, Brian Arbogast, Kate Medlicott, Jennifer Molwantwa, Mathivathanan Govindarajan

#### Keynote Plenary
17:15 - 17:30

**Keynote:** A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, **Nathalie Olijslager**

Panel: Sylvain Usher, Brian Arbogast, Kate Medlicott, Jennifer Molwantwa, Mathivathanan Govindarajan

**Panel:** Mark Fletcher, Austin Alexander, Lynn Broaddus, Chien-Hsin Liu, Tony Wong

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**Keynote Plenary 09:00 - 09:50**

**Keynote: A Practical Perspective in Building Resilience Into Urban Water Management, Prof. Rohit T. Agarwala**
Panel: Mark Pitcher, Austin Alexander, Lynn Brodbelt, Chou-Hsin Lai, Tony Wong

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**Session 1 10:30 - 12:00**

**4.1 | THE ROLE OF WATER AND WASTEWATER UTILITIES IN SUPPORTING SUSTAINABLE DEVELOPMENT GOALS**

Chairs: Arlinda Ibrahimli, Albania/Canada and Sylvain Usher, Côte d’Ivoire

The 2030 Agenda for Sustainable Development, adopted by the United Nations (UN) in September 2015, has given new impetus to global efforts to achieve sustainable development.

Water and wastewater utilities globally play a vital role in supporting several of the SDGs. A primary challenge faced by utilities is to analyse the various SDGs and develop strategic plans for addressing the goals where there is the most impact and where they have the most capacity. The workshop will provide examples of how such strategic plans have been developed by utilities in Europe, Asia, Latin America, and Africa. The workshop will address not only SDG 6 relating specifically to drinking water but all SDG’s where water utilities can contribute.

Expected participants: Individuals of any age or level of expertise interested in learning how to use the SDGs as a framework for those global strategic planning.

Speakers: Arlinda Ibrahimli, IWA SG Sustainability in the Water Sector / UK Consulting

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**Coffee Break 09:50 - 10:30**

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**2.1 | FUTURE WS 2.1 - FUTURE CHALLENGES FOR WASTE WATER TREATMENT PLANTS. FROM FOCUS ON PARTICULAR MATTER AND NUTRIENTS TO TOXIC MICRO POLLUTANTS AND CHEMICALS OF EMERGING CONCERN**

Chairs: Jan Christensen, Denmark and Peter Mortensen, Denmark

Improved treatment of wastewater is a key target in addressing the global need for clean water (SDG targets 6.3 and 3.9). Studies measuring the joint toxicity of whole wastewater samples and identifying how much of the toxicity is explained by the monitored chemicals show very large gaps in our present knowledge. Wastewater treatment plants of today often focus on sanitary treatment and the removal of nutrients only. Future plants will have to further address the growing concern of toxic chemicals being emitted into the environment.

The purpose of the workshop is to provoke a fruitful discussion about the future ways to monitor and control the emission of micropollutants. We will discuss the present knowledge we have about existing wastewater treatment plants and their toxicity on the basis of research conducted in Denmark, Sweden and Germany.

Speakers: Peter Mortensen, Eurofins Environment Denmark (DK), Jan Christensen, Copenhagen University (DK), Kristoffer Klipinen, Eurofins Miljø a/s (DK), Mafalda Castro, University of Copenhagen (DK), Nina Cederberg, Dines Thornberg, BIOCOS (DK)

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**Session 2 12:00 - 13:30**

**4.2 | EVALUATION CRITERIA AND APPROACHES FOR TOOLS IN NBS PLANNING**

Chairs: Martijn Kuller, Switzerland and Peter Vanrolleghem, Canada

Decision Support Systems (DSS), models, and tools are widely used socio-technical methods to support the planning and implementation of Nature-Based Solutions (NBS) for climate adaptation in cities. The quality of these models and tools is hard to validate, evaluate, or even define appropriately. Lack of agreed and standardised quality evaluation methods has led to a proliferation of what could be helpful DSS. This workshop aims to shed light on such critical, yet underreported evaluation methods for socio technical decision support used by planners and modellers of NBS. Projected outputs will mimic and present preferences from workshop participants from various backgrounds on the objectives and associated promising evaluation approaches of DSS. These outputs will contribute to the development of widely agreed and applicable standards and a framework for the evaluation and validation of NBS to support the planning and implementation of NBS.

Speakers: Martijn Kuller, Swiss Federal Institute of Aquatic Science & Technology (Eawag), Peter Vanrolleghem, Université Laval (CA), Danielle Dagenais, École polytechnique de Montréal (CA), Olie Fryd, University of Copenhagen (DK) & Sandrine Lacloix, Polytechnique Montreal (CA)

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**2.5.3.1 | WASTEWATER EPIDEMIOLOGY: SARS-COV-2**

Chairs: Jörg E. Drewes, Germany and Alexandra Teitouras, Canada

Tracking SARS-COV-2 in upstream sewage systems to monitor COVID-19 spread in communities, Raying LU, University of Queensland, Australia

Environmental surveillance of SARS-COV-2 and its variants: geospatial predictive analysis in a Spanish municipality sewage network, Nuria Zamorano, Sociedad de Fomento Agrícola Castellonense S.A, Spain

1.5-years experience in Covid-19 tracking of Turkey via wastewater based epidemiology (WBE): regional distribution maps, early warning, variants, dashboards, Bioge Alpayrakan, Marmara University, Turkey

SARS-COV-2 signal in wastewater relates to hospitalization occupancy in Austria, Hannes Schenk, Leopold-Franzens-Universität Innsbruck, Austria

--- POSTERS ---

The development of water quality-based COVID-19 surveillance for non-sewered areas, Authir Pilkay, Water Research Commission, South Africa

Sampling strategies for SARS-COV-2 wastewater surveillance, Rodrigo de Freitas Bueno, Federal University of ABC, Brazil

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**Coffee Break 12:00 - 12:30**

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**Session 3 13:30 - 15:00**

**4.3 | NATURE-BASED SOLUTIONS FOR CLIMATE-RESILIENT CITIES IN DEVELOPING COUNTRIES UNDER CHANGE**

Chairs: Nilo Nascimento, Brazil and Eduardo Mario Mendiondo, Brazil

We evaluate the experiences of cities from the developing world in planning and implementing nature-based solutions (NBSs) in urban water management. To support COP26’s Net Zero goals under IPCC’s scenarios, the NBS brings solutions to adaptation and mitigation. Various NBS approaches, i.e., Low Impact Development (LID), Sustainable Drainage Systems (SuDS), Water Sensitive Urban Drainage (WSUD), and Sponge Cities (SC), offer greener pathways. However, climate-resilient cities in developing countries have the most capacity. The workshop will provide examples of how such strategic plans have been developed by utilities in Europe, Asia, Latin America, and Africa. The workshop will address not only SDG 6 relating specifically to drinking water but all SDG’s where water utilities can contribute.

Speakers: Nilo Nascimento, Federal University of Minas Gerais (BR), Eduardo Mario Mendiondo, University of Sao Paulo (BR), Juan Pablo Rodríguez Sánchez, Universidad de les Andes (CO), Neil Armitage, University of Cape Town (ZA), Maryam Imani, Anglia Ruskin University (UK), Melissa Graciosa, Iwona Wagner, Hoif Muhammad Abud-m-Reham, The University of New South Wales (AU), Deyvid Rosa, Federal University of Minas Gerais (BR), Daniela Bemfica, IWA (UK) & Abby Daniela

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**2.5.3.2 | WASTEWATER EPIDEMIOLOGY: ARGs, SARS-COV-2 AND OTHER PATHOGENS**

Chairs: Gertjan Medema, Netherlands and Amy Pruden, United States

Using machine learning to identify discriminatory ARGs and socio-economic factors that shape resistome risk in water systems, Peter Vekslands, Virginia Tech, United States

Quality assessment of SARS-COV-2 nanopore sequencing data in wastewater variant monitoring, Livia Bomediano, Federal University of ABC, Brazil

Comparative data on Norovirus and Rotavirus prevalence, excretion rates and wastewater concentrations are required for microbial water quality modelling, Nancy Mondragon, Wageningen University and Research, Netherlands

Developing rapid measurement of actinomycetes using quantitative PCR method to prevent proliferation in wastewater treatment plant, Takeshi Nakamura, Tokyo Metropolitan Sewerage Service Corporation, Japan

--- POSTERS ---

Long-term wastewater Norovirus surveillance and its correlation with clinical reports, Yifan Zhu, Tokyo Institute of Technology, Japan

Using viability quantitative PCR to evaluate the health risk of virus pollution derived from combined sewer overflow, Hirokazu Katayama, The University of Tokyo, Japan

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**Break 15:00 - 15:45**

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**Keynote Plenary 17:15 - 17:30**

**Keynote: A Roadmap for Achieving SDG 6.2, Sanitation for All and How to Connect the Unconnected, Nathalie Olijstager**
Panel: Sylvain Usher, Brian Arbogast, Kate Medillcott, Jennifer Molwanta, Mathivathanan Govindarajan

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**Lunch 12:00 - 13:30**

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**Coffee Break 15:00 - 15:45**

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**Programme Book 05**

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Danish streams,
High-resolution nitrate sensors can help provide better monitoring of water quality in
UFMG, Brazil
Evaluating the Paraopeba’s River water treatability and water quality after the Tailings
Ramboll, Norway
Performance of a hydrodynamic vortex separator for treatment of road runoff, Kristine
The River Trust, United
Vortex chamber to trap particulate urban pollution, Rob Collins,
water reuse for irri
of Sweden, Sweden
for integrated water resources management, Shane Carnohan,
The dynamic aquatic simulation hub: an agile, integrated model and boundary object
the Kathmandu Valley, Nepal, Tsubasa Takezawa,
Prevalence of antibiotic resistance genes in drinking and environmental water sources of
Atom Consulting, Australia
Verification monitoring program for a regional Australian recycled water scheme, Natalie
Sustainable and synergic solutions to increase wastewater reuse in industrial sectors,
Loading of extracellular antibiotic resistance genes using peracetic acid (PAA) and
High Microbiology contamination in grass irrigated with different water sources, Rita
Laurinho, Instituto Superior Técnico, Portugal
Effects of conventionally-treated and additionally ozonated wastewater on survival, biomarkers and behavior of two aquatic invertebrate species, Louisa Roth,
University of Duisburg-Essen, Germany
Water treatment by combining of a plug-flow tubular cavitation reactor in with H2O2
usage, Andreas Schmidt, University of Applied Sciences Hof, Germany
Assessment of Cu nanomaterials assisted oxidation versus self activation of peroxymonosulfate for the degradation of recalcitrant pollutants, Pieter van Aken, KU
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### Keynote Plenary 09:00 - 09:50

#### Coffee Break 09:50 - 10:30

### Session 1 10:30 - 12:00

#### 1.3 | ADDRESSING WATER SHORTAGE MITIGATION IN THE MEDITERRANEAN REGION

**Speakers:** Günter Langergraber, Austria and Manuel Sapiano, Malta

This session aims to contribute to the open debate on local water shortage mitigation and Mediterranean environmental challenges through state-of-the-art knowledge on NtWR techniques, management, planning and skills to reuse at territorial level for domestic and agricultural purposes.

**Speakers:** Konstantinos Plakas, Centre for Research and Technology-Hellas (CERTH) (GR), Günter Langergraber, Mediterranean Agronomic Institute of Bari (CIHEAM Bari) (AT), Manuel Sapiano, Energy and Water Agency (MT) & Fabio Masi, IDRRA Srl (IT)

#### Lunch 12:00 - 13:30

### Session 2 13:30 - 15:00

#### 1.18 | UTILITY RESPONSES AND ADAPTATION TO CLIMATE CHANGE IMPACTS

**Chairs:** Peter Dane, Netherlands and Shotaro Goto, Japan

Strengthening the blue and green infrastructure in the Ruhr metropolis: the Emscher-conversion as an opportunity for a regional approach to climate change adaptation, Stephan Treu, Emschergenossenschaft, Germany

Climate adaption measures of the Great Belt Link and Oresund Link’s onshore facilities in Denmark to future-proof critical national infrastructure assets, Jan Stahl, COWI A/S, Denmark

Stakeholder and change management in long term climate adaptation projects, Sonia Sørensen, Ramboll, Denmark

Sanitation safety plan for a pre-potable use of reclaimed water, Marta Ganzer, Aigües de Barcelona, Spain

---- POSTERS ----

Updated rainfall input and new tools for stormwater system design in Denmark, Ane Mollerup, Novafos, Denmark

FloodMan - a tool for sustainable management of flood mitigation, Lars Rosén, Chalmers University of Technology, Sweden

#### Coffee Break 15:00 - 15:45

### Session 3 15:45 - 17:15

#### 1.3 | INNOVATIVE APPROACH TO NATURE-BASED SOLUTIONS FOR URBAN CLIMATE RESILIENCE

**Chairs:** Lykke Leonardsen, Denmark and Christian Nyerup-Nielsen, Denmark

Nature-based Solutions have the potential to offer a triple win (societal, economic, natural) leverage to build climate-resilient urban spaces. Turning this potential into a reality will require hands-on, context-sensitive approaches.

The purpose of this workshop is to present an innovative approach to operationalizing NbS in urban contexts. The approach is based on the selection and prioritisation of specific NbS typologies to address identified urban challenges.

Participants will be active players and will learn about different NbS typologies, their values and limits, and the types of contexts in which they apply.

The workshop will be an opportunity to exchange knowledge and build capacities on NbS and their applicability to achieve urban resilience.

**Speakers:** Lykke Leonardsen, Copenhagen Region Municipality (DK), Christian Nyerup-Nielsen, Ramboll (DK), Fanitne Hureau, Ramboll (DK), Alvaro Fonseca, Ramboll (DK), Barbara Cesar Barros, C40 (BR), Pedro Rolim, Rio City Hall (BR), Trine Munk, Ida Bulow Gregersen, Ida Hansen, Ramboll (DK) & Sari Suvanto

#### Break 17:15 - 17:30

#### Keynote Plenary 17:30 - 18:20
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| 11:15 — 12:00 | IDRICA                                                                   | BUSINESS FORUM ROOM 1 (HALL E) | How the City of Houston has reduced SSOs and minimized OPEX with an intelligent sewer platform  
The GoAigua software solution is helping the City of Houston optimize the resources allocated to predictive cleaning of the sewer network and to reduce overflows (SSOs) caused by grease and wipe blockages by over 70%.  
- Joan Carles Guardiola |
| 12:15 — 13:00 | DENMARK PAVILION                                                        | BUSINESS FORUM ROOM 2 (HALL C) | Stop water losses – Danish leakage management solutions  
On a global scale, we are facing up to 40% water loss which makes it difficult to fulfill the drinking water demands. In Denmark water loss is down to only 6.7% and new innovative solutions can improve this water loss. This seminar will show new developments in leakage management and use of data.  
- Kristine Østergaard Jensen, Planner, HOFOR A/S  
- Klavs Hagh, Project Director, Niras A/S  
- Michael Ramlau, Global Brand Manager, AVK Holding A/S  
- Hans Christian Jørgensen, Head of Solution & Application management, Kamstrup A/S |
| 13:30 — 14:15 | EWIH                                                                     | BUSINES FORUM ROOM 2 (HALL C) | Data Liberalization in water utilities  
Presentation of concept for data collection at the heart of water utilities we our mission is to integrate supply data into digital eco-systems to engage users, municipalities, industry, and utilities in co-creating the future supply security through balancing, sector coupling, and development of flexibility based on data driven decisions.  
- Niels Kåre Bruun |
| 14:15 — 15:00 | SUEZ                                                                     | BUSINES FORUM ROOM 2 (HALL C) | Eco-design based solutions – Pau-Lescar biofactory example  
Tomorrow’s wastewater treatment plant (the biofactory for resource recovery) modifies the operating principle of the sanitation system because it generates products that are useful to human activity. Natural resources are saved. The circular economy dynamic, based on eco-design solutions is thus launched. Through Pau example, environmental footprint reduction will be illustrated.  
- Eric Judenne mkt, com and sustainable development director – Suez T1 |
| 15:45 — 16:30 | RQMICRO                                                                 | BUSINES FORUM ROOM 2 (HALL C) | Watch live: Microbiological testing to take the guesswork out of water safety and management  
Quantitative and rapid microbiological data are the missing element for effective water monitoring. We established a new method to quantify total bacteria or pathogens (Legionella and E. Coli) within 0.5-3 hours. On stage we will show how our solution works and how it helps to improve water management and safety.  
- Björn Biedermann |
| 16:30 — 17:15 | NOKIA                                                                    | BUSINES FORUM ROOM 2 (HALL C) | Ready for an open, standards based digital platform?  
Smart Water Management R&D project (SWIM) aims to develop and test an open, flexible and standards-based digital platform that addresses global water utility challenges. Learn about this partner consortium’s work in innovative WaterLAB and demonstrator SuperDMA in Kuopio, Finland - key learnings, next steps and how this empowers digital transformation.  
- Dominique Verhulst, Global Utility Leader, Nokia  
- Patryk Wójtowicz, Research Manager, Savonia University of Applied Science |

Keynote Plenary 17:30 - 18:20
Tuesday, 13 September

Track 1: WATER UTILITY MANAGEMENT
Track 2: WASTEWATER TREATMENT AND RESOURCE RECOVERY
Track 3: DRINKING WATER AND POTABLE REUSE
Track 4: CITY-SCALE PLANNING AND OPERATIONS
Track 5: COMMUNITIES, COMMUNICATION AND PARTNERSHIPS
Track 6: WATER RESOURCES AND LARGE-SCALE WATER MANAGEMENT
## Tuesday | Programme

### Keynote Plenary 09:00 - 09:50

**Keynote: Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge,** Dawn Martin-Hill

**Panel:** Tom Mollenkopf, Louise Dudley, Lily T. Johnson, Bradley Muggenders, Tanja Neelsen

### Coffee Break 09:50 - 10:30

### Session 1

**Room A2 Forum**

**Utility Leaders Forum I — Water Utilities as Community Leaders — Creating Integrated Water Management for Cities of the Future**

**Chair:** Hamanth Kasan, IWA Vice President

**Igniting talks:**

- Diane Taniguchi-Dennis, CEO, Clean Water Services, Hillsboro, Oregon, US, Dr. Eng.
- Silver Mugisha, MD National Water & Sewerage Corporation, Uganda, William Fernandes, Director, Toronto Water, Canada, Claudia Castell-Enner, President Eureau, Brussels, Belgium

**Panel discussion facilitator:** Ed McCormick, Chair of IWA SC Utility Engagement Group

### Room A3 Forum

**Forum for Industrial Water Users I — Perspectives on Water Stewardship**

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.

### Lunch 12:00 - 13:30

### Session 2

**Room A2 Forum**

**Utility Leaders Forum II — Accelerating Adoption of 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 EI Kasmi, Director Cooperation and Communication, ONWE, Morocco, Rik Thijssen, Director Business Development & Innovation, Vitens NL

**Roundtables and panel discussion facilitator:** Helle Katrine Andersen, CCO DANVA

### Room A3 Forum

**Forum for Industrial Water Users II — Incentivising Sustainability: From SDGs to Regulation & Sustainable Tools and Applications**

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.

### Coffee Break 15:00 - 15:45

### Session 3

**Room A2 Forum**

**Utility Leaders Forum III — Evolving with Climate Change**

**Chair:** Shaunna Berendsen, Head of Innovation Engagement, Anglian Water

**Igniting talks:**

- Simon Parsons, Director, Scottish Water, United Kingdom, Pat McCafferty, MD, Yorba Valley Water, Australia, Dan Naidoo, Regional Manager of Umgeni Waterboard, Kwazulu Natal, South Africa and chair of WISA Water Institute of Southern Africa, Brian Hansen, Head of Planning, Utility of Greater Copenhagen, Denmark, Matt Collings, Assistant GM, Moulton Niguel Water District, California, United States, Gari Villa-Landa Sokolova, Head of International Affairs, AEAS, Spain.

**Roundtables and panel discussion facilitator:** Miriam Feilberg, Head of Climate, DANVA

### Room A3 Forum

**Forum for Industrial Water Users III — Table-Top Group Discussions of Issues Pertaining to and Associated with the Panels Earlier in the Day**

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.

### Break 17:15 - 17:30

### Keynote Plenary 17:30 - 18:20

**Keynote: Digital Water Unpacked,** Oliver Grievson & Enrique Cabrera Rochera

**Panel:** Corinne Cheeseman, Pernille Ingildsen, Ramón D'olz Mollá, HP Nanda
## Programme Book

**Keynote Plenary** 09:00 - 09:50  
**Keynote:** Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, **Dawn Martin-Hill**
**Panel:** Tom Mollenkopf, Louise Dudley, Liby T. Johnson, Bradley Moggridge, Tanja Nielsen

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### Session 1

#### EMERGING WATER LEADERS FORUM I
**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.

#### LEARNINGS FROM INCLUSIVE URBAN SANITATION INITIATIVES
**Chairs:** Suresh Kumar Rohilla, United Kingdom and Yvonne Magawa, Zambia
Sustainable Development Goals require water and sanitation concepts and norms to look beyond provision of infrastructure. Increased focus is on safety, inclusion, environment, public health, and multiple technology solutions tailored to different geographical and socio-economic contexts for building climate resilient cities. Approaches to inclusive urban sanitation have gained momentum in recent years, especially across low and middle-income countries. This session will bring together key public and private stakeholders who have implemented this approach across different geographies. They will share their experiences and lessons learnt, as well as discuss ways for advancing (or even the need for revisiting) frameworks for inclusive urban sanitation.
**Speakers:** Jay Bhagwan, Water Research Commission (WRC) (ZA), Srinivas Chary, Administrative Staff College India (ASCI) (IN), Deepa Karthykeyan, Athena Infonomics (US), Mathi Vathanan, Housing & Urban Development Department, Odisha (IN), Anindita Mukherjee, Centre for Policy Research (CPR) (IN), Manoj Roy, Lancaster University (UK), Hezkiah Pireh, UN-HABITAT (KE)

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### Session 2

#### 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.

#### GENDER EQUALITY, LEADERSHIP, AND INCLUSION IN THE WASH SECTOR
**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 (WIIWAS) (KE)

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### Session 3

#### WATER SAFE CITIES
**Chair:** Lykke Leonardsen, Denmark
The purpose of this session is to present the results and work of the global partnership between C40 Cities and Grundfos and to introduce the participants to how active partnerships can lead to focused action that can accelerate the work in cities. It will also discuss the complexity of water management in cities and the importance of involving all stakeholders in policy planning, implementation, and financing. The session will: 1. Present the results from Water Safe Cities and 2. Introduce Water Safe Cities II
**Speakers:** Lykke Leonardsen, Resilient and Sustainable City Solutions (DK), Daniela Bemifica, IWA (UK), Kin Nahr Skibsted, Kevin Austin, C40 (UK), Rohit Aggarwala & Daryl Johnston

#### ADVANCEMENTS IN NON-SEWERED SANITATION
**Chair:** Sudhir Pillay, South Africa
Series of presentation on the workshop topic followed by panel discussion with all presenters.
**Speakers:** Sudhir Pillay, Water Research Commission (ZA), Jay Bhagwan, Water Research Commission (ZA), Kartik Chandran, Columbia University (US), Stanley Sam, Eawag (CH), Damir Brdanovic, UNESCO Institute for Water Education (NL), Konstantina Velkushonova, Najib Lukooya & Marianela Sanders

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**Keynote:** Digital Water Unpacked, Oliver Grievson & Enrique Cabrera Rochera
**Panel:** Corinne Cheeseman, Pernille Ingldsen, Ramón Dolz Molía, HP Nanda
**Tuesday | Programme**

### Keynote Plenary
**09:00 - 09:50**

**Keynote:** Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, **Dawn Martin-Hill**

Panel: **Tom Mollenkopf, Louise Dudley, Lily T. Johnson, Bradley Moggridge, Tanja Nielsen**

### Coffee Break
**09:50 - 10:30**

### Session 1
**10:30 - 12:00**

#### 5.3 | PUTTING CROSS BORDER COLLABORATION INTO PRACTICE

**Chairs:** Flonn Boyle, United Kingdom and Jan Goooljer, Netherlands

The purpose of this session is to discuss the value of working across borders between utilities, to provide evidence of what has been achieved through the coalition set up between Anglian Water, Global Omnium and Vitens; and to develop strategies that others can use to establish coalitions.

A key focus of the workshop will be mapping priorities between companies as well as implementing the use of a matrix to discover relative strengths and weaknesses between those involved, which can then be used as the basis to target the sharing of knowledge, skills, and expertise between utilities.

The ideal output from this workshop would be the commitment of other utilities across the world to establish their own coalitions, which could then target another strategic area of utility management and become part of a larger framework for dissemination of knowledge.

Speakers: Flonn Boyle, Anglian Water (UK) & Jan Goooljer, Vitens N.V. (NL), Andrew Smith, Anglian Water Services (UK), Rik Thijsen, Vitens N.V. (NL), Jouke Keuning & Jaime Castillo Soria, Global Omnium (ES)

### Lunch
**12:00 - 13:30**

### Session 2
**13:30 - 15:00**

#### 1.4 | DEVELOPING CONSENSUS AND GOOD PRACTICES FOR DIGITAL TWIN APPLICATIONS — A

**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 practices 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), Niels Nicolaï, Université Laval (CA), Gigi Karmous-Edwards, Karmous-Edwards Digital Consulting (US), Agnethe Nedergaard Pedersen, VCS Denmark (DK), Saba Daneshgar, Ghent University (BE), Andrew Smith, Anglian Water Services (UK), Peter Alexander Stentoft, Krüger-Veolia (DK), Bruce Johnson, Jacobs, (US), Jorge Helmbrecht, África (ES), Min Zhong, NEOM (SA)

### Coffee Break
**15:00 - 15:45**

### Session 3
**15:45 - 17:15**

#### 1.4 | DEVELOPING CONSENSUS AND GOOD PRACTICES FOR DIGITAL TWIN APPLICATIONS — B

**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 practices 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 Steen Mikkelsen, Technical University of Denmark (DK), Niels Nicolaï, Université Laval (CA), Gigi Karmous-Edwards, Karmous-Edwards Digital Consulting (US), Agnethe Nedergaard Pedersen, VCS Denmark (DK), Saba Daneshgar, Ghent University (BE), Andrew Smith, Anglian Water Services (UK), Peter Alexander Stentoft, Krüger-Veolia (DK), Bruce Johnson, Jacobs, (US), Jorge Helmbrecht, África (ES), Min Zhong, NEOM (SA)

### Keynote Plenary
**17:15 - 17:30**

**Keynote:** Digital Water Unpacked, **Olivier Griewson & Enrique Cabrera Rochera**

Panel: **Corinne Cheeseman, Pernille Ingildsen, Ramón Dölz Mollá, HP Randa**
**Keynote Plenary**  
09:00 - 09:50

**Keynote:** Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, **Dawn Martin-Hill**

Panel: Tom Mollenkopf, Louise Dudley, Liby T. Johnson, Bradley Moggridge, Tanja Nielsen

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**Coffee Break**  
09:50 - 10:30

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**Session 1**  
10:30 - 12:00

**2.4.2-1 | BIOSOLIDS MANAGEMENT & REUSE**  
**Chairs:** Francesco Fatone, Italy and Zhiyao Wang, Australia

Presence of antibiotic resistance genes (ARGs) and taxonomic composition of sludge originating from five Northern wastewater treatment plants, **Maria Valtari**, Aalto University, Finland

Bio-valorisation of biodegradable materials derived from sewage sludge, **Gökçe Çiftçi**, Middle East Technical University, Turkey

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**Room B5 a Technical**

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**Room B5 a Technical**

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**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 decarbonisation, **Julian Sandino**, Jacobs, United States

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

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**Room B5 a Technical**

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**Room B5 a Technical**

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**3.3 | GROUNDWATER BASED PRODUCTION — I**  
**Chairs:** N K Goel, India and Somaparna Ghosh, India

What can benchmarking teach us about the biotreatment treatment process?, **Loren Ramsay**, VIA University College, Denmark

Ammonia oxidation and nitrifier dynamics in a full-scale bioreactor treating groundwater by copper dosing, **Kazuyoshi Koike**, Kanazawa University, Japan

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**Room B5 b Technical**

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**Room B5 b Technical**

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**3.4 | GROUNDWATER BASED PRODUCTION — II**

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**Room B5 b Technical**

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**Room B5 b Technical**

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**3.5 | NONREVENUE WATER, LEAKAGE MANAGEMENT AND INTERMITTENT WATER SUPPLY**  
**Chairs:** Mohammad Abdullah, Bangladesh and Titilopa Bright-Oridami, Nigeria

Integration of predictive models in a drinking water quality index for managing a distribution network, **David Abert**, Universitat de Girona, Spain

Pressure management based leakage reduction of water distribution networks, **Tamas Huzsvár**, Budapest University of Technology and Economics, Hungary

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**Room B5 a Technical**

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**Room B5 a Technical**

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**Room B5 a Technical**

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**Lunch**  
12:00 - 13:30

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**Session 2**  
13:30 - 15:00

**2.4.2-1 | BIOSOLIDS MANAGEMENT & REUSE**  
**Chairs:** Francesco Fatone, Italy and Zhiyao Wang, Australia

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**Room B5 a Technical**

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**Room B5 a Technical**

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**2.4.2-2 | BIOSOLIDS MANAGEMENT & REUSE**  
**Chairs:** Srikanth Mutnuri, India and Matia Mainardis, Italy

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**Room B5 a Technical**

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**Room B5 a Technical**

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**3.3 | GROUNDWATER BASED PRODUCTION — I**  
**Chairs:** N K Goel, India and Somaparna Ghosh, India

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**Room B5 b Technical**

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**Room B5 b Technical**

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**3.4 | GROUNDWATER BASED PRODUCTION — II**

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**Room B5 b Technical**

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**Room B5 b Technical**

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**Coffee Break**  
15:00 - 15:45

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**Session 3**  
15:45 - 17:15

**2.4.3-1 | MICROPLASTICS AS EMERGING CONTAMINANTS OF CONCERN**  
**Chairs:** Innocent Nchai, Zimbabwe and Linda Li, Canada

Microplastics as hubs enriching antibiotic-resistant bacteria and pathogens in municipal activated sludge, **Mengyan Li**, New Jersey Institute of Technology, United States

Threat of microplastic release due to COVID-19 Generated plastic waste, **Chih-hao Fan**, National Taiwan University, Chinese Taipei

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**Room B5 a Technical**

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**Room B5 a Technical**

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**2.4.3-2 | MICROPLASTICS AS EMERGING CONTAMINANTS OF CONCERN**  
**Chairs:** Innocent Nchai, Zimbabwe and Linda Li, Canada

Microplastics in Toulon Area: Occurrence and efficiency of wastewater treatment plants (MEDITPlast Project), **Marie-Pierre Denieul**, Veolia Research & Innovation, France

Microplastics & organics — a comparative study of sorption of triclosan & malachite green onto polyethylene, Gökçe Çiftçi, Middle East Technical University, Turkey

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**Room B5 a Technical**

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**Room B5 a Technical**

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**3.3 | GROUNDWATER BASED PRODUCTION — I**  
**Chairs:** N K Goel, India and Somaparna Ghosh, India

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**Room B5 b Technical**

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**Room B5 b Technical**

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**3.4 | GROUNDWATER BASED PRODUCTION — II**

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**Room B5 b Technical**

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**Room B5 b Technical**

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**3.5 | NONREVENUE WATER, LEAKAGE MANAGEMENT AND INTERMITTENT WATER SUPPLY**  
**Chairs:** Mohammad Abdullah, Bangladesh and Titilopa Bright-Oridami, Nigeria

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**Room B5 a Technical**

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**Room B5 a Technical**

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**Break**  
17:15 - 17:30

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**Keynote Plenary**  
17:30 - 18:20

**Keynote:** Digital Water Unpacked, **Oliver Grievson & Enrique Cabrera Rochera**

Panel: Corinne Cheeseman, Pernille Ingeldes, Ramon Dolf Molina, HP Nanda
COORDINATED MANAGEMENT FROM SOURCE TO SEA —
IN THE BALTIC SEA AND OTHER BASINS

Chairs: Torkil Janch Clausen, Denmark and Agnieszka Ilofa, Finland

Our seas suffer serious degradation from land-based activities in basins and cities; only concerted regional approaches can reverse the trend. 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, 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.

