

# Brisbane Report

Conclusions, Key Messages  
and Outcomes

World Water Congress & Exhibition 2016





# Shaping Our Water Future

“The way we manage water will determine how economic development, human well-being and environmental sustainability will be achieved.”

**Ger Bergkamp** *Executive Director, International Water Association*

A world in which water is managed wisely is one where all individuals have access to safe water and adequate sanitation, where water and wastewater make a positive contribution to resource efficiency, and where the quality of water in rivers, lakes, aquifers and other water bodies safeguards environmental and public health. To create a water-wise world we need to reduce, renew, and replenish our supplies.

This was the vision behind the World Water Congress & Exhibition 2016. Over 4,700 leading water professionals from 108 countries came together to debate the challenges, opportunities and solutions for achieving a water-wise world. Thought leading keynotes, leadership forums, workshops, technical sessions, business forums, training sessions and networking opportunities brought new insights, forged new partnerships and showcased new ideas for solving the global water crisis.

“The SDGs give us the frame and opportunity to change the world.”

**John Thwaites** *Chair Monash Sustainability Institute*

## Thought leadership for a sustainable water future

Dynamic and thought provoking plenary sessions with keynote presentations from some of the most prominent figures in the worlds of science, technology, industry, government, business and civil society, addressed the biggest issues facing water management now and in the future.



In the opening session of the Congress, entrepreneur **Gunter Pauli** [video](#), delivered a clarion call for how we must change the way in which we do things today, and radically alter our thinking of traditional business models to respond to the basic needs of everyone on earth – starting with water.

“If we can’t inspire the next generation, we will never solve poverty or sustainable development.”

**Gunter Pauli** *Founder ZERI Think Tank*

Day one of the Congress focused on the opportunities presented by the Sustainable Development Goals. **John Thwaites** [video](#) (Chair, Monash Sustainability Institute) stressed the need for healthy water and sanitation for healthy cities, economies and people. He urged the water sector to take a leading role in the SDGs, and the critical importance of working with politicians to positively influence the political process for achieving them.



Holding governments to account was a central theme the keynote by **Barbara Frost** [video](#) (Chief Executive of Water Aid). She underlined the urgency of making universal access to water and sanitation available for the hundreds of millions of people in developing countries, which holds back health and prosperity.

Setting the scene for a day of debate on cities and urbanisation, **James Lynch** [video](#) (Deputy Director General, Pacific Department at Asian Development Bank) addressed opportunities and challenges managing water security in a rapidly urbanising world. In particular, he highlighted the critical link between water security, resilient water supply systems and sustained economic growth in urban areas.

A surprise keynote from the **Honorable Prime Minister of Bhutan, Lyonchoen Ushering Tobgay** [full session video](#), offered a personalised water story highlighting the interconnectedness of all life through the water cycle. The Prime Minister stressed our duty to protect the environment, a fundamental right recognised in Bhutan’s constitution, the world’s only carbon negative country.

Building on this theme, **Eva Abal** [video](#) (Director, Sustainable Water Program, Global Change Institute, University of Queensland) urged that we give a voice to our waterways and the communities that live alongside them. The role of waterways in securing our water future is critical, and the water sector must become better at communicating science to politicians and the public, if we’re to accelerate integrated water resource management.

“Monitoring waterways gives water managers the power to clean our environment and increase water awareness.”

**Eva Abal** *University of Queensland*

Participative societies are creating new challenges for the water sector, but they also provide a route to finding solutions, argued **Ben Schouten** [video](#) (Professor, Department of Industrial Design, Eindhoven University of Technology). The water sector can use games to engage stakeholders and citizens in decision-making that delivers bottom up solutions.

“Games are verbs not nouns, they put things into action. Games can provide solutions to ‘wicked problems’.”

**Ben Schouten** *Department of Industrial Design, Eindhoven University of Technology*



The final keynote of the Congress from **Joan Rose** [video](#) (University of Michigan), placed water quality and security at the centre of sustainability, investigating how better, cheaper diagnostic tools can help us understand the water microbiome to understand the health of our rivers, lakes and groundwater across entire watersheds.



## Global Water Award 2016

**Catarina de Albuquerque** [video](#) of Portugal was named the winner of the 2016 IWA Global Water Award. The award recognises the exceptional role she has played as the driving force behind the recognition of the Human Rights to Water and Sanitation. In its citation, the Award Committee stated that, “Catarina de Albuquerque is a visionary who has shown great leadership to ensure that the human rights to water and sanitation were distinctly identified in the post-2015 Sustainable Development Goals.”

“I’m honored to receive this award from within the water community, it will raise awareness of the critical water and sanitation needs of billions of people.”

**Catarina de Albuquerque**

## Water Sector leaders recognised by IWA Awards

The IWA Women in Water Award was presented to **Dr. Rose Kaggwa** [video](#), Director of Business and Scientific Services at the National Water and Sewerage Corporation of Uganda. The award was made for her inspirational work improving knowledge and services in Uganda, and throughout Africa.

**Rianna Gonzales** received the IWA Young Leadership Award for championing of the international best practice of Integrated Water Resources Management (IWRM) in Trinidad and Tobago for the past seven years, and which has now become a priority government initiative.

South Africa’s Rand Water, non-profit public utility, won the IWA Project Innovation Grand Award for their innovative “Water Wise” campaign, aimed at informing communities about conserving water resources, and reducing water consumption, during a period of severe drought in South Africa.

