

Water Convention 2018

CALL FOR PAPERS



Water Convention is jointly organised by:

MESSAGE FROM PETER JOO HEE NG, CHIEF EXECUTIVE OF PUB, SINGAPORE'S NATIONAL WATER AGENCY

Mark your calendars. The next Singapore International Water Week (SIWW) takes place from 8 to 12 July 2018.

The biennial SIWW is where both thought leaders and practitioners in water management—from governments, industry and academia the world over—gather every other year. Despite lingering uncertainties in the global economy, a record-breaking 21,000 people from 125 countries attended SIWW 2016, which also witnessed an unprecedented US\$13 billion in deal announcements. We are hopeful that SIWW 2018 will turn up even better outcomes.

As was in 2016, SIWW 2018 will be held alongside the World Cities Summit and the CleanEnviro Summit Singapore. Together, this trio of conventions present a most compelling destination for anyone responsible for maintaining high-functioning cities or has a stake in creating sustainable urban growth and development.

The Water Convention is *le plat principal* on the SIWW menu. The 2016 edition saw 1,500 come together to hear presentations, share best practices and be briefed on the latest technologies. Come SIWW 2018, the attention of the Water Convention will again be squarely directed at strategy, innovation and available solutions. From high-level system resilience and sustainability, to potable water delivery, to water quality and health, to waste water management, and to specific industrial requirements, I am certain that participants will again find insight and inspiration at the SIWW Water Convention 2018.

As we wait for SIWW 2018 to come around, we are planning for a smaller SIWW Spotlight 2017 event this off year, in July in Singapore. Our primary motivation for putting on Spotlight 2017 is that it may help water utilities, large and small, improve their performance. As such, we have designed the agenda to focus entirely on four areas—managing all water as one; reducing system losses; reclaiming and reusing waste water; and safeguarding water quality—that I believe would be agenda-topping for many, if not every, high performing water utility in the world.

We fully intend to assemble an unmatched roster of expert speakers, presenters and panellists in the four areas. Participants in Spotlight 2017 can fully expect to hear from world-leading practitioners share first-hand accounts of painful failure and sweet success.

My colleagues and I are highly anticipative of a productive and instructive Water Convention at SIWW 2018. In the interim, I urge everyone to respond resoundingly to this call for papers, and keep those contributions and submissions coming in.

See you all in Singapore in July 2018!



PETER JOO HEE NG
Chief Executive
PUB, Singapore's National Water Agency

MESSAGE FROM THE PRESIDENT OF THE INTERNATIONAL WATER ASSOCIATION (IWA)

Singapore International Water Week and its premier event, the Water Convention, has established itself as a critical meeting point for all those who are contributing to solving the growing water challenges we face around the globe. It is a leading platform for the water profession to come together with policy makers, industry leaders, economists, cities and the many other stakeholders who are vital for the co-creation of innovative water solutions that can be shared globally.

In 2018, the long and successful co-operation between the International Water Association and Singapore International Water Week will mark its tenth year. It has been a decade of great progress, and ours has been a partnership that has helped raise the profile of water issues on the international agenda. Singapore Water Week has been influential in promoting holistic water cycle policies and practices from catchment to consumer, and being an international hub for water innovators. Both of which are central to achieving Sustainable Development Goal 6.

Delivering solutions for the complex urban water management problems we face today, and in the future, requires a focus on integrated water management that bridges the gaps between sectors and raising awareness at a political level. It also requires leading-edge scientific research and technological developments to be combined with the best water management practices to deliver the sustainable urban water management of the future.

In a world that is increasingly water scarce, impacted by climate change and variability, and with a growing demand for water, only by bringing all these elements together can we hope to address our most pressing challenges. This is reflected in the priority issues of the Water Convention, developed by experts from PUB Singapore together with the International Water Association. It is an exciting agenda and I look forward to joining you all in Singapore to debate the future of water management.



DIANE D'ARRAS

President

International Water Association (IWA)

MESSAGE FROM THE CO-CHAIRS OF THE WATER CONVENTION 2018 PROGRAMME COMMITTEE

We warmly welcome you to join us for the eighth edition of the Water Convention, one of the flagship events of the Singapore International Water Week (SIWW).

