

<p><b>4.4.10   DIGITAL WATER CITIES</b></p> <p>Room B3 b <b>Technical</b></p> <p>Chairs: <b>Dragan Savic</b>, <i>Netherlands</i> and <b>Ziling Zang</b>, <i>United Kingdom</i></p> <p>OpenH:Odata: an open high-resolution residential water use dataset with ground truth end-use labels, <b>Andrea Cominola</b>, <i>Technische Universität Berlin, Germany</i></p> <p>PyNIWM: An open-source Python toolbox for machine learning-based water end use classification, <b>Marie-Philine Becker</b>, <i>Technische Universität Berlin, Germany</i></p> <p>A toolchain for the data-driven decision support in waste water networks — a level-based approach, <b>Krisztian Mark Balla</b>, <i>Grundfos Holding A/S, Denmark</i></p> <p>Machine-learning for anomaly detection and aided data cleaning for water level sensors in urban drainage systems, <b>Phillip Aarestrup</b>, <i>Dryp, Denmark</i></p> <p>--- POSTERS ---</p> <p>Digitalized stormwater management approach, <b>Lene Stolpe Meyer</b>, <i>Frederiksberg Kommune, Denmark</i></p>		<p>Wednesday 13:30-15:00 <b>Digital Water Cities</b></p> <p>13:30-13:50</p> <p>13:50-14:10</p> <p>14:10-14:30</p> <p>14:30-14:50</p> <p>14:50-14:55</p>
<p><b>2.6   DATA-DRIVEN TOOLS FOR WASTEWATER TREATMENT PROCESSES</b></p> <p>Room B5 a <b>Technical</b></p> <p>Chairs: <b>Glen Daigger</b>, <i>United States</i> and <b>Achim Ried</b>, <i>Germany</i></p> <p>Data reconciliation for activated sludge plants — effects of data time span, <b>Christoffer Wärff</b>, <i>RISE Research Institutes of Sweden, Sweden</i></p> <p>Prediction of mass and volumetric flows in a full-scale industrial wastewater treatment plant, <b>Xavier Flores-Alsina</b>, <i>DTU, Denmark</i></p> <p>Including the fate of products generated at a full-scale wastewater treatment plant, in applying decision support tools to evaluate phosphorus removal strategies, <b>David Ikumi</b>, <i>University of Cape Town, South Africa</i></p> <p>Modelling and mitigating greenhouse gas emissions from sewage treatment plants using an integrated mechanistic and deep learning approach, <b>Haoran Duan</b>, <i>The University of Queensland Australia</i></p> <p>--- POSTERS ---</p> <p>Process using bayesian optimized long short-term memory network, <b>Esmael Mohammadi</b>, <i>Krüger, Denmark</i></p> <p>Process monitoring and fault detection using a soft sensor for the return activated sludge flow rate at Henriksdal WRRF, <b>Hanna Molin</b>, <i>Lund University IVL Swedish Environmental Research Institute, Sweden</i></p>		<p>Wednesday 13:30-15:00 <b>Data-driven tools</b></p> <p>13:30-13:50</p> <p>13:50-14:10</p> <p>14:10-14:30</p> <p>14:30-14:50</p> <p>14:50-14:55</p> <p>14:55-15:00</p>
<p><b>2.2.2-1   ENERGY EFFICIENCY AND RECOVERY — GROUP 1</b></p> <p>Room B3 d <b>Technical</b></p> <p>Chairs: <b>Julian Sandino</b>, <i>United States</i> and <b>Chelsea Hayward</b>, <i>Australia</i></p> <p>Modelling treatment processes and integrated systems: real time decision making, <b>Ian Rodgers</b>, <i>Xylem Inc, United Arab Emirates</i></p> <p>Circular economy in full scale, <b>Dines Thornberg</b>, <i>BIOFOS, Denmark</i></p> <p>Using a simple balancing tool to estimate operational changes for a transformation to anaerobic digestion with co-digestion on a large WWTP in China, <b>Verena Hilgenfeldt</b>, <i>University of Kaiserslautern, Germany</i></p> <p>Demonstration of a more stable mainstream short-cut nitrogen removal process at pilot-scale with improved control strategies, <b>Haoran Duan</b>, <i>The University of Queensland, Australia</i></p> <p>--- POSTERS ---</p> <p>Reduced global warming potential from a wastewater treatment plant by wisely use of chemistry, <b>Bengt Hansen</b>, <i>Kemira, Sweden</i></p>		<p>Wednesday 13:30-15:00 <b>Energy efficiency</b></p> <p>13:30-13:50</p> <p>14:10-14:30</p>

