



IWA World Water Congress & Exhibition

Invitation to register and preliminary programme

Principal sponsors



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Environment
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Montréal



19–24 September 2010 www.iwa2010montreal.org

Earlybird discount closes 1 July 2010

Organisers



International
Water Association



(subject to change)

		Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6	Stream 7	Stream 8
Sunday 19 September	08:30 – 12:00					Young water professionals forum	Benchmarking framework	Quantitative microbial risk assessment	Membrane bioreactor design and life-cycle cost assessment
	13:00 – 16:30						Water resources and climate change in the development context	How dead are 'dead' microbes?	
	16:30 – 17:30	Opening ceremony							
	17:30 – 18:30	Welcome reception							
Monday 20 September	08:15 – 09:00	Keynote plenary session – to be announced							
	09:15 – 10:45	Detection methods for microbial hazards	Oxidation processes in drinking water	Safety and security, including flooding	Climate change and the water industry	Improving conventional treatment processes for drinking water	Advances in anaerobic treatment	Aerobic granular sludge	Consumer concerns and economic considerations
	BREAK								
	11:15 – 12:45	Faecal source tracking		Disaster preparedness – training and education	Climate change and adaptive water management		Anaerobic membrane bioreactors	Advances in biological processes	Demand management, water conservation and metering
	LUNCH								
	14:15 – 15:45	Sanitation and hygiene	Drinking stormwater – a feasible path?	Climate change and water resources management	Innovative wastewater treatment strategies	Anaerobic ammonium oxidation	Activated sludge population dynamics	Water conservation and reuse	
	BREAK								
	16:15 – 17:00	Keynote plenary session Bill Cosgrove Canada							
	17:00 – 19:00	Special viewing of poster presentations							
19:00 – 21:00	Young water professionals reception								
Tuesday 21 September	08:15 – 09:00	Keynote plenary session Arjun Thapan Philippines							
	09:15 – 10:45	Health-related water microbiology – control strategies	Desalination	Stormwater pollution and control	Water – energy linkages in the water industry	Strategies for integrated water resource management	Fundamentals of advanced oxidation processes in wastewater treatment	Biofilm processes	Focusing on what works – service provision solutions in developing countries
	BREAK								
	11:15 – 12:45	Detection methods for chemical hazards		CSO pollution reduction strategies	Carbon footprint of wastewater treatment plants	Strategic management of water resources in urban water systems	Advanced oxidation of emerging contaminants	Industrial wastewater treatment	Monitoring system development and data management
	LUNCH								
	14:15 – 15:45	Occurance and control of chemical hazards	Membrane filtration for removal of particulate matter	Clean pipes, good pipes = good water	Measuring and improving performance and sustainability indicators in benchmarking	Advanced oxidation of industrial chemicals			
	BREAK								
	16:15 – 17:00	Keynote plenary session Khoo Teng Chye Singapore							
	18:30 – 19:30	Special event – Canadian Brass at the Notre-Dame Basilica							
Wednesday 22 September	08:15 – 09:00	Keynote plenary session John Carey Canada							
	09:15 – 10:45	Membrane filtration for removal of particulate matter	Disinfection and management of DBPs	Occurrence and behaviour of emerging chemicals	Microbial fuel cells – research and applications	Treatment wetlands for water quality remediation	Membrane systems for wastewater treatment – optimising membrane processes	Phosphorus removal	Non-revenue water management in low and middle income countries
	BREAK								
	11:15 – 12:45	Adsorption and ion exchange	Biological treatment processes for drinking water	Occurrence and behaviour of PPCPs	Sludge and biosolids management	Wetlands systems and waste stabilisation ponds	Membrane systems for wastewater treatment – full-scale application	Phosphorus recovery	Have you lost your water? Water loss management and control
	LUNCH								
	14:15 – 15:45			Toxicity and environmental impacts	Pretreatment of sludge and biosolids	Wastewater reclamation and reuse – indirect potable reuse	Membrane systems for wastewater treatment – membrane fouling		
	BREAK								
16:15 – 17:00	Keynote plenary session Helmut Kroiss Austria								
19:00 – 22:30	IWA Project Innovation Awards (PIA) dinner								
Thursday 23 September	08:15 – 09:00	Keynote plenary session Gesner Oliveira Brazil							
	09:15 – 10:45	Membrane filtration removal of dissolved matter	River basins of the future	Water safety plans	Strategic asset management and long-term planning	New approaches to monitoring urban water	Modelling and control of water systems	Advances in physico-chemical processes and technology	Phosphorus management in the water cycle
	BREAK								
	11:15 – 12:45	Effect of dissolved matter on membrane filtration	Drinking water quality management	Pharmaceuticals and other microconstituents	Modelling treatment processes	Innovative water treatment processes and plants			
	LUNCH								
	14:15 – 15:45	Modified membrane filtration processes	Management and regulation of point and diffuse pollution	Guidelines and regulations for drinking water quality management	Endocrine disrupters	Modelling clarifiers			
	16:00- 17:30	Closing session and Harremoes lecture – Water and industry Chad Holliday USA							
19.00 until late	Gala dinner								
Friday 24 September – Technical tours									

Preliminary programme overview										(subject to change)
	Stream 9	Stream 10	Stream 11	Stream 12	Stream 13	Stream 14	Stream 15	Stream 16	Stream 17	
	Rainwater harvesting and management	WEF nutrient removal standards – which SLOT?	Water management in a cold climate	Good modelling practice – guidelines for activated sludge plants Are positive energy wastewater treatment plants feasible?	Urban disaster resiliency forum					
	Opening ceremony									
	Welcome reception									
	Keynote plenary session – to be announced									
	Explicitly dealing with uncertainty in WWTP design and operation	Accelerating innovation in the water sector	Drinking water safety – households to cities	Biofilms in engineered systems	Sanitation 21	Workforce development – an international perspective	Assessment of anthropogenic impacts	Local elected officials and utilities leaders forum	Local elected officials and utilities leaders forum	
	Protection of natural water resources for drinking purposes					Industry forum	Industry forum			
	Keynote plenary session Bill Cosgrove Canada									
	Special viewing of poster presentations									
	Young water professionals reception									
	Keynote plenary session Arjun Thapan Philippines									
	Model development and application	Accelerating innovation in the water sector	Water, climate and energy – challenges and solutions on a river basin scale	Cities of the future	Innovative water partnerships	Industry forum	Industry forum	Africa / MENA regional forum	Asia-Pacific regional forum	
	Water allocation and sharing in national and transboundary systems					Industry forum	Industry forum			
	Keynote plenary session Khoo Teng Chye Singapore									
	Special event – Canadian Brass at the Notre-Dame Basilica									
	Keynote plenary session John Carey Canada									
	Review of implementation of European Water Framework Directive in different EU member states	Impact of the 2008–2009 global financial crisis on water and sanitation services	Water, climate and energy – riding the tiger – adapting to climate change	Cities of the future	New water	Industry forum	Industry forum	North American regional forum	North American regional forum	
	Governance and regulation					Industry forum	Industry forum			
	Keynote plenary session Helmut Kroiss Austria									
	IWA Project Innovation Awards (PIA) dinner									
	Keynote plenary session Gesner Oliveira Brazil									
	Management of the quality of water resources – regulatory and economic aspects	Stakeholder and public engagement for nanotechnology and water	Water, climate and energy mitigation – the water–energy nexus	Groundwater management in urban water supply and sanitation systems	New water	Industry forum	Industry forum	LAC regional forum	Cultivating leadership skills for women in the sector	
	Access to water and sanitation					Industry forum	Industry forum		Wastewater reclamation and reuse – reuse technologies	
						Learning from sewers – community-wide drug testing through sampling wastewater	Sustainable urban water systems for the future			
	Closing session and Harremoes lecture – Water and industry Chad Holliday USA									
	Gala dinner									
	Friday 24 September – Technical tours									

