



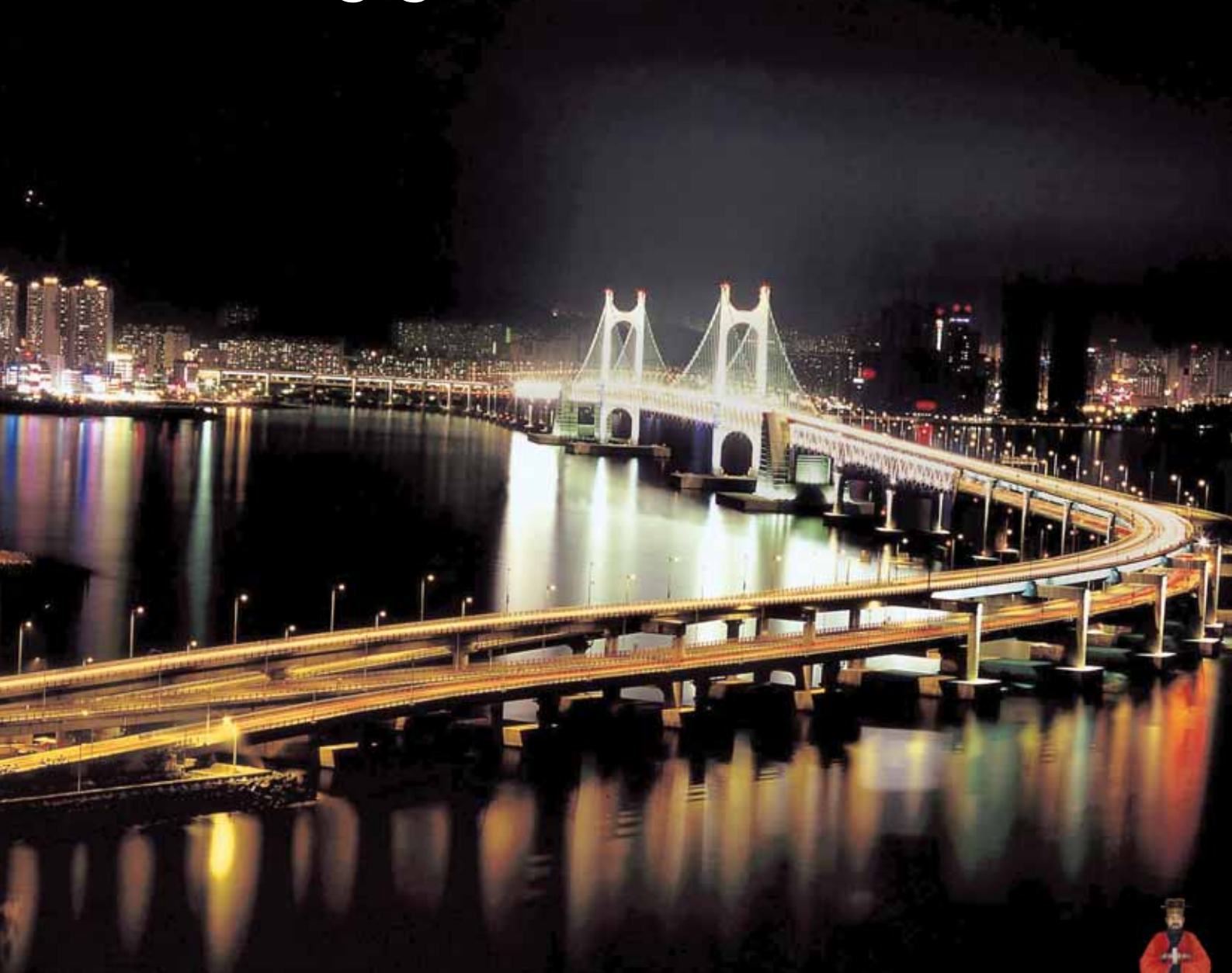
International
Water Association

World Water Congress & Exhibition

16–21 September 2012

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Congress programme and exhibition catalogue



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Welcome



Glen Daigger
IWA President



Prof. Changwon Kim
Congress President



Paul Reiter
IWA Executive Director

We are excited to welcome you to the 2012 International Water Association World Water Congress and Exhibition in Busan, Korea.

Korea is the perfect setting for the IWA World Water Congress. The rain gauge was invented in Korea, and the country has developed its water service provision dramatically over the past 30 years.

In Busan, you will have many chances to share and learn about global best practice, fundamental science, innovative research, policy developments and solutions to the challenges faced by water professionals worldwide.

As you would expect from IWA, the programme is high quality, stimulating and covers the broad and challenging issues faced by water professionals today. Our speakers, from top institutions and organisations around the world, will lead forward-thinking discussions. You will leave with a renewed sense of urgency, innovation and inspired thinking.

You will be spoiled for choice at the congress, with over 200 sessions and workshops to choose from. You can either delve into your specialised subject or choose to widen the scope of your knowledge by attending sessions on other topics. This variety is complemented by over 700 poster displays showing new developments, research and practical case studies.

We sincerely thank the Programme Committee and all the reviewers for contributing their time to developing such a comprehensive programme.

Remember, in between all the discussions, sessions and workshops, to visit the exhibitor stands. These are the people you will want to talk with to make your technical or collaborative ideas grow—they can further your thinking, making sure you get the right design, technological, organisational or publishing solutions. Exhibitors and country pavilion staff also have contacts and networks that are absolutely invaluable to delegates, so drop in for a chat.

We deeply thank all our sponsors, including the City of Busan, for making this congress and exhibition a reality. It is because of their participation that we can offer such a stimulating programme and side events, and it shows their leadership and commitment to the water field and its professionals.

Now is the time to start your journey into the congress and exhibition—make sure you talk with people within and outside of your specialisation to take advantage of the insights that come with cross-disciplinary thinking. We know you will thoroughly enjoy the congress.

Programme overview

		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Room 8	Room 9
Sunday	16:30 – 18:00	Opening ceremony								
	18:00 – 19:30	Welcome reception								
Monday	08:15 – 09:45	Inspiring change to meet a challenging future	Small-scale systems for stormwater management	Process optimisation in anaerobic wastewater treatment	Sustainable water reuse for industry	Nitrogen removal	Sustainable management of river basins	Rural areas of the future—best wastewater management strategies	Biomimicry, biotechnology and water	Multi-city collaboration on water quality improvement and risk management
	BREAK									
	10:30 – 12:00	10:30 Presidential address					11:30 Keynote speakers			
	LUNCH									
	13:30 – 15:00	Creating new and hybrid paradigms for water and cities on the path to 2050	Pollution control in stormwater treatment systems	Anaerobic processes	Improving performance and energy efficiency of water recycling facilities	Anaerobic ammonium oxidation	Sustainable management of river basins	Means for achieving complementary basin solutions on a crowded planet	Right to water—policy imperatives and regulatory requirements	Multi-city collaboration on water quality improvement and risk management
	BREAK									
	15:30 – 17:00	Building on the Montreal COF consensus—developed countries	Combined sewer overflows	Advances in physico-chemical processes and technology	Water quality management in water reuse	Biofilm processes	Analytical approaches for the sustainable management of water resources	Means for achieving complementary basin solutions on a crowded planet	Water as a human right—new realities of progressive implementation	Environmental management of post-epidemic carcass burial sites
	17:15 – 18:00	Keynote speaker								
	18:00 – 19:30	Poster session and reception								
	19:00 – 21:00	Young water professionals reception								
Tuesday	08:15 – 09:00	Water industry and technology leaders panel								
	09:15 – 10:45	Building on the Montreal COF consensus—developing countries	Odors and volatile emissions monitoring treatment and management	Sludge reduction in activated sludge systems	Phosphorus removal	Natural wastewater treatment systems	Modelling tools for the sustainable management of river basins	Smart cities—resilient livable sustainable and affordable	New horizons in water reuse scope and applications worldwide	Asset management—decision making from strategy to implementation
	BREAK									
	11:15 – 12:45	Urban resilience, nature and aesthetics	Process control in wastewater treatment	Sludge reduction in activated sludge systems	Phosphorus recovery	Advanced oxidation processes in wastewater treatment	Artificial recharge for sustainable groundwater resources	Water of the future—how do we know what smart is?	New horizons in water reuse scope and applications worldwide	Asset management—decision making from strategy to implementation
	LUNCH									
	14:15 – 15:45	Ecological restoration of urban streams towards Green City, Busan	Modelling treatment processes	Improvement of anaerobic digestion efficiency by sludge pretreatment	Fate of chemical and biological hazards in the environment	Advanced oxidation processes in wastewater treatment	Remedial actions and evaluation of contaminated groundwater	Water of the future—how do we know what smart is?	Wastewater reuse at scale—cooperation between cities and industries	Creating operationally smart networks—today and in the future
	BREAK									
	16:15 – 17:00	Keynote speaker								
17:30 – 18:45	Korean cultural show									
Wednesday	08:15 – 09:00	Keynote speaker								
	09:15 – 10:45	The coming urban drainage challenge—friend, foe or both?	Role of ratings for water-smart, resilient and livable cities	Monitoring microconstituent occurrence at full scale	Advances in biological processes and technology	Brown surface water and measures against it	Policy-based sustainable management of water basins	Forecasting and managing the future—water demand tariffs	Wastewater as a resource for energy, chemicals, water and nutrients	Creating operationally smart networks—today and in the future
	BREAK									
	11:15 – 12:45	The coming urban drainage challenge—friend, foe or both?	Biosolids management—challenges and solutions	Removal of micropollutants in conventional wastewater treatment	Innovative tools and technologies for membrane treatment	Brown surface water and measures against it	Important processes for alluvial groundwater resources	Forecasting and managing the future—water demand tariffs	Municipal wastewater, solid waste and energy	Creating operationally smart networks—today and in the future
	LUNCH									
	14:15 – 15:45	The coming urban drainage challenge—friend, foe or both?	Biosolids management—challenges and solutions	Removal of micropollutants in advanced wastewater treatment	Membrane systems for wastewater treatment and reuse	Upstream work in wastewater networks to reduce heavy metals	Management of groundwater and wetlands as water resources	Cultural perspectives on the evolving language of water	Wastewater as an important source of fuel and energy production	Creating operationally smart networks—today and in the future
	BREAK									
	16:15 – 17:00	Keynote speaker								
19:00	IWA Project Innovation Awards ceremony and dinner									
Thursday	08:15 – 09:00	Keynote speaker								
	09:15 – 10:45	Climate change and drought risk management	Research and development status for water treatment in Korea	Granular sludge	Membrane systems for wastewater treatment and reuse	Industrial wastewater treatment	Impacts on water resources management	Alternative water, energy and material resources—Hong Kong	Uncertainty in wastewater treatment design and operation	Creating operationally smart networks—today and in the future
	BREAK									
	11:15 – 12:45	Rainwater harvesting as a key element of supply and drainage	Directions of national R&D programs for water in Asia	Activated sludge population dynamics	Membrane systems for wastewater treatment and reuse	Industrial wastewater treatment—dyes	Monitoring and modelling of reservoirs and river basins	Synergising water and food through aquaculture	New molecular tools in action in water engineering	Optimising data quality management in water networks
	LUNCH									
	14:15 – 15:45	Rainwater harvesting as a key element of supply and drainage	International patnering for global water cycle research—critical to our future	Alternative sanitation options	Microbial fuel cells	Industrial wastewater treatment—metal recovery processes	Water resources management on watershed scale	Mineral balance of drinking water	New molecular tools in action in water engineering	Optimising data quality management in water networks
	BREAK									
	16:00 – 17:30	Closing session and Harremoes lecture								
19:00	Gala dinner									
		Technical tours – Friday								

Programme overview

Room 10	Room 11	Room 12	Room 13	Room 14	Room 15	Room 16	Room 17	IF Stage A	IF Stage B
Opening ceremony									
Welcome reception									
Understanding and managing nanotechnologies in water	Developing countries and sustainable systems	Microbial pollution in water	Membrane technologies—new developments	Water quality control and the smart grid approach	Leakage, transients and rehabilitation of water distribution systems	Integrated water management for the city of the future	Connecting millions—expanding access to unserved populations	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 30 for the listing and timings of the individual sessions.	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 30 for the listing and timings of the individual sessions.
10:30 Presidential address				11:30 Keynote speakers					
Frontiers of membrane and nano technologies in reuse and desal	Institutional capacity and policy development	Chemical and biological hazards in water	Membrane technologies—fouling management	Water quality control and the smart grid approach	Water quality modelling in water distribution systems	The Four Rivers Restoration Project	Sharing water solutions from the Portuguese speaking world		
Frontiers of membrane and nano technologies in reuse and desal	Disaster preparedness, response and recovery	Chemical and biological hazards in water	Membrane technologies—process applications	Industrial wastewater treatment—process applications	Multi-scale urban water systems	Optimising public and private roles in supply chain management	Sharing water solutions from the Portuguese speaking world		
Keynote speaker									
Poster session and reception									
Young water professionals reception									
Water industry and technology leaders panel									
Nitrous oxide in wastewater treatment		Water safety plans	Biological drinking water treatment processes	Desalination—thermal treatments	Improving the energy efficiency of wastewater treatment	Integrated real time control of sewer—wastewater systems	Celebrating professional women in water	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 42 for the listing and timings of the individual sessions.	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 42 for the listing and timings of the individual sessions.
Climate change and urban flood risk management	Greenhouse gas footprint of the urban water cycle	Water safety plans	Drinking water disinfection	Desalination—process applications	Improving the energy efficiency of wastewater treatment	Integrated modelling and control of sewer/ wastewater systems	Celebrating professional women in water		
Climate change and urban flood risk management	Advances in modelling GHG emissions from wastewater systems	Managing water quality in distribution systems	Disinfection by-products in drinking water treatment	Desalination—fouling management	Biofuels and biogas production from wastewater	Integrated real time control of sewer—wastewater systems	Busan City investment seminar		
Keynote speaker									
Korean cultural show									
Keynote speaker									
Treatment of drinking water for public systems—how safe is safe?	Water conservation and demand management	Emerging issues related to health and the environment	Adsorption and ion exchange—removal of microconstituents	Desalination—forward osmosis process	Frontiers in the identification and quantification of microorganisms	Highlights of Korea's effort to contribute to development activities	Focus on Africa Forum—cities of the future	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 54 for the listing and timings of the individual sessions.	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 54 for the listing and timings of the individual sessions.
Health-based investments in drinking water—how can science inform us?	Utility finance and revenue challenges	Emerging issues related to health and the environment	Adsorption and ion exchange—organic matter removal	Disinfection and disinfection byproducts in wastewater treatment	Frontiers in the identification and quantification of microorganisms	Large scale and rapidly implemented sewage rehabilitation	Focus on Africa Forum—urban sanitation		
Frontiers of toxicology—new imperatives for health	Driving performance improvement	Development of online sensing monitoring systems	Adsorption and ion exchange—removal of pollutants	Advanced oxidation processes	Current status of groundwater planning and management	Membrane technology for water and wastewater in Korea	Focus on Africa Forum—water-energy nexus		
Keynote speaker									
IWA Project Innovation Awards ceremony and dinner									
Keynote speaker									
Drugs, drugs of abuse and their transformation products	Asset maintenance and management	Improving the energy efficiency of drinking water supply	Eco-business parks—developing effective regulatory regimes	Photocatalysis in drinking water treatment	Improvement of conventional water treatment technologies—clarification	Establishing innovative decentralised water supply systems	Transitioning to new paradigms in water—institutional	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 66 for the listing and timings of the individual sessions.	Industry forums take place at the IF stages in the exhibition hall. Some sessions run over the lunch break. See page 66 for the listing and timings of the individual sessions.
Drugs, drugs of abuse and their transformation products	Strategic asset management and long-term planning	Human resource capacity gaps and how to close them	Urban sanitation initiative	Oxidation and advanced oxidation processes	Improvement of conventional water treatment	Appropriate technology water for scientists and engineers without borders	Transitioning to new paradigms in water—cultural		
Micropollutants and emerging contaminants	Strategic asset management and long-term planning	AquaRating—a system for rating utility performance	Urban sanitation initiative	Oxidation and advanced oxidation processes	Governance and regulation	Evaluation of nonpoint source BMPs in Korea	Ballast water management		
Closing session and Harremoes lecture									
Gala dinner									
Technical tours – Friday									

Exhibition open Monday – Wednesday 09:30 – 18:00 Thursday 09:30 – 15:00

Opening ceremony

16:30 – 18:00 Sunday Room 1 Floor 3 BEXCO

Keynote address: National effort on global water problems

Minister Yoo Young Sook has a distinguished career in directing research. She was previously directed research at the Korea Institute of Science and Technology and the Korean Chemical Society, among others. In October 2008, the Minister received the third AMOREPACIFIC Award for outstanding women in the sciences.



Yoo Young Sook
Minister for the
Environment
Korea

Welcome reception

18:00–19:30 Sunday

All attendees to the opening ceremony are invited to network over drinks.

Korean cultural show

17:30–18:45 Tuesday Busan Cinema Center

Don't miss this special event at a very new venue in Busan. The show features traditional Korean cultural entertainment. The venue is an easy 15 minute walk from BEXCO, and a map is printed on the back of your free ticket.

Your free ticket should be in your delegate envelope. If you are missing it, please go to the registration desk to collect one.

If you would like to walk with a group, please be in the Floor 1 lobby, near the entrance, at 17:05 and a volunteer will guide you.



Gala dinner

19:00 Thursday Floor 3 BEXCO Exhibition Center 2

Dress: business dress or national costume

Join thousands at the special closing event of the congress and exhibition. The entertainment features modern Korean culture. Please bring your ticket to enter the dinner.

If you have a ticket but are not able to attend the event, please give it to someone who does not have one or return it to the registration desk. No refunds are available.



Information

Tours

Technical tours

Treatment plants using wastewater as a resource Friday 09:00 – 13:00

Clean drinking water and the Four Major Rivers Restoration Friday 08:30 – 14:00

The Nakdong River Estuary treasure Friday 08:30 – 13:15

Health/environment labs and desalination technology Friday 08:30 – 15:15

Sightseeing tours

Gyeongju, capital of the Shilla Kingdom for 1000 years Tuesday 09:00 – 17:00

Up close and personal with Busan's temples Wednesday 10:00 – 16:00

Seafood markets and Busan Tower's Sky Deck Thursday 09:00 – 13:00

All tours depart from and return to the Paradise Hotel Busan (NOT from BEXCO). You need to purchase a ticket before going on the tour.

If you have purchased a ticket already, please be at Paradise Hotel Busan 15 minutes before your tour's departure time, outside the side entrance hotel's main building (exit the door near the bakery) between the main building and the annex building.

If you still need a ticket for a tour, please ask at the congress registration desk.

Luggage storage

You can leave luggage at the delegate bag room, to the left of the congress registration desk. The bag room will be open between Wednesday 08:00 – 17:00 and Thursday 08:00 – 14:30. Any bags left there are at your own risk.

Wi-fi internet access

You can access wi-fi in three areas of the exhibition hall (shown on the floor plan—see page 76). The password is **busan**.

Media centre

A media room with computers, internet and printing facilities is available for journalists. It is located near the registration desk at the entry to the exhibition hall. A separate interview room is also available. To reserve this room for interviews, please speak to the media support staff at the media centre. They will be at the centre each day.

For more information, contact:

Alison Binney

Email: alison@econnect.com.au

Mobile: +61 428 900 450

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To meet the needs of growing private sector participation in global water projects, we're using our distinguished project expertise and strong work ethic to deliver world-class water assets and services to our most valued clients.



Driven to provide complete EPC solutions for private sector water projects in the fields of Desalination, Wastewater & Water, we are committed to delivering a quality project every step of the way from financing to O&M.

To learn more about our 42 years of project success, visit us at www.samsungengineering.com

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Natural resources are not infinite. Each day, SUEZ ENVIRONNEMENT and its subsidiaries deal with the challenge of protecting resources by providing innovative solutions to industry and to millions of people. SUEZ ENVIRONNEMENT supplies drinking water to 91 million people, provides wastewater treatment services for 63 million people, and collects the waste produced by close to 57 million people. SUEZ ENVIRONNEMENT has 80,410 employees and, with its presence on five continents, is a world leader exclusively dedicated to water and waste management services.

SUEZ ENVIRONNEMENT

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A spin-off from ITT Corporation created in October 2011, Xylem is a global water leader deeply involved in every stage of the cycle of water—transporting, treating, testing and analysing it, then returning it to the environment. Doing business in more than 150 countries, the company plays an important role in improving quality of life, and helps communities to grow, farms to prosper and industries to thrive. 'Xylem' is the Greek word for the tissue that moves water in plants. Following the spin-off, Xylem has retained its industry-leading product brands such as Flygt, Goulds Water Technology, WEDECO, Godwin Pumps, WTW, Flojet, Bell & Gossett, Lowara and many others. Serving the municipal water, wastewater, residential and commercial building services and industrial markets, it produces highly efficient products and systems that require less maintenance, use less energy and provide environmental benefits to users and communities. Through its social investment arm, Watermark, Xylem offers critical assistance in water emergencies and helps provide safe water, sanitation and hygiene education for children and families through school-based programs in developing countries.

Xylem

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Doosan Heavy Industries & Construction has been one of the leading providers of desalination solutions since commissioning our first turnkey project in 1989. In addition to the 310 million imperial gallons per day (MIGD) of capacity currently under construction, our plants are producing 1300 MIGD of water for use by more than 19 million people in communities and industries around the globe.

Our proven portfolio of Multi-Stage Flash (MSF), Multi-Effect Distillation (MED), and Reverse Osmosis (RO) technologies, which are continuously developed by our R&D centers in Changwon, Tampa and Dubai, enables us to deliver reliable and cost-effective turnkey solutions with the shortest lead times in the industry for projects of various scales.

Doosan's wide spectrum of products and services, which include engineering, procurement, construction and operation and maintenance for desalination and water treatment plants and systems, are actively marketed by our regional offices in the Americas, the Middle East, and South-East Asia along with our US subsidiary, Doosan Hydro Technology.

Doosan Heavy Industries & Construction

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SAMSUNG ENGINEERING

Samsung Engineering has been recognised for over 42 years of excellence in engineering, procurement, construction, commissioning, operation and maintenance for environmental, industrial and hydrocarbon plants and facilities. With 7,600 talented engineers and project managers, Samsung Engineering offers complete solutions in the water business value-chain, and has a proven track record of delivering plants on-schedule and safely. Samsung Engineering has proven expertise in all processes of water treatment, including water supply (clean water, desalination), and utilities (ultra-pure water, industrial water), and reuse. The company is broadening its business to provide services for reverse osmosis desalination using membrane technology, as well as equity investment. As a total environmental solutions provider for international markets, Samsung Engineering was awarded the IWA Project Innovation Award in 2008 for Respia, a large public partnership sewage project in Korea. In 2009, the ICAD industrial wastewater treatment plant in Abu Dhabi was successfully completed and is operational. The Bahrain Muharraq sewage treatment plant was the first build-own-operate project awarded to the company. Samsung Engineering was recognised for its instrumental role as the lead developer for Muharraq, receiving the 2011 'Deal of the Year' honour from the Project Finance Institute.

Samsung Engineering

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The Ministry of Environment is focused on establishing a sustainable, 'green' country, based on the spirit of 'respect for life'. At the same time, the Ministry has continued its efforts to create a healthy and sound environment, enhance international cooperation, and encourage citizens to participate in solving environmental issues.

The Ministry of Environment is meeting people's expectations of and desire for government action; objectively assessing the performance, limitations of previous environmental policies, and establishing a new framework for environmental policies based on these assessments.

The Ministry is focusing on responding to environmental threats and diseases, enhancing international environmental diplomacy and cooperation to encourage active participation to address global environmental problems, fostering innovation in environmental technologies and industries so that it is more globally competitive, encouraging recycling, and creating a clean and pleasant environment which increases the quality of life and where nature and humans harmoniously coexist.

The Ministry of Environment

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Busan, home to 3.6 million people, is South Korea's second-largest city after the capital, Seoul. Pronounced 'Pusan' in Korean, the city is located on the south-eastern tip of the Korean peninsula. It is the country's largest port and the fifth-largest port in the world, which creates a vibrant international atmosphere for the city.

Busan is known for its superb beaches and hosts a wide range of marine sports and leisure activities such as yachting, windsurfing, scuba diving and fishing. Sailors from around the world mix with the locals and a growing number of tourists.

Luxurious five-star hotels spread throughout Busan's beaches and downtown areas are ready to welcome you. Busan is increasingly becoming known as one of Asia's foremost cities for conventions. It has already played host to major global events such as the 2002 Asian Games, the 2002 FIFA World Cup and the 2005 APEC Korea meetings.

Busan Metropolitan City

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GS Engineering & Construction Corporation operates as an engineering, procurement and construction contractor in Korea and internationally. The company provides engineering and construction services, onsite building maintenance services, and residential and industrial construction services. It offers its services for oil, gas and petrochemical industries; sewage system maintenance; sewage and wastewater treatment; waste treatment and recycling; combined cycle power plant/thermal-fired power plant; co-generation plant/district heating; and nuclear power plant projects. The company also builds stores, offices, and facilities for art, culture, sports, education, research and medicine. In addition, it provides civil engineering services for roads, bridges, railroads, subways, underground spaces, landscaping and ports/harbors. The company was formerly known as LG Engineering & Construction Corporation and changed its name to GS Engineering & Construction Corporation in March 2005. The company was founded in 1969 and is based in Seoul, South Korea.

GS E&C Corporation

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The global leader in water and wastewater services, Veolia Water delivers outsourcing services, designs technological solutions and constructs and operates facilities for municipal and industrial customers. Veolia Water operates at all stages of the water cycle: extraction, treatment, storage and distribution of drinking water; collection, transportation, treatment, recycling and restitution of wastewater, with a constant focus on protecting resources, saving energy, controlling costs and limiting the environmental impact of its actions. Veolia Water has become a leader in technology and networks. Today, Veolia Water delivers the best quality water to 103 million people worldwide and provides 73 million people with wastewater services. To address the challenges and expectations presented in the water business, Veolia Water has developed a new three-dimensional vision: SVR. This approach combines high-performance solutions (Service), optimised use of natural resources (Value) and fair practices (Responsibility).

Veolia Water

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CDM Smith is a consulting, engineering, construction and operations firm delivering exceptional service to public and private clients worldwide. We provide innovative and sustainable solutions for water, environment and energy needs—all developed through strong client relationships of mutual trust and respect and a commitment to quality and integrity. From integrated water resources planning to programme management, design, construction and operation of water and wastewater infrastructure, CDM Smith is committed to providing a wide range of services to water utilities. We are applying advanced technologies and integrated approaches to help clients around the globe meet the need for exceptional water quality.

CDM Smith

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www.cdmsmith.com



CSM specialises in researching, developing and manufacturing state-of-the-art membranes for reverse osmosis, nanofiltration and ultrafiltration, as well as cartridge and micro-filters.

Operating under Woongjin Chemical Co. Ltd, CSM is dedicated to maintaining high standards of product quality and customer service, which it achieves through its global customer support, with branch offices and affiliated corporations in the US, China, Japan, India, UAE, Singapore and Spain.

CSM products are available in various sizes to accommodate diverse water needs and applications. CSM continues to advance filtration and separation technologies used for processes such as water reuse and desalination of seawater and brackish water.

CSM (Woongjin Chemical Co Ltd)

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www.csmfilter.com

KOLON GLOBAL CORP.

Kolon Global Corporation are about creating total water and environmental solutions for our clients. We manage environmental facilities for government agencies, create synergies with our plant construction business, and are growing as a full-service solution provider. We are currently leading cutting-edge water solutions in Jordan, Sri Lanka and Vietnam. Because of our

complete knowledge of the construction and operation of environmental facilities, Kolon Global Corporation is the first choice for water management. Our expert specialists proactively diagnose and solve problems to provide high-quality, value-added service.

Kolon Global Corporation

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K-water is a world-class water corporation at the forefront of achieving sustainable green growth in the 21st century. K-water is providing the highest quality water services to local and international people, increasing water efficiency and securing its global competitiveness.

Since its establishment in 1967, K-water has implemented policies for national water resource management by constructing, operating and managing multi-purpose dams and water supply systems. K-water makes essential contributions to Korea's national economy and improves quality of life for the public. K-water is on its way to achieving its vision—to be the world's 'best water partner'—and its mission – of 'water for a happier world'.

K-water

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Established in 1994, POSCO Engineering & Construction are a leading partner for water and environment works. We are committed to giving our clients a competitive edge.

We have recently been appointed as the contractor for the water treatment plant in Yanbu' al Bahr (Saudi Arabia) and for water resources planning in Abu Dhabi (United Arab Emirates). We also specialise in strategic planning for desalination facilities.

We have accumulated diverse skills from our many projects, which range from drinking water to recovery. We have implemented the PEPCOM system of project planning—financing, engineering, procurement, construction, operation and maintenance—throughout our projects.

POSCO Engineering & Construction

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Salsnes Filter's patented filter technology for wastewater treatment complies with EU primary treatment regulations, and is widely used as a stand-alone application for primary treatment followed by discharge of treated water to recipient. The systems are used for primary treatment or storm water treatment; and in slaughterhouses, processing facilities, breweries, tanneries and the paper.

Salsnes Filter technology may replace primary clarifiers, and may work with chemically enhanced primary treatment, or followed by any secondary treatment process. Due to the high removal rate of particles, the system is very attractive as a primary stage followed by MBBR or MBR systems.

Salsnes Filter AS

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For the past decade, SSENG has shown itself as a nationally recognised leader in recycling contaminated water and supplying clean water through the distribution of their own filtration technology for sewage, industrial waste water, potable water treatment and desalination facilities.

SSENG aims to reduce environmental and water pollution worldwide, and prides itself on excellent quality products, as well as economical construction and maintenance.

SSENG's award-winning, innovative and patented fibre filter technologies and Oasis Double PCF Potable Water process, for example, can filter very highly turbid water to a drinkable state without pretreatment.

SSENG

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International Water Association

The International Water Association (IWA) is the global reference point and network for water professionals, spanning research and practice and covering all facets of the water cycle. Through its network of members and experts in research, practice, regulation, industry, consulting and manufacturing, IWA is in a better position than any other organisation to lead and support water professionals to create innovative, pragmatic and sustainable solutions for current and future global water challenges.

The strength of IWA lies in the professional and geographical diversity of its members. This global mosaic of national, corporate and individual member communities allows multi-level collaboration, generating knowledge and expertise exchange on all aspects of the science, research, practice and management of water.

Korean Organising Committee

The Korean Organising Committee (KOC) was established as a non-profit organisation for the successful management of the 2012 IWA World Water Congress in Busan. Group members of KOC include the Korean Ministry of Environment, Busan Metropolitan City, Korean Society of Environmental Engineers (KSEE), Korean Society of Water Quality (KSWQ), Korean Society of Water and Wastewater (KSWW) and Korea Water and Wastewater Works Association (KWWA). The membership of KOC comprises representatives of the event sponsors, Doosan Heavy Industries & Construction, Samsung Engineering, K-water, POSCO E&C, KOLON E&C and SENG, as well as individual water specialists and experts.

Organising partners



부산대학교
PUSAN NATIONAL UNIVERSITY

The Pusan National University (PNU) is recognised as one of the most prestigious universities in Korea. Located at the foot of Keumjung Mountain, PNU was established 65 years ago and today has 25,000 students in a large range of academic disciplines. The university is renowned as a high-quality educational institution in the fields of engineering and science and for its world-class research and development activities. Various colleges and departments of PNU have well-developed environmental engineering and science programmes.



부산광역시
BUSAN METROPOLITAN CITY

Busan is South Korea's second-largest city. The city is located on the south-eastern tip of the Korean peninsula and is the fifth-largest port in the world. This creates a vibrant international atmosphere for the city.

Busan is known for its superb beaches and hosts a wide range of marine sports and leisure activities such as yachting, windsurfing, scuba diving and fishing.

Luxurious five-star hotels spread throughout Busan's beaches and downtown areas are ready to welcome you. Busan is increasingly becoming known as one of Asia's foremost cities for conventions and has already played host to major global events.

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Keith Robertson
Doim Kim
Roy Agterbos
Margaret Bates

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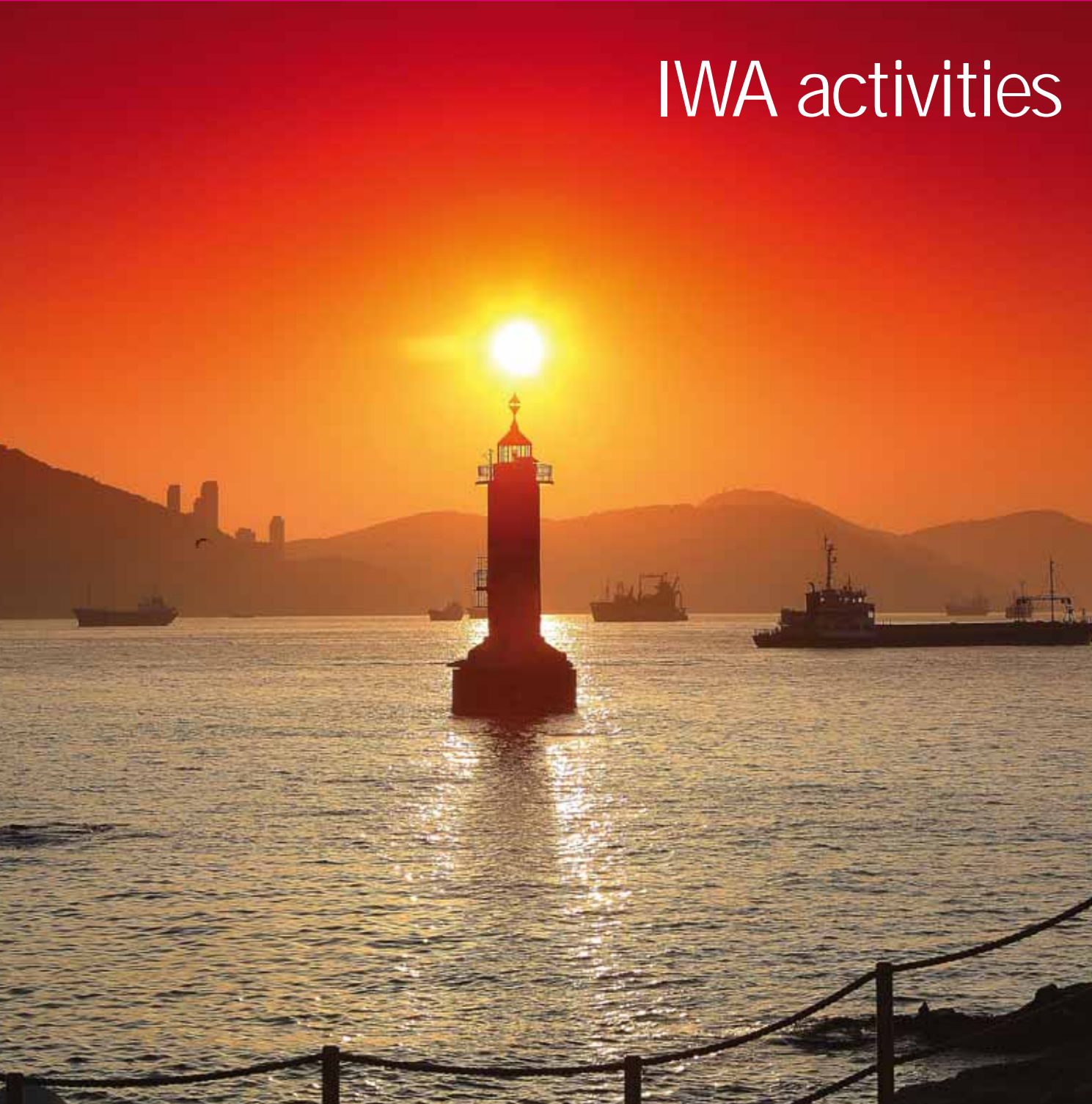


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Proceedings—on USB

In your delegate bag you will find a USB of congress proceedings. The USB contains full papers of platform presentations, electronic versions of posters, and extra resources from IWA.

To easily find materials on the USB, search the files using keywords. This will bring up presentations associated with those keywords, and their papers.

Wi-fi internet—free access

Free wi-fi is available in the exhibition hall in areas shown on page 76, during the open hours of the exhibition. The password is **busan**. If you unable to log on, the network may be too busy—so please try again shortly.

Mobile app for schedule, map, community

The easy-to-use app shows you:

- up-to-the-minute information on its 'dashboard'

- a customisable 'schedule-at-a-glance' to get organised
- an interactive map of the exhibition
- real-time alerts from congress organisers
- a built-in Twitter feed to follow and join in on the event chatter

You can also:

- rate and comment on sessions you attend
- take photos to share your experiences
- connect with colleagues using the 'friends' feature
- keep up with industry news

Get the app

- For iPhone, iTouch, iPad and Android: visit the App Store or Android Market and search for 'IWA2012busan'.
- For all other phones: go online to www.m.core-apps.com/iwa2012busan to download the app or bookmark the page for future reference.

Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

BOF Basins of the Future
COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

Principal sponsors



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Tomasjord WWTP

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Design: 45000 PE
Max hydraulic capacity: 86400 m³/day (1000 l/sec)

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DEVELOPMENT HUB

The IWA Development Hub is a space for IWA members and partners to showcase their programmes, achievements, services and products focused on lower- and middle-income countries. Network with delegates and exhibitors and establish new initiatives and business opportunities linked to research, development, small and medium enterprises, and water and sanitation service delivery.

Discuss and debate the following themes, emphasising 'solutions' and 'what works':

Strengthening utilities

Technical, managerial and governance achievements that have improved performance, and innovative approaches to strengthening utilities.

Water, climate and energy

Frameworks, case studies and policies dealing with challenges such as mitigation, energy and carbon neutrality, and adaptation.

Right to water and sanitation in practice

The practical implications of implementing the human right to water and sanitation, and the roles and responsibilities of stakeholders.

Urban sanitation

Tried and tested practices and how they can be scaled-up.

New thinking about safe, efficient and affordable solutions for sanitation in low- and middle-income cities and surrounding areas.

Entrepreneurs for water and development

Successful business initiatives in lower- and middle-income regions.

Innovative technologies and management approaches.

New thinking on entrepreneurship in these regions.

River basins of the future

How to optimise water use in the city.

Tools, policies and incentives for transitioning basins into the future.

Pick up your copy of the schedule of discussions this week at the Development Hub, exhibition stands DH1-10



Development Hub exhibitors include:



BORDA



IWA specialist groups, task groups and clusters

Specialist groups are the core of our association. Group members are engaged in activities such as organising conferences, seminars and workshops; and writing books, reports, newsletters and journal papers. Task groups, or working groups, also produce scientific and technical reports, manuals of best practice and position papers.

During the congress, many specialist groups will have open meetings which all congress delegates are welcome to attend. Most of the meetings will be held during lunch breaks in one of the session rooms. Please take this great opportunity to meet like-minded people and to learn more about groups and topics that interest you.

Schedule for open meetings			
Monday	Tuesday	Wednesday	Thursday
Nano and water 12:00 – 13:30 Room 10	Odours and volatile emissions 12:45 – 14:15 Room 2	Urban drainage 13:00 – 14:15 Room 1	Water and wastewater in ancient civilizations 12:45 – 14:15 Room 1
Sustainability in the water sector 12:00 – 13:30 Room 11	Anaerobic digestion 12:45 – 14:15 Room 3	Sludge management 12:45 – 14:15 Room 2	Chemical industry 12:45 – 14:15 Room 5
Water security and safety management 12:00 – 13:30 Room 12	Design, operation and costs of large wastewater treatment plants 13:15 – 14:00 Room 4	Membrane technology 12:45 – 14:15 Room 4	Diffuse pollution 12:45 – 14:15 Room 6
Hydroinformatics 12:00 – 13:30 Room 15	Small water and wastewater systems 12:45 – 14:15 Room 5	Watershed and river basin management 12:45 – 14:15 Room 5	Instrumentation, control and automation 12:45 – 14:15 Room 9
	Water reuse 12:45 – 14:15 Room 8	Groundwater restoration and management 12:45 – 14:15 Room 6	Assessment and control of hazardous substances in water 12:45 – 14:15 Room 10
	Benchmarking and performance assessment 12:45 – 14:15 Room 11	Efficient urban water management 12:45 – 14:15 Room 9	Strategic asset management 12:45 – 14:15 Room 11
	Task group green house gas emission 15:45-16:15 Room 11	Institutional governance and regulation 12:45 – 14:15 Room 10	Sanitation and water management in developing countries 12:45 – 14:15 Room 13
	Water safety planning 12:45 – 14:15 Room 12	Statistics and economics 16:30 – 18:30 Room 11	Metals and related substances in drinking water 12:45 – 14:15 Room 14
	Public and customer communication 12:45 – 14:15 Room 14	Design, operation and maintenance of drinking water treatment plants 12:00 – 13:30 Room 13	
	Pretreatment of industrial wastewaters 12:45 – 14:15 Room 15	Disinfection 12:45 – 14:15 Room 14	
	Modelling and integrated assessment 12:45 – 14:15 Room 16	Microbial ecology and water engineering 12:45 – 14:15 Room 15	
	Resource oriented sanitation 12:45 – 14:15 Room 17		

Specialist Groups Hub

Exhibition stand no. 100

The IWA specialist group hub (SG Hub) is a dedicated space for specialist groups to showcase their activities, and for group leaders and members to meet with delegates. You will be amazed by the networking, information and activities you find there, so please drop by the SG Hub.

Sustainability awards

Tuesday 17:00 – 18:00

You are welcome to attend this reception featuring the IWA sustainability specialist group prizes award ceremony, and hosted on behalf of the specialist groups.

Programme

Chair **Bruce Beck** Chair IWA specialist group on sustainability

17:00 Introduction

17:05 Presentations by authors of prize-winning submissions

17:35 Announcement of winners and presentation of awards **Glen Daigger** IWA President

17:40 Drinks and canapes

This event celebrates excellence in sustainable urban water management. The prizes are awarded every two years by IWA's sustainability specialist group, and generously sponsored by CH2M Hill. There are two categories: research excellence in support of sustainable urban water management, and innovation in the practical realisation of sustainable urban water management. Announcing the winners of these prizes is an eagerly awaited feature of the World Water Congress.

More information

For details of group meetings and other specialist group activities, check out the congress website or email hong.li@iwahq.org

IWA PROFESSIONAL WOMEN IN WATER PROGRAMME

Inspiring change making a difference



Highlight of activities for the week:

09:15 Tuesday
Room 17

Prize ceremony and presentation for the prestigious IWA Women in Water Award for Leadership in memory of Hei-Jin Woo.

09:45 – 12:45 Tuesday
Room 17

IWA Women in Water Workshop with distinguished speakers including Diana Gale, US and Her Worship Elaine Trepper, Mayor of City of Windhoek, Namibia.

09:45 – 10:15 Wednesday
YWP Hub, Exhibition Hall

Dialogue with Young Women Water Professionals

13:00 Thursday
Development Hub, Exhibition Hall
Dialogue led by Women in Water on Community based solutions to water and sanitation.

For the full schedule of activities for Women in Water and more information on the programme visit the IWA Stand in the exhibition.

Sponsors



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Young Water Professionals—make the most of your week

YWP Hub Exhibition stand no. 101

The YWP Hub—a unique learning zone for professional skills development

08:00 – 09:00 Monday

YWP breakfast meeting
YWP Hub

Kick off your week with this breakfast meeting where you can meet your peers, plan your week ahead and receive advice on how to turn your week into a week with impact. A must attend event for all our YWP delegates.

19:00 – 21:00 Monday

YWP reception
Paradise Hotel Busan

This special reception for YWPs provides an opportunity for you to meet with leading professionals in your field, connect with your peers and raise your professional visibility. The reception is sponsored by Xylem.

From 14:15 Monday and Wednesday

Exhibition tours
Meet at the YWP Hub

These tailored tours will enable YWPs to meet a selection of the industry's leading organisations exhibiting at the congress. They will be of particular interest to YWPs looking at entering a career in the water sector.



Schedule of activities Pick up your copy of the activity schedule for YWPs at the Hub, exhibition stand no. 101.

Sponsors



CH2MHILL

Busan Metropolitan City events

Busan is a city of water, located in the south-eastern corner of the Korean peninsula, along the delta of the Nakdong River and directly facing the sea. The clean and environmentally friendly city of Busan, through scientific management and its advanced water-quality processes, will emerge as a leader in the global quest to find answers to the issues of water sustainability by hosting the IWA World Water Congress & Exhibition.

Congress workshop

New paradigm of the ecological restoration of urban streams toward a 'green city', Busan
14:15 – 15:45 Tuesday Room 1

The workshop will include global case studies and positive examples of ecologically and environmentally sound restoration of urban streams in waterfront cities. There will be discussions about the pros and cons of human intervention on urban streams and how to develop better strategies for the ecological and sustainable restoration of urban streams for the benefit of future generations.

Technical tours

On Friday the technical tours will visit the Suyeong Sewage Treatment Plant, Deoksan Water Treatment Plant and Busan RDF Plant—Busan's first-class water treatment system, sewage disposal system, waste recycling system and desalination technology. Also see Nakdong Estuary and take a peek at this beautiful ecosystem.



Investment seminar

14:15 – 15:45 Tuesday Room 17
For invited delegates

This session will provide global water-related corporations and other interested parties with an overview of Busan's suitability for investment, as well as possible long-term investment plans. It will also be an opportunity for participants to network, and meet with and engage the key decision-makers from the city.