<p><b>2.1.1-1   INNOVATIVE MAINSTREAM WASTEWATER TREATMENT</b></p> <p><b>Chairs:</b> <a href="#">Thammarat Koottatep, India</a> and <a href="#">Maria Concetta Tomei, Italy</a></p> <p>Developing and deploying the next generation of mainstream nitrogen removal technology through Partial Denitrification-Anammox (PdNA), <a href="#">Stephanie Klaus, Hampton Roads Sanitation District, United States</a></p> <p>Two birds one stone - achieving simultaneous removal of nitrogen and dissolved methane in mainstream wastewater, <a href="#">Tao Liu, The University of Queensland, Australia</a></p> <p>Impact of improving nitrogen removal efficiency on the energy autarky of anaerobic-based sewage treatment plants, <a href="#">Thiago Bressani Ribeiro, Ghent University, Belgium</a></p> <p>Nanoscale zero valent iron enhanced mainstream anammox application: a long-term evaluation with real sewage, <a href="#">Bilge Alpaslan-Kocamemi, Marmara University, Turkey</a></p> <p style="text-align: center;">--- POSTERS ---</p> <p>Aerated anoxic condition promotes simultaneous biological nutrient removal by coupling SND, anammox and EBPR processes, <a href="#">Quan Yuan, Beijing Technology and Business University, China</a></p>	<p>Room C3 <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>Innovative treatment</b></p>
<p><b>2.2.3-2   RECOVERY OF NUTRIENT AND CHEMICALS — GROUP 2</b></p> <p><b>Chairs:</b> <a href="#">Sudhir Pillay, South Africa</a> and <a href="#">Ana Soares, United Kingdom</a></p> <p>Implementing alkaline urine dehydration in Sweden, Finland, and France: lessons learnt, experiences and the way forward in technology upscaling, <a href="#">Natnael Demilssie, Swedish University of Agricultural Sciences, Sweden</a></p> <p>Nutrient recovery from wastewater using forward osmosis: from lab to pilot scale, <a href="#">Maria Salud Camilleri-Rumbau, Aquaporin A/S, Denmark</a></p> <p>Reagent recovery from dairy industry wastewater through membrane processes, <a href="#">Rubén Rodríguez-Alegre, Leitat Technological Center, Spain</a></p> <p>Large-scale biopolymer extraction from aerobic granular sludge: first results of Kaumera Nereda gum extraction and application from industrial and municipal wastewater, <a href="#">Sjoerd Kerstens, Royal HaskoningDHV, Netherlands</a></p> <p style="text-align: center;">--- POSTERS ---</p> <p>Cost effective phosphorus recovery from biological wastewater treatment, <a href="#">Morten Christensen, Aalborg University, Denmark</a></p> <p>Assessing the significance of heavy metals, pesticides and other contaminants in products recovered from water resource recovery facilities, <a href="#">Juan Antonio Baeza, Universitat Autònoma Barcelona, Spain</a></p>	<p>Room B3 e <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>Nutrient recovery</b></p>
<p><b>UTILITY LEADERS FORUM V — CELEBRATING 2022 CLIMATE SMART UTILITIES — SUCCESSSES FROM AROUND THE GLOBE AND RECOGNITION EVENT</b></p> <p><b>Chairs:</b> <a href="#">Corinne Tromsdorff, Water Cities</a> and <a href="#">Carlos Diaz, IWA</a></p> <p>Opening of recognition event: <a href="#">Kala Vairavamoorthy, Executive Director, IWA</a></p> <p>Presentation of Climate-Smart Stories</p>	<p>Room A2 <b>Forum</b></p>	<p>Wednesday 13:30-15:00 <b>Climate-smart stories</b></p>

