

Tokyo Report

Conclusions, Key Messages
and Outcomes

World Water Congress & Exhibition 2018



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Introduction



Ms. Diane D'Arras, IWA President

Our water's future lies in our hands. Under the theme “Resilience and sustainability - From science to practice and policy” the 2018 IWA World Water Congress & Exhibition gathered nearly 10,000 water professionals from utilities, academia, private companies, governments, and global organisations in Tokyo, Japan.

From 16 to 21 September 2018, as part of the largest ever IWA Congress and Exhibition, these leaders discussed and presented innovative solutions to global challenges that could bring transformative change to the most vital resource on earth: water.



HIH Crown Prince of Japan

Host country Japan honoured the IWA WWC&E with the presence of royal, national, and municipal leadership. As a measure of water's importance to the country and city, attendees included Their Imperial Highnesses, Crown Prince and Crown Princess of Japan, and members of the Japanese Government and the Tokyo Metropolitan Government, in the person of Ms. Yuriko Koike, Governor of Tokyo. The Japanese experience in water management, coping with diverse challenges such as population growth, megacities and natural disasters, inspired water professionals from around the world.

The 2018 IWA Congress & Exhibition presented the collective and state-of-the-art knowledge and practice through keynote speakers, presentations, poster sessions, workshops, discussions, technology showcases, dialogues on emerging issues, and leadership forums.

Since 2000, the biennial Congress has been the platform for water professionals to build a bridge between research and practice. In Tokyo, the discussions focused energy into six thematic tracks – water utility management, wastewater management, drinking water & potable reuse, urban water systems, communities, integrated planning & the enabling environment, and large-scale water management.

The Congress was, again, the platform and forum for a number of initiatives and programmes. Government oversight officials, water professionals and representatives from utilities held their 5th International Water Regulators Forum and progressive municipalities gave presentations on Water Wise Cities and launched the Action Agenda for Basin Connected Cities. The launch of the new IWA Specialist Group on Non-Sewered Sanitation and the new platform for accelerating the Diffusion of Innovation took place in Tokyo. Furthermore, innovators established a new group on the Path to a Digital Water Age, and thought leaders developed a new initiative to support members on Policy Development.

“It is necessary to apply wisdom created from history and contemporary advanced technology and to take action by collaboration with global society.”

HIH Crown Prince of Japan

“The IWA World Water Congress & Exhibition 2018 has proved the importance of bringing the key stakeholders and leaders of the industry together to discuss on the pressing water problems our world is facing. Only together can we learn and provide solutions. Being a space for professionals to exchange water knowledge, the International Water Association and its membership have once again demonstrated the enormous potential and strength we the water professionals have to shape our water future.”

Diane D'Arras *IWA President*



Audience at the opening ceremony



Congress President Hiroaki Furumai



From left to right: Keiichi Ishii, Minister of Land, Infrastructure, Transport and Tourism, Japan; Masaharu Nakagawa, Minister of the Environment, Japan; Michiyo Takagi, State Minister of Health, Labour and Welfare; Masaki Ogushi, Japanese Parliamentary Vice-Minister of Economy, Trade and Industry; Norihito Tambo, Vice President of Japan Water Forum, Professor Emeritus, Hokkaido University



Prof. Kala Vairavamoorthy, IWA Executive Director

The Exhibition forms an intrinsic part of the IWA World Water Congress and showcases country representations, industry-defining companies, and leading non-governmental organisations. At the crossroads for ideas and action, colleagues and experts, the Exhibition provides a free and ordered space for smaller, less formal presentations and discussions.

Each IWA Congress and Exhibition helps forge new and stronger alliances. During the week, IWA signed a Memorandum of Understanding with the Chartered Institution of Water and Environmental Management (CIWEM) and with the Alliance of Water Stewardship.

IWA celebrates superior research and work in the international water sector. To recognise these achievements, the Tokyo Congress & Exhibition presented several categories of *IWA Awards*, honouring: excellence, leadership, innovation and invaluable contribution to key innovations in the industry.

Building on our successful Congress in Tokyo, the IWA welcomes the next World Water Congress & Exhibition to take place in Copenhagen, Denmark, in 2020. The Danish Minister Jakob Ellemann-Jensen presented on the theme for this upcoming 12th IWA Congress edition - Water for Smart and Liveable Cities.



IWA pavillion

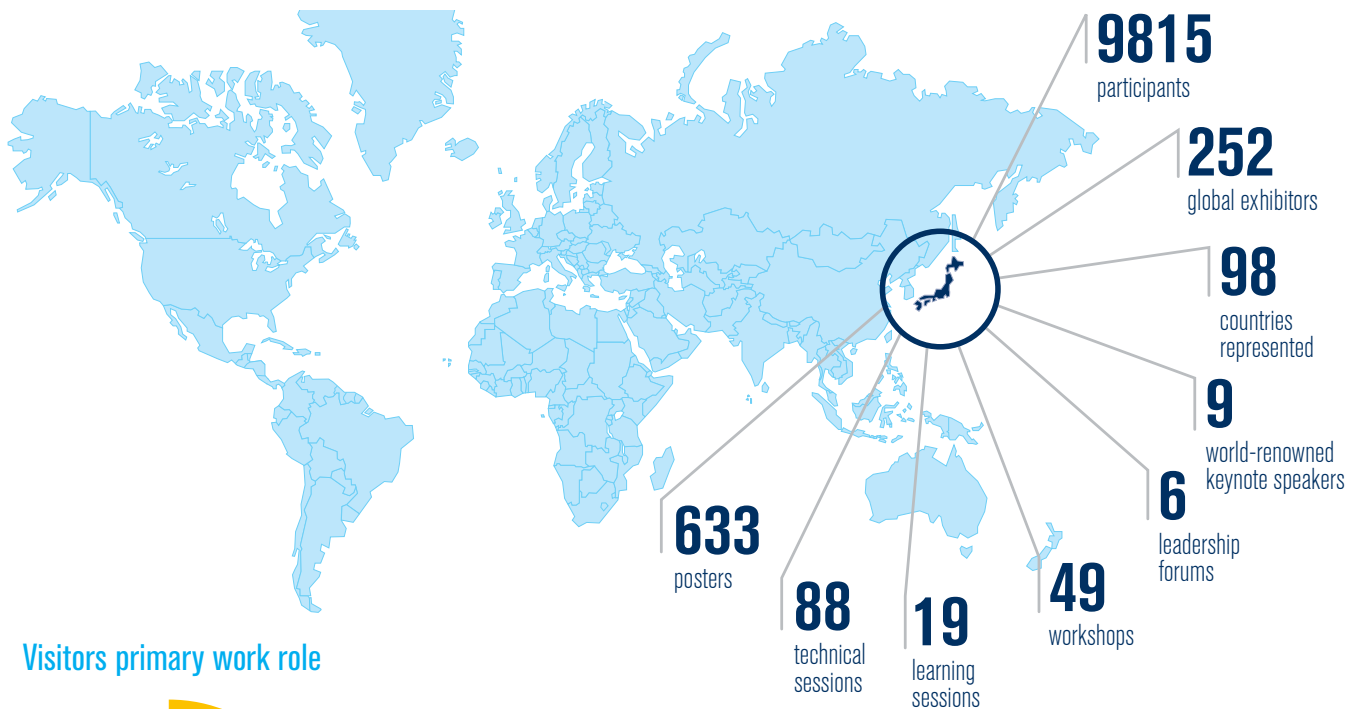
“This Congress in Tokyo has provided a strategic platform for key stakeholders within the water sector to come together to discuss and co-create solutions to the global water challenges. It has proved agenda-setting for the sector and beyond. The interdisciplinary collaboration, clearly the core IWA principle, has become reality at the Congress. During this week, we have discussed and worked on utilities, cities, and basins of the future with key focus on the digital water age, disaster resilience, and sustainability.”

Professor Kala Vairavamoorthy *IWA Executive Director*

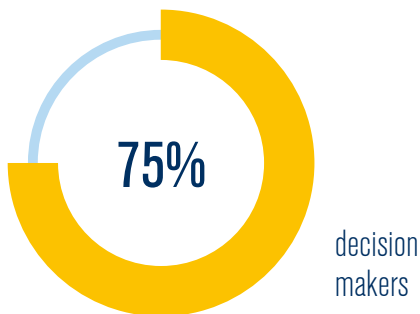
The Congress in numbers

The 2018 IWA World Water Congress & Exhibition in Tokyo doubled the numbers from the previous Congress in Brisbane two years prior and counted on its last day 9815 participants from 98 countries.