Familiarisation tour

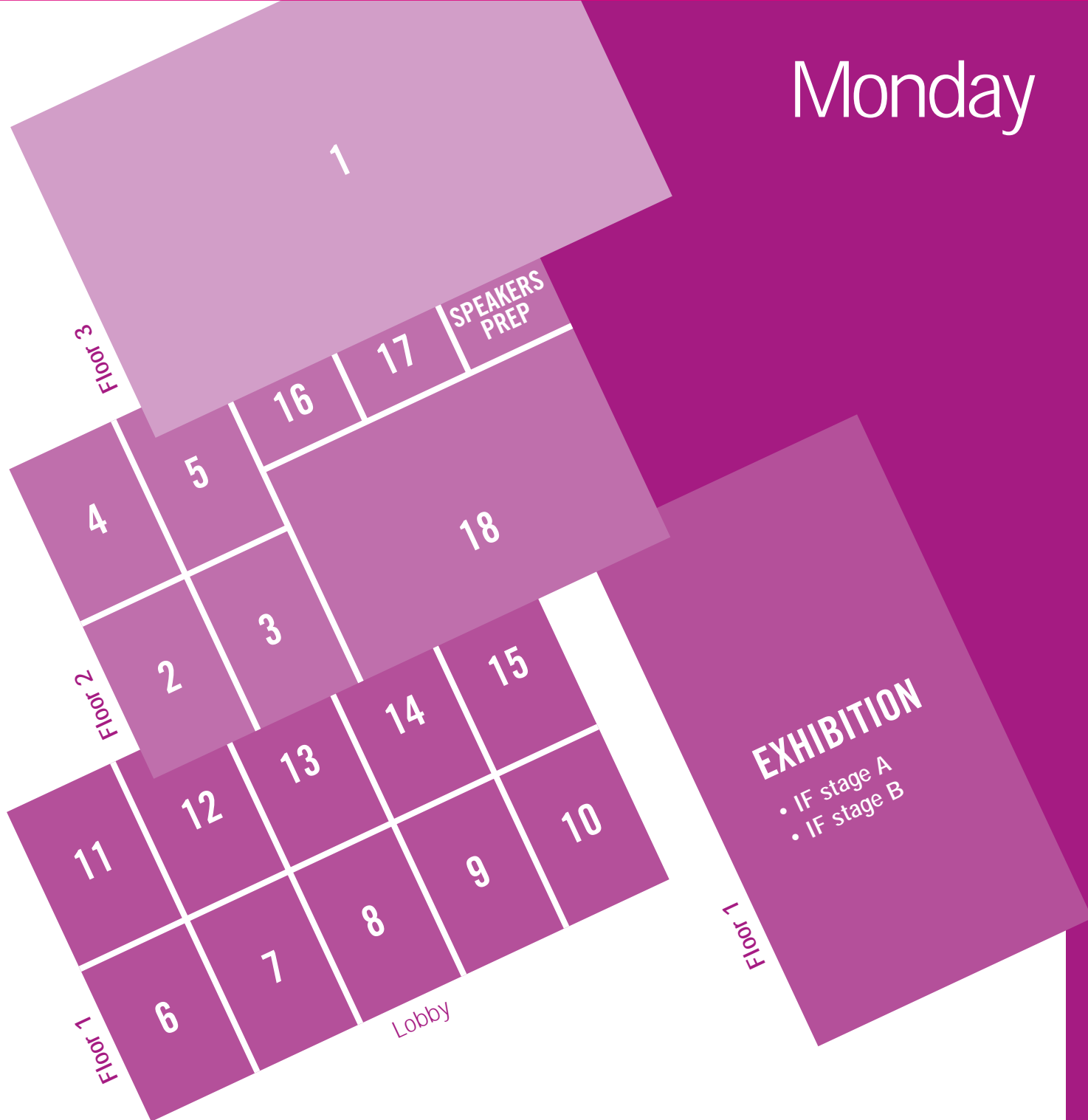
Sunday – Thursday

Delegations from ten sister cities will participate. Busan Metropolitan City and Busan Foundation for International Activities (BFIA) will jointly take delegates for a tour of the IWA World Water Exhibition and a visit to some local landmarks, such as the Yonggungsa Temple, Nurimaru APEC House and Busan Cinema Center.



Monday

Monday



Proceedings—on USB

In your delegate bag you will find a USB of congress proceedings. The USB contains full papers of platform presentations, electronic versions of posters, and extra resources from IWA.

To easily find materials on the USB, search the files using keywords. This will bring up presentations associated with those keywords, and their papers.

Wi-fi internet—free access

Free wi-fi is available in the exhibition hall in areas shown on page 76, during the open hours of the exhibition. The password is **busan**. If you unable to log on, the network may be too busy—so please try again shortly.

Mobile app for schedule, map, community

The easy-to-use app shows you:

- up-to-the-minute information on its 'dashboard'

- a customisable 'schedule-at-a-glance' to get organised
- an interactive map of the exhibition
- real-time alerts from congress organisers
- a built-in Twitter feed to follow and join in on the event chatter

You can also:

- rate and comment on sessions you attend
- take photos to share your experiences
- connect with colleagues using the 'friends' feature
- keep up with industry news

Get the app

- For iPhone, iTouch, iPad and Android: visit the App Store or Android Market and search for 'IWA2012busan'.
- For all other phones: go online to www.m.core-apps.com/iwa2012busan to download the app or bookmark the page for future reference.

Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

BOF Basins of the Future
COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

Principal sponsors



Institutional sponsors



Platinum sponsors



Keynote speakers



Sunday 16:30
Yoo Young Sook
Minister for the Environment
Korea



Monday 11:30
Jaehyang So
World Bank



Monday 11:00
Yong Soo-Gil
Presidential Committee on
Green Growth
Korea



Monday 17:15
Pavel Kabat
International Institute for Applied
Systems Analysis (IIASA)
Austria

Tuesday 08:15

Water industry leaders panel

- Suez Environnement
- Doosan
- Samsung Engineering
- Xylem
- and others



Tuesday 16:15
Staffan Kjelleberg
Singapore Centre on
Environmental Life Sciences
Engineering, Centre for Marine
Bio-Innovation University of NSW
Singapore and Australia



Wednesday 08:15
Paul Greenfield
Australian Nuclear Science
& Technology Organisation,
International WaterCentre
Australia



Wednesday 16:15
Linda Macpherson
CH2M HILL
United States



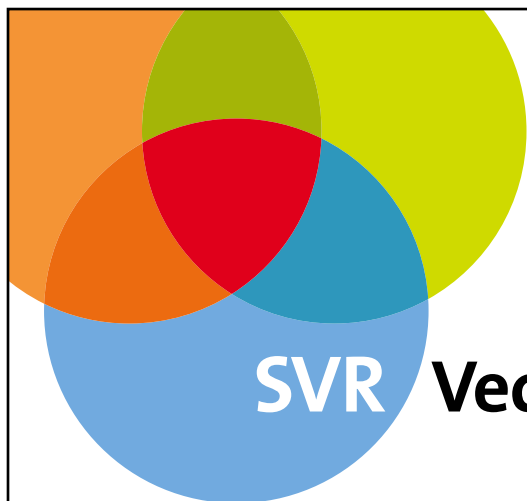
Thursday 08:15
Wim van Vierssen
KWR Watercycle Research
Institute
Netherlands



Thursday 16:00
Hansruedi Siegrist
Swiss Federal Inst. of Aquatic,
Science and Technology
Switzerland



Thursday 16:00
Shane A. Snyder
University of Arizona
United States



SVR Veolia Water's New Vision

"SVR Vision" combines three basic principles:

- S SERVICE:** guaranteeing performance, controlling costs and improving health, safety and environmental performance;
- V VALUE:** using natural resources more efficiently;
- R RESPONSIBILITY:** operating our business responsibly – caring for people and the environment.

By following these three principles **Veolia Water** can better respond to the needs of today's world.



Monday technical programme

Keynote speakers

Building innovative partnerships in the water sector



Jaehyang So

Manager

International Water and Sanitation Program
World Bank

Ms So currently manages the multi-donor, International Water and Sanitation Program administered by the World Bank. She has a background in urban service delivery, utilities and corporate restructuring, and public-private partnerships. Ms So has worked for various World Bank programs and plans. She previously worked for Monitor Company in the USA, advising Fortune 100-level companies on corporate strategy issues.

Green growth and Korea's policy toward water and wastewater



Soo-Gil Young

Chairman

Presidential Committee on Green Growth
Korea

Dr Young is a senior economist and expert in trade, development and cooperation in Asia-Pacific with a focus on Korea's challenges. He is president of the National Strategy Institute, an independent think tank on economic reform and national governance. Dr Young leads a committee which formulates Korea's green growth policy.

Water futures—a cross-sectoral system perspective



Pavel Kabat

Director and CEO, International Institute
for Applied Systems Analysis (IIASA)

Professor Kabat has over 20 years' experience of leading interdisciplinary and international research teams investigating global environmental change, with particular strengths in climate hydrology and water cycles. He has given science and policy advice to numerous national and international organisations and governments in various roles.

08:15 – 09:45

Room 1

Opening workshop: Inspiring change to meet a challenging future

Chair **Paul Reiter** IWA

Meeting the future water needs of the planet involves both unimaginable challenges and opportunities. One thing which is clear today is that responding to all scenarios for the future will require 'game-changing' solutions and massive innovation. This session frames both the challenges and opportunities ahead, as envisioned by some of the world's leading figures on the many facets of water.

This session also serves as the gateway to an exciting set of workshops covering IWA's key programs, including: Cities of the Future; Water and Climate; Water and Energy; Global Sanitation, Innovation; the IWA Smart Water Cluster, the newly created IWA Smart Network Cluster and the IWA Bio-Cluster. Featured speakers include Glen Daigger, Hallvard Odegaard, David Garman, Catarina de Albuquerque and Paul Reiter, and some plenary keynote speakers from the congress.

09:45 – 10:30 Morning break

Exhibition

10:30 Presidential address

Room 1

11:30 Building innovative partnerships in the water sector **Jaehyang So** World Bank
Green growth and Korea's policy toward water and wastewater **Soo-Gil Young** Korea

Room 1

12:00 – 13:30 Lunch

Exhibition

13:30 – 15:00

Room 1

COF workshop: Creating new and hybrid paradigms for water and cities on the path to 2050

Chair **Paul Brown** US

13:30 Welcome and introduction **Paul Reiter** IWA

13:35 The imperative for urban systems integration in an increasingly complex world **Paul Brown** US

13:55 Emerging technologies in hardware and software—driving analytic breakthroughs in urban systems **Anil Menon** US

14:15 Panel discussion, facilitator **Paul Brown** US

Panelists: speakers plus **Kala Vairavamorthy** US, **Enrique Calva** Singapore, **Terry Moore** US, **Johan Grön** US, **Steve Moddemeyer** US

14:55 Closing remarks

15:00 – 15:30 Afternoon break

Exhibition

15:30 – 17:00

Room 1

COF workshop: Building on the Montreal COF consensus—case studies from developed countries

Chair **Rob Skinner** Australia

15:30 Melbourne case study **Chris Chesterfield** Australia

15:50 Oslo case study **Per Kristianson** Norway

16:10 Philadelphia case study **Avinash Patwardhan** US

16:30 Panel discussion

17:15 – 18:00 Water futures—a cross-sectoral, system perspective **Pavel Kabat** IIASA

Room 1

18:00 – 19:30 Posters sessions and reception

Poster lounge exhibition hall

19:00 – 21:00 YWP reception

Paradise Hotel Busan

Monday technical programme

08:15 – 09:45	Room 2	08:15 – 09:45	Room 3
<p>Small-scale systems for stormwater management Chair Rafaela Matos Portugal</p> <p>08:15 Introduction</p> <p>08:20 Integrating roof water harvesting into the city supply mix—experience from Australia's fastest growing urban region Alan Gregory Australia</p> <p>08:40 The influence of antecedent soil-moisture conditions on the rainfall-run-off threshold value of a roaded catchment used for water harvesting Chun Woo Baek Australia</p> <p>09:00 Adopting water-sensitive urban design in the developing world—a case study from Bhutan Olof Jonasson Australia</p> <p>09:20 A practical application of a watering method on road surfaces for improving water cycle and heat environment Masahiro Imbe Japan</p> <p>09:40 Closing summary</p>		<p>Process optimisation in anaerobic wastewater treatment Chair Olcay Tünay Turkey</p> <p>08:15 Introduction</p> <p>08:20 A novel technique for evaluating foam dynamics in anaerobic digesters Chanhyuk Park US</p> <p>08:40 Control parameters in an activated anaerobic digestion with a membrane filtration system S Joh Kang US</p> <p>09:00 Use of the upflow anaerobic sludge blanket (UASB) reactor for biological pretreating sewage in developing countries: the current status Brace Boyden Australia</p> <p>09:20 Process optimisation and biogas cogeneration in a wastewater treatment plant Nuno Brôco Portugal</p> <p>09:40 Closing summary</p>	
09:45 – 10:30 Morning break			Exhibition
10:30 Presidential address			Room 1
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea			Room 1
12:00 – 13:30 Lunch			Exhibition
13:30 – 15:00	Room 2	13:30 – 15:00	Room 3
<p>Pollution control in stormwater treatment systems Chair Peter Steen Mikkelsen Denmark</p> <p>13:30 Introduction</p> <p>13:35 Adsorption of heavy metals by road-deposited solids Ashantha Goonetilleke Australia</p> <p>13:55 Treatment of heavy metals by iron oxide-coated and natural gravel media in sustainable urban drainage systems Marnie Norris UK</p> <p>14:15 Development of a stormwater treatment system using bottom ash as filter media Joan B Gorme Korea</p> <p>14:35 Designing stormwater treatment systems based on performance efficiency Marla C Maniquiz Korea</p> <p>14:55 Closing summary</p>		<p>Anaerobic processes Chair Rüya Tasli Turkey</p> <p>13:30 Introduction</p> <p>13:35 Performance evaluation of a novel trickling filter for the post-treatment of anaerobic effluents from small communities Marcos von Sperling Brazil</p> <p>13:55 Enhanced swine-manure treatment with anaerobic membrane bioreactor with phosphorus recovery Li Xie China</p> <p>14:15 Assessment of anaerobic co-digestion of fatty wastes and waste-activated sludge: a case study Samuel Martin France</p> <p>14:35 Granulation of sulphate-reducing sludge for compact SANIA® process for saline sewage treatment Hao Tianwei Hong Kong, China</p> <p>14:55 Closing summary</p>	
15:00 – 15:30 Afternoon break			Exhibition
15:30 – 17:00	Room 2	15:30 – 17:00	Room 3
<p>Combined sewer overflows Chair Wolfgang Rauch Austria</p> <p>15:30 Introduction</p> <p>15:35 Modelling of load dynamics in a CSO retention tank for decision-managing strategies Markus Ahnert Germany</p> <p>15:55 Aeration performance of hydrodynamic flow regulators Patryk Wojtowicz Poland</p> <p>16:15 UV disinfection for treatment of stormwater Ji An Canada</p> <p>16:35 Natural solutions for combined sewer overflow treatment in a Mediterranean country, Portugal Rita Amaral Portugal</p> <p>16:55 Closing summary</p>		<p>Advances in physico-chemical processes and technology Chair Mark van Loosdrecht Netherlands</p> <p>15:30 Introduction</p> <p>15:35 Advanced and innovative technologies for the reduction of water pollution caused by combined sewer overflow Kathrin Gantner Germany</p> <p>15:55 Biologically enhanced high-rate clarification system solving peak wet-weather flow challenges Jyh-Wei (Al) Sun US</p> <p>16:15 Effects of groundwater ions and organic matter on the reactivity and mobility of NZVI particles Jun-Young Ahn Korea</p> <p>16:35 Influence of reverse osmosis concentrate on nitrate reduction by nano zero-valent iron using the response-surface method Yu-Hoon Hwang Korea</p> <p>16:55 Closing summary</p>	
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA			Room 1
18:00 – 19:30 Posters sessions and reception			Poster lounge exhibition hall
19:00 – 21:00 YWP reception			Paradise Hotel Busan



08:15 – 09:45		Room 4	08:15 – 09:45		Room 5
Sustainable water reuse for industry Chair Valentina Lazarova France			Nitrogen removal Chair Frank Rogalla Spain		
08:15 Introduction			08:15 Introduction		
08:20 Five years of water recycling at the Panipat Refinery, India Josef Lahnsteiner Austria			08:20 Enhancing denitrification in a DHS reactor by effluent recirculation Naoki Ikeda Japan		
08:40 Sustainable water management with multi-quality recycled water production: the example of San Luis Potosi in Mexico Valentina Lazarova France			08:40 Overcoming denitrification limits through MLSS sonication in a WWTP Alexandre Galí Serra Spain		
09:00 Project Tusschenwater: a jigsaw puzzle towards sustainable development Dirk van der Woerd Netherlands			09:00 Laboratory-scale optimisation of vermifiltration for synthetic domestic sewage treatment Longmian Wang China		
09:20 Electro-coagulation-flocculation for water reuse Avner Adin Israel			09:20 An aeration-control strategy for oxidation ditch processes based on online oxygen requirement estimation Jixian Zhan Japan		
09:40 Closing summary			09:40 Closing summary		
09:45 – 10:30 Morning break			Exhibition		
10:30 Presidential address			Room 1		
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea			Room 1		
12:00 – 13:30 Lunch			Exhibition		
13:30 – 15:00		Room 4	13:30 – 15:00		Room 5
Improving performance and energy efficiency of water-recycling facilities Chair Peter Cornel Germany			Anaerobic ammonium oxidation Chair Sudhir Murthy US		
13:30 Introduction			13:30 Introduction		
13:35 Challenges in the implementation of the Atotonilco WWTP, the world's largest water reclamation facility Julian Sandino US			13:35 Going for mainstream deammonification from bench- to full-scale for maximised resource efficiency Bernhard Wett Austria		
13:55 Maximum allowable values of copper and manganese in recycled water for washing machines Bandita Mainali Australia			13:55 The effect of SRT on nitrate formation during autotrophic nitrogen removal of anaerobically treated wastewater Po-heng Lee Korea		
14:15 Characterisation of biodegradable organic matter in reclaimed water by bacterial isolates Parinda Thayanukul Japan			14:15 An operation protocol for facilitating start-up of single-stage, autotrophic nitrogen-removing reactors based on process stoichiometry Ayten Gizem Mutlu Denmark		
14:35 Effect of temperature and redox conditions on attenuation of bulk organic matter and nutrients in simulated SAT studies Saroj Sharma Netherlands			14:35 A single-reactor, autotrophic nitrogen-removal process after ureolytic phosphate precipitation to remove both endogenous and exogenous nitrogen Boudewijn Meesschaert Belgium		
14:55 Closing summary			14:55 Closing summary		
15:00 – 15:30 Afternoon break			Exhibition		
15:30 – 17:00		Room 4	15:30 – 17:00		Room 5
Water quality management in water reuse Chair Jiangyong Hu Singapore			Biofilm processes Chair Kuruvilla Mathew Australia		
15:30 Introduction			15:30 Introduction		
15:35 Comparative assessment of aquifer recharge and recovery versus constructed wetlands in managing chemical and microbial risks during wastewater reuse Ahmed Hamadeh Saudi Arabia			15:35 Attached growth gains an advantage over suspended growth on enrichment of anammox bacteria Yu Tao China		
15:55 Feasibility for recreational water usage based on algal growth potential test for effluent from various wastewater reclamation and reuse plants Jin Chul Joo Korea			15:55 Experience from start-ups of the first ANITA Mox plants Magnus Christensson Sweden		
16:15 Effects on macronutrients in plants irrigated with different quality water and wastewater Maria Teresa Orta Mexico			16:15 Evaluation of <i>E. coli</i> biofilm as a protective barrier against microbiologically influenced deterioration of concrete (MICD) under mesophilic temperatures Banu Ormeci Canada		
16:35 Microbial contamination of vegetables eaten raw under direct agricultural wastewater reuse: its potential health risk in developing countries Francisco Turner Mexico			16:35 Effect of sponge volume fraction on the performance of a novel fluidised-bed bioreactor Tien Thanh Nguyen Australia		
16:55 Closing summary			16:55 Closing summary		
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA			Room 1		
18:00 – 19:30 Posters sessions and reception			Poster lounge exhibition hall		
19:00 – 21:00 YWP reception			Paradise Hotel Busan		

Monday technical programme

08:15 – 09:45	Room 6	08:15 – 09:45	Room 7
<p>Characterisation of water quality for the sustainable management of river basins</p> <p>Chair Harro Bode Germany</p> <p>08:15 Introduction</p> <p>08:20 Evaluation of the Suyeong River water quality by principal component analysis Tae-Uk Jeong Korea</p> <p>08:40 Evaluation of water quality characteristics of an urban, polluted stream during dry weather and rainy events Marcos von Sperling Brazil</p> <p>09:00 Water quality and biological characteristics of discharged maintenance water streams Jung Won Son Korea</p> <p>09:20 A simple characterisation of the low-rainfall events in greater Melbourne using standard precipitation index Shirley Gato-Trinidad Australia</p> <p>09:40 Closing summary</p>		<p>COF workshop: Rural areas of the future—what are the best wastewater management strategies?</p> <p>Chair Florent Chazarenc France</p> <p>08:15 Introduction. Rural areas and peri-urban areas of the future: What are the best decentralised wastewater management strategies enabling the efficient treatment of domestic effluent for nutrients and pathogens? Florent Chazarenc France</p> <p>08:30 Septic tanks everywhere Florent Chazarenc France</p> <p>08:45 The zero-emission concept Gunter Langergraber Austria</p> <p>09:00 Upgrading P and N removal in existing small treatment facilities Yves Comeau Canada</p> <p>09:15 Panel discussion</p> <p>09:40 Closing remarks</p>	
09:45 – 10:30 Morning break		Exhibition	
10:30 Presidential address		Room 1	
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea		Room 1	
12:00 – 13:30 Lunch		Exhibition	
13:30 – 15:00	Room 6	13:30 – 15:00	Room 7
<p>Characterisation of water quality for the sustainable management of river basins</p> <p>Chair Ray Earle Ireland</p> <p>13:30 Introduction</p> <p>13:35 Seasonal changes in diffuse agricultural pollution-control performance of catch crops Keisuke Kondo Japan</p> <p>13:55 Sustainable effluent-management strategy for the Lower Hunter River Dennis Cho Australia</p> <p>14:15 Evaluation of water quality monitoring network: a multivariate statistical approach to the Kabbini River catchment (India) Musthafa Othayoth Mavukkandi India</p> <p>14:35 Occurrence of pharmaceuticals and personal care products in aquatic environments around Shenzhen: comparison of Shenzhen and Japan Seiya Hanamoto Japan</p> <p>14:55 Closing summary</p>		<p>BOF workshop: Means for achieving complementary basin solutions on a crowded planet. Tools and technologies and approaches for basin-wide optimisation</p> <p>Chair Alan Vicory US</p> <p>New technologies, modelling and decision-support systems provide great opportunities for underpinning the balancing of the water needs of agriculture, industry, cities and the environment.</p> <p>13:30 Opening remarks Ger Bergkamp IWA</p> <p>13:35 Data and information for optimising basin management Chris McIntyre US</p> <p>14:00 Panel discussion: How can we accelerate the use of new technologies for basin-wide optimisation?</p> <p>Panelists: Dongil Seo Korea, Betsy Otto US, Kelly West Kenya, Børge Storm Denmark, Ray Earle Ireland, Chris McIntyre US</p> <p>14:55 Closing remarks</p>	
15:00 – 15:30 Afternoon break		Exhibition	
15:30 – 17:00	Room 6	15:30 – 17:00	Room 7
<p>Analytical approaches for the sustainable management of water resources</p> <p>Chair Shane Snyder US</p> <p>15:30 Introduction</p> <p>15:35 Data analysis for understanding eutrophication trends in a large reservoir José Vieira Portugal</p> <p>15:55 A multivariate approach to assess habitat integrity in urban streams using benthic macroinvertebrate metrics Sergio Canobbio Italy</p> <p>16:15 Total maximum daily load (TMDL) estimation using a joint real-time and periodic-sampling approach William Stringfellow US</p> <p>16:35 Analysis of rainwater using potential as drinking water in a developing country—a case study of Laixa, Cukhe and Khetang in Vietnam Yonghwan Kim Korea</p> <p>16:55 Closing summary</p>		<p>BOF workshop: Means for achieving complementary basin solutions on a crowded planet. Investing in optimising the water, food, energy nexus of water food and energy</p> <p>Chair Ger Bergkamp IWA</p> <p>What initiative is needed to accelerate broad transition to investment in multiple-source and multiple-user investments in basins?</p> <p>15:30 Opening remarks Ger Bergkamp IWA</p> <p>15:35 Investing in optimising the water, food, energy nexus at basin level Mark Smith IUCN</p> <p>15:50 Panel discussion: investing in basins and optimising uses across the nexus</p> <p>Panelists: Joppe Cramwinckel World Business Council for Sustainable Development, Vladimir Tausanovic Serbia, Mark Smith Switzerland, Terry Moore US</p> <p>16:55 Closing remarks</p>	
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA		Room 1	
18:00 – 19:30 Posters sessions and reception		Poster lounge exhibition hall	
19:00 – 21:00 YWP reception		Paradise Hotel Busan	



08:15 – 09:45 Room 8	08:15 – 09:45 Room 9
FOST workshop: Biomimicry, biotechnology and water Chair Staffan Kjelleberg Australia The workshop will present overviews of recent advances in all aspects related to water management from the point of view of a biotechnologist interested in providing innovative processes for the water industry. Traditional ways of treatment are not, for the purposes of this workshop, regarded as either high-tech biotechnology or biomimicry. The workshop will attempt to outline the potential of biotechnology to simulate biomimicry-based methods for improving both the real and perceived risks associated with water reuse and to stimulate participants to identify novel areas of future technology development across multidisciplinary areas of research.	Workshop: Multi-city collaboration on water quality improvement and risk management Chair Seoul Waterworks 08:15 Opening remarks Seung Hyun Kim Korea 08:20 Welcome Yong Sang Park Korea 08:25 Regaining public confidence in safety of regional drinking water supply—case study from the City of Dallas Michael MacPhee US 08:40 Drinking water quality management regulatory framework Amit Chanan Australia 08:55 Water quality improvement and risk management in Belgium Christian Legros Belgium 09:10 Busan Water Research Institute in Korea Sang Goo Kim Korea 09:25 Panel discussion 09:40 Closing remarks
09:45 – 10:30 Morning break Exhibition	
10:30 Presidential address Room 1	
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea Room 1	
12:00 – 13:30 Lunch Exhibition	
13:30 – 15:00 Room 8	13:30 – 15:00 Room 9
Workshop: Right to water—policy imperatives and regulatory requirements Chair Gerard Payen France 13:30 Adoption of water as a human right as a driver for policy and regulatory changes Catarina de Albuquerque United Nations 13:45 Panel discussion: What are the policy and regulatory consequences of the adoption of water as a human right by the United Nations and national governments? Panelists will reflect on whose role and responsibility it is to deliver universal access to water and sanitation. Participants will have ample opportunity to contribute and be part of a lively debate on the consequences of water as a human right. Panelists: Jaime Baptista Portugal, Neil McLeod South Africa, Vasile Ciomos Romania 14:55 Closing remarks	Workshop: Multi-city collaboration on water quality improvement and risk management Chair Seoul Waterworks 13:30 Opening remarks Shane Snyder US 13:35 Introduction to advanced water treatment in Shanghai Dong Zhang China 13:50 Removal of emerging pollutants in Meri-sur-Oise in France Philippe Breant France 14:05 Advanced technologies and water quality management issues Shigeakira Saito Japan 14:20 The best tap water in the world Chung Deuk Mo Korea 14:35 Panel discussion 14:55 Closing remarks
15:00 – 15:30 Afternoon break Exhibition	
15:30 – 17:00 Room 8	15:30 – 17:00 Room 9
Workshop: Water as a human right—new realities of progressive realisation Chair Michael Rouse UK 15:30 Panel discussion The adoption of the water as a human right by the United Nations puts the realisation of universal access to water and sanitation on centre stage. How is this creating new realities for operators and services providers from around the world? The panelists will reflect on their own experiences and have an interactive discussion with participants. Panelists: Mamadou Dia Senegal, Jack Moss France, Virgilio (Perry) Rivera Philippines 17:10 Closing remarks	Workshop: Environmental management of post-epidemic carcass burial sites Chair Geonha Kim Korea 15:30 Opening remarks 15:35 Experiences of mass carcass disposal in Taiwan and related environmental issues Zueng-Sang Chen Chinese Taiwan 15:50 Case studies: management of mass mortalities to prevent epidemics and administrative efforts to restore post-disaster Simon Barron UK 16:05 Assessing and monitoring groundwater contamination by leachate generated from carcass burial sites in South Korea Sunhwa Park Korea 16:20 Panel discussion Zueng-Sang Chen Chinese Taiwan, Kangkeun Lee Korea, Taesung Kim Korea, Simon Barron UK 16:35 Open discussion with audience 16:55 Closing remarks
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA Room 1	
18:00 – 19:30 Posters sessions and reception Poster lounge exhibition hall	
19:00 – 21:00 YWP reception Paradise Hotel Busan	

Monday technical programme

08:15 – 09:45 Room 10	08:15 – 09:45 Room 11
<p>FOST workshop: Understanding and managing nanotechnologies in water systems Chair Jan Hofman Netherlands</p> <p>08:15 Frontiers of nanotechnology for the water industry Jan Hofman Netherlands</p> <p>08:30 Fate and risks of nanomaterials Qilin Li US</p> <p>08:45 What are the regulations on nanomaterials? David Garman US</p> <p>09:00 How do we tell the public? Brita Forssberg Sweden</p> <p>09:15 Panel discussion: Brita Forssberg Sweden, Qilin Li US, Jennifer McKay Australia</p> <p>09:40 Closing remarks</p>	<p>Developing countries and sustainable systems Chair Tom Williams IWA</p> <p>08:15 Introduction</p> <p>08:20 WSS performance improvement in Brazil: benefiting the poor? Raquel dos Santos Netherlands</p> <p>08:40 O&M of water services infrastructure by social franchising partnerships Kevin Wall South Africa</p> <p>09:00 Business-based, pro-poor approach to water and sanitation for better sustainability Sombo Yamamura Japan</p> <p>09:20 SISAR: a sustainable management model for small, decentralised rural sanitation systems Alejandro Meleg Germany</p> <p>09:40 Closing summary</p>
09:45 – 10:30 Morning break Exhibition	
10:30 Presidential address Room 1	
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea Room 1	
12:00 – 13:30 Lunch Exhibition	
13:30 – 15:00 Room 10	13:30 – 15:00 Room 11
<p>FOST workshop: Frontiers of membrane and nano-membrane technologies in reuse and desalination Chair Jan Hofman Netherlands</p> <p>13:30 Opening remarks Valentina Lazarova France, Chung-Hak Lee Korea</p> <p>13:35 New frontiers of membrane and nano-membrane technologies in reuse and desalination In Kim Korea, Chung-Hak Lee Korea</p> <p>13:55 Desalination—new frontiers for energy efficiency, reliability and affordability Nikolay Voutchkov US</p> <p>14:10 Performance and scale-up of nanotechnologies for desalination and production of high-quality recycled water Robert Burk US</p> <p>14:20 Advances in nano-scale science and engineering, and potential application in wastewater treatment and reuse Qilin Li US</p> <p>14:30 Panel discussion: Chung-Hak Lee Korea, In Kim Korea, Valentina Lazarova France, Robert Burk US, Qilin Li US</p>	<p>Institutional capacity and policy development Chair Jan Janssens Switzerland</p> <p>13:30 Introduction</p> <p>13:35 Response to sustainable urban water use and management: exploring field-oriented environmental education curricula for leadership development Kyoung Jin An Japan</p> <p>13:55 Stakeholders influencing the implementation of greywater recycling—a case study Dorothea Weingaertner Germany</p> <p>14:15 Corporate social responsibility of regional institutions—save water and money with an ecological economics view in a climate change context Joel Sepulveda Spain</p> <p>14:35 Knowledge dissemination and flows in the South African water sector Heidi Snyman South Africa</p> <p>14:55 Closing summary</p>
15:00 – 15:30 Afternoon break Exhibition	
15:30 – 17:00 Room 10	15:30 – 17:00 Room 11
<p>FOST workshop: Frontiers of membrane and nano-membrane technologies in reuse and desalination Chair Valentina Lazarova France</p> <p>15:30 Leading-edge applications and challenges of nanotechnology applications for the production of high-quality, purified water Jan Hofman Netherlands</p> <p>15:55 New horizons for renewable, energy-based desalination Miguel Angel Sanz France</p> <p>16:10 Leading-edge applications of membrane technologies in China Xia Huang China</p> <p>16:20 New tools for the improvement of energy efficiency, fouling control and reliability of membrane systems Val S. Frenkel US</p> <p>16:30 Panel discussion: Roger Ben Aim France, Jan Hofman Netherlands, Xia Huang China, Val Frenkel US</p> <p>17:10 Closing remarks</p>	<p>Disaster preparedness, response and recovery Chair Takao Murakami Japan</p> <p>15:30 Introduction</p> <p>15:35 Protection of sewerage assets from disasters Takao Murakami Japan</p> <p>15:55 Hydraulic performance of post-earthquake water distribution networks based on a head-driven simulation method Massoud Tabesh Republic of Iran</p> <p>16:15 Coping with climatic variability: management and planning for drought and flood risks by Chinese utilities Olivia Jensen Singapore</p> <p>16:35 Climate change impacts on flood events and their consequences on humans in the north of Spain Joel Sepulveda Spain</p> <p>16:55 Closing summary</p>
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA Room 1	
18:00 – 19:30 Posters sessions and reception Poster lounge exhibition hall	
19:00 – 21:00 YWP reception Paradise Hotel Busan	



08:15 – 09:45		Room 12	08:15 – 09:45		Room 13
Microbial pollution in water Chair Joan Rose US 08:15 Introduction 08:20 Developing a fully integrated micro-device for the in-situ detection of cyanobacteria and cyanotoxin-producing strains in freshwater samples Zdravka Do-quang France 08:40 Characterisation of enteroviruses occurring in domestic wastewaters by real-time PCR Jinhong Zhou China 09:00 Evaluation of a new technology for onsite detection of <i>E. coli</i> and coliform bacteria in water Stephen Brown Canada 09:20 Single-step 11-gene m-PCR for the detection of diarrhoeagenic <i>E.coli</i> in clinical and environmental water sources in South Africa Kousar Omar South Africa 09:40 Closing summary				Membrane technologies—new developments Chair Josef Klinger Germany 08:15 Introduction 08:20 Preparation of a membrane for water treatment with low biofouling and narrow pore-size distribution by the lithographic method Dong-Chan Choi Korea 08:40 A comparison of CNT membrane performance manufactured by mixed CNT membrane and vertically aligned CNT membrane Youngbin Baek Korea 09:00 Demonstration of AquaporinZ (AQPz)-embedded nanofiltration membranes Peishan Zhong Singapore 09:20 Preparation, characterisation and application of a novel PA/SiO2 nanocomposite NF membrane Limei Jin China 09:40 Closing summary	
09:45 – 10:30 Morning break					Exhibition
10:30 Presidential address					Room 1
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea					Room 1
12:00 – 13:30 Lunch					Exhibition
13:30 – 15:00		Room 12	13:30 – 15:00		Room 13
Chemical and biological hazards in water Chair Fenting Li China 13:30 Introduction 13:35 Ecotoxicity comparison of organic contaminants and heavy metals using <i>Vibrio qinghaiensis</i> (sp. Q67) Xiaochang Wang China 13:55 Molecular typing of somatic coliphages to determine their presence and survival in environmental waters Hee Suk Lee Korea 14:15 The endocrine-disrupting activity and interspecies sensitivity of wastewater: evaluation by reporter gene assay using oestrogen receptors derived from multi-species Masaru Ihara Japan 14:35 In vivo endocrine-disruption assessment of wastewater treatment plant effluents with small organisms David Benanou France 14:55 Closing summary				Membrane technologies—fouling management Chair Val Frenkel US 13:30 Introduction 13:35 Fouling of UF membranes during algal bloom: the role of transparent exopolymer particles (TEP) Loreen Villacorte Netherlands 13:55 A study of biopolymer retention, NOM fouling and microbial barrier effects in pilot-scale with ultrafiltration and combined coagulation Alexander Keucken Sweden 14:15 Potential application of D-amino acids in biofouling control of nanofiltration membranes Qilin Li US 14:35 Characterisation of hydraulically reversible and irreversible fouling species in ultra-filtration drinking water treatment systems using fluorescence EEM and LC-OCD measurements Youngseck Hong Canada 14:55 Closing summary	
15:00 – 15:30 Afternoon break					Exhibition
15:30 – 17:00		Room 12	15:30 – 17:00		Room 13
Chemical and biological hazards in water Chair Yang Min China 15:30 Introduction 15:35 Evaluation of the adenosine triphosphate (ATP) bioluminescence assay for monitoring effluent quality and disinfection performance Natalie Linklater Canada 15:55 Development of fluorescent molecular probes for analysis of heavy metal ions in aquatic samples Akira Hafuka Japan 16:15 Identification of potential disinfection treatment by-products Valérie Ingrand France 16:35 Innovative approach combining emerging disinfection by-products' prioritisation to the development of analytical, sensitive methods David Benanou France 16:55 Closing summary				Membrane technologies—process applications Chair Aik Num Puah Singapore 15:30 Introduction 15:35 Dependency of synthesis conditions on properties of functionalised carbon nanotube-blended polyethersulphone membrane Moon Son Korea 15:55 Mechano-chemical ageing of polyethersulphone/polyvinylpyrrolidone ultra-filtration membranes used in drinking water production Bastien Pellegrin France 16:15 A multi-criteria approach to select low-pressure membranes for water treatment applications Philippe Gislette France 16:35 Assessing the removal of cyanobacteria cells and cyanotoxins by means of ultra-filtration membranes in pilot-scale testing Marcelo Libanio Brazil 14:55 Closing summary	
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA					Room 1
18:00 – 19:30 Posters sessions and reception			Poster lounge exhibition hall		
19:00 – 21:00 YWP reception			Paradise Hotel Busan		

Monday technical programme

08:15 – 09:45 Room 14	08:15 – 09:45 Room 15
Water quality control and the smart grid approach Chair Heechul Choi Korea 08:15 Introduction 08:20 A smart-sensor network case study for drinking water quality monitoring Cyrille Lemoine France 08:40 The smart grid as a public health protection tool—using smart-grid technologies to monitor distribution systems Graham Symmonds US 09:00 Evaluation of trihalomethane formation in treatment of water containing <i>Microcystis aeruginosa</i> , using chitosan as a coagulant Bruna Capelete Brazil 09:20 Recent developments and applications in smart-water metering Jin Chul Joo Korea 09:40 Closing summary	Leakage, transients and rehabilitation of water distribution systems Chair Timothy Waldron Australia 08:15 Introduction 08:20 A study on setting methods of economic level of leakage in water pipe networks Taeho Choi Korea 08:40 The 'Mapping the Underworld' project—industry/academic cooperation delivers dramatic new developments for water networks Jo Parker UK 09:00 Selection of the best rehabilitation solution using multi-criteria decision analysis Helena Alegre Portugal 09:20 The validation and application of an in-line inspection technique for cast-iron transport pipelines Eddy Postmus Netherlands 09:40 Closing summary
09:45 – 10:30 Morning break Exhibition	
10:30 Presidential address Room 1	
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea Room 1	
12:00 – 13:30 Lunch Exhibition	
13:30 – 15:00 Room 14	13:30 – 15:00 Room 15
Water quality control and the smart grid approach Chair Heechul Choi Korea 13:30 Introduction 13:35 Development of point-of-use water disinfection technology using ceramic water filters and an electrochemical hybrid system Yeojoon Yoon Korea 13:55 A sustainable, decentralised water cycle: a smart water grid application Sarper Sarp Korea 14:15 Minoan and Etruscan water and wastewater technologies: approaches and lessons learned Andreas N Angelakis Greece 14:35 The regrowth potential of drinking water produced from NOM-containing groundwater: is Fe(II)-related radical generation involved? Peter van der Maas Netherlands 14:55 Closing summary	Water quality modelling in water distribution systems Chair David Butler UK 13:30 Introduction 13:35 Biofilms in distribution systems—water research foundation projects Hyunyoung Jang US 13:55 Assessment of water quality modelling capabilities of EPANET multi-species and pressure-dependent extension models Alemtsehay Seyoum UK 14:15 Water distribution network optimisation using maximum entropy and multiple loading patterns Anna Czajkowska UK 14:35 Application of linear programming for looped water-supply pipe network design Ashok Sharma Australia 14:55 Closing summary
15:00 – 15:30 Afternoon break Exhibition	
15:30 – 17:00 Room 14	15:30 – 17:00 Room 15
Industrial wastewater treatment—process applications Chair Jay Witherspoon Australia 15:30 Introduction 15:35 Degradation, separation and recovery of fuel elements from nuclear wastewater Evans Chirwa South Africa 15:55 Physical–chemical processes for treatment of wastewater and industrial water reuse Rafael Almada Brazil 16:15 Combined technology for clomazone herbicide wastewater treatment—three-dimensional packed-bed electrochemical oxidation and biological contact degradation Yujie Feng China 16:35 Biodegradability improvement of textile wastewater treated by SDS-CuO/TiO ₂ under solar light Xuan Xu China 16:55 Closing summary	Multi-scale urban water systems Chair Mary Ann Dickinson US 15:30 Introduction 15:35 Monitoring and validation of decentralised water and wastewater systems for increased uptake Ashok Sharma Australia 15:55 Use of saline water in the urban water cycle to alleviate fresh water stress: a feasibility assessment for biological wastewater treatment Laurens Welles Netherlands 16:15 Transitioning existing development to more sustainable urban water infrastructure Francis Pamminger Australia 16:35 Bringing wastewater reclamation into the urban fabric, a new technology for water management in cities of the future; an eminent solution for decentralised water reclamation Attila Bodnar Hungary 16:55 Closing summary
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA Room 1	
18:00 – 19:30 Posters sessions and reception Poster lounge exhibition hall	
19:00 – 21:00 YWP reception Paradise Hotel Busan	



08:15 – 09:45 Room 16	08:15 – 09:45 Room 17
<p>Integrated water management for the city of the future Chair Faisal Anwar Australia</p> <p>08:15 Introduction</p> <p>08:20 Sustainable urban planning and water management in the city of the future Per-Arne Malmqvist Sweden</p> <p>08:40 The city blueprint: experiences with the implementation of 24 indicators to assess the sustainability of the urban water cycle Cornelis van Leeuwen Netherlands</p> <p>09:00 Unlocking integrated water management opportunities in our cities Daniel O'Halloran Australia</p> <p>09:20 Integrated water management planning in Melbourne, Australia—managing competing objectives Glenn Wilson Australia</p> <p>09:40 Closing summary</p>	<p>Workshop: Connecting millions—expanding access to unserved populations at scale Chair Josses Mugabi World Bank</p> <p>08:15 Opening remarks Josses Mugabi World Bank</p> <p>08:25 Public–private partnership to deliver drinking water in Nagpur Brune Poirson India</p> <p>08:45 Expanding access to the urban poor in Nairobi Philip Gichuki Kenya</p> <p>09:05 Connecting the urban poor in Metro Manila Virgilio Rivera Philippines</p> <p>09:25 Discussion panel with audience and speakers</p> <p>09:40 Closing remarks</p>
09:45 – 10:30 Morning break Exhibition	
10:30 Presidential address Room 1	
11:30 Building innovative partnerships in the water sector Jaehyang So World Bank Green growth and Korea's policy toward water and wastewater Soo-Gil Young Korea Room 1	
12:00 – 13:30 Lunch Exhibition	
13:30 – 15:00 Room 16	13:30 – 15:00 Room 17
<p>Workshop: The Four Rivers Restoration Project Chair Byung-Kook Lee Korea</p> <p>13:30 Opening remarks</p> <p>13:35 The Four Major Rivers Restoration Project to adapt to climate change Dongryul Yi Korea</p> <p>13:50 New challenges in protecting water quality and aquatic ecosystems Byung-Kook Lee Korea</p> <p>14:00 Water quality forecasting systems in Korea Joonghyuk Min Korea</p> <p>14:10 The effect of a new green deal to overcome economic recession in the water sector Julia Bucknall US</p> <p>14:25 Panel discussion</p> <p>14:40 Open discussion</p> <p>14:55 Closing remarks</p>	<p>Workshop: Sharing water solutions from the Portuguese-speaking world Chair Rodrigo Proença de Oliveira Portugal</p> <p>13:30 Opening remarks José Sardinha Portugal Rodrigo Proença de Oliveira Portugal Assunção Cristas Minister of Agriculture, Sea, Environment and Spatial Planning, Portugal</p> <p>14:00 Water and sanitation for all—critical public services for progress, security and green growth Ramos Horta East Timor</p> <p>14:40 Questions and answers</p> <p>14:55 Closing remarks</p>
15:00 – 15:30 Afternoon break Exhibition	
15:30 – 17:00 Room 16	15:30 – 17:00 Room 17
<p>Workshop: Optimising public and private roles in supply chain management Chair Jan Janssens Switzerland</p> <p>15:30 Introduction Paul Reiter IWA</p> <p>15:35 Project delivery for utilities—operating in the 'grey zone' Lucia Cade Australia</p> <p>15:45 Review of public–private collaboration in delivering performance for water users and public authorities Jack Moss France</p> <p>16:00 Creative use of alliance contracting Peter Moore Australia</p> <p>16:15 Approaches to financing project delivery: a bank's perspective Julia Bucknall World Bank</p> <p>16:30 Feedback on cases of new contractual models for performance improvement Jacques Labre France</p> <p>16:45 A novel public–private collaboration in the management of New York's water supply Gustavo Migueis Korea</p>	<p>Workshop: Sharing water solutions from the Portuguese-speaking world Chair Helena Alegre Portugal</p> <p>The purpose of the event is to share experiences and lessons learned from different approaches and solutions implemented in Portuguese-speaking countries for water services management and financing models.</p> <p>15:30 Opening remarks</p> <p>15:35 Panel discussion: Water services—which management and financing models in which contexts? Panelists: Pedro Paulino FIPAG Mozambique, António Pedro Borges Ministry of Environment, Housing and Spatial Planning Cape Vert, Luis Filipe Silva, Secretary of State of Water Angola, Afonso Lobato Faria President AdP, Portugal, Cassilda Carvalho ABES, Brazil, Enrique Galan Asian Development Bank</p> <p>16:55 Closing remarks</p>
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat IIASA Room 1	
18:00 – 19:30 Posters sessions and reception Poster lounge exhibition hall	
19:00 – 21:00 YWP reception Paradise Hotel Busan	