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

Chairs: Torkil Janch Clausen, Denmark and Agnieszka Ilofa, Finland

Our seas suffer serious degradation from land-based activities in basins and cities; only concerted regional approaches can reverse the trend. 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, 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 Janch Clausen, Sea Management (DK) & Agnieszka Ilofa, Union of the Baltic Cities Sustainable Cities Commission (FI), Mirjam Fellberg, Danva (DK), Lars Moeisund Svendsen, Ivar Aanum, Frank Zhang, Despo Fatta-Kassimos, Kai Bester & Torgny Holmgren, Stockholm International Water Institute (SE)
5.7 | CREATING AN EFFECTIVE INNOVATIVE ECO-SYSTEM. HOW THE UK ENHANCES & ENABLES INNOVATION AND WHAT WE CAN CONTINUE TO LEARN

Chairs: Shaunna Berendsen, United Kingdom and Lila Thompson, United Kingdom

The UK has undergone a radical transformation to enable and enhance innovation in recent years. Ofwat, our economic regulator, has created a £200m innovation fund, a national innovation strategy has been created* and an Innovation Centre of Excellence (Spring) has been established and companies are more collaborative than ever, working closely with the supply chain with the aim of unlocking transformational innovation and fast-tracking the UK to being one of the smartest liveable cities.

This session takes us through those changes, what projects have been unlocked and how continuing to work and learn From other sectors, regions and centres of excellence will continue to transform the sector for the better, setting a higher standard for smart, holistic and liveable city solutions, utilising synergies and adapting to a changing climate, amongst other challenges.

Speakers: Shaunna Berendsen, Spring (UK), Lila Thompson, British Water (UK), John Russell, Ofwat (UK), Nate Allen, Jason Tucker, Anglian Water (UK) & Adam Lovell, WSAA (AU)

--- POSTERS ---

Preparation of a data-driven asset management plan for better water management, Cor Merks, Ramboll, Netherlands

Reopening of culverted streams and rivers, Øystein Rapp, Sweco Norge AS, Norway

1.9 | ASSET MANAGEMENT AND OPTIMISATION INNOVATION

Chairs: Helena Alegre, Portugal and Mauro Lafratta, United Kingdom

Automated Sewer Inspection Robot (ASIR) — status and results, David Getreuer Jensen, EnviDan, Denmark

Management and optimisation: pressure transient monitoring, Ian Rodgers, Xylem inc, United Arab Emirates

Using measured rates of internal and external iron pipe degradation to estimate and extend residual service life, Noé Kinet, France

Using satellite remote sensing scanning in water pipeline condition assessment program: a case at Piave Servizi, Carlo Pesco, Piave Servizi Water Utility, Italy

--- POSTERS ---

Preparation of a data-driven asset management plan for better water management, Cor Merks, Ramboll, Netherlands

Reopening of culverted streams and rivers, Øystein Rapp, Sweco Norge AS, Norway

1.10 | ASSET MANAGEMENT AND OPTIMISATION MODELLING

Chairs: Zoran Kapelan, Netherlends and Amin Ebrahim Bakhshipour, Germany

A Case for digital twins used for effective asset management on deep aquifer boreholes, Carike Anker, Stellenbosch University, South Africa

Modeling of degradation pattern in cast iron water mains, Navid Moslemi, Norwegian University of Science and Technology, Norway

Predicting sewer structural condition using machine learning algorithms, Lam Nguyen, Norwegian University of Science and Technology, Norway

--- POSTERS ---

Seven years of experience with asset management, digitalization, and long-term investment planning, Benny Nielsen, Herning Vandsk, Denmark

Cost optimization of water main condition assessment and asset management, Reza Moslemi, Fleming College, Canada
Keynote Plenary 09:00 - 09:50
Keynote: Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, Dawn Martin-Hill
Panel: Tom Mollenkopf, Louise Dudley, Lily T. Johnson, Bradley Moggridge, Tanja Neelands

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

1.5 UTILITIES WATER REUSE THROUGHOUT THE WATER CYCLE

Chairs: Josef Lahnsteiner, Austria and Bhairavi Sawant, Ireland
Water Reuse in agriculture irrigation at Mediterranean Alentejo region: two success stories in the ADP Group, Joana Pinto Coelho, ADP VALOR, Serviços Ambientais, Portugal
A simplified methodology for assessing the microbiological risk to human health in agricultural water reuse, Ana Santos, Universidade da Estado do Rio de Janeiro, Brazil
Towards a closed water cycle: combining technology and an instrumental framework, Roland Koolen, Dutch Water Authority HHW, Netherlands
Pw and water management, Lars Nørgård Holmegaard, Lemvig VAND, Denmark

Effect-based monitoring: a literature review of applications in wastewater, drinking water and reuse treatment schemes, Jerome Enault, Suez, France

POSTERS

Lemvig Vand, Denmark
PtX and water management, Lars Nørgård Holmegaard, Lemvig VAND, Denmark

Oliver Grievson
Enrique Cabrera Rochera

Keynote Plenary 17:30 - 18:20
Keynote: Digital Water Unpacked, Oliver Grievson & Enrique Cabrera Rochera
Panel: Corinne Cheeseman, Perinne Inglisden, Ramón Dólv Mollá, HP Randa

Session 2 13:30 - 15:00

1.2 HOW TO BUILD INTEGRATIVE, REGIONAL STRATEGIES FOR RESPONSIBLE WATER REUSE?

Chairs: Klaasjan Raat, Netherlands and Shaflack Adams, South Africa
Participants will learn to see how water reuse can be part of a regional strategy to improve water system robustness in their own region. Examples of regional strategies across the globe will be provided.

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

POSTERS

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

POSTERS

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

Lunch 12:00 - 13:30

Session 3 13:30 - 15:00

1.2 ON-SITE REUSE OF WATER ACROSS THE WORLD

Chairs: Pia Jacobsen, Denmark and Krishna Pagilla, United States
On-site reuse of water is becoming more widespread around the world for different reasons and purposes. There are opportunities for the water sector to develop sustainable water reuse solutions to address the SDGs. Each water supplier gathers experience with different solutions, including structural, organizational, and technical ones. The speakers will give inspiration to discuss different experiences and the value (business-case) of water reuse systems. This workshop will share cases from around the world and provide knowledge from one another in an interactive setting.

Speakers: Pia Jacobsen, Aarhus Vand (DK), Krishna Pagilla, University of Nevada (US), Steve Mux, South East Water (AU), Paola Kehoe, San Francisco Public Utilities Commission (US), Nonnbiha Kalebaila, Water Research Commission (CA), Carsten Fjorback, Cowi (DK), Nuno Brôco, Aguas de Portugal (PT) & Martin Rygaard, The Technical University of Denmark (DK)

POSTERS

Towards a closed water cycle: combining technology and an instrumental framework, Roland Koolen, Dutch Water Authority HHW, Netherlands

Impact of de-icing salt on the performance of bioretention in cold climate: water quality and quantity, Monika Sidorczyk, Warsaw University of Technology, Poland

Resilient cities - citizen data and scenario modelling for understanding the interactions between groundwater, sewer system and watercourse, Anja Ziegler, Aalborg Utility, Denmark

POSTERS

Kretslopp och vatten, Göteborgs Stad, Sweden

4.4.4 PLANNING IN RESPECT OF NATURE IMPACTS

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

POSTERS

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

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

1.4.4 POLLUTION OF URBAN WATER: MONITORING, MODELLING, AND CONTROLLING

Chairs: Neil Armitage, South Africa and Ramkumar D., India
Microplastics in tunnel wash and road runoff water, Subhash Rathnaweera, Aquateam COWI, Norway
Traffic stormwater BMPs for micropollutant reduction in the city of Gothenburg, Helen Galfi, Kretslopp och vatten, Göteborgs Stad, Sweden
Impact of de-icing salt on the performance of bioretention in cold climate: water quantity and quality, Henry Beral, University of Montreal, Canada
Resilient cities - citizen data and scenario modelling for understanding the interactions between groundwater, sewer system and watercourse, Anja Ziegler, Aalborg Utility, Denmark

POSTERS

Full scale study - usage of existing sand filter for polishing phosphorus to meet stricter effluent requirements, Sofia Brämstedt, Koppolis Association, Sweden

Resilient cities - citizen data and scenario modelling for understanding the interactions between groundwater, sewer system and watercourse, Anja Ziegler, Aalborg Utility, Denmark

Resilient cities - citizen data and scenario modelling for understanding the interactions between groundwater, sewer system and watercourse, Anja Ziegler, Aalborg Utility, Denmark

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20
Keynote: Digital Water Unpacked, Oliver Grievson & Enrique Cabrera Rochera
Panel: Corinne Cheeseman, Perinne Inglisden, Ramón Dólv Mollá, HP Randa
Keynote Plenary 09:00 - 09:50

Keynote: Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, Dawn Martin-Hill
Panel: Tom Mollenkopf, Louise Dudley, Libby T. Johnson, Bradley Moggridge, Tanja Nielsen

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

4.4 | TAPPING THE VALUE OF URBAN DRAINAGE SYSTEMS (UDS) DATA
Room B3 c Workshop

Chairs: Jose Anta, Spain, Elodie Brelot, Germany and Jesper E. Nielsen, Denmark

The workshop will investigate three issues arising from new data collection, storage, and analysis capabilities: (i) data quality and assurance of big data; (ii) the use of data to enhance performance and ensure compliance; and (iii) the dangers and opportunities to society from "open data" approaches.

Speakers: Jose Anta, Universidade da Coruña (ES), Elodie Brelot, GRAINE (DE) & Jesper E. Nielsen, Aalborg University (DK), Michael R. Rasmussen, Aalborg University (DK), Jean-Luc Bertrand-Krawjeski, INSA-Lyon (FR), Alma Schellart, University of Sheffield (UK), Simon Tait, University of Sheffield (UK) & Thomas Brüggemann

2.4.3-1 | PFAS AS EMERGING CONTAMINANTS OF CONCERN
Room B3 d Technical

Chairs: Josef Klinger, Germany and Alysson Junker, Denmark

Pilot trials with combined activated carbon and ion-exchange for removal of pharmaceuticals and PFAS from wastewater at Kungsängensverket WWTP, Uppsala, Anna Sundin, Uppsala Water and Waste, Sweden

Development of energy efficient microwave system with reflected wave circulating module and carbon nanotubes-quartz vessel to remove soluble PFOS, Jungheyon Kim, Pusan National University, Republic of Korea

PFAS Removal from landfill leachate — state of the art, Andriy Malovanyy, IVL Swedish Environmental Research Institute, Sweden

Pre-treatment of complex water for subsequent PFAS-removal, Rikke Markfoged, Danish Technological Institute, Denmark

Evaluation of thyroid hormone disruption by PFAS in WWTP influent effluent and surface waters, Harrie Besselink, BioDetection Systems BV (BDS), Netherlands

Bio-innovative wastewater surveillance towards optimising dedicated treatment of contaminants of emerging concern, George Buck, INRAE, France

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

4.5 | EXPLORING FRAMEWORK CONDITIONS FOR UTILITIES TO REDUCE GHG EMISSIONS
Room B3 c Workshop

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 WaC3IM 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 incentivising 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), Nadine Ghantous, Corinne Trimmel, Switzerland, Diego Polonia, CRA (CO), Pericles S Weber, Igus Sonnemanns (BR), Sarah Bergado, Manila Water (PH) & Zoe Czempinski, Yarra Valley Water (AU)

2.4.3-2 | MICROPOLLUTANTS AS EMERGING CONTAMINANTS OF CONCERN
Room B3 d Technical

Chairs: Gayh Ulrike, Germany and Fabio Polesel, Denmark

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

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

Micropollutant removal at river catchment scale — inventory, feasibility studies and pilot projects, Christoph Brepol, Erfurterband, Germany

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

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

Environmentally friendly synthesized nano zero valent iron for the removal of micropollutants from wastewater, Simos Malamis, National Technical University, Greece

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

4.9 | GROUNDWATER MANAGEMENT FOR CLIMATE CHANGE ADAPTATION CONSIDERING THE INTERACTION BETWEEN INFRASTRUCTURE AND GROUNDWATER
Room B3 c Workshop

Chairs: Constantin Radu Gogu, Romania and Stephen Foster, United Kingdom

The resilience of cities depends greatly on efficiently used and sustainably managed groundwater. Urban groundwater is a critical dataset for the development of resilient cities, and the needs of a wide range of urban groundwater stakeholders have to be addressed. Several mechanisms for involving these stakeholders in supporting groundwater monitoring networks and knowledge have been identified. These include warning and informing local and reasonable authorities, implementing (including EU law), applying properly open data and information regulations, counselling utilities companies, and increased attractiveness for civil engineering and geotechnical companies. A set of mid-term actions supporting city planning will be drawn up for discussion. The workshop will strengthen the cities’ capacity to reduce the impact of climate change (UN-SDGs 11 & 13).

Speakers: Constantin Radu Gogu, IWA Groundwater Management Specialist Group; Technical University Civil Engineering, Bucharest (RO), Stephen Foster, IWA Groundwater Management Specialist Group; University College London (UK), Susie Mielby, GEUS (DK), Michael Eschholz, RIG (DE), Ricardo Hirata, University of São Paulo (BR), Valentin Zaharia, VEOLIA (RO) & Jane Dottidge, International Association of Hydrogeologists (IAH) (UK)

2.4.3-3 | PHARMACEUTICALS AS EMERGING CONTAMINANTS OF CONCERN
Room B3 d Technical

Chairs: Sarah Hendry, United Kingdom and Jan Ruppelt, Germany

Relevant pharmaceutical contaminants in water, soil, and crops in the HYDROUSA Project: prioritization and upgrade of analytical methodologies, Marc Castaño-Trías, ICRA, Spain

Sustainable wastewater treatment of pharmaceuticals at the sunset WWTP Vajso, Anneli Chan, Ramboll, Sweden

Constructed wetlands for safeguarding antibiotics emission into aquatic systems, Pedro Carvalho, Aarhus University, Department of Environmental Science, Denmark

Microplant and antibiotic-resistant germs removal using PAC & membrane technology, Alexander Merz, Hochschule Darmstadt, Germany

Comparison of ibuprofen Removal from water using activated carbon and immobilized bacteria onto chars derived from agriculture waste, Yves Andre, IMT Atlantique | GEPEA, France

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: Digital Water Unpacked, Olivier Griesen & Enrique Cabrera Rochera
Panel: Corinne Cheeseman, Pernille Ingildsen, Ramón Dolz Molina, HP Nanda
Keynote Plenary
09:00 - 09:50

Keynote: Empowering Communities to Shape Sustainable Water Solutions — Incorporating Indigenous Knowledge, Dawn Martin-Hill
Panel: Tom Mollemarck, Louise Dudley, Lily T. Johnson, Bradley Mugendi, Tanya Neilson

Coffee Break
09:50 - 10:30

Session 1
10:30 - 12:00

6.1 | GROUNDWATER HOLISTIC APPROACHES AND REGULATION FOR WATER SECURITY
Chairs: Sophie Tremolet, France and Titilola Bright-Oridami, Nigeria
Accessible on-site system for detection of heavy metals in potable water, Tommi Tilhannen, University of Eastern Finland, Finland
Tracking salinity sources and mechanisms in groundwater from the water cycle and anthropogenic activities through a hybrid approach, Huguito Emwotu, Regional Water and Environmental Sanitation Centre, KNUST, Senegal
How the history of contaminated site remediation has evolved in an effective, economically and sustainable way, John Huybregt, Capital Region of Denmark, Denmark
Integration of electromagnetic and electrical resistivity for groundwater exploration in Kintampo South district, Bono East region of Ghana, Albert Acheampong, KNUST (RWESCK) (World Vision Ghana), Ghana
California’s state-wide AEM surveys, Max Halkjær, Randers, Denmark
The availability of arsenic in vaal catchment area as a result of acid mine drainage in South Africa, Sibusiso Mnguni, Rand Water, South Africa

2.3.3 | NANOMATERIALS AND NANOTECHNOLOGY
Chairs: Jan Hofman, United Kingdom and Jenny Radeva, Germany
Reusable carbon nanotubes embedded polystyrene/polycrylonitrile nanofibrous sorbent for oil clean-up, Suyong Byun, Pusan National University, Republic of Korea
Quantification of metal-based nanoparticles in wastewater treatment plants, Pabia Cervantes-Avalos, Tecnológico de Monterrey, Mexico
High efficiency, stable, easily separable, and recovery novel magnetic nanocomposite adsorbent for phosphate removal, Denny Dermawan, Chung Yuan Christian University, Chinese Taipei
Piezo-photo coupling effect of ultrathin Bi,[O,C]/nanosheets for carbamazepine degradation, Feiyan Wu, DTU environment, Denmark

--- POSTERS ---
Applications of nanoparticles in wastewater treatment, Irem Ayrapinar, Kahramanmaras Sutcu Imam University, Turkey
Recovery of water and valuable metals by low pressure nano filtration and sequential adsorption from Acid Mine Drainage (AMD), Charith Dalindra Jude Fonseka, Australia

Lunch
12:00 - 13:30

Session 2
13:30 - 15:00

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, Melutura Beyebe, DHI, South Africa
Building sustainable water services: subsidiarity, multi-level governance and resilience approach, Jarmo Huukka, Tampere University, Finland
Lowering of groundwater levels and their effect on water, sanitation and hygiene services in the savalugu 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 Kulo in Norway, Lulum Manamperuma, Aquateam COWAS, Norway
The web-based OMEGA Platform for supporting reservoir management in Portugal, Ana Oliveira, Instituto Superior Técnico, Portugal

Coffee Break
15:00 - 15:45

Session 3
15:45 - 17:15

2.3 | HIGH VALUE PRODUCTS BASED ON CARBON IN WASTEWATER — HOW DO WE SELECT AND IS IT SUSTAINABLE?
Chairs: Mark van Loosdrecht, Netherlands and Jeanette Agerved Madsen, Denmark
Discussion of new processes as well as R & D within the production of high-value products based on carbon in wastewater. Upscaling, value chain development, handling requirements from end users and regulatory agencies.
Speakers: Irini Angelidaki, Prof., Technical University of Denmark (DK), Francesco Fatone, Prof., University Politecnica delle Marche (IT), Olaf van der Kolk, CEO Aquaminerals, Co-chair Cluster Resource Recovery IWA (NL), Frank Rogalla, Director of Innovation and Technology, Aqualia (ES) & Alan Werker, Co-owner, Promiko AB (SE)

6.3 | GROUNDWATER — RESILIENCE APPROACHES
Chairs: Gabriel Racoviteanu, Romania and Craig Tinashe Tanyaniwya, South Africa
Comparative analysis of regulation, definition and classification of relevant and non-relevant metabolites in the EU and Denmark, France and Germany — status and outlook, Steffen Fouss Hansen, Technical University of Denmark, Denmark
Innovative real-time sensing of flow dynamics in groundwater and sediments to map anthropogenic & climate change impact, Gesine Verreydt, iFLUX - Universiteit Antwerpen, Belgium
Groundwater data and decision support tools at local to Pan-European scale for sustainable and integrated management of water resources in support of EU, Klaus Hinbey, Geological Survey of Denmark and Greenland (GEUS), Denmark
Applying SkyTEM to improve sustainable management of groundwater systems in a built-up area — the Hawke’s Bay 3D aquifer mapping project in New Zealand, Steven Johnson, SkyTEM Australia Pty Ltd, Australia

--- POSTERS ---
Airborne electromagnetic mapping of shallow depth to bedrock supports land management in northwest Wisconsin, Florencia Ellerera, SkyTEM, United States
Assessing risks to shallow groundwater wells in cold climate conditions using real-time online monitoring, Stable Water Isotopes, and 16S Amplicon Sequencing, Kevin Lyons, University of Oulu, Finland

Break
17:15 - 17:30

Keynote Plenary
17:30 - 18:20

Keynote: Digital Water Unpacked, Oliver Grievson & Enrique Cabrera Rochera
Panel: Corinne Cheeseman, Pernille Ingildsen, Ramón Díaz Molá, HP Nanda
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<td>09:00 - 09:50</td>
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<td>10:30 - 12:00</td>
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<td></td>
<td><strong>Chairs:</strong> Martin Rygaard, Denmark and Magnus Arnell, Sweden</td>
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<td>Energy positive and carbon neutral wastewater treatment in Copenhagen, Carsten Thirsing, BIOFOS A/S, Denmark</td>
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<td>From a vision to a sustainable preliminary concept for New Sjölund WWTP using an innovative and holistic approach, Jeanette Madsen, EnviDan, Denmark</td>
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<td>Using carbon footprint from the construction phase as a parameter in asset management and rehabilitation planning, Sarah Brudler, EnviDan, Denmark</td>
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<td>Application of sustainability index in municipal water and wastewater organizations in Sweden for improved asset management: some case studies as good, Nasik Najar, School of Engineering</td>
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<td>A systematic concept for the extension of Copenhagen’s WWTPs, Jeanette Madsen, EnviDan, Denmark</td>
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<td>12:00 - 13:30</td>
<td><strong>Lunch</strong></td>
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<td>13:30 - 15:00</td>
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<td><strong>Chairs:</strong> Ed Smeets, Netherlands and Abdul Majeed Osman, Ghana</td>
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<td>Prague Water Net Zero Strategy 2025 — methodology and roadmap, Martin Srb, Pražské vodovody a kanalizace, a.s, Czech Republic</td>
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<td>Environmentally and socially responsible activated carbon filtration, Panu Laurell, Helsinki Region Environmental Services, Finland</td>
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<td>Normalized approach for carbon footprint determination: long term measurements in real wastewater treatment plants, Enrico Marinelli, UNIVPM, Italy</td>
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<td>Implementation at full scale of demand-driven biogas production from anaerobic digestion of sewage sludge, Mauro Lafratta, University of Surrey</td>
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<td>Methane emissions on small wastewater treatment plants, Johannes Blattenberger, Bundeswehr University Munich, Germany</td>
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<td>Effect-based monitoring: perception and perceived barriers to implementation, Magali Deschesnes, Veolia Research &amp; Innovation, France</td>
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<td><strong>Chairs:</strong> Eveline Volcke, Belgium and Haoran Duan, Australia</td>
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<td>Reduction of greenhouse gas emissions in the water sector — a Danish perspective, Jacob Kragh Andersen, EnviDan, Denmark</td>
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<td>Quantification and assessment of greenhouse gas emissions from wastewater treatment plants, Charlotte Schewitz, Technical University of Denmark, Denmark</td>
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<td>Direct effect of activated sludge concentration on N2O emission and CO2-eqv accounting at full-scale, Mikkel Andersen, Unisense, Denmark</td>
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<td>N2O abatement from WWTPs by catalytic treatment, Britta Lauritzen, Hillerød Forsyning, Denmark</td>
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<td>Emissions of nitrous oxide from danish WWTPs and their effect on global warming — a nationwide study, Anna Katrine Vanggaard, EnviDan, Denmark</td>
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<td>Predicting N2O production in activated sludge process using data-driven modelling, Laura Hansen, Krüger, Denmark</td>
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<td>17:15 - 17:30</td>
<td><strong>Break</strong></td>
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<td>17:30 - 18:20</td>
<td><strong>Keynote Plenary</strong></td>
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Tuesday | Business Forums

Keynote Plenary
09:00 - 09:50

BUSINESS FORUM ROOM 1 (HALL E)

10:30 — 11:15 | KEMIRA
How to reduce the global warming potential (GWP) of wastewater treatment plants

- Dr Marco Michelotti – Technical Manager Idrotherm 2000

- Dr. Jing Liu, CEO & prof. Gustaf Olsson

Alternative water sources for water supply
The scarcity of water supply is a serious and increasing threat for many communities around the world, and this challenge calls for investigation and development of alternative sources. The session will show examples of urban water planning and present some of the innovative solutions to overcome water scarcity.

- Kristian Brunmark, Project Manager, Aarhus Vand
- Carsten Fjorback, Development Director - Climate Adaptation, COWI A/S
- Ole Silkjær, Business Development Director, Euronis Environment Denmark

12:15 — 13:00 | DENMARK PAVILION
Alternative water sources for water supply
The scarcity of water supply is a serious and increasing threat for many communities around the world, and this challenge calls for investigation and development of alternative sources. The session will show examples of urban water planning and present some of the innovative solutions to overcome water scarcity.

- Kristian Brunmark, Project Manager, Aarhus Vand
- Carsten Fjorback, Development Director - Climate Adaptation, COWI A/S
- Ole Silkjær, Business Development Director, Euronis Environment Denmark

13:30 — 14:15 | REZATEC
Advance Warning From Advanced Data: How to identify Pipeline Risk using Geospatial AI
To be announced later

- Andrea Cirino Pomicino, CEO

14:15 — 15:00 | VEOLIA
Optimisation of energy production at wastewater treatment plants
Stakeholders from the industry will present solutions and operating results from their WWTPs in this business forum. Through interesting discussions, the participants will gain a valuable understanding of the mechanisms involved in obtaining energy-efficient and sustainable solutions for their WWTPs.

- Andrea Cirino Pomicino, CEO

15:45 — 16:30 | FINNISH WATER FORUM
FINNISH WATER FORUM EMBASSY OF FINLAND IN COPENHAGEN
Finnish Water Way – Network Reception
Finnish Water Forum together with Embassy of Finland in Copenhagen invites you to explore the leading practices of Finnish Water Way through showcases of Smart Water Management, Managed Aquifer Recharge and Resource & Energy Recovery. Join us to expand your networks with Finnish water sector – the world-leaders in Sustainable Water Management!

- Finland at IWA WWCE 2022
- Bjørn Bierdemann

Keynote Plenary
17:30 - 18:20

BUSINESS FORUM ROOM 2 (HALL C)

10:30 — 11:15 | AVK/NIRAS
Moving Towards Smart Water Network
We will look at smart water networks in a holistic context of drinking water systems. By pin-pointing challenges that many utilities face we will present new and upcoming technologies that will improve smart water systems further by combining technologies, creating digital twins and adding new IoT sensors and smart devices.

- Klaas Heugh, Gerner H. Knudsen, Michael Ramlau Hansen

11:15 — 12:00 | PALADERI
Mechanical and hydraulic behaviour of hdpe spiral pipes with steel reinforcement under extreme loads
Politecnico Milano’s study concerning mechanical tests on polymeric pipes with steel reinforcements, with results of creep tests on different plastic pipes types.

- Ring stiffness tests, ring flexibility and resistance to collapse of steel-reinforced polyethylene spiral pipe.
- Collapse test male-female joint of steel-reinforced polyethylene spiral pipe.
- Polymeric material pipes creep tests

- Andrea Cirino Pomicino, CEO

12:15 — 13:00 | NETHERLANDS (NWP)
The Dutch Water Sector is constantly moving forward and happy to attend the IWA WWCE in Copenhagen!
Please meet: Netherlands Water Partnership, Water Alliance, PB International, Sensoterra International B.V., Water Test Network, EBC Foundation, Wewin, Hydrauloop, Join the Pipe and others. In this session we will give you an update on the latest developments and solutions from the Netherlands. We are actively looking for cooperation.

- NL pavilion participants

13:30 — 14:15 | BPC INSTRUMENTS
UV-C and Hydrogen Peroxide : the sustainable route to micropollutant free waters by Nouryon and Van Remmen UV
In an interactive and multimedia approach the societal need, technical features, technology benefits and experiences in the UV-H2O2 application will be presented. The experiences shared are ranging from scientific papers to long term full-scale trials to commercial installations. External independent parties will make statements and open up for discussions with the audience.

- Clara Thege, Thomas Greschik

14:15 — 15:00 | BPC INSTRUMENTS
Gas Endevour® from BPC Instruments
Gas Endevour® from BPC Instruments (formerly Bioprocess Control) allows for an easy execution of microbial activity analysis based on volumetric gas methodology. The instrument is a fully automated respirometer for continuous gas volume measurement. It is an ideal solution for anaerobic and aerobic respirometry using samples of sludge and wastewater.

- Dr. Jing Liu, CEO & prof. Gustaf Olsson

15:45 — 16:30 | IDROTHERM
Underground polyethylene pipe networks in the frame of circular economy
A sustainable approach has been explored with recycled materials providing a remarkable outlet for disposable plastics. Selected grades of HDPE from post-use recovery and industrial scraps combined with multilayer pipe extrusion technology have been the basis for renovated sewerage networks and electric cables protection of a major mutility for one of the biggest projects for wastewater in Italy.