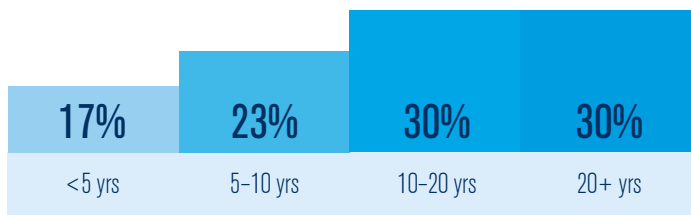
The [Congress programme](#) included 49 workshops, 88 technical sessions with 352 papers presented, 633 posters, 27 poster sessions with 462 presentations, 6 leadership forums, 7 plenaries, 9 keynotes, 3 master lectures, and 19 training and skill development sessions. This sums up to more than 280 hours of activities at the 2018 IWA World Water Congress & Exhibition.



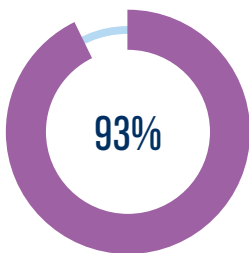
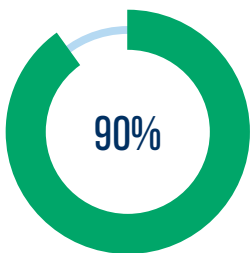
Visitors primary work role



Visitors work experience in the water and sanitation sector



Exhibitors opinions





Emerging leaders' thoughts



From left to right: Vanessa F. Schmitt, Yang Villa, Alexandra Young — YWP / Emerging Leaders

14 IWA Young Water Professionals / Emerging Leaders are the rapporteurs of the 2018 IWA World Water Congress & Exhibition share their thoughts and experiences made during this event.

The journey towards healthy and liveable cities

by Yang Villa, IWA Young Water Professional

It seems fitting to talk about the role and fate of cities at the 2018 World Water Congress considering that Tokyo is one of the world's most liveable cities. At the Congress, young water professional (YWP) rapporteurs covered twenty sessions belonging to the Healthy Liveable Cities theme. Through powerful presentations, lively workshops, and vibrant discussions, the Congress sought to answer three questions: "Why should we want to work towards Healthy Liveable Cities?", "How do we reach the Healthy Liveable Cities status?", and of course, "So what?".

Why healthy liveable cities?

The overwhelming response is that people are demanding for healthy liveable cities. The specific motivations are different — residents of Copenhagen wanted to be able to swim in the harbour again, while New Yorkers were asking for more bioswales — but the desired outcome is the same: people want an improved quality of city life.

City planners and dwellers have come to recognize the importance of a whole-of-cycle approach to water planning. Capitalizing on this trend, the IWA and Arup jointly released the "Cities Alive: Water for People" report — a collection of case studies that demonstrate how water enhances the quality of urban life — during the Congress.

Earlier in 2018, the UN celebrated World Water Day with the theme Nature for Water. In keeping with this focus, several Congress sessions stressed the value of nature-based solutions (NBS). NBS offer a green alternative to traditional grey infrastructure, which is often less adaptable to rapid changes in cityscape and the greater environment. "Green infrastructures" take advantage of the environment's carrying capacity, flexibility, and natural restoration to improve a city's resilience and aesthetics. The Congress urged participants to turn to nature for solutions such as sub-surface storage, revitalised wetlands, and natural water recycling.

Many cities have reached the same conclusion, albeit through different methods: green and blue solutions are best combined with existing grey infrastructure. This complementarity improves resilience while optimising limited space and budgets. For example, careful planning and methodical implementation turned Kanshun City in China into a "sponge city" through locally-appropriate combinations of green, blue, and grey infrastructures.

NBS also have a socio-economic impact. In his Master Lecture, Prof. Tony Wong demonstrated how decentralized green solutions can cater to marginalized communities which are typically left out of the centralized grid. Inclusive and low-cost NBS lead to improved local outcomes. Prof. Wong—who won this year's Global Water Award—leads the "Revitalising Informal Settlements and their Environments" (RISE) project which seeks to develop bespoke NBS in order to transform the way we design and deliver urban WASH. After all, healthy liveable cities must pay special attention to its most vulnerable residents.

How do we achieve healthy liveable cities?

The concept of a “healthy liveable city” means different things to everyone. Helping multiple stakeholders articulate their needs is important in order to map out a common direction for the city. Doing so takes more than just collaboration; rather, achieving healthy liveable cities requires co-creation.

Co-creation reached buzzword status at the Congress, but what does it truly entail? Is workshoping with stakeholders enough basis for co-creation? The various case studies presented at the Congress show that stakeholder dialogues are fundamental but insufficient for co-creation. We must also let stakeholders try their hand at problem solving. The NextGen project, spearheaded by KWR Watercycle Research Institute, demonstrates through its Living Lab structures how communities can be empowered to co-design solutions to their own problems. Trinidad and Tobago’s experience of investing its green fund directly to community-based organisations resulted in organically-crafted local projects that had basin-wide outcomes.

One of the Congress participants said, “we underestimate how much responsibility the community is willing and ready to take.” As such, the water sector is used to doing things to the customer, not with the customer. In order to achieve healthy liveable cities, our top-down decisions have to make way for bottom-up approaches to planning, design, and implementation.

Christos Makropoulos rightfully noted that “a key issue is engaging and reaching out of the comfort zone of the water sector.” How do we nudge the water sector to not just participate in, but lead co-creation? We must first articulate a common, often larger vision which is then shared and spread across all stakeholders. The UN Sustainable Development Goals (SDGs) and IWA’s Principles for Water-Wise Cities are examples of a shared vision that is, as Trine Stausgaard Munk observed, “a common agenda that multiple stakeholders can jump onto. We should take advantage of people’s willingness to join efforts.”

As we listened, it became apparent that beyond technological solutions, social innovation is key to achieving healthy liveable cities. The NextGen project, which aims to jumpstart local economies based on circular value chains, understands that technology is rarely the limiting factor. Prof. Francesco Fattone explained, “The real barriers to a closed system [and circular economy] are value chain barriers.” When people understand the value of resource recovery, increased demand for recovered resources will usher in a faster transition to a circular economy. Clearly, we must start with people.

“A lot of the time,” said Jurg Keller, “the biggest achievement is getting everyone in the room to recognize that they are part of the solution.” Trevor Bishop echoes this conclusion when he said, “Resilience in the round has three pillars: environmental, socio-economic, and socio-political resilience.” Cities are living entities, but they are also composed of people who actively shape its future.

The water sector is not what is used to be: traditional boundaries are being blurred, and we are absorbing more ideas from outside the sector. We must not only celebrate that, but we must actively seek it out. Under a shared vision for healthy liveable cities, imagine the things we can co-create!

...So what?

At the end of the day—and of the Congress—what do these all mean to the IWA and its members? How do we make sure we leave Tokyo equipped with the right mindset and tools to co-create healthy liveable cities? Two things have to change.

First, our knowledge-building has to change. Through co-creation, we have to get better at sensitising our research agenda to the real needs of cities and communities. Moreover we have to involve young water professionals to infuse a fresh perspective into our work, which keynote speaker Silver Mugisha said is the secret sauce to the success of the National Water and Sewerage Corp. of Uganda. The knowledge we need to build in order to propel the water sector into the future is trans-disciplinary in nature, and as Dragan Savic noted, “We need young water professionals who can work on the interface of traditionally separate fields of infrastructure, people, and IT, among others.”

Second, knowledge-sharing has to change. We need to be better storytellers and weave more convincing narratives in order to unify people under a shared vision. At the Science to Policy forum, academics and regulators debated the best way to translate research into action—yes, there is a better way to communicate even between seemingly opposing ends.

Our business cases have to tell better stories. For example, we should be more effective in discussing co-benefits in order to invite others to co-invest in sustainable nexus solutions. Jos Frijns summarized the challenge by saying, “Other sectors need to take us [water professionals] on board. We need to connect with them as we work towards a circular economy.” Of course where our words fail, working prototypes and pilot demonstrations can speak louder than the most well-written business plan.

“The key challenge for us today,” concludes Miriam Feilberg, “is how to create urgency for concerted action, especially in engaging with others outside of the water sector.” Unfortunately the people making far-reaching political decisions were not with us in Tokyo; they are still outside the purview of the “water sector” as we have so far defined it. Perhaps, if we tell our water stories better—including our vision for healthy, liveable, resilient cities—we can convince them to be at the 2020 Congress.