“Our participation exceeded expectations. The World Water Congress & Exhibition offers truly international participation, a huge highlight for a company like Pure Technologies with global aspirations. Very good leads from the exhibit participation and the pre-organized matchmaking offered good added value.”

**Hugh Chapman** *Regional Director - Asia Pacific, Pure Technologies*

## IWA resolution on the Sustainable Development Goals

Solving global water challenges is now recognised as one of the top priorities for humankind. The recently adopted 17 Sustainable Development Goals have potential to be a game changer for water, wastewater and sanitation.

The effective contribution of water professionals to the achievement of the SDGs is critical. To support this vision, the IWA Governing Assembly adopted a resolution to help extend international assistance and cooperation to national and local governments, and other stakeholders.

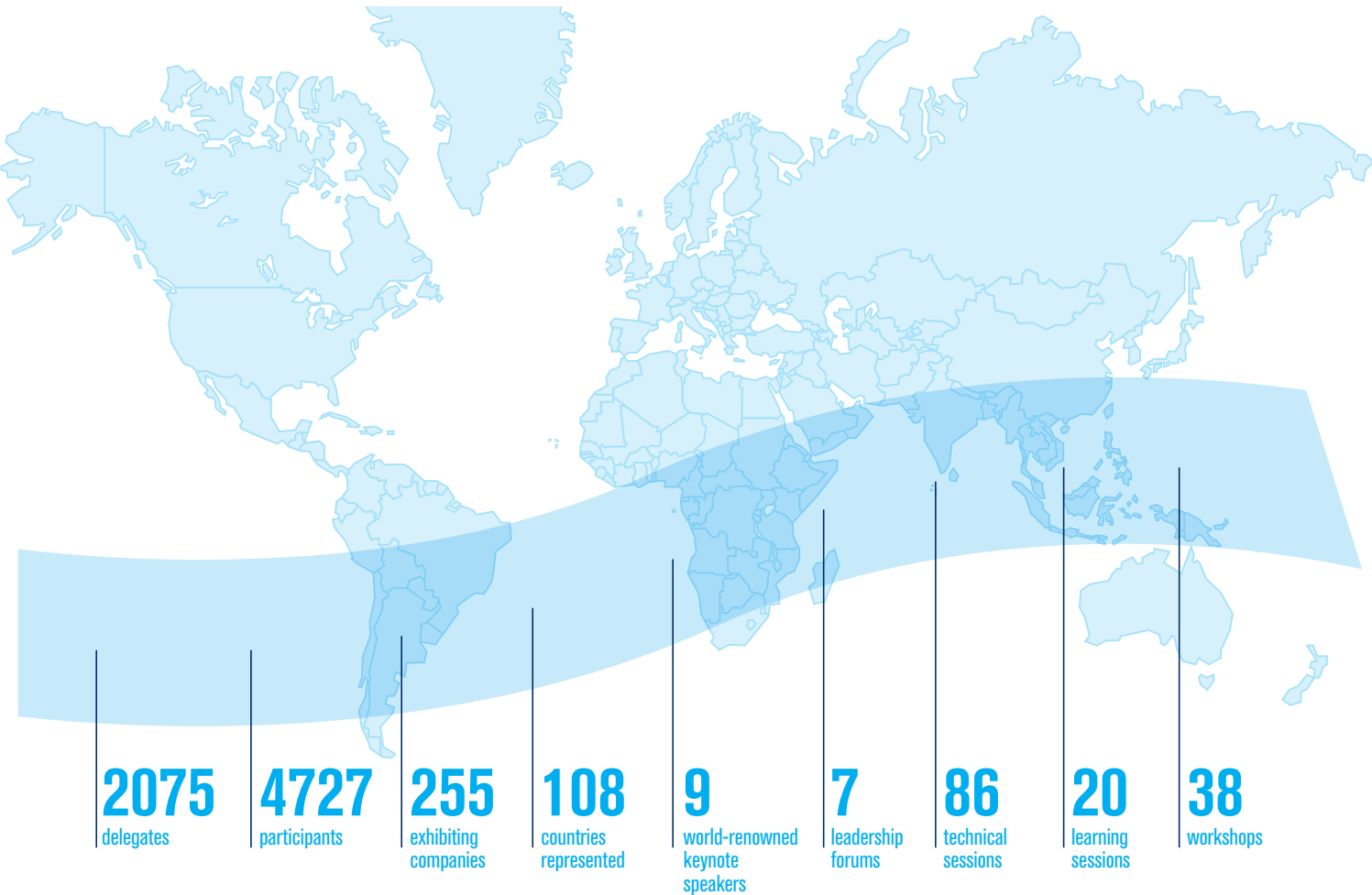
## A time for action

The time for the water sector as a whole to advocate for policies, launch tools, and spread the awareness needed to move towards a water-wise world, is now. The IWA World Water Congress and Exhibition 2016 set into motion a vocal call-to-action to accelerate progress towards a water-wise world, through collaboration, planning and focused action.