<p><b>REGULATORS FORUM II — DEMONSTRATING THE ADDED VALUE OF REGULATION TO COPE WITH GREATER POLITICAL INSTABILITY: HOW REGULATORS ARE RINGFENCING FROM POLITICAL INSTABILITY AND ITS PERVERSE IMPACTS ON THE GOVERNANCE OF THE REGULATORY FRAMEWORKS?</b></p> <p><b>Chair: Tone Madsen, Denmark</b></p> <p>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.</p>	<p>Room A3 <b>Forum</b></p>		<p>Wednesday 13:30-15:00 <b>Regulation</b></p>
<p><b>UPSCALING FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM) TO CITY WIDE INCLUSIVE SANITATION (CWIS): EXPERIENCE FROM INDIA (STATE OF UTTAR PRADESH) AND GLOBAL SOUTH</b></p> <p>Speakers: <b>Depinder Kapoor</b>, <i>Centre for Science and Environment (IN)</i>, <b>Jay Bhagwan</b>, <i>Water Research Commission (ZA)</i>, <b>Amrit Abhijaat</b>, <b>Sumit Singhal</b>, <i>Centre for Science and Environment (IN)</i>, <b>Dhruv Pasricha</b>, <i>Centre for Science and Environment (IN)</i>, <b>Hasin Jahan</b>, <i>WaterAid Bangladesh (BG)</i>, <b>Malcolm Madeira</b>, <b>Sudhir Pillay</b>, <i>Water Research Commission (ZA)</i>, <b>Jennifer Williams</b></p>	<p>Room CO <b>Sanitation</b></p>		<p>Wednesday 13:30-15:00 <b>City-wide inclusive sanitation (CWIS)</b></p>
<p><b>INNOVATORS PLATFORM II</b></p> <p>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.</p>	<p>Room C1 <b>Innovators</b></p>		<p>Wednesday 13:30-15:00 <b>Innovators</b></p>

<p><b>6.11   CIRCULAR ECONOMY 1</b></p> <p><b>Chairs:</b> <a href="#">Evina Katsou</a>, <i>United Kingdom</i> and <a href="#">Maria Faragó</a>, <i>Denmark</i></p> <p>Preliminary evidence of advanced bio-based fertilizer production and water reuse from fishery wastes, <a href="#">Corinne Andreola</a>, <i>UNIVPM, Italy</i></p> <p>Exploring the legitimisation of circular economy initiatives in the water sector, <a href="#">Marine Poncet</a>, <i>Cranfield University, United Kingdom</i></p> <p>Water in circular economy and resilience (WICER) framework, <a href="#">Anna Delgado</a>, <i>World Bank, United States</i></p> <p>From lab to field: transforming biogas digestates to instruments for mitigating nitrous oxide emissions from food production, <a href="#">Kjell Rune Jonassen</a>, <i>Vestfjorden Avløpsselskap (Veas), Norway</i></p> <p style="text-align: center;">--- POSTERS ---</p> <p>Assessing the economic, social, gender and environmental impact of clean water and sanitation in Buenos Aires, <a href="#">Gonzalo Meschengieser</a>, <i>Agua y Saneamientos Argentinos (AySA), Argentina</i></p>	<p>Room C2 <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>Circular economy</b></p>
<p><b>3.6   EMERGING CONTAMINANTS (PFAS, PESTICIDES AND OTHERS) — II</b></p> <p><b>Chairs:</b> <a href="#">Wolfgang Uhl</a>, <i>Norway</i> and <a href="#">Gilda Carvalho</a>, <i>Australia</i></p> <p>A new biotechnology for pesticide removal at drinking water sand filters, <a href="#">Sanin Musovic</a>, <i>Danish Technological Institute, Denmark</i></p> <p>Adsorption and biodegradation of organic micropollutants in biologically activated carbon filtration, <a href="#">Bert van der Wal</a>, <i>Evides Water Company, Netherlands</i></p> <p>Different fates of intact deteriorated microplastics, viruses, activated carbon, and kaolin montmorillonite clay particles during water treatment processes, <a href="#">Yoshifumi Nakazawa</a>, <i>National Institute of Public Health, Japan</i></p> <p>Optimization of adsorption processes for removal of small polar groundwater contaminants from drinking water, <a href="#">Sonsoles Quinzanos</a>, <i>Hofor A S, Denmark</i></p> <p style="text-align: center;">--- POSTERS ---</p> <p>Advanced monitoring of activated carbon to guarantee organic contaminant removal and efficient media renewal, <a href="#">Olivier Daniel</a>, <i>SUEZ, France</i></p> <p>Micropollutant degradation by wasted spent mushroom substrate, <a href="#">Brigit van Brenk</a>, <i>Utrecht University, Netherlands</i></p>	<p>Room B5 b <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>PFAS etc.</b></p>