Disaster resilience

By Vanessa Fernanda Schmitt, Koichi Matsubara, Zehao Wang and Mohan Amarasiri, IWA Young Water Professionals

"Resilience is the capacity of a system to absorb disturbance and reorganize²⁹. Starting from this idea, we may infer that to develop disaster resilience we need to learn to adapt to have the ability to deal with occasional accidents, adapt to climate change, overcome obstacles and resist the pressure of harmful situations.

Through structured actions and decision-making in uncertainty, reflections and revision of the structured actions we would be able to confront disasters in the future. What we learned from this Congress was how integrated approaches are essential in attaining disaster resilience. We need professionals from science and engineering to interact with society to inform the solutions and or decision-making by various level of stakeholders.

Integrate efforts of fragmented communities

The magnitude and uncertainty of disasters are so big that we cannot develop resilience by fragmented efforts. Disasters are opportunities to integrate efforts of fragmented communities, cities and stakeholders.

The recent natural disasters that occurred in Japan created great opportunities to learn about disaster resilience. Not only the devastating Great Tohoku Earthquake in 2011 where recovery efforts are still continuing, but also many disasters including nationwide earthquakes, heavy rains and typhoons affected the country in 2018. Therefore, disaster resilience is an integral part of Japanese society. But Japan is not the only country facing disasters. At the Congress, water professionals from Asian countries or the UK discussed escalating challenges from floods, while others from Sweden, South Africa and Australia discussed efforts to cope with drought. Sharing experiences and responses to disasters helped build broader understanding and, thus, resilience.

Social and infrastructure resilience

Disaster resilience, as presented at the Congress, is the combination of two concepts, social resilience and infrastructure resilience and we need to balance efforts and investments for both categories in order to develop a resilient society for disasters.

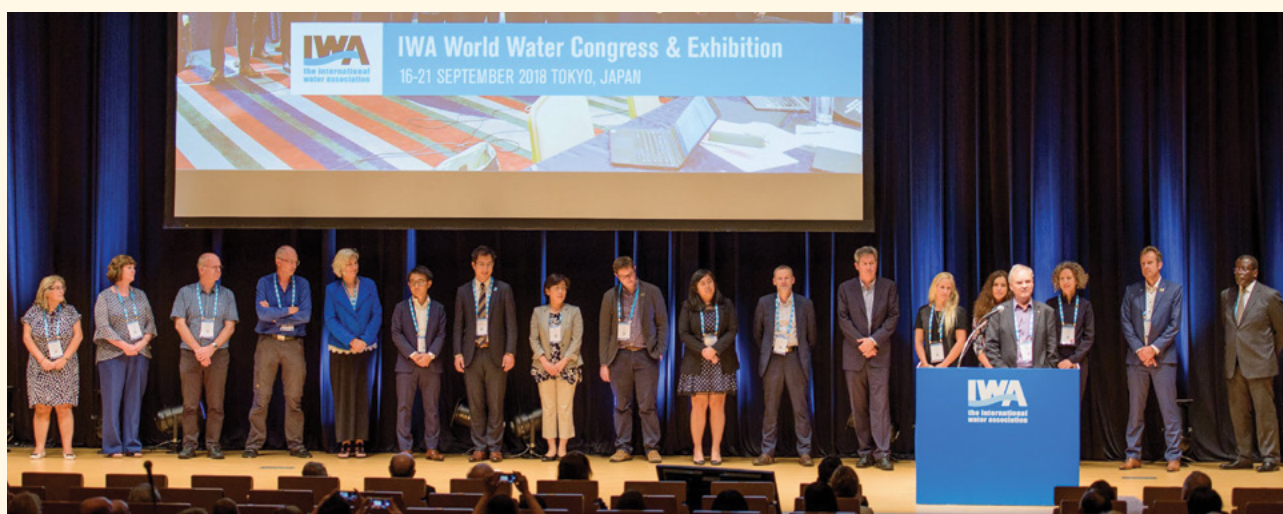
Infrastructure resilience

Great cases of infrastructure resilience were presented at the Congress, where through high standards for buildings, pipes and temporary restoration, resilience was increased and devastating impacts on the water sector were reduced. It is essential that new infrastructure to be constructed utilises the innovations presented which can lead to improved infrastructure resilience. One such example is Japan, where earthquake-resistant water pipes are used in new construction projects.

It is impossible to re-build all infrastructure to the standard of earthquake-resistance. Mainly because of the limited budget and the needs to keeping the services affordable. It is therefore critical for the water sector to communicate, and manage customer relations and perceptions so they continue to have customer's willingness to pay.

Risks remain, but what we need to know is how many of them can be avoided by existing systems and how to minimize risks and prepare a management plan. This can be done by employing retreat, protection, and adaptation strategies so as to be ready in case of emergencies to maintain or recover rapidly the service delivery after shock or stress.

Considering climate change and the population growth and consumption, it is necessary to extend the discussion beyond disaster resilience, urban resilience and attempt to connect water and its relationship with public health, liveable cities and governance, because water is fundamental to all urban systems. To take correct action at city level, a decision can be supported by a framework that considers the following steps: understand the system, assess water resilience, do a deep analysis and develop an action plan, implement the action plan, and monitor the plan.



WWCE 2018 Programme Committee

Social resilience

Self-help, mutual help, public support and cooperation are key factors to establish social resilience. After the Great Tohoku Earthquake in Japan, Sendai city waterworks in Japan identified the human resources for emergency response as one of the most critical factors to gain resilience. They train and share knowledge with all stakeholders through their annual disaster preparation drills with citizens, public institutions, universities, schools and companies where members of that particular institution get trained on the procedures to be followed during a disaster.

The “100 resilient cities network” is another form of creating social resilience through assigning resilience officers to a knowledge sharing platform on developing special trained measures. Yuriko Koike, the Governor of Tokyo, highlighted the importance of having an open dialogue with world leaders and of strengthening relationships between cities by sharing knowledge, discussing policies and know-how on a global level. This social resilience is also key to climate change adaptation. In the UK, the first National Infrastructure Assessment revealed that one in six households was at a risk of flooding while there was no overall intent for the resiliency. The key solution was to coordinate and integrate the fragmented stakeholders to deliver long-term strategies for flood protection measures.

Proper action at city level can verify issues, revise operating procedures, update protocols on risk management for the future, and record lessons learned. Because “there is a difference in how long it takes us to change our perception and how long it takes us to take action” said Prof. Toshio Koike. In order to achieve disaster resilience, we need to be more flexible. Adaptation measures can be more inclusive, fair and appropriate. Prediction should combine the latest update of climate change, vulnerability assessment, long-term planning and wide range of scenarios, if possible.

Social resilience is about training, communication, collaboration and integration. It is about the people. Because according to Mr. Bruno Nguyen, “people are not part of the problems, but they are the solutions to problems”. We are the solution and together we can do more today and get prepared for tomorrow. This is the most critical factor we believe to achieve disaster resilience.

No one-size-fits all solution will achieve disaster resilience. That is why our search for the most resilient solution will integrate many fragmented efforts and balance social and infrastructure needs and outcomes.



Digital water

By Alexandra Young, IWA Young Water Professional

Digital transformation is evolving so rapidly that it is difficult to keep up with all the emerging innovations that have a potentially disruptive impact on all engineering branches. At the 2018 IWA World Water Congress & Exhibition in Tokyo, the sector tried to answer three key questions: What impact does digital transformation have on the water sector? Can the water sector adapt to new technologies at the same rate as other industries have done, as for example the energy sector? And finally, how can we push a multidisciplinary and integrated approach to innovative water governance, which includes participation from a broad range of stakeholders?

Digital transformation as a disruptive game changer in the water sector

To develop and implement digital water technologies, you need a clearly defined vision, strategy and roadmap at organisational levels. You also need an enabling environment. Innovation through adaptive governance is hardly a new idea, but there are surprisingly few examples in of it being implemented in the water sector.

Big data analytics can help assess the condition of aging infrastructure. Drone-based inspection and LiDAR data can more precisely execute tasks and improve productivity. Artificial quantitative risk modelling can assess pipeline risk to help solve the challenge of non-revenue water. Blockchain technologies, applied to new, smarter contracts, will improve auditability and traceability for both water utilities and consumers. By implementing these technologies and disciplines, the water sector can build an engine of innovation that finally yields sustainable results and the necessary adaptation to climate change. All these technological innovations can capture more revenue, reduce water loss, and optimize process controls. Further, this creates benefits for communities, natural resources and ecosystems. It shows that digital technologies can open a new world of opportunities for improving existing water infrastructure and operating efficiency and can help us achieve the SDGs.

Can water utilities serve as an innovation engine?