EXHIBITION OPEN MONDAY – WEDNESDAY 09:30 – 18:00 THURSDAY 09:30 – 15:00

THURSDAY 09:30 – 15:00

MONDAY – WEDNESDAY 09:30 – 18:00

EXHIBITION OPEN



This is your invitation to join 4,500 like-minded water professionals from across the globe in Montréal, Canada to exchange ideas, explore the state of the art and debate the key issues underlying the science and practice of water in one of the most cosmopolitan cities of the world.

The International Water Association, together with the Canadian Water and Wastewater Association (CWWA) and the Canadian Association on Water Quality (CAWQ), is proud to offer an outstanding congress programme that will allow you to explore current and future sector challenges through a series of key themes: water, climate and energy; cities of the future; managing utilities and their assets; securing new and traditional water resources for the future; water, ecosystems and catchments; water and health; and the science and application of water management.

The conference will bring together leaders from across the world and from many perspectives – research, practice, regulation, industry, consulting and manufacturing – to find solutions that will strengthen the entire water sector. Our keynote speakers are world-renowned experts in their fields and represent some of the world's leading institutions and political bodies. Their ideas and experiences will present new and exciting dimensions to the ongoing debates.

Montréal is a city rich in culture and history and it has a well-deserved reputation as one of the liveliest cities in North America. Multicultural Montréal boasts more than 80 ethnic communities and enjoys an outstanding reputation worldwide for gourmet dining.

On behalf of the organising committee, we extend a very warm welcome to you to join us at this premier water sector event. We look forward to seeing you in Montréal, and hope you will find the programme exciting and stimulating.



Dr David Garman
IWA President



Dr Peter Jones
Congress President

Keynote speakers



John Carey
*Canadian Co-Chair, Great Lakes
Science Advisory Board,
International Joint Commission
Canada*

Dr John Carey recently retired as Director General of Environment Canada's Water Science and Technology Directorate, the largest freshwater science group in Canada.



William Cosgrove
*President, Ecoconsult Inc.
Canada*

Bill Cosgrove co-wrote *World water vision: making water everybody's business* and is a United Nations World Water Development Report advisor.



Khoo Teng Chye
*Chief Executive,
PUB Singapore*

Since 2003 Khoo Teng Chye has led Singapore's national water agency as it built a robust, diversified and sustainable water supply.



Chad Holliday
*Former Chairman and CEO,
DuPont USA*

With Chad Holliday's leadership and focus on sustainability, the DuPont chemical company shifted to become a science-based products and services company.



Helmut Kroiss
*Professor for Water Quality
Management, Vienna University
of Technology Austria*

Helmut Kroiss is an expert on municipal and industrial wastewater management with an interest in integrated river basin and water resources management.



Gesner Oliveira
*CEO,
Sabesp Brazil*

Gesener Oliveira leads one of the largest utilities in the world serving a population of over 22 million people.



Arjun Thapan
*Special Senior Advisor,
Infrastructure and Water, Asian
Development Bank Philippines*

Arjun Thapan led the Asian Development Bank's initiative to double investments in water and sanitation to over \$2 billion annually.

Welcome reception

17:30 – 18:30 Sunday 19 September
Plenary Hall, Level 7, Palais des congrès
Dress: Smart casual

All delegates, partners and sponsor and exhibitor staff are invited to attend the welcome reception immediately after the opening ceremony. Drinks will be served.

Canadian Brass play at the Notre-Dame Basilica

18:30 – 19:30 Tuesday 21 September
Notre-Dame Basilica, 110 Notre-Dame Street
Dress: Smart casual



In this special concert for IWA guests the Canadian Brass quintet will display

their virtuosity, spontaneity and humour in a concert that moves seamlessly from blues to Bach in a superb setting – the Notre-Dame Basilica. This significant part of Montréal's heritage is inspired by the Sainte-Chapelle in Paris. As well as being a wonderfully atmospheric venue for a concert, the Basilica is notable for its Gothic Revival style, extraordinary craftsmanship and fine works of religious art. All in all, a cultural evening not to be missed.

Attendance is not included in your registration fee. You can purchase tickets for € 50.00 per person via the congress registration form or online.



IWA Project Innovation Awards dinner

19:00 – 22:30 Wednesday 22 September
Perspective 235°, 2nd floor, Montréal Science Center, 333 de la Commune Ouest
Dress: Business attire

You are invited to join IWA at the Montréal Science Center, a venue offering a panoramic view of old Montréal and the old port, at a special dinner to honour the global winners of the prestigious IWA Project Innovation Awards (PIA). The Project Innovation Awards are sponsored by Malcolm Pirnie, Black & Veatch, GHD, SKM, KWR, Nagaoka International Corporation and Beijing Capital.

The evening will be the culmination of intense competition in Europe, North America, Asia-Pacific and East Asia. There will be winners in five different project categories – applied research, planning, design, operations/maintenance and small projects – plus one overall superior achievement winner (see www.iwa-pia.org for information about the awards). Please direct any enquiries to Brenda Lai at Brenda.Lai@iwahq.org

This function is not included in your registration fee. You can purchase tickets for € 120.00. Tickets are limited, so please book early via the registration form or online.



Gala dinner

19:00 until late Thursday 23 September
Level 1, Palais des congrès
Dress: Business attire, evening wear or national costume

The congress will close with an unforgettable gala dinner – a night of food, fun, friends and amazing entertainment from Cirque Éloize, a group of artists who have created magic for millions of people around the world since 1993. On the night of the gala dinner they will enthrall IWA dinner guests with their special blend of circus arts, music and dance. Since ticket numbers are limited to 2,140 for 3,000 delegates, it is advisable to book early to avoid disappointment.