- Dr. Marco Michelotti – Technical Manager (idrottherm 2000)
Wednesday, 14 September
# Programme

**Wednesday**

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<tr>
<td>09:00 - 09:50</td>
<td><strong>Keynote Plenary</strong>&lt;br&gt;Keynote: Uniting Youth for Water, Farokh Laqa Kakar&lt;br&gt;Panel: Jacob Amengor, Inês Breda, Andrea Montsou, Yang Villa</td>
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<td>09:50 - 10:30</td>
<td><strong>Coffee Break</strong></td>
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<td>10:30 - 12:00</td>
<td><strong>Session 1</strong>&lt;br&gt;<strong>UTILITY LEADERS FORUM IV</strong> —&lt;br&gt;LIVING IN THE DIGITAL WORLD&lt;br&gt;Chair: Shane Morgan, CDO Urban Utilities, Brisbane, Australia&lt;br&gt;Opening: Jason Tucker, Director of Strategic Delivery and Commercial Assurance, Anglian Water, UK, Maree Lang, MD, Greater Western Water, Australia, Riksta Zwart, MD, Waterbedrijf Groningen, NL, Kishia Powell, CDO, DC Water, US&lt;br&gt;Roundtables and panel discussion facilitator: Adam Lovell, CEO Water Services Association of Australia</td>
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<td><strong>REGULATORS FORUM I</strong> —&lt;br&gt;&quot;EXCEPT IN CASES OF FORCE MAJURE&quot;:&lt;br&gt;THE IMPACT OF ENVIRONMENTAL AND SOCIAL DISRUPTIONS ON ECONOMIC REGULATION. WHO PAYS FOR THE INCREMENTAL RISK?&lt;br&gt;Chair: Patrick Lester N. Ty, Philippines&lt;br&gt;The 7th International Water Regulators Forum offers a platform for water sector regulators from all over the world to exchange experiences, transfer skills and build new partnerships. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and drainage services, as well as their peers from public health and environmental regulators. The discussions will focus on how regulatory functions are being supplied in times of increasing natural, social, and economic uncertainty. During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations and roundtable discussions led by the speakers.</td>
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<td><strong>Session 2</strong>&lt;br&gt;<strong>UTILITY LEADERS FORUM V</strong> —&lt;br&gt;CELEBRATING 2022 CLIMATE SMART UTILITIES —&lt;br&gt;SUCCESSES FROM AROUND THE GLOBE AND RECOGNITION EVENT&lt;br&gt;Chair: Corinne Tromsdorff, Water Cities and Carlos Diaz, IWA&lt;br&gt;Opening: Kala Vairavamoorthy, Executive Director, IWA&lt;br&gt;Presentations: Climate-Smart Stories&lt;br&gt;Igniting talks: Jason Tucker, Director of Strategic Delivery and Commercial Assurance, Anglian Water, UK, Maree Lang, MD, Greater Western Water, Australia, Riksta Zwart, MD, Waterbedrijf Groningen, NL, Kishia Powell, CDO, DC Water, US</td>
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<td><strong>REGULATORS FORUM II</strong> —&lt;br&gt;DEMONSTRATING THE ADDED VALUE OF REGULATION TO COPE WITH GREATER POLITICAL INSTABILITY:&lt;br&gt;HOW REGULATORS ARE RINGFENCING FROM POLITICAL INSTABILITY AND ITS PERVERSE IMPACTS ON THE GOVERNANCE OF THE REGULATORY FRAMEWORKS?&lt;br&gt;Chair: Tone Madson, Denmark&lt;br&gt;The 7th International Water Regulators Forum offers a platform for water sector regulators from all over the world to exchange experiences, transfer skills and build new partnerships. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and drainage services, as well as their peers from public health and environmental regulators. The discussions will focus on how regulatory functions are being supplied in times of increasing natural, social, and economic uncertainty. During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations and roundtable discussions led by the speakers.</td>
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<td><strong>Session 3</strong>&lt;br&gt;<strong>LATIN AMERICA &amp; THE CARIBBEAN</strong> —&lt;br&gt;LATIN AMERICA DAY AT THE 2022 IWA WORLD WATER CONGRESS&lt;br&gt;The workshop will bring together key representatives from the Latin American water sector (led by the Inter-American Association of Sanitary and Environmental Engineering – AIDIS) to discuss how IWA can add value to Latin American water professionals (from young water professionals to seniors), and how they can engage in and contribute to IWA communities and programmes.&lt;br&gt;Speakers: José Luis Inglés, Elected President – AIDIS (AR), Daniel Nolasco, Former Chair of IWA’s Strategic Council (AR), Juan Pablo Rodríguez Sánchez, Universidad de Los Andes (CO), Daniela Bemia, IWA Secretariat (BR / UK), Agustin Landsaburu, IWA YWP Steering Committee member (AR)&lt;br&gt;Chairs: Corinne Tromsdorff, Water Cities and Carlos Diaz, IWA&lt;br&gt;Panel: Jacob Amengor, Inês Breda, Andrea Montsou, Yang Villa, Juan Pablo Rodríguez Sánchez, Universidad de Los Andes (CO), Daniela Bemia, IWA Secretariat (BR / UK), Agustin Landsaburu, IWA YWP Steering Committee member (AR)</td>
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<td><strong>REGULATORS FORUM III</strong> —&lt;br&gt;COPING WITH CLIMATE CHANGE: CLIMATE SMART REGULATION TO BOOST UTILITIES UPTAKE OF CLIMATE ACTION AND CIRCULARITY&lt;br&gt;Chair: Hai Sagi, Israel&lt;br&gt;The 7th International Water Regulators Forum offers a platform for water sector regulators from all over the world to exchange experiences, transfer skills and build new partnerships. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and drainage services, as well as their peers from public health and environmental regulators. The discussions will focus on how regulatory functions are being supplied in times of increasing natural, social, and economic uncertainty. During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations and roundtable discussions led by the speakers.</td>
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<td><strong>Keynote Plenary</strong>&lt;br&gt;Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan&lt;br&gt;Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson</td>
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Keynote Plenary 09:00 - 09:50
Keynote: Uniting Youth for Water, Farokh Laqa Kakar
Panel: Jacob Amengor, Inês Breda, Andrea Montuori, Yang Villa

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00
INNOVATORS PLATFORM I

The Water Innovation Accelerator is the latest event to be held as part of the Innovators Platform initiative.

The Innovators Platform is a collaborative effort to inspire innovation around water. The Innovators Platform frames innovation in a wide context, looking beyond technologies. It anticipates the broad benefits to society can be realised with innovation ‘through’ water. International participants will, over three sessions, explore opportunities arising from water’s potential to be a vehicle for transformation through the adoption of a circular economy water journey for climate change mitigation and adaptation.

The Water Innovation Accelerator event is facilitated by Water Valley Denmark.

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00
UPSCALING FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM) TO CITY WIDE INCLUSIVE SANITATION (CWIS): EXPERIENCE FROM INDIA (STATE OF UTTAR PRADESH) AND GLOBAL SOUTH
Speakers: Depinder Kapoor, Centre for Science and Environment (IN), Jay Bhagwan, Water Research Commission (ZA), Amrit Abhijat, Sumit Singhal, Centre for Science and Environment (IN), Dhruv Parsons, Centre for Science and Environment (IN), Hasim Jahan, WaterAid Bangladesh (BG), Malcolm Madeira, Sudhir Pillay, Water Research Commission (ZA), Jennifer Williams

INNOVATORS PLATFORM II

Continuing from Session 1. The Innovators Platform is a collaborative effort to inspire innovation around water. The Innovators Platform frames innovation in a wide context, looking beyond technologies. It anticipates the broad benefits to society can be realised with innovation ‘through’ water. International participants will, over three sessions, explore opportunities arising from water’s potential to be a vehicle for transformation through the adoption of a circular economy water journey for climate change mitigation and adaptation.

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15
NFSSM WORKSHOP: COLLABORATIVE APPROACH TO RESILIENT AND INCLUSIVE CITY SANITATION: BEST PRACTICES FOR A MULTI-STAKEHOLDER ECOSYSTEM
Speakers: Roshan Shrestha, Shri. G Mathi Vathanan, Tanvir Ahmed, BUET (BG), Mahreen Mattoo, National Institute of Urban Affairs (IN), Depinder Kapoor, Vedula Srihvas, Chary, Administrative Staff College of India (IN), Anju Dwivedi, Centre for Policy Research (IN), Drishti Bassi, Hasin Jahan, WaterAid Bangladesh (BG), Ananya Ghosh, Athena Infonomics (IN)

INNOVATORS PLATFORM III

Continuing from Session 2. The Innovators Platform is a collaborative effort to inspire innovation around water. The Innovators Platform frames innovation in a wide context, looking beyond technologies. It anticipates the broad benefits to society can be realised with innovation ‘through’ water. International participants will, over three sessions, explore opportunities arising from water’s potential to be a vehicle for transformation through the adoption of a circular economy water journey for climate change mitigation and adaptation.

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20
Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson
### Wednesday | Programme

#### Keynote Plenary 09:00 - 09:50

**Keynote:** Uniting Youth for Water, Farokh Laqa Karak
Panel: Jacob Amengor, Inês Breda, Andrea Montouci, Yang Villa

#### Coffee Break 09:50 - 10:30

#### Session 1 10:30 - 12:00

**1.4 | SKILLS FOR A DIGITAL WATER FUTURE**

**Chairs:** Emma Weisbord, Canada and Lloyd Fisher-Jeffes, South Africa

In this session, we will introduce participants to the various flavours of skills and expertise needed for the future of digital water. We will provide a taste of two of these: machine-learning concepts and agile ways of working.

**Speakers:** Emma Weisbord, IWA Emerging Water Leaders, SWAN Rising Smart Water Professionals (CA); Lloyd Fisher-Jeffes, City of Cape Town (ZA); Irina Pulyakhina, Xcelerated, (RU)

#### Workshop Session 2 13:30 - 15:00

**6.1 | CIRCULAR ECONOMY 1**

**Chairs:** Evina Katsova, United Kingdom and Maria Faragó, Denmark

- Preliminary evidence of advanced bio-based fertilizer production and water reuse from fishery wastes, Corinne Andreola, UNIVPM, Italy
- Exploring the legitimization of circular economy initiatives in the water sector, Marine Point, Cranfield University, United Kingdom
- Water in circular economy and resilience (WICER) framework, Anna Delgado, World Bank, United States
- From lab to field: transforming biogas digestates to instruments for mitigating nitrous oxide emissions from food production, Kjell Rune Jonassen, Vestfjorden Avløpsselskap (Ves), Norway
- Assessing the economic, social, gender and environmental impact of clean water and sanitation in Buenos Aires, Gonzalo Meschengieser, Agua y Saneamientos Argentinos (AySA), Argentina

#### Lunch 12:00 - 13:30

#### Session 3 15:45 - 17:15

**6.12 | CIRCULAR ECONOMY 2**

**Chairs:** Amit Chaney, Fiji and Chataigne Djuma, Congo DR

- Assessing circularity of multi-sectoral systems under the water-energy-food ecosystems (WEFE) nexus, Elisa Nika, Brunel University London, United Kingdom
- Holistic circularity assessment of a biorefinery process utilising an action-oriented approach, David Rentfrow, Brunel University London, United Kingdom
- An integrated approach to sustainable industrial water use, Eric Rosenblum, Water Resource Consultant, United States
- Water circularity measurement in urban context, Pradip Kalbar, Indian Institute of Technology Bombay, India
- Water reuse in northern Europe — a German perspective? Julianne Bräcker, University of Duisburg-Essen, Germany
- Systematic review of low-cost waste material to eliminate pollutants in wastewater: technology and life cycle analysis perspective, Malgorzata Szlachta, Geological Survey of Finland, Finland

#### Break 17:15 - 17:30

#### Keynote Plenary 17:30 - 18:20

**Keynote:** Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flintor, Amanda Lake, Zhiyong Jason Ren, Lila Thompson
Keynote Plenary 09:00 - 09:50

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Panel: Jacob Amengor, Indi Breda, Andrea Montuori, Yang Villa

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

2.6 | DIGITAL TOOLS FOR WASTEWATER PROCESS OPTIMISATION

Chairs: Juan Antonio Baeza, Spain and Saba Daneshgar, Belgium

Benchmarking plant-wide monitoring strategies in wastewater treatment plants, Pedram Ramin, Technical University of Denmark, Denmark

Comparison of guideline and model-based WWTP design for uncertain influent conditions, Erik Lindblom, IVL Swedish Environmental Research Institute AB, Sweden

How to enable responsible consumption & production (SDG12) and reduce the climate impact (SDG13) on a WWTP by digitally enhanced primary treatment, Patricia Aubert-Frieur, Kemiwa

SAC254 on-line measurement: a key surrogate parameter for micropollutants removal, Marie Inzän, Nach Lange GmbH, Germany

Model-based assessment of alternative modes of operation in a full-scale industrial wastewater treatment system, Xavier Flores-Alsina, DTU, Denmark

--- POSTERS ---

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

2.6 | DATA-DRIVEN TOOLS FOR WASTEWATER TREATMENT PROCESSES

Chairs: Glen Daigger, United States and Achim Ried, Germany

Data reconciliation for activated sludge plants — effects of data time span, Christoffer Wester, RISE Research Institutes of Sweden, Sweden

Prediction of mass and volumetric flows in a full-scale industrial wastewater treatment plant, Xavier Flores-Alsina, DTU, Denmark

Including the fate of products generated at a full-scale wastewater treatment plant, in applying decision support tools to evaluate phosphorus removal strategies, David Humm, University of Cape Town, South Africa

Modelling and mitigating greenhouse gas emissions from sewage treatment plants using an integrated mechanistic and deep learning approach, Haoran Duan, The University of Queensland Australia

Process using bayesian optimized long short-term memory network, Esmaeel Mohammadi, Krüger, Denmark

Process monitoring and fault detection using a soft sensor for the return activated sludge flow rate at Henriksvårn WWRF, Hanna Molin, Lund University/IVL Swedish Environmental Research Institute, Sweden

--- POSTERS ---

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

2.3.1 | MEMBRANE APPLICATIONS IN WASTEWATER MANAGEMENT

Chairs: Miklos Patziger, Hungary and Irina Pulyakhina, Netherlands

Development of an integrated urine collection and treatment process for fertilizer and drinking water production, Caitlin Courtney, University of Cape Town, South Africa

Pre-coagulation of UAOB effluent for ultrafiltration membrane fouling mitigation: a comparative study of aluminum and tannin-based coagulants, Edouardo Lucas Subtil, Technical University of ABC, Brazil

Pulse dosing of submicron-sized powdered activated carbon avoids irreversible fouling in submerged ceramic membranes while not in monolithic ones, Zhao Yuanjun, Hokkaido University, Japan

Low-pressure nanofiltration coupled with ultrafiltration: an efficient solution for drinking water treatment, Philippe Sauvignet, Veolia, France

Removal of pharmaceuticals and wastewater pollutants with hybrid ceramic membranes, Henning Oel, Hochschule Magdeburg-Stendal, Germany

--- POSTERS ---

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
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Programme Book www.worldwatercongress.org
Wednesday | Programme

Keynote Plenary | 09:00 - 09:50
Keynote: Uniting Youth for Water, Farook Laqa Kakar
Panel: Jacob Amenga, Eko Breda, Andrea Montesoni, Yang Yin

Coffee Break | 09:50 - 10:30

Session 1 | 10:30 - 12:00
3.14 | DIGITAL WATER
Chairs: Hector Monclus, Spain and Tamlyn Sasha Naidu, South Africa
How to improve management of storm-water planning using green growth technology and machine learning? Andrea Ostojic, BI Norwegian Business School, Norway
Benefits and challenges of pre-paid water meter installation in Jenin City of Palestine, Ryuji Ogata, Japan International Cooperation Agency (JICA), Japan
High-resolution automated monitoring of microbial concentrations in greywater effluent by online flow cytometry, Konstanze Schiessl, ONCyt Microbiology AG, Switzerland
Microbiological dynamics and risk assessment of drinking water and reclaimed water processes, Susana Gonzalez, CETAQUA (Water Technology Center), Spain

--- POSTERS ---
Use of soft sensors for improved drinking water treatment, Stephan Köhler, Swedish University of Agricultural Sciences, Sweden

Lunch | 12:00 - 13:30

Session 2 | 13:30 - 15:00
3.3 | HEALTH RISK ASSESSMENT OF ANTIMICROBIAL RESISTANCE IN WATER SYSTEMS
Chairs: Gertjan Medema, Netherlands and Stephanie Rinck-Pfeiffer, Australia
The Global Water Research Coalition (GWRC) recognised the need for the water sector to understand the health risk associated with antimicrobial resistance (AMR) in water.
As a follow-up of a GWRC workshop, WRF issued a project to evaluate the health risk that is now ongoing. In the workshop, we plan to present the state-of-the-art on health risk assessment of AMR in water and solicit feedback from all participants (through a web-based polling system) to help translate this scientific state-of-the-art to water policy and water utility practice.
Speakers: Gertjan Medema, KWR/TU Delft/Michigan State University (NL), Stephanie Rinck-Pfeiffer, GWRC (AU), Kate Medlicott, WHO (GE), Amy Pruden, Virginia Tech (US), Kerry Hamilton, Arizona State University (US)

--- POSTERS ---

5.3 | ONLINE AND HYBRID APPROACHES TO KNOWLEDGE EXCHANGE AND CAPACITY BUILDING FOR WATER OPERATOR PARTNERSHIPS (WOPS)
Chairs: Jeanne Cole, United Kingdom and Anke Verheij, Netherlands
At this session, attendees will hear from WOP participants and supporting agencies who will present the latest thinking on fostering improved knowledge exchange, including several pilots of new, or adapted, online tools and hybrid strategies.
Speakers: Jeanne Cole, WaterAid (UK), Anke Verheij, VEI (NL), Patrick Kaylizzi, Eastern Umbrella of Water and Sanitation (UG), Eunice Tejan, Faustina Boachie, Ghana Water Company Limited (Gh) & Guillana Ferrero, IHE Delft (NL)

Coffee Break | 15:00 - 15:45

Session 3 | 15:45 - 17:15
3.2 | GROUNDWATER AS A SUSTAINABLE SUPPLY RESOURCE
Chairs: Jens Dyrborg Niels, Denmark and Peter Henriksen, Denmark
We ask the question Why Groundwater?
Fly the groundwater helicopter and get perspective on why and how groundwater-based water supply can contribute to the Sustainable Development Goals by providing a sustainable and affordable domestic water supply.
We offer the participants an introduction to the key steps around groundwater detection, challenges, treatment, protection, and management. You will meet leading international experts, who will inspire and showcase examples of technologies, threats and solutions that make groundwater a favourable source for water supply.
We land safely on the ground and open up for a sparkling panel discussion, involving additional leading experts and challenging questions from the audience.
Speakers: Jens Dyrborg Niels, Envidan(DK), Peter Henriksen, Aarhus University (DK), Mette Ryom, Ramboll (DK), Torben Bach, Doris van Halem, TU Delft (NL), Max Halikjar, Ramboll (DK) & Charles Niessen, TREFOR (DK)

Break | 17:15 - 17:30

Keynote Plenary | 17:30 - 18:20
Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson
5.9 | GLOBAL MEGATRENDS AND WORKFORCE OF TOMORROW

Chairs: Nereia Uri Carreño, Denmark and Ashton Mpofu, South Africa

The Young Water Professional organisations of Denmark and South Africa have joined forces to highlight the importance of adapting to the challenges of tomorrow.

In a world cafe setting, young and senior water professionals will discuss future challenges and how we should adapt to the future workforce requirements.

Global megatrends will be the focus of the discussions.

Speakers: Nereia Uri Carreño, VCS Denmark (DK) & Ashton Mpofu, YWP-ZA | GreenCape (ZA), Anya Eilers, Inês Breda, Silhurko-Eurowater A/S (DK), Nontando Vungwana, Dorottya Wágner-Zafirov, DTU Chemical Engineering (DK), Lee-Ann Modley, University of Johannesburg (ZA), Sibusiso Mhlongo, Rand Water (ZA) & Giulia Dottorini, Aalborg University (DK)

1.1 | NON-REVENUE WATER — CASE STUDIES

Chairs: Pradip Kalbar, India and Jacob Amengor, Ghana

Water loss estimation and associated financial cost in water distribution networks: large scale application to the city of Patras in western Greece, Alfanaxis Serafeim, University of Patras, Greece

From 54% to 15% of NRW — strategies and tools of an excellent program of Porto to increase efficiency & sustainability, Flávio Oliveira, Águas e Energia do Porto, Portugal

Non-revenue water reduction with performance based contract — AdRA’s case study, Marco Costa, AdRA-Aguas da Região de Aveiro, SA, Portugal

Application of leak detection techniques and the DIMA approach to NRW management — a case study of Lilongwe City’s water supply system, Kenneth Kuntambila, Lilongwe Water Board, Malawi

—— POSTERS ——

Adapting different measures for water loss reduction — a case study from Trondheim, Pranab Raj (Dhakal), Trondheim kommune, Norway

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

1.5 | THE FUTURE OF WATER COOPERATION PROGRAMMES: HOW TO ENSURE EQUAL ACCESS TO THE BEST AVAILABLE SOLUTIONS AND TECHNOLOGY

Chairs: Jorgen Erik Larsen, Denmark and Moloko Raleljena, South Africa

The session will give insights into the efficiency and successes of water cooperation programmes and give the contributors and audience an opportunity to discuss and give directions for future international partnership and programme modalities.

Speakers: Jorgen Erik Larsen, Danish Embassy in Pretoria South Africa (DK), Moloko Raleljena, Department of Water and Sanitation (ZA), Sean Phillipp, Department of Water and Sanitation (ZA), Henk Studsgaard, Miljøministeriet (DK), Lotte Machon, Danish Ministry of Foreign Affairs (DK), Oskvald Chanda, African Development Bank (CI) & Pia Yasuko, Grundfos (DK)

1.1 | NON-REVENUE WATER MANAGEMENT IN LOW AND MIDDLE INCOME COUNTRIES — A

Chairs: Roland Liebmerger, Austria

Non-Revenue Water (NRW) management always delivers significant benefits, but many water professionals do not know where and how to start. This training will provide participants with an understanding of assessing Non-Revenue Water to develop and implement improvement plans. Workshop participants will learn how to do a first NRW assessment, what needs to be done to reduce physical and commercial losses, and how to get started.

Note: Participants are encouraged to attend both parts of the workshop to get the full benefits.

In Part A, the assessment of NRW will be discussed, and participants will then work together on an example of how to do a Rapid NRW assessment.

Speakers: Roland Liebmerger, Water Loss Specialist Group (AT) & Stuart Hamilton, Water Loss Specialist Group Chair (UK)

Coffee Break 15:00 - 15:45

Session 3 15:45 - 17:15

1.22 | FOSTERING INNOVATION AND PARTNERSHIPS AT UTILITY LEVEL

Chairs: Stanley Liphadzi, South Africa and Yang Villa, Philippines

Fostering partnerships — a collaboration between the municipality, the utility and local stakeholders on privately owned areas, Sara Kristine Basholm, Hofor, Copenhagen, Denmark

Effect-based monitoring in global water safety planning, Stefab Kools, KWR Water Research Institute, Netherlands

Successful field deployment of an arsenic treatment technology in a resource scarce region, Diana Hernandez, CSIC, Madrid, Spain

International exchange of knowledge between wastewater treatment plants in Buenos Aires and Copenhagen — partnerships for success, Nahuel Arce, AySA S.A, Argentina

—— POSTERS ——

Safe, smart systems; regulators and industry working together to unlock the first steps to a fully automated future, Florin Boyoiu, Anglian Water, United Kingdom

Great collaboration ensures high quality waterworks, Anders Refgaard, COWI A/S, Denmark

1.1 | NON-REVENUE WATER MANAGEMENT IN LOW AND MIDDLE INCOME COUNTRIES — B

Chairs: Roland Liebmerger, Austria

Non-Revenue Water (NRW) management always delivers significant benefits, but many water professionals do not know where and how to start. This training will provide participants with an understanding of assessing Non-Revenue Water to develop and implement improvement plans. Workshop participants will learn how to do a first NRW assessment, what needs to be done to reduce physical and commercial losses, and how to get started.

Note: Participants are encouraged to attend both parts of the workshop to get the full benefits.

In Part B, the interventions required to reduce physical and commercial losses will be discussed, and participants will then work together to develop a plan to get started on NRW reduction.

Speakers: Roland Liebmerger, Water Loss Specialist Group (AT) & Stuart Hamilton, Water Loss Specialist Group Chair (UK)

Break 17:15 - 17:30

Keynote Plenary 17:30 - 18:20

Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lisa Thompson
Wednesday | Programme

**Keynote Plenary** 09:00 - 09:50

Keynote: Uniting Youth for Water, Farokh Laqa Kakar
Panel: Jacob Amengor, Nina Breda, Andrea Montuschi, Yang Villa

**Coffee Break** 09:50 - 10:30

**Session 1** 10:30 - 12:00

1.16 | COVID-19 PANDEMIC SCIENTIFIC RESPONSES AT UTILITY LEVEL

Chairs: Pawel Chudzinski, Poland and Annette Hedström, Sweden

Quantification of SARS-CoV-2 in wastewater as an epidemiological tool in early stages for public health surveillance, Anne Lopez San, Agua de Barcelona, Spain

The need for wastewater quality monitoring as part of wastewater-based epidemiology best practice, Andrew Engeldinger, Kando, Israel

Wastewater-based virus surveillance as a pandemic preparedness tool — a WastPan subproject, Sami Oharinen, Tampere University, Finland

Wastewater Test Of SARS-CoV-2 Provide Early Detection Of Variants Of Concern (VOC), Simon S. Møller, Eurofins Environment Testing, Denmark

A cyber-physical all-hazard risk management approach: the case of the WWTP of Copenhagen, Camillo Bosco, SINTEF, Norway

**Room B3a** Technical

**Room B3b** Technical

1.4.7 | THE URBAN WATER CYCLE: MONITORING AND MODELLING

Chairs: Rolf Johnsen, Denmark and Timo C. Dilly, Germany

Drinking water pollution event in Frederiksnberg Denmark, quickly located with hydraulic aqua online network model, Jasper Jorgensen, NIRAS A/S, Denmark

Development and implementation of a large-scale real time control system: the Rotterdam case study, Jeroen Langenfeld, TU Delft, Netherlands

What is the socio-economic cost of sewer infiltration-inflows?, Anna Ohlin, Chalmers University of Technology, Sweden

Field measurements for surface permeability for permeable asphalt: the effects of site design and maintenance techniques, Ian Stavings, University of Copenhagen, Denmark

The Three Points Approach (SPA) applied as rainfall depth to two Chinese and four European cities for comparison of stormwater challenges and strategies, Chris Zeverbergen, UN-IHE, Denmark

Assessment Of Groundwater Level Fluctuation Trends In Grootfontein Dolomite Aquifer, North West Province, South Africa, Hussni Ranaga, Department of Water and Sanitation, South Africa

**Room B3a** Technical

**Room B3b** Technical

**Lunch** 12:00 - 13:30

**Session 2** 13:30 - 15:00

1.17 | COVID-19 PANDEMIC IMPACTS AND CASE STUDIES AT UTILITY LEVEL

Chairs: Banu Ormeci, Canada and Mohammad Azari, Germany

Wastewater surveillance for SARS-CoV-2 in Copenhagen — an evaluation of decentralized wastewater sampling, Jes Clausen-Kaae, Hofor A/S, Denmark

Rethinking risk management: how Covid-19 highlighted existing vulnerabilities in the UK water sector, Sarah Cotterill, University College Dublin, Ireland

Survival factors and managerial decisions in the face of a pandemic in water utilities in Peru and Poland, Pawel Chudzinski, Aquatern, Poland

Investigation of Corona viruses in wastewater in Iran, Ali Rostamiiranagh, Water and Wastewater Company East Azarbaijan Province @ Azarbaijan Shahid Madani University, Iran

**Room B3a** Technical

**Room B3b** Technical

4.4.10 | DIGITAL WATER CITIES

Chairs: Dragan Savic, Netherlands and Ziling Zang, United Kingdom

OpenHiOdata: an open high-resolution residential water use dataset with ground truth end-use labels, Andrea Cominola, Technische Universität Berlin, Germany

PyNIWM: An open-source Python toolbox for machine learning-based water end use classification, Marie-Philpe Becker, Technische Universität Berlin, Germany

A toolbox for the data-driven decision support in waste water networks — a level-based approach, Kristian Mark Balla, Grundfos Holding A/S, Denmark

Machine-learning for anomaly detection and aided data cleaning for water level sensors in urban drainage systems, Philip Aaresrup, Dryp, Denmark

Digitalized stormwater management approach, Lene Stolpe Meyer, Frederiksborg Kommune, Denmark

**Room B3a** Technical

**Room B3b** Technical

**Coffee Break** 15:00 - 15:45

**Session 3** 15:45 - 17:15

1.15 | MANAGEMENT OF EXTREME EVENTS

Chairs: Bruno Nguyen, France and Varsha Sivagurunathan, Australia

Consideration of individual decision-making under uncertainty such as heavy rainfall when creating effective action strategies, Mirjam Lawens, Mainz University of Applied Sciences, Germany

Four measures to rebuild an ecologically liveable city, and the role of the integrated PGS in river environment improvement, Thomas Bill Bohn, Grundfos Pumps (Shanghai) Co., Ltd, Denmark and Mick Erkens, Grundfos Pumps (Shanghai) Co., Ltd, Denmark

Extreme events — key lessons from recent events & recovery challenges, Alexandra Cristodulo, EPAL, Portugal

Integrated modelling of the clogging processes of plastic grid permeable pavement, Ziling Zang, Cranfield University, United Kingdom

Risk analysis of water-sanitation-public health nexus facing flood events in a Brazilian megacity, Maria Teresa Pepe Razzolini, University of Sao Paulo, Brazil

Renewal of the Nakagawa-Niijuku water pipe bridge with consideration for risks of storm and flood, Yoriko Doh, Bureau of Waterworks, Tokyo Metropolitan Government, Japan

**Room B3a** Technical

**Room B3b** Technical

4.4.11 | NATURE-BASED SOLUTIONS, SPONGE CITIES AND BLUE-GREEN INFRASTRUCTURE

Chairs: Pedro Carvalho, Denmark and Deyvid Wavel Barreto Rosa, Brazil

Prioritising nature-based solutions in urban catchments, Jarrod Lutxon, Ramboll, Finland

Missing link — when the waters meet in the city suggesting catchment neighbourhood as a method for engaging diverse stakeholders in holistic waterwise climate adaptation and urban development, Katrina Wiberg, Aarhus School of Architecture, Denmark

Using green and blue infrastructure to urban flood mitigation: simulating scenarios for GBI technologies and land policy, Nilo Nascimento, Federal University of Minas Gerais, Brazil

The Green Valley Park in Tongzhou, making a sponge city more liveable, Jes Clausen-Kaae, Hofor, Copenhagen, Denmark

Realising local green infrastructure opportunities: stormwater harvesting in public parks and open spaces in Delhi, Dhruva Parshica, Centre for Science and Environment (CSE), India

Modernisation of recreational park Enghaveparken helps mitigate flooding in Copenhagen, Annie Fuursted, COWI A/S, Denmark

**Room B3a** Technical

**Room B3b** Technical

**Break** 17:15 - 17:30

**Keynote Plenary** 17:30 - 18:20

Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson
4.10 | SYSTEMIC MANAGEMENT FOR WATER WISE CITIES — SCANDINAVIAN EXPERIENCES

Chairs: Henrik Aspegren, Sweden
Water issues need to be better integrated into urban strategic management and planning. The purpose of this session is to highlight these issues by exploring progress and challenges in major cities in three neighbouring countries.

Speakers: Henrik Aspegren, Sweden Water Research (SE), Bent Christen Braskerud, City of Oslo Water and Sewerage Works (NO), Lena Blom, City of Gothenburg (SE), Lykke Leonardsen, City of Copenhagen (DK) & Rasmus Fredriksson, Environmental Dept, City of Malmö (SE)

Coffee Break
09:50 - 10:30

Session 1
10:30 - 12:00

1.4 | DIGITAL WATER: BENEFITS AND RETURN ON EXPERIENCE FOR THE WATER SECTOR

Chairs: Nico Caradot, Germany and Samuela Guida, United Kingdom
The workshop will provide direct feedback on the most recent outcomes of digital water projects to a wide range of stakeholders interested in discussing the current challenges of digitalization in the water sector. In particular, it will focus on quantifying the benefits obtained by utilities in implementing innovative digital solutions.