The increasing pace of digitisation in water still lags behind other industries. The slower rate of adoption may be due in part to more conservative and risk averse industry, to its aging workforce, and to a fragmented widespread market. Yet the largest problem is that most water professionals just don't fully appreciate how much digital transformation can address the needs of our sector.

There's no time to lose. Nor is any subsector of water immune. Adopting and scaling digitisation can improve how water is collected, transported, treated and used in diverse environments, both in developed and emerging economies. Furthering the use of digital technology can help predict asset failures and forecast demand.

For all water utilities and processes, the key challenge is reliability. To ensure reliable production, you need a standardised workflow and metrics. These underlying structures can influence behaviour and build trust, allowing innovative progress and adoption. Innovation can improve the whole supply chain, including utilities, if the water sector fosters a safer environment for investors and disruptive technologies.

Another barrier to innovation in the water sector is the lack of competition among utilities. But as we have seen in the energy industry, the water monopoly framework can quickly change. So it's natural for water utilities to share lessons learned across national borders, using case studies and following best practices to evolve and adapt more efficiently. To test if an innovative technology is useful, a utility should test small pilot projects and learn from the deployment. Researchers and regulators can help bring about new processes by seeking out information and inconclusive results. Researchers especially play a key role and can help utilities highlight major takeaways and metrics. Alas, utility collaboration remains all too rare. But IWA can provide the platform for cooperation with stakeholders.

Water professionals have been agents of change in the past. Today, the sector truly needs a new generation of digital citizens. Water professionals must involve diverse business groups at earlier stages of projects to ensure that change endures. Utilities should involve and engage young employees who have mastered new technologies and are inclined to take calculated risks. Young Water Professionals could be agents of change in expendable environments with shrinking resources to create a more environmentally sustainable balance. As the water sector's main platform, IWA can engage Young Water Professionals in earlier stages, to ensure the sector gains new insights and fresh look at how to solve long-standing problems.

Digital innovation through diversity and multidisciplinary cooperation

Innovative governance will not only achieve good water management. It will also stimulate innovation and foster a stronger, more collaborative and effective network. Multi-sectoral cooperation can lead to achieving these highly effective and productive networks which can enhance learning and flow of knowledge.

The Congress innovators workshop reached a consensus that the most innovative ideas arise when people from different backgrounds and disciplines come together. The social friction guarantees an adaptive and integrated approach, which allows reflection and generation of new knowledge. A water engineer cannot lead digital innovation and progress alone; she needs to involve investors, social scientists, end users and, of course, utility operators.

The 2018 IWA WWCE also sparked provocative discussions about policy entrepreneurship and the establishment of so-called 'safe' spaces for experiments, pilots, and proof of concept demonstrations, which can (and should) sometimes fail in the first place. Some innovative approaches were suggested to improve the functionality of transnational and regional water authorities, including developing national resource databases and policy mechanisms that transcend institutional boundaries. For data sharing, multi-sectoral cooperation is essential for the success of good water governance, which leads to win-win improvements across the supply chain. What's still lacking in the water sector are systematic methods that incrementally incorporate new data and knowledge, while handling uncertainty and complexity.



2018 IWA World Water Congress & Exhibition Rapporteurs - IWA YWP / Emerging Leaders: Alexandra Seidinger, April Schneider, Blair Scott, Carla Alexis Manalo, Danladi Yunana, Emily Ryan, Inês L Breda, Iva Pervan, Koichi Matsubara, Mohan Amarasiri, Vanessa Fernanda Schmitt, Xiaoyuan Zhang, Yang Villa, Zehao Wang



Thought leadership for the water and sanitation sector



Rudy de Waele

Consciousness of water

Rudy de Waele, *Keynote speaker, content curator and author*

“In the upcoming 20 years, we can provide clean water to everyone with low costs, but we’ll need conscious leadership for everyone. Technology is challenging all our current systems, and with machines doing most of the work for us, we need to connect with our true human capacities and reinvent ourselves.”

How are technology trends, such as IoT, Genetics, Robotics and Artificial Intelligence impacting our collective daily lives? What impact is the digital transformation having in the water sector? With these questions in mind, Rudy de Waele highlighted in [his talk](#) how cutting-edge technologies are disrupting the sector.

Drone-based water leakage detection. Edible seaweed-based water balls. Remote sensors for smart irrigation. These and other tools can improve water resources management, provide basin-level insights to manage water risk, create advanced materials for producing new sources of water, and reduce costs of water and sanitation services.

Yet as automation replaces manual tasks, and machine learning renders the knowledge society obsolete, uncomfortable social questions arise: What are people for? What will water professionals do in the workforce of the future? Rudy de Waele believes that conscious leadership and collaboration across the entire water 'ecosystem' will be the bastion of a new economy, based on unique human to human services – traits that machines can't replace.



Toshio Koike

Strengthening water-related disaster resilience for sustainable development

Toshio Koike, *Director, International Centre for Water Hazard and Risk Management (ICHARM)*

“Uncertainty should be introduced in decision-making regarding climate change adaptation.”

Depicting how the number of water-related disasters has tripled since the 1980s, Toshio Koike raised attention to the intricate relationship between water, climate and the Sustainable Development Goals. In his [speech](#), Koike addressed recent developments in the field of risk identification, reduction and management to achieve increased preparedness to climate change impacts. He argued that governance must be strengthened for sound decision-making, encouraged appropriate investment in the water sector, and called on the further development of science.

Koike, a renowned climate change eminence, said adaptation must come through a holistic, 'end-to-end' approach that integrates scientific, engineering and socio-economical priorities.



Yuriko Koike

For a sustainable urban water cycle

Yuriko Koike, Governor of Tokyo

“Water is Tokyo’s pride. Water professionals work hard to hone their technologies to overcome ever-increasing water challenges so that we can have high-quality water directly from the tap.”

In her [keynote speech](#), Yuriko Koike raised attention on the initiatives taken to realise resilient and sustainable water supply and sewerage systems in Tokyo to support a sustainable urban water cycle.

Ms. Koike highlights two Japanese concepts crucial to maintaining the water and sewerage systems that underpin the urban water cycle. The ‘shin gi tai’ relates to the mind, skill, and body. This concept refers to the perspective of strengthening the resilience of the water and sewerage system against environmental disaster risk. The second one is ‘mottainai’ which means ‘too precious to waste’, expressing the concept of the 3 Rs, Reduce, Reuse and Recycle.



Silver Mugisha

Issues in strengthening and expanding a utility in a social context of lower and middle income countries

Silver Mugisha, Chief Executive Officer, National Water and Sewerage Corporation, Kampala, Uganda

“New technology must come evolutionary and not revolutionary. People have to be able to buy it and to use it.”

Institutions lack incentives in operational contracts. They also suffer inadequate oversight in an unfocussed and disoriented regulatory system. So argued Silver Mugisha, Chief Executive Officer in Charge of Institutional Development and External Services at the National Water and Sewerage Corporation in Uganda, in his speech. “We believe the best return we can achieve with the shareholders’ money is the social return, how many people you have served”, states Mugisha.

In his [keynote](#), Mugisha challenged his fellow water utilities with provocative questions: What legal and regulatory framework is most conducive to institution building? What prevents utilities from expanding water and sanitation from major urban centers into secondary towns and beyond? How do we decide whether to invest in optimal expansion or to reach out to the most vulnerable and poorest? Where is the optimal balance between centralized and decentralized approaches, both in technical and managerial terms? How can the rapid dissemination of new technologies be promoted in formal institutional set-ups?



Claudia Sadoff

The status of and outlook for Sustainable Development Goal 6

Claudia Sadoff, *Director-General, International Water Management Institute, Colombo, Sri Lanka*

“We need to shift from a mindset where water is plenty to one in which a scarce resource needs to be sustainably managed.”

We now have a dedicated water goal in the Sustainable Development Goals, and this has created a groundswell of political momentum to deliver safe drinking water and sanitation for all. Why, then, are we still far from achieving SDG6 by 2030?

Claudia Sadoff, Director General, International Water Management Institute (IWMI), Colombo, Sri Lanka, stressed in her [speech](#) that ambitious targets require ambitious, radically different solutions. She urged water professionals to re-examine the economics, engineering and water management paradigms. Only pragmatic rethinking can ensure we meet both the water services goals and the broader goals around water resources management.

Sadoff, an expert in Integrated Urban Water Management, highlighted promising examples that focused technical and engineering approaches into institutional and governance solutions, a confluence of cross-disciplines that will be essential to achieving SDG6.