Attendance at the gala night is included in most registration types and one ticket will automatically be allocated to the delegate (see the first page of the registration form for details). Extra tickets are available for € 110.00 including taxes. Booking is via the registration form or online.





Principal sponsors



Engineered for life

ITT Corporation is a global water leader deeply involved in every stage of the cycle of water, leading the conversation to help resolve the world's water challenges. Its innovative products and systems help deliver fresh water to communities and commercial businesses, test it, treat and disinfect it, transport the wastewater and return it to our streams and rivers cleaner than it came in. Serving the water, wastewater, residential and commercial building services and industrial markets, ITT is focused on producing highly efficient products and systems that require less maintenance, use less energy and provide environmental benefits to users and communities. Doing business in more than 140 countries, ITT plays an important role in improving quality of life, helping communities to grow, farms to prosper and industries to thrive.

Through its philanthropic arm, ITT Watermark, the company 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.

Providing mission-critical technology and services around the world, ITT is 'Engineered for life.'

ITT Corporation

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www.itt.com



SUEZ ENVIRONNEMENT is committed to the daily challenges of protecting resources and combating climate change by developing technological and commercial innovation.

SUEZ ENVIRONNEMENT provides innovative solutions to cities and industries. The company supplies drinking water to 90 million people, provides wastewater treatment services for 58 million people and collects the waste produced by 46 million people.

With 65,900 employees, a worldwide presence, and a revenue of 12.3 billion Euros, SUEZ ENVIRONNEMENT is a world leader exclusively dedicated to water and waste management services. In Canada, the company is present with its subsidiaries United Water and Degremont.

SUEZ ENVIRONNEMENT is very pleased to support the IWA World Water Congress 2010.

SUEZ ENVIRONNEMENT

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www.suez-environnement.com



Veolia Water is very pleased to sponsor the IWA World Water Congress which provides one of the most valuable opportunities for the water industry to meet and share best practices and ideas.

Veolia Water, the world's leading operator of water services, provides water and wastewater services for public authorities and industries. The company also designs technological solutions and builds the requisite facilities.

Veolia Water's daily vocation matches the cross-cutting themes of the 2010 Congress: innovation focusing on sustainable water management, protecting water resources and ecosystems, combating climate change and looking ahead to respond better to urban water challenges.

Veolia Water North America is the North American leader in water services to municipalities, public authorities, federal authorities and industrial companies. Veolia Water manages major public-private partnerships such as Indianapolis and Milwaukee, and provides services to clients ranging from major companies such as Nestlé, PepsiCo to specialty businesses. In Canada, John Meunier Inc., Veolia Water's subsidiary, is an industry leader in municipal and industrial water and wastewater treatment equipment.

Veolia Water hopes that the 2010 Congress will be a great opportunity to meet with industrial companies interested in using the latest, state-of-the-art technologies and in discovering strong operational management capabilities to reduce water costs and protect the environment.

Veolia Water

Annie Enjalbert
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Institutional sponsor



Environment
Canada

Environnement
Canada

More than 70 percent of Environment Canada's annual budget is devoted to science and technology. Nearly two thirds of our employees work in science and technology occupations, producing data and knowledge essential for policies, regulations, enforcement and federal and international codes and standards. They conduct research to better understand wildlife, biodiversity, water, air, soil, climate, environmental prediction and environmental technologies. They monitor Canada's ecosystems to understand what is changing and to evaluate emerging threats. These essential services safeguard environmental quality and human health and security.

Environment Canada

Chris Marvin

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www.ec.gc.ca



Gold sponsors



Canada's major water utilities are pleased to be a sponsor of the IWA Montréal 2010 World Water Congress. They provide effective and safe water services to more than 50% of Canadians who are connected to municipal services. They look forward to the exchange of news and views from around the world on emerging science and technology that will enable them and other utilities to achieve the goals of sustainable water management and safe and effective service.

Canadian Utilities

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CDM 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 program management, design, construction and operation of water and wastewater infrastructure, CDM 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

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Halcrow specialises in the provision of planning, design and management services for infrastructure development worldwide. As a global consultant working within the water industry, we have a wide real and potential impact on the environment through the resources used in our clients' projects and in our own business. Areas of special interest to us are water scarcity, a looming crisis that is set to become much worse due to increasing population; climate change; urbanisation and dietary change; and effective asset management, focused on preserving water, our most precious resource. These are at the heart of our commitment to the IWA World Water Congress.

Halcrow

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www.halcrow.com



The Oil Sands Developers Group (OSDG) is proud to sponsor the IWA World Water Congress and Exhibition. The OSDG, its 23 members operating in the Athabasca oil sands region of Alberta, Canada and the oil sands industry are committed to the responsible development of the resource. As such, industry takes protection of water very seriously, and is working hard on developing new technologies and practices focused on water protection and water use.

OSDG members believe the oil sands resource can be developed in a sustainable manner that balances the energy and economic contributions with the environmental, social and economic impacts.

Oil Sands Developers Group

Chris Fordham

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www.oilsandsdevelopers.ca

The IWA young water professionals (YWP) programme in Montréal is even more ambitious than the one in Vienna two years ago. In Montréal, young water professionals will be able to network with their peers in the YWP Corner of the exhibition and enjoy a number of additional benefits.

Registration for the YWP programme is included in the price of a normal registration.

Sunday 19 September

YWP workshop

09:00 – 16:00

During this workshop young water professionals will have the opportunity to network and discuss with established water professionals the future challenges faced by the water sector. There will also be a session providing information on the different opportunities available in the water sector.

Monday 20 September

YWP breakfast

07:00 – 08:00

Early in the morning and before the keynote plenary session there will be a YWP breakfast where information and practical advice will be given to first-time attendees to ensure that their time at the congress is as valuable and productive as possible.

YWP reception

19:00 – 21:00

Young water professionals will attend a special reception to facilitate extra networking in a casual environment.

Wednesday 22 September

CDWP meeting

12:30 – 14:30

A meeting between members of the IWA Council of Distinguished Water Professionals (CDWP) and young water professionals will consider the challenges that senior professionals in the water sector faced and how they overcame them.

Thursday 23 September

Open meeting

12:30 – 14:30

This will be an open meeting between the members of the YWP Committee and all interested young water professionals who attended the congress. It will be an ideal opportunity for you to give your ideas and suggestions on what the YWP programme needs to focus on over the next two years.

Other activities

Interviews

During each of the morning and afternoon breaks young water professionals will be able to question a high-profile guest about their career path and experiences.