Monday technical programme

Industry forum	IF stage A	Industry forum	IF stage B
9:45 – 10:30 Prince Sultan Bin Abdulaziz International Prize for Water Water industry's leading scientific innovation prizes—nominations open The session outlines the prizes on offer and invites nominations. They include the Surface Water Prize, Groundwater Prize, Alternative Water Resources Prize, and Water Management and Protection Prize, worth USD\$133,000 each. There is also a USD\$266,000 Creativity Prize awarded to a major breakthrough in any water-related field.	9:45 – 10:30 SSENG Two-stage filtration method's application technology for RO pre-treatment Presented by Yun Chang Han Two-stage filtration is a competitive process with MF or UF processes as a pre-treatment of RO because its filtrate quality is similar to MF's or UF's. However, it has much higher competitiveness in economics and size than MF or UF. Two-stage filtration is expected to significantly contribute to alternative clean water supplies—this session discusses this filtration technology.		
12:00 – 12:45 Samsung Cheil Industries Samsung Cheil Membrane products—features with innovations Presented by Fufang Zha Samsung Cheil Industries has been continuously making every effort to reduce capital and operating costs for membrane processes via novel concepts of membranes toward high permeability, low local fouling, low aeration strength, and so on. This presentation will also provide information on the research leading to the release of the new membrane of Cheil.	12:00 – 12:45 Ministry of Environment & Center for Eco-SMART Waterworks System, Yonsei University Managing water supply systems based on IT and ET-fused technology Innovative IT and ET-fusion technology-based water management strategies can transform the way that water services are operated and regulated. They can potentially increase water treatment efficiencies and costumers' satisfaction, and reduce the fiscal burden on water service providers. This session discusses these technologies.		
12:45 – 13:30 Samsung Engineering Successful private development of water projects (part 1) Presented by Russell Reed The trend towards private financing of projects has created new challenges for clients and developers. This session aims to look at trends in project procurement, how these challenges are being addressed, experiences gained from some of Samsung Engineering's recent projects, and membrane process research and development centre activities.	12:45 – 13:30 Ministry of Environment & Center for Eco-SMART Waterworks System, Yonsei University Hybrid membrane processes for future water treatment systems To respond to significant future risks from population growth, hydrological variability, extreme events, and so on, various membrane-based hybrid processes are being developed and applied. In this forum, you will find out what hybrid membrane processes are currently available, and how they can be applied in practice.		
13:30 – 14:15 Samsung Engineering Successful private development of water projects (part 2) Presented by Russell Reed The trend towards private financing of projects has created new challenges for clients and developers. This session aims to look at trends in project procurement, how these challenges are being addressed, experiences gained from some of Samsung Engineering's recent projects, and membrane process research and development centre activities.	13:30 – 14:15 Membrana & Absfil Ultrafiltration technology for pre-treatment to reverse osmosis, drinking water production and reclamation of waste water Presented by Martin Rütering and Young Choi Jong Based on decades of experience in production of porous membranes and their application, recent development in the design of ultrafiltration modules will be discussed with special focus on aspects of performance, quality and costs.		
14:15 – 15:00 Doosan Heavy Industries & Construction Design and construction of Korea's first test-bed SWRO plant Presented by Sung-woo Woo Hear the story behind the jointly created desalination project between the Korean government and Doosan. You will be introduced to the world's largest SWRO train (with a capacity of 36,368 cubic metres per day) and various newly developed pre-treatment methods currently under construction in Busan.	14:15 – 15:00 POSCO E&C Global water business vision and technology Presented by Jong-Myong Lee , Joo-hyung Ko , Yun-Jung Kim We present POSCO E&C's global water business vision, then look at our advanced water treatment and reuse in the iron industry. 97 per cent of water used in our steel plants is recirculated and reused. Finally, we talk about how the design of our smart water grid helps us manage our water when combined with ICT.		
15:30 – 16:15 Doosan Heavy Industries & Construction Innovative application of pre-treatment systems for challenging projects Presented by Won-kyu Yim Doosan was able to tackle the challenging water qualities of the Arabian Gulf and successfully complete the Shuwaikh SWRO project, Kuwait's first SWRO plant, by adopting a pre-treatment system consisting of DAF and UF. We will also focus on how crucial it is to select a proper pre-treatment system when designing a SWRO desalination plant.	15:30 – 16:15 POSCO E&C State-of-the-art technology trends Presented by Kwan-yeop Kim , Sang-Gyo Choe We will present a new concept that relates to decentralised water supply system, then about our Hydro J.B process. This process uses ultra-high-speed flotation for obtaining high removal efficiency in the treatment of wet weather flows.		
16:15 – 17:00 SUEZ ENVIRONNEMENT Industrial parks and environmental protection in China Environmental protection and quality of public services are critical issues in China for the economic development of industrial parks. Come and discover state-of-the-art solutions and installations from SUEZ ENVIRONNEMENT—in particular, Shanghai Chemical Industry Park, a world-class petrochemical park and model exponent of China's circular economy.	16:15 – 17:00 2015 World Water Forum planning office & Korea Water Forum The initiative for the public-private partnership in the 7th World Water Forum The Republic of Korea and DaeguGyeongbuk will host the 7th World Water Forum in 2015. The World Water Forum is the world's largest water event composed of four processes which include political/regional/science and technology. The science and technology process, as a new pillar of the World Water Forum, will provide the prospect of global water market.		
17:15 – 18:00 Water futures—a cross-sectoral, system perspective Pavel Kabat /IASA		Room 1	
18:00 – 19:30 Posters sessions and reception		Poster lounge exhibition hall	
19:00 – 21:00 YWP reception		Paradise Hotel Busan	

Tuesday



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Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

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COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

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Keynote speakers



Sunday 16:30
Yoo Young Sook
 Minister for the Environment
 Korea



Monday 11:30
Jaehyang So
 World Bank



Monday 11:00
Yong Soo-Gil
 Presidential Committee on
 Green Growth
 Korea



Monday 17:15
Pavel Kabat
 International Institute for Applied
 Systems Analysis (IIASA)
 Austria

Tuesday 08:15
**Water industry
 leaders panel**
 • Suez Environnement
 • Doosan
 • Samsung Engineering
 • Xylem
 • and others



Tuesday 16:15
Staffan Kjelleberg
 Singapore Centre on
 Environmental Life Sciences
 Engineering, Centre for Marine
 Bio-Innovation University of NSW
 Singapore and Australia



Wednesday 08:15
Paul Greenfield
 Australian Nuclear Science
 & Technology Organisation,
 International WaterCentre
 Australia



Wednesday 16:15
Linda Macpherson
 CH2M HILL
 United States



Thursday 08:15
Wim van Vierssen
 KWR Watercycle Research
 Institute
 Netherlands



Thursday 16:00
Hansruedi Siegrist
 Swiss Federal Inst. of Aquatic,
 Science and Technology
 Switzerland



Thursday 16:00
Shane A. Snyder
 University of Arizona
 United States



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Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel	Room 1
Keynote speakers	09:15 – 10:45 Room 1
<p>Water industry and technology leaders panel</p> <p>Facilitator: Paul Brown, US</p> <p>Central to our ability to find 'game changing' solutions and the massive innovation needed to meeting the staggering challenges that lie ahead for the water needs of the planet—are the industry and technology leaders in the water business.</p> <p>This session, building on Monday morning's session titled 'Inspiring change to meet a challenging future', provides the Busan Congress delegates with an opportunity to listen and interact with some of the world's leading figures in the water industry on what they see as the key innovations to come and the future of the industry.</p> <p>Included in this session will be leaders of the water technology consultants and suppliers including Xylem, Suez Environment, Doosan, and Samsung Engineering, CDM Smith and CH2MHill. In addition, the panel will include world renowned technology innovators. In combination, these leaders will provide a rare opportunity to achieve a view of where the future lies from the vantage point of the key industry and technology leaders in the water business.</p>	<p>COF workshop: Building on the Montreal COF consensus—case studies from developing countries</p> <p>Chair Kala Vairavamoorthy US</p> <p>09:15 Welcome and introduction Paul Reiter IWA</p> <p>09:20 The case for building cities differently in lower- and middle-income countries Kala Vairavamoorthy US</p> <p>09:40 Implementing COF concepts in sub-Saharan Africa Julia Bucknall World Bank</p> <p>09:40 Implementing COF concepts in China Xiaochang Wang China</p> <p>09:55 Panel discussion: Shifting paradigms—what does it take?</p> <p>Facilitator: Kala Vairavamoorthy US</p> <p>Panelists: speakers plus Martin Wagner Germany, Silver Mugisha Uganda, Duncan Mara UK</p> <p>10:35 Closing remarks Kala Vairavamoorthy US</p>
Towards controlling integrated bioprocesses—engineering microbial communities from within	10:45 – 11:15 Morning break Exhibition
 <p>Staffan Kjelleberg Director, Singapore Centre on Environmental Life Sciences Engineering, Singapore Co-director, Centre for Marine Bio-Innovation, University of New South Wales Australia</p> <p>Prof. Staffan Kjelleberg is internationally renowned for his research in bacterial biofilm biology, chemically mediated interactions used by bacteria and higher organisms, and using biofilms in engineering and public health. His research seeks to understand the role of complex microbial communities in urban water cycle and coastal ecosystems.</p>	<p>11:15 – 12:45 Room 1</p> <p>COF workshop: Urban resilience, nature and aesthetics—inspired use of water for function as well as beauty—great urban design that includes habitat, and high design aesthetics</p> <p>Chair Steve Moddemeyer US</p> <p>11:15 Urban resilience, nature, and aesthetics—a report from the field Steve Moddemeyer US</p> <p>11:30 Design and function—creating urban habitats with high design aesthetics in the 21st century Robert Marshall Canada</p> <p>11:50 Ecological landscapes in cities—a fusion of ecosystem services and in the public realm Tony Wong Australia</p> <p>12:05 The Saemangeum Project—Ariul, the city of water Jiyong Choi Korea</p> <p>12:20 Connecting the urban green and blue in ICLEI cities around the world Margaret Pageler US</p> <p>12:30 Panel discussion</p>
16:15 – 17:00 Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	12:45 – 14:15 Lunch Exhibition
17:30 – 18:30 Korean cultural show	<p>14:15 – 15:45 Room 1</p> <p>COF workshop: A new paradigm of the ecological restoration of urban streams toward a 'green city', Busan</p> <p>Chair Gi-Gon Kim Korea</p> <p>14:15 Ecological restoration of the urban streams in Busan city—a case study of Oncheon Stream Jong-Wook Choi Korea</p> <p>14:35 Restoration of a covered stream in Busan Hyun-Suk Shin Korea</p> <p>14: 50 Urban management in Hamburg Olaf Simon Germany</p> <p>15:05 Recovery of Aquapolis Osaka—efforts to recovery on the Dontonbori River waterfront Akitaka Oosugi Japan</p> <p>15:20 Panel discussion: Margaret Pageler US, Rodger Bannister New Zealand, Won-Joo Kim Korea</p> <p>15:40 Closing remarks</p>
16:15 – 17:00 Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	15:45 – 16:15 Afternoon break Exhibition
17:30 – 18:30 Korean cultural show	Room 1
Busan Cinema Center	

Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 2	09:15 – 10:45 Room 3
Odours and volatile-emissions monitoring treatment and management Chair Franz-Bernd Frechen Germany 09:15 Introduction 09:20 Advances in odour and corrosion research in Australia Zhiguo Yuan Australia 09:40 Control of odour nuisance in urban areas: the efficiency and social acceptance of the application of masking agents Valentina Lazarova France 10:00 Development of a diagnostic tool: the wastewater collection network odour wheel Zdravka Doquang France 10:20 Dealing with hydrogen sulphide problems in sewers Marjoleine Weemaes Belgium 10:40 Closing summary		Sludge reduction in activated sludge systems Chair Heidi Snyman South Africa 09:15 Introduction 09:20 Investigation of a new anaerobic side-stream reactor (ASSR) process for minimised sludge production in wastewater treatment systems Chul Park US 09:40 Re-digestion of municipal sludge by using advanced oxidation processes Andreas Thunberg Sweden 10:00 Sewage sludge solubilisation by high-pressure homogenisation Panyue Zhang China 10:20 Improving sludge biodegradability with free nitrous acid: a novel sludge reduction process Maite Pijuan Spain 10:40 Closing summary
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 2	11:15 – 12:45 Room 3
Process control in wastewater treatment Chair Peter Vanrolleghem Canada 11:15 Introduction 11:20 Design procedure for anaerobic digestion controllers aimed at a feasible full-scale application Peter Vanrolleghem Canada 11:40 Influent flow and aeration control synchronisation in full-scale municipal treatment plants Marjoleine Weemaes Belgium 12:00 Add control: plant virtualisation for control solutions in WWTP Mikel Maiza Spain 12:20 Advanced data management for optimising the operation of WWTPs Eduardo Ayesa Spain 12:40 Closing summary		Sludge reduction in activated sludge systems Chair Ludovico Spinosa Italy 11:15 Introduction 11:20 Evaluation of WAS reduction efficiency using kinetic parameters in a pilot-scale SBR process comprising of an anaerobic sludge holding tank Duck Hyun Nam Korea 11:40 Biosolids thermal hydrolysis—from batch to continuous technology Malik Djafer France 12:00 From cow and termite to lab-scale anaerobic processes? Two experiments with biomimeticism Jean Jacques Godon France 12:20 Wet air oxidation: a sustainable, efficient and proven solution for wastewater sludge treatment—feedback of four full-scale operating plants Julien Chauzy France 12:40 Closing summary
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 2	14:15 – 15:45 Room 3
Modelling treatment processes Chair Ingmar Nopens Belgium 14:15 Introduction 14:20 Towards a plant-wide benchmark simulation model with simultaneous nitrogen- and phosphorus-removal wastewater treatment processes Xavier Flores-Alsina Sweden 14:40 Evaluation of model-based, predictive control strategies based on forecasting influent and effluent in A2/O process Hyosoo Kim Korea 15:00 Enhanced denitrification by external carbon source in the CAST process—modelling and application Markus Ahnert Germany 15:20 Modelling biological chromium (VI) reduction in aquifer microcosm column systems Pulane Molokwane South Africa 15:40 Closing summary		Improvement of anaerobic digestion efficiency by sludge pretreatment Chair Steven Dentel US 14:15 Introduction 14:20 The impact of ultrasound pretreatment on the performance of anaerobic digestion of residual biomass of a farmland biogas plant Ruya Tasli Turkey 14:40 Enhancement of waste activated sludge anaerobic digestion by a novel, chemical-free acid/alkaline pretreatment using electrolysis Wipa Charles Australia 15:00 Enhancement of energy production from wastewater sludges through the applied pretreatment techniques Aylin Alagoz Turkey 15:20 Co-digestion of glycerine and sewage sludge to optimise green electricity production Greet De Geldre Belgium 15:40 Closing summary
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Room 1
		Busan Cinema Center



08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 4	09:15 – 10:45 Room 5
Phosphorus removal Chair Norbert Jardin Germany 09:15 Introduction 09:20 Phosphorus removal from secondary wastewater effluent using aluminium-based coagulants Lim Seok Kang Korea 09:40 Improving biological phosphorus removal in UCT-MBR—a pilot study Shaleena Smith US 10:00 Optimised nutrient removal using the activated return sludge process (ARP) Sille Bendix Larsen Denmark 10:20 Adsorption of phosphate from aqueous solutions and wastewater using mesoporous titanium oxide as an adsorbent Ki Young Park Korea 10:40 Closing summary		Natural wastewater treatment systems Chair Günter Langergraber Austria 09:15 Introduction 09:20 Effects of wastewater quality and weather-condition variations on stabilisation ponds' performance for wastewater treatment in Yazd, Iran Mohammad Taghi Ghaneian Republic of Iran 09:40 Influence of retention time, number of ponds and pond depth on nitrogen removal in shallow maturation ponds treating UASB reactor effluent Marcos von Sperling Brazil 10:00 Evaluation of the wind influence in stabilisation-pond circulation Tsunao Matsumoto Brazil 10:20 A new type of subsurface-flow constructed wetland for wastewater treatment in cold areas Fang Ma China 10:40 Closing summary
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 4	11:15 – 12:45 Room 5
Phosphorus recovery Chair Peter Cornel Germany 11:15 Introduction 11:20 Three years of operation of North America's first nutrient-recovery facility Peter Schauer US 11:40 Struvite recovery: pilot-scale results and economic assessment of different scenarios Alexandre Galí Serra Spain 12:00 Struvite precipitation of ammonium and phosphate produced from the dual-digestion of municipal sewage sludge Hong-Duck Ryu Korea 12:20 Phosphorus recovery from wastewater by polymer-coated zirconium sulphate surfactant micelle mesostructure Niti Pitakteeratham Japan 12:40 Closing summary		Advanced oxidation processes in wastewater treatment Chair Keith Robertson IWA 11:15 Introduction 11:20 Catalysis degradation and decolourisation of azo dye reactive Black B using immobilised iron oxides occurring with adsorption Yao-Hui Huang Chinese Taiwan 11:40 Microorganism inactivation by an ozonation step optimised for micropollutant removal from tertiary effluent Heidemarie Schaar Austria 12:00 Concurrent photocatalytic hydrogen production and organic degradation by a composite catalyst film in a two-chamber photoreactor Xiao-yan Li Hong Kong, China 12:20 Oxidative–reductive photodecomposition of perfluorooctanoic acid in water Rabindra Giri Japan 12:40 Closing summary
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 4	14:15 – 15:45 Room 5
Fate of chemical and biological hazards in the environment Chair Maria Fürhacker Austria 14:15 Introduction 14:20 Investigation of antibiotic-resistant plasmid curing under environmental antibiotic stress Joonhong Park Korea 14:40 Change of the adsorption of tetracyclines on sediment during sediment organic diagenesis Xiao-yan Li Hong Kong, China 15:00 Leaching of bisphenol A and F from new and old epoxy coatings: laboratory and field studies Zdravka Doquang France 15:20 Effects of lipid composition on partitioning of fullerene between water and lipid membranes Yeonjeong Ha US 15:40 Closing summary		Advanced oxidation processes in wastewater treatment Chair Hervé Suty France 14:15 Introduction 14:20 Ozone-enhanced biological treatment of wastewater with high COD content Jenny Jian Wang Germany 14:40 Effect of ozonation on the structure of organic matter and its removal by a BAC filter for tertiary wastewater treatment Pengkang Jin China 15:00 Process control of effluent ozonation applying online UV/Vis-spectrometry Heidemarie Schaar Austria 15:20 A statistical, experimental design approach for mineralisation and detoxification of diethyl phthalate by H2O2/UV-C process Olcay Tunay Turkey 15:40 Closing summary
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Room 1
		Busan Cinema Center

Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 6	09:15 – 10:45 Room 7
Modelling tools for the sustainable management of river basins Chair Joon Ha Kim Korea 09:15 Introduction 09:20 Comparative analysis of WASP7 and HEM3D water quality models—their application to the Nakdong River, Korea Dongil Seo Korea 09:40 Catchment, hydrodynamic and water quality modelling of the Hawkesbury-Nepean river system (Sydney, Australia) Tony Church Australia 10:00 Modelling faecal coliforms using a modified SWAT: a case study for the Stillwater sub-basin, Massachusetts Mi-Hyun Park US 10:20 Development of a hydrographic network using Korean river reach files Moonjin Kwon Korea 10:40 Closing summary		COF workshop: Smart cities—resilient, livable, sustainable and affordable Chair Bruce Beck US and Tony Wong Australia If cities are to be designed and managed to enhance the resilience, livability and sustainability of urban communities, how can we best value these outcomes? Can the benefit streams of resource energy recovery pay for the costs of smart re-engineering? 09:15 Smart urban metabolism—innovation, profits and costs Bruce Beck US 09:50 Water-sensitive cities—generating value-adding ecosystem services Tony Wong Australia 10:15 Panel discussion: Affordable smart cities Panelists: speakers plus Terry Moore US, Rob Skinner Australia 10:40 Closing remarks
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 6	11:15 – 12:45 Room 7
Artificial recharge for sustainable groundwater resources Chair Shafick Adams South Africa 11:15 Introduction 11:20 The effect of agro-climatic factors on groundwater recharge at Rottnest Island, Western Australia A H M Faisal Anwar Australia 11:40 Sustainable water recharge in developing countries: Turbio river basin feasibility study Oriana Landa Cansigno Mexico 12:00 Aqua Charge: recharge synthesis for uplifted karst aquifer (Guam, USA) Nathan Habana Guam 12:20 Reactive organic layer effects in the removal of emerging pollutants through SAT in the Llobregat aquifer Xavier Bernat Spain 12:40 Closing summary		SWC workshop: Water of the future—how do we know what smart is? Chair Glen Daigger US 11:15 Introduction to the Smart Water Cluster and results of the Velsersbroek workshop Glen Daigger US 11:35 Metrics to define 'smart water' Mark Beuhler US 11:55 Development of resilient portfolios Enrique Lopez Calva Singapore 12:15 Panel discussion: How do we implement metrics and portfolios? 12:40 Closing remarks
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 6	14:15 – 15:45 Room 7
Remedial actions and evaluation of contaminated groundwater Chair Heechul Choi Korea 14:15 Introduction 14:20 Ozone and aquifer recharge and recovery hybrid for attenuation of bulk organics and micropollutants Min Yoon Saudi Arabia 14:40 Bioremediation of endosulfan-contaminated groundwater using a natural zeolite-supported biobarrier Selim Sanin Turkey 15:00 Comparative evaluation of various data-mining algorithms in assessing groundwater sensitivity to TCE pollution exposure Joonhong Park Korea 15:20 Estimating the fates of organic contaminants in an aquifer using QSAR Seung Lim Korea 15:40 Closing summary		SWC workshop: Water of the future – how do we know what is smart? Chair Mark Beuhler US 14:15 Smart water case study—Singapore Aik Num Puah Singapore 14:35 Smart water case study—Israel Avner Adin Israel 14:55 Smart water case study—Windhoek Christian Stöck Namibia 15:15 Panel discussion: How do we compare portfolios and where do we go from here? 15:40 Closing remarks
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Busan Cinema Center



08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 8	09:15 – 10:45 Room 9
SWC workshop: New horizons in water reuse—scope and applications worldwide Chair Kwang-Ho Choo Korea 09:15 Introduction: safe water reuse options for sustainable water-cycle management Blanca Jimenéz Mexico 09:40 Increased water supply security—the lessons learned from more than 40 years of direct, potable reuse in Windhoek Josef Lahnsteiner Germany 09:50 Water reuse as the pillar of the water conservation strategy in the booming city of Macau Felix Fan Macau, China 10:00 Water cycle management in the Valle de Mexico Claudia Hernandez Mexico 10:10 Valorisation of historical heritage and restoration of biodiversity in the region of Milan Roberto Mazzini Italy 10:20 Creation of a new recreational water environment in Beijing Hong-Ying Hu China 10:30 Panel discussion: Blanca Jimenéz Mexico, Bruno Tisserand France, Valentina Lazarova France		Utilities workshop: Asset management—decision-making from strategy to implementation Chair Kirsten de Vette IWA This workshop, targeting utilities, aims to provide participants with hands-on experience in asset management planning in one of three main contexts: Developing region—case from India; fairly developed region—case from Portugal; leading-edge sustainable city—TRUST project case. Group exercises start with an investment ‘game’ to create awareness by showing the immediate and long-term effects of decisions on the performance of the systems. Facilitators: Helena Alegre Portugal Meera Mehta India João Feliciano Portugal Dinesh Mehta India
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 8	11:15 – 12:45 Room 9
SWC workshop: New horizons in water reuse—scope and applications worldwide Chair Valentina Lazarova France 11:15 Introduction: water–energy interactions in water reuse systems Kwang-Ho Choo Korea 11:30 Energy consumption in advanced water reuse processes Yong Cheol Shin Korea 11:40 Recent trends for reduction of energy use in reverse osmosis—from nanotechnology to green power Nikolay Voutchkov US 11:50 New horizons for lowering the energy footprint of wastewater treatment and reuse by forward osmosis Sangho Lee Kookmin Korea 12:00 Chemical risk management to lower the environmental footprint of water reuse Shane Snyder US 12:15 Panel discussion: Peter Cornel Germany, Jiangyong Hu Singapore, Paolo Rocaaro US, Chi-wang Li Chinese Taiwan		Utilities workshop: Asset management—decision-making from strategy to implementation Chair Kirsten de Vette IWA In the second part, participants will be guided through the planning process, including a SWOT analysis at the strategic level and a prioritisation of intervention options at the tactical level (using the aware planning tool software). Facilitators: Helena Alegre Portugal Meera Mehta India João Feliciano Portugal Dinesh Mehta India
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 8	14:15 – 15:45 Room 9
SWC workshop: Wastewater reuse at scale—cooperation and synergies between cities and industries Chair Ger Bergkamp IWA How can we accelerate the reuse of water and what are the key incentives to foster? 14:15 Introductory keynote Joppe Cramwinckel World Business Council for Sustainable Development 14:30 Panel discussion: experiences of optimising reuse between industries and municipalities Panelists: Valentina Lazarova France, Didier Perrin China and representatives from Coca Cola Company, Anglo American, Kemira and Shell		SNC workshop: Creating operationally smart networks today and in the future. Networks of the future—smart, multipurpose and flexible by design Chair Paul Reiter IWA and Kala Vairavamoorthy US 14:15 Welcome and introduction Paul Reiter IWA 14:20 The big picture: networks of the future—smart, multipurpose and flexible by design Kala Vairavamoorthy US 14:50 Potential for smart network design compared with traditional design methodologies Martin Wagner Germany 15:05 Trends in control strategies of existing networks Guy Horowitz Israel 15:20 Panel discussion: learning from water and other sectors Facilitator: Paul Brown US Panelists: speakers plus Johan Grön US 15:50 Closing remarks Kala Vairavamoorthy US
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Room 1
		Busan Cinema Center

Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel		Room 1	
09:15 – 10:45		Room 10	
<p>Nitrous oxide in wastewater treatment Chair Kartik Chandran US</p> <p>09:15 Introduction</p> <p>09:20 Emerging pathways and factors for nitrous oxide emissions from activated sludge processes Kartik Chandran US</p> <p>09:40 Advanced control system to reduce N₂O emissions of a novel SBR process treating N-rich effluent via nitrite pathway Romain Lemaire France</p> <p>10:00 Effect of pH on N₂O reduction and accumulation during denitrification by methanol-utilising denitrifiers Yuting Pan Australia</p> <p>10:20 Extension to the general ASM models to include nitrous oxide production via nitrification and denitrification processes Barth Smets Denmark</p> <p>10:40 Closing summary</p>			<p>Join the conversation</p> <hr/> <p>Twitter: @iwa2012busan #iwa2012busan</p> <hr/> <p>LinkedIn: IWA World Water Congress Exhibition</p> <hr/> <p>Facebook: www.facebook.com/iwa2012busan</p>
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45		Room 10	11:15 – 12:45 Room 11
<p>Climate change and urban flood risk management Chair Gertjan Zwolsman Netherlands</p> <p>11:15 Introduction</p> <p>11:20 Promotion of rain cities for climate change adaptation in a river basin Mooyoung Han Korea</p> <p>11:40 Flood management under climate change conditions in Hat Yai municipality, Thailand Allan Sriratana Tabucanon Japan</p> <p>12:00 Methodology for risk assessment of flash flood events due to climate and land-use changes: application to the Llobregat basin Àngels Cabello Spain</p> <p>12:20 Computational hydraulics aspects of the drainage system planning for Happy Valley flood protection scheme, Hong Kong Kelvin Lau Hong Kong, China</p> <p>12:40 Closing summary</p>			<p>Greenhouse gas footprint of the urban water cycle Chair Kartik Chandran US</p> <p>11:15 Introduction</p> <p>11:20 Connections between water, energy and greenhouse gas emissions in cities: key emerging messages Steven Kenway Australia</p> <p>11:40 Quantification of methane and nitrous oxide greenhouse gas emissions from the urban water cycle Mark van Loosdrecht Netherlands</p> <p>12:00 Economic feasibility studies for intensive and extensive wastewater treatments considering greenhouse gas emissions Maria Molinos Senante Spain</p> <p>12:20 Water–energy–GHG emissions accounting framework for urban water supply and wastewater treatment options Meenakshi Arora Australia</p> <p>12:40 Closing summary</p>
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45		Room 10	14:15 – 15:45 Room 11
<p>Climate change and urban flood risk management Chair Gertjan Zwolsman Netherlands</p> <p>14:15 Introduction</p> <p>14:20 Vulnerability assessment of the damage produced in Barcelona in cases of heavy storm events Àngels Cabello Spain</p> <p>14:40 Impact of climate change on flood risk for an urban drainage system: Bordeaux case study Xavier Litrico France</p> <p>15:00 Linz SUDPLAN: developing a decision-support system to cope with climate change—urban drainage pilot Guenter Gruber Austria</p> <p>15:20 Sustainable supply planning in the Australian Capital Territory: choosing future climate scenarios Graham Costin Australia</p> <p>15:40 Closing summary</p>			<p>WCE workshop: Perspectives and advances in modelling GHG emissions from wastewater systems Chair Ingmar Nopens Belgium</p> <p>14:15 Perspectives, approaches and tools for minimising greenhouse gas emissions from wastewater collection and treatment Zhiguo Yuan Australia</p> <p>14:35 Relationships between technology, nitrogen removal efficiency and nitrous oxide emissions—the mutual benefit opportunities Kartik Chandran US</p> <p>14:55 Where we've been, where we are and where we're going with modelling N₂O emissions in wastewater treatment Sudhir Murthy US</p> <p>15:15 Panel discussion</p> <p>15:35 Overview of IWA Task Group GHG and future efforts Ingmar Nopens Belgium</p> <p>15:45 Open task group meeting</p>
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00		Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	Room 1
17:30 – 18:30 Korean cultural show		Busan Cinema Center	



08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 12	09:15 – 10:45 Room 13
Water safety plans Chair Jan Janssens Switzerland 09:15 Introduction 09:20 Water safety plans: Aguas de Portugal's achievements and IWA manual translation to support dissemination Joana Pinto Coelho Portugal 09:40 Socially and economically acceptable drinking water supply from rainwater and improved solar disinfection Gippeum Bak Korea 10:00 Producing and supplying biologically stable drinking water by different advanced treatments Gang liu Netherlands 10:20 Occurrence of taste and odour in drinking water across China Jianwei Yu China 10:40 Closing summary		Biological drinking water treatment processes Chair Bruno Nguyen France 09:15 Introduction 09:20 Membrane-less bio-electrochemical denitrification for aerobic biofilm systems Andreas Blank Germany 09:40 Neutrophilic iron-oxidising bacteria: relevant in biological drinking water treatment? Arda Gulay Denmark 10:00 Influence of air-flow rate and backwashing on the hydraulic behaviour of a submerged biological filter Yazmin Cobos-Becerra Mexico 10:20 The efficiency of subsurface arsenic removal under low-phosphate conditions Sandra Borges Freitas Netherlands 10:40 Closing summary
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 12	11:15 – 12:45 Room 13
Water safety plans Chair Rose Lang IWA 11:15 Introduction 11:20 Small drinking water systems, obstacles and solutions for water safety plan implementation Rui Sancho Portugal 11:40 Evaluation of radiological risk in EPAL water supply systems—from water sources to drinking water network Maria João Benoliel Portugal 12:00 Potentially pathogenic bacteria isolated from different tropical waters in Sri Lanka Chamila Mannapperuma Sri Lanka 12:20 A quantitative microbiological risk assessment (QMRA) for defining the microbiological safety of drinking water in Paris suburbs Caroline Lecarpentier France 12:40 Closing summary		Drinking water disinfection Chair Juan Carlos Duran-Alvarez Mexico 11:15 Introduction 11:20 Innovations and advancements in UV technology for large-scale municipal applications Ji An Canada 11:40 The lessons learned from the computational modelling of UV photocatalytic reactors Fariborz Taghipour Canada 12:00 An online monitoring system using micro-fluorescent silica detectors for determination of three key operating parameters of a UV facility Mengkai Li China 12:20 Synergistic application of UV and chlorine in drinking water disinfection Sergio G Salinas Rodriguez Netherlands 12:40 Closing summary
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 12	14:15 – 15:45 Room 13
Managing water quality in distribution systems Chair Joan Rose US 14:15 Introduction 14:20 Bacterial-community analysis of drinking water reservoirs in Istanbul using molecular tools Sukriye Celikkol Turkey 14:40 Monitoring and evaluation of pesticides and emerging organic compounds in EPAL water supply systems—from water sources to drinking water networks Maria João Benoliel Portugal 15:00 Aggregation and biofilm formation of bacteria isolated from domestic drinking water Bharathi Ramalingam UK 15:20 Influence of temperature on the survival of hygienically relevant bacteria in drinking water biofilms Susanne Grobe Germany 15:40 Closing summary		Disinfection by-products in drinking water treatment Chair Jürg Keller Australia 14:15 Introduction 14:20 Chlorine dioxide preoxidation in the formation of disinfection by-products during chlorination/chloramination of water and bromide-rich water Xin Yang China 14:40 Relationships between disinfection by-products formed by the chlorination of raw, treated and fractionated surface waters Paolo Rocco Italy 15:00 Trichloronitromethane formation and nitrogen origin exploration during chloramination Xin Yang China 15:20 Association between nitrogenous disinfection by-products' formation and dissolved organic nitrogen in natural waters Hsin-hsin Tung Chinese Taiwan 15:40 Closing summary
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Room 1
		Busan Cinema Center

Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel		Room 1	
09:15 – 10:45	Room 14	09:15 – 10:45	Room 15
Desalination—thermal treatments Chair Chen Guanghao Hong Kong, China 09:15 Introduction 09:20 Optimisation of large-scale, high-temperature MED-TVC systems: numerical and experimental verification Seungwon Ihm United Arab Emirates 09:40 Multi-objective optimisation of gas turbine cycle and MED-TVC desalination dual-purpose systems Iman Janghorban Korea 10:00 Numerical simulation of a direct contact membrane distillation module for seawater desalination Seungjoon Chung Korea 10:20 Design of membrane micro-morphology for membrane distillation, leading to better desalination performance Tai-Shung Chung Singapore 10:40 Closing summary		Improving the energy efficiency of wastewater treatment Chair Helmut Kroiss Austria 09:15 Introduction 09:20 Heat recovery from sewage: an important factor to create an energy-neutral water cycle Jan Hofman Netherlands 09:40 Improving energy self-sufficiency in a municipal wastewater treatment plant using renewable energies Jihoon Kang Korea 10:00 Alternatives for energy production in aerobic wastewater treatment facilities Sharon Velasquez Orta UK 10:20 Mass flow and energy efficiency in a large water reclamation plant in Singapore Yeshe Cao Singapore 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 14	11:15 – 12:45	Room 15
Desalination—process applications Chair Seungkwam Hong Korea 11:15 Introduction 11:20 New developments in fouling indices and applications in seawater reverse osmosis systems Sergio G Salinas Rodriguez Netherlands 11:40 Microbial desalination cells packed with ion-exchange resin for enhancement of water desalination Xia Huang China 12:00 Brackish water pilot-plants show promise for drinking water supplies Martijn Groenendijk Netherlands 12:20 Effects of chloraminated seawater on the SW30HR reverse osmosis membrane Lauren Valentino US 12:40 Closing summary		Improving the energy efficiency of wastewater treatment Chair Helmut Kroiss Austria 11:15 Introduction 11:20 Meeting global energy challenges with net zero-energy wastewater treatment plant strategies—making the case for it Chamindra Dassanayake US 11:40 Energy production from wastewater—dynamic filtration of activated sludge Mark van Loosdrecht Netherlands 12:00 Increased energy recovery through integration of food-waste disposers in the urban waste and water infrastructure Henrik Aspegren Sweden 12:20 Enhanced energy recovery and cost reduction through additional biosolids treatment Brace Boyden Australia 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 14	14:15 – 15:45	Room 15
Desalination—fouling management Chair Gary Amy Saudi Arabia 14:15 Introduction 14:20 A breakthrough cleaning technology for (bio) fouling control of spiral-wound membranes: clean operator Bas Rietman Netherlands 14:40 Effect of dead cells on biofouling in reverse osmosis processes In Kim Korea 15:00 Laboratory- to full-scale experiences with air/water cleaning in RO to control membrane fouling Emile Cornelissen Netherlands 15:20 A key mechanism in FO colloidal fouling: accelerated cake-enhanced osmotic pressure (A-CEOP) Youngjin Kim Korea 15:40 Closing summary		Biofuels and biogas production from wastewater Chair Fenting Li China 14:15 Introduction 14:20 A co-beneficial system using aquatic plants—bioethanol production from free-floating aquatic plants used for water purification Satoshi Soda Japan 14:40 Cultivation and anaerobic co-digestion of microalgae for wastewater treatment systems Chul Park US 15:00 Establishing a readily settleable algal species, <i>Pediastrum boryanum</i> , in a pilot-scale, high-rate algal pond treating domestic wastewater Jason Park New Zealand 15:20 Application of anaerobic digestion effluent as a nutrient source of microalgae cultivation for biodiesel production Sunja Cho Korea 15:40 Closing summary	
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia		Room 1
17:30 – 18:30	Korean cultural show		Busan Cinema Center



08:15 – 09:00 Water industry and technology leaders panel		Room 1
09:15 – 10:45	Room 16	09:15 – 10:45 Room 17
<p>SNC workshop: Integrated, real-time control of sewer–wastewater systems: State-of-the-art</p> <p>Chair Dines Thornberg, Anne Hoyer, Peter Steen Mikkelsen, Gürkan Sin Denmark</p> <p>09:15 Overview: Control structures—the different approaches, advantages and disadvantages Ane Møllerup Denmark</p> <p>09:35 Integrated control in France Pierre Sacareau France</p> <p>09:55 Integrated control without forecast Edwin van Velzen Holland</p> <p>10:15 Integrated control with forecast Martin Pleau Canada</p> <p>10:35 Discussion</p>		<p>Workshop: Celebrating professional women in water—inspiring change, making a difference. Celebrating women's success</p> <p>Chair: Linda MacPherson US</p> <p>09:15 Welcome Linda Macpherson US, Paul Reiter IWA</p> <p>09:20 The story of Hei-Jin Woo—an inspirational leader for women in water Changwon Kim Korea</p> <p>09:30 Introduction to award winner Cassilda Teixeira Brazil</p> <p>09:35 Speech by award winner Kusum Athukorda Sri Lanka</p> <p>09:45 Lead presentation Diana Gale US</p> <p>10:00 Panel interventions: Women in Utilities Chen Man-Li China, Women in Research Inga Jacobs South Africa, Women in Business Lucia Cade Australia, Women in Politics Elaine Trepper Namibia, Women in Community & Advocacy Maren Heuvels Germany</p> <p>10:35 Q&A</p>
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 16	11:15 – 12:45 Room 17
<p>Integrated modelling and control of sewer and wastewater systems</p> <p>Chair Norbert Jardin Germany</p> <p>11:15 Introduction</p> <p>11:20 Scientific and technological challenges for high-resolution space–time peri-urban water management Daniel Schertzer France</p> <p>11:40 KALLISTO: cost-effective and integrated optimisation of the urban wastewater system Eindhoven Ingmar Nopens Belgium</p> <p>12:00 Improved wet-weather wastewater influent modelling at Viikinmäki WWTP by online weather radar information Mari Heinonen Finland</p> <p>12:20 An environmental decision-support system for coordinated management of urban drainage systems and WWTPs Carlos Montero Ruano Spain</p> <p>12:40 Closing summary</p>		<p>Workshop: Celebrating professional women in water—inspiring change, making a difference. Women as thought leaders—bringing the big picture into focus</p> <p>Chair Diana Gale US</p> <p>11:15 Introduction Linda Macpherson US</p> <p>11:20 Exploring the natural leadership talent of women Diane Taniguchi-Dennis US</p> <p>11:35 Panelist 1: Water, sanitation and health Joan Rose US</p> <p>11:45 Panelist 2: Water and economic development Mi-Sook Won Korea</p> <p>11:55 Panelist 3: Community and advocacy Kusum Athukorda Sri Lanka</p> <p>12:05 Panelist 4: Water culture and education Carol Howe Netherlands</p> <p>12:15 Panel discussion and audience</p> <p>12:35 Wrap-up and close Linda Macpherson US and Diana Gale US</p>
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 16	14:15 – 15:45 Room 17
<p>SNC workshop: Integrated real-time control of sewer–wastewater systems: Research areas for the future</p> <p>Chair Dines Thornberg, Anne Hoyer, Peter Steen Mikkelsen, Gürkan Sin Denmark</p> <p>14:15 News from the Belgrade conference on urban drainage water modelling and forecasting Wolfgang Rauch Austria</p> <p>14:35 Optimisation of the whole wastewater system Norbert Jardin Germany</p> <p>14:55 Modelling water quality in the sewer system and its use for control purposes Dirk Muschalla Austria, Günter Gruber Austria</p> <p>15:15 Where is the integration potential? Morten Grum Denmark</p> <p>15:35 Discussion</p>		<p>Workshop: Busan City investment seminar</p> <p>Chair Busan Metropolitan City</p> <p>This session will provide global water-related corporations and other interested parties with an overview of Busan's suitability for investment as well as possible long-term investment plans. It will also be an opportunity for participants to network, and meet with and engage the key decision-makers from the city.</p>
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00	Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia	
17:30 – 18:30	Korean cultural show	
		Room 1
		Busan Cinema Center

Tuesday technical programme

08:15 – 09:00 Water industry and technology leaders panel		Room 1	
Industry forum	IF stage A	Industry forum	IF stage B
<p>10:00 – 10:45 SSENG Economical water treatment methods in developing countries Presented by Yun Chang Han</p> <p>A pressing global issue is how to economically and efficiently purify high-turbidity water into drinking water. We present a solution to this urgent matter, and introduce a new, efficient water treatment process which can be applied directly to high-turbidity water.</p>		<p>10:00 – 10:45 Veolia Water From sludge to energy or plastic (part 1) Wastewater treatment plants have gradually become energy neutral. Even better, sludge is viewed as a nutrient or material source for agriculture and bioplastics. Sludge treatments are also part of emerging pollutant control. Wastewater treatment plants have to be better integrated into dense, urban environments in particular. This session will address the transformation of sludge.</p>	
<p>11:15 – 12:00 Xylem Development of a highly efficient ozone AOP reactor with a limited bromate formation potential Presented by Jenny Wang</p> <p>Ozone-based AOP's can be an attractive option to target a wide range of micropollutants and provide economic benefits. But high levels of bromide in the water source can limit the application of ozone. This session describes the development of an ozone AOP reactor which is capable to treat water sources without exceeding the WHO level of 10 µg/L for bromate.</p>		<p>11:15 – 12:00 Veolia Water From sludge to energy or plastic (part 2) Wastewater treatment plants have gradually become energy neutral. Even better, sludge is viewed as a nutrient or material source for agriculture and bioplastics. Sludge treatments are also part of emerging pollutant control. Wastewater treatment plants have to be better integrated into dense, urban environments in particular. This session will address the transformation of sludge.</p>	
<p>12:00 – 12:45 Xylem Energy-saving potential of a new aeration system Presented by Asa Nordenberg</p> <p>Aeration systems at wastewater treatment plants are the biggest energy consumers, between 50% and 80% of the total energy (Olsson, 2008). Asa Nordenberg explains that by designing an energy-optimised aeration system (with aeration grids, blowers, controlling valves) and then operating it with new aeration control system, one can save even more energy.</p>		<p>12:00 – 12:45 TaKaDu The future of water network monitoring This session features presentations by water utilities and technology providers about using advanced technology for water network monitoring, followed by a panel discussion, and question and answer session. The forum includes a short introduction to the current state of network monitoring technologies, available solutions, water utilities' needs and new approaches for solutions.</p>	
<p>13:15 – 14:00 NanoH2O Lowering desalination energy costs with QuantumFlux membranes Presented by Nicholas Dwyer</p> <p>We present a way to lower the energy costs of desalination by using thin-film nanocomposite high-flux seawater reverse osmosis membranes.</p>		<p>13:15 – 14:00 K-Water 4 Rivers project, R&D innovations and more, from K-Water (part 1) K-Water will showcase its innovative water technologies: its integrated water management system, the construction and management of the 4 Rivers Project, an industrial water construction project, and the achievements of K-water's R&D projects.</p>	
<p>14:15 – 15:00 Doosan Heavy Industries & Construction Actual plant applications of thermal desalination technologies Presented by In-seop Song</p> <p>Reputed as the world's leading provider of thermal desalination solutions, Doosan will share detailed aspects of both MSF and MED technologies. We will also introduce you to Doosan's record-breaking projects in the MENA region, ranging from Ras Al Khair Phase 1—the world's largest planned desalination plant—to Yanbu Phase 2 Expansion MED, which features the world's largest MED unit capacity.</p>		<p>14:15 – 15:00 K-Water 4 Rivers project, R&D innovations and more, from K-Water (part 2) K-Water will showcase its innovative water technologies: its integrated water management system, the construction and management of the 4 Rivers Project, an industrial water construction project, and the achievements of K-water's R&D projects.</p>	
<p>15:00 – 15:45 Doosan Heavy Industries & Construction Technology trends in desalination and product development Presented by Justin Robert Paden</p> <p>Continuing its contribution to the desalination industry, Doosan actively operates its water R&D centres in three parts of the world: Dubai, UAE; Tampa, USA; Changwon, Korea. The session will focus on the latest technology trends through an overview of Doosan's ongoing R&D topics—including high-efficiency thermal solutions, SWRO plant-operation optimisation, water systems for the industrial sector, and much more.</p>		<p>15:00 – 15:45 Empresa Portuguesa das Águas Livres, Lisbon, Portugal Creating and applying practical tools for reducing non-revenue water within the EPAL Lisbon distribution network Presented by Andrew Donnelly</p> <p>In this presentation, EPAL highlights the analysis tools and management systems developed in a successful project which reduced non-revenue water to 10 per cent in the Lisbon distribution network. These tools provide efficient and effective data management and analysis, as well as practical performance indicators for active leakage control, and how they can be applied in various situations.</p>	
<p>16:15 – 17:00 Netherlands Water Partnership (NWP) Big challenges, joint solutions—let's work together Netherlands water-sector representatives will present joint solutions for global challenges. By presenting global cases from various water-sector themes, the Netherlands will highlight solutions for global water challenges.</p>		<p>16:15 – 17:00 Ministry of Environment Leading-edge technologies for intelligent water distribution systems and their prospects In this forum, six companies will present their leading-edge technologies on advanced intelligent water distribution systems. Technologies include: integrated management systems for sustainable water quality, supply, and energy; efficiency; intelligent diagnostics and monitoring tools; AMI/AMR; reducing NRW; EPC technologies for full-scale applications; and disaster-free water-supply systems.</p>	
<p>16:15 – 17:00 Towards controlling integrated bioprocesses—engineering microbial communities from within Staffan Kjelleberg Singapore and Australia</p>		Room 1	
17:30 – 18:30 Korean cultural show		Busan Cinema Center	

Wednesday



Proceedings—on USB

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Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

BOF Basins of the Future
COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

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Project
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Awards



SEE WHO'S MADE A SPLASH. 2012 IWA Project Innovation Awards



Global Winners of the 2012 IWA Project Innovation Awards honoured at the IWA World Water Congress in Busan

Established in 2006, the IWA Project Innovation Awards (PIA) is a prestigious global competition which recognises and celebrates innovation and excellence in water engineering projects throughout the world in six different project categories – *applied research, design, operations/management, planning, small projects, and marketing & communications.*

Global Project Innovation Awards Ceremony and Dinner (19th September 2012, 1900h-2200h @ Paradise Hotel)

After months of intense competition involving four regional competitions and more than 85 submitted entries, the global winners of the 2012 IWA PIA will be unveiled and presented with the Global Grand Prizes at the PIA Global Awards Ceremony and Dinner on 19 September 2012 at the Grand Ballroom in Paradise Hotel, Busan, Korea. Tickets to the dinner are priced at €90.