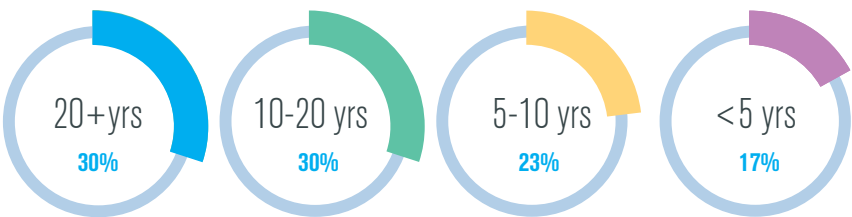
# The IWA World Water Congress & Exhibition:

## Shaping Our Water Future

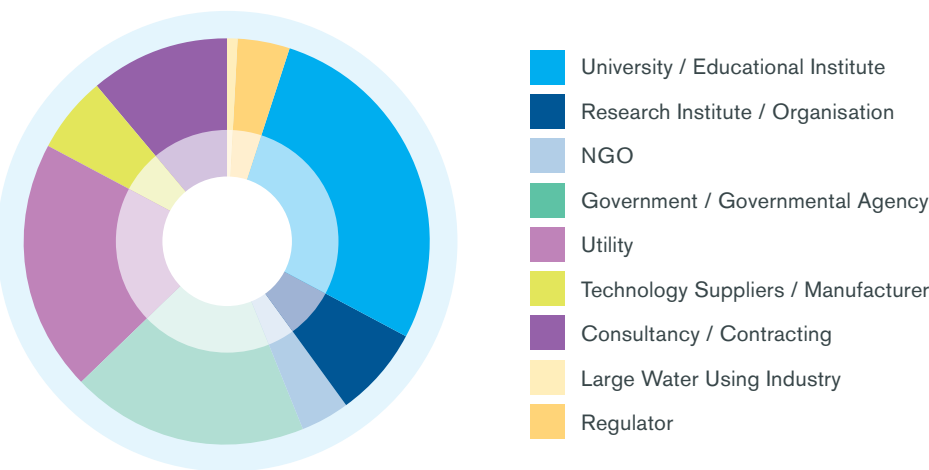
The World Water Congress & Exhibition is the event to engage with the most critical debates shaping our water future. It is the place to network and build partnerships with the top specialists from practice, science, industry, utilities, while doing business with leading industry and technology providers.



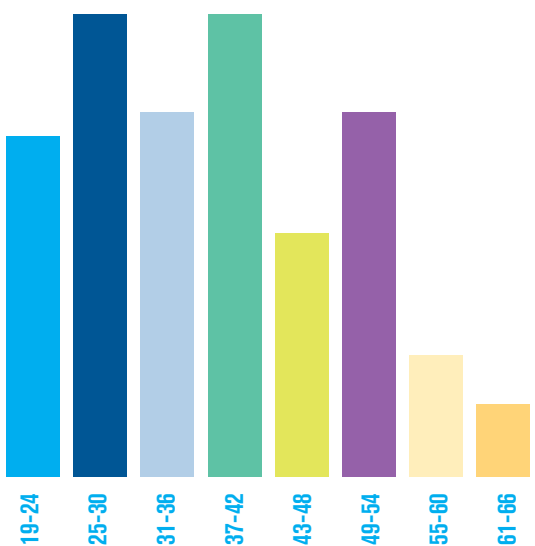
How long have you worked in the water and sanitation sector?



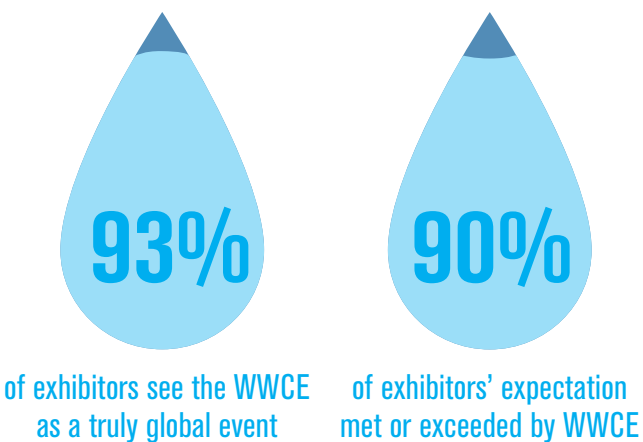
What type of organisation do you work in?



Age group



Exhibitors opinions





# The Sustainable Development Goals:

business as usual will not be enough

The Sustainable Development Goals (SDGs), adopted in September 2015, aim to end poverty, protect the planet and ensure prosperity for all. SDG 6, on water and sanitation, challenges us to ensure the availability and sustainable management of water and sanitation for all by 2030. It challenges us to improve water quality, increase the efficiency of water use and reuse, to ensure water abstractions are sustainable, and to replenish water sources to reduce water scarcity.

The SDGs' targets are interrelated in nature, but are sometimes in conflict. Integrated approaches and innovative solutions are required to achieve these ambitious goals. Business as usual is not enough.

## KEY MESSAGES

- Contributions to achieving the water and sanitation Sustainable Development Goal will have positive effects on achieving other goals.
- Innovative financing models are critical if we are to achieve the goals.
- Creating synergies within the Sustainable Development Goals is a huge challenge that needs to be addressed.
- The Sustainable Development Goals are generating a lot of discussion but are not yet influencing decision making or driving change.

## Are nations prepared to prioritise and develop innovative and integrated solutions?

Although countries have signed up to the SDGs, showing political will, there remain different levels of progress and capacities to contribute to their success. The most important question that remains unanswered is, "Are nations prepared to pay for the SDGs?" Business as usual approaches to funding will fail; innovative financing is required.