Career fair

The career fair will provide the perfect opportunity for young water professionals to meet different companies and organisations in the water industry and talk directly to the staff about potential career opportunities.

Mentoring activities

Young water professionals will have the opportunity to be matched with senior water professionals who are happy to act as mentors by providing career advice and exchanging knowledge with them.

Co-chairing a session

Selected young water professionals will have the opportunity to co-chair a session during the congress.

YWP mood wall

Young water professionals will be encouraged to post pictures of their experiences, impressions of the congress and ideas they want to share on the YWP mood wall.

Professionals Development Award ceremony

Young water professionals are invited to the 2010 Professionals Development Award ceremony.

YWP Award ceremony

All young water professionals are invited to attend the 2010 Young Water Professional Award ceremony.



Workshop

Young water professionals

09:00 – 16:30

See left column for details.

Workshop

Membrane bioreactor design and life-cycle cost assessment

08:30 – 16:30

Militaries, corporations and other institutions are known to apply digital game-based learning techniques to prepare decision-makers in critical roles where high stakes apply to success or failure. In this workshop participants will use a simpler competitive team-based digital game to learn about decision processes in a complex system such as the design and operation of a wastewater treatment facility. Participants will form teams and compete in a digital game-based life-cycle cost assessment of the finance, design and operation of a membrane bioreactor wastewater treatment facility over a 20-year operating period. The exercise will include cap and trade nutrient and carbon dioxide emissions markets.

Workshop

Rainwater harvesting and management workshop

08:30 – 16:30

Workshops on rainwater harvesting and management held at previous IWA World Water Congresses in Marrakech, Beijing and Vienna were very popular and this workshop will be no exception. It will look at the role of rainwater in the context of society, the environment and the economy and take a historical view of rainwater management and culture, presenting small- and large-scale rainwater management projects in both developed and developing countries. Examples of cities that have adopted revolutionary rainwater management systems in the urban context will be presented. The workshop will show how age-old rainwater harvesting knowledge and wisdom can be combined with the most advanced technology to find a way for cities to adapt to and survive climate change.

Workshop

WEF nutrient removal standards – which SLOT?

08:30 – 16:30

This workshop on the sustainable limits of technology (SLOT) will consist of invited keynote speakers, presentations and facilitated discussion. Topics to be covered include:

- regulations – value for money or waste of resources?; the EU case study; an example of a regional river basin; the holistic view
- technology – the law of diminishing



returns; costs of various technology and alternatives; nutrient balance in receiving waters; and the secondary impacts of tight water regulations.

Workshop

Water management in a cold climate

08:30 – 16:30

This workshop will consider the management of drinking water and wastewater systems in cold climate conditions. Issues to be addressed include:

- infrastructure design and construction, maintenance in the event of failure, operations involving chemical treatment and the efficacy of additives
- source control technologies for areas subject to cold climate conditions
- policies, regulations and incentives for the implementation of source control.

Workshop

Urban disaster resiliency forum

08:30 – 16:30

This forum aims to promote global societal awareness of the challenges posed to local urban governments, municipalities, hospitals and water supply utilities by the growing frequency of extreme weather events and natural disasters. The goal of the forum is to reinforce the capacity of disaster response capability and encourage the building of environmentally sustainable water supply and sanitation systems in vulnerable regions and less developed and emerging countries. It will focus on decentralised cooperation or 'twinning' as a successful and sustainable method of supporting local capacity building and showcase examples of projects that are taking place to create more disaster-resilient societies.

Workshop

Benchmarking framework

08:30 – 12:00

This workshop will introduce the new framework developed by the IWA task group on benchmarking that has been published by IWA and AWWA. As a result of the IWA contributions on performance indicators, the task group recognised a need for the water industry to have a common language and basic principles on how to do benchmarking. This workshop will address that need. It will focus on basic benchmarking issues, as well as on the practical aspects of developing or participating in a benchmarking effort. It will include performance assessment projects with performance indicators (PIs) and how to find best practices through benchmarking. Useful findings and testimonials from real utilities participating

in actual benchmarking projects will also be presented.

Workshop

QMRA for addressing safety and security

08:30 – 12:00

Since the treatment of water so directly affects public health it is important to have an understanding of how to assess the risks from microbial exposure. The field of quantitative microbial risk assessment (QMRA) is a constantly evolving science and the Centre for Advancing Risk Assessment (CAMRA) has four years of experience instructing students on the basics and advanced QMRA concepts. This workshop will act as an introduction to the QMRA field, presenting the core interdisciplinary topics that are vital to an understanding of QMRA and providing exercises and a diagnostic evaluation. The workshop follows a similar IWA health-related water microbiology workshop held in Tokyo in 2008. Whereas that workshop focused on microbiology, the focus of the Montréal workshop will be on potable and recreational water uses, as well as on the wider use of biosolids and the direct application of QMRA in the water industry.

Workshop

Guidelines for use of activated sludge models

08:30 – 12:00

The IWA Task Group on Good Modelling Practice has collected international experience in the field of activated sludge models through expert groups, workshops, questionnaires, modelling courses and an internet discussion forum. The task was to summarise all this experience and knowledge and condense into an IWA Scientific and Technical Report (STR). This report presents an internationally accepted framework to deal with activated sludge models in practice. It will make modelling more straightforward and systematic, especially for practitioners and consultants. It will also help to define quality levels for simulation results and provide a procedure to assess this quality and assist in the proper use of the models. The STR will be officially launched at the workshop and its content presented by walking through the different guideline steps based on a case study.

Workshop

Water resources and climate change in a development context

13:00 – 16:30

The impacts of climate change will be felt most heavily by vulnerable communities in low- and middle-income economies. These

impacts will be coupled with the existing need for economic development and improved standard of living together with population growth. Several recent initiatives have brought together researchers and the development sector to explore the impacts of climate change in developing countries and frame new ideas for integrated policies for sustainable development. This workshop will present some of the major findings and products from these workshops. It will allow researchers, practitioners and policy makers to extend the dialogue on this critical issue with a particular focus on water.

Workshop

How dead are 'dead' microbes?

13:00 – 16:30

In this workshop, overviews of the latest state of knowledge will be presented about the 'viable-but-non-culturable' (VBNC) state, the detection of VBNC cells and the conditions needed for the transition between the VBNC and culturable states. In particular, the relevance of transiently non-growing pathogens for hygienic surveillance and regulation will be critically discussed. The aim is not to generate huge new piles of data but to define what to do when classical methods of pathogen detection have reached their limits. The workshop will include statements from keynote speakers and is designed to contribute to further optimisation of standards in water hygiene as well as more directed counter-measures in cases of contamination problems and in preventive actions.