Since its inception in 2008, the Water Convention has been a key event for researchers, practitioners and technology providers to gather and share their latest innovations, advanced water technologies and best practices. It has proven to be a vibrant component of the Water Week, and in 2016, saw more than 1,500 delegates from 55 countries participating in 7 Hot Issues Workshops, 42 technical sessions featuring 150 oral presentations and 200 poster presentations.

For the 2018 edition, the Programme Committee aims to develop a technical programme that will showcase latest technologies and best practices which enable the development of reliable, safe and sustainable water supplies and effective wastewater management. The programme will also continue to focus on the strategic approaches and innovations that are necessary for the creation of resilient and liveable cities.

To this end, abstracts relating to best practices and advanced technologies for water are highly welcomed. We hope the Water Convention will be a platform for you to share your ideas and experiences with peers around the globe, and to contribute towards the common goal of an effective and efficient supply of water for all.



HARRY SEAH

Chief Engineering & Technology Officer
PUB, Singapore's National Water Agency



DARRYL DAY

Managing Director
International Centre of Excellence in Water
Resources Management (ICE WaRM)

WATER CONVENTION 2018

Programme Committee Members

HARRY SEAH

Chief Engineering and Technology Officer, PUB, Singapore's National Water Agency

DARRYL DAY

Managing Director, International Centre of Excellence in Water Resources Management (Australia)

ANDREW SHAW

Global Practice and Technology Leader, Black & Veatch (USA)

DAVID CUNLIFFE

Principal Water Quality Adviser, SA Health (Australia)

FREDERIC LEUSCH

Associated Professor, Griffith University (Australia)

GANESH PANGARE

Regional Director, International Water Association (Asia-Pacific)

GARY AMY

Visiting Professor, NUS (Singapore); Dean's Distinguished Professor, Clemson University (USA)

GLEN DAIGGER

Professor of Engineering Practice, University of Michigan, Department of Civil and Environmental Engineering (USA)

HAMANTH KASAN

General Manager – Scientific Services Division, Rand Water (South Africa)

INDIRA CHAKRAVARTY

Chief Advisor, Water & Sanitation Support Organization Public Health Engineering Department, Government of West Bengal (India)

JENNIFER DE FRANCE

Technical Officer, World Health Organization (Switzerland)

JONATHAN CLEMENT

Chief Executive Officer, PWNT (The Netherlands)

LEONG CHING

Deputy Director, Institute of Water Policy, Lee Kuan Yew School of Public Policy, NUS (Singapore)

MARION SAVILL

Executive Director, Affordable Water Ltd (New Zealand)

MARK FLETCHER

Director, Global Water Leader, Arup (UK)

MELISSA MEEKER

CEO, Water Environment & Reuse Foundation (USA)

MICHAEL TOH

Director, Water Supply (Network), PUB, Singapore's National Water Agency

NIKOLAY VOUTCHKOV

President, Water Globe Consultants LLC (USA)

NILAKSH KOTHARI

CEO & General Manager, Manitowoc Public Utilities (USA)

ONG CHOON NAM

Director, NUS Environmental Research Institute National University of Singapore (Singapore)

PASCAL DAUTHUILLE

Director, Partnerships and Collaborative Projects, SUEZ (France)

PAUL-JOEL DERIAN

AVRIL Group (France)

PUAH AIK NUM

Chief Engineer, Water Supply (Plants), PUB, Singapore's National Water Agency

ROBERT BOS

Independent Consultant, Water, Sanitation, Environment and Public Health (Switzerland)

ROBERT SKINNER

Professorial Fellow, Monash Water Sensitive Cities, Monash Sustainable Development Institute, Monash University (Australia)

SEUNGKWAN HONG

Professor, Korea University (Korea)

STEPHANIE RINCK-PFEIFFER

Managing Director, Global Water Research Coalition (Australia)

SUDHIR MURTHY

Innovations Chief, DC Water (USA)

TAO LI

Regional Director, International Water Association (Greater China Office)

WAH YUEN LONG

Advisor (Used Water), PUB, Singapore's National Water Agency

YUAN ZHIGUO

Director, Advanced Water Management Centre, The University of Queensland (Australia)

THEMES FOR WATER CONVENTION 2018

The Water Convention welcomes water practitioners and leaders to share their best practices, strategies and applied technological solutions which address the challenges and provide opportunities under the following domains or themes:

1. Delivering Water from Source to Tap
2. Effective and Efficient Wastewater Value Management
3. Water for Liveability and Resilience
4. Water Quality and Health

The focus of this technical programme is on high quality presentations, discussions with thought leaders, and debates with peers on applied technologies, processes, and practical approaches that address current challenges and emerging issues.