Gunter Pauli, an entrepreneur, highlighted opportunities to solve multiple problems with one innovative deliverable, and the role private financing can play in delivering these outcomes. He demonstrated the benefit of focusing on multiple goals to create synergies, enabling the creation of solutions that contribute to multiple targets. In water management, working with stakeholders outside of the sector has potential to achieve far more than if the sector remains siloed.



The SDGs provide a framework to prioritise water, break down silos and embark on partnerships with different sectors. Ensuring the availability and sustainable management of water and sanitation for all will have a significant effect on health and well-being (Goal 3), gender equality (Goal 5), quality education (Goal 4) and decent work and economic growth (Goal 8). Many of the goals play a role in ensuring SDG 6 is achievable, including Goal 12 (responsible consumption and production).

Prioritising what needs to be done to achieve SDG 6 is challenging. An emerging trend is to focus on risk based approaches rather than compliance and meeting standards. Risk based tools, such as GIS Mapping, can map contaminants threatening the system; show how systems operate; and identify weaknesses in the system. Asset management tools help us understand asset conditions and better predict water quality threats. Defining what is an acceptable risk, and how this links with priorities and implementation, remains problematic.

Countries have a diverse set of priorities and face challenges to ensure "no one is left behind". If wealthy countries do not perform well on the SDGs it will become difficult for developing countries to achieve them. There are opportunities for developing nations to leapfrog traditional stages of development, as many are not restricted by existing infrastructure. Innovative technologies, like low cost sustainable decentralised sanitation systems, are key to progress [video](#).



## The SDG on water will only succeed if the sector invests in a skilled workforce and citizens

Quality water and wastewater services depend on the work of individuals within utilities, municipalities and local communities. Skilled people do not happen by accident. Programmes are needed to develop qualified candidates, provide employees with the skills they need, and fully utilize those skills. Programmes that develop workforce capacity and competencies in utilities are critical.

Yarra Valley Water in Australia emphasises developing essential leadership skills such as the ability to relate, translate and communicate. Nigeria's Port Harcourt Water Corporation uses collaborative training approaches to tackle capacity gaps, including partnerships with other utilities and mentoring schemes.

Associations also play a role in the professionalisation of water services providers. The IAWC (Danube river) and Shukalb (Albania) have created regional and national training schemes. These are collaborative in nature and are increasing the quality of utility workers cost-effectively.

Community engagement and education are also critical. The water sector has to make scientific information understandable and accessible for those outside the sector. The Global Water Pathogens Project aims to do this by translating the science of pathogens, sanitation and health accessible for policy makers and practitioners.

Communicating the value of water remains challenging: water is a human right but it cannot and should not be provided for free. Regulators are needed to set water tariffs to maintain and grow infrastructure, while keeping services affordable for all. Affordability measures should target people facing affordability problems through social policy instruments.



"Dialogue with users, operators, regulators and government is a long path utilities have to take to ensure affordability of water."

**Alberto Biancardi** *Aeegsi Italy*

Although the water sector is contributing to numerous goals and targets, the SDGs do not yet appear to be driving or influencing business decisions. There is a need for action and leadership from Government in achieving the SDGs, however, academia and industry should translate the goals into their business structure to become part of their core business. VandCentre, a Danish Utility, analysed each target to see which aligned with their strategy and will use this to inform their decision-making.

## The SDGs provide a unique opportunity for the water sector

Countries have shown political will to improve water and sanitation. The SDGs provide an incredible opportunity for the water sector to work alongside other sectors to provide integrated solutions that contribute to multiple targets, using innovative financing and technologies. The SDGs are in their infancy and not yet driving business decisions, the water sector needs to seize the opportunity by incorporating the goals into their core business. Business as usual will not be enough.

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from crisis to sustainability

The traditional way of solving water scarcity has been to invest in complex water infrastructure, such as dams, pipelines and treatment plants, to store and increase water supply. Today, water scarcity and drought management need to go beyond infrastructure and technologies, and create resilient systems that focus on pro-actively managing the increasing demand while improving supply.

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- Building resilience to drought and scarcity requires global leadership.
- Prolonged periods of drought are no longer the exception, but constant realities signaling a 'Climate Shift'.
- We cannot rely on past climate patterns to plan future climate expectations.
- Unforeseen circumstances will continue to pose a threat due to the complexity of a shifting climate.
- The utilisation of decision support software to assist agencies with "big data" management is an unregulated space. The absence of governance in this area may lead to issues with the implementation of water scarcity and drought resilience strategies.
- Our immediate response has been three-fold: Mitigation, Adaptation and Resilience. What's next?
- A shift in mind-set and behaviour is needed to build long-term resilience to water scarcity and drought. Develop a culture of sustainable living through engaging with water users.
- An effective communication strategy is key to effecting change in the mind-set of the Water Citizen.
- We need to "Think macro and do Micro - from bottom upwards"
- There is a crucial role for 'fit-for-purpose' water usage, that reuses and recycles wastewater.

"Water is not just fundamental to life, it connects us to one another and connects us to our past. The question is, will water connect us to our future?"

A man with glasses, wearing traditional Tibetan Buddhist robes with a colorful, patterned shawl, is speaking at a podium. He is holding a small blue card in his hands. The background is dark with blue vertical light strips.