Speakers: Nico Caradot, Kompetenzzentrum Wasser Berlin (DE), Samuela Guida, IWA (UK), Dragan Savic, KWR Water Research Institute (Netherlands), Dan Angelescu, Fluidian (CA), Regina Gnirss, Berliner Wasserbetriebe (DE), Alex van der Helm, Waternet (NL), Nikolette Xanthopoulou, Elena Rumonova & Apostolos Trizas, EMVYS Water Resources Management (GR)

Lunch
12:00 - 13:30

Session 2
13:30 - 15:00

4.6 | WATER FOR SMART LIVEABLE CITIES

Chairs: Peter Steen Mikkelsen, Denmark and Miriam Feilberg, Denmark
A discussion of how the water sector can connect to the broader smart cities agenda may contribute to making the sector more efficient, innovative, sustainable and guide development towards resilient, healthy, and green liveable cities that are able to provide clean drinking water, efficient sanitation, and safe stormwater management. We will examine how, using global examples, a water smart city can become a cornerstone of the green transition.

We will learn from different international approaches to avoid replicating mistakes and specifically discuss innovation needs. The workshop is based on the Water for Smart Liveable Cities Workshop held in Tokyo in 2018 on:

- Speeding up implementation of the SDGs
- Partnerships with industries and stakeholders in the cities
- The contribution of digitalization to making cities smarter, more liveable and contributing to action on SDGs

Speakers: Peter Steen Mikkelsen, Technical University of Denmark (DK), Miriam Feilberg, DANNIA (DL), Dragan Savic, KWR (NL) & Emma Weisbord, Royal HaskoningDHV (NL)

Coffee Break
15:00 - 15:45

Session 3
15:45 - 17:15

4.1 | ASSESSING PROJECT IMPACTS ON ALL SDGS WITH THE WATER4ALLSDGS APP

Chairs: Gerard Payen, France and Corinne Trommsdorf, France
Come with your laptop to learn how to use the digital app “Water4AllSDGs”!

Despite their concrete characteristics, SDGs are still very little used by water and sanitation professionals, who often lack the time to discover and analyze all the details of the 169 SDG targets. The easy-to-use digital app “Water4AllSDGs” makes up for the complexity by using basic concepts well-known in the sector, thus creating a breakthrough in the operational use of the SDGs.

In the first part of the session, participants will be updated on the 20 global targets related to water and sanitation and their precise operational content. In a second part, they will learn how to use the Water4AllSDGs web application on their laptops.

This practical training does not require any previous knowledge of the SDGs. Case studies will illustrate how the SDGs targets are precise and concrete.

At the end of the session, participants will understand the operational value of the SDGs to support planning and evaluation of water related projects.

Speakers: Gerard Payen, French Water Partnership (FR) & Corinne Trommsdorf, Water cities (FR)

Break
17:15 - 17:30

Keynote Plenary
17:30 - 18:20

Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson
Wednesday | Programme

Keynote Plenary  09:00 - 09:50
Keynote: Uniting Youth for Water, Farokh Laqa Kakar
Panel: Jacob Amengor, Inês Breda, Andrea Montuori, Yang Villa

Coffee Break  09:50 - 10:30

Session 1  10:30 - 12:00
2.2.3-1 | RECOVERY OF NUTRIENT AND CHEMICALS — GROUP 1

Chairs: Norbert Jardin, Germany and Jungbin Kim, Korea

Hydrothermal liquefaction as a technology for carbon and nutrient recovery from sewage sludge, Patrick Biller, Aarhus University, Denmark
Evolution of alternative fertilizers: from resource recovery in WWTPs to biorefineries (WRRFs) producing smart biofertilizers, Alvaro Pilar-Pardo, CETIQUA, Spain
Implications of fundamental aspects of purple phototrophic bacteria for process upscaling, Gabriel Capson-Tojo, INRAE, France
Ash2P: closing the phosphorus cycle: value added recycling from incinerated sewage sludge, Yariv Cohen, EasyMining Services Sweden AB, Sweden

--- POSTERS ---

Acetate and ammonia recovery and enrichment from wastewater intended for single cell protein (SCP) production by electrodialysis-forward osmosis (ED-FO), Danfei Zeng, Technical University of Denmark, Denmark

Valorisation of brines for on-site production of disinfectants, Ignacio Casals, CETIQUA, Spain

Lunch  12:00 - 13:30

Session 2  13:30 - 15:00
2.2.3-2 | RECOVERY OF NUTRIENT AND CHEMICALS — GROUP 2

Chairs: Sudhir Pillay, South Africa and Ana Soares, United Kingdom

Implementing alkaline urine dehydration in Sweden, Finland, and France: lessons learnt, experiences and the way forward in technology upscaling, Nataen Demissie, Swedish University of Agricultural Sciences, Sweden
Nutrient recovery from wastewater using forward osmosis: from lab to pilot scale, Maria Salud Camillieri-Rumbau, Aquaporin A/S, Denmark

--- POSTERS ---

Reagent recovery from dairy industry wastewater through membrane processes, Rubén Rodríguez-Añeara, Tensef Technological Center, Spain
Large-scale biopolymer extraction from aerobic granular sludge: first results of Kaumera Nereda gum extraction and application from industrial and municipal wastewater, Sjoerd Kerstens, Royal HaskoningDHV, Netherlands

Cost effective phosphorus recovery from biological wastewater treatment, Morton Christensen, Aalborg University, Denmark
Assessing the significance of heavy metals, pesticides and other contaminants in products recovered from wastewater recovery facilities, Juan Antonio Baeza, University of Agricultural Sciences, Sweden

Session 3  15:00 - 15:45

Keynote: Learning to Dance in the Rain — How to Thrive in an Era of Climate Change, Paul O’Callaghan
Panel: Ana Soares, Anna Delgado, David Flinton, Amanda Lake, Zhiyong Jason Ren, Lila Thompson

Coffee Break  15:45 - 17:15

Break  17:15 - 17:30

Keynote Plenary  17:30 - 18:20

2.2.3-3 | RECOVERY OF NUTRIENT AND CHEMICALS — GROUP 3

Chairs: Jacke Makleka, Poland and Ashton Busani, South Africa

From urban biowaste to animal feed — production of single cell protein from biogas, Caroline Siegfried, Eurecat, Spain
Study on ammonia generation from digested sludge by subcritical water treatment, Jacob Andersen, Technical University of Denmark, Denmark
Towards a sustainable biorefinery: integrated treatment of the liquid fraction of digestate from the organic fraction of municipal solid waste, Caroline Siegfried, Eurecat, Spain

--- POSTERS ---

Addressing the identity crisis for water biofilm exopolymers, Thomas Seviour, South Africa
Towards an innovative solution for nutrient recovery — the influence of process conditions on the recoverability of nutrients from biowaste streams, Maria Salud Camillieri-Rumbau, Aquaporin A/S, Denmark

In-situ Treatment of the polluted Pinheiros River in Sao Paulo, Brazil. Wastewater oxygenation and treatment strategies in urban environments, Tyler Elm, ChartWater | BlueGreen LLC, United States

Assessing the limnological characteristics of a man-made urban lake pre, during and post artificial aeration, Ndomupei Masawi, SRK Consulting (Pty) Ltd, South Africa

--- POSTERS ---

6.8 | WATER RESOURCE MANAGEMENT AND ADAPTATION TO CLIMATE CHANGE IMPACTS

Chairs: Maryam Imani, United Kingdom and Thomasi Manungufula, South Africa

Pumped storage hydro power down under — the antipodean energy transition, Mike Westeman, GHD, Australia
A new digital twin for climate change adaptation, water management and disaster risk reduction (DK-model HIP), Hans Jørgen Henriksen, Geological Survey of Denmark and Greenland GEUS, Denmark
Declining groundwater levels: a challenge for the drinking water supply in northern germany, Agnes Sachs, Christian-Albrechts-Universitaet zu Kiel, Germany

LIFE GREENADAPT — Nature-based solutions for climate change resilient waste infrastructures: a focus on landfill leachate and rainwater run-off, Luíz Herrera-Castilla, AIMEN Technology Centre, Spain

--- POSTERS ---

Integration of Us& and vertical flow constructed wetlands to produce reclaimed water for irrigation, Takorigh Sanitots, National Technical University of Athens, Greece
National N2O mapping and reduction of N2O-emission from farmes WWTP through advanced online-control, Ellen Marie Draastrup, Krøger A/S, Denmark

6.9 | CATCHMENT MANAGEMENT AND NATURAL CAPITAL APPROACHES ON DIFFERENT SCALES

Chairs: Katharine Cross, Australia and Shagun Chaudhary, India

Improvement of stormwater retention pond performance for the treatment of highway runoff using floating treatment wetlands, Ian Ruppert, Ruhrverband, Germany

Consideration of climate change-induced droughts and sustainable water use in preparation of sectoral water allocation plans (SWAPs) in Turkey, Efe Erdem, Turkey

Ministry of Agriculture and Forestry, General Directorate of Water Management, Turkey

Importance of economic diversification for sustainable agricultural basin development under uncertain future climate and economic conditions, Saravanamuthu Vigneswaran, University of Technology Sydney, Australia

The human right to water in Argentina: courts vs. constitution, Rachel Wagner, Tufts University, United States

--- POSTERS ---

In-situ Treatment of the polluted Pinheiros River in Sao Paulo, Brazil. Wastewater oxygenation and treatment strategies in urban environments, Tyler Elm, ChartWater | BlueGreen LLC, United States

Assessing the limnological characteristics of a man-made urban lake pre, during and post artificial aeration, Ndomupei Masawi, SRK Consulting (Pty) Ltd, South Africa

6.10 | HOLISTIC ASSESSMENTS AND APPROACHES

Chairs: Esther Shaylor, Denmark and Danish R.D., India

Embedding SDGs into water research agendas for contextualised understanding and impactful innovation, Doris van Halem, Delft University of Technology, Netherlands

Assessing impacts on all SDGs of water and sanitation projects and policies by using the Water4allSDGs Methodology, Séréd Payen, French Water Partnership, France

Setting SDG 6 in a national context by identifying policy relevant indicators and options for action for Austria, Verena Germann, University of Natural Resources and Life Sciences, Vienna, Austria

Private sector approaches to SDG 6: strategy development for social entrepreneurship in established companies, Pia Rask, Grundfos Ltd, Denmark

--- POSTERS ---

Using deep learning to combine satellite observations, topographic information and rainfall spatial data for large-scale flood predictions, Roland Loewe, Technical University of Denmark, Denmark

The Freshman Project: extraction of brackish groundwater in the coastal dunes of the Netherlands to secure drinking water supply, Geritjan Zwolsman, Duneo, Netherlands

--- POSTERS ---
**Keynote Plenary**  
09:00 - 09:50

**Coffee Break**  
09:50 - 10:30

**Session 1**  
10:30 - 12:00

**1.1 | THE ROAD TOWARDS CLIMATE AND ENERGY NEUTRAL WATER UTILITIES**  
*Room B3 g Workshop*

**Chairs:** Pär Dalhielm, Sweden and Marie Sagen, Norway

We will share lessons from leading water utilities in a number of countries on steps taken to be energy efficient, recover energy and later become climate neutral. Based on global lessons learned, we will discuss key principles for a climate neutral water sector.

**Speakers:** Pär Dalhielm, Swedish Water and Wastewater Association (SE), Marie Sagen, Bergen Water (NO), Miriam Feilberg, DANVA (DK), Jacob Kragh Andersen, EnviDan A/S (DK), Amanda Lake, Jacobs (UK), Corinne Trommsdorff, Water Cities (FR), Felipe Andres Sanchez Ihl, Aguas Andinas (CL), Sara Ekström, VA SYD (SE), Anna Kuokkanen, Helsinki Region Environmental Services Authority HSY (FI), Miriam Feilberg, Bergen Water (NO), Kees Roest, KWR Water Research Institute (NL) & Morten Rebsdorf, Aarhus Vand A/S (DK)

**Lunch**  
12:00 - 13:30

**Session 2**  
13:30 - 15:00

**1.1 | WATER EFFICIENCY: THE FASTEST, CHEAPEST, LARGEST SOURCE OF NEW WATER**  
*Room B3 g Workshop*

**Chairs:** Stuart White, Australia

The purpose of the session is to promote and make progress against Goal 6.4 of the Sustainable Development Goals and to emphasise and share experience of the potential benefits of focusing on the demand side of the water supply-demand planning process, and in particular customer water efficiency.

**Speakers:** Stuart White, Institute for Sustanable Futures, UTS (AU), Shannon Spurlock, Ochotona LLC (US) & Aaron Burton, Landscape Institute (UK)

**Coffee Break**  
15:00 - 15:45

**Session 3**  
15:45 - 17:15

**1.2 | SUSTAINABLE SMALL WASTEWATER TREATMENT PLANTS: PRESENT, FUTURE, OPPORTUNITIES AND CHALLENGES**  
*Room B3 g Workshop*

**Chairs:** Zouhayr Arbib, Spain and Carlos Arias, Denmark

Economically and environmentally sustainable wastewater treatment (WWT) for small communities remains a challenge all over the world, especially in countries with significant numbers of small and scattered settlements. Water and resource recovery must be tackled efficiently to prevent water scarcity and avoid high operation and maintenance costs.

Conventional WWT implies processes with high costs and energy demand. A change of paradigm at the small scale is essential, where low cost, simple maintenance, and efficiency are the major principles within a decentralised approach.

The workshop will create a framework for scientists and practitioners to exchange knowledge about the different alternatives to WWT in small communities. The workshop will support sustainable water management, resource recovery and the mitigation of global climate change.

**Speakers:** Zouhayr Arbib, Aquilla (ES), Carlos Arias, Aarhus University (DK), Hans Brix, Mirko Hänel, Alain Petitjean, Laila Mandi, Katharine Cross, Australian Water Partnership (AU)

**Break**  
17:15 - 17:30

**Keynote Plenary**  
17:30 - 18:20
### Keynote Plenary | 09:00 - 09:50

#### BUSINESS FORUM ROOM 1 (HALL E)

**11:15 — 12:00 | BENTLEY**

How the digital twin journey helps water utilities become more resilient - regulatory, financially and operationally

We aim to tackle the key challenges and discuss solutions in the digital transformation journey of the water utilities sector. We will explain the different maturity levels in this transformation journey. Every utility can embrace digital twins in different forms and generate immediate benefits or business outcomes.

- Slavco Velickov, Thomas Kram, Dennis Nygaard Hoyer

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#### BUSINESS FORUM ROOM 2 (HALL C)

**11:15 — 12:00 | XYLEM**

Road to Net Zero

Net Zero target for wastewater treatment plants is becoming a strategic outcome for large water Utilities across Europe. Xylem is a major partner in developing the roadmap to meet this ambition. Water Utilities will express their core strategic goal and challenges in their implementation.

- Alexis de Kerchove, Sr. Director, Business Development-Marketing

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### Keynote Plenary | 17:30 - 18:20

#### DENMARK PAVILION

**12:15 — 13:00 | DENMARK PAVILION**

The road towards a climate and energy neutral water sector

The water and wastewater sector uses 4% of all electricity globally. The Danish government has set the goal that Denmark's water sector shall be climate and energy neutral by 2030. This seminar presents some of the key technologies, making this possible as well as an estimation of the global emission reduction effect by implementing these concepts globally

- John Buur Christiansen, CEO, BIOFOS
- Mads Peter Philipensen, Warming, Global Head, Water & Waste Water, Danfoss Power Electronics A/S
- Jeanette Agerwed Madsen, Head of R&D, Waste water, Envidan A/S
- Morten Riis, Group Director, Grundfos Holding A/S

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### Wednesday | Business Forums

#### 09:00 - 09:50

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<td>11:15 - 12:00</td>
<td>BUSINESS FORUM ROOM 1 (HALL E)</td>
<td>How the digital twin journey helps water utilities become more resilient - regulatory, financially and operationally</td>
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<tr>
<td>10:30 - 11:15</td>
<td>BUSINESS FORUM ROOM 2 (HALL C)</td>
<td>Indian Institute of Technology Roorkee</td>
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<tr>
<td>12:15 - 13:00</td>
<td>BUSINESS FORUM ROOM 1 (HALL E)</td>
<td>The road towards a climate and energy neutral water sector</td>
</tr>
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<td>11:15 - 12:00</td>
<td>BUSINESS FORUM Room 2 (HALL C)</td>
<td>Road to Net Zero</td>
</tr>
</tbody>
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#### 13:30 - 14:15 | NEWTON | GRUNDFOS

Building a strong decentralised water treatment platform

Industrial water treatment is an important and necessary part in solving global water challenges via intelligent and efficient water management and water reuse. Grundfos is creating a strong water treatment platform, enabling direct treatment of water at end-users. Advancing further requires partnerships to leverage combined capabilities and save water resources.

- Magnus Manderbach (Director Marketing and Sales)

#### 13:30 - 14:15 | NEWTON | HACH

Benefit of Ultrasonic flow metering in Water systems

We all see the value of water growing. Reducing water consumption and elimination of leakages, while keeping high hygienic standards, is nowadays mandatory. Monitoring of water flows is the starting point for reducing consumption. Simple but robust Ultrasonic Flow Meters could a reliable and clean game changer in that domain.

- Alexis de Kerchove, Sr. Director, Business Development-Marketing

#### 12:15 — 13:00 | INNOVATION PAVILION

What’s Hot at the Innovation Pavilion

Isle Utilities proudly presents "What’s Hot?" in a round-up of technology pitches delivered in a dolphin-tank and interactive format. The Innovation Pavilion showcases exciting emerging technologies (start-ups and scale-ups) that are seeking their way into the global water industry and has been made possible by the generous support of Grundfos FutureLab, Royal HaskoningDHV and IoTa.

- Dr Michael Storey, Managing Director, Isle Utilities Asia-Pacific
- Yang Villa, Head of the Philippines, Isle Utilities Asia-Pacific
- Technology pitches by AppOrchid, Aqua Metrology, AquaReal Time, Core Technologies, Fluidion, HAL24K Water, Techion and Watura.

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#### 15:45 — 16:30 | CLEAN

Meet the buyer: Better Carbon and Phosphor recycling

The Danish SME AquaGreen has found a way to remove harmful and unwanted compounds through a pyrolyse process and, extract phosphor from sludge into biochar. You are invited to hear their results through the Danish-German innovations project, NEPTUN and give them feedback on how to improve their product.

- CLEAN

#### 14:15 — 15:00 | SUEZ

Reuse to tackle water scarcity - the experience of Suez in Qatar, Mexico and Australia

With climate change reuse appears to be a good approach to decrease water stress by reducing the need of potable water, keeping it for domestic usage, bringing security of water supply for agriculture when water restrictions are required. Through aquifer replenishment it increases the resource. Finally it decreases use conflicts due to scarcity.

- Yuan Tsai - Development Director – Suez TI

#### 16:30 — 17:15 | CLEAN

Meet the World’s leading water clusters

Meet the world’s leading water clusters and see how cleantech clusters collaborate and facilitate the acceleration of innovative water technologies across the globe! The session will showcase how the international network connect innovative solutions and how international and cross-sector collaboration is essential to sustainable water use in the future.

- ICW

#### 15:45 — 16:30 | VEOLIA

Optimizing of wastewater treatment plants

With the cloud-based Hubgrade system developed by Veolia we have at +100 plants achieved 20 to 40% reduction in energy and chemical use and furthermore enhanced nitrogen removal using the same process volumes. Cases from plants in Italy, Denmark, France and Lithuania will be presented.
**Thursday | Programme**

**Keynote Plenary | 09:00 - 09:50**
Keynote: Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema
Panel: Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

**Coffee Break | 09:50 - 10:30**

**Session 1 | 10:30 - 12:00**

**REGULATORS FORUM IV — CLOSING PLENARY: REGULATING WATER SERVICES IN TIMES OF INCREASING NATURAL, SOCIAL, AND ECONOMIC UNCERTAINTY**
Chair: Carlos Diaz, Peru

The 7th International Water Regulators Forum offers a platform for water sector regulators from all over the world to exchange experiences, transfer skills and build new partnerships. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and drainage services, as well as their peers from public health and environmental regulators. The discussions will focus on how regulatory functions are being supplied in times of increasing natural, social, and economic uncertainty. During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations and roundtable discussions led by the speakers.

Open for all participants

**Lunch | 12:00 - 13:30**

**Session 2 | 13:30 - 15:00**

**REGULATORS FORUM V — COPING WITH UNCERTAINTY: FORWARD-LOOKING APPROACHES TO COPE WITH UNCERTAINTY AND HELP DELIVER REGULATORY MANDATES**
Chair: Jaime Baptista, Portugal

The 7th International Water Regulators Forum offers a platform for water sector regulators from all over the world to exchange experiences, transfer skills and build new partnerships. It gathers high-level representatives of regulatory authorities and officials of agencies with regulatory and supervisory functions over the provision of water, sanitation, and drainage services, as well as their peers from public health and environmental regulators. The discussions will focus on how regulatory functions are being supplied in times of increasing natural, social, and economic uncertainty. During the Forum, discussions are structured around highly interactive sessions that combine short inspirational presentations and roundtable discussions led by the speakers.

**Break | 15:00 - 15:15**

**Closing Ceremony | 15:15 - 16:45**
Including Poul Harremøes Lecture by Prof. Wolfgang Rauch

**Gala Dinner | Evening**
<table>
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| 09:50 - 10:30 | **Coffee Break**                                                                  |
| 10:30 - 12:00 | **Session 1**                                                                     |
| 12:00 - 13:30 | **Lunch**                                                                         |
| 13:30 - 15:00 | **Session 2**                                                                     |
| 15:00 - 15:15 | **Break**                                                                         |
| 15:15 - 16:45 | **Closing Ceremony**                                                              |
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|              | **Gala Dinner**                                                                   |
|              | Evening                                                                           |
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#### Keynote Plenary 09:00 - 09:50
**Keynote:** Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema

Panell: Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

#### Coffee Break 09:50 - 10:30

#### Session 1 10:30 - 12:00

**6.13 | INTEGRATED ASSESSMENT**

**Chairs:** Markus Starkl, Austria and Carmen Snowdon, United Kingdom

- The SADC revised protocol: a tool for an integrated climate action in southern Africa, Thomazi Manungufala, Parliament of the Republic of South Africa, South Africa
- Evolving water resources management in response to socio-economic changes: Japanese experience in modernization over the past century, Mikio Ishiwatari, The University of Tokyo, Japan
- Managing stormwater in South African neighbourhoods: when engineers and scientists need social science skills to get their jobs done, Craig Tanyanyiwa, Future Water UCT, South Africa
- Exporting Danish groundwater management to South Africa, Philip Grinder Pedersen, Danish Environmental Protection Agency, Denmark

--- **POSTERS---**

- Reduction of greenhouse gas emissions from WWTPs, Anna Katrine, Vangsgaard, EnviDan, Denmark
- Development of water resources potential map for proper selection of water supply facilities considering regional characteristics in Bangladesh, Kazuyuki Suenaga, Earth System Science, Japan

#### Lunch 12:00 - 13:30

#### Session 2 13:30 - 15:00

**5.6 | INNOVATION & ENTREPRENEURSHIP: DEVELOPING ENTREPRENEURIAL CAPABILITIES FOR THE WATER SECTOR**

**Chairs:** Odwa Ntsika Mtembu, South Africa and Mbali Sibiya, South Africa

This highly interactive and collaborative training aims at equipping water professionals with the skills to develop entrepreneurial and innovative ideas to tackle challenges in the water sector.

Speakers: Odwa Ntsika Mtembu, World Merit South Africa (ZA), Mbali Sibiya, Umgeni Water (ZA), Jacob Amengor, University of Calgary (CA) & Lee-Ann Modley, University of Johannesburg (ZA)

#### Break 15:00 - 15:15

#### Closing Ceremony 15:15 - 18:45

Including Poul Harremoës Lecture by Prof. Wolfgang Rauch

#### Gala Dinner  Evening
Keynote Plenary 09:00 - 09:50

Keynote: Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema
Panel: Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

2.4.1 | DEDICATED TREATMENT
Chairs: Tom Williams, United Kingdom and Pritha Chatterjee, India

- METlands: performance of a new intensified nature-based wastewater treatment system, Carlos A. Ramirez-Vargas, Aarhus University, Denmark
- Factors affecting effluent quality in on-site wastewater treatment systems in cold climate regions, Juho Kinnunen, University of Oulu, Finland
- Removal of perfluorooalkyl substances (PFAbs) in industrial runoff water, Ellen Arctander Vik, Aquateam COWI, Norway
- Scaling-up the production of volatile fatty acid from dairy wastewater, Celia María Castro Barros, CET AQUA (Water Technology Center), Spain

--- POSTERS ---
- Pilot-scale recovery of nickel and cobalt from mine drainage water, Małgorzata Szlachta, Geological Survey of Finland, Finland
- Preliminary results of an on-site pilot-scale experiment to improve tertiary agri-food effluent using customized floating treatment wetlands, Rita Abi HannaI, MT Atlantique, France

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

2.3.4 | OTHER PHYSICO-CHEMICAL TREATMENT TECHNIQUES
Chairs: David Garman, Australia and Joseph Maudjom, Germany

- Enhanced phosphorus removal in dewatering filtrate with CO₂ stripping and surface-modification of steel-slag, Junghyeon Kim, Pusan National University, Republic of Korea
- Molecular two phase properties of water, can this be exploited? Michael Bache, BA Chemical ApS, Denmark
- Use of Atmospheric Dissolved Air Flotation (DAF) in removal of surfactants, Ali Rostamiravanagh, Water and Wastewater Company East Azerbaijan Province, Azerbaijan & Azerbaijan Shahid Madani University, Iran

--- POSTERS ---
- What’s in your water? Rapid water quality assessment for low resource settings, Esther Shaylor, UNICEF, Denmark
- Predicting free chlorine residual and disinfection by-products in a water distribution network in southern Quebec with a variable reaction rate model, Faezah Absalan, Polytechnique Montreal, Canada

Break 15:00 - 15:15

Closing Ceremony 15:15 - 16:45

Including Poul Harremoës Lecture by Prof. Wolfgang Rauch

Gala Dinner Evening
### Thursday | Programme

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<tr>
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<tr>
<td>**3.4</td>
<td>LEADING EDGE SAND FILTRATION**</td>
<td>Room B4 a Workshop</td>
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<tr>
<td>Chairs: Doris van Halem, Netherlands and Luis Guillermo Romero Esquivel, Costa Rica</td>
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<td>The objective of the workshop is to identify key opportunities for lifting the design of traditional technologies into the 21st century based on best practices as well as the state-of-the-art in science. Therefore, in this interactive workshop we want to bring together cross-continental practical knowledge and academic insights to formulate the future challenges of sand filters.</td>
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<td>Speakers: Doris van Halem, Delft University of Technology (NL) &amp; Luis Guillermo Romero Esquivel, Technologica de Costa Rica (CR), Tanvir Ahmed, BUET (BD), Frank Schoonenberg Kegel, Vitens (NL), Brent Pieterse, Dunea (NL) &amp; Inês Breda, Silhortko-Eurowater A/S (DK)</td>
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<td><strong>Lunch</strong></td>
<td>12:00 - 13:30</td>
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<td><strong>Session 2</strong></td>
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<tr>
<td>**3.1</td>
<td>SG HEALTH RELATED WATER MICROBIOLOGY AND WHO WORKSHOP: RECREATIONAL WATER QUALITY TRANSLATING SCIENCE TO POLICY**</td>
<td>Room B4 a Workshop</td>
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<td>Chairs: Regina Sommer, Austria and Kate Medlicott, WHO</td>
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<td>In this workshop, the requirements of best-practice guideline development will be discussed in the context of the recently released WHO recreational water quality guidelines, in light of the scientific results of recent high-quality reviews on the human health impact of faecal pollution in recreational waters, sand, and harmful algal blooms.</td>
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<td>Speakers: Regina Sommer, Medical University of Vienna (AT), Kate Medlicott, World Health Organization (SW), David Kay, CREH (UK), João Brandão, National Institute of Health Dr. Ricardo Jorge (PT), Joan Rose, Michigan State University (US), Anne Roiko &amp; Maja Feder, European Commission</td>
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<td><strong>Break</strong></td>
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**Room B4 a Workshop**

**Room B4 b Workshop**

**3.5 | REACHING OUT FOR THE WATER WISE GENERATION**

Chairs: Stig Dalum, Denmark and Anna Kristiansson, Sweden

While we are focusing on how to share knowledge and to communicate with professionals in the water sector, this workshop will focus on how we can engage the youth to share commitment and enthusiasm to contribute to sustainable development in the water sector.

This workshop will draw on experienced school services in utilities in Denmark and Sweden to share our experiences in creating learning environments in close cooperation between utilities and public schools.

Speakers: Anna Kristiansson, VA SYD and Sweden Water Research (SE), Stig Graeser Dalum, BIOPOLS (DK), Emilia Dall’Osso, Kretsum/VA SYD, (SE), Mette Lye Nielsen, School Coordinator BIOPOLS (DK) & Carin Hernoqvist, Kretsum/VA SYD, (SE)

**3.5 | AN INNOVATIVE PARADIGM IN WATER INFORMATICS FOR SMART CITY APPLICATIONS**

Chairs: Amlan Chakrabarti, India and Jyoti Gautam, India

Encompassing most of the latest technologies under the roof of Water Informatics and discussion of the case studies.

Speakers: Amlan Chakrabarti, University of Calcutta (IN), Jyoti Gautam,AKTU (IN), Dola Gupta, University of Calcutta (IN)
### Keynote Plenary
**09:00 - 09:50**

**Keynote:** Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema
**Panel:** Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

### Coffee Break
**09:50 - 10:30**

### Session 1
**10:30 - 12:00**

#### 1.3 | ADVANCING COASTAL RESILIENCY FOR IMPERILED BARRIER ISLAND SYSTEMS
**Chairs:** Linda Åmand, Sweden and Hamred Chungani, Kenya

The intent of the Resilient Long Beach Island Project, one of four pilot regions within the Mid-Atlantic U.S., was to solidify a shared vision for a resilient barrier island. The project addresses the complexities of striking the delicate balance between protecting coastal communities and enhancing ecosystem services. Technological advancements were made during the course of this dynamic project to best translate complex analyses into user-friendly information to allow stakeholders to make informed decisions. Two specific methods we wish to highlight include the development of an integrated flood model (“Cloudburst”), storm surge and sea level rise, and the preparation of intricate scenario planning typologies illustrating nature-based solutions and community transformation. The project generated several innovative ideas regarding how best to serve a highly vulnerable community as they face present and future climate change related impacts.