THEME 1A: DELIVERING WATER FROM SOURCE TO TAP (NETWORK)

This theme looks into the latest technologies and innovations in the realm of the water supply management, such as network modelling and design. Good planning and design remains a fundamental criteria for an efficient network, and the water sector is using technology increasingly to support, inform and implement water infrastructures, and secure an adequate and sustainable supply for current and future demand. Utilities, for example, are beginning to realise the benefits of *Big Data* and the *Internet of Things (IoT)*, and are leveraging real-time sensors and data analytics to support their daily operations, and conduct pre-emptive and predictive maintenance of the network. Data is also being used to align utilities with customer needs and value, increase public awareness of water issues and strengthen conservation efforts.

Abstracts on best practices, applied research and latest technological developments or innovations in the following areas are welcomed:

- **Water supply network planning, design and project implementation**
 - Network modelling
 - Construction materials, and automation or mechanised processes for pipe laying
 - Decentralisation of water supply system
 - Material and piping design, pumping, and storage system for buildings
- **Water supply network asset management**
 - Pipeline failure analysis
 - Network condition assessment, maintenance & pipe rehabilitation
 - Reduction in non-revenue water
- **Smart water grid**
 - Sensor technologies
 - Instrumentation, control and automation
 - Data analytics in network planning, optimisation and operation & maintenance
- **Automated meter reading**
 - Solid state water meter & smart metering systems
 - Transformation of business processes
- **Water conservation & efficiency measures**
 - Water conservation programmes for households and industries
 - Sustainable water pricing
 - Pumping, storage system, and building management systems for water conservation

THEME 1B: DELIVERING WATER FROM SOURCE TO TAP (TREATMENT)

Advanced technologies or novel processes which are robust and able to treat and remove recalcitrant and emerging novel contaminants are gaining ground in the water sector as water scarcity issues drive utilities to diversify their water sources with alternative or non-conventional sources such as desalination and wastewater recycling. The debate on direct potable reuse, for example, continues unabated and much of it surrounds the robustness and reliability of the treatment systems. At the same time, rising energy prices means the treatment processes must be energy efficient. Utilities are exploring renewable energy sources to reduce demand from the power grid as well.

Theme 1B aims to profile innovative water treatment technologies and processes, specifically in the following areas:

- **Advanced oxidation processes (AOP)**
 - Integrated and hybrid advanced oxidation processes
 - Optimisation of integrated processes
- **Natural organic matter treatment and removal technologies**
- **Treatment of emerging contaminants**
 - Conventional and advanced processes for elimination of emerging contaminants
 - Mechanisms affecting removal processes of emerging contaminants
- **Environmental friendly treatment technologies**
 - Low cost and low energy water treatment technologies (solar, algae based, etc.)
 - Natural and compact water treatment systems
- **Membrane based technologies**
 - Innovation membrane technologies
 - Membrane: new materials and trends
- **Water reuse**
 - Direct and indirect potable reuse
 - Alternative treatment schemes for direct potable reuse
- **Seawater desalination**
 - Innovations in seawater intakes and outfalls design
 - Seawater pretreatment technologies
 - Energy recovery and renewable energy in desalination

THEME 2: EFFECTIVE AND EFFICIENT WASTEWATER VALUE MANAGEMENT

There is an abundance of nutrients and energy in wastewater, and in light of environmental concerns as well as rising energy prices and sludge disposal costs, the 'business-as-usual' approach of conveying and treating wastewater for the purpose of disposal is not sustainable. A paradigm shift is required to maximally capture and create value out of the various resources in wastewater. At the same time, it is important to ensure wastewater networks remain robust, with advanced sensing and smart features to monitor wastewater discharged into sewers for toxicity, or compounds which may affect downstream treatment processes.