Project Innovation Awards Winners Pavilion (Daily during exhibition opening hours)

At the World Congress Exhibition in Busan, regional and global winners of the 2012 IWA PIA will showcase their winning projects and innovations at the PIA Winners Pavilion (Exhibition Stand 52). Join us at the Pavilion to meet with the winning teams, and learn about these exciting and innovative projects! Unique features at the Pavilion include:

- Poster displays featuring all IWA PIA global winners
- Dedicated display stands by PIA winners to feature their innovations
- Networking area to meet and interact with PIA winners
- Daily presentations by PIA winners during tea-breaks and lunch

Global Project Innovation Awards Winners Forum (20th September 2012, 1045h-1415h, Industry Forum @ Exhibition Hall)

Featuring presentations by the PIA Global Award winners, delegates will get the unique opportunity to learn about the innovation and engineering features adopted which make these projects global models for effective and sustainable approaches to water management. For more details on the presentations and timings, visit us at the PIA Winners Pavilion at Exhibition Stand 52.

For enquiries about the PIA events at the World Water Congress, visit us at the PIA Winners Pavilion. For more information about the PIA, visit www.iwa-pia.org

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Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>	Room 1
<p>Keynote speakers</p> <p>Impediments to achieving improved sustainability in the urban water sector include existing institutional structures</p> <div data-bbox="87 459 268 705">  </div> <p>Dr Paul Greenfield Chair Australian Nuclear Science & Technology Organisation; International WaterCentre Australia</p> <p>Dr Greenfield has research interests in environmental management, wastewater management, biotechnology and technology innovation. Dr Greenfield has worked in the private sector, with CSIRO and in Australian/US universities. He currently works with industry and government to address water-related issues associated with coal seam gas, and exploring connections between energy and water management in urban settings.</p> <p>New language, new thinking, new possibilities</p> <div data-bbox="87 1070 268 1317">  </div> <p>Linda Macpherson Vice President CH2M HILL US</p> <p>Linda Macpherson, a globally recognised reuse communications expert and strategist, has pioneered public engagement and educations programs that have transformed how public acceptance is developed and maintained. Linda is CH2M Hill's vice president, serves on the Board of Directors of the WaterReuse Association and Research Foundation and is chair of IWA's Professional Women in Water Committee. She is at the forefront of bridging the gap between the engineering/scientific community and the general public.</p>	<p>09:15 – 10:45 Room 1</p> <p>WCE workshop: The coming urban drainage challenge—friend, foe or both? Managing urban flood risks to cities in the context of a changing climate and an expanded set of community objectives for livable cities Chair Peter Steen-Mikkelsen Denmark</p> <p>09:15 Introduction</p> <p>09:20 Harmonising livability and resilience objectives in urban areas Tony Wong Australia</p> <p>09:40 Climate change impacts on traditional urban flood risks Patrick Willems Belgium</p> <p>10:00 Climate change adaptation options for urban areas to enhance livability and resilience objectives Karsten Arnbjerg-Nielsen Denmark</p> <p>10:20 Panel discussion: Adapting and learning at the same time Facilitator: Karsten Arnbjerg-Nielsen Denmark Panelists: Chair, speakers and Chris Zevenburg Netherlands</p> <p>10:40 Closing remarks</p> <p>10:45 – 11:15 Morning break Exhibition</p> <p>11:15 – 12:45 Room 1</p> <p>WCE workshop: The coming urban drainage challenge—friend, foe or both? Case studies from highly impacted areas Chair: Karsten Arnbjerg-Nielsen Denmark</p> <p>11:15 Introduction</p> <p>11:20 United Kingdom and selected cities Trevor Bishop UK</p> <p>11:35 Denmark and Copenhagen Lykke Leonard Denmark</p> <p>11:50 Australia and Brisbane Andre Taylor Australia</p> <p>12:05 Singapore Chew Men Leong Singapore</p> <p>12:20 Panel discussion: Coming to terms with a new reality Facilitator: Karsten Arnbjerg-Nielsen Denmark Panelists: Speakers plus Christian Stöck Namibia</p> <p>12:40 Closing remarks</p> <p>12:45 – 14:15 Lunch Exhibition</p> <p>14:15 – 15:45 Room 1</p> <p>WCE workshop: The coming urban drainage challenge—friend, foe or both? Focus on East Asia—an emerging nightmare? Chair Hirokai Furumai Japan</p> <p>14:15 Creating urban flood management resilience in the context of significant growth, urbanisation and climate impacts Hirokai Furumai Japan</p> <p>14:20 Korea—flood risk management and urban resilience Jaehyun Shim Korea</p> <p>14:35 Japan—policies for increased flood risk challenges Junichi Yoshitani Japan</p> <p>14:50 Thailand—2011 Chao Praya River flooding and prevention of future flood disasters Diasuke Komori Japan</p> <p>15:05 Panel discussion: Game-changing adaptation needed? Facilitator: Hirokai Furumai Japan Panelists: Speakers plus Man-Lee Chen Chinese Taiwan, Perry Rivera Philippines</p> <p>15:40 Closing remarks</p> <p>15:45 – 16:15 Afternoon break Exhibition</p>
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>	Room 1
19:00 Project Innovation Awards ceremony and dinner Paradise Hotel Busan	

Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 2	Room 3
<p>COF workshop: The role of ratings for water-smart, resilient and livable cities Chair Don Begbie <i>Australia</i></p> <p>09:15 Introduction Steve Kenway <i>Australia</i></p> <p>09:20 Assessment frameworks used in evaluating cities—what works and what doesn't Rob Skinner <i>Australia</i></p> <p>09:30 How important is efficiency in the overall schema of cities and water? How do we avoid getting lost in the fog? Francis Pamminger <i>Australia</i></p> <p>09:40 The LEED system—pros and cons for evaluating the water-performance of cities</p> <p>09:50 What is the water-smart city? How do conceptual frameworks help us? Is there a gap at city-scale? What are the steps towards quantitative assessment? Don Begbie <i>Australia</i></p> <p>10:00 Why should utilities care about their indirect energy consequences? Mary-Ann Dickinson <i>USA</i></p> <p>10:00 Facilitated roundtable discussions and report back</p>		<p>Monitoring microconstituent occurrence at full scale Chair Maria Fürhacker <i>Austria</i></p> <p>09:15 Introduction</p> <p>09:20 Should rules for calculating removal rates of trace organic and inorganic compounds in wastewater plants be upgraded? Jean-Marc Choubert <i>France</i></p> <p>09:40 Occurrence and fate of N-nitrosamines and their formation potential in three WWTPs in Japan Suchul Yoon <i>Japan</i></p> <p>10:00 The transport of three emerging pollutants through agricultural soil irrigated with raw wastewater Juan Carlos Durán-Álvarez <i>Mexico</i></p> <p>10:20 A new insight for micropollutants in activated sludge: variability of influent concentrations and effects of operating parameters on removal performances Maxime Pomies <i>France</i></p> <p>10:40 Closing summary</p>
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 2	Room 3
<p>FOST workshop: Biosolids management—challenges and solutions. Charting the frontiers of biosolids management Chair Rajeshwar Dayal Tyagi <i>Canada</i></p> <p>This workshop looks into the scope of challenges faced in different parts of the world and offers effective and innovative solutions.</p> <p>11:15 Future of biosolids management—where are we headed? Ludovico Spinosa <i>Italy</i></p> <p>11:30 Biosolids management in developing countries Heidi Snyman <i>South Africa</i></p> <p>11:45 Pathogens in biosolids—can we really kill them? Banu Ormeci <i>Canada</i></p> <p>12:00 Emerging contaminants—implications for disposal Shane Snyder <i>US</i></p> <p>12:15 Panel discussion</p>		<p>Removal of micropollutants in conventional wastewater treatment Chair Helmut Kroiss <i>Austria</i></p> <p>11:15 Introduction</p> <p>11:20 Removal characteristics of retinoic acids and 4-oxo-retinoic acids in wastewater by activated sludge treatment Daisuke Inoue <i>Japan</i></p> <p>11:40 Biodegradation of sulphamethazine by activated sludge Weiwei Ben <i>China</i></p> <p>12:00 Role of abiotic transformations in the removal of oestrogens from wastewater: effects in conventional and pre-denitrification wastewater treatment Ruth Marfil-Vega <i>US</i></p> <p>12:20 Elimination of micropollutants by adsorption—focusing on the particle separation of powdered activated carbon Sebastian Platz <i>Germany</i></p> <p>12:40 Closing summary</p>
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 2	Room 3
<p>FOST workshop: Biosolids management—challenges and solutions. Recent advances in biosolids research and treatment technologies Chair Blanca Jimenez <i>Mexico</i></p> <p>This workshop charts the frontiers of recent advances in biosolids research and treatment technologies.</p> <p>14:15 Pretreatment research and emerging technologies Richard Tsang <i>US</i></p> <p>14:30 Stabilisation research and emerging technologies Jae Woo Lee <i>Korea</i></p> <p>14:45 Dewatering research and emerging technologies Steve Dentel <i>US</i></p> <p>15:00 Combustion research and emerging technologies Guoren Xu <i>China</i></p> <p>16:15 Panel discussion</p>		<p>Removal of micropollutants in advanced wastewater treatment Chair Hansruedi Siegrist <i>Switzerland</i></p> <p>14:15 Introduction</p> <p>14:20 Reduction of refractory micropollutants in treated wastewater by advanced tertiary treatments Samuel Martin <i>France</i></p> <p>14:40 Oxidation of illicit drugs by extracellular fungal oxidoreductases Gernot Kayser <i>Germany</i></p> <p>15:00 Comparison and optimisation of the advanced oxidation processes UV/H₂O₂, UV/O₃ and O₃/H₂O₂ with a multiple-responses approach Ulf Schulze-Hennings <i>Germany</i></p> <p>15:20 Removal of xenobiotics by adsorption on two mineral adsorbent materials as an alternative to activated carbon: a comparative-batch approach Alexandre Tahar <i>France</i></p> <p>15:40 Closing summary</p>
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan



08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 4	09:15 – 10:45 Room 5
Advances in biological processes and technology Chair Jonathon Parkinson <i>IWA</i> 09:15 Introduction 09:20 The variation of volatile fatty acid compositions in sewer length, and its effect on the process design of biological nutrient removal Zuwhan Yun <i>Korea</i> 09:40 Two-stage anaerobic fluidised-bed membrane bioreactor treatment of settled domestic wastewater Jaeho Bae <i>Korea</i> 10:00 Long-term effects of antibiotics on C- and N-removal and viable bacteria in lab-scale wastewater treatment plants Claudia Gallert <i>Germany</i> 10:20 Watering the globe—MBBR/IFAS provides enhanced removal efficiency for upgrading WWTPs Afnan Din <i>United Arab Emirates</i> 10:40 Closing summary		Workshop: Brown surface water and measures against it Chair Kenneth Persson <i>Sweden</i> Increasing concentrations of humic acids in surface waters cause water to be brown, increasing risks for microbial contamination and disinfection by-products formed due to chlorination. Outcomes will be presented through: <ul style="list-style-type: none"> • Case studies on Africa Nelson Matsinhe <i>Mozambique</i> • Case studies on South America Antonio Benetti <i>Brazil</i> • Case studies on Europe Björn Eikebrokk <i>Norway</i> The case studies will provide a global overview of the browning process of surface waters and a number of different short- and long-term measures to cope with browning processes.
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 4	11:15 – 12:45 Room 5
Innovative tools and technologies for membrane treatment Chair Roger Ben Aim <i>France</i> 11:15 Introduction 11:20 Enzymatic quorum-quenching for effective biofouling control in MBR for wastewater treatment Sun-ki Lee <i>Korea</i> 11:40 How different is the composition of the fouling layer of wastewater reuse and seawater desalination RO membranes? Muhammad Khan <i>Saudi Arabia</i> 12:00 Impact of operating conditions on performance of capacitive deionisation for RO brine recovery Jian-Jun Qin <i>Singapore</i> 12:20 Monitoring the condition of membrane bioreactors with a combined PCA–FC algorithm Ingmar Nopens <i>Belgium</i> 12:40 Closing summary		Workshop: Brown surface water and measures against it (continued) Chair Kenneth Persson <i>Sweden</i> New and emerging technologies for the treatment of raw water will be presented together with an overview of how to modify and develop conventional water treatment technologies—particularly flocculation, sedimentation and filtration—for changing water qualities. From this discussion, knowledge gaps and new research and development needs will be identified, and a white paper on the subject will be presented.
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 4	14:15 – 15:45 Room 5
Membrane systems for wastewater treatment and reuse—forward osmosis Chair Val Frenkel <i>US</i> 14:15 Introduction 14:20 The role of sulphonated polymer and macrovoid-free structures in the support layer of thin-film composite membranes towards the improvement of forward osmosis for seawater desalination Tai-Shung Chung <i>Singapore</i> 14:40 Development of desirable CTA/CA-based membranes for forward osmosis Thi Phuong Nga Nguyen <i>Korea</i> 15:00 Characteristics of forward osmosis on concentrating nutrients from wastewater Wenchao Xue <i>Japan</i> 15:20 Full-scale simulation of fertiliser-driven forward osmosis processes for direct fertigation Suhan Kim <i>Korea</i> 15:40 Closing summary		Workshop: Upstream work in wastewater networks to reduce heavy metals and other priority pollutants to the environment Chair Lena Söderberg <i>Sweden</i> We will present and discuss results from practical work on reducing heavy metals and other contaminants in wastewater, such as persistent organic pollutants, through upstream control in wastewater networks. 14:15 Introduction Glen Daigger <i>US</i> 14:30 How Kåppala organises upstream work toward connected industries and households—results obtained during the last 30 years Sari Vienola <i>Sweden</i> 14:45 Working upstream: information campaigns in Finland—three recent projects (Pytty, Small but dangerous, trade effluent guidebook) Saijariina Toivikko <i>Finland</i> 15:00 Upstream strategy: Actipol, a treatment solution—heavy metal reduction in a small WWTP Bruno Tisserand <i>France</i> 15:15 Panel discussion
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan

Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 6	09:15 – 10:45 Room 7
Policy-based, sustainable management of water basins Chair Alan Vicory US 09:15 Introduction 09:20 Private–public partnership in the water sector in Romania: success or failure? Florin Iliescu Romania 09:40 Searching for a compromise between ecological quality targets, social and ecosystem costs for heavily modified water bodies (HMWBs): the Lambro-Seveso-Orona system case study Valeria Mezzanotte Italy 10:00 Water: the hidden cost of energy Gustaf Olsson Sweden 10:20 Transformation of flood control in the north-east China Baicheng region: from safety orientation to comprehensive utilisation Feng Feng China 10:40 Closing summary		SWC workshop: Forecasting and managing the future—water demand tariffs Chair Francisco Cubillo Spain 09:15 Introduction 09:30 Approaching demand for forecasting and management Stuart White Australia 09:45 Water reuse policies—influence on demand patterns and tariffs Valentina Lazarova France 10:00 Tariffs: smart tarification and cost recovery Jan Hammenecker Belgium 10:15 Demand elasticity and tariffs Carlos Montero Spain 10:30 Water losses—a special component of total demand Tim Waldron Australia
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 6	11:15 – 12:45 Room 7
SWC workshop: Important processes for alluvial groundwater resources use and protection Chair Milan Dimkic Serbia 11:15 Significant processes and methods for alluvial groundwater use and protection Milan Dimkic Serbia 11:45 Innovative approaches for groundwater treatment Saroj Sharma Netherlands 12:05 The role of microbiological agents in a process of well colmation—practical examples Vesna Obradovic and Prvoslav Marjanovic Serbia 12:20 Panel discussion		SWC workshop: Forecasting and managing the future—water demand tariffs Chair Stuart White Australia 11:15 Trends in per-capita consumption—the Madrid planning experience Francisco Cubillo Spain 11:30 Trends in urban water services tariffs Teodor Popa Romania 11:45 Forecasting and addressing uncertainty Enrique Lopez Singapore 12:00 Water efficiency and utility revenue—the good, the bad and the ugly Mary Ann Dickinson US 12:15 Open discussion
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 6	14:15 – 15:45 Room 7
Management of groundwater and wetlands as water resources Chair Gary Amy Saudi Arabia 14:15 Introduction 14:20 Groundwater trading in Australia Scott Lawson Australia 14:40 Constructed wetlands to help recovery of effluent-dominated streams: application to ozonated and non-ozonated treated effluents Valeria Mezzanotte Italy 15:00 Brackish groundwater: a sustainable source for drinking water in coastal areas? Jan Willem Kooiman Netherlands 15:20 Biodegradation of organophosphate pesticides in riparian wetlands in agricultural watersheds: implications for wetland management William Stringfellow US 15:40 Closing summary		Workshop: Cultural perspectives in the rapidly evolving language of water Chair John Batten US Experts from around the world will explore the development of a consumer-friendly language for water communications that helps make water a sustainable commodity consumers will understand and therefore value. This is a workshop demonstrating how the language used in communicating information about water continues to evolve and how the communication specialists' contribution is critical to improving the management of water services. Speakers: Carol Howe Netherlands, Kevin Wall South Africa, Kari Elisabeth Fagernaes Norway, Mooyoung Han Korea, Linda Macpherson US, Mohsen Mortada Oman
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson US		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan



08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 8	09:15 – 10:45 Room 9
<p>WCE workshop: Wastewater as a multifaceted resource for producing energy, chemicals, water and nutrients</p> <p>Chair Herve Suty <i>France</i></p> <p>09:15 Introduction David Garman <i>US</i></p> <p>09:20 The big picture—wastewater as a multifaceted and under utilised resource Herve Suty <i>France</i></p> <p>09:35 Wastewater as a multifaceted resource—innovative biotechnologies Mark van Loosdrecht <i>Netherlands</i></p> <p>09:55 Chemicals recovery and production from wastewater—going beyond energy recovery Jurg Keller <i>Australia</i></p> <p>10:15 Panel discussion Panelists: Herve Suty <i>France</i>, David Garman <i>US</i>, Mark van Loosdrecht <i>Netherlands</i>, Jurg Keller <i>Australia</i></p> <p>10:40 Closing remarks Herve Suty <i>France</i></p>		<p>SNC workshop: Creating operationally smart networks—today and in the future. Optimising networks, information and control</p> <p>Chair Guy Horowitz <i>Israel</i></p> <p>09:15 Strategic management of water networks Helena Alegre <i>Portugal</i></p> <p>09:35 The key challenges of information integration Geodino Carpio <i>Philippines</i></p> <p>09:55 The data revolution in the water networks—where are we, and where are we going? Guy Horowitz <i>Israel</i></p> <p>10:15 Panel discussion: Speakers plus Chris McIntyre <i>US</i> Challenges and opportunities in managing water networks strategically Alignment between strategic, tactical and operational management Moving data from the ‘tactical’ to the ‘strategic’ domain The chicken and egg dilemma—from data to strategies, or from strategies to data?</p> <p>10:40 Closing remarks</p>
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 8	11:15 – 12:45 Room 9
<p>WCE workshop: Municipal wastewater, solid waste and energy. Institutional barriers to jointly optimising food waste and wastewater digestion in generating energy from municipal wastewater plants</p> <p>Chair Dave Parry <i>US</i></p> <p>11:15 Introduction Paul Reiter <i>IWA</i></p> <p>11:20 Challenges and opportunities in the context of North America Dave Parry <i>US</i></p> <p>11:50 Challenges and opportunities in the context of the European Union Norbert Jordin <i>Germany</i></p> <p>12:05 Challenges and opportunities in the context of China Guang Hao Chen <i>China</i></p> <p>12:20 Panel discussion: Breaking down the barriers to joint optimisation of food waste and wastewater digestion Facilitator: Dave Parry <i>US</i> Panelists: Speakers plus Durk Krol <i>Belgium</i>, Terry Moore <i>US</i></p> <p>12:50 Closing remarks Dave Parry <i>US</i></p>		<p>SNC workshop: Creating operationally smart networks—today and in the future. Achieving optimised non-revenue water conditions in networks</p> <p>Chair Tim Waldron <i>Australia</i></p> <p>11:15 State-of-the-art practices in reducing water losses from distribution networks, and working towards ‘total control’ Tim Waldron <i>Australia</i></p> <p>11:35 The key issues to manage when planning to reduce water losses</p> <p>11:50 The important knowledge to have for leak-detection success</p> <p>12:05 Reflection on how to avoid the common mistakes when implementing water-loss reduction plans</p> <p>12:20 Looking into the future and identifying how management systems may change to ensure water losses are minimised</p> <p>12:35 Panel discussion: Paul Fanner <i>US</i>, Bambos Charalambous <i>Cyprus</i>, Stuart Hamilton <i>UK</i>, Roland Liemberger <i>Philippines</i></p>
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 8	14:15 – 15:45 Room 9
<p>WCE workshop: Wastewater as an important source of fuel and energy production in the context of changing scales of system designs</p> <p>Chair Peter Cornel <i>Germany</i></p> <p>This workshop follows the previous workshop on wastewater as a multi-faceted source of valuable resources and explores the challenges of using wastewater for water, energy and nutrients in a variety of different system options including in centralised, semi-centralised and decentralised circumstances.</p>		<p>SNC workshop: Creating operationally smart networks—today and in the future. Smart water and energy nexus: a smart approach for cities of the future</p> <p>Chair Heechul Choi <i>Korea</i></p> <p>14:15 Smart WE grid: the unified grid for water and electricity Jun-Hee Hong <i>Korea</i></p> <p>14:30 Technical challenges of Siemens’ smart water–energy grid Andreas Hauser <i>Singapore</i></p> <p>14:45 Energy issues in alternative water resources in urban areas Berry Danien <i>Australia</i></p> <p>15:00 Panel discussion: Challenges and opportunities at the smart energy–water nexus</p> <p>15:40 Closing remarks</p>
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan

Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 10	09:15 – 10:45 Room 11
FOST workshop: Treatment of drinking water for public systems—how safe is safe? Chair Rhodes Trussell <i>US</i> 09:10 Introduction Paul Reiter <i>IWA</i> 09:20 The big picture—how safe is safe in the treatment of drinking water for public systems? Rhodes Trussell <i>US</i> 09:30 Initial interventions from the panelists Shane Synder <i>US</i> , Blanca Jimenez <i>Mexico</i> , Joan Rose <i>US</i> , Michael Rouse <i>UK</i> 09:45 Panel discussion Facilitator Hallvard Odegaard <i>Norway</i> Interlocutor Jerry Gilbert <i>US</i> 10:35 Closing remarks Rhodes Trussell <i>US</i> , Paul Reiter <i>IWA</i>		Water conservation and demand management Chair Mary Ann Dickinson <i>US</i> 09:15 Introduction 09:20 Proposal of a systematic methodology to estimate apparent losses due to water-meter inaccuracies Francisco Arregui <i>Spain</i> 09:40 Cost efficiency in water efficiency Martin Conner <i>Australia</i> 10:00 Managing long-term capacity in the age of conservation Xin Qiao <i>US</i> 10:20 Behaviour-change programs for water efficiency—findings from north-west and metropolitan residential programs in Western Australia Goen Ho <i>Australia</i> 10:40 Closing summary
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 10	11:15 – 12:45 Room 11
Workshop: Health-based investment in drinking water is complex—how can science inform us? Chair Gertjan Medema <i>Netherlands</i> Supplying healthy water to the population for an acceptable price is the primary goal of water supply. Health-based investments aim for maximum health benefit in return for the invested resources. 11:15 Health as a basis for investment decisions in the Netherlands Patrick Smeets <i>Netherlands</i> 11:30 Controlling harmful pollutants in drinking water in China Min Yang <i>China</i> 11:45 Using water safety plans and quantitative risk assessment for operational decisions in France Zdravka Doquang <i>France</i> 12:00 Steps towards healthy water supplies in developing countries Michael Rouse <i>UK</i> 12:15 Panel discussion 12:40 Closing remarks		Utility finance and revenue challenges Chair Ed Smeets <i>Netherlands</i> 11:15 Introduction 11:20 Price-setting processes in the three regulated water industries in the UK Nadia Al-Harithi <i>Yemen</i> 11:40 Cost modelling for sewage sludge and waste management in Spain Maria Molinos Senante <i>Spain</i> 12:00 Success factors for public–private partnerships for water supply in India Rama Singh Rastogi <i>Singapore</i> 12:20 SWOT analysis of the two emerging PPP schemes in China's water market—TOT and divestiture Jae-ho Choi <i>Korea</i> 12:40 Closing summary
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 10	14:15 – 15:45 Room 11
FOST workshop: Frontiers of toxicology—new imperatives for health Chair David Garman <i>US</i> The workshop will present some of the new methods of, and results from, assessing trace contaminants and discuss the implications for the health of humans, ecosystems and water treatment. The use of safety factors based on observations of high-level toxic or chronic effects in target or model species has been used as a surrogate in the absence of suitable evidence of adverse impacts. New testing methods are providing evidence that impacts arising at very low levels (typically 'background' levels) are not related to the high-level impacts. Some of these are related to physical (neurological) and other developmental damage in model animal systems. Speakers will discuss the possible environmental and human health implications as well as the cover the treatment options that could remove these contaminants.		Driving performance improvement Chair Scott Haskins <i>US</i> 14:15 Introduction 14:20 Results from a Portuguese nationwide performance assessment system Joana Pinto Coelho <i>Portugal</i> 14:40 The 21st Century Water Utility Initiative: how to boost operational performance of water utilities by up to 20 per cent Philippe Wind <i>Luxembourg</i> 15:00 Operational management of water and wastewater systems: results reached with the TI platform NAVIA—the case study of Aguas do Algarve Rui Sancho <i>Portugal</i> 15:20 The value of applied technological research from the perspective of a water-cycle company AWC van der Helm <i>Netherlands</i> 15:40 Closing summary
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan



08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1	
09:15 – 10:45	Room 12	09:15 – 10:45	Room 13
Emerging issues related to health and the environment Chair Rivka Kfir South Africa 09:15 Introduction 09:20 Free-living amoebae and amoeba-resistant bacteria in the drinking water of low-cost housing in Johannesburg, South Africa Catheleen Bartie South Africa 09:40 Drugs of abuse and tranquilisers in Dutch drinking water, surface waters and wastewater Pim de Voogt Netherlands 10:00 Elevated Pb (II) release from the reduction of lead dioxide induced by bromide-catalysed monochloramine decomposition Yi-Pin Lin Singapore 10:20 Effects of total alkaloids from aquatic plants on algal growth Yu Hong China 10:40 Closing summary		Adsorption and ion exchange—removal of microconstituents Chair Avner Adin Israel 09:15 Introduction 09:20 Submicron-sized activated carbon: shell adsorption and branched-pore kinetic model analyses to optimise particle size for enhancing geosmin and 2-methylisoborneol removal Soichi Nakao Japan 09:40 Environmental implications and applications of carbon nanomaterials in water treatment Soryong Chae Australia 10:00 Adsorption of 2,4,6-trichloroacetic acid on amino-modified HMS Zhonglin Chen China 10:20 Mechanisms of less-severe competitive adsorption between geosmin and natural organic matter on super-powdered activated carbon than on powdered activated carbon Soichi Nakao Japan 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 12	11:15 – 12:45	Room 13
Emerging issues related to health and the environment Chair Rivka Kfir South Africa 11:15 Introduction 11:20 Stability of nano-sized titanium dioxide in aqueous environments: the effects of pH, humic acid and divalent cations Xiaonan Yang China 11:40 Silver nanoparticle removal from drinking water: flocculation and sedimentation, or filtration? Ijung Kim US 12:20 Galvanic corrosion in drinking water distribution systems Ding-Quan Ng Singapore 12:20 Human health risks associated with constructed lakes in Australian peri-urban developments Jane-Louise Lampard Australia 12:40 Closing summary		Adsorption and ion exchange—organic-matter removal Chair Yoshihiko Matsui Japan 11:15 Introduction 11:20 Natural organic-matter removal with anion exchange resins Madjid Mohseni Canada 11:40 Isotherm and kinetic studies on the adsorption of humic acids onto chitosan-modified attapulgite Nan Sun China 12:00 Granular activated carbon filters: analytical tools for a better understanding of organic-matter removal Xavier Bernat Spain 12:20 Removal of perfluorooctanoate from surface water by coagulation and adsorption Shubo Deng China 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 12	14:15 – 15:45	Room 13
Development of online sensing monitoring systems Chair Frans Schulting Netherlands 14:15 Introduction 14:20 The TECHNEAU Windhoek case study: new developments in monitoring systems in water reclamation Chris Swartz South Africa 14:40 Integration of online and offline methodologies for the assessment of river water quality Susana Gonzalez Spain 15:00 Carbon-fibre nitrite micro-sensor for in situ biofilm monitoring Woo Hyoung Lee US 15:20 Novel microbial fuel cell–based biosensor for continuous measurement of BOD in wastewater How Yong Ng Singapore 15:40 Closing summary		Adsorption and ion exchange—removal of pollutants Chair Katsuki Kimura Japan 14:15 Introduction 14:20 Effect of a water matrix on adsorptive removal of heavy metals from groundwater Valentine Uwamariya Netherlands 14:40 Granulation of Fe-Al-Ce nano-adsorbent for fluoride removal from drinking water using an inorganic binder Ting-Jie Wang China 15:00 Simultaneous removal of arsenate and fluoride from groundwater by Al-Fe binary (hydr)oxides Xiaohong Guan China 15:20 Removal characterisation of 133Cs and 127I in a water treatment plant using a lab-scale experiment Hee Suk Lee Korea 15:40 Closing summary	
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1	
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan	

Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 14	09:15 – 10:45 Room 15
Desalination—forward osmosis process Chair Joon Ha Kim <i>Korea</i> 09:15 Introduction 09:20 Seawater desalination using the forward osmosis process How Yong Ng <i>Singapore</i> 09:40 Seawater desalination by forward osmosis: investigation of flux patterns and natural organic matter-related fouling Zhenyu Li <i>Saudi Arabia</i> 10:00 The fabrication of cellulose triacetate (CTA)-based membranes for forward osmosis applications Ong Rui Chin <i>Singapore</i> 10:20 Osmosis followed by filtration (OF) systems with osmotically active macromolecules and the effect of reflection coefficient and viscosity on the polyethylene glycol (PEG)/water separation Sarper Sarp <i>Korea</i> 10:40 Closing summary		FOST workshop: Frontiers in the identification and quantification of microorganisms Chair Per Halkjær Nielsen <i>Denmark</i> 09:15 Introduction 09:25 Fluorescence in situ hybridisation—FISH—identification, quantification and visualisation Per Halkjær Nielsen <i>Denmark</i> 09:45 FISH case study Satoshi Okabe <i>Japan</i> 10:10 Virus detection in drinking water by qPCR 10:35 Panel discussion
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 14	11:15 – 12:45 Room 15
Disinfection and disinfection by-products in wastewater treatment Chair Blanca Jiménez Cisneros <i>Mexico</i> 11:15 Introduction 11:20 Ozone disinfection: main parameters for process design in wastewater treatment and reuse Valentina Lazarova <i>France</i> 11:40 A review of the ultraviolet disinfection of wastewater for reuse Elliott Whitby <i>Canada</i> 12:00 UV disinfection of wastewater flocs: the effect of secondary treatment conditions Yaldah Azimi <i>Canada</i> 12:20 Implementation of a modified protocol for the validation of UV disinfection systems for wastewater applications Mike Newberry <i>UK</i> 12:40 Closing summary		FOST workshop: Frontiers in the identification and quantification of microorganisms Chair Per Halkjær Nielsen <i>Denmark</i> 11:15 16S Amplicon sequencing: an easy, quick and reliable method for identification and quantification? Aaron Saunders <i>Denmark</i> 11:40 Metagenomics—what it is and how to use it in water engineering Wen-Tso Liu <i>US</i> 12:10 Case study—metagenomes of the biological P-removal process Mads Albertsen <i>Denmark</i> 12:30 Panel discussion
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 14	14:15 – 15:45 Room 15
Advanced oxidation processes Chair Zdravka Do-Quang <i>France</i> 14:15 Introduction 14:20 Combination of H ₂ O ₂ /O ₃ and LP-UV for multiple-barrier organic micropollutant treatment Ton Knol <i>Netherlands</i> 14:40 Scale-up of UV AOP reactors from bench tests using CFD modelling Keith Bircher <i>Canada</i> 15:00 Degradation of contaminants of emerging concerns using the UV and UV/H ₂ O ₂ process: prediction model and kinetic study Minhwan Kwon <i>Korea</i> 15:20 Effect of MAR and pretreatment by AOP on the removal of organic micropollutants Ton Knol <i>Netherlands</i> 15:40 Closing summary		FOST workshop: Current status of groundwater planning and management Chair Shafick Adams <i>South Africa</i> 14:15 Groundwater management in South Africa Shafick Adams <i>South Africa</i> 14:35 European legislation and its implementation on selected river basins—Danube, Tisza, Sava Dusan Djuric <i>Serbia</i> 14:55 General remarks on groundwater management specifics Milan Dimkic <i>Serbia</i> 15:15 Panel discussion
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan



08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1
09:15 – 10:45	Room 16	09:15 – 10:45 Room 17
<p>Focus on Korea workshop: Highlights of Korea's effort to contribute to development activities</p> <p>Chair Changwon Kim Korea</p> <p>09:15 Introduction</p> <p>09:20 Looking back towards a sustainable future—water environment in the developing world Euiso Choi Korea</p> <p>09:35 Water and sanitation programs of the World Bank Jaehyang So World Bank</p> <p>09:50 Korean government efforts for aiding developing countries Seung-Joon Yoon Korea</p> <p>10:05 Panel discussion: Paul Reiter IWA, Carlos Rosito Brazil, Vasile Ciomos Romania</p> <p>10:20 Discussion</p> <p>12:40 Closing remarks</p>		<p>'Focus on Africa' Forum: cities of the future opportunities</p> <p>Chair Ger Bergkamp IWA</p> <p>Africa's rapid urbanisation will result in new water-management challenges for its cities. How is best to address these challenges and what are innovative ways to address water management in urban areas in Africa? This workshop will highlight some of the recent work coming from the cooperation between the World Bank, IWA, University of South Florida and African partners.</p> <p>09:20 Integrated urban water management in Africa Kala Vairamoothy US</p> <p>10:00 Panel discussion: Julia Bucknall World Bank, Peter Macy South Africa, Sylvain Usher Cote d'Ivoire, Silver Mugisha Uganda, Kala Vairamoothy US</p> <p>10:40 Closing remarks</p>
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 16	11:15 – 12:45 Room 17
<p>Focus on Korea workshop: Large-scale and rapidly implemented sewage rehabilitation in Korea</p> <p>Chair Kim Si Hyeon Korea</p> <p>11:15 Opening remarks</p> <p>11:20 London's Thames Tideway Tunnel David Butler UK</p> <p>11:35 Government-directed sewer projects in China—past, present and future Guan Yuntao China</p> <p>11:50 Asset management of sewers in Japan Takao Murakami Japan</p> <p>12:05 A mega-scale sewerage rehabilitation project in Korea Cho Ig Hyun Korea</p> <p>12:20 Panel discussion: Speakers plus Park Kyoo Hong Korea, Kim Si Hyeon Korea</p> <p>12:40 Closing remarks</p>		<p>'Focus on Africa' Forum: a breakthrough in urban sanitation</p> <p>Chair Sarah Tibatemwa Uganda</p> <p>As Africa is urbanising, the existing challenges around sanitation, including treatment of wastewater, are rapidly escalating. Yet, new and innovative ways of dealing with sanitation in decentralised manners and recovering resources from waste streams are emerging. Can these new approaches be multiplied and upscaled throughout Africa and beyond?</p> <p>11:20 Experiences of innovative sanitation in South Africa Neil Mcleod South Africa</p> <p>11:40 Panel discussion: Guenther Langergraber Austria, Phillip Gichuki Kenya, Jay Bhagwan South Africa, Levi Zulu Zambia, Neil Mcleod South Africa</p> <p>12:40 Closing remarks</p>
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 16	14:15 – 15:45 Room 17
<p>Focus on Korea workshop: Membrane technology for water and wastewater treatment</p> <p>Chair Eun Namkung Korea, Co-chair Sangho Lee Korea</p> <p>14:15 Opening remarks Eun Namkung Korea</p> <p>14:20 Current status and issues of MF/UF membrane technology Takashi Ogawa Japan</p> <p>14:40 Future of membrane technology Byeong Gweon Yun Korea, Roger Ben Aim France</p> <p>15:05 Towards groundbreaking technology Sangho Lee Korea</p> <p>15:15 Panel discussion: Speakers plus Soryong Chae Australia, Taesik Moon Korea</p> <p>15:30 Open discussion</p> <p>15:40 Closing remarks</p>		<p>'Focus on Africa' Forum: the water–energy nexus</p> <p>Chair Hamanth Kasan South Africa</p> <p>For African utilities, large parts of their operating budget is used on purchasing energy. The rising energy bill provides an opportunity to invest in energy efficiency and in producing energy from wastewater. What are the opportunities for the African water sector to adopt new energy-saving and energy-producing technologies to reduce energy consumption?</p> <p>14:20 Management of the water–energy nexus in Uganda Alex Grisagara Uganda</p> <p>14:40 Panel discussion: Mamadou Dia Senegal, Claude Jamati France, Julia Bucknall World Bank</p> <p>15:40 Closing remarks</p>
15:45 – 16:15 Afternoon break		Exhibition
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1
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Wednesday technical programme

08:15 – 09:00 Impediments to achieving improved sustainability in the urban water sector include existing institutional structures Paul Greenfield <i>Australia</i>		Room 1	
Industry forum	IF stage A	Industry forum	IF stage B
10:00 – 10:45 SUEZ ENVIRONNEMENT Smart-water metering solutions for efficient cities This session will demonstrate, through real cases from SUEZ ENVIRONNEMENT's experience all over the world, how smart-metering solutions can be used for enabling new relationships and better awareness between utilities, municipalities and water consumers. The criticality of the technical choices, their cost-effectiveness and their inter-operability with other utilities, such as gas, will be addressed.		10:00 – 10:45 Japan Water Works Association (JWWA) Pioneering global water solutions—Japanese developments, public sector best practice, private sector solutions (part 1) The Japan pavilion consists of some ten co-exhibitors, who will give you opportunities to share your best practice and innovative solutions from either public or private sector. In particular, PPP policies, NRW improvement practices, and energy efficiency operations will be shared.	
11:15 – 12:00 Miya Challenges and solutions for non-revenue water reduction (part 1) In the first part of this workshop, participants will be given a platform to discuss their NRW challenges and will be introduced to the concept of 'Rapid NRW Assessment'.		11:15 – 12:00 Japan Water Works Association (JWWA) Pioneering global water solutions—Japanese developments, public sector best practice, private sector solutions (part 2) The Japan pavilion consists of some ten co-exhibitors, who will give you opportunities to share your best practice and innovative solutions from either public or private sector. In particular, PPP policies, NRW improvement practices, and energy efficiency operations will be shared.	
12:00 – 12:45 Miya Challenges and solutions for non-revenue water reduction (part 2) The second part of the workshop will cover the components of a successful NRW management strategy and will be illustrated by examples from projects from around the world.		12:00 – 12:45 Oslo Water and Sewerage Works Adjusting to climate change and population growth—addressing water challenges in Norway using tunnels and mythological creatures (part 1) This session will address how the design, project management, operation and maintenance of storm and wastewater infrastructure must be adaptable to climate change and population growth. Using examples from Norway, the panel will present highlights of modern Norwegian innovations in stormwater management and wastewater treatment.	
Join the conversation Twitter: @iwa2012busan #iwa2012busan LinkedIn: IWA World Water Congress Exhibition Facebook: www.facebook.com/iwa2012busan		13:15 – 14:00 Oslo Water and Sewerage Works Adjusting to climate change and population growth—addressing water challenges in Norway using tunnels and mythological creatures (part 2) This session will address challenges to the management and supply of water supply in a cold climate. This session will end with a 17-minute film about where tap water comes from, how it is treated and made safe to drink.	
14:15 – 15:00 GS E&C New trends in large-scale membrane water treatment (part 1) The first half of this forum features: <ul style="list-style-type: none"> Design, construction and operation of smart-water systems as a total water supply solution Park Sung Hyuk Advanced intelligent water-distribution systems Park Sung Hyuk Wastewater treatment sludge reduction using lysozyme-producing mesophilic bacteria Kim Hyo Sang Economical SWRO operation with optimised cleaning frequencies and reduction of pump power consumption and cleaning-chemical amounts Park Yong Gyun 		14:15 – 15:00 CSM Woongjin Chemical Chemical-resistance membrane materials for water purification Presented by Hyun Chul Hur and Hyun-Woong Lee This session will focus on state of art of high performance membrane materials.	
15:00 – 15:45 GS E&C New trends in large-scale membrane water treatment (part 2) Presented by Antonio Ordóñez Fernandez In the second half, Antonio Ordóñez Fernandez will talk about how to apply a FO/RO hybrid system to a large scale (100,000 m3/day) desalination plant. Seawater desalination using reverse osmosis requires high pressure for filtering, and it consumes a lot of energy compared to conventional technologies for the treatment of fresh water.		15:00 – 15:45 Empresa Portuguesa das Águas Livres, Lisbon, Portugal AQUAMatrix®—creating, applying and marketing technologies to improve customer management in water and wastewater utilities Presented by Luis Branco AQUAMatrix® is a flexible and fully integrated billing and customer information system, supporting all commercial activity and providing necessary business information. It also interfaces with other information systems supporting operational functions related to customers, namely GIS or ERP.	
16:15 – 17:00 Emerson Process Management Wireless analytical solutions for the water industry There is stranded diagnostics information from analysers in the water industry. By unlocking stranded variable information using wireless technology, water utilities can reduce their operation expenses as well as enhancing environmental compliance. The presentation will touch on some case studies.		16:15 – 17:00 Poltank Water treatment challenges for GRP products Presented by Toni Prats There's a trend to change steel products into composite to avoid corrosion. Composite makes it possible to redesign these products. It offers greater chemical and mechanical resistance, has lower maintenance costs and minimises environmental impact. Research and development on these new, sustainable composite materials and suitable manufacturing processes are crucial to cover new engineering challenges.	
16:15 – 17:00 New language, new thinking, new possibilities Linda Macpherson <i>US</i>		Room 1	
19:00 Project Innovation Awards ceremony and dinner		Paradise Hotel Busan	

Thursday



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Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

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COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

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Keynote speakers



Sunday 16:30
Yoo Young Sook
Minister for the Environment
Korea



Monday 11:30
Jaehyang So
World Bank



Monday 11:00
Yong Soo-Gil
Presidential Committee on
Green Growth
Korea



Monday 17:15
Pavel Kabat
International Institute for Applied
Systems Analysis (IIASA)
Austria

Tuesday 08:15
**Water industry
leaders panel**
• Suez Environnement
• Doosan
• Samsung Engineering
• Xylem
• and others



Tuesday 16:15
Staffan Kjelleberg
Singapore Centre on
Environmental Life Sciences
Engineering, Centre for Marine
Bio-Innovation University of NSW
Singapore and Australia



Wednesday 08:15
Paul Greenfield
Australian Nuclear Science
& Technology Organisation,
International WaterCentre
Australia



Wednesday 16:15
Linda Macpherson
CH2M HILL
United States



Thursday 08:15
Wim van Vierssen
KWR Waterycycle Research
Institute
Netherlands



Thursday 16:00
Hansruedi Siegrist
Swiss Federal Inst. of Aquatic,
Science and Technology
Switzerland



Thursday 16:00
Shane A. Snyder
University of Arizona
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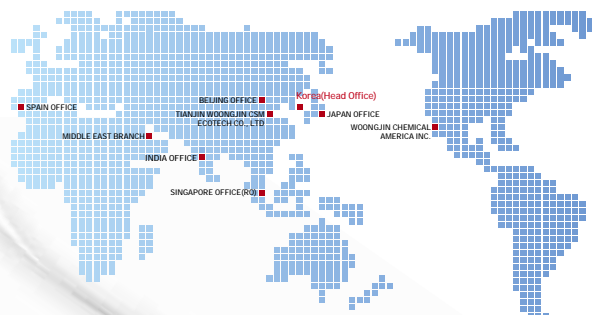
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Thursday technical programme

08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands	Room 1
Keynote speakers Collaboration in the water sector—do we need a Higgs particle?  Wim van Vierssen CEO KWR Watercycle Research Institute Netherlands Professor Wim van Vierssen, who began his career in water management, is CEO of KWR Watercycle Research Institute and a professor at the Delft University of Technology. He has developed major national research initiatives, is a former board member of the World Water Council and the PEER group. He chairs the Netherlands' Climate Changes Spatial Planning program.	09:15 – 10:45 Room 1 Climate change and drought risk management Chair Ray Earle Ireland 09:15 Introduction 09:20 Water footprint assessment for the Red River Delta in Vietnam and recommendations to adapt climate change AV Nguyen Vietnam 09:40 Climate change and seawater intrusion—impacts on water supply in the Netherlands Gertjan Zwolsman Netherlands 10:00 More food from less fresh water using an innovative aquaculture system Gippeum Bak Korea 10:20 Evaluation of the greenhouse gas emission potential of a eutrophic lake Selim Sanin Turkey 10:40 Closing summary
Harremoes lecture: Trace organic contaminants, an international perspective on an emerging issue  Hansreudi Siegrist Swiss Federal Institute of Aquatic, Science and Technology Switzerland Hansreudi Siegrist has had a successful career in environmental engineering, urban hydraulics and advanced wastewater. His specialty is in aerobic and anaerobic wastewater; sludge and sludge liquid treatment; and processes and technologies to improve water, nutrients and energy reuse. He has sat on many water research committees and task groups, and implemented pilot- and full-scale applications.	10:45 – 11:15 Morning break Exhibition 11:15 – 12:45 Room 1 SWC workshop: Rainwater harvesting as a key element of supply and drainage Chair Mooyoung Han Korea 11:15 Rainwater and stormwater harvesting technologies for green growth in Korea Reeho Kim Korea 11:30 Integrated tools to quantify multiple benefits of rainwater harvesting Dwayne Myers Singapore and Enrique Lopez Calva US 11:45 Urban water cycle management master plan using an index of water cycle soundness Hyunju Park Korea, Mooyoung Han Korea 12:00 Attenuation of climate change effects with combined rainwater harvesting and management Harald Sommer Germany and Kyounggho Kwon Korea 12:15 An island rainwater demonstration project to attain 100 per cent self-sufficiency of water supply by rainwater harvesting Yongwoo Kim , Wooryang Park , Hyunju Park , Mooyoung Han Korea 12:30 Discussion
 Shane A. Snyder University of Arizona United States Dr Shane A. Snyder is a professor at the University of Arizona and is the co-director of the Arizona Laboratory for Emerging Contaminants. For over 15 years, Dr Snyder's research has focused on the identification, fate, and health relevance of emerging water pollutants. At the National University of Singapore he also leads research on water reuse technologies and implications for public health.	12:45 – 14:15 Lunch Exhibition 14:15 – 15:45 Room 1 SWC workshop: Rainwater harvesting as a key element of supply and drainage 14:15 Solving water problems in arid areas using the ancient wisdom of Qanat Mohsen Taghavi Iran 14:30 Rainwater harvesting facilities at the Goseong Dinosaur Expo site of South Korea as a practical water supply and ideal promotion Hakryul Lee , Kyounggho Kwon , Hyunju Park , Mooyoung Han Korea 14:45 Water quality in rainwater tanks in urban and rural areas in New South Wales, compared with the rest of Australia and Thailand Saravanamuth Vigneswaran Australia 15:00 Rainwater harvesting as an essential water-supply option to overcome disasters, with video films taken at disaster areas Hwang Seong Yeon Korea 15:15 Korean wisdom of rainwater management for climate change adaptation and its application to adapt to current water crises Mooyoung Han Korea 15:30 Discussion
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudi Siegrist Switzerland & Shane Snyder US	Room 1
19:00 Gala dinner	Floor 3 BEXCO Exhibition Center 2