<p><b>3.3   HEALTH RISK ASSESSMENT OF ANTIMICROBIAL RESISTANCE IN WATER SYSTEMS</b></p> <p><b>Chairs:</b> <a href="#">Gertjan Medema</a>, <i>Netherlands</i> and <a href="#">Stephanie Rinck-Pfeiffer</a>, <i>Australia</i></p> <p>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.</p> <p><b>Speakers:</b> <a href="#">Gertjan Medema</a>, <i>KWR/TU Delft/Michigan State University (NL)</i>, <a href="#">Stephanie Rinck-Pfeiffer</a>, <i>GWRC (AU)</i>, <a href="#">Kate Medlicott</a>, <i>WHO (GE)</i>, <a href="#">Amy Pruden</a>, <i>Virginia Tech (US)</i>, <a href="#">Kerry Hamilton</a>, <i>Arizona State University (US)</i></p>	<p>Room B4 a <b>Workshop</b></p>	<p>Wednesday 13:30-15:00 <b>Antimicrobial resistance</b></p>

<p><b>5.3   ONLINE AND HYBRID APPROACHES TO KNOWLEDGE EXCHANGE AND CAPACITY BUILDING FOR WATER OPERATOR PARTNERSHIPS (WOPS)</b></p> <p><b>Chairs:</b> <a href="#">Jeanne Cole</a>, <i>United Kingdom</i> and <a href="#">Anke Verheij</a>, <i>Netherlands</i></p> <p>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.</p> <p><b>Speakers:</b> <a href="#">Jeanne Cole</a>, <i>WaterAid (UK)</i>, <a href="#">Anke Verheij</a>, <i>VEI (NL)</i>, <a href="#">Patrick Kayizzi</a>, <i>Eastern Umbrella of Water and Sanitation (UG)</i>, <a href="#">Eunice Tejan</a>, <a href="#">Faustina Boachie</a>, <i>Ghana Water Company Limited (GH)</i> &amp; <a href="#">Guiliana Ferrero</a>, <i>IHE Delft (NL)</i></p>	<p>Room B4 b <b>Workshop</b></p>	<p>Wednesday 13:30-15:00 <b>Water Operator Partnerships (WOPs)</b></p>
<p><b>1.5   THE FUTURE OF WATER COOPERATION PROGRAMMES: HOW TO ENSURE EQUAL ACCESS TO THE BEST AVAILABLE SOLUTIONS AND TECHNOLOGY</b></p> <p><b>Chairs:</b> <a href="#">Jorgen Erik Larsen</a>, <i>Denmark</i> and <a href="#">Moloko Raletjena</a>, <i>South Africa</i></p> <p>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.</p> <p><b>Speakers:</b> <a href="#">Jorgen Erik Larsen</a>, <i>Danish Embassy in Pretoria South Africa (DK)</i>, <a href="#">Moloko Raletjena</a>, <i>Department of Water and Sanitation (ZA)</i>, <a href="#">Sean Phillip</a>, <i>Department of Water and Sanitation (ZA)</i>, <a href="#">Henrik Studsgaard</a>, <i>Miljøministeriet (DK)</i>, <a href="#">Lotte Machon</a>, <i>Danish Ministry of Foreign Affairs (DK)</i>, <a href="#">Osward Chanda</a>, <i>African Development Bank (CI)</i> &amp; <a href="#">Pia Yasuko</a>, <i>GRUNDFOS (DK)</i></p>	<p>Room B4 c <b>Workshop</b></p>	<p>Wednesday 13:30-15:00 <b>International partnerships</b></p>
<p><b>1.1   NON-REVENUE WATER MANAGEMENT IN LOW AND MIDDLE INCOME COUNTRIES — A</b></p> <p><b>Chairs:</b> <a href="#">Roland Liemberger</a>, <i>Austria</i></p> <p>This workshop will provide participants with an understanding of assessing Non-Revenue Water to reducing water losses in intermittent supply situations.</p> <p><b>Speakers:</b> <a href="#">Roland Liemberger</a>, <i>Water Loss Specialist Group (AT)</i> &amp; <a href="#">Stuart Hamilton</a>, <i>Water Loss Specialist Group Chair (UK)</i></p>	<p>Room B4 d <b>Workshop</b></p>	<p>Wednesday 13:30-15:00 <b>Non-revenue water</b></p>