This theme looks into the application of best practices, cutting-edge technologies and next-generation solutions for wastewater treatment, tertiary treatment and wastewater network management. A special focus is technologies relating to energy efficiency, resource recovery and environmental sustainability. Practices and applied research-oriented papers on the following topics are welcomed:

- **Wastewater treatment**
 - Membrane-based processes
 - Efficient carbon capture and management
 - Energy management and energy production
 - Synergies between centralised and decentralised treatments
 - Environmental impact
- **Advanced wastewater and tertiary treatment**
 - Low-energy organics & nutrients removal
 - Micro-pollutants removal
 - Nitrification/ de-nitrification
 - Nutrient and resource recovery
 - Densified biomass
 - Water reuse
- **Wastewater management**
 - Drainage and sewer management
 - Sensors for wastewater monitoring (including bio-sensors)
 - Green infrastructure in urban environment
 - Smart wastewater management
- **Industrial wastewater management**
 - Resource recovery
 - Risk management
 - Regulatory compliance

THEME 3: WATER FOR LIVEABILITY AND RESILIENCE

In a 2014 report, the United Nations Department of Economic and Social Affairs estimated that 54% of the global population lived in cities, and this is expected to increase to 66% by 2050. While population growth creates vibrant economies, it also creates heavy demands on natural resources and the social environment which may become unsustainable if left unmanaged. Hence, local governments, urban professionals and individuals are coming together to collaborate and implement solutions towards resilient and liveable cities. Good urban planning must take into account the total urban water cycle to ensure its water systems are properly managed, protected and conserved, and thereby able to provide a safe and secure water supply, and high quality living environment for the population. The implementation of these solutions requires a holistic approach and strong partnerships among the stakeholders - government building on their existing capabilities to govern and plan, professionals becoming more "water-wise" in their area of expertise, and people becoming "water-wise" in their behaviour as citizens.

This theme welcomes success stories and case studies in planning, prioritising, implementing and monitoring effective policies, strategies, and new technologies, which facilitate the integration of sustainable water systems into the urban environment for resilient and liveable cities.

- **Regenerative Water Services**
 - Replenishing waterbodies and their ecosystems
 - Reduce water and energy usage
 - Reuse, recover, recycle
 - Systemic approach integrated with other services
 - Modularity systems to ensure resilience urban water systems
- **Water Sensitive Urban Design**
 - Urban design enabling regenerative water services
 - Urban design for increasing resilience to flood risks
 - Enhancing liveability with green infrastructures and blue-green corridors
 - New urban materials to minimise environmental impact
- **Basin Connected Cities**
 - Plans to secure water resources and mitigate drought
 - Protection of water resources quality
 - Readiness for extreme events
- **Water-Wise Communities**
 - Empowered citizens in sustainable urban water vision
 - Professionals' awareness of water co-benefits enabling innovative sustainable solutions
 - Trans-disciplinary planning and operation teams to increase efficiencies and synergies
 - Water-wise actions form policy makers
 - Effective and efficient governance enhancing trust and engagement

THEME 4: WATER QUALITY AND HEALTH

Global trends of rapid urbanisation, climate change-related extreme weather events, and increasing human mobility affect water security, and to a large extent, translate to significant challenges in supplying safe and clean drinking water to billions of people in a range of socio-economic settings. The Sustainable Development Goals (SDGs) framework, adopted by the United Nations in 2015, sets out a dedicated goal (SDG6) to “ensure availability and sustainable management of water and sanitation for all”. Developing an integrated research, policy and practice framework for the advancement and adoption of good water quality management is now vital to achieving its targets.

Water safety plans are increasingly built on specific risk analysis and control frameworks, and supported by quality control and auditing mechanisms. Lack of data, however, still represents a key challenge to current monitoring and modelling efforts that inform those risks. Poor management of urban and industrial wastewater continues to threaten surface water quality despite efforts to regulate and control point-source pollution over the past few decades. At the same time, the need to deal with diffuse pollution of agricultural production systems and animal waste is becoming increasingly urgent. As supply sources diversify and the binary treatment system of “dirty water in, clean water out” becomes more nuanced, advanced monitoring capabilities and standardised water quality across use-differentiated options are critical to ensuring public health in the global pursuit of sustainability.