In Australia, prolonged periods of dry weather are no longer considered instances in weather patterns, but as constant realities signalling a 'Climate Shift'. This sends a direct message to authorities - the climate is drying and there is no indication that it's slowing down. This has significant consequences for other global regions that will experience severe drought, including Southern Africa which is currently experiencing one of the worst droughts in recorded history.

There are many alternatives to addressing the problem of water scarcity

This has proven to be successful in Bhutan, where they have established a winning formula of public communication, citizen understanding and collective action. It is the fundamental duty of every citizen in Bhutan to protect the environment, and the government is required by law to consider consequences for future generations when taking decisions. Bhutan's priority is to enhance the happiness and well-being of its citizens through constant and open channels of communication.

The fundamental resource that presents us with choices, allows us to make decisions, and plan for resilience solutions to water scarcity, is data. We can develop creative tools to collect ever more data, transfer a percentage into knowledge and later a fraction into action. This is a “think Macro and do Micro” approach. Integrating this kind of thinking into resilience planning at a basin or watershed scale, demonstrates a shift from country-level planning to international or national cross-boundary basin-level planning.

As the largest consumer of water, water reuse in agriculture has huge potential to fight water scarcity and drought. However, reuse for agriculture is often disconnected because of the distance from the water producer and the user. In Saudi Arabia, agriculture is decoupled from cities (where water is produced). As urban growth rises, urban farming may be a significant driver to increase water reuse for food production. However, this will never produce sufficient food for all urban citizens.

Another way to overcome the issue of distance between the user and the water producer may be through on-site water treatment and reuse. In South Africa, wineries treat their wastewater and reuse this water to irrigate vineyards.

At the same time, wastewater utilities can and should start to see reuse by agriculture as a new business opportunity. Challenges include reducing energy consumption and keeping costs down, while quality standards for recycled water may increase because of new regulation.

“Reuse of water in agriculture is going to be a significant part of my future sewerage plant business approach”

**Peter Donaghy** *Queensland Urban Utilities*

## Reduce, Reuse and Replenish

Several key debates emerged from the 2016 World Water Congress, the majority related to potable water reuse and water recycling, with a small focus on agricultural reuse. Industrial reuse remained underexplored, whilst it represents a significant volume of water used. To create a greater impact at the micro level, the conversation must focus on the largest consumers of water – agriculture and industry - and attempt to find a balance between the two during times of water scarcity and drought.

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# Water-wise Cities:

## engines of growth, engines of sustainability

In a world with limited water resources, increasing water demand and growing water scarcity, both climate change and rapid urbanisation, pose threats to stability and economic opportunities. This uncertain future for our cities requires the water sector to take a leading role in planning and realising water-wise cities.

There are cities where this process has started, such as Brisbane, Melbourne, Kampala, Kunshan and Copenhagen, demonstrating the diversity of issues cities face, and the need to collaborate across sectors and scales to become water-wise.

Over four days, the IWA World Water Congress & Exhibition focused on understanding the challenges facing cities, and identifying the solutions needed to address these challenges.

### KEY MESSAGES

- Cities and urbanisation are drivers of economic growth and social stability.
- Tools are needed to diagnose and benchmark the relationship between water and cities.
- National and local governments, city planners and utilities must work together towards the same objectives for sustainable water management.
- Clear regulation at city level should put overarching guidelines in place and be based on a common set of objectives.
- Application of general strategies and approaches for water-wise cities are still a challenge considering local climate conditions, location and environmental characteristics.
- Simple and practical concepts of implementing water-sensitive urban designs to create bluer and greener cities are needed.
- Innovative financing mechanisms that are more creative and flexible, which consider long-term provision of public services, are needed.

### Understanding water-wise cities

Cities face many water- and climate-related risks, and there are many challenges to creating water-wise cities. These are not only local challenges but 'universal challenges'. Cities of the future need to include sustainable water management at the core of their planning, development and re-development.

The IWA's Principles for Water-Wise Cities, launched at the World Water Congress, are a framework to assist city leaders and urban professionals to develop and implement a vision for sustainable urban water; and deliver resilient planning and design in their cities. The Principles inspire collaboration to find solutions to urban water management challenges; and to implement water-wise management strategies through a shared vision, enabling the development of flexible and adaptable cities.

The transition to sustainable cities needs tools to diagnose and benchmark the relationship between water and cities, such as the "Water Sensitive Cities Index" developed by the Cooperative Research Centre in Australia. This aligns national and local governments, city planners, and utilities around sustainable water management targets.

Sustainable water management strategies, including distributed water management and urban drainage systems, are needed in cities faced with floods and sea level rises. By accounting for the full value water can bring to a city, this is an opportunity to increase a city's livability. In Sydney, the quality of the beach environment has improved significantly by extending outfalls into the ocean, stimulating recreational activities that represent \$1.2 billion of economic activity; through the Melbourne Water Liveability Program, Melbourne Water is opening its assets and land (33,000 hectares) to citizens.

### Sustainable water management requires strong regulation

Sustainable water management provides a basis for selecting better technologies and the places where they should be implemented, such as rainwater harvesting systems for domestic water reuse; improving communication between technology developers, engineers and urban planners; improving collaboration between utilities and local governments to incorporate multifunctional climate adaptation structures in their urban development.