Shinichiro Ohgaki

Decision making with uncertainty – challenges facing water professionals

Shinichiro Ohgaki, *President Japan Water Research Center (JWRC), Tokyo, Japan*

“New technology can create unpredictable development into the water sectors, and can have a great impact on society.”

The water sector faces the Global Challenges such as explosive population growth, rapid urbanisation, and global climate change. These global stressors are further compounded locally by more frequent extreme weather events such as floods and droughts. How should we deal with escalating uncertainty?

In his [keynote](#), Shinichiro Ohgaki spoke about the aspects of the uncertain world in which we live and highlighted the importance of development in science and technology for a sustainable future. New and diverse knowledge and innovative technologies need to be developed for the future of the water sector.



Panel discussions





Mark van Loosdrecht

The diffusion of water innovation: a university perspective

Mark van Loosdrecht, *Chair Professor in Environmental Biotechnology, Delft University of Technology, Netherlands*

“A university is not an innovative institute. It’s an institute which generates knowledge which might generate inventions, but true innovation only arises once there is collaboration and interaction with the field.”

The diffusion of innovation remains a big challenge. This is as true for the dissemination of new policies as for technical innovation. Which are the technical innovations that have been rapidly adapted by water and sanitation practitioners and what are the lessons learned that could be applied to other, less successful innovations? What are the obstacles to the diffusion of innovation?

From the perspective of a university researcher and that of an innovation chief from a large utility, Mark Van Loosdrecht and Sudhir Murthy, respectively, illustrate both the enabling and disabling conditions for water innovation.

Mark van Loosdrecht illustrated in his [keynote speech](#) how there is potential for water innovation when the curiosity and knowledge from researchers is matched by a felt market need by the water sector. Illustrated by cases, he talked about the success factors for innovative applications on the water field, as well as two major obstacles for water innovation.



Sudhir Murthy

The diffusion of innovation: a utility perspective

Sudhir Murthy, *CEO, NEWhub, USA*

“At a water utility, we usually go through an approach of finding and solving a problem. We need to create instead a dispersion of innovation, going through a process of developing an idea, generating intangible assets, developing the equipment or method, conceiving the technology or process, and once we’ve arrived at the solution, drive it forward and disperse it.”

In his [keynote](#), Murthy illustrated how a water utility must consider the different innovation cycles of water technologies. Utilities also should recognise the need to intensify processes, while reducing energy and resources expenditures.





Rebekah Eggers

From Drips and Drops to Bits and Bytes": The digitisation of water and impacts on utilities

Rebekah Eggers *Global Water Leader, WW IoT, Energy, Environment, & Utilities Business, IBM*

“We see utilities in the water and sewerage sector implementing the technologies that support their journey to digitisation, where predictive analytics, machine learning and scenario planning are applied to tackle problems from non-revenue water loss to field crew optimisation and even capital budget planning. And the results speak for themselves. We are seeing 10% decreases in water loss, 25 % increases on work crew utilisation, 15% decreases in transportation and energy costs, 24% increases in gas seals in sewage sites and 10% decreases in capital budget needs.”

Can utilities enable resilience and vibrancy by adding a layer of digital intelligence to their infrastructure? During her [keynote](#), Rebekah Eggers discussed the data science and technology constructs that help to bridge the physical-digital divide and highlighted the resulting opportunities and risks to the water and sanitation sector.

The digitalisation of water is no longer optional. The Internet of Things (IoT) — technologies like data analytics, cloud computing, augmented intelligence and blockchain — give us new capabilities to analyse, automate, and correct or adjust course in real time. They also help us predict and thus minimise risks.

The rise of digital water can help water and wastewater utilities extend the life of aging assets; reduce leakages, attacks or other abnormalities in the distribution network; improve water quality monitoring, enhance service levels, make supply more reliable, promote water conservation, or increase revenue through operational efficiencies.



Lars Therkildsen

The options and opportunities for a big multipurpose utility

Lars Therkildsen *CEO, HOFOR, Copenhagen, Denmark*

“We are promoting that people drink water from the tap, which emits 900 times less CO₂ than bottled water.”

The notion of providing essential services at the lowest possible resource use is driving the multi-utility concept, a trend in the utility sector in which one company provides various utility services. What synergies can an integrated provision of services bring?

“In July 2011, we experienced a serious cloudburst that made Copenhagen look like Venice,” said Lars Therkildsen, CEO of HOFOR, the Utility of Greater Copenhagen, in his [keynote](#). “This was a real game-changer, as it increased citizens’ awareness about climate change and instilled pressure on the government to act, introducing resilient measures to be financed through the water bill.”

HOFOR provides drinking water and wastewater services, heating and cooling, and erects wind turbines throughout the country to promote CO₂-neutral energy. In his keynote, Therkildsen explained not only the efficiencies gained through this approach, but also the optimal results achieved. For climate mitigation and adaptation measures ultimately contribute to a more healthy, liveable and attractive city.



Exhibition



IWA pavillion

The IWA World Water Congress & Exhibition presented a microcosm of the global water sector: water utilities, governments, consultants, contractors and technology providers presented their contribution to sustainable solutions. As an integrated element of the event, the exhibition brought together 252 global exhibitors in 10,000m² of exhibition space.

The [exhibition](#) included country pavilions with their clustered approaches and solutions from Japan, Denmark, Nordic Area, the Netherlands, Belgium, Portugal, China, Australia, Chinese Taipei and an African Pavilion with contributions from many African countries and the African Water Association (AfWA).

The IWA-Isle, known as the Emerging Technologies & Challenge Exchange Hub, proved a focal point of the exhibition. It elevated the profiles of ten selected global technology providers and their innovations. The Hub became a magnet for utilities facing common challenges as well as for the innovators who provided solutions. The currents flowed together under two themes: 'Challenges and Opportunities for Deployment of Water Treatment Worldwide' and 'Challenges in Water Recycling from Industrial Waste Water Stream.'

At the heart of the exhibition, the IWA WaterWise Pavilion took on the role of connecting utilities to the larger complex needs of their cities and surrounding basins, and helping urban actors rethink utility service boundaries as they make the transition to integrity, security, and resiliency.





Exhibition area



“Hosting the Australian Pavilion at the World Water Congress & Exhibition enabled us to enhance sharing of Australia’s knowledge and tools for sustainable water management. It was a great opportunity to engage and collaborate with leading international institutions through a strengthened ‘Team Australia’ approach. A clear highlight was to see Prof. Tony Wong (CRCWSC, Australia) awarded the IWA 2018 Global Water Award for his lifetime achievements.”

Australian Water Partnership

“The IWA Exhibition is a tremendous opportunity for us to showcase Canadian innovators to the world and to shine a light on our water leaders. We met so many international delegates and appreciated the lively atmosphere of the exhibition – to me, it seemed more like an exciting marketplace.”

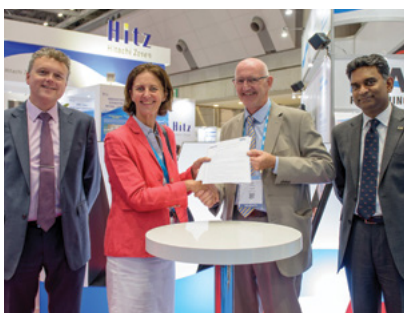
Robert Haller *Canadian Water & Wastewater Association*

“When we look back a few years from now, maybe we will say: ‘It happened in Tokyo’. Since IWA Busan 2012 in South-Korea, the Watershare-platform has been growing gradually. Our members increasingly participate in knowledge sharing, tool development and the set up and execution of joint reference projects. The number of Watershare-experts participating in the IWA Congress also continues to grow. For us Tokyo marked the next phase for Watershare. So, we’ll meet again!”

Watershare

“The African water sector aims to speak with one voice in the global arena, and the IWA World Water Congress & Exhibition is the place for us to look for solutions.”

Sylvain Usher, *AfWA Executive Director*



Cities warned to improve resilience of entire water basin to avoid risk of running out of water

Cape Town was not the first, nor will it be the last. The “Day Zero” threat of taps running dry, alerted other cities to threats to their own exposure to water supply risks. With the exacerbated effects of climate change, cities must actively manage and improve the resilience of their entire water basins, warns a new report by global engineering consultancy Arup.

At the Congress, the launch of the report “*Cities Alive: Water for People*”, authored by Arup and endorsed by the IWA, highlighted the need for cities to expand what they might now consider ‘their’ water infrastructure to include the entire river basin on which they depend.

The report calls for more ‘upstream thinking’ in how cities approach water management. This means greater collaboration, working with landowners, businesses and local authorities further upstream to consider the water basin as a whole.