Workshop

Are positive energy wastewater treatment plants feasible?

13:00 – 16:30

Recent pressure on energy supply caused by the fluctuation in energy costs has highlighted the need for alternatives to fossil fuels and requires an answer to the question: are positive energy plants feasible? Wastewater contains organic matter and conveys heat and mechanical energy, all of which are renewable energy sources that can be produced and used in wastewater treatment plants. The energy potential is of four kinds: energy savings, recovered energy, energy from biomass and external renewable energies. Existing techniques and innovations for calorie recovery, biogas to gas conversion and fuel cells can be used today at the industrial level and could be combined to meet the operational energy needs of the plant. Illustrations will be given during the workshop. This is a presentation-style workshop.



W = Workshop

Stream 1	Stream 2	Stream 3
08:15 – 09:00 Keynote plenary session – to be announced		
09:15 – 10:45		
Detection methods for microbial hazards	Oxidation processes in drinking water 1	Safety and security – including flooding
How dead are 'dead' microbes? A critical discussion Hans-Curt Flemming Germany Impact of higher organisms on the microbial risk associated with drinking water Françoise Bichai Canada Detection of <i>Legionella</i> in Taiwan mud spring water by polymerase chain reaction and selective media cultivation Bing-Mu Hsu Chinese Taiwan Tools for a better understanding of the risk associated with <i>Cryptosporidium</i> oocysts in sources of drinking water Cindy Lalancette Canada	Quantitative understanding of advanced oxidation processes for the treatment of emerging contaminants Daisuke Minakata United States Treatment of refractory organic micropollutants by direct and indirect electrochemical oxidation process Jean-Francois Blais Canada Response surface optimisation for inactivation of copepod zooplankton with ozone Lin Tao PR China The influence of temperature on full-scale inactivation of aerobic endospores by ozone Rosario Coelho Portugal	Developing a new approach to the management of urban drainage systems – the UK response to recent severe surface water flooding Elliot Gill UK A comprehensive city-wide platform for accessing data and communicating with security and water quality monitoring systems Dan Kroll United States Emergency planning for traffic management in case of disruption caused by floods Nilo de Oliveira Nascimento Brazil Sewer asset management supported by failure data derived from citizens' calls Marie-claire ten Veldhuis Netherlands
10:45 – 11:15 Morning break		
11:15 – 12:45		
Faecal source tracking	Oxidation processes in drinking water 2	Disaster preparedness – training and education
Microbial source tracking guided by faecal pollution source profiling and catchment pollution dynamics Georg Reischer Austria Combining quantitative microbial source tracking with traditional approaches to map water pollution hazards in a river catchment Huw Taylor UK Tracking the sources of faecal contamination in the Wissahickon Creek watershed using genotypic analytical methods Joanna Pope UK Assessing the beta-glucuronidase gene to track the source of <i>E. coli</i> found in water samples Helen Stratton Australia	Ozone oxidation of pharmaceuticals during drinking water treatment Romain Broséus Canada Efficiency and mechanism of degradation of 2-Methylisoborneol by O ₃ /H ₂ O ₂ Xueyan Li PR China Key criteria for cost-effective ozone generators and inhomogeneous plasma processing of feed gas Fabio Krogh Switzerland Degradation of pharmaceuticals by catalytic ozonation over β-FeOOH supported on mesoporous alumina Hu Chun PR China	Emergency response for water supply utilities based on management by objectives after earthquake disasters Nagahisa Hirayama Japan Mekorot's experience in implementing new approaches for emergency situation managerial dilemmas Sion Cohen Israel An operative warning system of rainfall-triggered landslides at Manizales Jorge Julián Vélez Columbia Jordan's successful training and certification program Kenneth Donald Kerri United States
12:45 – 14:15 Lunch		
14:15 – 15:45		
Sanitation and hygiene	Oxidation processes in drinking water 3	Drinking stormwater – a feasible path?
Mapping and communicating sewage contributions to global waters Rachel Mae McNinch United States The London tideway tunnels – tackling London's Victorian legacy of combined sewage overflows – 21st Century engineering solutions and delivery challenges Gareth Bryn Thomas UK One-year monthly survey of rotavirus, astrovirus and norovirus in three sewage treatment plants (STPs) in Beijing, China and associated health risk assessment Xiaoqing He PR China The performance of highly permeable subsoil in removing pathogenic microorganisms from onsite wastewater effluent Niall O Luanaigh Ireland	Biofilm control by advanced oxidation process (AOP) pretreatment – effect on natural organic matter (NOM) Anat Lakretz Israel Mineralisation and biodegradability enhancement of natural organic matter by ozone-vacuum UV in comparison with ozone, vacuum UV, ozone-UV, and UV – effects on pH and ozone dose Eakalak Khan United States Oxidation of Ibuprofen in the presence of magnetite and Iron II amended magnetite at neutral pH Nadia Sabri Canada Advanced oxidation processes (AOP) – comparison of different treatment scenarios based on processes combining ozone, UV and hydrogen peroxide Joerg Mielcke Germany	20 years of stormwater harvesting in urban catchments – the Singapore experience Mong Hoo Lim Singapore Stormwater harvesting to augment drinking water in a regional town of Australia Therese Flapper Australia Centralised urban stormwater harvesting for potable reuse Peter McArdle Australia Effects of rainwater harvesting on centralised urban water supply utilities Camille Grandet France
15:45 – 16:15 Afternoon break		
16:15 – 17:00 Keynote plenary session Bill Cosgrove Canada		
17:00 – 19:00 Special viewing of poster presentations		
19:00 – 21:00 Young water professionals networking function		