**Speakers:** Christian Nyerup Nielsen, Ramboll (DK) & Sophia Ertel, Ramboll Americas (US)

#### 1.4 | OPTIMISATION OF WATER DISTRIBUTION NETWORKS
**Chairs:** Michael Storey, Australia and Athanasios Serafeim, Greece

- Migration from materials in contact with drinking water — application of non-target screening analysis, Lone Tolstrup Karlby, Hofor, Denmark
- Performance evaluation of flow-starved water transmission network, Abhishek Sinha, IIT Bombay, India
- Real-time software for distribution system operations: an operator-focused design approach, Ian Rodgers, Xylem Inc, United Arab Emirates
- Decision for hazard ranking of water distribution network using TOPSIS Method, Haekeum Park, University of Seoul, Republic of Korea

--- **POSTERS** ---

- Optimization of electrical energy consumption and reduction of carbon footprint in water supply — AdRA’s Case Study, Mafalda Tavares, AdRA-Águas da Região de Aveiro, Portugal
- Vulnerability of water distribution networks, Richard Welber, Budapest University of Technology and Economics, Hungary

### Lunch
**12:00 - 13:30**

### Session 2
**13:30 - 15:00**

#### 1.2 | UTILITY EFFICIENCY AND EXCELLENCY
**Chairs:** Linda Åmand, Sweden and Hamred Chungani, Kenya

Assessing the financial sustainability of water service providers in Kenya, Kelvin Mwangi, Nairobi City Water and Sewerage Company Ltd, Kenya

Benchmarking the sewage treatment facilities of Indian cities using a novel index-based approach, Dina Zaman, Indian Institute of Technology Kharagpur, India

Towards collaborating and integrated water companies, Carl Heyrman, AquaFlanders, Belgium

Benchmarking sustainability of European water services, Peter Dane, EBC Foundation, Netherlands

--- **POSTERS** ---

- Alliance for water stewardship: a case study of sustainable water stewards in the northern Italy, Gabriele Andreani, Philip Morris Manufacturing and Technology, Italy
- Achieving a sustainable step-change in water management in a UK campus environment, James Daly, University of Surrey, United Kingdom

#### 1.1 | ARE YOU ADEQUATELY ASSESSING YOUR WATER LOSSES?
**LEARN TO USE THE WL PERFORMANCE INDICATORS**

**Chairs:** Enrique Cabrera, Spain

The purpose of the workshop is to promote a better understanding of the proper use of one or more specific PIs when addressing water losses, with regard to the context in which they are being applied. A secondary purpose is for participants to apply that understanding to the updated EU Drinking Water Directive (DWDW) for their context.

**Speakers:** Enrique Cabrera, IWA BPA SG Chair, IWA Senior VicePresident, IWA Publishing Chair (ES), Alan Wyatt, IWA Senior VicePresident, IWA BPA SG Chair (US) & Aleksandar Krstic, IWA BPA MC member (RS)

--- **POSTERS** ---

- Optimization of electrical energy consumption and reduction of carbon footprint in water supply — AdRA’s Case Study, Mafalda Tavares, AdRA-Águas da Região de Aveiro, Portugal
- Vulnerability of water distribution networks, Richard Welber, Budapest University of Technology and Economics, Hungary

### Break
**15:00 - 15:15**

### Closing Ceremony
**15:15 - 16:45**

Including Poul Harremoës Lecture by Prof. Wolfgang Rauch

### Gala Dinner
**Evening**
Thursday | Programme

Keynote Plenary 09:00 - 09:50

Keynote: Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema
Panel: Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dain Rasmussen, Ana Maria de Roda Husman, Marta Vargha

Coffee Break 09:50 - 10:30

Session 1 10:30 - 12:00

1.3 | COLLABORATION OF WATER UTILITIES AND AUTHORITIES IN CRISIS

Chairs: Riku Vahala, Finland

Even in the highly developed Nordic countries with high-level water services, severe failures have challenged the safety of the drinking water services and crisis management processes. Climate change accelerates existing challenges and increases the frequency of disturbances in water production and distribution as well as in wastewater and storm water management. Typical consequences of climate change include flooding, storms, heavy rains, and droughts may lead to uncontrolled discharges of sewage and water contamination, but they also include power and data communication failures.

In this workshop, the causes of crisis and outbreak situations as well as the consequences for the reliability of the water services will be analysed and summarised by using different case examples from the Nordic countries.

Short descriptions of new smart tools for risk and crisis management, as well as crisis management processes between authorities, water utilities, and customers, will be presented in a panel discussion by the four countries.

Speakers: Riku Vahala, Aalto University (FI), Ilkka Miettinen, Finnish Institute for Health and Welfare (FI), Susanne Hyllestad, National Health Institute of Norway (NO), Birger Wallsten, The Swedish Water and Wastewater Association (SE), Dorte, Skrom, Danish Water and Wastewater Association (DK), Hei Härkki, HSY (FI), Riina Liikanen, Vesistöyhdistys (FI) & Kjetil Furuberg, Norsk vann BA (NO)

Lunch 12:00 - 13:30

Session 2 13:30 - 15:00

1.14 | INTEGRATION OF DECENTRALISED SOLUTIONS IN A CENTRALISED SYSTEM

Chairs: Eiman Karar, South Africa and Avinash Vijay, France

Can we sum the performance of green infrastructures? The potential of system-based planning, Vincent Fors, Norwegian University of Science and Technology, Norway

“Water 4 Later” — Collective rainwater storage and reuse, coupled to ASR, within a business park in Keiberg-Vossem, Ian Montauban van Swijndregt, De Watergroep, Belgium

Cluster-based faecal sludge and septage management in the hilly region: a case study of Uttrakhand, Mahreen Matto, National Institute of Urban Affairs, India

Hybrid water model: a strategic decision making tool for sustainable water management, Louise Vanyuker, De Watergroep, Belgium

Sustainable water management for Indian cities — a conceptual framework, Suresh Sharma, 3 P-School of Global Management, India

Mitigation of hospital centralisation causes increases of antibiotic-resistant bacteria in sewers by source treatment utilising peracetic acid, Henrik Andersen, DTU, Denmark

---- POSTERS ----

4.4.12 | TRANSITIONING TO AND IMPLEMENTATION OF SUSTAINABLE AND WATERWISE CITIES

Chairs: Ioannis Alexiou, United Kingdom and Martijn Kuller, Canada

Long term performance and geochemical transformations in biochar-amended sand stormwater filtration systems, Marta Dubovska, VTT Technical Research Centre of Finland, Finland

Grenoble-Alpes Metropole: a roadmap to a water-wise city, Corinne Trommsdorff, Water Cities, France

Carbon footprint of drinking water when waterworks transition from traditional to modern waterworks, Berit Gudiksen, Fors A|S, Denmark

Evaluating the water treatment functionality of a reutilized stormwater detention pond in the Cape Flats, Cape Town, South Africa, Rachelle Schnewley, University of Cape Town, South Africa

4.4.6 | HOLISTIC URBAN WATER MANAGEMENT PLANNING

Chairs: Nilo Nascimento, Brazil and Dhruv Pasricha, India

Developing sustainable and resilient urban wastewater solutions using integrated sewer and treatment system processes models, Julian Sanding, Jacobs, United States

Development of a multi-criteria spatial analysis tool for decision support on the location of blue-green stormwater management infrastructure in canadian context, Sandrine Lacroux, Polytechnique Montréal, Canada

Integration of snow management decision criteria in a strategic planning tool for green infrastructures, Garance Gougéon, Polytechnique Montréal, Canada

Positive futures as decision-support tools for urban water planning, Varsha Sivagarunathan, The University of New South Wales, Australia

---- POSTERS ----

Holistic decision-making for planning water supply, urban drainage, wastewater treatment and water reuse through linear optimization by using the urban water mass balance, Timo Christopher Dilly, Technische Universität Kaiserslautern, Germany

Break 15:00 - 15:15

Closing Ceremony 15:15 - 18:46

Including Poul Harremoës Lecture by Prof. Wolfgang Rauch

Gala Dinner Evening
## Keynote Plenary 09:00 - 09:50
**Keynote:** Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema
**Panel:** Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

## Coffee Break 09:50 - 10:30

## Session 1 10:30 - 12:00
### 2.4 | MICROPLASTICS IN WASTEWATER AND BIOSOLIDS
**Chairs:** Stefan Kools, Netherlands and Banu Ormeci, Canada
In this session we will gather a global overview of the state-of-technology in sampling and analysis for the aquatic environment, with a perspective from both drinking water and waste water treatment.

**Speakers:** Stefan Kools, KWR Water Research Institute (NL), Jan Hofman, Bath University (UK), Banu Ormeci, Carleton (CA) & Danence Lee, PUB (SG)

### 6.12 | UNFC SYSTEM FOR GROUNDWATER-RESOURCE PROJECTS
**Chairs:** Kevin Parks, Canada and Klaus Hinsby, Denmark
The purpose of this session is to evaluate the application of the Draft UNFC Specifications for Groundwater through a representative use case based on the GeoERA groundwater projects.

**Speakers:** Kevin Parks, Deep Time Ltd. (CA), Klaus Hinsby, GEUS (DK), Peter van der Keur, GEUS (DK) & Marco Petitta, Sapienza Univ. of Rome (IT)

### Lunch 12:00 - 13:30

## Session 2 13:30 - 15:00
### 4.7 | SANITATION IN URBAN INFORMAL SETTLEMENTS
**Chairs:** Bo N Jacobsen, Denmark
The workshop will put into focus how to share and transfer knowledge and good experiences from new technical-scientific findings to large-scale practical implementations of sustainable sanitation solutions in urban informal settlements. Linkages to the Congress themes, e.g., Wash and community scale water management, and to the IWA Strategic Plan 2019–24, e.g., providing a targeted platform that helps utilities (and communities) share experiences, recognise and learn from emerging disruption, and adapt and embrace change.

The outcome of the workshop will be documented as a legacy. It is planned to involve an IWA Young Water Professional in the rapporteur process and in writing a blog to share the outcomes.

**Speakers:** Bo N Jacobsen, Engineers Without Borders & IAWPRC-IAWQ-IWA Member since 1990 (DK), Hezekiah Pireh, Yirah O. Conteh, Shack/Slum Dwellers International (SA), Jay Bhagwan, Water Research Commission (ZA), Stuart White, University of Technology Sydney (AU), Kai Uldert, Markus Starkl, BOKU Wien (AT) & James Ebdon, University of Brighton (UK)

### 4.8 | ACTIONABLE PATHWAY TO IMPLEMENTATION OF NATURE-BASED SOLUTIONS
**Chairs:** Maria Dubovik, Finland and Laura Wendling, Finland
The session brings together Europe’s leading experts in nature-based solutions design, implementation and impact evaluation. The session presents the components of the NBS implementation cycle and offers participants an opportunity to engage in NBS discussions. Components of the NBS cycle discussed will include the identification of important stakeholders, co-creation, policy contexts, and means to strengthen and upscale nature-based interventions via monitoring and impact assessment. After the session, participants will be able to identify key stakeholders and steps necessary for targeted NBS implementation, performance and impact evaluation, and replication. Local experts can translate the session’s learning outcomes to local agendas and decision-making, and replicate the NBS implementation process for the local environmental, social and economic challenges.

**Speakers:** Maria Dubovik, VTT Technical Research Centre of Finland (FI) & Laura Wendling, VTT Technical Research Centre of Finland (FI), Margot Olbertz & Pedro Carvalho, Aarhus University (DK)

## Break 15:00 - 15:15

## Closing Ceremony 15:15 - 16:45
Including Poul Harremoës Lecture by Prof. Wolfgang Rauch

## Gala Dinner 17:30 - 18:20
### Keynote Plenary 09:00 - 09:50

**Keynote: Wastewater Gone Viral: Pandemic Signals From the Sewers, Gertjan Medema**

Panel: Joan Rose, Jay Bhagwan, Jonathan Hoffmann, Lasse Dam Rasmussen, Ana Maria de Roda Husman, Marta Vargha

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### Coffee Break 09:50 - 10:30

### Session 1 10:30 - 12:00

**6.13 | HOW TO OPERATIONALISE INTEGRATED URBAN WATER MANAGEMENT — A FIVE-STEP GUIDE**

*Chairs: Katharine Cross, Australia and Michael Wilson, Australia*

The workshop will be presented through the lens of a "water sensitive city" to draw on a decade’s worth of research in this area, as well as a five-step framework to address the urgent urban water challenges.

*Speakers: Katharine Cross, Australian Water Partnership (AU) & Michael Wilson, eWater (AU) & Tony Wong, Monash University (AU)*

**6.19 | GOVERNANCE AND TRANSITION TO A CIRCULAR ECONOMY IN PUBLIC WATER SERVICES**

*Chairs: Jordi Morató, Spain and Nicola Tollin, Denmark*

The workshop will analyse and compare various cases of small and medium-sized water utilities that have worked on their transition to a circular economy within the context of the SDGs.

*Speakers: Jordi Morató, UNESCO Chair on Sustainability - UPC (ES) & Nicola Tollin, University of Southern Denmark (DK), Jose Luis Martin Bordes, Partnership WOPs Expert, Carlos A. Arias, Univ. Aarhus (DK), Lykke Leonardsen, Copenhagen Region Municipality (DK) & Rogier van den Berg*

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### Lunch 12:00 - 13:30

### Session 2 13:30 - 15:00

**6.16 | LIFECYCLE SYSTEM THINKING AND SYSTEM BOUNDARIES FOR SUSTAINABILITY ASSESSMENT OF WATER MANAGEMENT**

*Chairs: Martin Rygaard, Denmark and Maria Farago, Denmark*

Sustainability Development Goals and Planetary Boundaries are taking water management by storm. In that storm, well-conducted lifecycle assessments (LCA) and cost-benefit analyses can provide quantitative decision support for strategic planners and management as for such support tools, the first step is always a thorough understanding of the water system and its interaction with associated energy, material, and transport systems. In this training session, you will be introduced to the concept of lifecycle systems thinking. We will provide an example based on state-of-the-art water resource recovery. Following the introduction, an interactive session with peers will challenge you to map your own system and identify all links to upstream and downstream processes. The session is a modified version of training sessions successfully held with participants from Argentina, China, Denmark, Egypt, Ghana, Kenya, and South Africa.

*Speakers: Martin Rygaard, Technical University of Denmark (DK) & Maria Farago, Technical University of Denmark (DK)*

**1.4 | THE DIGITAL WORKER — CHALLENGES AND LESSONS LEARNED BY INTERNATIONAL UTILITIES**

*Chairs: Cheryl Davis, United States and Lisa Bross, Germany*

The purpose of this workshop is to identify and discuss workforce challenges and lessons learned in relation to issues (e.g., selection of tools, organisational culture, staff training, human resource issues, and IT support) that are key to the effective use of digital tools. A combination of presentations and facilitated discussion will be used to document challenges and lessons learned. Output from this session will be used as the basis for the creation of future reports, presentations, and guidelines for effective use of digital tools by utilities.

*Speakers: Cheryl Davis, Chair of IWA Specialist Group on Sustainability in the Water Sector CKD Consulting (US) & Lisa Bross, WVR (DE), Nozomi Ishida, Tokyo Metropolitan Government (JP), Victor Faria, CEDEA (BR) & Juan Iervasi, Agua y Saneamientos Argentinos (AR)*

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**Break 15:00 - 15:15**

### Closing Ceremony 15:15 - 18:46

Including Poul Harremoëls Lecture by Prof. Wolfgang Rauch

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<td>Veitur project. A complete AMI solution for the multiutility connecting electricity, heat, and water metering points within single-point management access</td>
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<td>Digitalisation is an enabler for smart and liveable cities. Utilising the increasing amount of available data, connecting the dots and leveraging the ability to predict and prioritise, the digital platform created by Grundfos simplifies and optimises daily operations and long-term planning in a proactive, profitable and smart way.</td>
<td>The session will present a use case in Veitur, Iceland’s largest utility company, implementing an AMI solution on a country scale, connecting electricity, heat, and water metering points with single-point management access within Iskraemeco’s software suite – SYMBIOT.</td>
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<td>- Daniele Del Negro, Sales and Business Development Manager</td>
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| **11:15 — 12:00 | KAMSTRUP** | **11:15 — 12:00 | DHI** |
| Reducing Non-Revenue Water through optimized leak-detection | Water modelling tools – transforming science into practice |
| Sharing the innovation story on how acoustic leak detecting (ALD) technology was developed, and the value it generates | Considering city population projections, it’s crucial to efficiently manage water. For cities to be competitive and resilient, sound infrastructure investments and planning are essential. DHI’s MIKE tools use industry expertise to create efficient, accurate and resilient urban water solutions. At this Business Forum, DHI’s experts will present and discuss case stories based on water modelling that helps cities to implement climate adaptation, achieve energy savings and reduce carbon footprint using the latest MIKE by DHI software technology |
| Sharing our "it’s time to know" perspectives on how data becomes increasingly important in daily decision making | - Morten Just Kjølby and Aurelien Gasc |
| Sharing learnings from practical smart metering cases with focus on measurable results and key learnings | - Hans Christian Jørgensen, Head of Solution & Application Management |
| - Hans Christian Jørgensen, Head of Solution & Application Management |

| **12:15 — 13:00 | DENMARK PAVILION** | **12:15 — 13:00 | GRUNDFOS** |
| Climate adaptation - turning necessity into benefits | To be announced later |
| Denmark is surrounded by coast and over time developed world class efficient climate adaption solutions. This seminar addresses top modern ways of securing vital urban infrastructure as well as creating value added projects in close cooperation with various stakeholders to improve city livability. | |
| - Bjørn Rasmussen, Engineer, Middelfart Municipality |
| - Morten Kristensen, Sales Director, Apx10 |
| - Jacob P. Larsen, Director of Urban Water & Infrastructure, WSP Denmark |

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17th International Conference on Wetland Systems for Water Pollution Control
6 — 10 NOVEMBER 2022

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BILBAO, SPAIN
Digital Water Summit
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PHUKET, THAILAND
IWA Biofilms 2022 Conference
6 — 10 DECEMBER 2022

2023

CHENNAI, INDIA
13th IWA International Conference on Water Reclamation and Reuse
15 — 19 JANUARY 2023

STELLENBOSCH, SOUTH AFRICA
8th IWA Water Resource Recovery Modelling Seminar
15 — 18 JANUARY 2023

GIRONA, SPAIN
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ANTALYA, TURKEY
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PERTH, AUSTRALIA
Specialised Conference on Water and Wastewater Systems for Developing Countries
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<td>Fabio Polesel, DHI Water &amp; Environment, Inc.</td>
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Exhibition
EXHIBITION

The exhibition will be open from:
Monday 12 Sept — 09:00 / 18:00
Tuesday 13 Sept — 09:00 / 18:00
Wednesday 14 Sept — 09:00 / 18:00
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Exhibitor Profiles

3VAND

Stand C2-200K
3VAND
City: Copenhagen, Aarhus, Odense
Country: Denmark

3VAND is a strategic collaboration between leading water utilities from Denmark’s 3 largest cities. We are initiators in the development of sustainable drinking water and wastewater solutions – and we share our knowledge worldwide.

ABLOY

Stand C2-238
ABLOY
City: Joensuu
Country: Finland
Web address: www.abloy.com

ABLOY offers security and locking innovations dedicated to creating more trust in the world. Combining digital and mechanical expertise, Abloy Oy develops industry-leading security solutions that protect people, property and business. Abloy is part of the ASSA ABLOY Group, the global leader in access solutions. Every day, we help billions of people experience a more open world. Visit us at ASSA ABLOY Global Solutions’ booth C2-271 to discover more of water safety and security.

ACO

Stand E-200F
ACO AHLMANN SE & CO. KG
City: Büdelsdorf
Country: Germany
Web address: www.aco-nordic.se

The ACO Group is a world market leader in drainage technology. Climate change sets us a challenge to act e-efficiently with innovative solutions to new environmental conditions. With its integrated approach, ACO stands for professional drainage, efficient cleaning, and the controlled discharge and reuse of water. Products include drainage channels and point drainage, oil and grease separators, backflow prevention systems and pump shafts. The innovative strength of the ACO Group is built on intense research and development, and its technical expertise in processing polymer concrete, plastic, cast iron, stainless steel and concrete. ACO has a presence in over 47 countries, with more than 5,000 employees and a total of 37 production sites on five continents.

ACQUEDOTTO PUGLIESE SPA

Stand C2-353
ACQUEDOTTO PUGLIESE SPA
City: Bari
Country: Italy
Web address: www.aqsp.it

Acquedotto Pugliese SPA is one of the largest and historical Italian companies and one of the major European players in the management of integrated water systems. Its networks, with an extension of over 32,000 km, serve 260 municipalities in Puglia and Campania and over 4 million citizens. A large public company, with a production value of 600.5 million euros in 2020 and profits of 20.8 million. The AQP Water Academy operates within the company, a center of excellence for training on the Integrated Water Service. Aesco SpA, a leading company in the production of fertilizers, belongs to Acquedotto Pugliese.

ACQUEDOTTO PUGLIESE SPA

C2-355
ADMINISTRATIVE STAFF COLLEGE OF INDIA
City: Hyderabad
Country: India

ASCI is one of India’s leading institutions in providing training, research and consultancy services to the government, industry and international agencies in different disciplines of management. ASCI has established a strong presence in the areas of urban governance particularly focusing on urban service delivery. It has provided transaction advisory support and facilitated implementation of projects in various cities particularly in the areas of sanitation, 24X7 water supply, smart cities, service level benchmarking and urban infrastructure. It provides a dedicated urban information support service to cities and regularly documents good practices and has extensive experience in promoting peer learning.

ADVANTECH CO., LTD

Stand C2-214
ADVANTECH CO., LTD
City: Taipei City
Country: Chinese Taipei
Web address: www.advantech.com

Founded in 1983, Advantech is a leader in providing trusted, innovative products, services, and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, embedded systems, automation products, and global logistics support. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. Our mission is to enable an intelligent planet with Automation and Embedded Computing products and solutions that empower the development of smarter working and living. With Advantech, there is no limit to the applications and innovations our products make possible.

AFRY

Stand C2-256
AFRY
Country: Sweden
Web address: www.AFRY.com

AFRY is a leading international engineering company with a core strength in managing major projects in the energy and utilities sectors, as a partner we can’t do without for the improvement of the performances of water and sanitation utilities. Through its programs based on the sharing of good practices and training, AFWA participates in the capacity building and contributes to make utilities more competitive. Its know-how makes it possible to accompany its members towards achieving the Sustainable Development Goals (SDGs), and other short-term objectives set up for Africa. Its 21st next international Congress and Exhibition will be held in Abidjan – CÔTE D’IVOIRE, in 2023, with participants from the whole world.

AIR LIQUIDE

Stand C2-275
AIR LIQUIDE
City: Taastrup
Country: Denmark
Web address: dk.airliquide.com

A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 75 countries with approximately 66,400 employees and serves more than 3.8 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide’s scientific territory and have been at the core of the company’s activities since its creation in 1902. Air Liquide Denmark A/S is part of the Air Liquide Group.
ALUMICHEM

Stand E-200F
ALUMICHEM A/S
City: Birkerød
Country: Denmark
Web address: www.alumichem.com

Alumichem provide complete solutions and services for optimal water treatment and water management and help municipalities and industries meet the stringent requirements and enhance sustainability-driven recycling initiatives.

With more than 40 years of experience in the industry, and an established and broad international network of knowledge intensive employees and partners, Alumichem is built on solid expertise in chemicals, equipment, and consulting. Our head office in Denmark is supported by our international branches in North America, Europe, and Ghana.

Alumichem is a leading Nordic manufacturer of high-quality functional aluminates and specialty chemicals, serving customers all over the world.

AIRWATERGREEN

Stand C2-256
AIRWATERGREEN
Country: Sweden
Web address: www.airwatergreen.com

Airwatergreen AB is a Swedish air treatment company that offers energy-efficient dehumidification and air treatment in all climates. We design and manufacture desiccant air treatment product that effectively remove moisture and maintain a suitable indoor climate, which prolongs the life of buildings, goods and equipment, and creates a healthier workplace environment to stay in. The products are designed with our patented technology, technologies that give the products a number of unique advantages.

Advantages are half the energy needed, plug-n-play installation and the same efficiency in all temperatures. We have more than 700 installations in 8 countries.

STAND C2-351
ALLENGRA GMBH
City: Ravenstein – Merchingen
Country: Germany
Web address: www.allengra.eu

Allengra GmbH develops and produces ultrasonic flow sensors and various control valves with integrated pressure and temperature sensors for companies in the heating, sanitary and air-conditioning industries as well as for pharmaceutical, food and cleaning industries. Leading companies in the heating industry and energy management such as Viesmann, Bürkert Fluid Control Systems, a leading global manufacturer of measurement, control and regulation systems for liquids and gases, and cleaning machine manufacturer Kärcher are already incorporating Allengra sensors into their products. The 80-strong team in Ravenstein and Oradea (Romania) implements and produces customised, cost-effective high-tech sensors with a competitive price/performance ratio.

APX10

Stand E-200E
APX10 A/S
City: Aarhus
Country: Denmark
Web address: apx10.com

Our core solution is a SaaS platform called data|APX®

APX10 brings superior infrastructure overview and pipeline reinvestment decision guidance to water and wastewater utilities. Taking asset management decision-making to the next level.

Our data|APX® platform provides advanced data analytics to facilitate the digital transformation of wastewater and water utility infrastructure and generate value out of existing data.

Our company operates out of the Nordics, specializing in big data analytics software. We have a dedicated team composed of business development experts, highly-experienced data scientists and software developers who support our utility clients by creating value from an exponential and growing amount of data.

For more information visit www.apx10.com

STAND C2-380
ANGLIAN WATER
City: East Anglia
Country: United Kingdom
Web address: www.anglianwater.co.uk

Anglian Water supplies drinking water to 4.3 million customers across the East of England and collects and treats used water from almost 7 million people. We are the largest water company in England and Wales by geographic area.

Water is our business. It’s our job to handle it with care and balance the needs of our customers with those of the environment around us.

Our ethos is ‘Love Every Drop’, because it’s what we do. We’re constantly discovering new ways to keep ahead of a changing world and planning for the future.

AQUA METROLOGY

Stand E-101
AQUA METROLOGY
Country: United States of America
Web address: www.aquametrosystem.com

Aqua Metrology Systems is a leader in the prediction, control and treatment of heavy metal and inorganic contaminants. Our SafeGuard™ H2O advanced in-situ reagent generation technology provides an affordable, non-hazardous, energy efficient and environmentally sustainable solution to remove these contaminants from water and wastewater. Our online water quality instruments (Instran™, MetalGuard™, SafeGuard™ and THM-100™) provide accurate and reliable data on disinfection by-products (THMs), trace metals (arsenic, chromium, copper, iron, lead, manganese, selenium and more) and inorganics (ammonia, fluoride, phosphates, nitrate and more) through continuous real-time monitoring to ensure system performance is optimized and timely interventions can be made.

Stand C2-289A
ALS SCANDINAVIA AB
City: Danderyd
Country: Sweden
Web address: www.alsglobal.se

ALS Scandinavia is an accredited laboratory that offers environmental and water analyses. We have long experience and are one of the leading laboratories in environmental analysis. Our portfolio contains a wide range of analytical tools. App Orchid helps enterprises achieve their digital transformation objectives easily through rapid deployment, low cost implementation and minimum disruption across their existing systems and organization.

Stand E-101
APPORCHID
City: San Ramon, CA
Country: United States of America
Web address: www.apporchid.com

The App Orchid platform uses deep learning and natural language processing with industry specific content delivered through knowledge graphs, to create powerful predictive apps. App Orchid blends historical and real-time, structured and unstructured data with employee “tribal knowledge” to deliver innovative enterprise apps. Our Big Data based in-memory technology helps to identify patterns, risks and opportunities previously impossible with traditional analytical tools. App Orchid helps enterprises

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ALS SCANDINAVIA AB
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Aquafin
Stand C2-302
AQUAFIN
City: Aartseelaar
Country: Belgium
Web address: www.aquafin.be

Aquafin is responsible for the collection and treatment of domestic wastewater in Flanders. In this role, we also develop activities for climate adaptation and mitigation. In addition, we are committed to reducing our climate impact through the production of renewable energy and a conscious choice of materials.

AquaFlanders
Stand C2-302
AQUAFLANDERS
City: Antwerp
Country: Belgium
Web address: www.aquaflanders.be

AquaFlanders is the federation of Flemish water companies and sewer managers. Together, all members commit to a streamlined and modern water management to create a sustainable future for water. The organization gives advice to its members in legislative and operational matters. It promotes their interests with local, regional, federal, and European governments and stakeholders. And it raises awareness about sustainable water usage.

AquaGreen
Stand C2-200H
AQUAGREEN
City: Roskilde
Country: Denmark
Web address: aquagreen.dk

The Danish Cleantech company AquaGreen has developed HECLA® Setores 1.000, a fully automated facility with a sustainable, patented technology that can convert wet biomass (sludge, slurry fibers) into hygienized, odorless biochar with plant-available phosphorus. During the treatment process, harmful pollutants (PFAS, microplastics, drug residues, etc.) are eliminated, heavy metals are reduced and greenhouse gas emissions are reduced. AquaGreen’s Hecla Technology thereby contributes globally to the necessary green transformation.

Aquaporin
Stand E-128 / E-200F
AQUAPORIN A/S
City: Kongens Lyngby
Country: Denmark
Web address: www.aquaporin.com

Aquaporin is a water technology company dedicated to natural water treatment with operations in Denmark, Singapore, US and Turkey. We’re working to preserve the Earth’s most valuable resource – water – by combining bioengineering, open innovation and aquaporins – nature’s own water purifiers – which we embed into water purification membranes. Our Aquaporin Inside® technology is based on Nobel Prize-winning research and used to clean and reuse water in industries, in our homes and even by NASA in space. We work with customers and partners around the globe to treat industrial wastewater, concentrate food & beverage products and enhance drinking water quality and accessibility.

AquaRealTime
Stand E-101
AQUAREALTIME
City: Boulder, CO
Country: United States of America
Web address: www.algaetracker.com

Leveraging patent pending IoT sensors and proprietary analytics, AlgaeTracker by AquaRealTime is a revolutionary early detection and monitoring system for algae blooms and other contaminants in lakes, rivers, oceans, reservoirs, and coast lines. The system enables stakeholders to respond quickly and proactively with any mitigation solutions, reducing operational expenses, and protecting the public from potentially devastating health effects. The lightweight proprietary buoys measure six key water parameters and stream them to a web dashboard with analytics and email alerts at action thresholds. Installation takes only 30 minutes, and the subscription pricing model with low upfront cost enables a cost effective solution for most stakeholders.

Aquatech
Stand C2-333
AQUATECH
City: Amsterdam
Country: The Netherlands
Web address: www.aquatechtrade.com/amsterdam

Aquatech is the world’s leading platform on technology & solutions for a sustainable water future.
A complete platform for professionals in the world of water technology and water management. With our events in Amsterdam, China & Mexico and our global online community with news, views & analysis we bridge the gap between business, governments and scientific water technology & management communities to drive a sustainable water future. Aquatech covers the complete Urban Water Cycle and has been sharing technical innovations, connecting water professionals and creating business opportunities since 1964.