Thursday technical programme

08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands		Room 1	
09:15 – 10:45	Room 2	09:15 – 10:45	Room 3
Workshop: Research and development status for water treatment as a green convergence technology Chair Dongil Jung Korea and Seokheon Lee Korea 09:15 Opening remarks Dongil Jung Korea and Seokheon Lee Korea 09:20 R&D status for water treatment technology and its prospects in Korea—past, present and future Jaeseok Kim Korea 09:35 Convergence trends in water treatment technology 09:50 Environmental technology as a green convergence technology and its prospective Jaesang Lee Korea 10:05 Panel discussion: Seung-Hyun Kim Korea, Ick Tae Yeom Korea, Sang Ho Lee Korea 10:30 Open discussion 10:40 Closing remarks		Granular sludge Chair Jürg Keller Australia 09:15 Introduction 09:20 Simultaneous nitrogen and phosphorus removal in aerobic granular sludge reactors operated at different temperatures Joao Bassin Brazil 09:40 Granulation of biological flocs under elevated pressure—characteristics of granules Jie-Yuan Chen Chinese Taiwan 10:00 Aerobic granular sludge—fractal dimension and microbial characterisation Norhayati Abdullah Malaysia 10:20 Development of nitrifying granular sludge for treating a phosphorus-deficient urine–seawater mixture Hamish Mackey Hong Kong, China 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 2	11:15 – 12:45	Room 3
Workshop: Directions of national research and development programs for water and wastewater technologies Chair Zuwhan Yun Korea 11:15 Opening remarks 11:20 Directions of national research and development programs for water and wastewater technologies in Japan Hiroaki Furumai Japan 11:35 Directions of national research and development programs for water and wastewater technologies in Korea In Kim Korea 11:50 Directions of national research and development programs for water and wastewater technologies in China Min Yang China 12:05 Panel discussion: Hirokai Tanaka Japan, Xiaochang Wang China, Sungil Choi Korea 12:20 Open discussion 12:40 Closing remarks		Activated sludge population dynamics Chair Yeshi Cao Singapore 11:15 Introduction 11:20 The microbial database for Danish wastewater treatment plants with nutrient removal—a tool for understanding activated sludge population dynamics and community stability Artur Tomasz Mielczarek Denmark 11:40 Wastewater bacterial community shifts in response to different microalgal populations Joonhong Park Korea 12:00 Characterisation of the microbial community of moving-bed biofilm reactors operated under different COD/N ratios Joao Bassin Brazil 12:20 Comparison of nutrient-removing microbial communities in activated sludge from full-scale MBRs and conventional plants Aaron Marc Saunders Denmark 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 2	14:15 – 15:45	Room 3
Workshop: The importance of international partnering for global water cycle research critical to our future Chairs David Garman US, Marielle van der Zouwen Netherlands People assume innovation networks require close collaboration between science, policy and industry—often a challenging undertaking in practice. In spite of many barriers, there are aspiring networks around the globe that successfully develop innovative knowledge and tackle contemporary water challenges. This workshop aims to identify both enabling and constraining factors to the success of these networks and to the innovation processes that they seek to accelerate. 14:15 Introduction David Garman US 14:25 Partnering, networks and innovation Wim van Vierssen Netherlands 14:45 Panel participants: Speaker, regional and global research coalition leaders represented in Busan, IWA Innovation Program Steering Group members 15:15 Audience discussion 15:40 Closing remarks		Alternative sanitation options Chair Marcos von Sperling Brazil 14:15 Introduction 14:20 A rock filter system as a decentralised wastewater treatment system Euiso Choi Korea 14:40 Evaluation of the potential of a multimedia filter for treatment of greywater generated in an urban slum area using uPVC columns Alex Katukiza Netherlands 15:00 Design of human composting latrines for robust solar disinfection, including inactivation of <i>Ascaris lumbricoides</i> Craig Adams US 15:20 Biological sulphate reduction in an innovative sanitation concept for treatment of saline blackwater Tessa van den Brand Netherlands 15:40 Closing summary	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudi Siegrist Switzerland & Shane Snyder US		Room 1	
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2	



08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands		Room 1	
09:15 – 10:45	Room 4	09:15 – 10:45	Room 5
Membrane systems for wastewater treatment and reuse—optimisation Chair Valentina Lazarova France 09:15 Introduction 09:20 Energy optimisation in membrane bioreactors Samuel Martin Ruel France 09:40 A new concept for a completely underground MBR plant in urban area—Suyeong, world's largest underground MBR plant in Busan Jongsok Choi Korea 10:00 Singapore's Jurong WRP membrane bioreactor facility—industrial and retrofit challenges Yien Phin Liew US 10:20 Effects of rapid coagulation and sedimentation on phosphorous removal in a full-scale MBR Hyougn Gun Kim Korea 10:40 Closing summary		Industrial wastewater treatment Chair Val Frenkel US 09:15 Introduction 09:20 Biological treatment of pharmaceutical wastewater from the antibiotics industry Olivier Lefebvre Singapore 09:40 Start-up of a granular sludge sequencing batch reactor for the treatment of 2,4-dichlorophenol-contaminated wastewater Stefano Milia Italy 10:00 Treatment of tapioca starch wastewater by a novel combination of physical and biological processes Joachim Fetting Germany 10:20 Industrial flue-gas desulphurisation waste may offer an opportunity to facilitate SANIA application for significant sludge minimisation in freshwater and wastewater treatment Qian Jin Hong Kong, China 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 4	11:15 – 12:45	Room 5
Membrane systems for wastewater treatment and reuse—control of fouling Chair Chung-Hak Lee Korea 11:15 Introduction 11:20 Membrane fouling caused by sub-micron particles in a mixed liquor suspension of an MBR Katsuki Kimura Japan 11:40 Physical aspects of GAC fluidisation on membrane fouling in an anaerobic fluidised membrane bioreactor Jeonghwan Kim Korea 12:00 Role of MBR supernatant fractions in membrane fouling evolution Kang Xiao China 12:20 The correlation of membrane fouling with polymeric foulants in MBR Necati Kayaalp Turkey 12:40 Closing summary		Industrial wastewater treatment—dyes Chair Darren Sun Singapore 11:15 Introduction 11:20 Enhanced degradation of azo dyes in a combined process of iron-carbon micro-electrolysis and aerobic bio-contact oxidation Aijie Wang China 11:40 Effect of different electron acceptors on anaerobic azo dye biodegradation: oxygen Kevser Cirik Turkey 12:00 Treatment of textile wastewaters using eutectic freeze crystallisation Dyllon Randall South Africa 12:20 Removal of reactive orange 16 by <i>F. Trogl</i> 200800 on fly ash chitosan composite media Yen-Hui Lin Chinese Taiwan 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 4	14:15 – 15:45	Room 5
Microbial fuel cells Chair Changwon Kim Korea 14:15 Introduction 14:20 A large-volume, submergible, microbial fuel cell with pseudo-membrane electrode assemblies for practical application Minsoo Kim Korea 14:40 Sulphonated poly(ether ether ketone) (SPEEK)-based composite proton-exchange membrane reinforced with nanofibers for microbial electrolysis cells Kyu-Jung Chae Korea 15:00 Factors affecting microbial fuel-cell acclimation and operation in temperate climates Iain Michie UK 15:20 Operation of a bioelectrochemical system on the effluent of a two-stage anaerobic process for additional energy recovery Jung Rae Kim UK 15:40 Closing summary		Industrial wastewater treatment—metal recovery processes Chair Darren Sun Singapore 14:15 Introduction 14:20 Recovery of chromium from electroplating solutions by cetyltrimethylammonium bromide MEUF and electrodialysis Wen-Shing Chang Chinese Taiwan 14:40 Recovery of palladium from palladium-ion wastewater using a microbial fuel cell Chansoo Choi Korea 15:00 Rhodium recovery from simulated platinum-group metals refinery wastewater using sorption Henry Roman South Africa 15:20 Combined wastewater treatment and recovery of copper from ash leachate Oskar Modin Sweden 15:40 Closing summary	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudl Siegrist Switzerland & Shane Snyder US		Room 1	
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2	

Thursday technical programme

08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands		Room 1	
09:15 – 10:45	Room 6	09:15 – 10:45	Room 7
Impacts on water resources management Chair Mark Beuhler US 09:15 Introduction 09:20 How human diet effects water and resources Simon Thaler Austria 10:00 The importance of accident control on water quality in the Netherlands Arthur Meuleman Netherlands 10:00 Thermodynamic analysis for the impact assessment of organics discharge from secondary effluent on the water environment Li Luo China 10:20 Modelling of the role of rice paddy fields and their implication in water management Hyunju Park Korea 10:40 Closing summary		SWC workshop: Saline and brackish water as alternative water, energy and material resources for the future of coastal cities—the case of Hong Kong Chair Mark van Loosdrecht Netherlands 09:15 Developments in the use of seawater as an alternative resources Mark van Loosdrecht Netherlands 09:20 The SANI process and Seawater-based Urine Phosphorus Recovery (SUPR) system Guang Hao Chen Hong Kong, China 09:40 The Triple Water Supply (TWS) System and integration of TWS, SANI and SUPR Samuel Chui Hong Kong, China 09:55 Hydrolysis kinetics of wastewater biodegradable organics under anaerobic conditions George Ekama South Africa 10:10 The potential for worldwide applications and developments undertaken by UNESCO Damir Brdjanovic Netherlands 10:25 Floor discussion	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 6	11:15 – 12:45	Room 7
Monitoring and modelling reservoirs and river basins Chair Dongil Seo Korea 11:15 Introduction 11:20 Remote sensing of cyanobacteria in Lake Champlain, USA Mi-Hyun Park US 11:40 Parameter estimation for eutrophication models in reservoirs José Luís da Silva Pinho Portugal 12:00 Modelling of overland flow using areally averaged, local-scale inter-rill and rill flow equations Gijung Pak Korea 12:20 Contribution of point and nonpoint source phosphorus and nitrogen loads in a mixed land-use watershed Jihee Son US 12:40 Closing summary		Workshop: Synergising water and food through aquaculture Chair In Kwon Jang Korea 11:15 Opening remarks 11:20 Basic principles, processes and balances of aquaculture technology Yoram Avnimelech Israel 11:35 Use of biofloc-dominated, indoor, super-intensive shrimp production systems Tzachi Samocha US 11:50 Development of an inland recirculating aquaculture system using a microbubble Tschungil Kim Korea 12:05 Biofloc technology in intensive shrimp farms in south-east Asian countries Nyan Taw Malaysia 12:20 More food from less water using submicron bubble technology in aquaculture Mooyoung Han Korea 12:40 Closing remarks	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 6	14:15 – 15:45	Room 7
Water resources management on watershed scales Chair Bruce Beck US 14:15 Introduction 14:20 Conditional simulation to represent rainfall uncertainty: an example in South Korea Etienne Leblois France 14:40 Perspective and challenges for desalination in developing countries: where, when and how should desalination be implemented? Sergio G Salinas Rodriguez Netherlands 15:00 Developing ecosystem-specific water quality guidelines for suspended particulate matter: evidence from UK environment agency monitoring Gary Bilotta UK 15:20 Integrated watershed management efforts: a case study from Melen watershed experiencing interbasin water transfer Izzet Ozturk Turkey 15:40 Closing summary		Workshop: Mineral balance of drinking water Chair Colin Hayes UK 14:15 Research review of the mineral balance of drinking water Ingegerd Rosborg Sweden 14:30 WHO view on calcium and magnesium in drinking water Jennifer de France WHO 14:45 Use of reverse osmosis in the supply of drinking water In Kim Korea 15:00 Water reuse and post-treatment needs Avner Adin Israel 15:15 Panel discussion to gauge interest from contributors in a proposed publication on the mineral balance of drinking water, and to establish a research consortium (in the form of a task group) for undertaking a global study of health and the mineral balance of drinking water. 15:40 Closing remarks	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudi Siegrist Switzerland & Shane Snyder US		Room 1	
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2	



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09:15 – 10:45	Room 8	09:15 – 10:45 Room 9
Workshop: Uncertainty in wastewater treatment design and operation: addressing current practices and future directions Chair Peter Vanrolleghem Canada and Sudhir Murthy US 09:15 Introducing the DOUT initiative—the need for uncertainty analysis Peter Vanrolleghem Canada 09:30 Current practice—uncertainty in current engineering practice Sudhir Murthy US 09:45 Incorporating uncertainty in model-based design—what can we do now? Identifying key sources of uncertainty in typical project phases Leiv Rieger Canada 10:00 Quantifying key sources of uncertainty at the influent generator Charles Bott US 10:15 Panel discussion 10:35 Summary and future directions Peter Vanrolleghem Canada		SNC workshop: Creating operationally smart networks—today and in the future. IWA and networks—a strategy for the future Chair Jo Parker UK 09:15 Opening remarks Paul Reiter IWA 09:25 Smart, multipurpose and flexible by design Kala Vairavamoorthy US 09:30 Optimising networks, information and control Guy Horowitz Israel 09:35 Achieving optimised non-revenue water conditions in networks Tim Waldron Australia 09:40 The smart water and energy nexus: a smart approach for cities of the future Heechul Choi Korea 09:45 Breakout discussion—the Busan consensus on a vision and pathway for the IWA Smart Network Cluster 10:15 Report back 10:35 Consensus position and agreement on the way forward
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 8	11:15 – 12:45 Room 9
FOST workshop: New molecular tools in action in water engineering Chair Joan Rose US 11:15 Short introduction to The Bio-Cluster Per Nielsen Denmark 11:30 Who's who and who does what in wastewater treatment? Per Nielsen Denmark 12:00 Interactions between denitrifying anaerobic methane oxidation and anammox processes Zhiguo Yuan Australia 12:30 Discussion 12:40 Closing remarks		SNC workshop: Optimising data quality management in water networks Chair Alejandro Vargas Mexico 11:15 Welcome and introduction Alejandro Vargas Mexico 11:20 Smart-water grid opportunities for ICA Gustaf Olsson Sweden 11:35 iTUWmon—a monitoring network platform for automated data plausibility assessment and data integration Andreas Winkelbauer Austria, Stefan Winkler Austria 11:50 Monitoring for integrated urban water system modelling—experiences from the Kallisto project Ingmar Nopens Belgium 12:05 Open discussion 12:40 Closing remarks
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 8	14:15 – 15:45 Room 9
FOST workshop: New molecular tools in action in water engineering Chair Joan Rose US 14:15 Dead or not-so-dead bacteria and their health relevance Joan Rose US 14:45 Imposing ecological stratification on microbial biofilms Barth Smets Denmark 15:15 Microbial ecology of biofuel cells Satoshi Okabe Japan 15:30 Discussion 15:40 Closing remarks		SNC workshop: Optimising data quality management in water networks Chair Alejandro Vargas Mexico 14:15 Sensor localisation, sensor technologies and sensor data validation in urban drainage systems Dirk Muschalla Austria and Martin Pleau Canada 14:30 Advanced data management for wastewater treatment plants Eduardo Ayessa Spain 14:45 Automatic data quality assessment: practical application using in situ measurement stations for river water quality monitoring Peter Vanrolleghem Canada 15:00 Online sensors in practice—pitfalls and solutions Leiv Rieger Canada and Jean Philippe Steyer France 15:05 Open discussion 15:40 Closing remarks
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudt Siegrist Switzerland & Shane Snyder US		Room 1
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08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands		Room 1	
09:15 – 10:45	Room 10	09:15 – 10:45	Room 11
FOST workshop: Drugs, drugs of abuse and their transformation products in the water cycle Chair Pim de Voogt Netherlands Prescription drugs and drugs of abuse are new emerging contaminants in the water cycle. The workshop focuses on their occurrence, their transformation products and the health relevance of their presence in water. It also covers the use of prescription data and transformation biomarkers for estimating surface water concentrations, as well as consumption data. 09:15 Identification and health relevance of pharmaceuticals in water Shane Snyder US 09:45 Presence and risks of pharmaceuticals and their transformation products in surface waters and drinking water Annemarie van Wezel Netherlands 10:15 Panel discussion: Relevance of drugs and drugs of abuse for drinking water quality		Asset maintenance and management Chair Enrique Cabrera Spain 09:15 Introduction 09:20 A utility-tailored methodology for integrated asset management of urban water infrastructure Helena Alegre Portugal 09:40 Application of a time-dependent covariate model to predict water-pipe failures in the Bordeaux area Karim Claudio France 10:00 Assessing water infrastructure vulnerabilities and risks in South Africa Jay Bhagwan South Africa 10:20 Evaluation of an intrusive technology to diagnose buried pipelines Philippe Breant France 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 10	11:15 – 12:45	Room 11
FOST workshop: Drugs, drugs of abuse and their transformation products in the water cycle Chair Annemarie van Wezel Netherlands 11:15 Estimation of illicit drug use by analysis of sewage waters—methodologies and uncertainties Alexander van Nuijs Belgium 11:45 Comparing illicit drug use in 19 European cities through sewage analysis Kevin Thomas Norway 12:15 Panel discussion: Relevance of drugs and drugs of abuse for drinking water quality 12:40 Closing remarks		Strategic asset management and long-term planning Chair Helena Alegre Portugal 11:15 Introduction 11:20 Sustainability demystified Peta Maddy Australia 11:40 Quantitative risk analysis for long-lived water assets Ben Ward UK 12:00 Application of asset management principles in prioritising capital investments for water and wastewater utilities Thor Young US 12:20 From ecological sustainability in the 20th Century to complete sustainable planning of water resources in the next century Rian Kloosterman Netherlands 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 10	14:15 – 15:45	Room 11
FOST workshop: Micropollutants and emerging contaminants—how can we manage this challenge? Chair Maria Fürhacker Austria 14:15 Introduction: new challenges in evaluations of emerging contaminants (EC) Maria Fürhacker Austria 14:25 New developments in EC assessment Frans Schulting Netherlands 14:35 The German approach of simple and quick evaluation based on the TTC concept; and genotox, neurotox and immunotox measurements Alexander Eckhardt Germany 14:45 QMRA frameworks and new molecular tools Joan Rose US 14:55 How can monitoring and modelling support? Peter Vanrolleghem Canada 15:05 Panel discussion 15:40 Closing remarks		Strategic asset management and long-term planning Chair Helena Alegre Portugal 14:15 Introduction 14:20 Shared failure data for strategic asset management Jan Vreeburg Netherlands 14:40 Assessment of the importance of input variables on yield of urban water supply systems—using the Morris method of sensitivity analysis Chris Perera Australia 15:00 Sustainable management of groundwater abstraction infrastructure at the Flemish Water Supply Company (VMW) in Belgium Nico Vanhove Belgium 15:20 Replacement of pump stations with VSD in water networks instead of elevated tanks Vali Agha Aghabeygi Republic of Iran 15:40 Closing summary	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudi Siegrist Switzerland & Shane Snyder US		Room 1	
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09:15 – 10:45	Room 12	09:15 – 10:45	Room 13
Improving the energy efficiency of drinking water supply Chair Rolf Gimbel Germany 09:15 Introduction 09:20 Adapting to climate change by using low-energy, fit-for-purpose water recycling systems Chris Hertle Australia 09:40 Tying greenhouse gas emission reductions to water efficiency: a model for analysing and tracking water utility conservation benefits Mary Ann Dickinson US 10:00 A strategy for efficient water supply systems Kyoji Iwasaki Japan 10:20 Energy without borders: photovoltaic-powered water supply on the high plateau in Cameroon Steven Dentel US 10:40 Closing summary		Workshop: Ecobusiness parks developing effective regulatory regimes Chair Brian D'Arcy UK Co-chair/s Peter Steen Mikkelsen Denmark, Marla Maniquiz Korea 09:15 Managing priority pollutants Peter Steen Mikkelsen Denmark 09:35 Planning and design for the ecobusiness parks of Sejong City, Korea Lee Hyung Kim Korea and Marla Maniquiz Korea 09:55 Comparison of SUDS regulatory regimes within the UK—why the differences? Brian D'Arcy UK 10:15 Discussion 10:30 Summary 10:40 Closing remarks	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 12	11:15 – 12:45	Room 13
Workshop: Human-resource capacity gaps and how to close them. Overcoming the human-resource capacity gaps in the WASH sector Chair Tom Williams IWA 11:15 Global review of capacity-building in water and sanitation for developing countries Themba Gumbo South Africa 11:30 Methodological framework for national human-resource capacity assessments Kirsten de Vette Netherlands 11:35 Human-resource requirements—results of assessments in four Asian countries Regina Souter Australia 11:50 Capacity development of municipal and water utility staff members in Bosnia—Herzegovina Igor Palandzic Bosnia 12:05 Panel discussion 12:40 Closing remarks		Workshop: Urban sanitation initiative—effective demonstration cities Chair Neil McCloed South Africa 11:15 Introductory remarks from the Chair 11:20 Implementing decentralised wastewater management systems at scale Gert Kreutze Germany 11:35 Panel discussion Bjørn Aas Norway Jay Baghwan Africa Peter Cornel Germany Gert Kreutzer Germany Jacques Labre France 12:05 Questions and discussion involving workshop participants 12:35 Rapporteurs' observations Jonathan Parkinson UK 12:40 Closing remarks from the Chair	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 12	14:15 – 15:45	Room 13
Workshop: AquaRating—an innovative system for assessing utility practice and performance Chair Tom Williams IWA 14:15 Introduction: scene-setting and rationale for the rating system Paul Reiter IWA 14:25 Overview of AquaRating system: Francisco Cubillo Spain and Enrique Cabrera Jr. Spain 14:45 AquaRating products entity and strategy Matthias Krause IDB 15:00 Moderated discussion with panel and audience: Alexander Danilenko World Bank, Andréa Ferreira Brazil, Vasile Ciomos Romania 15:40 Closing remarks		Workshop: Urban sanitation initiative—integrated sanitation planning and implementation Chair Jaehyang So World Bank 14:15 Opening remarks 14:20 Application of a city-wide framework for sanitation planning and monitoring of implementation effectiveness Meera Mehta India 14:35 Panel discussion: Philip Gichuki Kenya, Pierre Flamand Japan, Meera Mehta India, Bruno Tisserand France, Petrus Du Pisani Namibia 15:05 Questions and discussion involving workshop participants 15:35 Rapporteurs' observations Jonathan Parkinson IWA 15:40 Closing remarks	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudl Siegrist Switzerland & Shane Snyder US		Room 1	
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09:15 – 10:45	Room 14	09:15 – 10:45	Room 15
Photocatalysis in drinking water treatment Chair Jonathan Clement Netherlands 09:15 Introduction 09:20 Photodesorption of specific organic compounds from titanium dioxide in aqueous media Ho Kyong Shon Australia 09:40 TiO ₂ -mediated photocatalytic degradation of 1,4-dioxane with coagulants in drinking water treatment Kwang-Ho Choo Korea 10:00 Silica-modified TiO ₂ nanomaterials for photocatalytic virus inactivation in drinking water Qilin Li US 10:20 Development of a visible-light photocatalytic membrane material Gerald Heinicke Denmark 10:40 Closing summary		Improvement of conventional water treatment technologies—clarification Chair Aik Num Puah Singapore 09:15 Introduction 09:20 Computational simulation of flocculent sedimentation based on experimental results Nomcebo Sithebe South Africa 09:40 Chemical feed control using coagulation computer models and a streaming current detector Alex Yavich US 10:00 Evaluating the influence of outlet configuration on short-circuit effects in a mechanical flocculator using pilot-scale testing Marcelo Libanio Brazil 10:20 Dissolved air flotation drinking water treatment as an emerging technology in Sri Lanka Ian Dunn Australia 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45	Room 14	11:15 – 12:45	Room 15
Oxidation and advanced oxidation processes—catalytic oxidation Chair Hervé Suty France 11:15 Introduction 11:20 Transformation of bromine species in catalytic ozonation process over MnO _x /Al ₂ O ₃ Yulun Nie China 11:40 Catalytic process design for wastewater treatment: catalytic ozonation of organic pollutants Salim Derrouiche France 12:00 Kinetics of aqueous degradation of bisphenol A by permanganate and enhancements of coexisting chemicals Jing Zhang China 12:20 A synthesised, heterogeneous fenton-like goethite (FeOOH) catalyst for degradation of p-chloronitrobenzene Jimin Shen China 12:40 Closing summary		Improvement of conventional water treatment technologies—organic matter removal Chair Sudhir Murthy US 11:15 Introduction 11:20 Molecular-weight distribution of dissolved organic matter at several stages of a drinking water treatment plant Xavier Bernat Spain 11:40 Modelling the water treatment efficiency of emerging contaminants by QSARs Dirk Vries Netherlands 12:00 Occurrence of phenolic compounds in drinking water: assessment of treatment efficiency with conventional treatment processes Gen-Shuh Wang Chinese Taiwan 12:20 Advanced design and technologies for in situ reprovisioning of the Sha Tin water treatment works Tzer Kuan Ting Hong Kong, China 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45	Room 14	14:15 – 15:45	Room 15
Oxidation and advanced oxidation processes—catalytic oxidation Chair Hervé Suty France 14:15 Introduction 14:20 Phenol degradation in heterogeneous catalytic oxidation using Co-MCM48 and Co-natural zeolite catalysts Hongqi Sun Australia 14:40 Catalytic activity of aluminium silicate for ozonation of chloronitrobenzenes in aqueous solutions Yu Liu China 15:00 Enhancement of ozone efficiency in drinking water treatment Byoung Ho Lee Korea 15:20 Catalytic efficiency and stability of pumice for the degradation of p-chloronitrobenzene in an aqueous solution Zhonglin Chen China 15:40 Closing summary		Workshop: Governance and regulation Chair Jennifer McKay Australia This workshop will provide an international overview of governance structures and regulatory practices established to support well-performing water and wastewater utilities, with examples from several countries. 14:15 Introduction: global perspectives of utility governance from a utility's view and regulator's view Michael Rouse UK and Paul Reiter IWA 14:35 Restructuring Australia's utilities over the past decade Darryl Day Australia 14:50 Water governance for performance improvement in France Pierre Alain Roche France 15:05 Institutional settings for water management in the Netherlands Piet Jonker Netherlands 15:20 Panel discussion 15:40 Closing remarks	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudl Siegrist Switzerland & Shane Snyder US		Room 1	
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2	



08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen Netherlands		Room 1
09:15 – 10:45	Room 16	09:15 – 10:45 Room 17
<p>Focus on Korea workshop: Establishing innovative, decentralised water supply systems</p> <p>Chair JeongHyun Kim Korea</p> <p>09:15 Opening remarks</p> <p>09:20 Introduction to decentralised water supply systems No-Suk Park Korea</p> <p>09:35 Lessons learnt from decentralised case studies in Western Australia Goen Ho Australia</p> <p>09:50 Urban water resources and their clever use for sustainability and resilience Hiroaki Furumai Japan</p> <p>10:10 Panel discussion: Ja-kyum Kim Korea No-Suk Park Korea Goen Ho Australia Hiroaki Furumai Japan</p> <p>10:40 Closing remarks</p>		<p>COF workshop: Transitioning to new paradigms in urban water—institutional</p> <p>Chair Carol Howe Netherlands</p> <p>09:15 Transitioning to new paradigms in economic and institutional systems Nick Apostolidis Australia</p> <p>09:30 Innovations in cost and benefit allocation across institutions and consumers Stuart White Australia</p> <p>09:50 Challenges of introducing innovations—views from the pricing regulator Amanda Chadwick Australia</p> <p>10:20 Reflections and discussion Economics of aesthetics and environmental values Vicki Elmer US Fitting public–private partnerships into new paradigms Rama Singh Rasogi India Profitability of new systems—how to make win–wins Vivian Castro France</p> <p>10:40 Closing remarks</p>
10:45 – 11:15 Morning break		Exhibition
11:15 – 12:45	Room 16	11:15 – 12:45 Room 17
<p>Focus on Korea workshop: Appropriate technology for scientists and engineers without borders</p> <p>Chair Jeyong Yoon Korea</p> <p>11:20 Overview of appropriate technology (AP) in developing countries Euiso Choi Korea</p> <p>11:40 What are the advantages and disadvantages for application of AP in developing countries? Nguyen Van Phuoc Vietnam</p> <p>12:00 Panel discussion: Takizawa Satoshi Japan, Sunghyun Kim Korea, Jega Jegatheesan Australia, Sungwhan Lee Korea</p> <p>12:40 Closing remarks</p>		<p>COF workshop: Transitioning to new paradigms in urban water—moving the Titanic—creating cultural change within the water industry</p> <p>Chair Carol Howe Netherlands</p> <p>11:15 What is the culture of the water industry and why is understanding this important to affect positive change? Carol Howe Netherlands</p> <p>11:30 Perspectives from around the globe on key cultural challenges that exist within the water industry that hamper moving to the city of the future (innovation and more sustainable systems), and key opportunities</p> <p>12:10 Synopsis of main points from speakers and IWA membership, including specialist group leaders</p> <p>12:15 Discussion: Regional opportunities and ideas for overcoming the water industry's cultural resistance to change</p> <p>12:40 Closing remarks</p>
12:45 – 14:15 Lunch		Exhibition
14:15 – 15:45	Room 16	14:15 – 15:45 Room 17
<p>Focus on Korea workshop: Evaluation of NPS BMPs in Korea</p> <p>Chair Kyungsook Min and LeeHyung Kim Korea</p> <p>14:15 Opening remarks</p> <p>14:20 Urban NPS BMPs in the United States Michael Stenstrom US</p> <p>14:40 National NPS BMP monitoring projects in urban Korea LeeHyung Kim Korea</p> <p>14:55 National NPS BMP monitoring projects in agricultural Korea Youngcheol Kim Korea</p> <p>15:10 Panel discussion Brian D'Arcy UK Yingxia Li China Hyunsuk Shin Korea</p> <p>15:25 Open discussion</p> <p>15:40 Closing remarks</p>		<p>Workshop: Ballast water—new opportunities for water treatment at sea</p> <p>The 2004 Water Ballast Convention requires all ships to implement a Ballast Water and Sediments Management Plan, implying all ships need to handle and clean ballast water to a given standard. In the coming years, thousands of ships and hundreds of harbours need to be equipped with water treatment technology to ensure ballast water no longer contaminates local seawater. In this workshop, representatives from ship owners, harbour authorities, technology and services providers, as well as the International Maritime Organisation, will exchange recent experiences with ballast water management and discuss the future outlook of the technologies and the market opportunities.</p> <p>Organisations represented: International Maritime Organisation, Busan Port Authority, GEA Westfalia, Veolia Water, Suez Environment, Xylem WEDECO, Woo Yang Shipping, Keoyang Shipping, Chang Duck Shipping, Shin Heung Shipping</p>
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudl Siegrist Switzerland & Shane Snyder US		Room 1
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2

Thursday technical programme

08:15 – 09:00 Collaboration in the water sector—do we need a Higgs particle? Wim van Vierssen <i>Netherlands</i>		Room 1	
Industry forum	IF stage A	Industry forum	IF stage B
10:00 – 10:45 Ministry of Environment Membrane technologies—process applications HTM is an advanced drinking water treatment process consisted of in-line mixing, coagulation and direct filtration by submerged hollow-fibre MF membrane. It is a very compact and energy-efficient system. In this forum, an example of full-scale application of this system in Korea will be presented.		10:00 – 10:45 Salsnes Filter Innovative method of primary treatment by use of mechanical filtration Presented by Bjorn Aas Salsnes filter processes have proven performance, replacing the traditional clarifiers to achieve lower costs and footprint. The technology may reduce investment in secondary stages, and is an important new approach for upgrade or renovation. A Salsnes filter combined with deep sea outfalls is a cost-effective first-stage solution for settlements and cities.	
11:15 – 12:00 SUEZ ENVIRONNEMENT NRW reduction—the global and integrated solution to improve water utilities' efficiency SUEZ ENVIRONNEMENT has developed a unique approach to reduce non-revenue water (NRW) by implementing specific and tailor-made business solutions. We will present them through success stories from Algiers, Saudi Arabia, Macao and China.		11:15 – 14:00 IWA Project Innovation Awards (PIA) Established in 2006, the IWA Project Innovation Awards (PIA) aims to recognise and honour engineering excellence and innovation in water and wastewater engineering projects throughout the world in six different project categories—applied research, design, operations/management, planning, small projects, and marketing and communications. After months of intense competition involving four regional competitions and more than 85 submitted entries, the global winners of the 2012 IWA Project Innovation Awards have been announced. For more information about the PIA, visit www.iwa-pia.org Join us at the PIA Global Winners Forum to learn about the innovations behind these winning projects. Featuring presentations by the PIA global award winners, delegates will get the unique opportunity to learn about the innovation and engineering features adopted which make these projects global models for effective and sustainable approaches to water management. The 2012 Project Innovation Awards is sponsored by global sponsors—ARCADIS Malcolm Pirnie, GHD, KWR, Nagaoka International Corporation, SKM—and regional sponsor—Veolia Water Solutions and Technologies. Winners Forum Programme (subjected to change) 10.45 – 10.50 Welcome and Introduction to the 2012 Project Innovation Awards 10.50 – 11.20 Presentations by Global Winner and Honour Award for Applied Research 11.20 – 11.50 Presentations by Global Winner and Honour Award for Design 11.50 – 12.20 Presentations by Global Winner and Honour Award for Operations/Management 12.20 – 12.50 Presentations by Global Winner and Honour Award for Planning 12.50 – 13.20 Presentations by Global Winner and Honour Award for Small Projects 13.20 – 13.50 Presentations by Global Winner and Honour Award for Marketing and Communications 13.50 – 14.00 Summary and closing	
12:00 – 12:45 ReThink Water/Danish Water Technology Group How Danish utilities and suppliers cooperate to live up to strict Danish environmental policies—case studies (part 1) Denmark introduced strict environmental legislation in the 1970s, but is tirelessly working on continuous improvements even today—especially regarding sustainability and energy efficiency. This session will take you through case studies of how utilities and suppliers of services and components comply with today's policies. The session will also present a number of white papers in development.			
13.15 – 14.00 ReThink Water/Danish Water Technology Group How Danish utilities and suppliers cooperate to live up to strict Danish environmental policies—case studies (part 2) Denmark introduced strict environmental legislation in the 1970s, but is tirelessly working on continuous improvements even today—especially regarding sustainability and energy efficiency. This session will take you through case studies of how utilities and suppliers of services and components comply with today's policies. The session will also present a number of white papers in development.			
14:15 – 15:00 C&H Use of 3D water quality measurement systems 3D water quality measurement systems make water quality and GPS data possible and very easy to measure. We will present a solution. Simply enter the water quality and GPS data into the Hydrograph program to easily check the distribution of water and GPS coordinates.		14:15 – 15:00 Veolia Water Korea	
16:00 – 17:30 Closing session Harremoes lecture: Trace organic contaminants—an international perspective on an emerging issue Hansreudi Siegrist <i>Switzerland</i> & Shane Snyder <i>US</i>		Room 1	
19:00 Gala dinner		Floor 3 BEXCO Exhibition Center 2	

Posters



Proceedings—on USB

In your delegate bag you will find a USB of congress proceedings. The USB contains full papers of platform presentations, electronic versions of posters, and extra resources from IWA.

To easily find materials on the USB, search the files using keywords. This will bring up presentations associated with those keywords, and their papers.

Wi-fi internet—free access

Free wi-fi is available in the exhibition hall in areas shown on page 76, during the open hours of the exhibition. The password is **busan**. If you unable to log on, the network may be too busy—so please try again shortly.

Mobile app for schedule, map, community

The easy-to-use app shows you:

- up-to-the-minute information on its 'dashboard'

- a customisable 'schedule-at-a-glance' to get organised
- an interactive map of the exhibition
- real-time alerts from congress organisers
- a built-in Twitter feed to follow and join in on the event chatter

You can also:

- rate and comment on sessions you attend
- take photos to share your experiences
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- For iPhone, iTouch, iPad and Android: visit the App Store or Android Market and search for 'IWA2012busan'.
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Technical programme themes

Integrated urban water systems

Managing utilities and their assets

Water treatment technologies

Wastewater treatment and reuse

Water and health

Water resources supply and sustainability

Water, climate and energy

Workshops

BOF Basins of the Future
COF Cities of the Future
FOST Frontiers of Science and Technology
SNC Smart Networks Cluster
SWC Smart Water Cluster
WCE Water, Climate and Energy

Principal sponsors



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Earth, isn't it too small for us?

This earth is too small to build our future here.

For the place, where makes your life beautiful,
where increases city's value,
where shows future of construction.

**Today, GS E&C continues
to build the tomorrow of a bigger earth.**



Poster programme



Poster session and reception

18:00 – 19:30 Monday Poster lounge in exhibition hall

This is an opportunity for a special viewing of the posters and to meet and engage with the poster presenters. The presenters will be on hand to explain their posters and answer any of your questions. Drinks will be served.

Poster awards

Voting will close on 17:00 Tuesday

On Monday and Tuesday of the congress you have the opportunity to vote for your favourite poster using the voting card which you will find in your delegate bag. Place your completed voting cards in the boxes provided in the poster lounge in the exhibition.

The winners will be notified on Wednesday and presented with their awards at the plenary session on Wednesday afternoon.

Poster presentations

Water, climate and energy	
1	A study on energy characteristics of pumps for water distribution system Yasuhiro Arai Japan
2	Waste heat sources' potential recovery for WWTP—assessment of Vic WWTP case study Alex Gali Spain
3	Potential and relevance for energy minimisation at wastewater treatment plants Kroiss Helmut Austria
4	Applications of remote-sensing techniques in identification of land cover of mangrove forest using LANDSAT-TM—a case study in Sabah Malaysia Nurul Aini Kamaruddin Japan
5	Comparison of pretreatment methods for methane production from microalgae biomass Taeho Lee Korea
6	Panel diffusers aeration system saves energy? A full-scale comparison between panel and disc diffusers Åsa Nordenborg Sweden
7	Energy optimisation of the aeration system—full-scale trials Åsa Nordenborg Sweden
8	Utilising marginal abatement cost curves (MAC curves) to strategically plan CO ₂ reduction possibilities for the water sector—the case of water-cycle organisation Waternet Sanderine van Odijk Netherlands
9	Development and implementation of the most energy-efficient triangle for energy efficiency evaluations Scott Phipps US
11	The measures on electricity-saving taken by Yokohama Waterworks Bureau against the tight supply–demand balance caused by the Great East Japan Earthquake Ushikubo Toshiyuki Japan
12	Overcoming the key barrier to energy recovery from sludge—advances in dewatering Kwok-Wai Tsang US
13	Effluent-based culture for <i>C. protothecoides</i> cultivation towards cost-saving biodiesel production Qinxue Wen China
14	Development of an iron oxide-coated ceramic filter (IOCCF) for removal of arsenic and other heavy metals in developing nations Craig Adams US
Water treatment technologies	
15	Development of basic processes for heavy metal ion sorption with chitosan Serge Alex Canada
16	Effect of pH on formation of chlorinated by-products in swimming pools Henrik Rasmus Andersen Denmark
17	A comparative study of various sorbent materials for hydrocarbon removal from water Meenakshi Arora Australia
18	Fractionation of THM and NDMA precursors based on molecular weight and C-18 solid-phase extraction Egemen Aydin Turkey
19	Bio-regeneration of perchlorate-laden resin using mixed anaerobic culture Byung-uk Bae Korea
20	Opaline-R—a novel treatment process based on anion exchange for the removal of NOM in drinking water production David Benanou France
21	A time-optimal control strategy for the biological treatment of blue wastewater generated in aircraft German Buitron Mexico
22	The effectiveness of a combined monitoring system with nitrifying bacteria and ion profiles for the diagnosis of nitrifying fixed biofilm Imgyu Byun Korea
23	Organic chloramine formation during reactions of common disinfectants with some typical bioplasm compounds in water Xiaojian Zhang China
24	Effect of tannic acid on morphology of hydrous MnO ₂ Zhonglin Chen China
25	Vertically aligned carbon nanotube-based ultrafiltration and nanofiltration membrane for pharmaceutical removal Heechul Choi Korea
26	Addressing discolouration of drinking water problems in distribution systems Venkatachalam Subramaniam Malaysia
27	Improved biosand filter (BSF) combined with ferric manganese silica oxides to remove arsenic Seok Dockko Korea
28	Monitoring of emerging pollutants in Paris suburbs' drinking water plants Cédric Feliers France
29	Influence of surface-water pretreatment on the fouling of nanofiltration membranes Cédric Feliers France
30	Synthesis of TiO ₂ -zeolite composites for sulfonamide antibiotic removal Shuji Fukahori Japan
31	The effect of seawater quality on reverse osmosis operational problems in Hormozgan Province, Iran Mohammad Taghi Ghaneian Republic of Iran
32	Backwash of dead-end capillary membranes: numerical simulation of multiphase flow with initial homogeneous particle distribution Rolf Gimbel Germany
33	Softening and conditioning—from strategy into implementation Martijn Groenendijk Netherlands
34	The impact of positively charged bubbles generated by IBG-E (inline bubble generator electrolysis) on algae-removal efficiency Mooyoung Han Korea
35	Study on the optimal aluminium electrolysis operating conditions in on-site, dissolved-air flotation systems Mooyoung Han Korea
36	Nano-colloidal fouling mechanism in a seawater desalination reverse osmosis (SWRO) process Seungkwan Hong Korea
37	Brine management and process intensification using membrane crystallisation Michael Hoyer Korea
38	Performance evaluation of nanosilver disinfection against <i>E. coli</i> and MS-2 coliphage Jiangyong Hu Singapore
39	Evaluation of metabolic activity of drinking water biofilm with addition of phosphorus and disinfectants Jiangyong Hu Singapore
40	Study on the adsorption process for 2,2,3,3-tetrafluoro-1-propanol wastewater by waste iron oxide Yao-Hui Huang Chinese Taiwan
41	Doosan as a pioneer in supplying and operating a large-scale RO desalination plant at Shuwaikh, Kuwait Jinhyong Im Korea
42	The effect of reverse diffusion of draw solutions on colloidal fouling in forward osmosis—a modelling approach Jijung Lee Korea
43	Comparative study of ultrasound and pulsed UV for removal of Bisphenol-A and 17-estradiol Han Jonghun Korea
44	Effect of lead on degradation of 2,4-dinitrotoluene in soil slurries by advanced oxidation processes Jae-Woong Jung Korea
45	Comparison of chlorine and bromine disinfection for <i>Bacillus subtilis</i> spore inactivation Joon-Wun Kang Korea
46	Performance of nanofiltration in seawater desalination Seung-Hyun Kim Korea
47	Treatment of seawater suffering from red-tide bloom by a mixed-matrix carbon nanotube membrane Seung-Hyun Kim Korea
48	Advanced treatment of textile wastewaters by a combined process of up-flow anaerobic sludge blanket and aerobic cell-immobilised pellet column Moonil Kim China
49	Contribution of extracellular polymeric substances and n-acylhomoserine lactones on the biofouling of reverse osmosis membranes In Kim Korea
50	Distribution and behaviour of disinfection by-products in the water supply systems of Seoul city Sangeun Kim Korea
51	Bromate-formation control during H ₂ O ₂ /O ₃ treatment for organic micropollutant removal Ton Knol Netherlands
52	Comparison between low- and medium-pressure UV lamps for AOP treatment Ton Knol Netherlands
53	Low-pressure membrane technology in potable water: history, present and future outlook Frans Knops Netherlands