Breaking down the silos in water management is critical, a shift needed to deal with the complexity of the water cycle such as linking water and wastewater service to flood management, waterway health, and ecological sustainability. Bringing together multiple stakeholders, linking the government, water utilities and the public, will help implement integrated approaches.

Success depends on strong regulation and transparent government with leaders willing to drive the agenda. Climate change and rapid urbanization are changing the management and



governance of the water industry. The role of regulators is moving into an uncertain space where more traditional roles need to be rethought. Regulatory reform is necessary to foster innovation and enhance customer involvement in decision-making. The Water Pricing Framework in Victoria, Australia, puts customers at the centre of decision-making in their water provider. It provides incentives to deliver better value through a new Performance, Risk, Engagement, Management and Outcomes mechanism.

### Customers at the heart of water management

Water can be used for valuable broader outcomes, such as water for liveability, environment, flood protection, prosperity, improved resilience, engaged connected communities, and essential services. Water utilities can contribute to more liveable cities, and can use these outcomes to optimise their operations and deliver value to their customers and surrounding communities. This requires them to become more customer-centric.

Customers are looking for value and utilities will need to deliver it, including through harnessing the digital economy. NWSC in Uganda has placed the customer at the center of service delivery, taking the message of "Water for all" to every community through Water Community Communication Clubs.

It's important to engage citizens and consider local communities as a resource that is integral to the solution. Amsterdam's Rainproof Network, which aims to mainstream resilience against extreme rainfall, follows a unique network approach on shared responsibility and livability. The utility, Waternet, began a successful programme to facilitate and support stakeholders through special events.

Sustainable water management in cities furthermore requires creative, flexible and innovative financing mechanisms that consider the long-term provision of public services. Something highlighted by "The Climate Lab" in the Danish city of Middelfart, and Cooperative Research Centres that help utilities and urban planners co-create strategies linking government, industry and academia in initiatives that deliver an overview of the relationship between water and cities.



Balancing investments across the whole water cycle is a challenge. For utilities, this might mean not only optimizing water and wastewater assets, but elevating their entire performance by benchmarking OPEX, process efficiencies, assets and learning from other utilities.

### Stakeholder ownership enables water-wise cities

Achieving water-wise cities requires a common set of principles and benchmarks. It also requires strategies in which all stakeholders are actively engaged to take ownership of their water-wise city. This demands innovative finance mechanisms. The remaining challenges are to put best practices into action and scaling them up; determining the linkages between climate change, energy and food security; and elevating water security from city-level to national- and international-level.

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# Leadership Forums:

## creating solutions by building understanding

### Resilience through regulation

Regulatory and water systems are changing. Everyday more is being asked of regulators with growing, but less clear, public expectations. The **INTERNATIONAL WATER REGULATORS FORUM** brought together over 100 regulators from water, economic, health and environmental regulation. The discussion focused on building resilience in policy and regulatory frameworks for water, sanitation and wastewater services.

The consensus was clear: building resilience is building understanding. A number of issues were considered important for resilience strategies, but one common element stood out: the key role and relationship with customers in assessing and communicating the value of water services. Some examples of this included regulations requiring customer engagement from utilities, and inviting customer participation in the revision of rules and regulations, such as water and service standards.

Regulatory regimes providing future quality services face several challenges, including a lack of investment in infrastructure, effective implementation of water quality standards, and achieving universal service delivery in remote areas. Building resilience while ensuring affordable services proved to be a major concern for most regulators, who face questions like, "How much does it cost and who will bear those costs?"

Tailored solutions and local approaches that consider historical background, local conditions and the specific legal mandate of the regulator need to be implemented to address these concerns; as is the exchange of good practices and providing platforms for dialogue between regulators.



### Time to stop talking and start doing

The **EMERGING WATER LEADERS FORUM** brought together eighty young professionals to debate the priorities to achieve the Sustainable Development Goals (SDGs) by 2030. At an individual level, the only way to make change tangible, feasible and achievable is to stop talking and start doing. This means taking a leadership role in their organisations and driving change from within.

Maintaining water high on the political agenda is a critical issue. Advocating the trickle down effect of the SDGs, using evidence developed by academia, to raise citizens' awareness, can drive the political agenda. The sector must adopt a try, fail, learn and adapt cycle of innovation and adaptation, creating a more effective space for sharing past experiences, lessons learned and cross-sectoral collaboration. Collaboration between industry and academia can transfer some of the financial risk of innovation through pilot projects.

Behavior change for resource recovery will be critical in achieving the SDGs. The sector must make research understandable to broader audiences through education, media, digital communications and public events. Research must align with practice, stimulating industry to approach academia to undertake research into real world problems.

Emerging water leaders identified **KEY COMPETENCIES NEEDED** in the sector to deliver success:

- strong communication skills
- stakeholder mapping and needs assessments,
- collaboration and networking, and
- marketing and business skills.



### Cities as drivers for water security and sustainability

We have unprecedented political will to deliver sustainable development, through three recent intergovernmental agreements: the Sustainable Development Goals, the Paris Climate Agreement and the New Urban Agenda. With the majority of the world's population now living in cities, there is a great opportunity for cities and their citizens to be at the forefront of this change.