Understanding how a city’s water basin behaves leads not only to improved water management, it can also protect the local environment and ensure the wellbeing of residents. To manage and maintain water basins, the report recommends collaboration across sectors, modelling the nature of water in its natural environment, and implementing this knowledge into the urban planning.



Launch of the “*Cities Alive: Water for People*” report in the Exhibition

“Recognising the importance of the entire water basin is essential as urban water resilience is not possible without rural water resilience. In simple terms, we must be more water-wise. With up to 4.3 billion people expected to live in cities by 2050, this is something city leaders and water managers need to be looking at now. Whilst this is a challenge, it also provides a significant opportunity to revolutionise how urban water systems are designed and retrofitted, and how they can deliver greater benefits for all.”

Mark Fletcher *Global Water Leader, Arup*



Signing of IWA Water-wise Principles, Mr. Y. Saito, Tokyo Metropolitan Bureau of Waterworks, Ms. C. Trommsdorff, IWA

“It’s really about people taking responsibility for building water-wise cities – cities that are connected to their basins, designed in a water-sensitive way, and delivering services that are sustainable, flexible and robust. Building water-wise communities is the key to achieving that. Water for people is also water by people. IWA members are endorsing the Principles for Water-Wise Cities to drive this transition.”

Corinne Trommsdorff *Programme Manager Cities of the Future, International Water Association*

The “Action Agenda for Basin-Connected Cities”

The launch of the *“Action Agenda for Basin-Connected Cities”* at the Congress highlights a holistic approach recognising the water basin as a system advocates equitable allocations, increased efficiencies and connectivity across the respective basin. The Action Agenda builds on the *“Principles for Water-Wise Cities”*, with a focus on how cities can be active water stewards in their wider water basins.

By 2050, seven out of ten humans on earth — including an additional 2.5 billion people — will be living in cities. All of them need and deserve an adequate, accessible and safe water supply while also balancing the needs of other users in the catchments they rely on. Urban stakeholders of a water basin must value and preserve the freshwater resources on which they depend. A disruption in their urban supply, however temporary, may cause significant and even irreversible socioeconomic, environmental and health consequences.



Claudia Sadoff, IWMI Director General

“The concept of ‘Basin-Connected Cities’ is exactly what we are dealing with within the IAWD. It is a platform for regional cooperation and promotion of best practices in the water sector through sharing of experience and knowledge and learning from each other. Our focus includes the water supply side on the one hand, but also wastewater, flood risk, water resources protection etc. on the other hand.”

Vladimir Tausanovic Vice President of the International Association of Water Supply Companies in the Danube River catchment Area (IAWD)

The Action Agenda involves three steps: The drivers for action or risks such as flooding, water scarcity and pollution; pathways for action through assessment, planning and implementation; and foundations for action from developing a vision to building capacity to improving governance.

The urban water utility of the future: ‘The Roadmap to a Low-Carbon Urban Water Utility’

Water utilities are among the first vital urban infrastructure affected by climate change. Water scarcity, flooding and deteriorated water quality directly hit utilities’ operations with fatal effects on provision of water and sanitation services.

“The Roadmap to a Low-Carbon Urban Water Utility”, is the legacy from the Water and Wastewater Companies for Climate Mitigation (WaCCliM) project, presented at the IWA World Water Congress & Exhibition 2018. It intends to inspire urban leaders and decision-makers to transition towards carbon-neutral urban water and wastewater services and to guide them through this process.

“This Roadmap supports water utility managers around the world in their efforts to improve performance and achieve carbon neutrality of their utilities, while raising the awareness of policy-makers to the substantial contributions the water sector can provide in meeting greenhouse-gas reduction targets”

Thomas Stratenwerth Head of Division, General, European and International Water Management Issues, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany

The first guide of its kind, the Roadmap demonstrates a practical approach towards low-carbon, holistic and sustainable urban water management. It *showcases* the diverse approaches adopted by water companies and highlights pilot utilities worldwide that significantly reduce their greenhouse gas emissions through targeted service performance improvements, from enhanced maintenance to new technologies and measures. These forward-thinking utilities are leading the transition to low-carbon urban water utilities.

The Roadmap is the flagship from the WaCCliM project, a joint initiative between the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the International Water Association, acting on behalf of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) as part of the International Climate Initiative (IKI).



The Roadmap to a Low-Carbon Urban Water Utility



Diane D'Arras, IWA President, and Kala Vairavamoorthy, IWA Executive Director, at an event at the IWA Water-Wise Pavilion

Report on ripple effect caused by climate change on on global water challenges leading to local challenges

Research into how increasing water scarcity and drought may impact the Japanese economy was presented by R2Water and FutureWater at the Congress.

The author Dr. Ertug Ercin, IWA member, presented data from *'Dependencies of Europe's economy on other parts of the world in terms of water resources'*. This is part of the Improving Predictions and Management of Hydrological Extremes (IMPRES) project, the EU's Horizon 2020 grant programme which aims to improve society's ability to anticipate and respond to the impacts of climate change.

The report highlighted water as key input into any economy. Under the focus of international trade in goods, water is a local and global resource. While water facing local threats and crisis, it transports this fragility in the context of the so called virtual water bringing the impacts from countries highly vulnerable to water scarcity and droughts to other parts of the world. Japan for example, imports many traditional ingredients and is therefore secondarily affected by these global climate threats.

DriTan™ by ECCO Leather launched at IWA

Other industrial sectors may have a continuous impact on water and wastewater, all too often for the worse. Yet innovation and enhanced production can cut pollution, reduce water consumption, save money and improve a brand's corporate image. For example, at the Congress one company, ECCO Leather, claimed its manufacturing system had developed a new and improved tanning method, called DriTan™. This method saves 20 litres of water per hide which is up to 25 million litres of water saved annually. Additionally, it saves 600 tons of sludge per year that go to landfills.

This system dramatically reduces one of the most difficult steps in the tanning process. By using the moisture already present in the hides, the result is indistinguishable from traditionally tanned leather in terms of quality, characteristics, stability and lead-time. Beyond saving water, the technology also slashes chemical use and wastewater discharge.

Dynamics of the IWA Membership



Specialist Groups Leaders Forum

IWA Fellows and Emerging Water Leaders

At the Congress and Exhibition, IWA once again demonstrated that it is made by members and for members when IWA Fellows and Distinguished Fellows met with the Emerging Water Leaders. 55 IWA Fellows and 11 Distinguished Fellows used the special meeting at the Tokyo Congress to meet, with 18 Emerging Water Leaders who are the Young Water Professionals (YWP). Here, at a 'passing of the torch' between generations, the young met with senior and experienced water professionals to facilitate, foster and inspire knowledge and experience exchange for all - the spirit of shaping our water future together!

IWA Fellows and Distinguished Fellows are individual water professionals who receive recognition by their peers for their sustained outstanding contribution to the water profession and the industry, and to delivering the IWA mission of creating a water-wise world, improving the wellbeing of societies and the environment. At the congress, the IWA Board of Directors confirmed during the IWA Tokyo Congress four new IWA Distinguished Fellows and 25 new IWA Fellows.

NEW DISTINGUISHED FELLOWS:

Darryl Day *Australia*, **Hiroaki Furumai** *Japan*, **Mark van Loosdrecht** *Netherlands*, **Zhiguo Yuan** *Australia*.

2018 IWA FELLOWS:

Eva Abal *Australia*, **Irimi Angelidaki** *Denmark*, **Magnus Arnell** *Sweden*, **Nicholas Ashbolt** *Canada*, **Hiroshi Ashida** *Japan*, **Jean-Luc Bertrand-Krajewski** *(France)*, **Prosun Bhattacharya** *Sweden*, **Faizal Bux** *South Africa*, **Jiaping Paul Chen** *Singapore*, **Carlos Chernicharo** *Brazil*, **Dionysios Dionysiou** *United States*, **Jörg E. Drewes** *Germany*, **Kari Elizabeth Fagaerness** *Norway*, **Guangtao Fu** *United Kingdom*, **Qiang He** *China*, **Arlinda Ibrahimllari** *Albania*, **Katsuki Kimura** *Japan*, **Qilin Li** *United States*, **Huu Hao Ngo** *Australia*, **Korneel Rabaey** *Belgium*, **Lutgarde Raskin** *United States*, **Gary Toranzos** *Puerto Rico*, **Kuo-Lun Tung** *Chinese Taipei*, **Paul Westerhoff** *United States*, **Marie-Pierre Whaley** *United Kingdom*.