Poster programme

54	Analyses of microbial content for commercial bio-aids used in industrial wastewater treatment	Hsion-Wen Kuo	Chinese Taiwan
55	Evaluation of four polymeric coagulants for removal of disinfection by-products and their precursors with coagulation microfiltration	Jihyang Kweon	Korea
56	Different capabilities of a plant-based natural coagulant, a biofloculant and a chemical coagulant for arsenic removal	Jihyang Kweon	Korea
57	Total organic carbon (TOC)—influence of particulate organic matter in analysis of environmental water samples	Jeffrey Lane	US
58	Turbidity removal by coagulation and flocculation with <i>Strychnos potatorum</i> seed extracts	Roland Leduc	Canada
59	Prediction of RO-membrane fouling rates using artificial neural network model	Sangho Lee	Korea
60	Design optimisation of a hybrid desalination system combining reverse osmosis, forward osmosis and membrane distillation	Sangho Lee	Korea
61	Design of forward osmosis membrane module: model development	Sangho Lee	Korea
62	Removing hazardous metal ions in wastewater by magnetic copper ferrite spinel adsorbent	Nien-Hsun Li	Chinese Taiwan
63	Studying the impact of RO membrane surface functionalities on alginate fouling	Qilin Li	US
64	Optimising the water treatment plant quality index by means of factorial analysis	Marcelo Libanio	Brazil
65	Electro-desorption regeneration of exhausted adsorbent in fluoride removal processes for drinking water	Chen Lin	China
66	Sonication-assisted carbonate ion decomposition of perfluorooctanoic acid	Shang-Lien Lo	Chinese Taiwan
67	The effect of fulvic acids on the biologically available cadmium and zinc to green algae <i>Chlorella vulgaris</i> with fluorescence detection	Asha Lokuhegawa	Japan
68	Nanofiltration powered by a hybrid renewable energy system for holistic enhancement of drinking water quality	Juan Antonio Lopez-Ramirez	Spain
69	Solar disinfection of natural waters with modified solar concentrators	Mansoor Ahammed Moideenkutty	India
70	Opticone—Independence of inlet-flow situation for UV reactors at low head loss	Mike Newberry	Germany
71	Impact of signal shape form on UV lamp efficiency and ageing	Mike Newberry	Germany
72	Novel membrane hybrid systems as a pretreatment in seawater reverse osmosis desalination	Tien V Nguyen	Australia
74	Ultraviolet Light Emitting Diodes (UV-LEDs) for water purification—challenges and opportunities	Fariborz Taghipour	Canada
73	Photocatalytic degradation characteristics of humic acids by high purity TiO ₂ nanocrystals	Hye Cheol Oh	Japan
75	Optimisation of split partial second-pass RO system with smart control methods	Yong-Gyun Park	Korea
76	Maximising reverse osmosis system recovery—development of a method to predict the required dose of antiscalant to control scaling at maximum recovery	Sergio G Salinas Rodriguez	Netherlands
77	Study of natural adsorbents for the removal of caffeine from water	Kripa Singh	Canada
78	Separation of ceftazidime from pharmaceutical wastewater by nanofiltration	Mohammad Hossein Sarrafzadeh	Republic of Iran
79	The characteristics of synthetic musk compounds in a granular activated carbon adsorption process	Chang-Dong Seo	Korea
80	Influence of temperature gradients in the performance of forward osmosis process for desalination	Ho Kyong Shon	Australia
81	Characterisation of ionic copper for disinfection of stored drinking water	Mark Sobsey	US
82	Sunlight-induced water purification using nano-sized Ag/N-TiO ₂ photocatalysts	Hongqi Sun	Australia
83	Iron- and manganese-based adsorbents for the removal of toxic anions from water	Malgorzata Szlachta	Poland
84	Application of powdered activated carbon and carbon nanotubes for the purification of dye-contaminated water	Malgorzata Szlachta	Poland
85	Quality control instrumentation for safe drinking water—new approaches to monitor disinfectants, disinfection by-products and particles for drinking water plants	Philippe Troesch	Switzerland
86	Chlorine-free distribution of drinking water—healthy, wealthy and wise	Jan Vreeburg	Netherlands
87	Ozone/H ₂ O ₂ AOP pilot testing at Choa Chu Kang waterworks	Jenny Wangjian	Germany
88	Formation of disinfection by-products during chlorination/chloramination with ozone and ozone/H ₂ O ₂ pretreatment	Xin Yang	China
89	A study on the induced greensand effect on manganese removal in granular media filters	Hsuan-Hsien Yeh	Chinese Taiwan
90	Fouling modelling of a membrane purification process with hot-water backwashing for operational cost reduction	Katsuya Yokokawa	Japan
91	Removal of natural organic matter and endocrine-disrupting compounds from brackish water and seawater by a combination of coagulation and carbon nanomaterials	Yeemin Yoon	US
92	The behaviours of silver nanoparticles in water treatment process	Jeyong Yoon	Korea
93	Relationship between oxidant production and properties of PbO ₂ , SnO ₂ and BDD electrodes	Jeyong Yoon	Korea
94	O ₃ -BAC process—a possible practical solution for N-nitrosamines precursor removal in source water	Xiaojuan Zhang	China
95	Characterisation of dissolved organic matter in one Lake of Yangtze delta and treatability with the O ₃ -GAC process focusing on N-nitrosamines formation	Xiaojuan Zhang	China
97	Utilisation of cathodic and anodic reactions for generating various oxidants on electrolysis tap water	Jeyong Yoon	Korea
98	Double-stage PCF (DP) filter systems for potable water	Changhan Yun	Korea
99	A novel and efficient sorbent for PFOS and Cr(VI)	Qin Zhou	China

Water resources supply and sustainability

100	Analysis on water balance and water-use conflicts in the Dhaka district, Bangladesh	Kazi Akter	Japan
101	Application of passive sampling techniques in measuring organochlorine pesticides in groundwater supplies	Mohammad Mehdi Amin	Republic of Iran
102	The pollution risk of medium-high depth groundwater sources in metropolitan Constanta area	Verioti Alexandru	Romania
103	Supplying water for food security, while treating the environment as a customer—Murrumbidgee socio-hydrology framework	Amit Chanan	Australia
104	Spatial analysis of electrical conductivity, nitrate and total organic carbon in the groundwater of Isfahan using GS+	Afshin Ebrahimi	Republic of Iran
105	Raw water turbidity predictions corresponding to weather variations	Masahiro Fujiwara	Japan
106	Uncertainty analysis and evaluation of watershed management practices using GLUE and MCS	Jonghwa Ham	Korea
107	Harvested rainwater for industrial use in a gas power plant	Mooyoung Han	Korea
108	Environmental technology verification (ETV)—towards mutual recognition	Gerald Heinicke	Denmark
109	A fundamental study on the healing effects of strolling at urban rivers using salivary amylase	Masahiro Imbe	Japan
110	Spatial analysis for the site design of agricultural nonpoint-source pollution treatment processes in the Saemangeum watershed	Namjung Jang	Korea
111	Prioritising diffuse pollution treatments based on flow regime on a watershed scale	Woohyeok Jeong	Korea
112	Optimisation of water rationing from multiple sources	Kuo-Ding Jou	Chinese Taiwan
113	Relationship between stream order and streamline geometry	Jin-Ah Kim	Korea
114	A study on the characteristics of DOM according to seasonal variation in the Nakdong River	Jung Sun Kim	Korea
116	The influence of organic properties and hydraulic conditions on migration behaviour of mangrove sediment in a subtropical estuary	Katsuaki Komai	Japan
117	Source comparison and company strategy to secure future water intake for drinking water production	Ton Knol	Netherlands
118	Seasonal variations in the biodegradability of natural organic matter (NOM) in the Northern Lake Biwa, Japan	Taketoshi Kusakabe	Japan
119	Dynamics of phytoplankton and water quality in the Seonakdong River	You-Jung Lee	Korea
120	Drinking water quality index levels in the groundwater resources of Iran	Mohamad Reza Mohebbi	Republic of Iran
121	Classification of potential levels for algal bloom warnings in fresh water	Hyunsaing Mun	Korea
122	Nutrient extraction from biomass derived in water quality management countermeasures	Hideaki Nagare	Japan
123	Artificial neural networks as a chemical-dosing budgeting tool: the Rand Water case study	Prevashni Naidoo	South Africa



- 124 Impact of anthropogenic reactive nitrogen on Nitrogen Budget—a model development for Turkey [Selim Sanin](#) Turkey
- 125 Investigating influential factors in nitrate concentration variations of Shiraz's potable water resources [Mahtalat Sharifi](#) Republic of Iran
- 126 National database design for integrated water quality management in Korea [Hyunoh Song](#) Korea
- 127 Diffuse pollution from rare earth elements in phosphogypsum-amended Brazilian soils [Eduardo von Sperling](#) Brazil
- 128 Distribution of *Microcystis* and microcystin in the southern Sacramento–San Joaquin Delta, California [William Stringfellow](#) US
- 129 Riparian wetlands as buffer zones for protecting river water quality [William Stringfellow](#) US
- 130 New ultra-flexible data logger and communication hub for meteorological and hydrological sensors [Anders Tengberg](#) Norway
- 131 Assessing environmental impacts of water use with a simplified single indicator—the water impact index [Francois Vince](#) France
- 132 Pond and wetland systems as offline processors of drinking water source [Weidong Wang](#) China
- 133 Study on integrated pollution-control technology for inflow rivers of Taihu Lake Basin [Yimin Zhang](#) China
- 133a Respiration and eco-toxicity studies for waste phosphogypsum [S.H. Park](#) Korea
- 133b Integrated water sanitation management in urban and rural centres of Iran [Hamid Reza Tashauoei](#) Republic of Iran

Water and health

- 134 Combination of dispersive liquid–liquid microextraction (DLLME) and graphite-furnace atomic absorption spectrometry (GFAAS) as a sensitive method for determining trace values of Bi in natural water [Samane Akbarzade](#) Republic of Iran
- 135 Method development for the determination of 36 pharmaceutical compounds in water by UPLC-(ESI)-MS/MS [Maria João Benoliel](#) Portugal
- 136 Efficacy of fast methods for *Escherichia coli* counts in drinking water of a depressed area [Sergio Canobbio](#) Italy
- 137 Removal and analysis of perfluorinated compounds in surface water by online solid-phase extraction liquid chromatography tandem mass spectrometry [Keun-joo Choi](#) Korea
- 138 Impact of new membrane technologies in the water quality of the Barcelona metropolitan area distribution network [Susana González](#) Spain
- 139 Reasonable assessment method of biomanipulation using hydrosphere model of ecosystem microcosms [Hideaki Hayashi](#) Japan
- 140 Statistical evaluation of the chemical quality of bottled and tap water [Stijn Van Hulle](#) Belgium
- 141 A study on mineral characteristics of drinking water in Busan [Jae-eun Jeong](#) Korea
- 142 Comparison of ecotoxicity strength and concentration of chemicals in river water [Takashi Kameya](#) Japan
- 143 Toxicity assessment of size-fractionated urban road dust using ostracod *Heterocypris incongruens* [Rajendra Khanal](#) Japan
- 144 Evaluation of ecotoxicity in industrial effluent using *Daphnia magna* [Si Young Kim](#) Korea
- 145 Screening of six acidic drugs in tributaries of the Han River [Jun-il Kim](#) Korea
- 146 Prevalence of amoeba-resistant bacteria in farming communities in two provinces in South Africa [Clarissa Kruger](#) South Africa
- 147 Oxidation of iodide by manganese oxide—an ATR-FTIR and dissolution study [Wen-Hui Kuan](#) Chinese Taiwan
- 148 Rapid and accurate monitoring of indicator bacteria in tropical waters by an enzymatic assay [Chamila Mannapperuma](#) Sri Lanka
- 149 Development of vapour generation—spectrophotometric detection system for selective determination of trace amount of sulphide in water samples [Maryam Omidvar Motlagh](#) Republic of Iran
- 150 Influence analysis of metal ions on ecosystem function and structure using an experimental microcosm system [Kazuhito Murakami](#) Japan
- 151 Microbial quality of drinking water in rural areas of Tehran province [Sogol Okaie](#) Republic of Iran
- 152 A methodological approach for the elucidation of biological effects in male medaka (*Oryzias latipes*) exposed to treated wastewater [Chang-Beom Park](#) Japan
- 153 Metals and related substances in drinking water—the importance of mineral balance [Ingegerd Rosborg](#) Sweden
- 154 Prediction of aquatic toxicity of pesticides to fish [Melek Turker Sacan](#) Turkey
- 155 Toxicity of catechols and hydroquinones towards marine alga *Dunaliella tertiolecta* [Melek Turker Sacan](#) Turkey
- 156 Response of microbial fuel cell–based toxicity sensor to Cd(II) [Yujia Shen](#) Singapore
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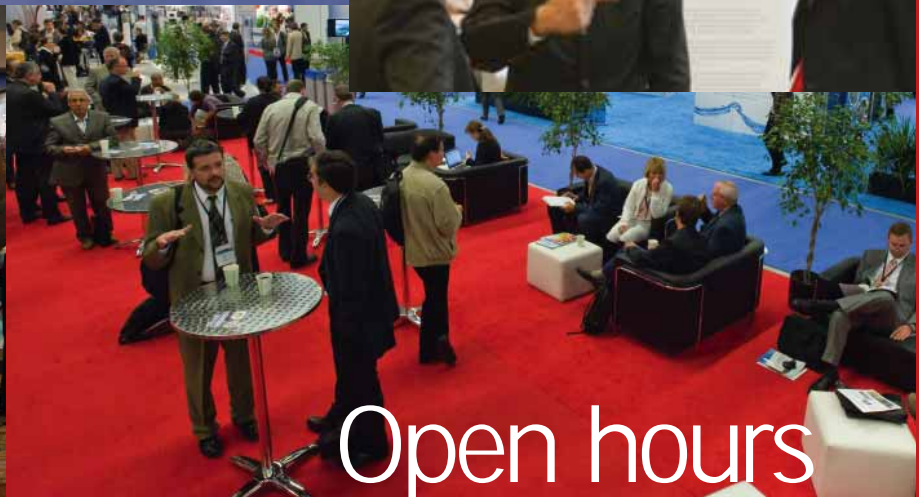
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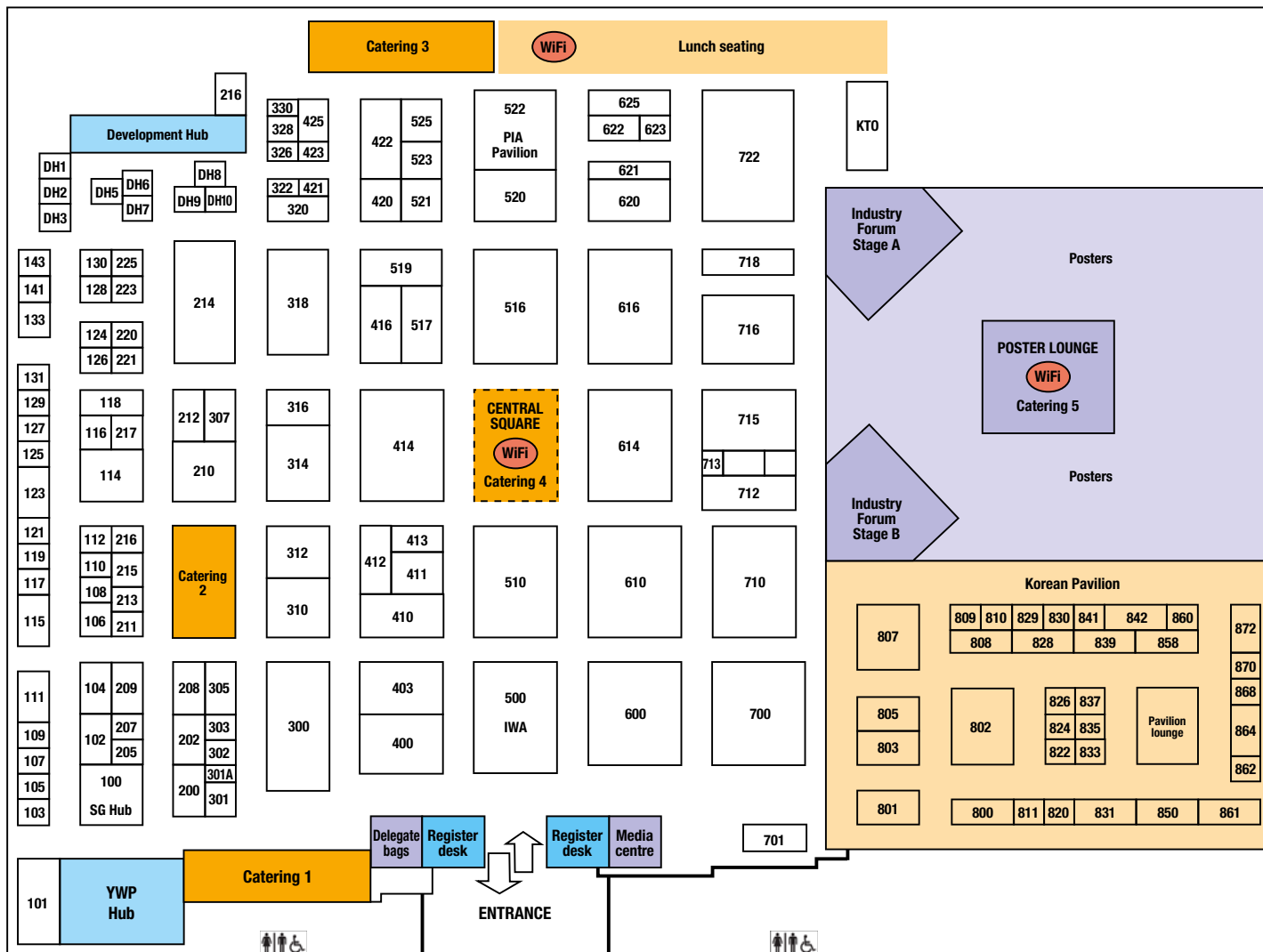
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Coffee and food items available for purchase
Water dispenser
Sandwich lunch bag (including vegetarian) for lunch ticket holders |
| Catering 2 | Morning and afternoon coffee and tea
Water dispenser
Sandwich lunch bag (including vegetarian) for lunch ticket holders | Catering 5 | Coffee and food items available for purchase
Water dispenser |
| Catering 3 | Morning and afternoon coffee and tea
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HERE IS THE CITY OF WATER

Busan is a city of water, located in the south eastern corner of the Korean peninsula along the delta of the Nakdong River and directly facing the sea. The clean and environmentally friendly city of Busan, through scientific management and its advanced water quality processes, will emerge as a leading city in the worldwide quest to find answers to the issues of water sustainability by hosting the 2012 IWA World Water Congress & Exhibition.



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870	Michigan Technology
872	Urban Sewer and Drainage System Research Centre

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Exhibitor profiles

Stand 716

Aarhus Water Ltd.

Bautavej 1, 8210 Aarhus V, Denmark
Tel. +45 8947 1000
Contact – Lars Schroder
Email aarhusvand@aarhusvand.dk
www.aarhusvand.dk

Aarhus Water supplies more than 15 million cubic metres of drinking water. About 85 per cent of the inhabitants of Aarhus Municipality receive their water from us. We purify more than 30 million cubic metres of wastewater a year, thereby contributing to public health and a steadily improving aquatic environment. We work on the basis of the entire water cycle, and at Aarhus Water sustainability, efficiency and development are key words. We constantly focus on making a good workplace even better, and our vision is to be Denmark's leading water company.

Stand 310

Absfil Co. Ltd.

858, Jangdeok-dong, Hwaseong-si, Kyunggi-do, 445-130 Korea
Tel. +82 31 3556 838
Contact – Daniel Kim
Email daniel@absfil.com
www.absfil.com

Absfil will manufacture a variety of filter elements that are useful for a wide business field such as semi-conductors, electronic displays, food and beverages, and desalination plants. We also design and fabricate many kinds of filtration equipment for total water treatment systems. Currently, we export our own products to more than 25 countries. The primary company-wide product focus is on industrial filter elements, water treatment filtration systems, and engineering.

Stand 620

AGRU Korea

543-1 Mugap-ri, chowol-eup, Gwang Ju, 464-863 South Korea
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Email ak@agrukorea.com
www.agrukorea.com

AGRU Kunststofftechnik

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Email office@agru.at
www.agru.at

AGRU Kunststofftechnik ranks among the most important international manufacturers of innovative plastic products as piping systems, fittings, semi-finished products, concrete protective liners and geomembranes. In building construction, the application of AGRU products is manifold—from the concrete protection of buildings; to warm- and cold-water supply indoors; sewage, heating and air condition installation; and ventilation and roof sealing for tunnels or sewage and irrigation channels, channels and retention ponds. AGRU products are environmentally friendly, resistant against corrosion and adhesion, and there is a system flexible for every application.

Stand 328

American Water Works Association

6666 West Quincy Avenue, Denver Colorado 80235-3098 US
Tel. + 303 734 3427
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Email janderson@awwa.org
www.awwa.org

The American Water Works Association (AWWA) is an international non-profit educational association dedicated to safe water. Founded in 1881 as a forum for water professionals to share information and learn from each other

for the common good, AWWA is the authoritative resource for knowledge, information, and advocacy for improving the quality and supply of water in North America and beyond.

Stand 217

AMS-SYSTEa

SYSTEa SpA, Via Paduni, 2A, 03012, Anagni, Italy
Tel. +39 0775 776058
Contact – Luca Sanfilippo
Email info@systea.it
www.ams-systea.com

AMS-SYSTEa is a leader in analytical instruments for clinical, food and environmental analysis based on continuous flow analysis, discrete, loop flow analysis and containment systems for nuclear and biological application. Brands: AMS, SYSTEa, Alliance Instruments and Ysebaert. Main environmental applications: TN, TP, phenol, cyanides, detergents, nitrate, nitrite, ammonia, phosphate, silicate, chromium, COD, TOC, iron, sulphide, fluoride and lead. Products: Smartchem and Easychem discrete analysers; Futura, Proxima and Flowsys continuous flow analysers; Micromac C on-line analysers; Micromac 1000 portable analysers and the WIZ in-situ probe. For lab, on-line or in-situ analysis, AMS-SYSTEa will provide you with the right analytical solution.

Stand 211

Andritz Singapore

25 Tuas Avenue 4, 639375 Singapore
Tel. +65 6512 1800
Contact – Krystal Kong
Email separation.sg@andritz.com
www.andritz.com

Andritz Separation specialises in solid/liquid separation for water treatment, municipal and industrial sludge treatment, food and beverages, pharmaceutical, chemical, minerals and mining industries. We provide a complete range of products to meet our customers' stringent requirements for

In a world of vast information
there is void of vital knowledge
for the water industry executives.

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within the Greater water industry
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separation processes. Our product range includes decanter centrifuges, filter presses, belt presses, screens, thickeners, separators, centrifuges, dryers and more.

Stand 722

AquaFin nv

Dijkstraat 8, 2630 Aartselaar, Belgium
Tel. + 32 34 50 45 72
Contact – Ingrid Van Tendeloo
Email ingrid.vantendeloo@aquafin.be
www.aquafin.be

Aquafin collects wastewater from municipalities in collector sewers and transports it to wastewater treatment plants where it is treated in accordance with European standards. This know-how and experience is also offered abroad.

Stand 411

Aqualogy

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Tel. +34 93 342 20 00
Email contacto@aqualogy.net
www.aqualogy.net

Aqualogy is the leading global brand of integrated solutions for the water sector that improve efficiency and optimise the use of water resources to serve people and improve their quality of life. Aqualogy provides innovative, flexible, comprehensive and easily adaptable solutions and technologies for any type of socio-economic context in four main areas. Environment—we provide solutions to companies in the water sector and the environment sector. Infrastructure—we develop construction projects for hydraulic engineering. Solutions—we specialise in services and solutions to improve the management of companies. Knowledge-centered services—we offer services based on knowledge management and people.

Stand DH10

AquaRating

1300 New York Avenue, NW, Washington, DC 20577, US
Contact – Matthias Krause / Raimon Puigjaner
Email matthiask@iadb.org / raimonp@iadb.org
www.aquarating.org

The Inter-American Development Bank and the International Water Association have begun pilot testing AquaRating, a third-party validated rating system for water and sewerage service providers. AquaRating will provide utilities with a rating (0–100) based on a comprehensive assessment of eight areas. The system evaluates utilities' management practice as well as key performance indicators, with a special emphasis on efficiency, sustainability and recommendations for improvement. AquaRating is participating in this event to present, discuss and promote the basic concepts of this new approach.

Stand 300

ARCADIS

Symphony, Gustav Mahlerplein 97-103, 1082 MS
Amsterdam, 1008 Netherlands
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Email info@arcadis.com
www.arcadis.com

ARCADIS is an international company providing consultancy, design, engineering and management services for infrastructure, water, environment and buildings. We work diligently to retain our core values as a trusted consultant, employer, and corporate citizen. With more than 21,000 employees and more than \$3.2 billion in revenue, we have an extensive international network supported by strong local market positions. We rank among the top ten management and engineering consultancies in the world, the top five in Europe, Brazil and Chile, and the top three in the global environmental market.

Stand 133

A.R.I. Flow Control Accessories

Kibbutz Kfar Charuv, Kibbutz, 12932 Israel
Tel. +972 4 6761988
Contact – Pini Vardy
Email ari@ari.co.il
www.arivalves.com

ARI Flow Control Accessories is a leading company with expertise in planning, developing and implementing advanced solutions for desalination plants' protection from transient pressures, entrapped air and unmeasured non-revenue water. These solutions are accomplished with the design, development and manufacture of valves and accessories for fluid piping systems. We can also execute an in-depth analysis of these systems for implementing proper air valve sizing and location. While addressing the ever-changing needs of the market place, we pledge to uphold: high quality, service and training, innovation and development, and long-lasting products with minimal maintenance.

Stand 522

ASIO

Turanka 1, 627 00 Brno, Czech Republic
Tel. +420 548 428 111
Contact – Jiri Palcik
Email asio@asio.cz
www.asio.cz

ASIO was established in 1993 as a Czech engineering supplies company with international operations. The company is involved in the development, production, and delivery of technologies for treating water, wastewater and air. The wide range of water management products that it offers are used in the treatment of wastewater from family houses, villages, towns, hospitals, and businesses.



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Control pipeline & system surge

Prevent vacuum damages in the pipeline system

Protect membranes from pressure transients



www.arivalves.com ari@ari.co.il

Exhibitor profiles

Stand 716

AVK Valves Korea Co. Ltd.

Unit 1304, 13/F, ACE Hightech21 Bldg., 1470 Woo-dong, Haeundae-gu, Busan 612-020, Korea
Tel. +82 51 744 4939
Contact – Philip Yuen
Email info@avkvalves.co.kr
www.avkvalves.co.kr

In 1969 AVK introduced the very first gate valve for water, and has been offering butterfly valves since the 1990s. AVK has built a complete range of valves and accessories with quality approvals from all the leading national and international testing institutes. Our dedication to high quality and continuous product development is widely recognised by customers around the world. More than 3000 people in the AVK group are doing their utmost to ensure that AVK remains one of the world's leading valve manufacturers for water and wastewater treatment.

Stand 722

Belgium/Flanders Pavilion

Graaf Karel de Goedelaan 34, 8500 Kortrijk, Belgium
Tel. +32 56 24 12 80
Contact – Stéphanie De Man
Email info@vlakwa.be
www.vlakwa.be

The Belgium/Flanders Pavilion represents a number of Flemish organisations who are active in aerobic and anaerobic water treatment, water reuse, effluent polishing, drinking water production and recycling municipal wastewater. The pavilion is organised by the Flanders Knowledge Water Centre. At the Pavilion, visitors can be informed about activities and products of the following organizations: Aquafin, Avecom, IWVA, Enterprise Flanders, ABS, BB, Essenscia, Fedustria, FIT, HOWEST, INAGRO, IWT, KATHO, KHBO, KULAK, KULeuven, LNE, POM, Provincie West-Vlaanderen, University Antwerp, Universiteit Gent, Unizo, Vegebe, Vito, Vlakwa, Vlaro, VLIZ, VMM, VOKA and Water-Link.

Stand 300

Berghof Membrane Technology

Agora 4, 8934 CJ Leeuwarden, Netherlands
Tel. +31 58 2100 912
Contact – Eric Wildeboer
Email membrantetechnology@berghof.com
www.berghof.com

We have extensive know-how based on more than 35 years experience in industrial wastewater treatment. We supply innovative MBR sidestream concepts and are a market leader for successful installation of industrial wastewater treatment systems. Our global sales network includes strategical OEM-partners, agents and distributors. We deal with MBR-applications, industrial wastewater, municipal wastewater, oily wastewater and beverages, and offer high quality products and competitive pricing. We supply membranes, modules, connections parts, complete assembled UF racks, lab-scale and pilot research, engineering, design support and start-up supervision.

Stand 300

Berson UV-techniek

PO Box 90, NL-5670 AB Nuenen, Netherlands
Tel. +31 40 290 7777
Contact – Paul Buijs
Email Paul.buijs@bersonuv.com
www.bersonuv.com

Berson UV-techniek is a manufacturer and global supplier of ultraviolet (UV) technology. Established in 1972, Berson is part of the water division of Halma plc. In conjunction with affiliated Halma plc companies Hanovia (UK) and Aquionics (US), Berson is the leader in UV disinfection and has over 85 years experience in the manufacture, application, and development of UV equipment. Berson focuses on the municipal market, with applications in drinking water production, waste water effluent treatment and effluent re-use. It has a worldwide distribution network, and factory-trained technicians provide sales and high standards of service locally.

Stand DH3

BORDA

Fahrenheitstraße 9, Bremen, Germany
Tel. +49 421 137 18
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Email heuvels@borda.de
www.borda-net.org

Established in 1997 as a not-for-profit organisation, BORDA (Bremen Overseas Research & Development Association) is a specialist organisation active in the fields of decentralised wastewater treatment systems (DEWATS), community-based sanitation and decentralised solid waste management within development cooperation and private-public-partnership frameworks. BORDA contributes towards poverty alleviation, sustainable protection of natural resources and the strengthening of social structures. During the last ten years, around 1,000 DEWATS projects have been developed and facilitated with partners in Asia and Africa who employ a total expert workforce of more than 250 people.

Stand 115

Bucher Unipektin

Murzenstrasse 80, CH 8166, Niederweningen, Switzerland
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Email info@bucherunipektin.com
www.bucherunipektin.com

Bucher Unipektin is one of the world's leading manufacturers of machines and systems for efficient solid-liquid separation. The patented technology of Bucher hydraulic presses has been put to use in over 2000 systems worldwide. At Bucher Unipektin our team of experienced engineers and technicians work to meet the needs of tomorrow for the benefit of our customers and the environment. Proven and robust, Bucher presses offer decisive advantages: High degree of dewatering, low disposal and drying costs, reliable process and system control, self-optimizing process operation, continuous operation without supervision, minimal labour costs and low maintenance cost.

Stand 318

Bureau of Waterworks, Tokyo Metropolitan Government

8-1, Nishi-Shinjuku 2-chome, Shinjuku-Ku, Tokyo, 163-8001 Japan
Tel. +81 3 5320 6336
Contact – Takeo Shimamura
Email international_affairs@waterworks.metro.tokyo.jp
www.waterprofessionals.metro.tokyo.jp

The Tokyo Metropolitan Waterworks Bureau has always been a top-class organisation in terms of scale and technological prowess, both domestically and internationally. As we will present our advanced technology and presence in a proactive manner at this exhibition—we ask that you please stop by.

Stand 600

Busan Metropolitan City

2001 Jungangno, Yeonje-Gu, Busan 611/735 South Korea
Tel. +82 51 888 3584
Contact – Doim Kim
Email doikim8454@korea.kr
www.busan.go.kr

Busan is a city of water, located at the south-eastern tip of the Korean Peninsula along the delta of the river and directly facing the sea. The largest port city in Korea is home to the world's fifth-largest container port. Based on its strategic location along three major trunk routes connecting the world's oceans and continents, it is striving to become a leading centre of port logistics in north-east Asia.

Stand 316

Calgon Carbon Corporation

500 Calgon Carbon Drive, Pittsburgh, PA 15205 US
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Contact – Autumn Ye
Email info@calgoncarbon-as.com
www.calgoncarbon-us.com

Calgon Carbon Corporation (NYSE: CCC) is a global leader in services and solutions for making water and air safer and cleaner, and for purifying food, beverage and industrial process streams. Headquartered in Pittsburgh, Pennsylvania (US), Calgon Carbon employs approximately 1,100 people

at more than 15 carbon manufacturing, reactivation, and equipment fabrication facilities in the USA, Asia and Europe. The company also has more than 20 sales and service centres throughout the world. In Europe, Calgon Carbon is known as Chemviron Carbon.

Stand 413

CDM Smith

50 Hampshire Street, Cambridge, Massachusetts 02139 US
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Contact – John Bates
Email batesje@cdmsmith.com
www.cdmsmith.com

CDM Smith provides lasting and integrated solutions in water, environment, transportation, energy and facilities to public and private clients worldwide. As a full-service firm, we deliver exceptional client service, quality results and enduring value across the entire project life cycle. CDM Smith is consistently ranked as a top global service provider in water-sector engineering. Our 6,000 employees located in offices around the world apply advanced technologies and integrated approaches to address public health and environmental challenges. We are expanding and optimising limited resources, extending and renewing water infrastructure for growing populations, and providing access to water of exceptional quality.

Stand 205

Center for Eco-Smart Waterworks System

Wonju Eco Environment Technology Center 1F, Yonsei University 1 Yonseidae-gil, Wonju, Gangwon-do, 220-710 South Korea
Tel. +82 33 760 5566
Contact – Seung-Il Lee
Email sil9905@yonsei.ac.kr
<http://ecost.yonsei.ac.kr>

The Center for Eco-Smart Waterworks System was established in Yonsei University with support of the Ministry of Environment Korea as a part of Global Top Project in May 2011. The main goals of the center are to develop advanced hybrid membrane water treatment systems for safe and sustainable water supply even in the situation of rapid climate change, and to assist domestic water companies to acquire total water solutions. The center puts its main focus on developing new fouling and chemical-resistant membrane modules with low energy consumption, the integration of eco-smart waterworks systems, and developing optimised water treatment packages.

Stand 522

CETaqua

Carretera d'Esplugues 75, Cornellà de Llobregat, Barcelona 08940 Spain
Tel. +34 9331 24800
Contact – Carlos Montero
Email info@cetaqua.com
www.cetaqua.com

CETaqua Water Technology Centre is a private foundation which centres its research, development and innovation projects on the entire water cycle. Research areas include: alternative water resources, impact of global change, efficient infrastructure management, health and the environment, water and energy, and water demand. CETaqua's success is based on collaborative research, combining the efforts of the private, public and academic spheres. Its research projects aim to provide companies, society and governments with innovative and sustainable solutions to face environmental and technological issues at each step of the water cycle.

Stand 410

CH2M HILL

9191 South Jamaica St., Englewood, CO 80112 US
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Email ina.cunningham@ch2m.com
www.ch2mhill.com

Since CH2M HILL's founding in 1946—with water as its core business—its scientists, engineers, and construction experts have been planning, designing, and constructing the world's most technically complex water projects. With US\$6.4 billion in revenue, and the addition of Halcrow in



2011, CH2M HILL has 30,000 employees and projects in more than 117 countries. CH2M HILL is an industry-leading program management, construction management and design firm, as consistently ranked by Engineering News-Record. In 2012 the firm received the Global Water Award for Water Company of the Year, recognising its significant contributions to developing and advancing the global water sector.

Stand 326

Chief Environmental Products Inc.

611 Willow Street, Grand Island, NE 68801 US

Tel. +1 308 381 0585

Contact – Shawn Jaeger

Email environmentalproducts@chiefind.com

www.environmentalproducts.chiefind.com

Since 1972, Chief Industries has offered the Ecolo-Chief pre-engineered wastewater treatment system around the globe. The Ecolo-Chief system is designed for smaller cities and villages as well as a variety of other individualised uses—ranging from subdivisions, apartment buildings and motels to manufacturing and processing operations. The biological process employed by the Ecolo-Chief system can also be of use in certain industrial wastewater applications. Building on the corporation's commitment to quality through innovation, Ecolo-Chief strives to meet the ever-changing environmental challenges of wastewater treatment around the world.

Stand 300

Convergence Beheer

Munsterstraat 18, 7418 EV, Deventer, Holland

Tel. +31 (0) 570 607695

Contact – M. de Wit

Email mdewit@con-vergence.com

www.con-vergence.com

Convergence develops and supplies fully customised fluid and gas testing systems for industry and laboratories. Our reduced design-and-build times, faster testing, reliable results, and efficient and easy testing and experimenting means faster testing and a shorter time to market for our

customers. Our solutions are based on quality equipment (we only work with reliable suppliers), fairness (we only recommend the equipment best suited for the purpose) and pro-activity (we act before problems occur, giving feedback to customers on their equipment requests, and assisting with setting up tests and research programs).

Stand 318

Cosmo Koki Co.

9-5, NishiShimbashi 3-chome, Minato-ku, Tokyo 105-0003

Japan

Tel. +81 3 3435 8805

Contact – Tuzuki Imano

Email pr@cosmo-koki.co.jp

www.cosmo-koki.co.jp

Cosmo Koki Co. fulfills a duty to protect lifelines (pipelines) utilising our state-of-the-art technology. We are a pioneer of work under pressure, an indispensable technique in all fields related to water such as drinking water, sewer, agricultural water and industrial water.

Stand 517

CSM (Woongjin Chemical)

23F Kukdong Bldg. Jung-gu, Chungmuro 3ga, Woongjin

Chemical Filter Division, Seoul, Seoul 100-705 South Korea

Tel. +82 2 3279 7368

Contact – David Kim

Email davidk@wjchemical.co.kr

www.csmfilter.com

CSM products, manufactured by Woongjin Chemical, are innovative and cost-effective reverse-osmosis, nanofiltration and ultrafiltration membranes, cartridge filters and micro-filters for municipal, industrial and residential markets. Supported by a global network of branch offices and subsidiaries in the US, China, India, Singapore, UAE, and Spain, and with numerous authorised dealerships throughout the world, we are committed to ensuring better quality, reliable technical support, competitive prices and responsive delivery time for our customers.

Stand 716

Danish Pavilion

Glarmestervej 20A, Silkeborg 8600, Denmark

Tel. +45 8681 3888

Contact – Ilse Korsvang

Email export@dk-export.dk

www.dk-water.dk

The Danish Pavilion showcases a number of Danish companies, all with leading-edge technology, and strengths in sustainability and energy efficiency. The pavilion is organised by the Danish Embassy and the Danish Water Technology Group for the Danish Export Association. The Danish Water Technology Group is a commercial network open to all Danish suppliers to the water and wastewater sector.

Danish Water Forum

Agern Allé 5, Hørsholm 2970, Denmark

Tel. +45 4516 9200

Contact – Miriam Feilberg

Email dwf@danishwaterforum.dk

www.danishwaterforum.dk

The Danish Water Forum (DWF) is a network of Danish water organisations which highlights Danish expertise and knowledge and facilitates concerted actions. Its members' competencies make DWF an excellent entry point for organisations seeking expertise in all aspects of water production, technology and management. DWF is open to Danish companies, organisations and research institutions in water and related fields such as the environment. DWF participates in international meetings and exhibitions, has direct contact with water sector decision-makers and facilitates communication between the international community and its members. Sharing knowledge and information online and in electronic newsletters is a core activity.

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Exhibitor profiles

Stand 126

Desalination Pavilion

University Campus Bio-Medico of Rome, Faculty of Engineering, via Alvaro del Portillo, 21, 00128 Rome, Italy
Tel. +39 348 88 48 406
Contact – Miriam Balaban
Email miriambalaban@yahoo.com
www.edsoc.com

The Desalination Pavilion, prominently located in the World Water Exhibition, has been organised by EDS (the European Desalination Society) and IWA. It features leading global companies in the field of desalination. An important topic in this World Water Congress & Exhibition, desalination will be presented and discussed in many of the thematic sessions and workshops. The Desalination Pavilion allows delegates to also exchange ideas on the exhibition floor.

Stand 716

DHI

Agern Allé 5, Hørsholm, DK 2970, Denmark
Tel. +45 4516 9200
Contact – Joern Rasmussen
Email dhigroup@dhigroup.com
www.dhigroup.com

DHI is an independent, international consulting and research organisation advancing technological development and competence in the fields of water, environment and health. DHI offers a wide range of solutions, leading-edge IT, laboratories, test facilities as well as field surveys and monitoring programs. DHI work in close dialogue and partnership with our clients—government authorities, municipalities, contractors, consulting companies and industries—and is committed to helping its clients increase efficiency, safety and profitability through customised decision-support systems, advanced water modelling software, comprehensive training and professional support. DHI has 30 offices around the globe and around 1100 employees.

Stand 516

Doosan Heavy Industries & Construction

Korea Life Building, 10th Floor, 311 Gangnam-daero, Seocho-gu, Seoul, South Korea
Tel. +82 2 513 6237
Contact – Won Kang
Email won3.kang@doosan.com
www.doosanheavy.com

One of the principal sponsors at this year's IWA World Water Congress, Doosan Heavy Industries & Construction's corporate stand is grand in scale and innovative in design. The stand showcases Doosan's global business portfolio and its leading position in the water industry through an array of visual displays. Real-life plant models help visitors to better understand the broad process flows of desalination plants as well as specific mechanisms behind the three major types of desalination technology – MSF, MED, and RO.

Stand 102

Dr.20

1505 Hwang-Hwa Bldg 832-7 Yeoksam-Dong, Seoul, 135-080 South Korea
Tel. +82 2 501 3869
Contact – Won Young Cheon
Email candhinc@naver.com
www.candh.co.kr

Dr.20 is the company brand of C&H Inc, being a combination of the words 'Doctor' and 'H2O', a water hospital for the management and treatment of water resources. C&H Inc is an innovative equipment management company in fields of geological survey, soil science and water resource management. Our hydrograph program creates graphical 3-D models of water distribution immediately after field measurements. Our DoDAS system uses high-pressure technology to create high-performance dissolved ozone. Applications include: improvement of the transparency, sterilisation (factory, army and ground water), and treatment of heavy water/rainwater.

Stand 300

Eijkkelkamp Agrisearch Equipment

Nijverheidstraat 30, 6987 EM – Giesbeek, Netherlands
Tel. +31 313 880200

Contact – Barry Leuerman
Email b.leuerman@eijkkelkamp.com
www.eijkkelkamp.com

Soil and water are the most valuable sources of life and also significant social issues. Eijkkelkamp is an international organisation supplying innovative solutions for environmental research, monitoring and information systems for sustainable water and soil management. With more than 65 trained distributors and partners worldwide, we offer innovative and excellent products for gathering environmental information. Our key products are sampling, monitoring (quality and quantity), field testing and laboratory equipment. With expertise and knowledge gained through a century of experience, training and individual customer care, we have become 'Royal' – a reliable specialist and partner for your water and soil challenges.

Stand 208

Emerson Process Management Korea

Sicox Tower 12th Floor, 513-14, Sangdaewon-dong Jungwon-gu, Seongnam, Gyeonggi 462-806 South Korea
Tel. +82 2 3438 4600
Contact – A Reum Lee
Email Reception.Korea@Emerson.com
www.emersonprocess.co.kr

Emerson Process Management is a leading, global supplier of products, services and solutions that measure, analyse, control, automate, and improve process-related operations. Our company evolved from the business previously known as Fisher-Rosemount, which was already a recognised leader in process-automation products and technology. As Emerson Process Management, we now offer even broader capabilities to help customers control, connect and manage their process and business. Specifically, we've augmented our best-in-class measurement, analytical and control products, and innovative PlantWeb® architecture with a broad array of engineering, consulting, maintenance and project management services.

Stand 322

Environmental & Water Resources Institute

1801 Alexander Bell Drive, Reston, VA 20191, US
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Email ewri@asce.org
www.ewrinstitute.org

Created in 1999, the Environmental & Water Resources Institute (EWRI) is a civil engineering specialty institute of the American Society of Civil Engineers (ASCE), the country's oldest national engineering society. EWRI services are designed to complement ASCE's traditional civil engineering base and to attract new categories of members (non-civil engineer allied professionals) who seek to enhance their professional and technical development. ASCE-EWRI is an active member of the World Water Council and one of over 40 American public, private and civil society organisations united to form the US Water Partnership.

Stand 400

EPAL – Empresa Portuguesa das Águas Livres, SA

Av. da Liberdade 24, 1250-144 Lisbon, Portugal
Tel. +35 12 1325 1521
Contact – António Bento Franco
Email epal@epal.pt
www.epal.pt

EPAL – Empresa Portuguesa das Águas Livres, SA, is the oldest and largest water supply company in Portugal. EPAL supplies water to around three million people and provides household water to Lisbon's 480,000 inhabitants. With 140 years of experience, EPAL is seen as the reference company in Portugal, having developed modern management strategies with the objective to improve overall efficiency of the company and attain sustainable management from social, environmental and economic perspectives.

Stand 300

European Benchmarking Cooperation

c/- Sir Winston Churchilllaan 273, 2288 EA Rijswijk, Netherlands
Tel. +31 70 414 47 59
Contact – Dieneke Krijbolder
Email info@waterbenchmark.org
www.waterbenchmark.org

The European Benchmarking Cooperation (EBC) is a not-for-profit partnership of four European national water associations. EBC facilitates water utilities in their continuous effort to improve services by offering an international benchmarking programme, and providing a platform to exchange knowledge and best practices in management and operations. EBC annually runs benchmarking exercises for water and wastewater services. The programme targets primarily European water utilities. However, utilities from abroad are welcome to participate too. At the IWA World Water, EBC welcomes visitors at its meeting point in the Netherlands country pavilion.

Stand 126

European Desalination Society

University Campus Bio-Medico of Rome, Faculty of Engineering, via Alvaro del Portillo, 21, 00128 Rome, Italy
Tel. +39 348 88 48 406
Contact – Miriam Balaban
Email miriambalaban@yahoo.com
www.edsoc.com

Stand 621

European Project Trust

info@trust-i.net
www.trust-i.net

The central objective of the European Project Trust is to deliver co-produced knowledge to support transitions to the urban water services of tomorrow, enabling communities to achieve a sustainable, low-carbon water future without compromising service quality. We deliver this ambition through research-driven innovations in governance, modelling concepts, technologies, decision-support tools, and novel approaches to integrated water, energy, and infrastructure asset management. Nine city pilot regions are demonstrating trust and legitimising these innovations by implementing the most promising interventions in their urban water systems.

Stand 318

Federation of Japan Water Industries Inc.

4-8-9 Kudan Minami, Chiyoda-ku, Tokyo, 102-0074 Japan
Tel. +81 3 3264 2294
Contact – Ikuro Mitake
Email kokusai@jwwa.or.jp
www.suidanren.or.jp

Since its foundation in 1966, the Federation of Japan Water Industries Inc. has contributed to continuous development of waterworks enterprise as the sole representative of waterworks, industrial water supply and sewerage industries at national level.

Stand 104

Festo Korea Co. Ltd.

470-1 Gasan-dong Geumcheon-gu, Seoul 153-803 South Korea
Tel. +82 1666 0202
Contact – Gun-young Chung
Email sales_kr@kr.festo.com
www.festo.co.kr

Festo Korea Co. Ltd, as a pioneer of automation in Korea, has supplied total automation system solutions with various pneumatic, electrical products and special services since 1980. Festo provides about 30,000 products in several hundred thousand variants with pneumatic, servo-pneumatic, electrical technology to provide a total automation system solution.