The **CITY LEADERS FORUM** [video](#) brought together city leaders, as well as organisations and urban water professionals, to discuss urban water resilience, the Principles for Water-Wise Cities, and implications of global-level climate agreements. The Forum launched the Principles for Water-Wise Cities, an agenda for cities to nurture regenerative water services, water sensitive urban design, basin connected cities and water-wise communities, as a means to increase resilience and liveability, and embrace sustainable growth.

Becoming water-wise is imperative for cities to deliver on their global commitments, and to secure future growth. The SDGs require accelerated and targeted progress, demanding transformational rather than incremental improvements. Ensuring supply meets demand, access to safe water and adequate sanitation for all, not polluting water resources and making a positive contribution to a low-carbon future, are four significant challenges.

The outcomes from the City Leaders Forum point us towards taking action in three main areas. **CITIES NEED TO FOCUS ON:**

- social equity;
- resource efficiency and recovery; and
- environmental protection for future generations.



### Water security, climate resilience and sustainable basin management

Protecting basins, and restoring those that are already degraded, should be a priority to ensure a balanced approach to development that sustains cities and industries, and the ecosystems they rely upon.

The urgency to share knowledge and experiences, and explore pathways for sustainable economic, social and environmental development of catchment areas, set the stage for the **BASIN LEADERS FORUM** debate [video](#) - how do we best manage water resources and services, based on innovative water solutions to be applied at scale?

The Forum brought together over 100 water professionals, business leaders, politicians, engineers, economists, academics and related experts from 17 countries, to discuss proven interventions and current practical approaches towards building resilience and fostering sustainability in basins. The virtues of basin planning and a participatory approach are well known, but they take time. A phased approach to investing in water solutions is needed.

#### KEY RECOMMENDATIONS INCLUDED:

- investing in data gathering and information systems for basin planning and investment;
- investing in natural infrastructure as an effective and economical approach to sustainable basin management can enhance community safety and quality of life;
- adopting risk-based approaches to planning;
- collaborating across sectors to align urban development with basin management;
- adopting both mitigation and adaptation approaches to climate change and sustainable infrastructure;
- ensuring stakeholder participation in planning and management;
- customise solutions developed from best practices across different basins.





### Utilities creating impact a scale

Bringing together experts and experiences of both national and international collaborations, the **UTILITY LEADERS FORUM** [video](#) highlighted how partnerships between utilities and cities, utilities and industry, and between two or more utilities, could create impact at scale.

Collaboration and information exchange between utilities – from corporate social responsibility and communication, to climate change adaptation measures and wastewater treatment technology – drives faster innovation and development, and strengthens collaboration to co-develop technologies.

Effective community and stakeholder engagement, and treating customers as partners in planning processes, improves transparency and delivers better results for both utilities and customers. Stakeholders can become partners in identifying and implementing solutions, enabling communities to take ownership of local solutions. Utilities that invest in encouraging different consumer behavior to reduce consumption are making a long-term investment in sustainability.

Data held by utilities could help deliver smart asset management, transparency to customers, smart investments and improved water quality. This data doesn't always translate into actionable information. Smarter use of data will benefit customers and utilities, but utilities need the skills to analyse data.

Adopting innovative green infrastructure can lower capital and annual operational costs, while delivering ecosystem services and reduced greenhouse gas emissions. This requires collaboration between utilities, communities and politicians, but also innovative financial instruments to invest in green infrastructure.



### Making decisions in an era of deep uncertainty

The challenges created by climate change, rapid urbanisation, population growth, and growing wealth and consumption, are impacting the water sector at a time of water resource scarcity, and aging water and wastewater infrastructures.

The **SCIENCE AND TECHNOLOGY LEADERS** Forum brought over 140 researchers, academics and leaders from utilities, industry, technology and regulation together to debate the challenges of developing water science and technologies innovatively to address these issues.

**THE FORUM IDENTIFIED SIX FOCUS AREAS:**

- rebuilding all existing infrastructures is unrealistic, we must focus on optimization and efficiency gains in current practices;
- data, information and communication technologies will increasingly contribute to process design and improvement, consumer engagement, compliance and efficiency;
- uncertainty and rapid change demand resilient responses;
- we must demonstrate the value of water for productivity, economic growth, and human well-being;
- improving livability can be achieved through public and environmental health;
- science and technology must find ways to positively influence public policy and regulation.

The water sector does not work in isolation, and current water science and technology developments are often dependent on developments in other sectors, including biotechnologies and ICT. Collaboration is essential for water professionals to learn from these developments.





# Water Scarcity and Drought Summit:

solving water scarcity and creating climate resilience



Today, 4 billion people are impacted by severe water scarcity and drought, affecting communities across Africa, Asia, the Middle East, Europe and the Americas. Agriculture, industry and the environment are seriously impaired by water scarcity and prolonged droughts. Rising water demand and climate change will only intensify water scarcity in coming years.

Governments have identified water scarcity as a priority through the Sustainable Development Goals, agreeing “to address water scarcity and substantially reduce the number of people suffering from water scarcity”. The Paris Climate Agreement provides a further catalyst for ambitious efforts to combat climate change and adapt to its effects. Together, these create new opportunities to tackle water scarcity around the world at an unprecedented scale. To do so requires many actors to work together.

The Water Scarcity and Drought Summit (Monday 10 October, 2016) brought together over 150 leading policy makers, practitioners and opinion leaders to discuss how to promote building resilience to water scarcity and drought.