W = Workshop

Stream 4	Stream 5	Stream 6
08:15 – 09:00 Keynote plenary session – to be announced		
09:15 – 10:45		
Climate change and the water industry – from impacts to adaptive strategies	Improvement of conventional treatment processes for drinking water 1	Advances in anaerobic treatment
Climate change seminars for the water sector – adaptation strategies to reduce vulnerabilities John Whitler United States Regional climate change adaptation in water treatment and supply Susanne Müller Germany Storm sewer infrastructure planning with climate change risk – a case study Laurens van der Tak United States Drought forecasting using an aggregated drought index and artificial neural networks Shishutosh Barua Australia	New York City – water treatment for the next millennium William Becker United States A new vision for the drinking water supply to the city of Groningen Wout Kompagnie Netherlands A new tool for optimising filter operation in water treatment Susan Springthorpe Canada Advanced treatment and control for biostable drinking water Louis Cornelis Rietveld Netherlands	Performance review of large-scale up-flow anaerobic sludge blanket sewage treatment plants Barry Heffernan Netherlands Methane conversion efficiency as a simple control parameter for an anaerobic digester at high loading rates Wipa Charles Australia Recovery of dissolved methane gas discharged from a UASB reactor with a degassing membrane Hisashi Satoh Japan Determination of biological methane potential using pressure measurement (Oxitop®) Audrey Battimelli France
10:45 – 11:15 Morning break		
11:15 – 12:45		
Climate change and adaptive water management – case studies	Improvement of conventional treatment processes for drinking water 2	Anaerobic membrane bioreactors
Adaptive water management for climate change – lessons learnt from six regional case studies in the European Alps Torsten Grothmann Germany Trends in drought and extreme precipitation events for Huaihe River Wen Wang PR China Projected impact of climate change on agricultural water demand – a case study Ziad Mimi Palestine Climate variability and water sharing plans – transferability of Australian approaches in Vietnam Nigel Peter Hayball Australia	Optimisation of enhanced coagulation facilities in Bergen Bjørnar Eikebrokk Norway Impact of geometric structure of flocculation reactor on flow field and flocculation efficiency Jun Nan PR China pH modified photolysis for treatment of micro-pollutants in water Hadas Mamane Israel Evaluating norovirus removal during drinking water treatment by using recombinant NV-VLPs Taku Matsushita Japan	Biopolymer and cation behaviour during WAS digestion with an AnMBR process and their contribution to membrane fouling Martha Dagnev Canada The anaerobic membrane bioreactor (AnMBR) process and the first year of full-scale AnMBR operation treating salad dressing wastewater Peter McCarthy Canada Anaerobic membrane bioreactor (AnMBR) – turning activated sludge process system inside out Peña Mar Spain Anaerobic MBRs for the treatment of low-strength sewage at low temperature Marc Pidou UK
12:45 – 14:15 Lunch		
14:15 – 15:45		
Climate change and water resources management	Innovative wastewater treatment strategies	Anaerobic ammonium oxidation
Effects of a heatwave on water quality of the Rhine and Meuse Rivers Gertjan Zwolsman Netherlands Temperature evolution of an experimental salt-gradient solar pond Francisco Suarez United States Climate change and the future of the electricity production sector – a European study Martina Flörke Germany Climate-proof river basin management in Netherlands Arthur Meuleman Netherlands	The development of the New York City BNR program Sarah Dailey United States How do initial design assumptions determine plant sizing? – assessing activated sludge process design using uncertainty and sensitivity analysis Xavier Flores Canada Cost optimisation and minimisation of the environmental impact through life cycle analysis of the waste water treatment plant of Bree, Belgium Kris De Gussem Belgium Integrating wastewater and biowaste in the city of the future Frida Pettersson Sweden	State of the art in anaerobic ammonium oxidation Bernhard Wett Austria Partial nitrification/anammox process – from two two-step towards one-step process Grzegorz Cema Poland Nitrous oxide (N ₂ O) emission from partial nitrification and anammox process treating municipal dewatered sludge liquor (centrate) Ingwei Wayne Lo Canada Autotrophic nitrogen removal at low temperature Anuska Mosquera-Corral Spain
15:45 – 16:15 Afternoon break		
16:15 – 17:00 Keynote plenary session Bill Cosgrove Canada		
17:00 – 19:00 Special viewing of poster presentations		
19:00 – 21:00 Young water professionals networking function		



W = Workshop

Stream 7		Stream 8		Stream 9	
08:15 – 09:00 Keynote plenary session – to be announced					
09:15 – 10:45					
Aerobic granular sludge		Consumer concerns and economic considerations		Explicitly dealing with uncertainty in WWTP design and operation	
State of the art – aerobic granular sludge Mark van Loosdrecht Netherlands Fractionation of alginate-like exopolysaccharide isolated from aerobic granular sludge Yuemei Lin PR China The formation of aerobic granules in a sequencing batch reactor (SBR) using domestic wastewater Jamile Wagner Brazil Effect of shear stress on aerobic granulation Xiaoying Zheng PR China		Safe, better-tasting tap water project – succession of safe and better-tasting water to the next generation Masato Okuhara Japan House buyer perceptions – the value of water and greywater recycling systems Melanie Muro UK Simulating the impact of pricing policies on urban water demand – a Southern France case study Rinaudo Jean-Daniel France Savings sharing and performance-based contracts for water efficiency – finding the appropriate technical and financial resources to improve water supplies Jan Janssens Switzerland		In spite of many advances over the past 30 years, treatment plants are still designed using approaches that typically account for unpredictability by incorporating generous safety factors. In the current regulatory environment of extremely low effluent standards, cost pressures, climate change and energy optimisation, a new design approach is required. There are many indications that our industry sees the need to change its approach to design, operational optimisation and compliance assessment, to one where explicit evaluations of uncertainty and risk of non-compliance are included. This desire for change has led to the formation of an IWA task group that aims to summarise the work that has	
10:45 – 11:15 Morning break					
11:15 – 12:45					
Advances in biological processes		Demand management, water conservation and metering		Explicitly dealing with uncertainty in WWTP design and operation	
2,4-D removal via denitrification using volatile fatty acids David Geraint Wareham New Zealand Microaerophilic conditions support elevated mixed culture polyhydroxyalkanoate (PHA) yields, but result in decreased PHA production rates Steven Pratt Australia Enhancement of treatment performances of complete-mix activated sludge process using immobilised cell bioaugmentation Eakalak Khan United States Characterisation and application of mycelium pellet as a biomass carrier in wastewater treatment Fang Ma PR China		Water loss programmes to reduce real losses in the city of Johannesburg Tshepo Malefetse South Africa Domestic water demand forecasting based on questionnaire and measurement survey in Japan Toshiyuki Shimizu Japan Reducing household water consumption through facilitating personal responsibility Anthony John Brinkley Australia A comprehensive approach for estimating non-revenue water in urban water supply systems Harrison Emmanuel Mutikanga Uganda		already been done on the topic of uncertainty evaluation and at identifying gaps in available methods and knowledge. In this context, we propose a workshop on this new, complex, rapidly evolving, and paradigm-shifting topic, to optimally discuss the insights that are being gained within the TG's six axes of activities, expose them to other views and expand them with other experience. The goal of this workshop is to initiate a dialogue that could ultimately lead to the widespread adoption of probabilistic approaches in WWTP regulations, design and operation.	
12:45 – 14:15 Lunch					
14:15 – 15:45					
Activated sludge population dynamics		Water conservation and reuse		Protection of natural water resources for drinking purposes	
Population dynamics in bioaugmented sequencing batch reactors for treatment of biphenyl wastewater Fang Ma PR China Application of Raman microscopy for simultaneous evaluation of intracellular polymer dynamics in enhanced biological phosphorus removal processes Nehreen Majed United States Modification of activated sludge characteristics due to applying direct current (DC) field Sharif Musa Ibeid Canada Changes in bacterial communities and in their biogeochemical activities during the treatment of sewage effluents by pelletised Bauxsol™ Laure Despland Australia		Role and sustainability of bank filtration and artificial recharge for drinking water production in a partially closed water cycle Gesche Joy Gruetzmacher Germany Water and energy link in the cities of the future – achieving a net zero carbon and pollution emissions footprint Vladimir Novotny United States Benchmark study on a novel integrated assessment methodology of urban water reuse Huu Hao Ngo Australia Local water symbiosis approach to more sustainable urban water management Sara Moslemi Zadeh UK		Micropollutants in wastewater effluents and soil aquifer treatment (SAT) Irena Pankratov Israel Pesticide pollution survey in Luxembourg aquifers – use of chemical fingerprints of groundwater springs to determine spatial contamination patterns and temporal variabilities Luc Zwank Luxembourg The treatment of onsite wastewater effluent by different subsoils in Ireland Laurence William Gill Ireland Pilot study – treatment of membrane concentrate Nathalie Vigneron-Larosa France	
15:45 – 16:15 Afternoon break					
16:15 – 17:00 Keynote plenary session Bill Cosgrove Canada					
17:00 – 19:00 Special viewing of poster presentations					
19:00 – 21:00 Young water professionals networking function					