Mr. Julian Sandino, Co-chair of the Fellow Steering Committee; Mr Magnus Arnell, IWA Fellow

IWA Specialist Groups at the Congress

As a backbone of IWA World Water Congress 2018, the IWA Specialist Groups organised workshops, hosted open meetings, and launched new reports and online platforms. They also organised the SG leaders forum, which highlighted past work of, and set the future agenda for, Specialist Groups, Task Groups, and Clusters. Through existing platforms, these engaged members also discussed and brainstormed on IWA core activities such as publishing, programmes, and thematic events.

IWA explored how SGs can contribute to the brave new era of 'open access publishing,' which accelerates the diffusion of knowledge worldwide but requires new thinking about self-sustaining revenues. Examples from the Modelling and Integrated Assessment (MIA) SG and the Resource Recovery Cluster were given to showcase their successes in engaging members from all ages, geographies, genders and backgrounds. The Specialist groups are the living showcase of the IWA heart and spirit on being an Association by members and for members.

Forums



5th International Water Regulators Forum

Forums are an important part of the IWA World Water Congress & Exhibition for participants to get an in-depth understanding of current trends, latest research, guiding strategies and leading practices. The 2018 edition focused on Disaster Counter-measure and Risk Management towards Resilient Cities, the International Water Regulators, the Basin-Connected Cities, the Science to Practice, the Emerging Water Leaders and the Utility Leaders Breakfast.

Disaster Counter-measures and Risk Management towards Resilient Cities Forum

The Forum focused on the resilience of water supply, drainage and wastewater systems in cities. For example, participants learned how institutions recovered the functions of water and sewerage works in the wake of the Great East Japan Earthquake of 2011.

Forum discussions showed how enhancing water security, wastewater and drainage were opportunities to strengthen resilience. Practical experiences from several cities offered strategies to build water resilience — the capacity to recover after a disruptive event (disaster or crisis) or slow changes (diminishing resources, social changes, climate change).

The 5th International Water Regulators Forum

The *5th International Water Regulators Forum* gathered 82 participants from 36 countries — including jurisdictions as distant as Brazil and Mongolia. High-level representatives of utilities and regulatory authorities, and officials with regulatory and supervisory functions related to the provision of water and wastewater management services, discussed: How can regulatory authorities enable resilience and sustainable development?

The Forum continued to advance the principles of the [Lisbon Charter](#), the international framework of good practice for public policy and regulation in drinking water supply, sanitation and wastewater management services, and yet elaborated on the complexity of including nature into the equation. To make sustainable development a reality for all, regulators must understand the risks to services — under given institutional settings and capacity — and where lie accountabilities at operational, city and basin levels. Robust planning and reforms depend on sound information on demand and use, system yields and hydrology. These same forces help utilities graduate from a reactive, contingency approach towards proactive water security.

Discussions concluded with the engagement of policy and decision makers, including interventions of ministerial leaders from Sri Lanka, Malawi, and Malaysia, the South African Parliament, national authorities in Japan, Singapore and Palestine, as well as high-level representatives of the industry and private sector with EurEau, Arcadis, and The Alliance for Water Stewardship.

Basin-Connected Cities Forum

The Basin-Connected Cities Forum (*Report*) followed the launch of the *Action Agenda for Basin-Connected Cities*. The Action Agenda aims to influence and activate urban stakeholders to protect and invest in water resources with basin and catchment organisations. The Forum elevated these topics in keynotes, panels and active roundtable discussions. Water professionals assessed the transformation required to enable basin-connected cities, and the tools for action to catalyse this transformation. But challenges remained. A siloed approach to water and land management prevented cross-fertilization. Short-term returns got in the way of long-term investments. And there were few proven mechanisms for sustainable funding.

The Basin-Connected Cities Forum recognised that in order to succeed in connecting cities with their basins, we must have a holistic, integrated approach which considers the whole water cycle – clouds, rain, surface flows, groundwater, consumption, runoff, effluent, treatment, reuse, evaporation, etc. Only by having a systems approach can cities work in conjunction with their wider basins to effectively respond to different pressures. In this respect, there must also be space for stakeholders to go beyond their prescribed mandate, if needed, through flexible policy and regulatory frameworks.



Science to practice forum

Science to practice forum

Fostering cooperation between scientists, technology developers and end-users, the Science to Practice Forum different approaches and experiences on how to effectively connect science with practice in the water industry.

Through case studies and presentations professionals from diverse spheres of the international water sector identified mechanisms and approaches that enable uptake of scientific knowledge and technology expertise into applied innovation. For the acceleration of innovation, collaborations, cyclic innovation models, integrating scientific research, technology development, product creation, market transition, and global entrepreneurship are critical.

Utility leaders' breakfast

Utilities are key actors in the transition to “water-wise cities”. In Tokyo, 50 executive-level utility leaders joined a “Disruptive Thinking Networking” meeting to discuss the future of utilities in the context of the challenges of aging infrastructure, rapid urbanisation, and uncertain future climate conditions. The ultimate aim was to ensure resilient and liveable cities through regenerative water services and water sensitive urban design, together with a recognition that water security is often dependent on having a basin-connected city. Actions at these levels rely on the support of water-wise communities: citizens, leaders and professionals working hand in hand to deliver on the water-related SDGs.

Awards

The Association elevates the water industry with the IWA Water Awards. The awards honour outstanding achievements and thought leadership by individuals, companies, and organisations in the water sector. They distinguish those who have displayed conspicuous service to the profession and highlight exceptional performance in the research and practice of water management.

The [IWA award](#) categories covered awards in the sections Women and Water, Young Leadership, Professional Development, and the Project Innovation Awards with 18 winners in six categories, including the Kiran and Pallavi Patel Grand Innovation Award.

IWA Global Water Award

Professor Tony Wong



Prof Tony Wong, IWA Global Award winner

Professor Tony Wong was awarded the 2018 IWA Global Water Award for his lifetime research on water sensitive urban design. The Award recognises the exceptional role Prof. Wong has fulfilled in working in the field of urban water for over 30 years, bridging gaps between sectors and working with integrated interdisciplinarity. In his work and research, he has embraced and built his work across sectors ranging from social to technical, from engineering innovations to nature-based solutions, and used urban design as the integrative platform.

IWA Women in Water Award

Professor Akissa Bahri



Prof Akissa Bahri, IWA Women in Water Award winner

The 2018 IWA Women in Water Award was bestowed upon Professor Akissa Bahri for her outstanding lifetime professional contribution to the international water sector in work, projects and research. Prof. Bahri is an agricultural engineer by training with extensive background in water research in the fields of water resources development and management, agricultural use of marginal waters and bio-solids, and their impacts on the environment with a focus on water quality and water use efficiency.

IWA Young Water Professional / Emerging Leaders Award

Jacob Amengor



Jacob Amengor, Emerging Leaders Award winner

Jacob Amengor won the 2018 IWA Young Water Professional Award because he is an exemplary role model for his generation in the sector. With an academic background in water and sanitation, now seeking a Master's degree in environmental engineering, Amengor is currently Assistant Water Quality Assurance Officer at Ghana Water Company Limited. His passion for water and sanitation sector is manifest in his search for solutions and methods that engage and connect with local communities.

IWA Professional Development Award

Black & Veatch



Glenn Chan, Professional Development Award winner

The 2018 IWA Professional Development Award was awarded to Black & Veatch. The Kansas-based company implements in its professional programme for current and future employees innovative and solid in-house career building. Other remarkable career development components include mentoring, on-boarding programmes, Growth Accelerator and leadership development.

IWA Recognition Awards

The two IWA Recognition Awards recognize the contribution of members of the Association to the success of IWA and the water sector. They are granted for consistent and outstanding service to IWA and to IWA Publishing.

IWA Outstanding Service Award — Professor Wolfgang Rauch

Professor Wolfgang Rauch won the 2018 IWA Outstanding Service Award. As Professor at the University of Innsbruck in Austria, he is a civil and environmental engineer and a widely-published researcher in the fields of water pollution, drainage and integrated water management. Rauch is an IWA Fellow and has taken on many leadership roles within the organisation, including as Chair of the Committee on Urban Drainage and Chair of the Programme Committee.

IWA Publishing Award — Professor Damir Brdjanovic



From left to right, Diane d'Arras, IWA President, Professor Damir Brdjanovic, winner of the 2018 IWA Publishing Award, and Professor Kala Vairavamoorthy, IWA Executive Director

Professor Damir Brdjanovic was awarded the 2018 IWA Publishing Award. As Professor for Sanitary Engineering at the IHE Delft Institute for Water Education in the Netherlands, he has helped launch five IWA-published bestsellers and currently has several further initiatives under development.