ASSA ABLOY
Global solutions
Stand C2-271
ASSA ABLOY
City: Stockholm
Country: Sweden
Web address: www.assaabloyglobalsolutions.com/en/industries/critical-infrastructure

ASSA ABLOY Global Solutions help water companies to improve their physical security with robust locking and advanced key and access management solutions. With the latest electromechanical and digital solutions, we ensure clean water to the society, when only right people, at the right time, have access to the water treatment sites - everything managed with one system. Water companies can enjoy peace of mind with automatically traceability of all event and efficient operation processes without interruptions. And together with our network of local distributors we serve our clients with precision, worldwide.

ASTERRA
Stand C2-200K
ASIR / AARHUS VAND / TINYMOBILEROBOTS
City: Malling
Country: Denmark
Web address: tinymobilerobots.com

The Automated Sewer Inspection Robot (ASIR) is a monitoring solution for sewer inspection which can increase pipe lifetime and enable annual savings of 24 mio EUR in Denmark alone. Today’s lack of regular pipe inspections means that sewer pipes are often replaced prematurely. Their life expectancy of 75 years is often reduced to an actual lifecycle of 20-40 years. The ASIR solution consists of (1) an autonomous sewer robot transmitting sensor data for (2) automatic analysis and annotation which will be used for (3) asset management by the utilities to identify necessary repairs and replacements.

ASTERRA
Stand C2-349
ASTERRA
City: Tel Aviv
Country: Israel
Web address: asterra.io

ASTERRA is a world leader in satellite-based infrastructure intelligence. The company’s algorithms for the detection of underground soil moisture types bring to market the only intelligence of this kind. By analyzing S.A.R. imagery, ASTERRA collects hard, actionable data, which it puts in the hands of ground crews, planners, and engineers.
Showcasing the best innovation in the UK Water Sector

Anglian, Northumbrian, Scottish and British Water have joined forces to deliver the British offering at the exhibition. We look forward to welcoming you at our stand.
AUSTRALIAN WATER PARTNERSHIP
City: Canberra
Country: Australia
Web address: waterpartnership.org.au

The Australian Water Partnership (AWP) is a water for development partnership supported by the Australian Department of Foreign Affairs and Trade (DFAT). AWP is an international cooperation initiative helping developing countries primarily in the Indo-Pacific region work towards the sustainable management of their water resources. We enable this by facilitating collaboration between governments, international organisations, and our partner network of more than 200 Australian public, non-government and private sector organisations to share Australia’s world-class water expertise internationally. Since its inception in 2015, AWP has provided technical assistance projects to strengthen water resource management in some 30 countries in the Indo-Pacific and beyond.

BactiQuant

Stand E-200F
BACTIQUANT
City: Birkerød
Country: Denmark
Web address: bactiquant.com

BactiQuant is built on groundbreaking science that allows monitoring bacteria levels in near real-time. This allows our clients to set up in-line process control, increasing their internal water quality control and providing quicker feedback loops in their production. Ultimately, this results in a more proactive and efficient supply chain, producing less waste of a critical resource – water. At BactiQuant, we understand the dynamics of total bacterial mass present in the water. Setting a robust baseline for the total bacterial mass can quickly identify water quality deviations, consistently providing high-precision readings and alerts that provide rapid, reliable data.

Biowater Technology

Stand C2-218
BIOWATER TECHNOLOGY AS
City: Tønsberg
Country: Norway
Web address: www.biowater.no

Biowater Technology are experts in the engineering and delivery of tailor-made wastewater treatment solutions. We develop and implement our own next generation treatment technologies as well as conventional solutions. Our team has experience from over 130 installations worldwide with over 30 years experience. Headquarter: Biowater Technology AS, Norway

Next generation wastewater treatment technology and solutions. Deliver the future today.
Stand C2-272A
BLUETECH RESEARCH
City: Cork
Country: Ireland
Web address: www.blueotechresearch.com

BlueTech Research analyzes innovative water technologies to transform your company. We are an independent market intelligence firm focusing exclusively on the water technology industry. The BlueTech Research Advisory Service is cutting-edge, unique, and supports our clients’ competitive market strategies.

Our powerful data modelling tools and the specialist knowledge of our analysts enables you to forecast the potential of emerging technologies and their markets – empowering you to make better informed investment decisions. BlueTech is the founding partner of the Brave Blue World Foundation, producer of the award-winning documentary “Brave Blue World.”

Stand C2-340
BNOVATE TECHNOLOGIES SA
City: Ecublens
Country: Switzerland
Web address: www.bnovate.com

bNovate Technologies SA was founded in 2011 as a spin-off of the Swiss Federal Institute of Technology Lausanne (EPFL) and is now a growing cleantech company. It develops innovative instruments for rapid microbiological monitoring of pharmaceutical and drinking water. BactoSense, the first industrial flow cytometer, is a robust device that monitors water online, and gives in just 20 minutes an overview of the bacterial content of a water sample. BactoSense Multi is designed for multi-point monitoring and makes it easy to capture an accurate microbiological picture of your entire process directly on-site.
bNovate wants to contribute to safe drinking water worldwide and follows the vision “Safe Water. Anytime. Anywhere.”

Stand C2-340
BUCHE UNIPEKTIN AG
City: Bologna
Country: Italy
Web address: www.bfwe.it

BolognaFiere Water&Energy is a joint venture made up of BolognaFiere, one of the main Italian players in the exhibition market, and Mirumir, a company that has been promoting and organizing exhibitions and conferences on energy and technological innovation for over twenty years.

The purpose of BFWE is to provide a contribution to the knowledge and sharing of issues related to the economic and social value of water, energy and new technologies.

A path through 6 events to animate a national and international debate on the ecological transition: AccadueO, Forum AccadueO, CH4, Hydrogen Energy Summit&Expo, ConferenzaGNI, Fuels Mobility, Dronitaly

BPC INSTRUMENTS

Stand E-130
BPC INSTRUMENTS
City: Lund
Country: Sweden
Web address: www.bpcinstruments.com

BPC Instruments is a global Swedish-based technology company that develops and sells automated, analytical instruments that enable a more efficient, reliable, and higher quality of research and bioanalysis in the clean-tech sector. The result is significant reduction in time consumption and labour requirement for performing analysis. BPC Instruments’ products offer high quality features in both hardware and software. The company’s solutions are the first of their kind, making the company a pioneer in its field. Today, BPC Instruments exports to 60+ countries around the world.

BUCHE UNIPEKTIN AG

Stand C2-340
BUCHE UNIPEKTIN AG
City: Niederweningen
Country: Switzerland
Web address: www.bucherunipektin.com

Minimised disposal costs thanks to maximised dewatering

Our systems for dewatering of sewage sludge are characterised by high separation efficiency, high availability, long service life, with minimal maintenance. Thanks to the development of our robust press technology, Bucher Unipektin expands the boundaries of what is technically feasible.
Together, they will host IWA’s World Water Congress in Toronto in 2024. CWWA is the professional association for Canada’s utility water leaders and the private sector partners that support them. CAWQ is a non-governmental, non-profit organization for scientists, engineers, technologists, administrators, practitioners and students engaged in or

Stand E-200A
CAPITAL REGION OF DENMARK
City: Hillerød

Country: Denmark
Web address: www.regionh.dk

The Capital Region of Denmark runs and develop Denmark’s largest healthcare system. Beside this important task our focus is on developing a Region for the next generation. To fulfill this goal we protect the Regions groundwater from soil contamination and help develop a climate adapted Region. We have great experience in removing the risk from soil contamination and thereby protect the groundwater, human health and the nature. We constantly use our water-competences to innovate new methods to reach our target. Visit us at the Danish pavilion in Bella Center and see some examples of our work.

Stand C2-200G
CENTRAL DENMARK REGION
City: Viborg

Country: Denmark
Web address: www.regionh.dk

The Capital Region of Denmark runs and develop Denmark’s largest healthcare system. Beside this important task our focus is on developing a Region for the next generation. To fulfill this goal we protect the Regions groundwater from soil contamination and help develop a climate adapted Region. We have great experience in removing the risk from soil contamination and thereby protect the groundwater, human health and the nature. We constantly use our water-competences to innovate new methods to reach our target. Visit us at the Danish pavilion in Bella Center and see some examples of our work.

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Stand C2-256
CAMBI
City: Asker
Country: Norway
Web address: cambi.com

Cambí is a global technology and solutions supplier, transforming wastewater solids and organic wastes into renewable energy and easy-to-handle biosolids. Its patented thermal hydrolysis process provides tremendous economic advantages and the lowest possible carbon footprint for mid-size and large wastewater treatment plants, independent of the biosolids handling route (incineration, land application, landfilling).

Cambí’s 80 references span biogas plants in 25 countries on six continents and serve about 110 million people in cities like Brussels, Oslo, Athens, Sydney, and Singapore. The company recently signed a contract in Copenhagen, the third one in Denmark, for BIOFOS at the Damhusåen wastewater treatment plant.

Stand C2-317
CANADIAN NATIONAL COMMITTEE OF THE IWA
Canadian Water and Wastewater Association
Canadian Association on Water Quality
City: Ottawa, Hamilton
Country: Canada
Web address: www.cwwa.ca; www.cawq.ca

Canada is represented at the IWA by the Canadian National Committee – a coalition of the Canadian Water and Wastewater Association (CWWA) and the Canadian Association on Water Quality (CAWQ).
Together with customers, partners and colleagues, we shape a future where people and societies grow and flourish. We do that by co-creating sustainable and beautiful solutions that improve the quality of life for people today and many generations ahead. Our starting point is gaining a deep understanding of our customers, their aspirations and concerns. This is what sets us apart and how we deliver long-term value. Primarily located in Scandinavia, the UK, North America and India, we currently number 6,900 people, who offer our expertise in water management, engineering, architecture, energy and environment.

**Danfoss**

Stand C2-200H

DANFOSS DRIVES
City: Geraalten
Country: Denmark
Web address: www.danfoss.com/en/

For more than 50 years, Danfoss has contributed globally to meeting the need for energy-efficient infrastructure, connected systems, integrated renewable energy, and decarbonization solutions. Danfoss engineers a better tomorrow for the water and wastewater sector, with technology including quality application-optimized drives, pressure transmitters and switches. From desalination via reverse osmosis, to traditional water production, water distribution and wastewater treatment, Danfoss gives you energy-efficient solutions. Today, it’s even possible to generate energy during water processing, fulfilling the energy need of the entire water cycle. Together with our customers, we help make a greener and better future a reality.

**Dannezozzle**

Stand C2-200L

DANNOZZLE A/S
City: Støving
Country: Denmark
Web address: www.dannezozzle.dk

Climate change adaptation & Climate adaptation systems
Dannezozzle is a production and engineering company specializing in climate adaptation systems. We tailor make solutions to each location and in doing so, effectively adapt to sea, rain, and coastal shift. Our climate adaptation systems are capable of handling cloud bursts, high tides, and sand blockages. Dannezozzle’s flap gates are manufactured from the same lightweight materials as wind turbine wings, giving both great flexibility and resistance to natural forces. Follow us on LinkedIn.

**Cowi**

Stand C2-200J

COWI A/S
City: Lyngby
Country: Denmark
Web address: www.cowi.com

Together with customers, partners and colleagues, we shape a future where people and societies grow and flourish. We do that by co-creating sustainable and beautiful solutions that improve the quality of life for people today and many generations ahead. Our starting point is gaining a deep understanding of our customers, their aspirations and concerns. This is what sets us apart and how we deliver long-term value. Primarily located in Scandinavia, the UK, North America and India, we currently number 6,900 people, who offer our expertise in water management, engineering, architecture, energy and environment.

**Danish Export Association**

Stand C2-200L

DANISH EXPORT ASSOCIATION
City: Silkeborg
Country: Denmark
Web address: www.danishexport.com

Danish Export Association represents suppliers within 12 key industries consisting of manufacturers, consultants and service providers. Since its foundation in 1965, Danish Export Association has provided an unrivalled platform for quality-conscious Danish manufacturers and service providers to interface with their foreign customers and partners. We are the largest export association in Denmark with more than 700 suppliers, making it an excellent platform to locate new business partners. If you are interested in getting in touch with Danish suppliers, then please visit our website www.danishexport.com, where you will find names of all our members. If you have questions, you are also welcome to contact us by e-mail.
The Association of Waterworks in Denmark Danske Vandværker is the Association of Waterworks in Denmark. The majority are organized as cooperatives. Therefore, the consumers themselves own and operate the water supply, and all members have an influence on the operation, administration, pricing etc. Our purpose is to promote the views and interests of the water cooperatives to the public, authorities and politicians. Through the membership of the Association the water supplies have access to:

- Technical and legal advice
- Influence on the political framework through our public affairs work
- Expos and knowledge exchange with water technology companies
- Education and training programs

**Stand C2-354**

**DATAKORUM SOLUTIONS, S.L**

City: Valencia  
Country: Spain  
Web address: www.datakorum.com

DATAKORUM is a Spanish company with a high specialization in the Data Collection under the Caas (Connectivity as a Service) model based on 5G communications (NB-IoT) for the water, electricity, gas and mobility sectors. Through our proprietary technology we have created a communications ecosystem that fully integrates sensors wirelessly and in real time with management platforms, this being the key point in infrastructure projects with a huge variety of devices and manufacturers that have to be connected in a single management system. We work with the world’s leading water companies and with real field deployments in Spain, United Arab Emirates (UAE), Germany and China.

**Stand C2-296**

**DHI A/S**  
City: Harsholm  
Country: Denmark  
Web address: www.dhigroup.com

Protecting water for the future is a challenge we take on every day. DHI is a digitally enabled advisory company working within the entire water cycle. We make a difference with our innovation, whether it’s protecting urban infrastructure from extreme weather, ensuring clean drinking water or improving water quality from city to river to ocean. Headquartered in Denmark since 1964, DHI employs over 1,000 employees in 27 countries. Together, we use our global experience to support our clients – in any water environment, anywhere in the world.

Wastewater and rainwater are central to both the global and local climate agendas. We see changing rainfall patterns, increasing urban populations, aging water infrastructure all adding up to fear of flooding, overflows, pollution, and loss of precious resources. Dryp’s smart water management system solution utilizes IoT and data engineering to increase information collection and analytics. Big data acquired in real-time is used to manage daily decisions and quality the competences of water engineers. Our solution has the potential to help society save enormous amounts of money and CO2 on their climate change adaptation efforts. Join the future of smart water systems here: www.drypdata.com

**Stand C2-200L**

**DI WATER**  
City: Copenhagen  
Country: Denmark  
Web address: www.di.dk/vand

Danish Water Industries Federation (DI Water) represents the leading technology providers, engineers, and utilities within the Danish water cluster and across the entire value chain. DI Water attends to the political and business interest of the water industry at a national and European level. We work to promote business conditions and green water solutions. Measured in water patents per capita and export of water technologies and consultancy per capita, Denmark is number one and a world leader. The Danish water sector has set the goal to become climate and energy neutral by 2030.

**Stand C2-200H**

**DRYP A/S**  
City: Copenhagen  
Country: Denmark  
Web address: www.drypdata.com

"DRIZZLE – Centre for Stormwater Management" is a centre of excellence for stormwater research, led by the Urban Water Engineering research group at Luleå University of Technology, Sweden. Within DRIZZLE, researchers, companies, and municipalities collaborate to co-create excellent research, and to develop and implement pioneering, research-based stormwater management solutions, to minimize pollution entering receiving waters, to reduce the risk of flooding in urban areas, and to exploit the opportunities that stormwater runoff can offer. Find out more: www.itu.se/DRIZZLE
DTU develops technology for people and helps to solve the global challenges formulated in the UN’s 17 Sustainable Development Goals. We have an international, inclusive, and informal working environment – and campuses in all parts of Denmark and in Greenland. DTU Sustain is one of Europe’s largest university departments specializing in environmental and resource engineering. We develop new sustainable technologies, methods and solutions, and disseminate this knowledge to society and future generations of engineers. DTU Skylab is DTU’s living lab for innovation and entrepreneurship. We foster an ambitious open community, where students, researchers and corporate partners meet to solve real-world challenges.

EBC FOUNDATION

Stand C2-333
EBC FOUNDATION
City: The Hague
Country: The Netherlands
Web address: www.waterbenchmark.org

The European Benchmarking Co-operation (EBC) is an industry-based, not-for-profit benchmarking initiative to improve water services.

Mission of EBC is to assist drinking water- and wastewater utilities in the continuous process of improving water services, by offering an international benchmarking programme for water services and providing a platform for exchanging leading/best practices of management and operations.

EBC Foundation is governed by a Board, consisting of representatives from the national water utility associations FIWA (Finnish water utilities association), Norsk Vann (Norwegian water utility association) and Vewin (Dutch water utility association) and EurEau (European federation of national water utility associations).

Endress+Hauser

Stand C2-346
ENDRESS+HAUSER GROUP SERVICE AG
City: Reinach
Country: Switzerland
Web address: www.endress.com

The Endress+Hauser Group is a global leader in measurement and automation technology for process and laboratory applications. The family company, headquartered in Reinach, Switzerland, achieved net sales of approximately 2.9 billion euros in 2021 with a total workforce of more than 15,000. Endress+Hauser devices, solutions and services are at home in many industries. Customers thus use them to gain valuable knowledge from their applications. This enables them to improve their products, work economically and at the same time protect people and the environment.

Endress+Hauser is a reliable partner worldwide. Its own sales companies in more than 50 countries as well as representatives in another 70 countries ensure competent support.

EMS

Stand C2-314
ENERGY MANAGEMENT SYSTEM CO., LTD
City: TAINAN CITY
Country: Chinese Taipei

Established in 1993, EMS smart water meter company designs, develops, manufactures and supports the smart water meters from residential to bulk type. In addition, we have developed the latest IoT datalogger, from RS-485/Modbus, 3G/4G, NB-IOT, LoRaWAN, RF, to deal with the data transmission challenges in various sites. We support our partners to collect, transmit and analyze water data from flow, pressure and water quality effectively. We provide day-to-day basis on water consumption, alerts, tampering and leaks and you can respond immediately to every problem. We design and we are flexible to meet your specific needs.

EMPIT

Stand C2-230
EMPIT GMBH
City: Berlin
Country: Germany
Web address: empit.com/en/

EMPIT is a global working deep-tech company established in 2015. It has developed a solution to overcome the challenges of aging water infrastructure, unknown pipeline wall condition, and uncertainty of exact geolocation. With its self-developed CMI technology, EMPIT tackles large and complex water pipeline networks, providing a comprehensive integrity overview. The company developed a set of assessments that can provide water operators with information for their asset management strategy that positively contributes to budgeting and efficient construction planning. Almost no preparatory measures are required. The inspection is carried out without contact and without influencing the operation of the pipeline.

ELLONA

Stand C2-408
ELLONA
City: Toulouse
Country: France
Web address: www.ellona.io

Ellona’s ambition is to make the world a safer and healthier place by providing enriched environmental data in real time. The company brings together a unique set of expertise in odor, gas, particles, noise and air quality outdoor and indoor. Ellona is a leader in situational and environmental intelligence, providing databases on health, safety, toxic substances, hedonism, well-being and productivity. Today, with its online air quality monitoring solutions, WT1 for outdoor and POD2 for indoor, the company has more than 100 active customers worldwide, in various fields such as construction, industrial sites, waste management, transportation, or public buildings.

Ecomondo

Stand C2-381
ECOMONDO – ITALIAN EXHIBITION GROUP S.P.A.
City: Rimini
Country: Italy
Web address: en.ecomondo.com

Ecomondo is the reference event in Europe and the Mediterranean for the ecological transition and the circular and regenerative economy.

It is an international show with an innovative format that brings together on a single platform all the sectors that support ecological transition, integrated solutions for the valorisation of waste, integrated water cycle, land reclamation and regeneration, renewable energies, energy efficiency, green mobility, circular economy.

Ecomondo will host conferences, debates and discussion forums on future trends, national strategy and the National Recovery and Resilience Plan (PNRR). The in person event is enhanced by a innovative digital platform.

EasyMining

Stand C2-329
EASYMINING
City: Uppsala
Country: Sweden
Web address: www.easymining.se

EasyMining is an innovation company dedicated to closing nutrient cycles. We are owned by the Swedish environmental company Ragn-Sells. Our objective is to create new circular material flows in an efficient commercial way. We do this by inventing and implementing new technology that uses chemical solutions to recycle important materials.

Eco-friendly and corporate partners meet to solve real-world challenges. With its self-developed CMI technology, EMPIT tackles large and complex water pipeline networks, providing a comprehensive integrity overview. The company developed a set of assessments that can provide water operators with information for their asset management strategy that positively contributes to budgeting and efficient construction planning. Almost no preparatory measures are required. The inspection is carried out without contact and without influencing the operation of the pipeline.
WE PROVIDE

The most sustainable, economic, and effective PFAS treatments for soil and water in the world.

Visit us at C2-212 for more information and to view the mini-SAFF or have a look at our website envytech.se
Envidan is one of the Nordic region’s leading water and wastewater specialists with three core business areas: Consulting, Turnkey and Software. Our business is born with a sustainable DNA and we wish to put action behind sustainable concepts offering sustainable engineering to utilities, municipalities and industries within the water cycle.

From offices in Norway, Sweden and Denmark, +350 employees contribute to solving some of the water sector’s biggest challenges: green transition, climate change and securing clean drinking water for all, thus providing practical, sustainable solutions to our customers’ specific problems.

Stand C2-2000
ENVIDAN A/S
City: Silkeborg
Country: Denmark
Web address: www.EnviDan.dk

Environmental Science: Water Research & Technology publishes high quality sustainable water research drawing together fundamental science, innovative technologies and management practices. Led by Editor-in-Chief Paige Novak (University of Minnesota, USA), the journal provides a unique platform to promote outstanding water research and innovative technologies being developed across the global scientific community. Our international editorial board oversees high peer review standards and fast publication times to ensure impactful water studies are published swiftly.

The journal is part of the RSC’s environmental sciences journal family, offering exceptional environmental sciences research with Environmental Science: Advances, Environmental Science: Atmospheres, Environmental Science: Nano, and Environmental Science: Processes & Impacts.

Stand C2-410
ENVIRONMENTAL SCIENCE: WATER RESEARCH & TECHNOLOGY
City: London
Country: United Kingdom
Web address: rsc.li/es-water

Software. So, we’re ahead of the game, helping our partners to stay in control and keeping the world safe.

Stand E-110
ESRI
City: Redlands
Country: United States of America
Web address: www.esri.com/en-us/industries/water

Esri is the global market leader in GIS. Esri’s ArcGIS® empowers the water industry by providing solutions that improve collaboration, coordination, and decision-making, resulting in better service. ArcGIS enables utilities to collect and map data, monitor work progress, perform analysis, and share information from one technology platform. Mobile applications enable staff to view and create data in real time. Dashboards visualize and monitor work. Powerful analytics turn data into information and insight. Web GIS provides an easy and secure way to share information with key stakeholders. ArcGIS® transforms utility management by providing solutions to meet daily challenges and future goals.

Stand C2-393
ETATRON D.S.
City: Roma
Country: Italy
Web address: www.etatronds.it

Eratron D.S. is one of Italy’s oldest manufacturers of pumps and chemical metering controllers with more than 40 years of experience, present in more than 70 countries.

Our branches are located in the U.K., France, Egypt, Spain, the U.S., Russia, Brazil, Romania and Ukraine. We specialize in the manufacture of high quality dosing systems and controllers for a wide range of industries including water treatment, agriculture, food & beverage and swimming pool.

Key product quality and customer service are an important part of Etatron’s commitment. Etatron believes in its commitment to sustainability, taking care of the environment and its people.

Stand C2-200K
EUROFINS
City: Vejen
Country: Denmark
Web address: www.eurofins.dk/miljoe

Eurofins is the world leader in food, environment and agroscience CRO services. We offer a portfolio of 200,000 analytical methods for evaluating the safety, identity, composition, origin and purity of biological substances. The Group objective is to provide its customers with high-quality services and accurate results on time.

In TREFOR Vand, we do our best to ensure clean, safe tap water for the customers and Danish municipalities of Veje, Kolding, Fredericia, Middelfart and Vejen – called the Triangular Region of Denmark. Our 12 mio. m³ drinking water is based on groundwater and is not subject to any chemical purification or adjustments before it is distributed to our 52000 customers. We work intensively on protecting the sources of ground water.

We are one of three utility companies in TREFOR, which is a subsidiary of the EWII Group. Together with our colleagues in TREFOR, we make sure that our customer can take district heating, fresh drinking water and electricity for granted every day.

A major part of our wastewater is generated around urban areas and cities. Wastewater can pollute our nearby lakes and rivers and pose a threat to both human and animal health; therefore, we need to treat the wastewater in the local treatment plant.

Our BIO-BLOC® filter media helps increasing the surface area in your system to improve the efficiency and reducing the footprint. BIO-BLOC® is used for most wastewater treatment applications, in aquaculture and for stormwater management. We provide free consultancy to give you the best conditions for designing your system.

Federation of Japanese Water Industries, Inc. (SUIDANREN), established in 1966 as a private-sector organization, contributes to Japan’s water industry by supporting its members build and enhance the social infrastructure. The SUIDANREN assists in developing new products and improving technology, as well as addressing various challenges arisen in water-related business initiatives.
Finnish Water Forum is a joint network of Finnish water sector and a platform for multi-stakeholder cooperation. With more than 130 member organizations, Finnish Water Forum brings together world-leading water know-how and technology from private sector companies, scientific & research institutes, universities and educational institutions as well as from governmental and non-governmental organizations. Together with international partners, Finnish Water Forum builds partnerships to create sustainable solutions for global water, climate, and biodiversity challenges with Finnish Water Way – the comprehensive approach to sustainable water management based on close cross-sectoral collaboration.

**FIWA**

**Stand C2-238**
**FINNISH WATER UTILITIES ASSOCIATION (FIWA)**
City: Helsinki
Country: Finland
Web address: www.vvy.fi

Finnish Water Utilities Association (FIWA) is the co-operation and member association of the Finnish water and wastewater utilities. FIWA has about 300 member utilities which cover about 90% of water services in Finland. FIWA's main purpose is to facilitate an enabling operational environment for its member utilities and support their functions and capacity. FIWA acts as the office for Water Services Pool, set by the National Emergency Supply Agency. FIWA is a member of EurEau which is the European Federation of National Associations of Water Services. FIWA produces for its members guidelines and technical and administrative publications. FIWA maintains a utility benchmarking database (VENLA), through which its member utilities utilise relevant performance indicators to enhance their operations. Water Utilities Development Fund supports research and development projects relevant for the utilities. FIWA organises professional training and annual water services days.

**Fluidit**

**Stand C2-238**
**FLUIDIT LTD**
City: Järvenpää
Country: Finland
Web address: www.fluidit.com

Fluidit is a Finnish software specialist developing cutting-edge urban water system simulation and data analytics tools. Fluidit offers a well-integrated product portfolio for in-depth modeling of stormwater, wastewater, water supply, and district energy systems. Fluidit software builds on the rigor of the proven SWMM and EPANET methodologies, yet it provides an entirely new, modern software architecture customizable to varying user needs. Fluidit’s team of water and energy experts offers an unparalleled standard of personalized engineer support and rapid software development. Fluidit is trusted by consultants and utilities already in over 14 countries across continents.

**FM Mattsson**

**Stand C2-268**
**FM MATTSSON**
Country: Sweden
Web address: www.fmmatssongroup.com

FM Mattsson develops, manufactures and provides solutions for bathrooms, kitchens and gardens and offers services with high customer value. Our focus is high quality, attractive design and consideration for the environment.

**GTK**

**Stand C2-238**
**GEOLOGICAL SURVEY OF FINLAND**
City: Espoo
Country: Finland
Web address: www.gtk.fi/en/

The Geological Survey of Finland (GTK) produces impartial and objective research data and services in support of decision-making in industry, academia, and wider society to accelerate the transition to a sustainable, carbon-neutral world. GTK employs more than 400 experts specializing in the mineral economy, circular economy, solutions related to energy, water and the environment, as well as digital solutions. GTK is a research institution governed by the Finnish Ministry of Employment and the Economy, operating in Finland and globally.

**Geopartner Inspections**

**Stand E-200E**
**GEOPARTNER INSPECTIONS**
City: Odense
Country: Denmark
Web address: geopartner-inspections.com/

Geopartner Inspections specializes in the performance of complex inspection and monitoring tasks. We provide valid data and projections to serve as the necessary basis for work on climate proofing, project development and asset management. We are experts in knowledge of ground motions. The Earth’s surface is constantly rising and falling at the same time as global sea levels are rising. We are specialists in the measurement and calculation of how these changes can influence the service life and functionality of installations both above and below ground and are able to advise about the resulting consequences for your project.

**FM Mattsson**

**Stand C2-383**
**GEST SRL**
City: San Giovanni La Punta (CT)
Country: Italy
Web address: www.gestsrl.it

GEST is one of the main Italian companies operating in the MDM (Meter Data Management) and MDC (Meter Data Collection) sectors, specialising in the integration of innovative systems, the development of software platforms and mobile applications, and consulting in technological and digital projects. The company is qualified in the Water sector with over 22 years of experience in Metering and Smart Metering and it offers software solutions in Saas to Utilities and private individuals to facilitate the integration and management of Smart data, offering tools to improve their contents, thanks to its team of computer engineering, electrical engineering, design and visual communication graduates.

**Geopartner Inspections**

**Stand C2-380**
**GLOBAL SANITATION GRADUATE SCHOOL (GSGS)**
City: Delft
Country: The Netherlands
Web address: sanitationeducation.org

The Global Sanitation Graduate School (GSGS) is a platform to facilitate the development and empower the dissemination of knowledge on sanitation through postgraduate (MSc) programs, online (self-study and instructor-led) courses, face-to-face (on-campus)
courses and tailor-made training so that the sanitation challenges can be embraced with deeper insight, advanced knowledge, and greater confidence. This rapidly-growing global network of currently 50 universities in Sub-Saharan Africa, South Asia and Latin America aims to yield 10,000 champions in developing and implementing sanitation in the context of the UN SDGs by the year 2030. GSGS is continuously updating its courses and welcomes new members.

Stand C2-388
GLOBAL WATER INTELLIGENCE
City: Oxford
Country: United Kingdom
Web address: www.globalwaterintel.com

Global Water Intelligence (GWI) publishes newsletters, reports, and market intelligence platforms providing analysis and strategic data on the international water market. Its flagship publication, the monthly Global Water Intelligence Magazine, has established itself as the market-leading publication for developers, suppliers, financiers, governments, utilities and municipalities seeking information and analysis on water projects with an element of private sector participation. If you want to find out more about GWI products visit www.globalwaterintel.com/products-and-services. You can sign-up for free access to GWI articles, take a free trial of Water Desalination Report, or schedule your demo of our GWI WaterData or DesalData intelligence platforms.

Stand C2-317
GOVERNMENT OF CANADA, TRADE COMMISSIONER SERVICES
Gouvernement du Canada, Service des délégués commerciaux
Country: Canada
Web address: www.tradecommissioner.gc.ca

(EN) The Trade Commissioner Service helps Canadian businesses grow with confidence by connecting them with our funding and support programs, international opportunities, and our network of trade commissioners in over 160 cities worldwide.