Source management, integrated policy and regulatory frameworks, advanced and automated detection technologies, and contaminants of emerging significance are central to this research theme. This is a call for papers directed at practitioners, policymakers and decision-makers dealing in the specific topics listed below:

- **Policy and regulatory framework for drinking water quality**
 - Integrating regulations for drinking water quality from natural and recycled water sources
 - Monitoring techniques and risk assessment/management
 - Drinking water guideline values for chemicals
- **Source water quality management**
 - Protection, monitoring and evaluation of source water quality
 - Conducive institutional arrangements for source water quality management
- **Water and sanitation safety plans**
 - Quantitative microbial risk assessment (QRMA)
 - Health impact evaluation/ Impact of water safety
 - Water quality links to nutritional status
- **Real-time on-site and remote sensors along the water and sanitation chains**
 - Innovative technologies
 - Real-life experiences from different socio-economic settings
- **Advanced detection methods and technologies**
 - Biogenomics
 - Novel bio-analytical tools
- **Contaminants of emerging concern, complex mixtures and antimicrobial resistance**
 - New insights into managing the risks
 - Impact investment and other forms of private funding to expand wastewater treatment and reuse services



ABSTRACT SUBMISSION PROCEDURES

- Prospective authors can submit abstracts for either oral or poster presentations.
- Abstracts should be limited to three A4-sized pages including figures, tables and references, and must contain adequate information to allow a sound referee review.
- The author must fill in all the information requested by the submission system and attach the abstract using the provided template.
- Submission should be made online. Further information regarding submission of abstracts, registration for SIWW and paper presentation, including a template for the abstract, is available at www.siww.com.sg/water-convention.
- The deadline for submission of abstracts is **18 August 2017**. The abstracts will be peer-reviewed for selection and the authors will be notified about the acceptance of their paper for presentation from **15 December 2017**.
- Selection criteria include high technical quality, relevance to the themes/topics, and high information content. Abstracts which are deemed commercial in nature **will not be accepted**.
- The authors are strongly encouraged to submit the full papers once their abstracts have been accepted. Full papers will be further reviewed and considered for publication in IWA's Journal of Water Practice & Technology. The selected abstracts and full papers will be included in the Water Convention 2018 Conference Proceedings.

REGISTRATION FEES

All accepted oral and poster presenters are required to register for the Water Convention and pay for the conference registration fees. The presentations will only be listed in the Convention programme upon receipt of the registration fees.

IMPORTANT DATES

Submission deadline for abstracts	18 August 2017
Notification of acceptance	15 December 2017
Deadline for presenters' registration	30 April 2018
Deadline for authors' registration	
Submission deadline for full papers and poster softcopies	
SIWW Water Convention 2018	8 - 12 July 2018

CONTACT INFORMATION

For any enquiries, please email the Water Convention Secretariat at waterconvention@siww.com.sg.

Detailed information will also be available at www.siww.com.sg/water-convention



INTERNATIONAL WATER ASSOCIATION (IWA)

The International Water Association is the organisation that brings together science and practice of water management in order to reach a world in which water is wisely managed to satisfy the needs of human activities and ecosystems in an equitable and sustainable way.

The IWA is a global knowledge hub and international network for water professionals and anyone concerned about the future of water. We bring together know-how and expertise to instigate ground-breaking solutions.



PUB, SINGAPORE'S NATIONAL WATER AGENCY

PUB is a statutory board under the Ministry of the Environment and Water Resources. It is the national water agency, and manages Singapore's water supply, water catchment and used water in an integrated way.

PUB has ensured a diversified and sustainable supply of water for Singapore with the Four National Taps (local catchment water, imported water, NEWater, desalinated water).

PUB calls on everyone to play a part in conserving water, in keeping our waterways clean, and in caring for Singapore's precious water resources. If we all do our little bit, there will be enough water for all our needs – for commerce and industry, for living, for life.

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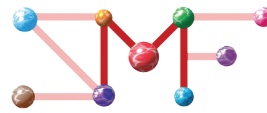
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For enquiries on Water Convention, please contact:

Water Convention Secretariat

E waterconvention@siww.com.sg

For enquiries on Singapore International Water Week,
please contact:

Bernard Tan

Managing Director

T +65 6731 3862

E info@siww.com.sg

For exhibition sales and sponsorship opportunities,
please contact:

Ruth Cheah

Senior Sales Manager

T +65 6595 6326

E ruthcheah@siww.com.sg

Christine Sim

Assistant Sales Manager

T +65 6595 6327

E christinesim@siww.com.sg