Stand 722

Flanders Knowledge Water Centre

Graaf Karel de Goedelaan 34, 8500 Kortrijk, Belgium
Tel. +32 56 24 12 80
Contact – Stéphanie De Man
Email info@vlakwa.be
www.vlakwa.be

Providing Flanders with sufficient water of good quality at a reasonable price is a major challenge. The key to success is an optimal cooperation between enterprises, researchers and government. The Flanders Knowledge Center Water (VLAKWA) is the driving force. As not-for-profit organisation, VLAKWA is an independent link in the integrated water cycle. At those areas in the market where water problems

Global Water Intelligence

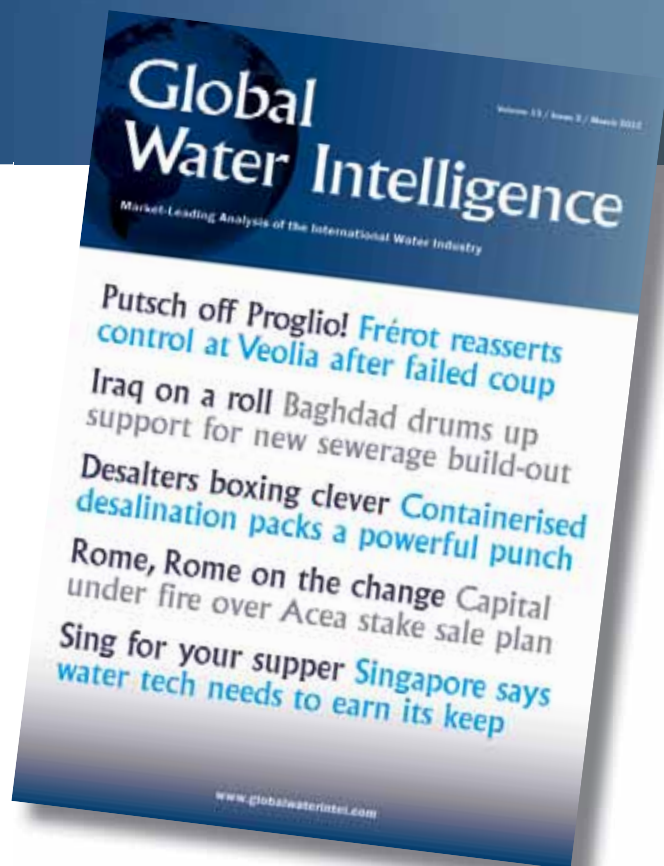
www.globalwaterintel.com

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read by professionals

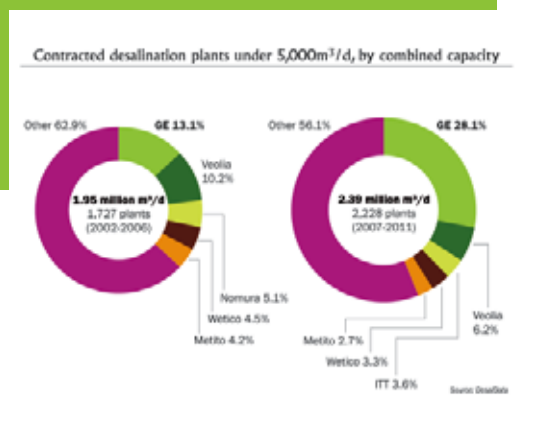
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ANALYSIS



"GWI is a magazine that not only provides reliable information that is relevant to my business every month, but is one that also encourages the industry to confront some of the hard issues through thought-provoking analysis."

Paddy Padmanathan, ACWA Power

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Exhibitor profiles

constitutes a threat to the economy, VLAKWA looks for solutions (initiates, coordinates and facilitates) such as: collecting/channelling needs of problem owners, networking with solution/product providers; stimulating exchange of knowledge/experience; and listing and joining the knowledge/technology about water in Flanders/abroad.

Stand 221

FLOWSERVE

2300 Vernon Avenue, Vernon, CA 90058 US

Tel. +1 323 584 1886

Contact – Fred Grondhuis

Email fgrondhuis@flowserve.com

www.flowserve.com

FLOWSERVE Corporation is one of the world's leading providers of fluid motion and control products and services. For over 50 years, FLOWSERVE has offered pumps, energy recovery devices, valves, valve automation and seals to the global desalination industry. With the addition of Calder AG, FLOWSERVE has expanded this offering to include the DWEER™ and ERT energy recovery devices. FLOWSERVE also operates a network of quick-response centers around the world to provide aftermarket services. Information about FLOWSERVE can be obtained by visiting www.flowserve.com.

Stand 318

Fukuoka City Waterworks Bureau

1-28-15, Hakataekimae, Hakata-ku, Fukuoka, 812-0011 Japan

Tel. +81 92 483 3107

Contact – Hisashi Inohata

Email k-kikaku.WB@city.fukuoka.lg.jp

www.city.fukuoka.lg.jp/mizu/somu/

In 1978 Fukuoka suffered a serious drought, which restricted the water supply for 287 days. The Fukuoka City Government established the 'Fukuoka City's Outline of Measures for Economical Water Use' to facilitate stable water supply in the following year. Later, in 1994, a severe drought hit the city again. Due to the possibility of unstable precipitation and increasing population, the city saw a need to redouble its efforts. Therefore in 2003, they enacted the 'Ordinance on the Promotion of Water Conservation'. Since then, the city government has been working with citizens to realise the sustainable use of scarce water resources.

Stand 301

GE Water and Process Technologies

4636 Somerton Road, Treviso, PA 19053-6783 US

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Contact – Camille Hutchinson

Email camille.hutchinson@ge.com

www.ge.com/water

With operations in 130 countries and nearly 8000 employees, GE brings together experienced professionals and advanced technologies to solve the world's most complex challenges related to water availability and quality, increased productivity, cost-reduction, and environmental regulations. We invest in forward-looking technologies, leveraging the best practices of 'eco-magination', to help customers balance environmental and economic goals. We offer the broadest portfolio of water and process technologies including separation equipment, membranes, filters, diagnostic tools, specialty chemicals, mobile water capabilities, service and financing. Our team develops partnerships and delivers reliable, long-term solutions for communities, governments and industry to maximise water and energy resources.

Stand 202

GEA Westfalia Separator Group

Werner-Habig-Str. 1, Oelde, NRW 59302 Germany

Tel. +49 2522 77 0

Contact – Heinrich Weweler

Email info@gea.com

www.gea.com

GEA Westfalia Separator Group is the world's leading company for mechanical separation technology. Our comprehensive expertise enables us to offer our customers top solutions for economy, efficiency and long-term environmental protection. We specialise in the recovery of drinking water and in the treatment of water, wastewater, manure and industrial fluids. Application areas of our

centrifuges are: dewatering and thickening of sewage sludge, treatment of municipal and industrial wastewater, recovery of valuable substances from production flows, treatment of fermentation residues and liquid manure, and treatment of drinking water.

Stand 522

GHD

16701 Melford Blvd, Suite 330, Bowie, MD 20715, US

Tel. +1 240 206 6846

Contact – Chris Hertle

Email info@ghd.com

www.ghd.com

GHD has been at the forefront of the water industry for many years. We proudly deliver sustainable water solutions across the globe, covering every element of the water cycle—from catchment to tap—for urban, rural and industrial water applications. We assist a range of stakeholders to optimise infrastructure and adapt to environmental and political changes in ways that balance the needs of communities. Importantly, we enable clients to meet compliance obligations, improve cost effectiveness and maintain their commitment to sustainability. We're proud of our formidable knowledge base, and we've won many industry awards for innovation and outstanding project delivery.

Stand 110

Global Water Intelligence

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Email ewelsh@globalwaterintel.com

www.globalwaterintel.com

Global Water Intelligence (GWI) provides analysis and project-tracking data on the international water market. Our flagship publication, the monthly industry journal Global Water Intelligence, has established itself as the market-leading publication for developers, suppliers, financiers, governments, utilities and municipalities seeking information and analysis on water projects with an element of private sector participation. American Water Intelligence (AWI) magazine is dedicated to providing this information for North America. We also publish highly informative in-depth market reports. You can find out more about all of our services, download sample chapters, or sign up for free trials at www.globalwaterintel.com/publications-guide/

Stand 301A

Goldstar Carbon Tech

349 Dafong 1st Rd Tanzih District, 41756 Taichung City, Taiwan

Tel. +886 4 2535 9618

www.goldstarcarbon.com.tw

Goldstar Carbon Tech Inc. is a Taiwan-based company, established in 2005. It has become one of the major international activated carbon suppliers, and our clients are from all around the world. We believe and follow the spirit of 'honesty, quality and professional'. Goldstar Carbon Tech Inc. has held the USA International NSF certificate and patent authentication from China and Taiwan. Goldstar Carbon Tech Inc. has the aim of creating the best products and services for our customer, ensuring the products are maintained at the highest quality and to live up the clients' expectations.

Stand 716

Grontmij

Granskoven 8, 2600 Glostrup, Denmark

Tel. +45 4348 6060

www.grontmij.dk

Goldstar Carbon Tech Inc. is a Taiwan-based company, established in 2005. It has become one of the major international activated carbon suppliers, and our clients are from all around the world. We believe and follow the spirit of 'honesty, quality and professional'. Goldstar Carbon Tech Inc. has held the USA International NSF certificate and patent authentication from China and Taiwan. Goldstar Carbon Tech Inc. has the aim of creating the best products and services for our customer, ensuring the products are maintained at the highest quality and to live up the clients' expectations.

Stand 305

Grundfos

Poul Due Jensens Vej 7, Bjerringbro, 8850 Denmark

Tel. +45 51 44 92 80

Contact – Morten Riis

Email corpcom@grundfos.com

www.grundfos.com/water-utility

An annual production of more than 16 million pump units makes Grundfos one of the world's leading pump manufacturers. Circulator pumps for heating and air conditioning—as well as other centrifugal pumps for the industry, water supply, sewage and dosing—are the main products. Today Grundfos is the world's largest manufacturer of circulators, covering approximately 50 per cent of the world market of these pumps. Grundfos Water Utility will present our demand-driven distribution, flow-dependent pressure-management solution.

Stand 710

GS Engineering & Construction Corporation

11FI, GS Tower, 679, Yeoksam-dong, Kangnam-gu, Seoul

135-985, South Korea

Tel. +82 2 2005 8758

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Email Jschoi01@gsconst.co.kr

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GS Engineering & Construction Corporation has successfully carried out engineering, procurement, construction, operation and maintenance and development services, internationally. It offers its best water services in the fields of water supply, hydropower and dams, sewage system maintenance, sewage and wastewater treatment, waste treatment and recycling, desalination and demineralization, and groundwater remediation. Recently, GS Engineering & Construction Corporation acquired Inima which is one of the top 10 global water desalination treatment companies. The acquisition of Spain's Inima secured resources to penetrate the water treatment market in US and South America, as well as Europe and North Africa.

Stand 712

G-tech

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Contact – Daegon Kim

Email g-techeng@daum.net

www.g-techeng.com

G-tech provides the most innovative, reliable water-control solutions for valves and actuators (for water and sewerage, HVAC and fire fighting) with excellent technical support and service to our customers. We are distributors of Singer Valve (pilot operated automatic control valve), Bray (butterfly valve and actuator), Val-matic (air release and check valve) and National Pump (all sorts of pump). Water loss and leakage isn't only a matter of great concern but also has to be solved. G-tech will take the lead to reduce this problem by providing the water control solutions. We promise to help our customers with solutions for water works.

Stand 318

Hitachi Ltd.

Akihara Daibiru Building, 18-13, Soto-Kanda 1-chome, Chiyoda-ku Tokyo, 101-8608 Japan

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Contact – Takahiro Tachi

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www.hitachi.com

Hitachi Ltd. supports the social infrastructure by contributing to the safe and reliable drinking water supply. Based on the advanced technology and reliable products, Hitachi is contributing integrated solutions to water infrastructure for approximately 100 years. We offer an integrated solutions in various fields in the drinking water supply such as planning, water quality, monitor and control, maintenance and service contract.

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Exhibitor profiles

Stand 123

Itron

7 rue ampère, ZI des bruyères, Europe Mâcon, France
Tel. +33 3853 93914
Contact – Lucile Montant
Email lucile.montant@itron.com
www.itron.com

Itron is a leading provider of energy and water resource management solutions for nearly 8,000 utilities around the world. We offer end-to-end solutions that include electricity, gas, water and thermal energy measurement and control technology; communications systems; software; and professional services. With more than 9,000 employees doing business in more than 130 countries, Itron empowers utilities to responsibly and efficiently manage energy and water resources.

Stand 500

IWA – International Water Association

Alliance House, 12 Caxton Street, London SW1H 0QS, UK
Tel. +31 70 315 0792
Contact – Chloe Menhinick
Email water@iwahq.org
www.iwahq.org

The exhibition stand of the International Water Association (IWA) and IWA Publishing will host a series of presentations and activities to inform exhibitors and delegates on the breadth of our programmes, regional activities, publications and membership packages. We are hosting the Specialist Groups Hub (stand no. 100), Development Hub (stand nos DH1–10) and Young Water Professionals Hub (stand no. 101) in the exhibition hall. Each hub will have a comprehensive programme of activities and dialogues planned throughout the week to give delegates and exhibitors opportunities to learn about our core activities.

Stands DH1-10

IWA Development Hub

IWA, Alliance House, 12 Caxton Street, London SW1H 0QS, United Kingdom
Tel. +31 70 315 0792
Contact – Chloe Menhinick
Email water@iwahq.org
www.iwahq.org

The Development Hub is a space where international organisations, IWA members and partners can establish dialogues and create opportunities to innovate across issues related to research, development, small and medium enterprises, and water and sanitation service delivery in lower- and middle-income countries. The dialogue sessions, organised by the participating organisations, will run throughout the congress. The Development Hub also offers individual presentations about participating organisations.

Stand 522

IWA Project Innovation Awards Winners Pavilion

IWA Asia & the Pacific Regional Office, 80 Toh Guan Road East, Waterhub, T03-03, Singapore 608575
Tel. +65 6316 9935
Contact – Gladys Ng
Email Gladys.ng@iwahq.org www.iwa-pia.org

The IWA Project Innovation Awards recognise and honour engineering excellence and innovation in water and wastewater engineering projects throughout the world. Awards are given in six categories—applied research, design, operations and management, planning, small projects, and marketing and communications. The 2012 winners will showcase their work at the Winners Pavilion, where you can meet them and learn about their projects. Each day during tea-breaks and lunch they will present their work. The 2012 awards are sponsored by global sponsors ARCADIS Malcolm Pirnie, GHD, KWR, Nagaoka International Corporation and SKM, and by regional sponsor Veolia Water Solutions and Technologies.

Stand 500

IWA Publishing / Water 21

Alliance House, 12 Caxton Street, London SW1H 0QS, UK
Tel. +44 207 654 5500
Contact – Keith Hayward
khayward@iwap.co.uk
www.iwapublishing.com

IWA Publishing, the wholly owned subsidiary of the International Water Association, is a leading supplier of water, wastewater and environmental publications, in both print and online format. The publishing programme includes a broad range of journals, books, research reports, manuals of best practice, the IWA Water Wiki, and other online services. It also includes Water21, the official magazine of IWA, which is published six times a year and provides a global perspective on the most important business, technology and environmental issues affecting the sector.

Stand 318

Japan Pavilion

4-8-9 Kudan Minami, Chiyoda-ku, Tokyo 102-0074 Japan
Tel. +81 3 3264 2294
Contact – Ikuro Mitake
Email jnc@jwwa.or.jp
www.jwwa.or.jp

Japan's success and innovation in the field of water management are the result of years of close collaboration and partnership among industry, government and improving water management technology and systems in Japan, promoting global development and working in collaboration with organisations all over the world. At Japan Pavilion 2012, Busan visitors can access and enjoy various information on activities and products of participating organisations.

Japan Waterworks Association

4-8-9 Kudan Minami, Chiyoda-ku, Tokyo 102-0074 Japan
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Contact – Ikuro Mitake
Email jnc@jwwa.or.jp
www.jwwa.or.jp

Clean water that is free of taste, odour and disease is an indispensable lifeline for human lives and social and economic activities. Therefore, Japan Water Works Association (JWWA) is making positive efforts in collaboration with water utilities in Japan to respond to strong community demand for a safe and stable water service, as well as high-quality water.

Stand 519

K-water

560 Sintanjin-ro Kwarae, Daedeok-Gu, Daejeon 306-711 South Korea
Tel. +82 42 629 3704
Contact – Jiwoong Kim
Email jwk72@kwater.or.kr
www.kwater.or.kr

Since its establishment in 1967, K-water has been implementing national water resources management policies regarding multipurpose dams, water supply systems and new renewable energy. K-water will be at the forefront of realising sustainable green growth in the 21st Century. K-water is supporting a variety of content at the IWA World Water Congress and Exhibition—such as the K-water tech forum; exhibition activities such as WaterNET, Dr pipe, CNT, Waterpedia and tap water tastings; and advanced water treatment technologies.

Stand 318

Kitakyushu Overseas Water Business Association

1-1 Ohtemachi, Kokurakitaku, Kitakyushu, Fukuoka, 803-8510 Japan
Tel. +81 93 581 2166
Contact – Yuji Inoue
Email jyouge01@lime.ocn.ne.jp

Established in 2010, KOWBA has secured the participation of private companies, agencies, academics and four municipal bureaus of Kitakyushu City, as well as the attendance of related national agencies as observers to form the first-ever municipal level public-private organisation in Japan for the promotion of international water business. We are presently active in countries such as Cambodia, Vietnam and China. Specialising in water supply and waste water treatment, the members of KOWBA offer services to provide a total water system from design to management by fully utilising innovative technologies and knowledge shared among participating companies and agencies.

Stand 416

Korea Environmental Corporation

Environment Research Complex, Gyeongseo-dong Seo-gu 404-108 Incheon, Korea
Tel. +82 3 2590 4000
Contact – Kyoung-Cheul Kang
www.keco.or.kr/02en/

Korea Environment Corporation (KECO) was founded to contribute to environmentally friendly national development by preserving the environment and introducing the resource recirculation system. It works by efficiently operating programs preventing environmental pollution, improving the environment and promoting resource recirculation.

Stand 525

Korea Water Forum & 7th World Water Forum Planning Office

1303 Officia Shinmunno 1-ga, Jongno-gu, Seoul South Korea
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Contact – Hyeyeong Kim
Email hyeyeong216@gmail.com
www.koreawaterforum.org

Korea Water Forum (KWF) is a non-profit organisation whose primary purpose is to establish cooperative relations with members of international water enterprises. In doing so, KWF serves as a leading organisation in preparing for the 7th World Water Forum, which will be held in DaeguGyeongbuk, South Korea, in 2015. KWF also provides water education to the general public in its efforts to promote awareness and knowledge of water as the resource that we most need to manage. KWF is also a think tank, holding regular symposiums and workshops in its advisory role to Korea's policymakers.

Book launch and meet the authors 15:45 – 16:15 Wednesday Exhibition stand no. 500

Join IWA Publishing at the IWA exhibition stand for a drinks reception during the break on Wednesday afternoon.

IWAP authors and staff will be attending, offering tips on how to publish in IWA books and journals.

The reception will also celebrate the launch of the following books—come along to hear the authors introduce their work.

Water and Energy - Threats and Opportunities

—Gustaf Olsson

Prof. Em. Lund Univ., former Editor-in-Chief Water Science & Technology

Animal Waste, Water Quality and Human Health

—Jennifer de France

Technical Officer, Water, Sanitation, Hygiene and Health, World Health Organization

Internal Corrosion Control of Water Supply Systems: Code of Practice

—Colin Hayes

Swansea Univ., Chair of IWA Specialist Group on Metals and Related Substances In Drinking Water

Water-Energy Interactions in Water Reuse

—Valentina Lazarova

Suez Environnement, Chair of IWA Specialist Group on Water Reuse

Several journal editors and book authors will also be at the IWA stand – don't miss the opportunity to meet them face to face. Including: **Helmut Kroiss**, Vienna University of Technology, Editor-in-Chief Water Science & Technology; **Kwang-Ho Choo**, Kyungpook National University, Korea.



Stand 318

Kubota Corporation

1-3, Nihonbashi-Muromachi, 3-chome, Chuo-ku, Tokyo
103-8310 Japan
Tel. +81 3 3245 3165
Contact – Takao Yamanaka
Email y-takao@kubota.co.jp
www.kubota.co.jp

Ever since our establishment in 1890, KUBOTA group has been engaged in the water business. Under our group slogan, 'For Earth, For Life', we contribute globally through our business to solving the problems in the fields of water, food and environment. The products of our pipe system division include: ductile iron pipes and joints, valves and pumps. The products of the water engineering and solution division are: water treatment plants, submersed membrane units and wastewater treatment tanks.

Stand 520

KWR Watercycle Research Institute

PO Box 1072, 3430 BB Nieuwegein, Netherlands
Tel. +31 30 6069 511
Email communicatie@kwrwater.nl
www.kwrwater.nl

Due to the water-cycle knowledge we have gathered in the Netherlands, the quality of our tap water is extremely high. This makes us one of the world's leading nations in the field. The Dutch knowledge enterprise KWR Watercycle Research Institute plays an important role as an interface between society, the water sector and science. To improve the match between knowledge and application in countries abroad, KWR launched the Watershare® concept. In Watershare®, we have packed 40 years of experience with applied knowledge into 'handy packages'. When you open the packages up, a whole world of useful insights and practical solutions is revealed. Come and visit us at stand 520.

Stand 403

LG Electronics

Yeouido-dong 20, Twin tower 150-875, Seoul, Korea
Tel. +82 10 5260 2953

The water business of LG Electronics (LGE) consists of three parts. Membranes and materials are produced by LGE. EPC (engineering, procurement and construction) is in charge of the newly born joint venture LG-Hitachi Water Solutions. The O&M (operation and maintenance) mission is a role of recently merged Hi-Entech (formerly Daewoo Entech). Now, LGE is ready for the role of being a total water solution provider with these three core units. www.lh-ws.com

Stand 318

Meidensha Corporation

Meiko Building, 5-5-5 Osaki, Shinagawa-ku, Tokyo
141-8616 Japan
Tel. +81 3 6420 7495
Contact – Shotar Limori

Email iimori-s@mb.meidensha.co.jp
www.water-solution.meidensha.co.jp/filter_e/index.html

Meidensha Corporation offers a new wastewater treatment with a flat-sheet-type ceramic membrane, especially for industrial wastewater which is oily, chemical-laden, or at high temperature. Since 1897, we have developed a wide range of innovations, products and services, and have worked very hard for the benefit of society. We develop products and technology to resolve water treatment problems all over the world.

Stand 310

Membrana

Oehder Str 28, 42289 Wuppertal, Germany
Tel. +49 202 6099 950
Contact – Martin Rütering
Email martin.ruetering@membrana.de
www.liqui-flux.com

Membrana is a market-leading, independent membrane producer. Membrana is one of the largest membrane and membrane device manufacturers in the world. It supplies microporous membranes for medical applications such as dialysis, oxygenation and plasma separation. Membrana is also a supplier of membrane products for filtration and specialty applications deployed in semiconductor, power, pharmaceutical, food and beverage, and water treatment markets. The primary company-wide product focus is: hollow-fibre and flat-sheet membranes for medical applications, flat-sheet microfiltration membranes for process filtration, Liqui-Cel® membrane contactors for liquid gasification/degasification, and Liqui-Flux® ultrafiltration modules for water treatment.

Stand 312

Metawater

Shiroyama Trust, Toranomon, Minato-ku Tokyo, Japan
Tel. +81 3 6403 7529

Contact – Minoru Tsuchida
Email info-kaigai@metawater.co.jp
www.metawater.co.jp/eng/

Metawater offers water-cycle and wastewater-recycle management for all stages to meet your needs and to save our natural environment and water resources. In water treatment fields, our highly valued ceramic membrane filtration system (which currently holds more than 30 per cent share of the membrane filtration market for public water treatment in Japan) has paved the way for new-generation solutions that save energy and space, and reduce costs and maintenance expenses. Moreover, our unique high-rate filtration system provides efficient wastewater treatment at low cost and serves as a key element for sewer overflow control to reduce environmental load.

www.kolonglobal.com

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 **KOLON GLOBAL CORPORATION**

KOLON Tower, KOLON-ro 11, Gwacheon, Gyeonggi-do 427-709, Korea
tel : 02-3677-3114 / fax : 02-3677-5601

Exhibitor profiles

Stand 421

Milwaukee Water Council

710 N. Plankinton Avenue, Suite 340, Milwaukee
WI 53203 US
Tel. +01 414 291 2773
Contact – Dean Amhaus, President
Email damhaus@thewatercouncil.com
www.thewatercouncil.com

Milwaukee is one of the world's most significant hubs for water research and industry. With more than 150 water technology companies, over 100 scientists and researchers, and the only School of Freshwater Sciences in the US, the region has the expertise and resources needed to succeed in the world water marketplace. Created by leaders in both business and education, the Milwaukee Water Council is convening the region's existing water companies and research clusters, developing education programs to train our talent, and building partnerships that cut across all sectors and geographic boundaries.

Stand 700

Ministry of Environment

47 Gwanmoon-ro, Gwacheon-si, Gyeonggi-do, 427-729
Republic of Korea
Tel. +82 2 2110 6878
Contact – Jin-Hyun Jung
Email gry0924@korea.kr
www.me.go.kr

The Ministry of Environment is the branch of government charged with environmental protection and green growth. To protect the national territory from threats of environmental pollution and improve the quality of life for the public, the Ministry enforces regulations, sponsors ecological research, and manages the national parks. In February 2008, the Korea Meteorological Administration became an affiliate of the Ministry of Environment to facilitate countermeasures against climate change. Furthermore, the Ministry aims to contribute to the global efforts to protect the earth.

Stand 314

Miya

4th Floor, DMCI Homes Corporate Center, 1321 Apolinario Street, Brgy Bangkal Makati City 1233 Philippines
Tel. +63 2403 1358
Contact – Noa Uni
Email info@miya-water.com
www.miya-water.com

Miya, an Arison group company, is a global provider of urban water efficiency solutions, with an emphasis on non-revenue water (NRW) management. Miya helps utilities increase water supply, revenues and profits through comprehensive economic and sustainable water efficiency projects. Miya's solutions includes water system audit and analysis, comprehensive project planning, management,

implementation, maintenance and training. The global group of Miya companies includes leading water-efficiency technology and engineering consulting companies. Miya's extensive experience includes projects in the Philippines, Brazil, Canada, South Africa and the Bahamas.

Stand 131

Mueller Co International Holdings LLC

21 Bukit Batok Crescent 25-75 Wcega Tower 658065
Singapore
Tel. +65 6631 8999
Contact – Ms Lilian Ngo
Email Lngo@muellercompany.com
www.muellercompany.com

Mueller Co. is North America's largest and only full-line supplier of potable water distribution products. Mueller's superior products cut across various water infrastructure segments and even the gas distribution segment. Our Mueller and Jones fire hydrants, our Henry Pratt and Hydro Gate products, and our butterfly and ball valves, plug valves and brass water products are market leaders in their respective applications. We also offer pipe repair products, water meters, tapping machines and tools, and, under Echologics, non-invasive leak detection and pipe condition assessment technology and services. Our products and services are used by municipalities and construction industries globally.

Stand 716

Mycometer A/S

Lersøe Park Alle 40, DK-2100 Copenhagen, Denmark
Tel. +45 3916 1072
Contact – Morten Miller
Email info@mycometer.com
www.mycometer.com

For more than ten years, Mycometer has developed user-friendly, rapid and robust onsite microbiology methods for environmental and industry professionals. Our products are USEPA verified. Timely results are essential for utilities and industry to maintain control of water microbiological quality. The BactiQuant® is a state-of-the-art onsite technology for rapid and robust determination of total numbers of bacteria in water samples. It provides the operator with a result within 10–30 minutes. The system is well suited for HACCP (hazard analysis and critical control points) and water safety plan based systems in utilities and the industry.

Stand 214

Nagaoka International Corporation

6-1 Nagisa-cho, Izumiotsu-city, Osaka 595-0055 Japan
Tel. +81 725 21 5750
Contact – Katsuhiko Yamada
Email inter@nagaokajapan.co.jp
www.nagaokajapan.co.jp

Nagaoka is proud to be the leading engineering and consulting firm providing total solutions for water intake, purification and treatment. Our groundwater intake technology is the standard in Japan and our biological groundwater treatment can remove high-concentration iron, manganese and ammonia nitrogen; and is beneficial for rural or small-scale waterworks services for sustainable supply of safe drinking water. Our new technology for high-speed sub-seabed infiltration system will bring high efficiency, cost-saving and environmentally friendly processes in seawater intake. Nagaoka's continuous challenge and technology development contributes to the world of water.

Stand DH9

Nairobi Water Company

PO Box 30656, 00100 Nairobi, Kenya
Tel. +254 398 8000
www.nairobiwater.co.ke

The Nairobi Water Company was incorporated in December 2003 and is a wholly owned subsidiary of the City Council of Nairobi. The company operates through six administrative business centres in Nairobi, with three dam stations, one spring, three water treatment plants and two wastewater treatment plants. As the company is run on commercial principles, its workforce is integrated into a competitive and productive environment that is customer focused and results oriented. The Company is ISO 9001:2008 certified.

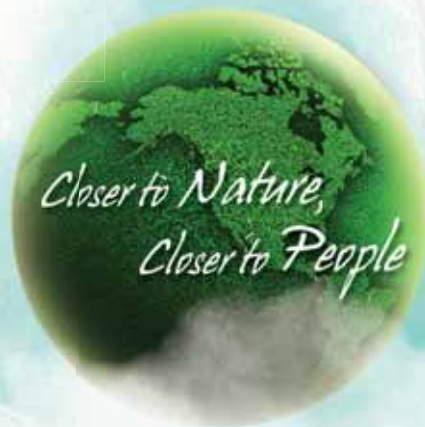
Stand 223

NanoH2O Inc.

750 Lairport Street, El Segundo, CA 90245 US
Tel. +1 424 218 4000
Contact – Nicholas Dyner
Email info@nanoh2o.com
www.nanoh2o.com

NanoH2O Inc. develops, manufactures and markets reverse osmosis (RO) membranes that lower the cost of desalination. Based on breakthrough nano-structured materials and industry-proven polymer technology, NanoH2O's thin-film nanocomposite (TFN) QuantumFlux™ membranes improve desalination energy efficiency and productivity. QuantumFlux™ seawater reverse osmosis (SWRO) membranes deliver the highest flux or the highest salt rejection of any SWRO membrane on the market. QuantumFlux™ membranes are available in standard eight-inch (20 centimetre) diameter elements that fit easily into new and existing desalination plants, purifying water from a broad range of sources with improved productivity and water quality.

The Korea Environment Corporation works to improve quality of life through the preservation of the national environment and sustainable resource recirculation.



BUSAN KOREA



Stand 716

National Oilwell Varco (formerly NKT Flexibles)

Priorparken 480, Brøndby, DK 2605, Denmark
Tel. +45 4348 3000
Contact – Jacob Zeuner
Email flexibles@nov.com
www.nov.com/fps

National Oilwell Varco (NOV) is a leading supplier of flexible pipe systems for drinking water. If drinking water is a limited resource or expensive due to desalination, or of low quality due to use of surface water, and you need to move water to where you need it, then a flexible subsea pipe from NOV could be a solution. If you are in a region with tropical monsoons, a sloping seabed, or tsunamis, then a flexible subsea pipe could be the solution for a steady, reliable water supply.

Stand 300

Netherlands Water Partnership

PO Box 83237, 2508 EH Den Haag Netherlands
Tel. +31 70 304 37 00
Contact – Sandra Borst
Email info@nwp.nl
www.dutchwatersector.com / www.nwp.nl

Wind, water and wide open spaces have shaped the Netherlands and its history. The Dutch are skilled water managers. Over the years we have reclaimed land, increased our freshwater resources, and made it possible to reuse our wastewater. We like to share our knowledge and skills internationally to achieve more in confronting global water-related challenges. The Dutch water sector is organised in the Netherlands Water Partnership (NWP). This non-commercial partnership is a comprehensive network that unites private, government, knowledge institute and NGO Dutch water expertise as a centre of information on water expertise, policy developments and market opportunities.

Stand 216

Nivus

411 EZEN Techno Zone, 1L EB Yangchon Industrial Complex Gimpo-Si, 415-843, Gyeonggi-Do, Korea

Stand 701

Office of National River Restoration

88, Gwanmun-Ro, Gwacheon-Si, Gyeonggi-Do 427-712 Gwacheon, Korea
Tel. +82 2 2110 6067
www.4drivers.go.kr

OOSKANews Inc.

37 Main St., Warrenton, VA 20186 US
Tel. +1 540 428 3440
Contact – Liz Howard
Email info@ooskanews.com
www.ooskanews.com

OOSKANews Inc. is the leading source for water sector news in the developing world. Current publications include: Weekly Water Report Middle East and Africa, Weekly Water Report Southern and Eastern Asia, Weekly Water Report Eastern Europe and FSU, Weekly Water Report, Latin America and the Caribbean and International Water Weekly.

Stand 715

Oslo Water and Sewerage Works

PO Box 4707, Sofienberg, N-0506 Oslo Norway
Tel. +47 2343 7262
Contact – Sonya Jenssen
Email sonya.jenssen@vav.oslo.kommune.no
www.vann-og-avloppetaten.oslo.kommune.no/iwa_2012

Oslo Water and Sewerage Works is a publicly run utility responsible for the supply of drinking water, stormwater management and wastewater treatment. Oslo Water and Sewerage Works has three water treatment plants, two wastewater treatment plants, and 3,750 kilometers of water and sewerage mains. We are responsible for the provision of clean drinking water, sewage treatment and stormwater management. Our stand in Busan, Korea, focuses on the complete cycle of stormwater and wastewater treatment from building a plant tunneled in the mountains of Norway to upgrading the capacity of wastewater pipelines in downtown Oslo.

Stand 200

Pentair Water Asia Pacific

101 Thomson Road, 16-03, United Square 307591 Singapore
Tel. +82 10 8884 0683
Contact – Jung-Hoon Kim
Email info.cpt@pentair.com
www.pentair.com

Pentair is a global diversified industrial company headquartered in Minneapolis, Minnesota. Pentair Water and Fluid Solutions is a leading provider of innovative water and fluid processing products and solutions used in a wide range of applications. Pentair Technical Products is a leading provider of products that enclose and protect some of the world's most sensitive electronics and electrical equipment, ensuring their safe, secure and reliable performance. With 2011 revenues of \$3.5 billion, Pentair employs more than 15,000 people worldwide.

Stand 225

Poltank

P.I. Poliger Sud Sector I, Sant Jaume de Llierca, Girona 17854, Spain
Tel. + 34 9722 87070
Contact – Fernanda Cervantes
Email info@poltank.com
www.poltank.com

Poltank designs and manufactures industrial pressure vessels in composite (FRP) for water treatment and desalination. Our four production plants use the most advanced techniques such as continuous filament winding, as well as hand lay-up and spray-up to produce top-quality products. Fiberglass provides higher mechanical and chemical resistance than steel. Moreover, it doesn't corrode, providing a long service life without any lining/coating maintenance cost. Our engineering department works closely with customers to offer integral solutions that best fulfill our customers' needs. Today our products are present in facilities over more than 40 countries within the five continents.



Korea's hope runs with water

Water is a resource of great use.
It raises life and makes energy.
Precious water creates new growth.
Clean water, A happier world with K-water





Constuction & Operation
Management of Water Resources Facilities



Constuction & Operation Management of
Water Supply and Public Sewerage



Construction of national
Industrial Complexes



Green growth Projects



Overseas Projects

Exhibitor profiles

Stand 521

POSCO Engineering & Construction

Tower 1, 36 Songdo-Dong, Yeonsu-Gu, Incheon, 406-732
South Korea
Tel. +82 10 9450 7604
Contact – Jongmyong Lee
Email blade@poscoenc.com
www.poscoenc.com

Established in 1994, POSCO Engineering & Construction are a leading partner for water and environment works. We are committed to giving our clients a competitive edge. We have recently been appointed as the contractor for the water treatment plant in Yanbu' al Bahr (Saudi Arabia) and for water resources planning in Abu Dhabi (United Arab Emirates). We also specialise in strategic planning for desalination facilities. We have accumulated diverse skills from our many projects, which range from drinking water to recovery. We have implemented the PEPOM system of project planning—financing, engineering, procurement, construction, operation and maintenance—throughout our projects.

Stand 117

Prince Sultan Bin Abdulaziz International Prize for Water

General Secretariat, Prince Sultan Institute for Environmental, Water & Desert Research King Saud University, Riyadh, 11451 Saudi Arabia
Tel. +966 1 4675 571
Contact – David Jalajel
Email info@psipw.org
www.psipw.org

Inaugurated in 2002 by HRH Crown Prince Sultan Bin Abdulaziz, Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW) is a leading, international scientific award recognising exceptional and innovative work contributing to water availability and the alleviation of water scarcity. PSIPW awards five biannual prizes, covering the entire water research landscape. First is the Creativity Prize, awarded for work that can be considered a breakthrough in any water-related field. Then there are four specialised prizes: the Surface Water Prize, the Groundwater Prize, the Alternative Water Resources Prize, and the Water Management & Protection Prize. Nominations are now open online.

Stand 114

PUB Singapore

40 Scotts Road, 22-01, Environment Building 228231
Singapore
Tel. +67 313 577
Contact – Michelle Ooi
Email michelle_ooi@pub.gov.sg
www.pub.gov.sg / www.siww.com.sg

The Singapore Pavilion is jointly presented by PUB Singapore and SIWW. Visit us to learn more about the Singapore water story and our aspirations to be a 'Global Hydrohub'. As the national water agency, PUB Singapore is responsible for the collection, production, distribution and reclamation of water in Singapore. Our mission is to ensure an efficient, adequate and sustainable supply of water for all Singaporeans. SIWW is PUB's global platform for water solutions and brings policymakers, industry leaders, experts and practitioners together to address challenges, showcase technologies, discover opportunities and celebrate achievements in the water world.

Stand 209

Pure Technologies

300, 705 - 11th Avenue S.W. Calgary, Alberta, T2R 0E3
Canada
Tel. +1 403 266 6794
Contact – Jon Boon
Email jon.boon@puretechltd.com
www.puretechltd.com

Are you wrestling with deteriorating pipeline infrastructure? Pure Technologies helps municipal utilities extend asset budgets and minimise risk through our Assess & Address™ pipeline management solutions. From leak detection and condition assessment to engineered pipeline management programs, Pure Technologies offers a complete suite of solutions to extend the life of large-diameter pressure pipes.

Stand 522

PWN Technologies

Rijksweg 501, 1991 AS, Velsbroek, Netherlands
Tel. +31 23 5413728
Contact – Debbie Middendorp
Email ngressie@pwntechnologies.nl
www.PWNTechnologies.com

PWN Technologies—innovative designs for sustainable, advanced water treatment. PWN Technologies, a subsidiary of water supply company PWN, was established to make the utility's innovations in water treatment available to water companies worldwide. The revenues of PWN Technologies are invested in research and development to strengthen PWN's position as an innovative water supply company. PWN Technologies has developed advanced and sustainable solutions in water treatment, based on suspended ion exchange, ceramic membrane applications and advanced oxidation. PWN Technologies also delivers innovative solutions for drinking-water production in emerging countries. PWN Technologies is located in Velsbroek (HQ Netherlands), Andijk (Netherlands) and Singapore.

Stand 713

Salsnes Filter

Verftsgt 11, 7800 Namsos, Norway
Tel. +47 742 74860 Fax +47 742 74859
Contact – Bjørn Aas
Email bjorn@salsnes-filter.no
www.salsnes-filter.no

Salsnes Filter's patented filter technology is in compliance with EU primary treatment limits, and used for primary treatment followed by a direct discharge recipient. In addition to the municipal market, the systems are used in food processing industries, breweries, tanneries and paper industries. Salsnes Filter technology may replace primary clarifiers, and may work with chemically enhanced primary treatment, or followed by any secondary treatment process. Due to the high removal rate of particles, the system is very attractive as a primary stage followed by MBBR or MBR systems. In the foreign market, Salsnes Filter is working with distribution agents.

Stand 422

Samjin Precision Co. Ltd

1-31 Daehwa-dong - Daeduk-ku, 306-800, Taejeon City, Korea
Tel. +82 426723600
Email samjin@samjinvalve.com www.samjinvalve.com

Stand 614

Samsung Cheil Industries Inc.

332-2 Gocheon-dong Uiwang-si Gyeonggi-do, 437-711
South Korea
Tel. +82 31 596 4191
Contact – Byeong Gweon, Yun
Email membrane@samsung.com
www.cii.samsung.com

Samsung Cheil Industries utilises cutting-edge technologies to provide UF membrane products—the core of the water treatment process—and related solutions and services, contributing to the progress of society. Samsung Cheil Industries has accumulated countless quality control research data and done field tests in connection with membranes, so the company's treated water maintains its top quality. In addition, Cheil Industries offers top-notch technology services to customers around the world through its global R&D and services networks.

Stand 614

Samsung Engineering

500 GEC Sangil-Dong, Gangdong-Gu, Seoul 134-090
South Korea
Tel. +82 2 2053 3000
Contact – Jong Sang Lee
Email infocenter@samsung.com
www.samsungengineering.co.kr

With 42 years of excellence in environmental plants and facilities, Samsung Engineering has proven expertise in all processes of water treatment, while expanding its business in reverse osmosis desalination and equity investment. Samsung Engineering was awarded the IWA Project Innovation Award in 2008 for Respia, a public partnership sewage project in Korea. In 2009, The ICAD Wastewater

treatment plant in the UAE was successfully completed and in operation. Last year the company was awarded its first build—own—operate project for the Bahrain Muharraq STP, and received the '2011 Deal of the Year' honour from Project Finance Institute.

Stand 103

Seba Dynatronic

Dr Herbert-Iann Strasse 6, D-96148 Baunach, Germany
Tel. +49 9544 1680
Email sales@sebakmt.com
www.sebakmt.com

Stand 307

Severn Trent Services

3000 Advance Lane, Colmar, Pennsylvania PA 18915 US
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www.severntrentservices.com

Severn Trent Services, with global headquarters in Fort Washington (PA, USA), is a leading supplier of water and wastewater solutions. The company's broad range of water purification products and services is concentrated around market-leading disinfection, instrumentation and filtration technologies.

Stand 412

SEWERIN

Robert-Bosch-Straße 3, Guetersloh 33334 Germany
Tel. +49 524 19340
Contact – Lutz Hoernschmeyer
Email info@sewerin.com
www.sewerin.com

We are an internationally successful, technically innovative company based in Guetersloh, Germany. With top products and services, we are the market leader and partner of gas and water utilities. The development, production and worldwide distribution of technologies for gas and water leaks are our core competencies. We provide instruments for: water leak detection; pipe and cable tracing; gas concentration measurement and gas leak rate measurement; warning of oxygen deficiency, of toxic gases and explosion hazards; and gas warning and measuring for monitoring processes and personal safety at landfill sites, sewage treatment facilities and biogas plants.

Stand 303

Shanxi Xinhui Activated Carbon

5th Floor, SOHO Building No.211 Xinjian North Road Taiyuan China
Tel. +86 351 3051788
Contact – Elane Zhang
Email sales@xinhuicarbon.com
www.xinhuicarbon.com

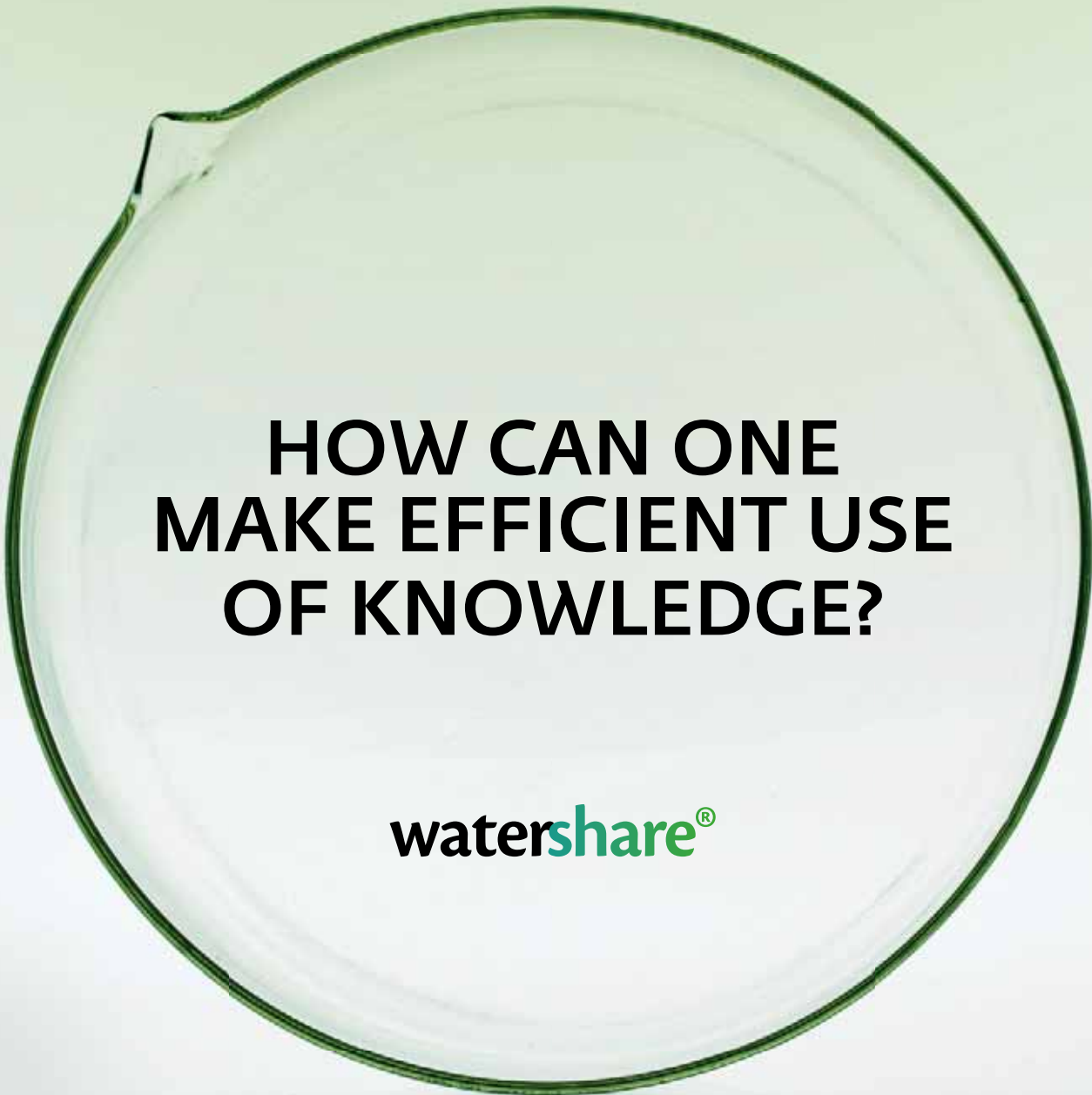
Shanxi Xinhui Activated Carbon is one of the largest and professional manufacturers of activated carbon in China. Our activated carbon is made from coal, strictly selected using advanced technology. Shanxi Xinhui Activated Carbon is widely used in the fields of water treatment, air purification, desulphurisation and denitrification, solvent recovery, catalyst carrier, and more.

Stand 522

South East Water – iota

20 Corporate Drive, Heatherton, Vic 3040, Australia
Tel. +61 3 9552 3006
Contact – Steve Webb
Email stephen.webb@iota.net.au
www.iota.net.au

South East Water is one of Australia's most recognised water authorities for innovation and operational excellence. It established iota to capture innovation from across the organisation, test and prove ideas, and commercialise successful innovation and technology. At iota, we dig deep, we look wide. We look for the little things that bring big opportunities to life. We offer a range of respected products, services and integrated solutions which assist utilities and organisations to proactively monitor and control water and waste networks, effectively plan and implement capital-works projects, and efficiently manage works and field-based activities.