<p><b>1.17   COVID-19 PANDEMIC IMPACTS AND CASE STUDIES AT UTILITY LEVEL</b></p> <p><b>Chairs:</b> <a href="#">Banu Örmeci, Canada</a> and <a href="#">Mohammad Azari, Germany</a></p> <p>Wastewater surveillance for SARS-CoV-2 in Copenhagen — an evaluation of decentralized wastewater sampling, <a href="#">Ida Knudsen, Høfor A/S, Denmark</a></p> <p>Rethinking risk management: how Covid-19 highlighted existing vulnerabilities in the UK water sector, <a href="#">Sarah Cotterill, University College Dublin, Ireland</a></p> <p>Survival factors and managerial decisions in the face of a pandemic in water utilities in Peru and Poland, <a href="#">Pawel Chudzinski, Aquanet, Poland</a></p> <p>Investigation of Corona viruses in wastewater in Iran, <a href="#">Ali Rostamiiranagh, Water and Wastewater Company East Azarbaijan Province @ Azarbaijan Shahid Madani University, Iran</a></p>	<p>Room B3 a <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>Pandemic impacts</b></p>
<p><b>4.6   WATER FOR SMART LIVEABLE CITIES</b></p> <p><b>Chairs:</b> <a href="#">Peter Steen Mikkelsen, Denmark</a> and <a href="#">Miriam Feilberg, Denmark</a></p> <p>A discussion of how the water sector can connect to the broader smart cities agenda may contribute to making the sector more efficient, innovative, and 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 and a low-carbon economy.</p> <p>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:</p> <ul style="list-style-type: none"> <li>- Speeding up implementation of the SDGs</li> <li>- Partnerships with industries and stakeholders in the cities</li> <li>- The contribution of digitalization to making cities smarter, more liveable and contributing to action on SDGs</li> </ul> <p>Speakers: <a href="#">Peter Steen Mikkelsen, Technical University of Denmark (DK)</a>, <a href="#">Miriam Feilberg, DANVA (DL)</a>, <a href="#">Dragan Savic, KWR (NL)</a> &amp; <a href="#">Emma Weisbord, Royal HaskoningDHV (NL)</a></p>	<p>Room B3 c <b>Workshop</b></p>	<p>Wednesday 13:30-15:00 <b>Smart liveable cities</b></p>
<p><b>6.9   CATCHMENT MANAGEMENT AND NATURAL CAPITAL APPROACHES ON DIFFERENT SCALES</b></p> <p><b>Chairs:</b> <a href="#">Katharine Cross, Australia</a> and <a href="#">Shagun Chaudhary, India</a></p> <p>Improvement of stormwater retention pond performance for the treatment of highway runoff using floating treatment wetlands, <a href="#">Jan Ruppelt, Ruhrverband, Germany</a></p> <p>Consideration of climate change-induced droughts and sustainable water use in preparation of sectoral water allocation plans (SWAPs) in Turkey, <a href="#">Elif Erdem, Turkey, Ministry of Agriculture and Forestry, General Directorate of Water Management, Turkey</a></p> <p>Importance of economic diversification for sustainable agricultural basin development under uncertain future climate and economic conditions, <a href="#">Saravanamuthu Vigneswaran, University of Technology Sydney, Australia</a></p> <p>The human right to water in Argentina: courts vs. constitution, <a href="#">Rachel Wagner, Tufts University, United States</a></p> <p style="text-align: center;"><b>--- POSTERS ---</b></p> <p>In-situ Treatment of the polluted Pinheiros River in Sao Paulo, Brazil. Wastewater oxygenation and treatment strategies in urban environments, <a href="#">Tyler Elm, ChartWater / BlueinGreen LLC, United States</a></p> <p>Assessing the limnological characteristics of a man-made urban lake pre, during and post artificial aeration, <a href="#">Ndomupe Masawi, SRK Consulting (Pty) Ltd, South Africa</a></p>	<p>Room B3 f <b>Technical</b></p>	<p>Wednesday 13:30-15:00 <b>Natural capital</b></p>

**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 Sustainable Futures, UTS( AU), Shannon Spurlock, Ochotona LLC (US) & Aaron Burton, Landscape Institute (UK)*

Wednesday  
13:30-15:00  
**Water efficiency**