IWA Poster Awards



Ryan de Sotto, 1st winner IWA Poster Awards

WINNER 1ST

Ryan de Sotto

Employing Molecular Methods to Understand the Behaviour of Select Nutrient-removing Organisms and Genes in Two Lab-scale MLE-MBRs

Affiliation: PhD Student, National University of Singapore

WINNER 2ND

Mario Jr Rebosura

Understanding the Effect of In-sewer Iron Dosing on the Downstream Wastewater Treatment Processes

Affiliation: PhD Candidate, The University of Queensland

WINNER 3RD

Piphat Boribannukul

Uplifting of Free Residual Chlorine (FRC) in Distribution System of Bangkok Tap Water, Thailand

Affiliation: Metropolitan Waterworks Authority

12th IWA Project Innovation Awards

At the IWA World Water Congress, the [Project Innovation Awards](#) recognise and promote excellence and innovation in water management, research and technology. This 12th edition of the Project Innovation Awards (PIA) programme features six categories with three finalists each. Each category recognises a distinct aspect of water innovation, from breakthroughs in research to innovations in governance.

IWA Project Innovation Award Winners

MARKET-CHANGING WATER TECHNOLOGY AND INFRASTRUCTURE

- **Gold:** Aqua-Q AB – *AQUATRACK*
- **Silver:** Carollo Engineers and City of Altamonte Springs – *pureALTA*
- **Bronze:** Suez, Hengli Petro and LPEC – *Embedded Wastewater Treatment Plant*

PERFORMANCE IMPROVEMENT AND OPERATIONAL SOLUTIONS

- **Gold:** Anglian Water – *Shop Window*
- **Silver:** VCS Denmark – *Beyond Energy Neutrality: Setting a Vision and Empowering Your Staff*
- **Bronze:** Waternet – TU Delft – Sanquin – *Thermal Energy Recovery from Drinking Water: Exploitation of a Renewable Energy Source*

BREAKTHROUGHS IN RESEARCH AND DEVELOPMENT

- **Gold:** Cranfield University – *Nano Membrane Toilet*
- **Silver:** Prof RD Tyagi and Research Group, INRS ETE, Université du Québec – *Bioconversion of Wastes (Wastewater sludge and Glycerol) to Biodiesel*
- **Bronze:** Hong Kong University of Science and Technology, HKSAR Government Drainage Services Department, University of Cape Town and Delft University of Technology – *Large-scale Study on Realization and Application of SANI Process in Sewage Treatment in Hong Kong*

EXCEPTIONAL PROJECT EXECUTION AND DELIVERY

- **Gold:** Beijing Drainage Group – *Beijing's Sustainable Solution for Ecological Water Reuse – Huaifang Underground Water Reclamation Plant (HWRP)*
- **Silver:** AECOM – *Building Resilience in the Philippines with Systems, Technologies and Partnerships: The USAID Be Secure Project*
- **Bronze:** GHD – *Birmingham Resilience Project*

GOVERNANCE, INSTITUTIONS AND SOCIAL ENTERPRISE

- **Gold:** AMCOW – *Web-based Monitoring and Reporting System for the Water Sector in Africa*
- **Silver:** Water Corporation – *Water Recycling: Creating Benefits for Indigenous Australia*
- **Bronze:** Waterwise – *Water Efficiency Strategy for the UK*

SMART SYSTEMS AND THE DIGITAL WATER ECONOMY

- **Gold:** Severn Trent Water – *Smart Abstraction Management*
- **Silver:** Anglian Water – *Integrated Leakage and Pressure Management System*
- **Bronze:** SA Water – *Smart Water Network*

Patel Grand Innovation Award – Cranfield University

The award categories include the Kiran and Pallavi Patel Grand Innovation Award 2018 presented to an outstanding example of innovation in the water sector. This year, Cranfield University won the Grand Innovation Award for its remarkable work on the Nano Membrane Toilet.

“Winning this award (...) highlights just what can be achieved when professionals from diverse fields of design, science and engineering are motivated by a unifying ambition and given licence to explore blue-sky solutions to a seemingly intractable challenge. We hope that our experience provides the wider sector with a valuable example of how ‘grand challenge’ driven applied research can be structured so as to deliver multiple benefits for stakeholders.”

Prof. Sean Tyrrel, Project Manager for the Nano Membrane Toilet development



All winners of the 12th IWA Project Innovation Awards and Patel Grand Innovation Award

Outlook: Water for smart and liveable cities, #WorldWaterCongress 2020

The 2020 IWA World Water Congress & Exhibition in Copenhagen, Denmark, will create new insights into how pioneering science, technological innovation and leading practices shape the major transformation in water management that is underway. Join more than 10,000 leading water professionals and companies, including thought leaders from within and outside the water sector.

The event will emphasize leading practice, innovation and solutions. It will provide new networking and business opportunities, and ensure maximum exposure between participants, exhibitors and sponsors. It will connect water professionals with the right people and the right solutions, foster new collaborations and partnerships, and offer a platform where exhibitors and sponsors can raise their international profile amongst leading water professionals and companies.

Expectations for Copenhagen 2020

- Provide vision and inspiration on how water can create smart and liveable cities of the future
- High-level summit with utility, government and city officials as well as organisations and water utilities about the progress towards implementation of the SDGs.
- Provide a congress that expands IWA's reach to agriculture sectors.
- Advance the opportunities for young water professionals and emerging water leaders.

This 2020 #WorldWaterCongress & Exhibition will report on the water sector progress on the Sustainable Development Goals (SDGs). With an emphasis on SDG6, dedicated to water and sanitation, the Congress will also highlight and access the interwoven relation of water with all 17 Global Goals. Participants will analyse, discuss and highlight solutions at high-level summits, case studies presentations and examples of implementation and cooperation towards the fulfillment of the SDGs.

Focusing on leading practice, innovation and solutions, the event provides new networking and business opportunities, and ensures maximum exposure between participants, exhibitors and sponsors. It connects the right people and the right solutions, fostering new collaborations and partnerships, and providing a platform for exhibitors and sponsors to raise their profile amongst leading water professionals and companies.

The IWA World Water Congress & Exhibition 2020 includes new target groups and new stakeholders outside the conventional water sector: The water-consuming industry, agriculture, architects and urban planners, hydrologists and soil and groundwater experts, social sciences, ICT-sector, the financial sector and others.



Professor Hiroaki Furumai, Tokyo 2018 Congress President and Anders Baekgaard, 2020 Congress President



Acknowledgement

From the International Water Association, we would like to express our deepest appreciation to the Programme Committee for their tireless and important work done to make this 2018 IWA World Water Congress & Exhibition a success! Thank you:

Jurg Keller *Australia (Chair)*

Wolfgang Rauch *Austria (Vice-Chair)*

Aaron Burton *United Kingdom*

Abby Crisostomo *United Kingdom*

Apichart Anukularmphai *Thailand*

Arlinda Ibrahimllari *Albania*

Eveline Volcke *Belgium*

Heidi Snyman *South Africa*

Joan Rose *United States of America*

Jörg E. Drewes *Germany*

Karsten Arnbjerg-Nielsen *Denmark*

Mari Asami *Japan*

Maria João Benoliel *Portugal*

Mark van Loosdrecht *Netherlands*

Miharu Hirano *Japan*

Peter van Rollegheem *Canada*

Reynald Bonnard *France*

Rianna Gonzales *Trinidad and Tobago*

Satoshi Takizawa *Japan*

Shane Snyder *United States of America*

Shaun Cox *Australia*

Sylvain Usher *Ivory Coast*

Takahiro Seki *Japan*

Trevor Bishop *United Kingdom*

Trine Stausgaard Munk *Denmark*

Xia Huang *China*

Partners and Sponsors

The 2018 IWA World Water Congress & Exhibition was organised by the International Water Association in partnership with the Tokyo Metropolitan Government, the Japan Society on Water Environment, the Japan Water Works Association, and the Japan Sewage Works Association.

The IWA WWCE organisers and hosts would like to thank the sponsors and partners for their support: Cosmo Koki, Hitachi, Hitachi Zosen Corporation, JFE Engineering Corporation, Kansei Company, Kubota Corporation, Kurimoto, Mediensha Corporation, Metawater, Morimatsu Industry, Poten Environment Group, Suez, Swing Corporation, Taisei Kiko, and Xylem.

“IWA World Water Congress & Exhibition 2018 was proven to be the most useful and profitable water event to the world. KUBOTA as a principal sponsor is grateful that the world's leading water professionals had an opportunity to get the information of Japan's high-quality water supply and sewage system such as the latest products, technologies, and services.”

KUBOTA, *Principal Sponsor*

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