W = Workshop

Stream 10	Stream 11	Stream 12	Stream 13
08:15 – 09:00 Keynote plenary session – to be announced			
09:15 – 10:45			
Accelerating innovation in the water sector W	Drinking water safety – households to cities W	Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes W	Sanitation 21 W
<p>Large improvements in innovation or technology development are best achieved through close cooperation between various groups engaged in the water management profession, including academics, regulators, utility managers and private industry. It is this type of interaction that fosters communication between those who innovate and those who use the innovations. Cooperation of this nature needs to be fostered through the coordination of key components</p>	<p>Consistently providing safe drinking water can be a challenge for the simplest and the most complex of water systems. Hundreds of millions of people do not have access to improved sources of drinking water, leaving them at risk to water, sanitation and hygiene (WASH) related diseases. Worldwide, 1.5 million children die annually from diarrheal illnesses caused by unsafe water, poor sanitation and inadequate hygiene. Responding to these</p>	<p>The purpose of this workshop is to present a state of the art understanding of the principles of biofilm processes, looking at 'desired' biofilms such as those in biofilters and 'undesired' biofilms such as those in membrane separation processes. The workshop will be the first step of a process to form a task group on the topic of 'biofilms on membranes'</p>	<p>When domestic wastewater is discharged without any form of treatment it causes widespread risks to human health and pollution of the environment. Focusing on the situation in low- and middle-income countries, this workshop will examine the need for wastewater management strategies to be compatible with landuse, infrastructure development plans and increasing demands for reuse as a result of water scarcity due to climate change. Affordable</p>
10:45 – 11:15 Morning break			
11:15 – 12:45			
Accelerating innovation in the water sector W	Drinking water safety – households to cities W	Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes W	Sanitation 21 W
<p>of fundamental research, applied research, technology development and technology application. As key drivers of innovation, start-up companies also need to collaborate early with end users, universities, investors, corporations and regulatory authorities. This workshop will discuss the innovation needs of the water sector, the approach and obstacles to promoting innovation, technology transfer between regions of the world and the sources and metrics for</p>	<p>challenges requires a spectrum of interventions, with the prevention or minimisation of water pollution being critical to improving drinking water quality. Interventions to improve drinking water quality range from disinfecting water at the household level, called 'point-of-use (POU) treatment' to water management at the community level via water safety plans (WSPs). In some situations, more than one type of intervention is needed. For example, both</p>	<p>Continued</p>	<p>and appropriate technologies exist, successful solutions have been implemented and innovative arrangements for financing and cost recovery exist that can encourage more sustainable performance. This workshop will analyse experiences from the developing and developed world and consider how constraints to implementing and scaling up good practice can be overcome.</p>
12:45 – 14:15 Lunch			
14:15 – 15:45			
Accelerating innovation in the water sector W	Drinking water safety – households to cities W	Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes W	Sanitation 21 W
<p>funding innovation in water. It aims to show that entrepreneurship is essential to bridging the gap between ideas and inventions and the innovations that make it to the marketplace.</p>	<p>POU treatment and WSPs may be needed for piped water systems with intermittent service. When this happens, the different interventions are complementary, not competitive. This workshop will assess the challenges related to drinking water safety and present the scope of interventions, from household to large urban solutions.</p>	<p>Continued</p>	<p>Continued</p>
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Bill Cosgrove Canada			
17:00 – 19:00 Special viewing of poster presentations			
19:00 – 21:00 Young water professionals networking function			