“Australia has put into practice the principle that water must be managed as a scarce economic good, to be allocated and used wisely for the benefit of all people.”

**Dr. Gary Jones** CEO the Australian Water Partnership

The Summit recognised four main reasons why scarcity and drought are a growing problem:

1. Naturally arid regions with low water availability per capita and growing populations;
2. Where climate change is increasing the frequency and duration of droughts in regions where drought was once rare or absent;
3. Rapidly increasing rates of urbanization that create city water shortages and pressure to divert water from other water sources and users, especially from food production;
4. Where a lack of suitable supply infrastructure and/or poor water allocation and use practices have created ‘policy-induced’ scarcity.

To become more sustainable and resilient, countries need to manage water resources and services more wisely, combining well-coordinated strategies, building on sound science, robust communications and stakeholder engagement. It was broadly agreed that a country cannot be ‘drought-proofed’ but through a combination of innovative supply and demand side actions the challenges can be tackled. Over time, resilience to scarcity and drought can be built so that the economic and social impacts and shocks are minimised.

“We have a weird business model in a way, trying to make our customers use less of our product, but this is essential to long-term sustainability”

**Sue Murphy** CEO Water Corporation, Australia

## KEY CONCLUSIONS

- Water scarcity will worsen in many countries where it is already a significant problem, and will extend to new areas as a result of climate change as well.
- There will be more frequent and/or severe droughts accompanied by worsening economic and societal shocks, unless planned for and mitigated well in advance.
- Changes in human populations, settlements and consumption will exacerbate challenges related to water scarcity and drought, as will poor decisions on water allocation and use.
- Building resilience to scarcity and drought needs to be seen as an integral component of water security planning for economic growth, with innovative allocation and demand-side policies complementing the traditional approach of building additional, or more reliable, water supply infrastructure.
- New water supply infrastructure will be necessary, but also constrained by hydrological and ecological limits and growing unreliability due to climate change.
- Water scarcity planning has to form an integral part of long-term water management strategies. This requires improved hydro-meteorological data and forecasting; diversifying water supplies; re-assessment of their reliability; and sharply increasing the efficiency of water allocation while improving the efficiency of water use.
- Seeking multi-benefit and multi-stakeholder solutions will be key to build resilience. This requires all sectors - water, environment, energy, agriculture, industry, health, government - to better plan to adapt to the impacts of water scarcity and drought.
- Strengthening effective communication to inspire behavioural change across all sectors is necessary.
- To move to action will require identifying and implementing short term and long term measures, including new economic instruments, regulatory frameworks and educational campaigns. This needs to foster innovation and find adaptable scalable solutions.



“As demand for water increases and stress on water sources intensify, our business and the communities that host our facilities may face serious challenges. We focus on conserving water in our operations and returning the equivalent of water we use back to communities and nature.

**Paul Bowen** Director Sustainable Operations, the Coca-Cola Company



## KEY OUTCOME

DroughtAction, new initiative to develop a multi-sectoral action agenda on water scarcity and drought, was launched during the Summit.



# A Truly Global Exhibition



A unique strength of the IWA World Water Congress & Exhibition is the seamless integration of the conference's leading-edge science & technology focus, with world-renowned water companies, research institutes, universities and civil society organisations in the exhibition [video](#).

In Brisbane a record 255 companies came together, seeking to connect with their peers, showcase their innovative technologies, and do business. Individual exhibitors underlined the business power of their presence in the exhibition, and an analysis of exhibitors has shown that 90 percent considering their experience to be at or beyond their pre-event expectations.

"At the World Water Congress & Exhibition we build contacts with the market leaders. The combination of the Congress and the Exhibition is very good for marketing projects, networking, to exchange market information, and to get the word out from Scinor to the global water sector."

**Thomas Poschmann** CEO Scinor Water America [video](#)

The balance between the conference and the exhibition, and excellent networking opportunities, were highlights for many. As was the Business Forum programme. With almost 50 sessions organized during the week, exhibitors used the Business Forums to showcase their thought leadership and technological innovations to a broad spectrum of attendees.



"We are here to help to bring clean water to the world. Pall is involved in quite a few shows yearly, but this one is by far the best we attended. Participants at the IWA World Water Congress & Exhibition are here with a reason, they have a clear need."

**Morten Schoor** Pall Corporation [video](#)

The exhibition had a focus on countries and global regions, as well as critical areas of the global water sector. One example was the Emerging Technologies Pavilion, organized in partnership with Isle Utilities, which showcased innovative technologies and companies from around the world. The Cities Pavilion, organized by the IWA with support from ARUP and Veolia showcased the best of urban water management.



"The Cities Pavilion provided the perfect platform to launch the IWA Principles for Water-Wise Cities and share the Arup Future of Urban Water initiative!"

**Mark Fletcher** Arup

"The Emerging Technologies Pavilion is a platform for emerging technology developers to pitch their solutions. We have seen a broad spectrum of innovative solutions that are approaching or have been commercialized. Some of these are already changing the way in which we will think about addressing water challenges in the future."

**Mal Shepherd** John Holland Water



Solving global water challenges is at the heart of the Exhibition. The unique ability to bring all elements of the water sector together to debate and find solutions to these challenges is both its strength and attraction.

"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 [video](#)



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[www.worldwatercongress.org](http://www.worldwatercongress.org)

Save the date



Japan Society on Water Environment





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