(FR) Le Service des délégués commerciaux aide les entreprises canadiennes à se développer en toute confiance en leur donnant accès à nos programmes de financement et de soutien, à des débouchés internationaux et à notre réseau de délégués commerciaux dans plus de 160 villes du monde entier.

Stand C2-238
GREENSEQ LTD.
City: Nokia
Country: Finland
Web address: www.greenseq.com

Our special expertise is in microbiology including virology. We have more than 20 years of international experience in the study of microbes by molecular methods. We are providing quality research tools, reference materials, analysis services of molecular biology techniques and expert services, all to support your accuracy. Our reference materials and laboratory services enable us to provide tailored solutions to meet your analytical needs in environmental microbiological analyses. We are committed to sustainable goals and efforts to develop technologies that promote the conditions needed for healthy living environments - we take into account natural resources and biodiversity.

Stand C2-229
HACH
City: Loveland, Colorado
Country: USA
Web address: www.hach.com

Our Mission: Ensuring water quality for people around the world.
Our Vision: We make water analysis better - faster, simpler, greener and more informative - via unsurpassed customer partnerships, the most knowledgeable experts, and reliable, easy-to-use solutions
Founded in 1933, we’ve led the water industry in developing innovative solutions to help communities and industries manage water more efficiently and accurately. Hach solutions to ensure water quality can be found across the globe and serve industries ranging from municipal drinking and wastewater to food, beverage and power, and every other category that touches water.

Stand E-101
HAL24K
City: London
Country: United Kingdom
Web address: www.hal24k-water.com

We are HAL24K Water. A global team of dedicated Data Scientists, Data Engineers, Software Engineers and water specialists who exist to bring the power of Artificial Intelligence, Machine Learning and deep data analysis to all parts of the water sector.
Our Mission is to unlock the inherent power in data to improve and enhance the management of scarce and critical natural resources. HAL24K Water offers a truly unique ability to create AI software solutions built specifically to meet the needs of your problem. Our solutions can be made in weeks and months, not years thanks to our leading AI development platform and deep knowledge of AI and data science.

Stand C2-214
GSD ENVIRO TECH CO., LTD.
City: Kaohsiung
Country: Chinese Taipei
Web address: www.gsd.net.tw

GSD provides sewage treatment equipment manufacturing and functional supporting products, as well as create integration and development of smart water systems. In 2021, the R&D of the WaterOps platform will be completed. Through the combination of the MOps real-time computing center and the AI module, the digital twin technology will be introduced to promote the efficiency of reclaimed water recycling, energy saving and carbon reduction, and effectively improve the operational efficiency of the plant area.
The Hias Process removes organic matter, ultralow footprint of MBBR-biofilm systems. Systems with the high performance and microbiology found in activated sludge and denitrification P-removal (SN-D-P). Further intensification is achieved by the fact that biofilm sludge is easily separated with mechanical filtration, thus eliminating the need for huge sedimentation volumes. Hias How2O offers consulting services, process designs, project management and operational support.

**Hofor**

**Stand C2-200K**

**HOFOR**

City: Copenhagen
Country: Denmark
Web address: www.hofor.dk

HOFOR is owned by eight municipalities in the Copenhagen metropolitan area. We supply drinking water, and transport wastewater to Biofos’ wastewater treatment plants. Hofor serves close to 1 million citizens. The connection rate to the centralized water supply and wastewater systems are 100%. We are also providing district heating, town gas, district cooling, and wind and solar power. Hofor therefore is a key player in both Climate Change Adaptation and Mitigation, and in fulfilling Copenhagen Municipality’s ambition to be CO2-neutral by 2025. We maintain a leakage rate below 7% and the power consumption is 0.29 kWh/m3 water sold and 0.05 kWh/m3 wastewater handled.

**HydroDrip**

**Stand E-101**

**HYDRODRIP**

Country: South Africa

HydroDrip has come up with a consumer-oriented water management system for Water utilities, Hotels, University residences and other shared-places. The system is a card-based water system that provides watercard to consumers in order for them to get access to water. The system is an electronic device, which is in fact a water metering system. The intention in designing this is, to help people track their water consumption and thereby help them to save later. The system is suitable for Water utilities, companies, Schools and Universities as it’s designed for mass population water data monitoring.

**HydraLoop**

**Stand C2-333**

**HYDRALOOP SYSTEMS**

City: Leeuwarden
Country: The Netherlands
Web address: www.hydraloop.com

Use Water Twice. A mission so simple, we believe it will be powerfully disruptive. Hydraloop is the only IoT-connected, consumer-friendly and multi-award winning water recycling system that reduces water consumption by up to 45 percent. Hydraloop offers a variety of smart & innovative water recycling solutions. For residences, commercial real estate, hotels, lodges and more. Hydraloop products can be used in dense cities and rural areas/off-grid situations. Hydraloop future proofs any building and saves water and energy, reduces wastewater and carbon footprint. Our disruptive solutions increase property value as it complies with increasing sustainability regulations and contributes to the Global Goals and the European Green Deal.

**HydroKonekt**

**Stand C2-200K**

**HYDROKONEKT**

Country: Belgium

HydroKonekt by Hydroko helps drinking water companies and end-users to optimally measure, control, manage and predict their water consumption levels. It is a modular drinking water metering and management ecosystem that consists of two components: a hardware device and a data platform that delivers ready-to-use actionable insights. A must-see.

**Holosys**

**Stand C2-392**

**HOLOSYS**

City: Zagreb
Country: Croatia
Web address: www.holosys.eu

Holosys is a company providing advanced electronic IoT devices and ICT solutions. Their focus is on developing and manufacturing AMR electronic devices and solutions using the latest technologies in the industry (NB-IoT, LTE-M, wireless M-Bus). Their product line includes a variety of devices ranging from pulse readers through repeaters, receivers, sensors, gateways, and antennas, as well as supporting software and platforms for remote reading of water, gas, electricity, and heat usage. Their solutions are currently in use in more than 50 countries. As of this year, Holosys is a part of Iskraemeco Group.

**Idrica**

**Stand C2-315**

**IDRICA**

City: Valencia
Country: Spain
Web address: www.idrica.com

Idrica: Smart Water for a Better World
Idrica is the leading international company specializing in water cycle management. Our unique value proposition is based on the efficiency and quality of our services and the GeoAgua smart solution for the digital transformation of the sector. Building on the success of digital transformation at Global Omnium, one of the most innovative water utilities in Europe, we are driving efficient change in organizations.
With over 40 years of technical expertise in extrusion Idrotherm 2000 is a renowned leader in the production of thermoplastic pipes for innovative solutions in many applications. The company’s products are used for water supply, fuel gas distribution, industrial fluids, telecommunications, irrigation, geothermal, district heating and sewerage systems.

Idrotherm 2000’s products range is designed for the supply, distribution or disposal of both liquid and gas fluids. The plastic piping systems produced at Idrotherm 2000’s factories are made of polyethylene, polypropylene or special polymers. Our facilities can produce piping in diameters ranging from 8 to 1200 mm with mono or multi-layer structures.

InfoTiles Digital Water Solutions offers water insights—catered to the right end user through a team of hydrologists, data scientists, data analysts, visualization specialists and management consultants.

INNOVA Srl is a business consulting company founded in 1993, supporting innovative enterprises in leveraging funds, develop their market strategy, finding partners, and valorising R&D results. INNOVA provides seed capital, incubation and internationalization services to start-ups and innovative SMEs. Since 2015, INNOVA is a Certified Incubator (Incubatore Certificato).

Through its European Projects Unit INNOVA participates to international research projects covering activities of project management, communication, dissemination and exploitation, business modelling, IPR exploitation and technical development. At IWA WWCE2022 INNOVA represents the European Project PANIWATER (www.paniwater.eu), developing novel solutions for wastewater and drinking water treatment.
At IWA we are showcasing RemUVe that removes pesticides and chlorinated solvents by breaking them down into non-harmful substances. This is done through an Advanced Oxidation Process (AOP), based on strong UV light combined with an extremely accurate dosage of hydrogen peroxide. The UV light causes the substances to oxidize, and the hydrogen peroxide accelerates this process, so they break down into smaller, non-harmful molecules.

### InventicDsX

**Stand E-123**
**INVENTICSDX GMBH**  
City: Berlin  
Country: Germany  
Web address: inventicsDx.com

InventicDsX provides a microfluidic test and a cloud platform for digital analyses, which can be used to test drinking water for Legionella independently of the laboratory environment.

### Intoto

**Stand C2-218**
**INTOTO**  
City: Stavanger  
Country: Norway  
Web address: intoto.io

Intoto is a Norwegian tech company and digital platform making river data meaningful for all citizens. Its Intoto Studio and cloud user application sets a new standard for usability of water data, serving — in best and smartest way possible. Intoto unites data needs, simplifies scenarios within water data, from collecting to serving — in best and smartest way possible. Take your digitalization to the next level of actual value creation with Intolecy no-code AI.

### Intelecy

**Stand C2-218**
**INTELEY**  
City: Oslo  
Country: Norway  
Web address: www.intelecy.com

Intelecy is a no-code AI platform built for industrial data and made for industrial citizens. By transforming cutting-edge AI technology into user-friendly operational no-code AI tools, now engineers and operators can create and use sophisticated AI algorithms without prior knowledge of coding or data science. By using Intelecy, today a wide range of industry companies improve resource utilization, prevent unplanned downtime, increase capacity and minimize their environmental impact. Take your digitalization to the next level of actual value creation with Intelecy no-code AI.

### Iota

**Stand E-101**
**IoTA**  
City: Frankston, VIC  
Country: Australia  
Web address: iotaservices.com.au

Iota, a wholly owned subsidiary of South East Water, commercialises innovations developed and proven at South East Water. Iota is an industry partner in water and wastewater solutions, with a focus on Australia and New Zealand. Iota’s business model is to commercialise new technologies and solutions through a network of early adopters. Simultaneously, attracting partners to achieve scale and to enter new markets and geographies. Iota’s portfolio of solutions support utilities to provide a better customer experience, achieve sustainability, move towards predictive asset management, and further enable effective and efficient operations.

### Itineris

**Stand C2-300**
**ITINERIS**  
City: Ghent  
Country: Belgium  
Web address: www.itineris.net

Itineris is committed to helping you adapt to the fast-changing needs in the water utility industry. We offer a future-ready, agile, and flexible CIS that blends your operational efficiencies with industry best practices. Itineris’ UMAX is a leading utility-centric billing and CIS solution, developed on the Microsoft Dynamics 365 platform and delivered as a service in the Azure Cloud. It provides workflow automation and solving intelligence to ensure advanced customer engagement and streamlined business processes.

We enable and empower utilities through technology, innovation and a deep understanding of the utility sector. We are here to help.
Canada will host IWA’s World Water Congress & Exhibition in 2024 in the exciting, international city of Toronto. With its ever-evolving multi-cultural roots, Toronto is the economic, innovative and cultural heart of Canada...and August is the best time to visit! The Canadian National Committee and the Destination Toronto team invite you to come to the Canada Pavilion to learn about all that awaits you in Toronto and across Canada. The list of amazing things to do includes: art, museums, professional sports, food, wineries and breweries or natural wonders like our lakes and beaches or Niagara Falls.

**International Water Association (IWA)**

Stand C2-317
IWA WORLD WATER CONGRESS & EXHIBITION 2024 – TORONTO
City: Toronto
Country: Canada

**Japan Water Works Association (JWWA)**

Stand E-125
JAPAN WATER WORKS ASSOCIATION
City: Tokyo
Country: Japan
Web address: www.jwwa.or.jp/english/index.html

Japan Water Works Association (JWWA), a Public Interest Incorporated Association, was established on May 12th, 1932 with the aim of diffusion of water supply systems and developing water supply technologies in Japan. JWWA’s main activities includes research and study of water supply management, technologies and water quality. JWWA also provides various service such as inspection and certification of water related products and support water utilities, etc. Those activities to improve the level of water supply systems are quite essential for people’s daily life as well as social and economic activities in Japan.

**Kemira**

Stand C2-238
KEYAQUA OY
City: Helsinki
Country: Finland
Web address: www.keypro.fi

Kemira is a global leader in sustainable chemical solutions for water intensive industries. With over 100 years of history and chemistry expertise, our products help our customers to improve their product quality, process and resource efficiency. Our focus is on pulp & paper, water treatment and energy industry. Sustainability is an integral part of our strategy and how we create value for our customers. We also expect our partners to commit to sustainable operations. We want to use our chemistry expertise to find solutions and contribute to a sustainable and prosperous society.

**Kappala**

Stand C2-266
KÄPPALA ASSOCIATION
City: Lidingö
Country: Sweden
Web address: www.kappala.se

The Kappala Association treats wastewater from over half a million people in eleven municipalities located north and east of Stockholm. Our treatment plant, the Kappala wastewater treatment plant, is Sweden’s third largest, and employs a very effective treatment process. The plant is also a resource recovery facility and produces clean water, sludge to farmland and gas to buses. The Kappala Association is investing for the future to increase the treatment capacity but with reduced emissions to our archipelago to continue to improve the water quality in the Baltic Sea. www.kappala.se
Kubota is part of a growing number of companies acting in the water sector. The cluster includes a growing number of companies connecting innovative start-ups, SMEs, technology providers, consultants, water utilities and the Technical University of Denmark. For decades, each of the LEAKman partners has delivered solutions and ideas within their specific field of expertise. The unique thing about LEAKman is that we work as one. We offer water suppliers one integrated leakage management solution to reduce water losses and bring down Non-Revenue Water levels.

KWC provides access to specialised laboratories, experts, and assisting personnel from all partnering organisations. KWC provides water sector expertise, but also connects with other sectors to boost cross-sectoral cooperation, internationalisation and increased resilience of the business in the EU.

Kubota

**Stand E-125**
KUBOTA CORPORATION
City: Osaka
Country: Japan
Web address: www.kubota.com

In 1893, Kubota developed the nation’s first cast iron pipes to help citizens obtain hygienic water to avoid an epidemic. Since then, over 130 years, Kubota has provided a wide range of water-related products and technical solutions for water infrastructure construction and upgrades. Kubota makes efforts to help improving systems that supply, recycle, and treat water, and also contributing to protect the earth’s limited water resources, and to supply and regenerate it for more users, being; An “Essentials Innovator for Supporting Life,” as Kubota’s ideal role, committed to a prosperous society and cycle of nature.

Kuopio Water Cluster (KWC) offers services for members boosting innovation, promoting internationalisation and accelerating SMEs growth. In addition to the founding members, the cluster includes a growing number of company members connecting innovative start-ups, SMEs, technology providers and associations acting in the water sector. The cluster offers a one-stop solution for rapid product development, testing and commercialisation services for companies operating in the water technology sector.

KWR WATER RESEARCH INSTITUTE
City: Nieuwegein
Country: The Netherlands
Web address: www.kwrrwater.nl

“Bridging science to practice” is the motto of KWR Water research Institute. Our researchers work at the interface of science, business and society. Their strength lies in the ability to translate scientific knowledge into practical and implementable solutions for end-users in the Dutch, European and global water sectors. KWR has developed a solid reputation as a top-level innovation accelerator and international network builder. Our shareholders are the ten Dutch water companies and the Belgian De Watergroep.

Landia's drive and enthusiasm to provide its customers with sustainable, long-lasting solutions is stronger than ever. Landia began its pump production 90 years ago, but in an age where energy consumption and total cost of ownership has never been more crucial, Landia’s drive and enthusiasm to provide its customers with sustainable, long-lasting solutions is stronger than ever. Landia is part of pilot-scale project where excess electricity from wind and solar power, and CO2 from biogas, is aiming to produce biomethane. The pilot-scale is an important step in the Power-to-X technology that may give exports of Danish technology a green future.

You will find Landia equipment in wastewater treatment plants around the globe.

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LEAKman

**Stand E-200F**
LEAKMAN
City: Allerød
Country: Denmark
Web address: www.leakman.net

LEAKman is a commercial partnership initiated to demonstrate solutions for limiting drinking water loss and pave the way for new technology. The partnership consists of nine Danish partners representing technology providers, consultants, water utilities and the Technical University of Denmark. For decades, each of the LEAKman partners has delivered solutions and ideas within their specific field of expertise. The unique thing about LEAKman is that we work as one. We offer water suppliers one integrated leakage management solution to reduce water losses and bring down Non-Revenue Water levels.

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City: Nieuwegein
Country: The Netherlands
Web address: www.kwrrwater.nl

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You will find Landia equipment in wastewater treatment plants around the globe.
"Opening the Doors to performance improvement through Sharing Best Practices"

The NWSC External Services focuses on sharing knowledge and expertise with sister institutions as well as creation of synergies within utility providers that result in improved service delivery and sustainable utility operations in the long term.

Services provided include:
- Advisory services in utility Management,
- Performance planning and Management
- Technical Assistance in-
  - Water Quality Testing/Monitoring
  - GIS Surveying and Mapping
  - ICT Service
  - Billing and Customer Care Management
  - Water Utility Capacity development including tailor-made training programs, Benchmarking, staff Attachments, and on-the-job training
  - Conferencing and Training facilities including Vocational Training, International Resource Centre and the Western Resource center in Western Uganda.

“Our Vision”
is to be the provider of world-class high-impact innovative business solutions.

“Our mission” is to provide professional, innovative, and customer-focused performance enhancement solutions in an efficient and cost-effective manner.

PRotOK Ltd. is a company that has specialized in the design and implementation of IT systems for utility companies (mainly for water supply and sewage systems, but also for gas, waste disposal, cemeteries, and public green spaces...) based on GIS technology. Our interdisciplinary staff (civil, surveying and IT engineers), along with more than twenty-year experience, guarantee that our software solution meets all the needs of the technical personnel in utility companies. Among more than 30 modules that have been tailored specifically for utility companies there are:

- Module for Water Loss Management by IWA methodology
- Module for connecting GIS and the SCADA system and GIS and the Business IT system
- Module for optical inspection of sewers (CCTV)
- Investment monitoring module
- Testing of hydrants
- Module for data export to software for hydraulic modelling

In addition to software development, PRotOK Ltd. also provides data input, education of users, maintenance and technical support. As an IT company, PRotOK Ltd. often supports design engineering companies to help with the realization of their projects.

Our most significant references are utility companies from Zagreb, Dubrovnik, Zadar, and Pula in Croatia and Maribor, Novo mesto, and Celje in Slovenia. In 2018 we entered the Bulgarian market with the first implementation of our GIS solution for the water supply and sewerage company in the town of Vidin. Afterwards, we continued with the implementation of our GIS solution in the town of Pleven.

Protok Ltd., Ilocka 27, 10000 Zagreb, Croatia, phone: +385 1 3041-772
Making rainwater a visible urban element. By integrating climate adaptation with urban development, we are making a liveable city, that is not only greener, healthier and more fun, but also climate resilient.

Mistra
InfraMaint

Stand C2-256
MISTRAS INFRAMAINTE
Country: Sweden
Web address: mistrafronamaint.se

Mistra InfraMaint is a research programme focusing on smart maintenance. Our vision is a sustainable infrastructure that is safe and available around the clock.

NANOCAR+

Stand E-101
NANOCAR+
City: Olivet
Country: France
Web address: www.nanocarplus.com

Nanocar+© combines the adsorptive qualities of activated carbon with the addition of bacteriostatic properties without the health risks associated with ion leeching back into the treated water. Nanocar+© is a filtration media based on nanotechnology. It is made of grains of highly porous carbon base material plated with high purity elements. One gram of Nanocar+© has an internal adsorptive surface area equivalent to a soccer field!

META WATER

Stand E-125
META WATER CO., LTD.
City: Tokyo
Country: Japan
Web address: www.metawater.co.jp/eng/

META WATER CO., Ltd. is a total water solution and service provider. We have been engaged in the installation and service works of mechanical and electrical equipment in drinking water, wastewater, and environment protection business market in and outside Japan. Our aim is to provide any clients with the best solution in order to create an achievable water & resource circulation. The wide range of service of META WATER such as EPC works, O&M services, privatization business, and integrated management services, is contributing to realize more sustainable social infrastructures. We will further accelerate privatization business in Japan and international business.

MIDDELFART KOMMUNE

Stand E-200A
MIDDELFART KOMMUNE
City: Middelfart
Country: Denmark
Web address: mddelfart.dk

“The Climate City” project, Denmark's large-scale climate adaptation project in the town of Middelfart uses urban development by climate adaptation. We have disconnected rainwater from roads in an area of 45 ha. Instead we direct the rainwater to raingardens for infiltration and on the surface to the sea. The climate adaptation solutions manage the expected heavy rains of the future and are related to the various different areas,
believe water to be one of the world’s biggest challenges and the anchor of any sustainable society. Consequently, we take pride in delivering integrated and cross-cutting water management solutions.

**NIRAS A/S**
City: Aalborg
Country: Denmark
Web address: www.niras.dk

NIRAS is an international, multidisciplinary consultancy company with more than 2,400 employees located in 53 offices across Europe, Africa, Asia, North and South America. We work within multiple areas from processing plants and construction over energy, water, environment, and infrastructure to third world aid and urban planning. Our trademark is the cross-cutting approach – we always strive to achieve the optimal solutions across disciplines with a focus on sustainability and digitalization. We have profound knowledge of the entire water cycle and we believe water to be one of the world’s biggest

**NISSEN ENERGY A/S**
City: Skanderborg
Country: Denmark
Web address: www.nissenenenergy.com

Visit us & let’s talk about your path to a climate- and energy-neutral wastewater treatment plant.
NISSEN energy is one of the leading suppliers to the Danish energy market. We design, produce, and maintain new and well-known technologies within electricity, heat, and bio methane production. We help you reach your climate goals and becoming an energy-producing wastewater treatment plant - perhaps even climate and energy neutral.
Visit us and get an insight into what we have achieved within wastewater treatment plants in Denmark and worldwide – let us take a closer look at what we can do for your future operations.

**NIVUS GMBH**
City: Eppingen
Country: Germany
Web address: www.nivus.com

NIVUS GmbH is a leading international supplier of innovative measurement systems and software solutions for process engineering. With more than 50 years of experience in the water industry sector, we develop and produce metering systems for level measurement and flow measurement as well as application-oriented measurement systems. Providing a consistent automation software and cloud platform up to a process control system we offer bespoke IoT solutions and help our customers to analyse and to optimise processes and plants.

**NOKIA**
City: Espoo
Country: Finland
Web address: www.nokia.com/networks/industries/water-utilities/

At Nokia, we create technology that helps the world act together. Within the utility sector, Nokia has been working with 200+ power utilities throughout the world for decades to help them build communication networks to monitor, control and protect their assets. This recently led to work with water utilities to provide standards-based low power wide area communications (LTE NB-IoT) and flexible, open IoT management platforms to empower digitalization and transformation to flexible and resilient smart water systems. For water treatment plants, Nokia provides industrial-grade private broadband wireless networks that enhance automation, and worker productivity and safety.

**NORSK VANN**
City: Hamar
Country: Norway
Web address: www.norskvann.no

Norwegian Water (Norsk Vann) is the national association representing Norway’s water industry. It acts on behalf of the members, which are mainly municipalities and companies owned by the municipalities.

The Nickel Institute is the global association of leading primary nickel producers. Our mission is to promote and support the proper use of nickel in appropriate applications.
The Nickel Institute (NI) grows and supports markets – such as water industry infrastructure - for new and existing nickel applications including stainless steel, and promotes sound science, risk management, and socio-economic benefit as the basis for public policy and regulation.

The National Faecal Sludge and Septage Management Alliance is a national working group focused on creating policy recommendations and collaborative action towards safe and inclusive human waste management at national, state and city level. We work with our network of partners in India, along with fostering collaboration with global south Alliances from Nepal and Bangladesh, to build consensus and encourage discourse on faecal sludge management and city-wide inclusive sanitation.

The Nordic Pavilion at IWA WWCE 2022 presents outstanding Nordic smart and sustainable solutions for the global water sector. The pavilion is a meeting point and a knowledge hub to foster dialogue and to share best practices of Nordic water solutions spanning from leading edge digital solutions, climate change adaptation that improves liveability of cities, energy and resource recovery from wastewater treatment which contributes to the circular economy, energy and resource efficiency in water management, and innovative collaborations. Together with Young Water Professionals from the Nordics, Svenskt Vatten, Norsk Vann, Finnish Water Forum and Samorka, the Nordic Pavilion presents Solutions for Sustainable Water Future.

At Wavin, we focus on creating positive change in the world. We are passionate about building livable and loveable environments and promote sustainable solutions for the building and infrastructure industries. We engage and collaborate with city leaders, engineers, planners, contractors, and installers to help make cities climate-resilient and buildings comfortable and safe. We provide solutions for Storm Water Management, Sewer Systems, Drinking Water Transport, Hot & Cold systems, Soil & Waste pipes and Indoor Climate solutions such as underfloor or district heating. Wavin is part of Orbia, a community of companies bound together by a shared purpose: to advance life around the world.
Norwegian Water in total represents approx. 320 municipalities, with 96% of the population. Norwegian Water also has affiliated members like consultants, producers, suppliers and educational and research institutions. Norwegian Water serves as a lobby organization and a competence building organization for the members, working within the vision of “clean water – our future”.

**Stand C2-218**
**NORSK WAVIN A/S**
City: Oslo
Country: Norway
Web address: www.wavin.no

Norsk Wavin is part of the global Wavin group, which is a leading supplier of plastic pipe systems in the water and plumbing sectors. We provide efficient solutions for basic needs in daily life: safe distribution of drinking water, sustainable management of rainwater and wastewater, energy-efficient heating and cooling of buildings. With a strong local presence and commitment to innovation, digital solutions and technical expertise, customers are supported throughout the entire project lifetime.

**Stand C2-380**
**NORTHUMBRIAN WATER LIMITED**
City: Durham
Country: England
Web address: www.nwl.co.uk

Northumbrian Water provides water and sewerage services to 2.7 million people in the North East of England. Every day water is drawn from our reservoirs, where it is collected and stored, rivers and groundwater sources. It is treated at our works before it is delivered by a network of pipes to homes and businesses. For our sewerage services, wastewater is collected from these properties via the sewerage network and treated at our works before it is returned to the environment as either clean water or sludge which can be recycled as fertiliser or used to generate energy.

**Stand C2-253**
**NOURYON**
City: Amsterdam
Country: Netherlands
Web address: Nouryon.com

Nouryon is a global, specialty chemicals leader with approximately 7,650 employees worldwide. We forge and foster long-term customer partnerships and operate in more than 80 countries around the world. We help to provide essential solutions that our customers use to manufacture everyday products such as personal care, cleaning, paints and coatings, agriculture and food, pharmaceuticals, and building products. We also manufacture and supply essential ingredients and sustainable solutions for various challenges related to water treatment for municipalities and industries.

**Stand E-101**
**NZTE-TECHION**
City: Mosgiel
Country: New Zealand
Web address: www.techion.com

Techion’s world-leading particle flotation and imaging technology is revolutionising disease management. Intelligent digital microscope providing point of care in real time for animals, humans and the environment. Techion is a full stack information company, integrating several modes of technology (hardware, software and data) to deliver solutions for complex disease problems. Techion’s patented platform incorporates innovations in sample preparation, imaging, cloud computing, analysis via artificial intelligence and machine learning decision support. The platform generates microscopic related data from any location, analysing it in real time and instantly connecting information to relevant decision makers and stakeholders.

**Stand C2-375**
**PANIWATER**
City: Various
Country: International European Project
Web address: www.paniwater.eu

PANIWATER is developing six technologies for water treatment suitable for the removal of Contaminants of Emerging Concern (e.g. antibiotics, pharmaceuticals, genetic material carrying resistances). The overall goal is to increase the availability of safe drinking water to the minimum level recommended by the WHO (at least 7.5 L/person/day) in the target communities in India, and to obtain total wastewater treatment capacity of at least 10000L/day, producing irrigation-grade water. The technologies are being tested in peri-urban and rural areas of India with local communities participating in co-design and capacity building.

**Stand C2-333**
**PB INTERNATIONAL**
City: Zelhem
Country: The Netherlands
Web address: www.pb-international.com

PB International is a Dutch manufacturer of ultrafiltration modules and systems. As we have an R&D department we can customize or retrofit hollow fiber modules. As a one-stop shop we engineer, design, program and manufacture our products in-house. Also, the potting process is done at of production plant. The 0.02-micron membranes in our standard products have an MWCO of 100-150 kDa and are capable of water disinfection and removal of turbidity, sediment, and colloidal particles. Even though we are active in 25+ countries we are actively looking for new dealers and partners for whom we may design OEM products or retrofit outdated hollow fiber modules.

**Stand C2-393**
**PALADERI SRL**
City: Napoli
Country: Italy
Web address: www.paladeri.it

PALADERI is an Italian-Israeli multinational, founded in 2008 and engaged through a continuous process of research and development in the production of PALADEX technology. It is developed in Japan in the 1990s and it allows to manufacture big size pipes featuring an extremely high mechanical strength and low weight. As a result, transport and laying are much easier. The innovative design of PALADEX pipes combines the typical properties of polyethylene - resistance to abrasion, light weight, minimum frictional resistance, resistance to chemical agents, versatility and ease of installation - with the properties of steel, having an elastic modulus 200 times higher than the polyethylene.
in turnkey projects – for example by entering into framework and partnering agreements. In this way, we are using the synergy potentials between the different qualifications.

**Polieco Group**

Stand C2-393
POLIECO M.P.B. SRL
City: Cazzago San Martino (BS)
Country: Italy
Web address: www.polieco.com

Industrie Polieco - M.P.B. srl, Polieco Group’s headquarters, manufactures and designs since 1992 high density polyethylene co-extruded corrugated pipe systems for electric/phone networks and for no pressure sewer systems, and polyethylene manholes made by injection and rotational moulding technique.

In 2012 began producing KIO, a manhole cover in composite material, which immediately gained an amazing interest and success in the world market. Today Polieco Group is based in 4 countries (Italy, France, Greece and Slovakia) with 6 production plants and almost 400 employees. It is one of the leaders for corrugated piping systems in high polyethylene density production in Europe.

**Pumpemodul AS**

Stand C2-238
PUMPENMODUL AS
City: Farsund
Country: Norway
Web address: www.pumpemodul.no

Pumpemodul AS develops and sells innovative and sustainable solutions for wastewater transport. The company is located Farsund in Norway.

Main product is a compact, robust and elegant municipal wastewater lift station. The station lies underground when not in use. It can be raised above ground level for maintenance.

Benefits:
- Better health and safety for operators
- Low maintenance costs
- Nearly invisible, no odour, no noise.

The innovative, practice-based design was made by an operator looking for a way to make his work safer and easier. The design has been thoroughly tested and several stations have been installed in Norway since 2021.

**Resistomap**

Stand C2-288
RAMBOLL
City: Copenhagen
Country: Denmark
Web address: www.ramboll.com

Ramboll is a global architecture, engineering and consultancy company founded in Denmark in 1945. Our 16,500 experts create sustainable solutions across Buildings, Transport, Energy, Environment & Health, Water, Management Consulting and Architecture & Landscape. Across the world, Ramboll combines local experience with a global knowledge base to create sustainable cities and societies. We combine insights with the power to drive positive change for our clients, in the form of ideas that can be realised and implemented.