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 [@kwr_water](https://twitter.com/kwr_water)

Exhibitor profiles

Stand 610

SSENG

392-7 Dukpo, Busan, Sasang 617-040 South Korea
Tel. +82 51 304 3531
Contact – Changhan Yun
Email changhanyun@hanmail.net
www.sseeng.co

SSENG was established in 1999 and manufactures fibre filters, pore-controllable-fibre filters and glass-fibre filters using the fine-fibre polypropylene as its media. The efficiency of our filter indicates over 90 per cent suspended solids removal (300 NTU to 0.3 NTU, below SDI 3) by passing through a double-stage pore-controllable-fibre filter. SENG's technology is one of the solutions for water scarcity around the world and offers very cheap prices for construction and maintenance.

Stand 510

SUEZ ENVIRONNEMENT

Tour CB21 - 16 Place de L'Iris, 92040 Paris La Defense France
Tel. +33 1 58 81 20 00
Contact – Caroline Mairesse
Email caroline.mairesse@suez-env.com
www.suez-environnement.com

Natural resources are not infinite. SUEZ ENVIRONNEMENT and its subsidiaries commit, on a daily basis, to meeting the challenge of protecting resources by providing innovative solutions to millions of people and to industries. SUEZ ENVIRONNEMENT provides 91 million people with drinking water, 63 million people with wastewater treatment services and collects waste from some 57 million people. SUEZ ENVIRONNEMENT has 80,410 employees and, with its presence on five continents, is a world-leader exclusively dedicated to water and waste management services. In 2011, SUEZ ENVIRONNEMENT (which GDF SUEZ holds a 35.7 per cent stake in) achieved revenues of €14.8 billion.

Stand 320

Sumitomo Electric Industries

4-5-33, Kitahama, Chuo-ku, Osaka, 541-0041 Japan
Tel. +81 6 6220 4321
Contact – Takashi Harada
Email harada-takashi@gr.sei.co.jp
www.global-sei.com

Poreflon Module is a PTFE (Polytetrafluoroethylene)-made hollow fibre microfiltration membrane module manufactured by Sumitomo Electric Industries., a leading Japanese corporation offering a wide array of products in automotive, information and communication, electronics, electric wire and cable, energy and industrial materials since 1897. With our proprietary technology to precisely control pore-size distribution in processing PTFE, Poreflon Module offers high and consistent flux, superior mechanical and thermal strength, excellent chemical resistance to acids, alkalis and solvents and long-lasting hydrophilic property. Poreflon Module can load wastewater with higher oil content and offers an innovative solution to treat oil-contaminated wastewater.

Stand 210

SWAN Analytical Instruments

Studbachstrasse 13, Hinwil, (ZH) 8340 Switzerland
Tel. +41 44 943 63 00
Contact – René König
Email sales@swan.ch
www.swan.ch

SWAN is a leading manufacturer of online analytical instruments with headquarters in Switzerland. The applications range from ultrapure water, feedwater, steam and condensate monitoring; as well as potable water and industrial water; up to swimming pool and sanitary water applications. Parameters include: ammonium, chlorine/ozone/chlorine dioxide, conductivity and resistivity, hydrazine/carbohydrazide, nitrate, oxygen (dissolved), pH, phosphate redox (ORP), silica, sodium, turbidity and total organic carbon.

Stand 129

SWAN Forum

13 John Street, Stratford-Upon-Avon, Warwickshire CV37 6UB UK
Tel. +44 20 81 44 81 46
Contact – Rose Wolfe
Email info@swan-forum.com
www.swan-forum.com

SWAN – The Smart Water Networks Forum – is a worldwide industry forum promoting the use of data technologies in water networks, making them smarter, more efficient and more sustainable. SWAN brings industry leaders together to create and accelerate awareness and effective use of smart data systems for water networks. SWAN encourages targeted discussion to raise awareness for smart water networks; create and report upon the methodologies, standard performance indicators, and industry best practices; develop new approaches and solutions to improve network operations; share members' experience, case studies and research; and promote interoperability, synergy and common measurements.

Stand 118

Swiss Pump Company

Moosweg 36, Thun, Bern 3645 Switzerland
Tel. +41 33 223 11 00
Contact – Matthias Doelitzsch
Email mail@swisspump.com
www.swisspump.com

We provide water pumps for various kinds of applications, such as: submersible pumps and motors, vertical multi-stage pumps, horizontal multi-stage pumps, sewage and dewatering pumps, and split case pumps.

Stand 318

Taisei Kiko

1-1-3-2700, Umeda, Kita-ku, Osaka, 530-0001 Japan
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www.taiseikiko.com

Since its foundation in 1941, Taisei Kiko has been a pioneer in the field of water, sewage and gas pipeline maintenance, by constantly striving to meet the needs of the industry.

Stand 420

TaKaDu

AFI House 4, Derech Hahoresht, Yehud, 56470 Israel
Tel. +97 235 555100
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Email info@takadu.com
www.takadu.com

TaKaDu provides a software-as-a-service solution for monitoring water distribution networks. TaKaDu gives the utility real-time control over network events, using state-of-the-art statistical and mathematical algorithms. Water utilities using TaKaDu report reduced water loss, increased detection and repair crew efficiency, reduced energy expenditure and increased customer satisfaction. TaKaDu's solution is easy to deploy, requiring no network changes, additional devices or capital expenditure. TaKaDu is in use by leading water utilities worldwide. TaKaDu is the winner of many industry awards, including the prestigious World Economic Forum Technology Pioneer 2011 Award.

Stand 119

Taylor & Francis

Taylor & Milton Park, Abingdon Oxon, OX14 4RN, UK
Tel. +44 20 7017 6000
Contact – Kristian Wilson
Email subscriptions@tandf.co.uk
www.tandfonline.com

Taylor & Francis is dedicated to the dissemination of scholarly information, utilising skills and expertise honed since we first began publishing learned journals in 1798. Today, we publish more than 1,600 scholarly journals in association with 460 societies and institutions. Our publishing team is truly international. With a network of 20 global offices—including Philadelphia, Oxford, Melbourne, Beijing, New Delhi, Stockholm, Johannesburg and Singapore—we can provide local support around the globe. Visit our stand and request free sample copies of any journal on display!

Stand 141

Technobiz

2521/27, Lardprao Road, Khlongchaokhunsingha 10310 Wangthonglang, Bangkok, Thailand
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Stand 121

Teijin Limited

3-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8585 Japan
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Email wpt@teijin.co.jp
www.teijin.co.jp/english/index.html

Teijin Limited (Japan) is a global technology-driven company operating in six major fields: high-performance fibers (aramid fibers and carbon fibers), polyester fibers, films and plastics, pharmaceuticals and home health care, trading and retail, and IT and new products. Teijin had consolidated sales of USD 10.7 billion (JPY 854.4 billion, USD 1=JPY 80) in fiscal 2011 and employs 16,819 people worldwide, with 149 companies around the world. Teijin is diversifying its business into water treatment, with an innovative bioreactor technology for excess sludge reduction (MSABP) and a highly efficient advanced oxidation technology (HiPOx).

Stand 522

The Research Institute for Catalysis

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Stand 318

Tokyo Suido Services & Tokyo Waterworks International

6-14-1, Nishishinjuku, Shinjuku-ku, Tokyo, 160-0023 Japan
Tel. +81 3 5320 9423
Contact – Takashi Kojima
Email kojima-takashi@tssk.jp
<http://www.tssk.jp/> <http://www.twic.co.jp/en/>

Tokyo Suido Services (TSS) is a subsidiary of the Bureau of Waterworks, Tokyo Metropolitan Government (Tokyo Metropolitan Waterworks Bureau: TMWB) which supplies water to 13 million people round the clock to support the urban and industrial prosperity of Tokyo. TSS helps TMWB supply safe and high-quality water through 26,219 km of distribution pipe networks with a leakage rate of less than three per cent. TSS presently founded Tokyo Waterworks International (TWI) in April 2012 as a subsidiary specialised for overseas water business.

Stand 212

Trojan Technologies

3020 Gore Road, London, Ontario N5V 4T7 Canada
Tel. +1 519 457 3400
Contact – Ji Hyun An
Email info@trojanuv.com
www.trojanuv.com

TrojanUV provides the solutions that bring water confidence to your community. Trojan's team designs, manufactures and sells UV systems for municipal wastewater and drinking water facilities, as well as for the industrial, commercial and residential markets. TrojanUV systems effectively and cost-efficiently free water from illness-causing bacteria, viruses and chemical containments.

Stand 215

VAG-Armaturen

Carl-Reuther-Str. 1, Mannheim, 68305 Germany
Tel. +49 621 749 0
Contact – Dirk Recktenwald
Email info@vag-group.com
www.vag-group.com

VAG-Armaturen is a German company with more than 140 years of experience in the design and manufacturing of heavy-duty valves for all kinds of water applications. With more than 1,200 employees worldwide, the valve manufacturer is a globally active company and is setting new standards as a solution and system provider in water and wastewater technology. With over 180 sales representatives, 18 subsidiaries and four production facilities, VAG is at home around the world.



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NanoH₂O introduces the **Qfx SW 400 R** and **Qfx SW 400 SR**, exhibiting the highest salt rejection of any other seawater reverse osmosis (SWRO) membrane on the market today – **99.85%**.

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Featuring NanoH₂O's newly designed bi-directional brine seal and anti-telescoping device (ATD) with raised lip for easy handling, **QuantumFlux** membranes can be loaded/removed from either end of the pressure vessel.

Contact NanoH₂O today to find out how **QuantumFlux** can help you lower the cost of desalination.

KEY FEATURES

- High salt and boron rejection
- Newly designed ATD and bi-directional seal for easy loading/removal
- Standard 4- and 8-inch spiral-wound elements
- NSF Standard 61 Certified

PRODUCT SPECIFICATIONS

Part Number	Qfx SW 400 R	Qfx SW 400 SR
Permeate Flow Rate	34 m ³ /d	24.6 m ³ /d
Stabilized NaCl Rejection	99.85%	99.85%
Stabilized Boron Rejection	93%	93%

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Desalination Pavilion
Booth 223
17-20 Sept 2012

NanoH₂O

Exhibitor profiles

Stand 716

VCS Denmark

Vandværksvej 7, DK-5000 Odense, C, Denmark
Tel. +45 63 13 23 33
Contact – Henrik Werchmeister
Email hew@vcsdenmark.com
www.vcsdenmark.com

VCS Denmark is the third largest water and wastewater utility in Denmark. A frontrunner in our sector, we manage water resources from catchment to consumer to recipient, adopting a holistic approach to water and wastewater management, and applying the most advanced technologies and methods. Our main activities are water catchment, treatment and distribution; and wastewater removal, treatment and disposal. We also work in water resource and recipient protection; hydrogeological surveying and establishment of well fields; leakage detection and network modelling; pipeline registration; and rehabilitation. We offer our expertise nationally and internationally. Our subsidiary company DanAqua operates in South East Asia.

Stand 616

Veolia Water

Direction France, 52 rue d'Anjou, 75008 Paris, France
Tel. +33 01 49 24 35 06
Contact – Atika Doukkali
www.veolia.com

The world's leading operator of water services, Veolia Water operates water and wastewater services on behalf of public authorities and companies, and designs technical solutions and builds facilities for those services. Veolia Water covers the entire water cycle with a constant focus on protecting resources and saving water. Veolia Water's activities range from water withdrawal, to production and distribution of drinking water and industrial process water, and from the collection and transportation of wastewater, to treatment for subsequent recycling or discharge. Veolia Water is a division of Veolia Environnement, which also provides services in waste management, energy and transportation.

Stand 300

VEWIN – Association of Dutch water companies

Sir Winston Churchillaan 273, 2288 EA Rijswijk, Netherlands
Tel. +31 70 414 47 59
Contact – Dineke Krijbolder
Email info@vewin.nl
www.vewin.nl

VEWIN is the association of drinking water companies in the Netherlands. Vewin represents the common interests of its member utilities in national and international politics and institutions. The 10 Dutch drinking water companies provide water of outstanding quality. Their unique selling point is the absence of chlorination, due to a long-standing focus on water quality from source to tap. Next to water quality, the sector pays much attention to providing sustainable and efficient services. In addition to their core task, the Dutch utilities are extensively involved in capacity-building initiatives in developing regions to contribute to achieving Millennium Development Goal 7C.

Stand 125

Water & Wastewater Asia

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Stand 108

WaterBiz

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www.intwater.com

WaterBiz is a globally circulated magazine that provides a complete coverage of the water resource management and water resource maintenance. It is the international stage for global news, professional articles, analysis

and stories of the hottest issues of the water sector. It is a professional, accurate and current source for Israeli companies and Israeli developments in the water technology sector. WaterBiz is distributed to corporations, governments, municipalities, companies, distributors and agents in the water resource management and maintenance. It's the most economical way to reach clients from around the world who seek the knowledge and innovations of the water world.

Stand 423

Water Environment Federation

601 Wythe Street, Alexandria, VA 22314-1994 US
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Email LSukkariyyah@wef.org
www.wef.org

Founded in 1928, the Water Environment Federation is a not-for-profit technical and educational organisation of 38,000 individual members and 75 affiliated member associations representing water quality professionals around the world. Our members, member associations, and staff proudly work to achieve our mission to provide bold leadership, champion innovation, connect water professionals, and leverage knowledge to support clean and safe water worldwide. Our conference and exhibition, WEFTEC, to be held in New Orleans this October, has grown into the world's largest annual event on water quality.

Stand 302

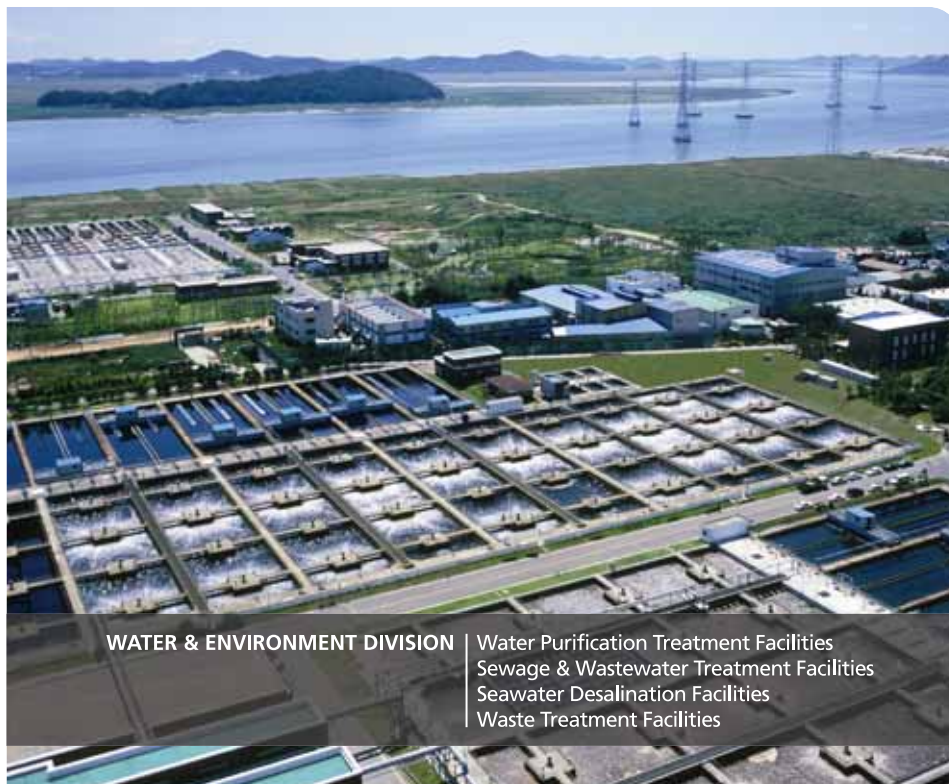
WESS Global

2303 Venture Hall, Cheonan Valley, 43-5 Samunri Jiksaneup, Cheonan, Korea 331-858 South Korea
Tel. +82 41 584 8820
Contact – Sophy Yoon
Email sales@wessglobal.com
www.wessglobal.com

WESS Global has been enjoying good reputation in its quality and warranty service since its establishment in 2004. It has various sales and R&D networks all over the world.

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WATER & ENVIRONMENT DIVISION

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Seawater Desalination Facilities
Waste Treatment Facilities

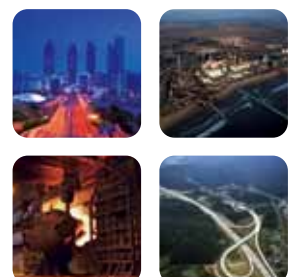
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www.psipw.org e-mail: info@psipw.org

Exhibitor profiles

WESS produces measuring instruments used in water and wastewater, chemical, refinery, steel, food and beverage, and more. Our products consist of level, flow and environmental measuring instruments using various types of technologies, such as ultrasonic, microwave, capacitance, RF, and more. WESS will do its best to develop field-oriented and value added products.

Stand 414

Xylem Inc.

1133 Westchester Avenue Suite N200, White Plains
New York 10604 US
Tel. +01 914 323 5700 Fax +01 914 323 5800
Contact – Tom Glover
Email tom.glover@xyleminc.com
www.xyleminc.com

Xylem is a global water leader deeply involved in every stage of the cycle of water. Doing business in more than 150 countries, the company plays an important role in serving the municipal water, wastewater, residential and commercial building services, and industrial markets. Xylem produces highly efficient products and systems that require less maintenance, use less energy and provide environmental benefits to users and communities. Through its social investment arm, Watermark, Xylem offers critical assistance in water emergencies and helps provide safe water, sanitation and hygiene education for children and families through school-based programs in developing countries.

Stand 318

Yokohama Water Business Conference

23 Yamashita-cho, Naka-ku, Yokohama, Kanagawa
231-0023 Japan
Tel. +81 45 663 0161
Contact – Masako Obata
Email su-jigyokaihatu@city.yokohama.jp
www.city.yokohama.lg.jp/kankyo/gesui/ywbc/index-en.html

The City of Yokohama, second-largest city in Japan with a population of 3.7 million, has been nominated by the World Bank as one of the first six global best practice Eco2 Cities which balance ecological sustainable development and economic urban growth. Japan's modern waterworks and sewerage systems originated in Yokohama in 1887 and the City of Yokohama has been operating its facilities efficiently and effectively. Yokohama Water Business Conference contributes to water supply and sewerage utilities overseas, making use of advanced technology of private sector and know-how of public sector in planning, construction, operation and maintenance, and management.

Stand 425

Zoeller Pump Company

3649 Cane Run Road, Louisville, Kentucky 40211 US
Tel. +1 502 778 2731
Contact – Newt Kuo
Email newtk@zoeller.com
www.zoeller.com

Founded in 1939, Zoeller Pump Company is the oldest independently owned professional pump manufacturer in North America. Base in Louisville (Kentucky, USA), Zoeller's product offering ranges from potable water pumps, wastewater pumps, municipal pumping station, sewage pumps, to effluent pumps and wastewater treatment systems. Zoeller is one of the few companies that can provide such dynamic solutions and services for all your water applications. All pump products are 100 per cent factory-tested underwater for dependability from the instant they are plugged in.

Korean Pavilion

Stand 808

ATIK

1010 Ace Highend Tower, 235-2, Guro-3-dong, Guro-gu
Seoul, South Korea
Tel. +82 2 6220 6300 Fax +82 2 6200 6305
Contact: SoYeon Kim
Email ati@atikorea.com
www.atikorea.com

Since 1994, ATIK has supplied various advanced products for water industries based on their experience and knowledge of: particle counter from PSS, UV-based online water analyser from TETHYS, LC-OC-D-OND system from DOC-Labor, zeta-potential analysers from CAD. ATIK also offers membrane filter and activated carbon characterisation instruments: Porometer 3G-series, Autosorb-iQ and Quadrasorb-SI from Quantachrome. ATIK has developed an online particle counting system—AquaCounter540—for new demands on Korean customers in the field. ATIK also offers lab services to their customers. Visit the ATIK booth to experience their state of the art instruments and consult them about your enquiries.

Stand 807

BKT

5F, Allnations Bldg, 789-6, Yeoksam-dong, Gangnam-Gu
Seoul, South Korea
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Contact – Suk Hun
Email hs@bkt21.com
www.bkt21.com

BKT provides biological wastewater treatment, membrane filtration, and energy solutions. We have more than 100 wastewater treatment references (including 130 MGD and 190 MGD facilities under construction) for BNR process, retrofitting, CSOs, and TMDL using biological filtration (BBF) or customisable SBR (BCS) technologies. Our revolutionary anti-fouling membrane system, FMX, specialises in the liquid–solid separation for high-density, high-viscosity, and high-solid applications, and our clients include many Fortune 500 companies globally. Our energy division has focused on renewable energy projects and launched new energy savings/recovering business with turbo-blower (BKTurbo) and heat-pump technologies.

Stand 833

BLTEC Korea Ltd.

1-1607, ACE High Tech City, 55-20 Mullae-Dong 3Ga
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www.bl-tec.co.kr

BLTEC Korea Ltd. is a leading company for distribution of full automatic chemistry analysers in domestic research and analysis institutes, universities and numerous corporations. Representative chemical analysis instruments include: AutoAnalyser®, discrete analyser, multi-parameter analyser, and certified reference materials. Processes include: online water monitor for TN/TP, nutrients, metals analysis, and sludge volume index system (complete domestic manufacturing of products and distribution). BLTEC Korea Ltd. will continue to provide the best service and satisfying relationships to our customers by coordinating with our production, sales network, and R&D centres in Germany, Japan, England, USA, Canada, Korea and worldwide.

Stand 858

Centre for Intelligent Water Network

239 College of Life Sciences and Biotechnology, Green
Campus Building, Korea University, Korea
Tel. +82 10 7688 5575 +82 2 3290 3976
Fax +82 2 928 7430
Contact – Prof. Suing-Il Choi
Email eechoi@korea.ac.kr
www.gbtestcenter.org

The Centre for Intelligent Water Network (CIWN), established in August 2011, is aiming to develop world-leading, global technologies through GBEST, one of its advanced

eco-innovation projects. Over five years, from 2011 to 2016, the project will receive US\$ 21 million from the Korean Government's Ministry of Environment. The project consists of six core research and development institutions with about 310 researchers participating. Together, the centre and the six R&D institutions manage over 30 participants from industry, academia, and research institutions.

Stand 839

Center for Seawater Desalination Plant

101 Samsung bldg., GIST, 123 Cheomdan-gwagiro, Buk-gu
Gwangju, South Korea
Tel. +82 62 715 2580 Fax +82 62 715 2584
Contact – Prof. In S Kim
Email seahero@gist.ac.kr
www.seahero.org

Increased global scarcity of freshwater and growing demand for drinking, agricultural and industrial water are the main drivers for growth of the seawater desalination market and technologies. CSDP, established in 2007, aims to create world-class SWRO technologies and launch the SeaHERO (Seawater Engineering and Architecture of High-Efficiency Osmosis) R&D project. From 2007 to 2013, this project is funded by the Ministry of Land, Transport and Maritime Affairs of the Korean Government. The SeaHERO project will become the world-leading R&D program for core SWRO technologies, and contribute to the world's freshwater supply needs.

Stand 868

Center for Water Resource Cycler of KIST

Hwarangno 14-gil 5, Seongbuk-gu, Seoul 136-791, Korea
Tel. +82 2 958 5829
Contact – Seockheon Lee
Email seocklee@kist.re.kr
www.kist.re.kr

Center for Water Resource Cycler of KIST (Korea Institute of Science and Technology) follows national priorities by finding ways to ensure clean and sustainable water resources to support environmentally friendly economic growth. A goal of the Center is to develop original core technologies related to the field of water and environmental science which are geared toward commercialisation and, ultimately, leadership in the global market. Research activities at the Center include scientific study on water cycle mechanisms and phenomena, development of membrane-based technology for effective water cultivation and treatment, and application of nano-materials to water treatment for higher efficiency.

Stand 800

Daejeon Metropolitan City

100 Dunsan-ro, 1420, Dunsan-dong, Seo-gu 302-789
Daejeon, South Korea
Tel. +82 42 600 3932 Fax +82 42 600 2629
Contact – Eui Suk Kim
Email kyunduk@korea.kr
www.daejeon.go.kr

Daejeon Metropolitan City, the 2013 IWA-ASPIRE venue, is located in the centre of Korea and is known as the advanced science and technology city. Daejeon is called 'the city of water' because the three rivers flow through the city. It is also well-known for its hot springs. The fifth IWA-ASPIRE conference will be where the water industry gathers, and where you can get information about the Asian water market and maximise promotion efforts. We welcome all of you to 2013 IWA-ASPIRE Conference and Exhibition in Daejeon.

Stand 822

ECODIGM

10-6, 339 Expo-ro, Yuseong-gu, Daejeon 305-380
South Korea
Tel. +82 42 934 8670 Fax +82 42 934 8671
Contact – Eung Taek Lee
Email etlee@ecodigm.com
www.ecodigm.com

ECODIGM, established in 1998, is a Korean company specialising in biological wastewater treatment technology which removes organic and nitrogen content from wastewater. It has over 30 patents in Korea and also has foreign patents in over ten other countries. ECODIGM's technology is innovative because it can reduce energy consumption; can save required area and installation costs; and can enhance price competitiveness, treatability and

BUSAN KOREA

stability. We can serve total solutions such as engineering and construction; operation; and after-service, including diagnosis of wastewater treatment plants.

Stand 860 Gaamtech

520 Kranztechno, 5442-1, Sangdaewon-dong, Jungwon-gu Seongnam-si, Gyeonggi-do, Korea
Tel. +82 31 748 3332
Contact – Byung Cheol Kim
Email bckim@gaamtech.co.kr
www.gaamtech.co.kr

ObsQ is the brand name of Gaamtech, an outstanding enterprise for the wireless measuring industry. A synthesis of observation and quality, ObsQ means high quality observation, believable measurement and durable performance. ObsQ uses distinct radio frequency technology to reduce electric power consumption and enlarge the audible range. An automatic measuring algorithm based on GPS location improves your job efficiency. The Smart Phone application for Drive by AMR systems will reduce the time required for daily tasks. Reliability and durability are the basis of ObsQ's philosophy.

Stand 826 Genicom

5F Daehan Building, 1018, Dunsan-dong, Seo-gu, Daejeon 302-120, South Korea
Tel. +82 42 862 3982
Contact – Chengyu Lee
Email uvsensor@geni-uv.com
http://geni-uv.com

Genicom is one of the leading manufacturers of ultraviolet (UV) sensors for various applications. Genicom provides high-quality total solutions for UV sensing. Our UV sensor probe and UV radiometer are very useful for UV index monitoring (portable, outdoor); UV lamp and LED monitoring; UV water sterilisation; UV air purification; UV curing and UV absorption, reflection and transmission. Our motto is: 'We walk the path together!'

Stand 801

Green City Corporation

11th Floor, Acehitech21 Building, Woo-dong, Haewoondae-Gu, Busan, Korea
Tel. +82 51 519 3700 +82 51 510 7381
Contact – Imgyu Byun
Email seil800@seiltec.com, big815@pusan.ac.kr
www.e-green-city.com

Green City Corporation is an operating holding company composed of eight small- and medium-sized businesses—Seil Technology Corporation, SENG, Aquacell, Environsoft, Su Engineering, Eunggyung Eng, Bluewater Bio and Busan Fashion Center. Our goal is to provide the total solution for the environment, energy and ecology fields through the development and optimisation of 3R (reduce, recycle, replace) technologies. Our business fields are water supply, wastewater treatment and re-use, waste management, new and renewable energy, total engineering solutions, and cities of the future.

Stand 803 Greenwell

382-20 Samsan-dong, Bupyeong-gu, Incheon, South Korea
Tel. +82 70 8853 0020 Fax +82 32 330 9366
Contact – Dong-jin Kim
Email eastar@nate.com / eastar@greenwell.co.kr
www.greenwell.co.kr

Greenwell is an engineering, construction and operations firm for desalination plant and membrane systems, established in 1997. Greenwell's technical know-how in fields such as reverse osmosis, nano-filtration, ultra-filtration and micro-filtration have been recognised as the best technology worldwide and these technologies make our company work in partnership with public and private clients worldwide. We can design and manufacture the most efficient system suitable for energy-saving seawater desalination, fine chemical, water purification and water recycling. Greenwell manufactures and markets auto-controller kits, special pumps and cartridge filters.

Stand 837

Hajie Industrial

76-2 Gujang-Ri, Paltan Myeon, Hwasung-City, Gyeonggi-Do 445-911, Korea
Tel. +82 31 352 8491 ext 4
Contact – DaeHo Yoo
Email gazeet@hajie.com
www.hajie.com

Hajie Industrial, a manufacturer of submersible motor pumps, has been expanding both its domestic and global markets to encompass countries in Africa and Asia, and even Europe where submersible motor pumps were invented. The company represents Korea at several international exhibitions.

Stand 860

Hanguk Big Technology Co. Ltd.

405 Suntechcity, 513-15 Sandaewon-dong, Jungwon-gu Sunngnam-city, Gyeonggi-do, Korea
Tel. +82 31 749 1700
Contact – YongBeom Cho
Email leak@leak.co.kr
www.leak.co.kr

Hanguk Big Technology has been operating in Korea for more than 25 years and is the leading provider of waterworks system monitoring and leakage control. Our services are mainly water leak detection and repair, geological information system (GIS) and leak location equipment sales to most urban utilities around the country. Our business expertise will make it possible to expand our business further to provide a total water network monitoring/management solution to all Korean waterworks utilities.

Stand 864

Hanseon Precision Meter

E-1001 KwangMyung SK Techno Park, 1345 Soha-Dong KwangMyung-Si, KyungKi-Do, Korea
Tel: +82 2 2083 1431 ext 4
Contact – JinHyuck Lee Email lch-sb@nate.com
www.hsmeter.com

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Exhibitor profiles

Hanseon Precision Meter is a total-energy-management system company, including self-production systems that facilitate processes such as designing, mould production, casting, injection moulding and machining. With our own casting factory, we produce and supply digital water meters, heat meters, flow meters and wired/wireless remote reading systems for buildings such as government offices and apartment buildings. We try our best to satisfy our customers and prepare for the future every day in good faith.

Stand 835

Jain Technology

1204, E&C Dream Tower 2, 197 10, Guro dong, Guro gu Seoul, South Korea
Tel. +82 2 856 4114
Contact – Charles Kim
Email kjij@jain.co.kr
www.jain.co.kr

Jain Technology make ultrasonic flow meters for liquid and gas applications. Series Xonic 100 is very sophisticated, and has better performance clamp on, transit time, and ultrasonic flowmeters. Series Xonic 10 is a compact model for liquid and gas applications. Single-path, dual-path, and four-path are available. Xonic Series can measure time differences of picoseconds and accuracy is 1.0 per cent of actual flow. Xonic products are a new excellent technology and product from Korea's knowledge economy.

Stand 850

Kinam Metal Co. Ltd.

6-gil 115 Iryeon-ro, Jillyang-eup, Gyeongsan -Si, Gyeongbuk Korea
Tel. +82 53 815 6114
Contact – Eun Ju Lee
Email namaska@kinam.co.kr
www.kinam.co.kr

Founded in 1999, Kinam Metal Co Ltd makes cast iron and cast-iron products. We specialise in manufacturing manhole covers which are certified to ISO 9001:2000 and to Korean Industrial Standards (KS), and have a certificate of product efficiency from Small & Medium Business Administration. Our main products are locking type manhole covers (serrating, reflux prevention, rotation locking), noiseless manhole covers, harmonised design manhole covers, auto parts, and vacuum pump parts. We care for our precious land in accordance with our company's management philosophy that we satisfy our customers' demands for cast iron with the construction of a world-class casting plant.

Stand 805

KJC

289-11, Nakdonggangbyeon Rd, Gumi-City Gyeongsangbuk-Do, Korea
Tel. +82 54 461 9255
Contact – Jen Park
Email showtian07@gmail.com
www.kjc38.co.kr

KJC has combined water treatment and vacuum evaporative technology, and intends to reduce the harmful wastewater from various industries for a zero-discharge system to contribute the world environmental preservation. We have developed technology for each physical property based on analysis of wastewater samples and provided the optimised solution from the accumulated data. We have technology and human resources for overall management of machine equipment production, construction and trial runs. We reduce harmful wastewater as much as possible and reuse condensation water. We promise to perform responsible service while we set the customer's satisfaction as the company's top priority goal.

Stand 831

Korea Environment Institute

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Email ijyang@kei.re.kr
www.kei.re.kr

Korea Environment Institute (KEI), a leading government-funded environmental research institute under the Prime Minister's Office, has been actively involved in drawing up policies to resolve environmental problems and promote

sustainable growth. KEI supports the Korean government's vision of 'low carbon, green growth' by conducting research, planning national policies and alternative solutions, and performing environmental impact assessments. KEI promises to advance its innovative knowledge into a globally recognised think-tank through presenting creative and sustainable environmental strategies.

Stand 809

KRC RRI

Haeon-Ro 870, Sangrok-Gu Ansan City, Gyeonggi Province, Korea
Contact – HaeDo Kim
Tel. +82 31 400 1864 Fax +82 31 400 1618
Email searoad@ekr.or.kr
www.rri.ekr.or.kr/rri/main.do

KRC RRI (Korea Rural Community Corporation Rural Research Institute), a professional research institute of Korea, makes an effort to create a pleasant and vivid value of rural communities under the vision of leading a bright future in rural and fishing communities. For this we construct infrastructure for food production and income increases for farmers and fishers, and develop the living environment in rural communities. RRI also carries out research and development for national projects such as the Saemangeum reclamation project, development of fishing communities and ports, and low-carbon emission and green growth projects with advanced technology development.

Stand 870

Michigan Technology

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Email mdof5941@hanmail.net
www.mdof.co.kr

Michigan Technology has advanced wastewater technologies —dissolved ozone flotation facility and dissolved air floatation facility. We also have developed wastewater treatment processes through joint industrial-academic technology development and joint core assignments. Michigan Technology have registered patents in wastewater treatment technology.

Stand 820

Nonpoint Source Research Group

1370 Sankyuk-dong Buk-gu, Daegu, South Korea
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Email kongkury@nate.com

Non Point Source Research Group is aiming to develop a significant technique, on the basis of the green technology, that can reduce more than 30 per cent of pollution-load compared with currently generated pollution-loads from non-point sources. Our group is also focusing on improving the management of pollutants of water resources and on controlling various environmental issues caused by climate change.

Stand 802

Pangaea21 Ltd.

6F, 685 Sampyeong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
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Email jae@pangaea.co.kr
www.pangaea.co.kr

Pangaea21 Ltd. is one of South Korea's leading engineering and consulting firms, specialising in water resources management. Our services and products cover a wide range of water resources fields including drinking-water plants, wastewater treatment plants, water pipeline networks, river-basin water quality, and more. Pangaea21's advanced water resources management, called Smart Water Management, is structured with three major components: (1) sensing, measuring, and monitoring; (2) integrating and networking; and (3) providing 'smart' functions to conventional water resources management. Under the concept of Smart Water Management, Pangaea21 seeks the most optimised, time- and cost-effective solutions in all aspects of water resources management.

Stand 809

PHILOS Co. Ltd.

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Email mbrwater@gmail.com
www.philosmembrane.com

PHILOS Co. Ltd. provides membrane manufacturing facilities as well as membranes and modules. With more than 20 years experience in the membrane and water filtration industry, we have been supplying our hollow fiber, braid reinforced capillary and flat sheet membranes for UF, MF, NF, GS and special applications to renowned research centres and other related companies, both domestic and international. Our experiences gained from actual fields help providing robust membrane products and excellent service to customers. PHILOS is highly recognized within the industry by sharing our unique skills and technology with customers.

Stand 842

Philtec

362, Shingae-ri, Mokchon-eup, Cheonan-city, Chungnam Korea
Tel. +82 41 557 0020, +82 2 2612 5959
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www.philtec.co.kr

Founded in 1995, Philtec is acknowledged domestically and overseas for its aggressive investment in technology, research and development for the pump skimmer manufacturing business. By providing products with advanced technology, and reliable service, we are contributing to the development of key industries in Korea. We will continue to do our best to become the world's leading company by supplying top quality products and service.

Stand 829

Pure Envitech Co. Ltd.

Room 511, 341, Sandan-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Seoul, Korea
Tel. +82 31 495 0574
Contact – Kim Daechun
Email tech@pure-envitech.co.kr
www.pure-envitech.co.kr

Pure Envitech is a corporation engaged in studying and developing new technological membranes that specialise in water treatment membrane manufacture. Pure Envitech has the manufacturing facilities and equipment required to manufacture all the products in its product group. Pure Envitech's membrane process has been applied at more than 900 sites around the world.

Stand 841

Pusan National University

Busan Campus Busandaehak-ro 63beon-gil 2 Geumjeong-gu, Busan 609-735, South Korea
Tel. +82 51 510 1493 Fax +82 51 581 5035
Email hkyi1@pusan.ac.kr
http://english.pusan.ac.kr

The Pusan National University (PNU) is recognised as a high-quality educational institution in the fields of engineering and science and for its world-class research and development activities. Various colleges and departments of PNU have well-developed environmental engineering and science programmes. For instance, at the Institute for Environmental Technology and Industry, we do education and research, cooperate with industry for technology transfer, and international networking for globalisation. At the Institute for Research and Industry Cooperation, we aim to make PNU a research hub for the south-east industrial belt by stimulating and activating industrial-academic collaboration through partnerships with government and industry.

BUSAN KOREA

Stand 810

Research & Development Centre for Advanced Technology of Wastewater Treatment and Reuse

Room 601, 6th Floor, Comprehensive Lecture Hall, Kyonggi University, 154-42, Gwanggyosanro, Yeongtong-gu Suwon-si, Gyeonggi-do, South Korea 443-760
Tel. +82 31 247 0846
Contact – Sung-Ki, Lee
Email skylike007@naver.com
www.bwtotech.or.kr

The Research & Development Centre for Advanced Technology of Wastewater Treatment and Reuse (ATWTR) was established in 2011 as the Global Top Project of Ministry of Environment of Korea. The ATWTR wants to improve water quality of rivers and lakes throughout the development of wastewater treatment technology, and enhance industrial competitiveness of developed technologies in the overseas market. Our field of research and development has three primary goals: (1) system establishment for high-quality discharge and reuse of wastewater, (2) system establishment for improving energy self-reliance and resource recycling in wastewater treatment plants, and (3) technology development for smart management.

Stand 861

Samsung Precision Engineering Co. Ltd.

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Email sspe@unitel.co.kr
www.samsungpe.co.kr

We do our best to deliver high quality products tailored to meet our customers' needs. In 1995, our company established the gasket manufacturing industry and has been growing ever since. Our sales area includes oil and gas, valves, flanges and plants. We can supply our oil seal, jacket and gasket with Garlock, an industry recognised brand. We do our best to supply the industry with eco-friendly products. We continually do research and development and improve our quality based on responsible business practices. We continue to grow as a leading enterprise in the environmental industry.

Stand 824

Seoyong Engineering

1493-10 SongJeong-Dong gangser-Gu, Busan Korea
Tel. +82 51 831 6171
Email seoyong@seoyong.co.kr
www.seoyong.co.kr

We have created an electromagnetic flow meter. It is a state of the art product in 2012. It is the world's first adaptation of a USB port, making it easy to get data—and stores up to two megabytes. It has a built-in remote terminal and

support system. Its measurement range is between 0.03 and 12 metres per second, and has an alarm function for problem situations. Model: EF-501.

Stand 828

Synopex

709 E&C Innobiz Tower 1320-2, Sindang-dong, Dalseo-gu Daegu, South Korea
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Email angela.park@synopex.com
www.synopex.com

Synopex is a global company which pursues green growth, focusing on water and IT. To improve the quality of life, Synopex has applied a new smart total water solution based on highly advanced membrane technologies to small islands, coastal areas, disaster areas and places suffering from water shortages. We provide mid and small-sized water purification systems, desalination systems, wastewater treatment and reuse systems, and much more. We are continuously making efforts to improve our high-performance filters, developing engineering technologies to secure safe water, and work on global water challenges.

Stand 830

Tae Sung Engineering Consultants

811 ITECO, 762, Deokpung-dong, Hanam-si, Gyeonggi-do South Korea
Tel. +82 31 781 7150 Fax +82 31 790 1718
Email mire0828@tsecc.kr
www.tsecc.kr

Tae Sung Engineering Consultants is a future-oriented enterprise that leads the world and future environment. It has grown because of its outstanding work and technology since its founding in 2004. The company is not only playing a leading role in every field of construction engineering for water and sewage, water resource, environment, construction supervision, roads, engineering structure, national land development, ground and plant, but also the large-scale turn-key or SOC projects in both domestic and overseas markets.

Stand 872

Urban Sewer & Drainage System Research Center

208-116 ChungAng University, 84 Heukseok-ro, Dongjak-Gu Seoul, South Korea
Tel. +82 2 820 5886 Fax +82 2 812 4284
Contact – Kyoohong Park
Email kpark@cau.ac.kr
www.usd-rc.re.kr/eng/main

The Urban Sewer & Drainage System Research Center was established to improve the service quality of sewers, maximum performance, and minimum maintenance costs by providing effective sewer asset management, and safe

and amenable sewers. The research centre has seven projects: development of an analysis system for sewer service; development of a laser profiling inspection system; a computerised technique of sewer registry; development of storage tank for CSOs control; optimum development of sustainable urban drainage systems; development of deposit control, material and renewal technologies in sewer systems; development of odour-control technology; and sewer policymaking.

Stand 811

Woo Sung Valve Co. Ltd.

1629-1, Songjeong-Dong, Gangseo-Gu, Busan, 618-819 Korea
Tel. +82 51 831 1251
Contact – Y. D. Kim
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www.pancheck.co.kr

Woo Sung Valve Co. Ltd is a specialised company developing and producing check valves since 1992. We have a wide variety of experience and know-how in the building and shipbuilding industries at home and abroad. 'PAN Check Valve', which is our brand, literally means 'disc'. PAN, which is easy to pronounce and write, stands for a strong will, because the word is connected with all places and people of a particular kind. It can also mean commonplace and global. We always persevere in meeting the needs of our customers for small quantities of a variety of products.

Stand 862

Youbicom

203 IT Convergence Center, Chungbuk Tech Park 685-3 Yangchung-li, Ochang-Myun, Cheongwon-gun Chungcheongbuk-do, South Korea 363-883
Tel. +82 43 270 8001 Fax +82 43 261 3481
Contact – Kyungchun Min
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www.youbicom.com

Youbicom was established by Korea Telecom and SK Telecom in 2010. Our mission is to commercialise technology developed at the university and maximise profits. Youbicom is leading the way in commercialising cutting-edge technology in Ubiquitous Sensor Networks. We are laying the foundation to become a major player in the environment of the future. We also have commercialised the UbiAMI Advanced Metering Infrastructure for remote metering of water, gas and electricity. It is a 424 MHz-based wireless system. Collected meter data is sent to a server via CDMA, GSM or ethernet. We also provide data management and analysis capabilities.

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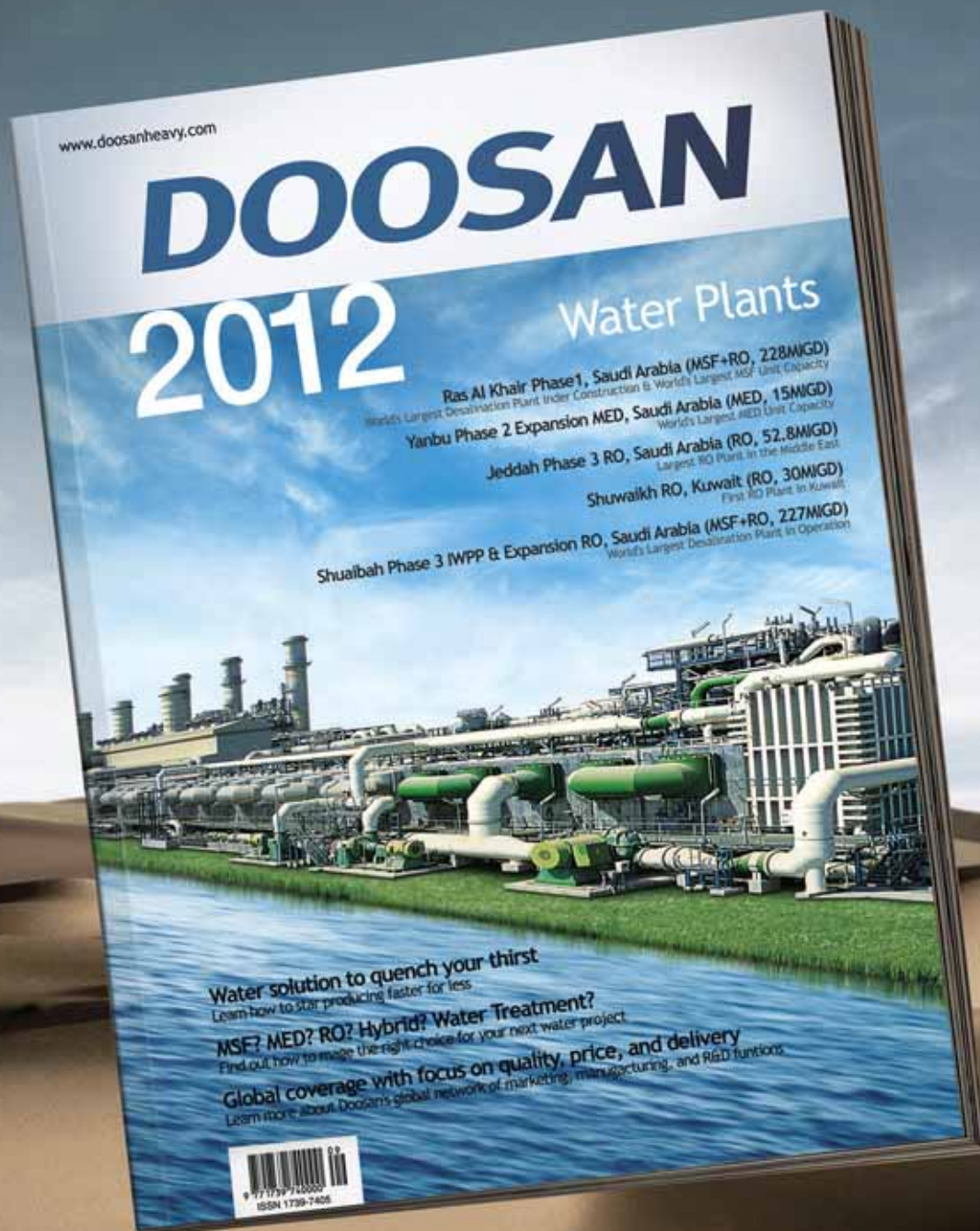



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