We call it: Bright ideas. Sustainable change.

**RISE**

Research Institutes of Sweden

Stand C2-256
RISE – RESEARCH INSTITUTE OF SWEDEN
Country: Sweden
Web address: www.ri.se

RISE, Research Institutes of Sweden, is an independent, state-owned research institute. As an innovation partner for every part of society, we help develop technologies, products, services and processes that contribute to a sustainable world and a competitive business community. We do this in collaboration with and on behalf of companies, academia and the public sector. We also have a special focus on supporting small and medium-sized enterprises in their innovation processes. Within the area of urban water management, RISE offer needs-driven research, development, testing, calibration, certification, lifelong learning and change leadership.

**Resistomap**

Stand C2-230
RESISTOMAP
City: Helsinki
Country: Finland
Web address: www.resistomap.com

Resistomap provides laboratory and analysis services to monitor emerging micropollutants of antibiotic resistance from environmental samples. Resistomap combines molecular genetics and data science with high-throughput real-time PCR (qPCR) technology for fast and comprehensive monitoring of antibiotic resistance and pathogens in any environment including rivers and lakes, sediment, seawater, wastewater, and sludge samples. As of 2019, Resistomap has served over 170 projects and analyzed over 5000 environmental samples across 38 countries. From our headquarters in Helsinki, Resistomap’s mission is to map environmental resistomes across the globe for understanding the development and spread of antibiotic resistance and pathogens in the environment.
Among the purposes and tasks are forwarding services and electric-works in the country and Waterworks merged. All district heating services and electric-works in the country are members of this federation, in addition to most waterworks and sewage utilities. Samorka operates in the four fields mentioned above. Among the purposes and tasks are forwarding the mutual interests of its members, guarding their interests in mutual projects, fostering research and gathering information for its members as well as for public authorities, hosting seminars and conferences and acting on behalf of the members in mutual projects.

**IWA World Water Congress & Exhibition 2022 | Denmark**

Quantitative and rapid microbiological data are the missing element for effective water management and monitoring. Therefore, we established a new method, based on single-cell counts, to quantify total bacteria or pathogens (Legionella and E. Coli) within 0.5-3 hours on-site. With the rqmicro.COUNT, users from various industries can monitor their water quality, optimize water treatment, avoid potential production interruptions and ensure water safety. Visit us at booth C2-400 and bring a water sample, we will determine the concentration of total viable bacteria in your water.

**S::CAN GMBH**

S::CAN GmbH was founded in 1999 and was acquired by Badger Meter in 2020. S::CAN is the only company in the world that has given its heart and soul to online water quality measurement. Our products measure a wide range of parameters in different applications in the areas of drinking water, waste water, environmental monitoring and industrial applications. All products are developed with the same philosophy in mind: S::CAN measuring instruments are precise, intelligent, robust, and require little or no maintenance. With sales offices in 6 countries and sales partners around the world, S::CAN measuring systems are available in 50 countries.

**SCALGO Live empowers users to include surface water management in planning and design and mitigate flooding, create recreational solutions, increase biodiversity, and provide sustainable infrastructure. By harnessing the power of global geographical digitization and using the latest advances in big data processing technology we, at SCALGO, help local authorities, engineers, and architects:**

- Explore terrain data and surface water: Quickly move from analysing problems to finding feasible solutions
- Experiment with landscape-based surface water measures: Easily test various ideas - it’s like working in a digital sandbox.
- Create blue-green environments: Let’s reduce flooding, increase biodiversity and create liveable cities!

**Scottish Water**

We deliver vital water and waste water services which are essential to the daily lives of over 2.6 million households and more than 150,000 business premises to support a flourishing Scotland. As one of the UK’s top performing water companies, our focus is on delivering an excellent service to our customers and communities, providing great value for money, and reducing our effect on the environment, going beyond net zero emissions. We continue to invest to deliver further improvements to drinking water quality, protect the environment and contribute to the Scottish economy.

**SENSÓTERRA**

Sensoterra, headquartered in Houten, The Netherlands, develops low-cost, simple and robust wireless soil moisture sensors to enable water management solutions for agriculture/horticulture, Smart City and land & drought management. Sensoterra has over 12,000 sensors in the ground globally, and generates hundreds of thousands of data points for smart water management, daily. Learn more at www.sensoterra.com

**SkyTEM**

SkyTEM is an innovative and technologically advanced helicopter-borne geophysical system specifically designed to map buried aquifers. This unique technology, capable of mapping the top 500 metres of the Earth in fine detail and in three dimensions, was conceived and developed in Denmark, a country with a reputation for environmental care and R&D. SkyTEM has helped geological organizations and government water agencies on seven
continents unearth a wealth of information about their aquifers and aided in their understanding of how geology and mankind can affect, and be affected by, groundwater resources. Since its launch in 2003 SkyTEM has also been employed globally for resource exploration and for environmental and engineering investigations.

**Smartvatten**

**Stand C2-238**

**SMARTVATEN FOR WATER UTILITIES**

City: Helsinki
Country: Finland
Web address: smartvatten.com/waterutilities/

Smartvatten’s cloud service, combines, visualizes, and analyzes wastewater pumping station data, reducing the need for manual work. With machine learning, the solution detects pipe blockages and leaks immediately, without any human input or added hardware. Real-time alarms and trend analysis help you optimize the operations of your water network.

**STF**

**Stand C2-370**

**SOCIÉTÉ DE DISTRIBUTION D’EAU DE CÔTE D’IVOIRE**

City: Treichville
Country: Côte d’Ivoire
Web address: www.sodeci.ci

The Société de Distribution d’Eau de Côte d’Ivoire (SODECI) is a public limited company with a capital of 4.5 billion CFA francs, 50.88% owned by the Eranoove Group and 49.12% by various national shareholders (3.25% of which is held by the Ivorian State). It has been linked to the State for 60 years by two leasing contracts: one for drinking water and the other for sanitation. Through these contracts, SODECI operates, maintains, and renews the works belonging to the State’s heritage. Its vision is to be the reference of excellence in the provision of modern water and sanitation services, to guarantee the well-being of the Ivorian population.

**Spiledenvand Teknik Forening**

**Stand C2-200H**

**SPILEDENVANDTEKNIKS FORNEDRING**

City: Gram
Country: Denmark
Web address: www.stf.dk

Together for a sustainable future

The Danish Society for Wastewater Technology (STF) brings the industry together to share knowledge, further train employees and develop new solutions for a more sustainable, greener tomorrow. We create offline and online platforms, where the Danish waste water industry can meet and discuss, we publish magazines and newsletters to share information and knowledge, and we invest in the future. We recognize the need to bring the next generation on board by showing them what the future in waste water is all about: Focus on reusable resources, climate adaptation & neutrality, xenobiotics and contact tracing.

**State of Green**

**Stand C2-200L**

**STATE OF GREEN**

City: Copenhagen
Country: Denmark
Web address: Stateofgreen.com

State of Green is a not-for-profit, public-private partnership from Denmark. We facilitate relations with international stakeholders and are your one-point entry to all leading Danish players working to drive the global transition to a sustainable, low-carbon, resource-efficient society. State of Green is founded by the Danish government, the Confederation of Danish Industry, the Danish Energy Association, the Danish Agriculture & Food Council and the Danish Wind Industry Association. H.R.H. Crown Prince Frederik of Denmark is patron of State of Green. State of Green is an IWA WWCE 2022 institutional partner.

**SUIKEN CO., LTD.**

**Stand C2-200H**

**SULFLOGGER A/S**

City: Aarhus
Country: Denmark
Web address: sulfilogger.com

SulfiLogger provides innovative sensor solutions for reliable hydrogen sulphide (H2S) monitoring anywhere in wastewater applications. H2S is a major challenge in the wastewater industry where the toxic gas causes odour, corrosion, and worker safety problems. Although these challenges can be mitigated, a lack of reliable data prevents cost-effective optimizations. The SulfiLogger sensor provides superior insights by measuring H2S continuously and without interruptions directly in untreated wastewater both in sewer networks and at wastewater treatment plants. These insights enable proactive and data-driven H2S control strategies for superior odour and corrosion control, cost savings, improved worker safety, and better environmental compliance.

**Svenskt Vatten**

**Stand C2-256**

**Svenskt vatten och avfall**

City: Stockholm
Country: Sweden
Web address: www.svoa.se

Svenskt Vatten is the association for Sweden’s most important food producers and environmental companies - the water and wastewater utilities. Our vision is that Sweden shall have clean drinking water, and healthy lakes and seas.
Since 1962, Svenskt Vatten has coordinated the Swedish municipalities regarding technical, economic and administrative issues. We represent the interests of the municipalities in negotiations with authorities and other organisations on regulations. We also represent the interests of our members in other national and international contexts.

**Stand C2-256**

**SWATAB**

SWATAB – SCANDINAVIAN WATER TECHNOLOGY

Country: Sweden

Web address: www.swatab.com

“SWATAB is a Malmö based company with the vision to help their customers to reduce their ecological footprint by lowering their chemical usage in cleaning and laundry. SWATAB manufacture and sell, both inhouse and through resellers, the patented filter system DIRO. With this his sleek and easy to install patented system installed between incoming water and one or several laundry machines, gives you the opportunity to do all laundry detergent free. With a tap installed, you can easily tap up your own cleaning water in a spare bottle and start your journey to a cleaner chemical free environment for future generations.”

**Stand C2-256**

**SWEDEN WATER RESEARCH**

Country: Sweden

Web address: www.swedenwaterresearch.se

Swedish Water Research conducts world leading research and development for sustainable water services. We are the joint research and development company of the three municipal water and waste water organisations NSVA, Sydvatten and VA SYD, together serving one million inhabitants in the South West of Sweden. Together with our owners, we meet future challenges related to water quality, digital transformation and circular economy.

**Stand C2-256**

**SWEDISH EXERGY**

Country: Sweden

Web address: www.swedishexergy.com

Swedish Exergy design, manufacture and deliver dehydration solutions for processing of various applications and have the capability to deliver large and complex projects all over the world. We have over the past 40+ years delivered over 100 solutions with our technology portfolio of Dryers and Evaporators.

Exergy Dryer Technologies are ideally suited for sustainable development by maximizing the usable part of the energy and minimizing losses. We enable our clients to go further than anyone else in realizing higher profits with the most energy efficient and environmentally friendly innovative dehydration processes. Our experience and know-how with Exergy technologies is unmatched.

**Stand C2-256**

**THE SWEDISH RESEARCH CLUSTERS: VA-TEKNIK SÖDRA, VA-KLUSTER MÅLARDALEN, DRICKS AND STORMWATER & SEWERS**

Country: Sweden


To meet future challenges, cooperation between water utilities, industry and researchers is crucial to increase knowledge and technological development within the water management sector. The four Swedish research clusters are the connecting links between our partners and aim to facilitate cooperation and collaboration.

The research clusters have different focus areas: stormwater, drinking water, and wastewater, but a joint ambition to secure knowledge and meet the water sector’s competence needs. The collective expertise among the members is vast and varied, thus the clusters have a strong voice in the water management sector.

**Stand C2-378**

**SYSMEX EUROPE SE**

City: Norderstedt

Country: Germany

Web address: www.sysmex-europe.com

You may know Sysmex as the number one in haematology and urinalysis business. Take the chance here to get to know us as the first full solution provider of state-of-the-art solutions for microbial QC of drinking-, waste- or process water, or from any other aquatic environment.

Don’t waste time adapting half-fitting, provisionally kits to your needs. Sysmex offers ready-to-use solutions consisting of hardware, reagents software and support. Thanks to our cooperation with the Swiss Company onCyt Microbiology AG, ultra-fast, standardised detection of total and/or living bacteria has never been easier, and it is fully automated and online 24/7.

**Stand E-125**

**TAISEI KIKO CO., LTD.**

City: Osaka

Country: Japan

Web address: www.taiseikiko.com

Since its foundation in 1941, TAISEI KIKO has pioneered Japan’s water, sewage, and gas pipeline maintenance sector, continuously engaged on the frontier of technological innovation in product development and maintenance. We have developed retainer glands and various pipe fittings with concept of water pipeline maintenance. Our quake-resistant products have become all the more essential for the pipeline infrastructure and network across Japan and overseas. Unique under pressure construction method is also highly valued.

TAISEI KIKO is firmly committed to research and development, and resolves to supply necessary products for the development and maintenance of waterworks infrastructure, in Japan and overseas.

**Stand C2-383**

**TEKI ACQUE SRL**

City: Roma

Country: Italy

Web address: www.tetiacque.it

Teti Acque is a newly-established business with forty years of experience in the management of drinking water supplies and water emergencies, having inherited its knowledge from service companies since 1975. Our company now operates in many regions of Italy such as Lazio, Campania, Emilia Romagna, Liguria, Umbria and Tuscany.

The company’s initial goal was Management of Water Emergency, using tanker trucks, mostly to meet the needs of the Public Sector. Each service is tailored made based on business regulations, on the client’s needs and to the end user’s expectations, to maintain a very high standard both in terms of quality and quantity.

**Stand E-200**

**SYSTEMATIC**

City: Aarhus

Country: Denmark

Web address: www.systematic.com

Systematic A/S, established in 1985, develops software and system solutions to customers in both the public and private sectors. Today, the company is the largest privately-owned software company in Denmark, with solutions sold to customers in 50+ countries.
“Tokyo Water Co., Ltd.”, a partner of Tokyo Metropolitan Waterworks Bureau can provide total business solutions for water supply utilities in Japan and overseas based on abundant experience. Our expertise covers those areas including distribution control management, Non-Revenue-Water management, and customer services. The TS Leak Checker (PIA, 2010) that is portable and compact with a sensor integrated is designed to enable leak detection within 2 seconds at the minimum and has greatly boosted the efficiency of leak detection. We have excellent reputation among domestic and international water sectors.

Turku Region Water Ltd. offers project consulting in Managed Aquifer Recharge plant designing, functional planning and operation using sophisticated Aquifer modelling tools. The quality of water produced by Turku Region Water Ltd. is excellent and the production methods are the most sustainable in the world according to the Unesco book “Managing Aquifer Recharge – A Showcase for Resilience and Sustainability” (2021).

Turku Region Water Ltd is an advanced water producer with unique know-how in Managed Aquifer Recharge (MAR), keen to share the world-class expertise on sustainable groundwater management. Turku Region Water Ltd. offers project consulting in Managed Aquifer Recharge plant designing, functional planning and operation using sophisticated Aquifer modelling tools. The quality of water produced by Turku Region Water Ltd. is excellent and the production methods are the most sustainable in the world according to the Unesco book “Managing Aquifer Recharge – A Showcase for Resilience and Sustainability” (2021).

Turun Vesihuolto is a reliable, customer-oriented water supply and sewerage company with a good reputation. Turun Vesihuolto is owned by the City of Turku and it has over 190,000 water users (about 17,000 customers). Its core competences are water supply and collection and conveyance of wastewater. The services are produced cost-efficiently and in an environmentally friendly manner. Turun Vesihuolto has over 800 km of pipelines and over 600 km of sewerage. One of the company’s goals is proactive maintenance of networks. Turun Vesihuolto also develops customer communications and customer services continuously.

Our vision is to enable seamless online measurement of nitrous oxide emissions. We enable wastewater treatment plants to reduce their climate footprint by measuring and managing nitrous oxide emissions. With real-time, online N2O measurements integrated into the plant’s control system, wastewater treatment operators can see the direct effect of their actions. The Unisense Environment N2O Wastewater System is the world’s first sensor system for measuring N2O directly in the treatment processes. Wastewater treatment plants are able to measure levels of N2O in the processes, estimate the emission, and implement new online control algorithms to minimize their climate impact.

Uponor is rethinking water for future generations. Offering a wide variety of sustainable water management solutions; from safe drinking water delivery with quality monitoring 24/7, stormwater and sewer systems, district heating and piping systems to transport water, air, electricity and data for public infrastructure and industrial applications. We help customers in municipalities, utilities, and commercial and industrial construction, to work faster and smarter, building more sustainable living environments. Uponor employs about 3,900 professionals in 26 countries in Europe and North America. In 2021, Uponor’s net sales totalled approximately €1.3 billion. Uponor Corporation is based in Finland and listed on Nasdaq Helsinki.
WaterWebTools is a SaaS company specializing in hydrological and water quality forecasting, with solutions tailored to water supply management, hydropower operations, emergency responses, environmental conservation, and community outreach.

- Real-time water quality, drought, & flood forecasting made easy & affordable
- Clear communication of model forecasts & real-time sensor information
- One intuitive user-interface & interactive platform for all data
- Smart early warning, planning & response

Desktop           Mobile App

www.WaterWebTools.com
Utilities of Northern Denmark supply clean water and handles wastewater from our customers every day. It is our responsibility to ensure that we succeed on this task now and in the future.

We promote environmentally conscious and sustainable behavior as a basis for green transition.

We create holistic solutions that meet society’s needs for renewal, security, and safe operation.

We ensure that responsibility, competencies, and tasks go hand in hand.

Meet us for a chat about our projects and solutions within drinking water, sewers and wastewater, green solutions, circular economy, communication and much more.

Van Remmen UV Technology is a supplier of Europe’s most sustainable UV disinfection and oxidation systems. A unique approach and great passion for our profession is the strength of our company. We look further and think in solutions. We test and validate our UV equipment with microorganisms to ensure that our systems do what they are supposed to do. Sustainability is a high priority within our company: Van Remmen stands for high-quality and energy-efficient UV technology for the treatment of water and other liquids that are better than the standard in the market.

The technology leader for sustainable UV equipment with microorganisms to ensure that our systems do what they are supposed to do. Sustainability is a high priority within our company: Van Remmen stands for high-quality and energy-efficient UV technology for the treatment of water and other liquids that are better than the standard in the market.

Van Walt Ltd offers best-in-class equipment for environmental and water research. Established for 40 years we now operate from 5 offices in 3 continents and, over that time, we have built up considerable experience and expertise to become one of the leading equipment suppliers when it comes to water level monitoring, water quality sampling, soil moisture monitoring, groundwater research, soil sampling and sensor to desktop telemetry systems. Data Collection telemetry systems that bring together information from multiple sensor inputs, types and parameters. We recognise the work our customers do in protecting our natural resources and we take pride in supporting them.

Vand & Teknik

Vand og Teknik A/S are experts in the design and delivery of technical equipment for water supplies and technical water. We are suppliers and offer complete solutions for the entire project from planning to design, delivery and process commissioning. We manufacture stainless steel pipes in our own workshop. We also design and deliver the electrical panels that are included in our projects together with programming of PLC and SCADA.

In our sister companies, we have experts in the energy sector in the form of district heating, groundwater-based energy systems, Power to X, solar heating and cooling.

Veolia

Veolia group is the global leader in optimized resource management. We are nearly 220,000 employees worldwide who want the world as it could be, convinced that we can meet the challenges of ecological transformation. The Group designs and provides water, waste and energy management solutions which contribute to ecological transformation and sustainable development of communities and industries.

We have recent innovation and cases within:
- Water to energy
- Greenhouse gas reduction
- Flood control and reduction of CSOs
- Removal of micropollutants from drinking water and wastewater
- Water reuse

Vigotec

Vigotec is an expert in and distributor of pipe systems, including leak detection solutions. Together with its partner Fluxes, who specializes in fiber optic sensing solutions, Vigotec has been developing DALI, a fiber-optic based leak and intrusion monitoring system. DALI allows 24/7, high-precision real-time monitoring across large piping infrastructures.

DALI-project website: www.dalimonitoring.com
VITO is a leading independent research and technology organisation with the mission to accelerate the transition to a sustainable future.

A sustainable world: a dream for many, a tangible goal for VITO. We create shared value for citizens, companies and society.

VITO provides innovative and high-quality solutions; whereby large and small companies can gain a competitive advantage and advise industry and governments on determining their policy for the future.

VITO's research agenda tackles the major societal challenges we are facing today. VITO focuses on five different research programmes: sustainable chemistry, energy, health, materials management and land use.

VITO – WATERCLIMATEHUB OSTENDE

Stand C2-302
VITO
City: Mol/Ostend
Country: Belgium
Web address: www.vito.be

A sustainable world: a dream for many, a tangible goal for VITO. We co-create shared value for and with citizens, companies, scientists and society. The WaterClimateHub of VITO invests in water expertise and infrastructure and builds bridges to existing knowledge domains.

Applied research and testing in living labs will offer practical, user-friendly tailor-made solutions to secure water supply, circular water networks and digital solutions, and will de-risk innovation for companies.

The WaterClimateHub of VITO is the driving force behind water innovation and creates impact by uniting parties, with support of the Flemish government and international projects and partnerships.

W. GIERTSEN VANNTEKNOLOGI

Stand C2-218
W. GIERTSEN VANNTEKNOLOGI
City: Bergen
Country: Norway
Web address: giertsen.no

State of the art solutions for cleaning inaccessible water reservoirs and tunnels without shutting them down. The world’s first remotely operated vehicle for water tunnels (TROV) is an unmanned robotic cleaning device that pumps sediment out of reservoirs. W. Giertsen also provide inspection, rock removal and sample taking in water reservoirs. The technology can furthermore be adopted to clean other waterways. In its first years of operation, TROV has cleaned 4 potable water reservoirs of up to 4 kilometers in length for the Municipality of Bergen. The system is fully FDA-approved for operating in potable water.

Water

Stand E-200F
WATER
City: Farum
Country: Denmark
Web address: www.water.dk

Water is a research-based company that designs and manufactures environmentally friendly, non-chemical water treatment and purification technologies such as ultraviolet disinfection and ozone oxidation.

With more than 35 years of experience in water treatment based on advanced oxidation technologies and a long reference list of completed projects, we are proud to provide state-of-the-art meticulously-designed systems and engineered solutions.

Our solutions are modularly built and are tailored to customer needs, depending on water amount and quality. We offer solutions for various industries – aquaculture, industry, swimming pools, amusement parks, wastewater, and more.

Water Alliance

Stand C2-333
WATER ALLIANCE
City: Leeuwarden
Country: The Netherlands
Web address: wateralliance.nl

Water Alliance is a unique partnership of public and private companies, government agencies and knowledge institutes involved in watertech. Water Alliance focuses on innovative and sustainable watertech that can be used worldwide. It brings together a chain of innovation for watertech, from idea, r&d, laboratories, water application centre, demosites, launching customers to international applications. It is driven by the idea that technological development and innovation is needed to develop new markets and thus create new business opportunities for the watertech industry. In this way the Netherlands will become the European Watertech Hub, with its focal point at the WaterCampus Leeuwarden.

Water Environment Federation

Stand C2-380A
WATER ENVIRONMENT FEDERATION
City: Alexandria, Virginia
Country: United States
Web address: www.wef.org

The Water Environment Federation (WEF) is a not-for-profit technical and educational organization of 30,000 individual members and 75 affiliated Member Associations representing water quality professionals around the world. Since 1928, WEF and its members have protected public health and the environment. As a global water sector leader, our mission is to connect water professionals; enrich the expertise of water professionals; increase the awareness of the impact and value of water; and provide a platform for water sector innovation. WEF is
fully tap into the strengths of water. Everyone and everything, always, with water, and works on intelligent solutions to provide water-link develops knowledge, shares them the safety of well-thought-out infrastructures the right quantity, of the right quality, at the All life needs water.

Web address: water-link-jaarverslag.be

Country: Belgium

City: Antwerp

Stand C2-214
WATER RESOURCES AGENCY, MOEA
City: Taipei
Country: Chinese Taipei
Web address: eng.wra.gov.tw/Default.aspx
The Water Resources Agency, was created in 2002, which combined a few former agencies such as the Water Resources Bureau, the Water Conservancy Agency, and the Taipei Water Resource Specific Committee, into one new unit named Water Resources Agency, with the objective of promoting higher administrative efficiency among the water-related agencies, and strengthening the related business functionality.

The Water Test Network (WTN) project is a transnational network of testing facilities which can be used by SMEs in North-West Europe to test, demonstrate and develop new products for the water sector. In this way, new innovations are developed and time to market is accelerated.

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All life needs water. Both people, their company and their environment must at all times have water in the right quantity, of the right quality, at the right time. This water must be supplied within the safety of well-thought-out infrastructures for supply and discharge of water. Water-link offers that certainty through the production, distribution and recycling of water. Water-link develops knowledge, shares them and works on intelligent solutions to provide everyone and everything, always, with water, safely. Water-link wants to inspire everyone to fully tap into the strengths of water.

WATER-LINK
City: Antwerp
Country: Belgium
Web address: water-link-jaarverslag.be

Since 2010, WATURA is specialized in vocational training in the water and sanitation sectors. Our ambition is to provide high quality training, using online tools. Since 2018, the company has developed the 1st digital training platform dedicated to the water and sanitation professionals. Today, we offer a blended learning experience, combining digital learning and online coaching to save time and resources. Our approach is data-driven: before, during and after each course, learners can measure their level and progress. Managers can also access and analyze this data to ensure the relevance of each learning path. We work with renowned experts in the Water and Sanitation sectors. They all have extensive experience in professional training, including in international contexts.

WATURA
Country: France
Web address: www.watra.fr

Stand C2-207
WATERAID
City: Stockholm, London, Copenhagen
Country: Sweden, UK, Denmark
Web address: www.wateraid.org

WaterAid is an international not-for-profit, determined to end the global water, sanitation and hygiene crisis for everyone, everywhere. Our vision is of a world where everyone, everywhere has safe and sustainable water, sanitation and hygiene - for good. We’re collaborating with local partners to find the best solution for getting clean water to every global community.

We’re working with partners to help install toilets and train local people to maintain them once we have gone.

Good hygiene promotion is one of the most effective ways to improve global health. That’s why we support hygiene education programmes across all our projects.

WATERSPRINT
City: Lund
Country: Sweden
Web address: watersprint.com

WaterWebTools is a Saas company specializing in digital solutions for water quality, flooding and drought challenges. Get real-time and forecast data for water quality and hydrology - 24/7 anywhere in the world!

From the convenience of your home or office, WaterWebTools' ASAP platform and its solutions helps you visualize and interact with highly recognized hydrological and water quality models. Tailored to help you get key insights and make valuable decisions and optimizations relating to hydropower operations, water supply management, emergency responses, environmental conservation, and community outreach.

WIN WATER
Country: Sweden
Web address: www.winwater.se

WIN business is creating winners. We offer a place, platform, expertise and tools to enable innovators to fast-track their ideas into commercial businesses within water, energy and public safety. Together with WIN’s experts and members, scientists and authorities, we co-create circular solutions to solve the challenges these areas are facing.

Our way is all about getting ideas to market in the fastest possible time—giving our partners the ideal conditions to exchange ideas and launch innovative, disruptive solutions to our specific areas. WIN is a member-based organization. If you want to know more about us or get in contact, visit www.winway.se

WIN WATER
Stand E-101
Country: Sweden
Web address: www.winwater.se

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Stand C2-213
WATERAID
City: Stockholm, London, Copenhagen
Country: Sweden, UK, Denmark
Web address: www.wateraid.org

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Stand C2-333
THE WATER TEST NETWORK
City: Various
Country: The Netherlands
Web address: watertestnetwork.eu/en

The Water Test Network (WTN) project is a transnational network of testing facilities which can be used by SMEs in North-West Europe to test, demonstrate and develop new products for the water sector. In this way, new innovations are developed and time to market is accelerated.

Stand C2-256
WATERSPRINT
City: Lund
Country: Sweden
Web address: watersprint.com

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Stand C2-233
WATERWEBTOOLS
City: Skanderborg
Country: Denmark
Web address: www.WaterWebTools.com

WaterWebTools is a Saas company specializing in digital solutions for water quality, flooding and drought challenges. Get real-time and forecast data for water quality and hydrology - 24/7 anywhere in the world!

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Stand C2-238
WEEEFINER
City: Jyväskylä
Country: Finland
Web address: www.weeefiner.fi

Weeefiner is a Finnish technology company that offers innovative solutions for material recovery and streamlining industrial processes. Our goal is to boost circular economy in a practical and effective way by upcycling dissolved metals and nutrients into new resources.

We offer customized end-to-end water treatment solutions for various industries. With our advanced 4D Scavenger technology we can selectively recover and recycle soluble materials even from the most complex process streams and waste waters. Results are revolutionary – we can enhance processes, create new revenue streams, and reduce negative environmental impact.

Stand C2-233
WATERWEBTOOLS
City: Skanderborg
Country: Denmark
Web address: www.WaterWebTools.com

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Stand C2-236
WIN WATER
Country: Sweden
Web address: www.winwater.se

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Country: Sweden
Web address: www.winwater.se

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Water is life, and WSP works with every aspect of the water cycle as a global consultant with deep local roots. We design for the future, and with our global innovation programme, Future Ready, we work with trends in Climate, Society, Technology and Resources. We help our clients find the right solutions to their challenges through innovative planning and design and foresight around future challenges.

We are experts in Climate Change Adaptation, NetZero, City Development, Biodiversity, Ground Water and Pollution, Infrastructure, Building Design and much more.

WSP is one of the world’s leading professional services consulting firms. We are dedicated to our local communities and propelled by international brainpower. We are technical experts and strategic advisors including engineers, technicians, scientists, architects, planners, surveyors and environmental specialists, as well as other design, program and construction management professionals. We design lasting solutions in the Transportation & Infrastructure, Property & Buildings, Environment, Power & Energy, Resources and Industry sectors. Water services encompass all sectors. With approximately 55,000 people globally (4,100 in Sweden) we engineer projects that will help societies grow for lifetimes to come. wsp.com

Xylem (XYL) is a leading global water technology company committed to solving critical water and infrastructure challenges with innovation. Our 17,000 diverse employees delivered revenue of $5.2 billion in 2021. We are creating a more sustainable world by enabling our customers to optimize water and resource management, and helping communities in more than 150 countries become water-secure. Join us at www.xylem.com.

Yara believes everyone has the right to clean air. For over 20 years we have been providing solutions to eliminate odor and H2S (Hydrogen Sulphide) around the world. We can offer a range of innovative and proven products and services to identify, prevent or remove odor and H2S. Collaborating with you to locate the source of the problem, Yara will provide the right solution and can take full responsibility for the process, from installation to management of the system.
Want to turn data into real knowledge?

Join us to learn how **smart metering solutions** can help combat non-revenue water and enhance the performance of water networks through powerful data and analytics.

Discover how our newest generation of smart metering solutions with integrated acoustic leak detection can help you **unleash the potential** of your own network.

See you in Copenhagen at booth C2-290
We pioneer solutions to the world’s water and climate challenges and improve the quality of life for people

Grundfos develops, produces and sells pump solutions which help reduce water-related challenges. We create research and product development-based solutions to meet growing demands for minimising resource consumption and CO₂ emissions.

We provide expertise in energy- and water efficient solutions and systems for a wide range of applications, including water supply, water treatment and wastewater, industries and buildings. An annual production of over 17 million units positions the Grundfos Group as one of the world’s largest pump manufacturers with 20,000 employees in 56 countries.

www.grundfos.com