W = Workshop

Stream 14	Stream 15	Stream 16	Stream 17
08:15 – 09:00 Keynote plenary session – to be announced			
09:15 – 10:45			
Workforce development – an international perspective W	Assessment of anthropogenic impacts 1	Local elected officials and utilities leaders forum	Local elected officials and utilities leaders forum
Water and wastewater utilities across the globe need knowledgeable, skilled and motivated staff in order to provide reliable service to their customers. The ability of utilities to ensure that they have sufficient staff in mission-critical classifications, as well as staff who are sufficiently prepared to do quality work, is threatened by multiple independent but equally challenging factors including the retirement of experienced 'baby boomers'; changing facilities, regulations and technologies that even experienced workers may be unprepared for and	Social benchmarking to improve river ecosystems John Cary Australia Simplification of sampling macroinvertebrates for urban drainage purposes and its uncertainties Gabriela Stastna Czech Republic Hydrologic, seasonal and management controls on phosphorus transfers within agricultural watersheds Aubert Raymond Michaud Canada Use of anthropogenic gadolinium as a tracer for bank filtrate in drinking water wells David Schwesig Germany	In a context of economical, societal and environmental challenges, sustainable development has been identified as a major goal by cities and their water utilities. Today, many public and private utilities throughout the world strive to achieve these sustainable water practices. Others lack the experience, resources or commitment to implement them. This imbalance in their efforts often leads to gaps in their decision-making, customer dissatisfaction and difficulty in obtaining and efficiently applying	In a context of economical, societal and environmental challenges, sustainable development has been identified as a major goal by cities and their water utilities. Today, many public and private utilities throughout the world strive to achieve these sustainable water practices. Others lack the experience, resources or commitment to implement them. This imbalance in their efforts often leads to gaps in their decision-making, customer dissatisfaction and difficulty in obtaining and efficiently applying
10:45 – 11:15 Morning break			
11:15 – 12:45			
Workforce development – an international perspective W	Assessment of anthropogenic impacts 2	Local elected officials and utilities leaders forum	Local elected officials and utilities leaders forum
parallel engineering sectors. This workshop will provide information on the scale of the challenges and how they are being addressed, with cases drawn from the US, Australia and a range of low-middle income countries.	Assessment of environmental flow alterations from 1961 to 2000 in the Yarlung Zangbo River, Tibet He Chen China Spectrophotometric characterization of human impacted surface waters in the Moselle watershed Marie-Noëlle Pons France Material flow of the river basin Moskva Tatyana Rogozina Germany Simulated changes in water flows of the Mekong River at Stoeng Treng from potential dam operations on an adjacent tributary Thomas Cochrane New Zealand	the financial resources needed for their future. To be successful elected officials and utility leaders must fully align themselves behind the successful implementation of these principles. The proposed methodology of this forum is to bring together an international body of mayors, policy makers, utility leaders from public and private utilities, and other major stakeholders to assess best practices and strategies for responding to emerging challenges of sustainable water utility. The target outcome of	the financial resources needed for their future. To be successful elected officials and utility leaders must fully align themselves behind the successful implementation of these principles. The proposed methodology of this forum is to bring together an international body of mayors, policy makers, utility leaders from public and private utilities, and other major stakeholders to assess best practices and strategies for responding to emerging challenges of sustainable water utility. The target outcome of
12:45 – 14:15 Lunch			
14:15 – 15:45			
Industry forum	Industry forum	Local elected officials and utilities leaders forum	Local elected officials and utilities leaders forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	the forum could be the creation of an international set of principles and practices which would be used to facilitate mutual awareness and trust building among all the parties.	the forum could be the creation of an international set of principles and practices which would be used to facilitate mutual awareness and trust building among all the parties.
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Bill Cosgrove Canada			
17:00 – 19:00 Special viewing of poster presentations			
19:00 – 21:00 Young water professionals networking function			

Tuesday preliminary programme



W = Workshop

Stream 1		Stream 2		Stream 3	
08:15 – 09:00 Keynote plenary session Arjun Thapan Philippines					
09:15 – 10:45					
Health-related water microbiology – control strategies		Desalination 1		Stormwater pollution and control	
Influenza viruses H5N1 and H1N1 removal / inactivation by drinking water treatment processes Dorothee Lenes France Report on a multiple bacterial pathogen outbreak in South Africa in October 2007 Tobias Barnard South Africa Waterborne disease incidents associated with recreational water use in the Netherlands, 1991–2007 Ciska Schets Netherlands Adenovirus removal by wastewater treatment plant – effects of meteorological events Annalaura Carducci Italy		Gold Coast desalination plant – providing a safe and reliable drinking water supply to south-east Queensland Nelly Cannesson Australia Desalination in the Mediterranean basin – focus on Spain Oriol Gibert Spain Impacts of desalinated water and its blends with treated surface water on copper and lead release from distribution Haizhou Liu United States The role of desalination in a diversified water resources portfolio – lessons learned Brent Alspach United States		Priority pollutants in urban stormwater – a global overview at catchment scale Jean-Luc Bertrand-Krajewski France Characteristics of urban runoff and removal using grass pavers and woodchip in a commercial and industrial area of Korea Sung Min Cha Korea Developing and validating an innovative method for spatial quantification of contaminant buildup and wash-off from impermeable urban surfaces Daniel Wicke New Zealand	
10:45 – 11:15 Morning break					
11:15 – 12:45					
Detection methods for chemical hazards		Desalination 2		CSO pollution reduction strategies	
ABC in drinking water safety – analytical and bioanalytical chemistry challenges Xing-Fang Li Canada Development of immunofluorescent biosensor for detection of cyanobacterial hepatotoxin microcystin-LR In S Kim Korea Characterisation of emerging disinfection by-products – development of innovative and sensitive methods Dalel Benali France Proficiency test of non-target screening with gas chromatography mass spectrometry to confirm a detected contamination of raw and drinking water Michael Petri Germany		A novel desalination technology suitable for arid climates with constrained electricity supply Stuart Blackie Canada Desalination using an air-cathode microbial desalination cell Maha Mehanna United States CaSO4 scale formation in forward osmosis desalination Sangho Lee Korea A direct contact membrane distillation module coupled to a salt-gradient solar pond for water production Francisco Suarez United States		Modelling combined sewer overflow reductions using green roofs in the Bronx, New York Danielle Hartman United States Quantification of the first flush effect in combined sewer systems Ruben-Laurids Lange Germany Evaluation of effectiveness of combined sewer overflow control measures by operational data Kai Schroeder Germany Reducing CSOs and giving the river back to the public – innovative combined sewer overflow control and riverbanks restoration of the St-Charles River in Quebec City Olivier Fradet Canada	
12:45 – 14:15 Lunch					
14:15 – 15:45					
Occurrence and control of chemical hazards		Membrane filtration for removal of particulate matter 1		Clean pipes, good pipes = good water	
Modelling of biodegradation potential of wastewater-derived organic micropollutants during managed aquifer recharge Sung Kyu Maeng Netherlands Water pollution monitoring of nitrates leaching from agricultural fields with industrial crop harvesting practices – the Belgian case of onsite lysimeters as a monitoring tool Nathalie Fonder Belgium Adsorption and desorption of atrazine (AT) on Nano-SiO2 and ultrafine kaolinite Lu Jiajuan PR China Assessing natural attenuation of diesel/biodiesel mixtures spills in groundwater Henry Xavier Corseuil Brazil		Fouling of ceramic and polymeric membranes – reasons, effects, counter-measures Stefan Panglisch Germany Role of electrostatic repulsion in fouling of ultrafiltration membranes Vitaly Gitis Israel Fouling mechanism of combined natural organic matter – inorganic particle microfiltration Bingqing Zhao PR China Evaluation of an emerging water treatment technology – ceramic membranes Sunil Kommineni United States		Ice pigging technology to clean potable water trunk mains in an environmental friendly and cost effective manner Harriet Candy UK What is the risk of plastic pipe long-term degradation on water quality? Benjamin Rabaud France Dual benefits from a contamination warning system – improving quality and saving dollars using real-time online water quality monitoring Kenneth Thompson United States Integrated decision support system for bio-contamination detection and onsite mitigation monitoring Ilan Juran United States	
15:45 – 16:15 Afternoon break					
16:15 – 17:00 Keynote plenary session Khoo Teng Chye Singapore					
18:30 – 19:30 Special event – Canadian Brass at the Notre-Dame Basilica					



W = Workshop

Stream 4		Stream 5	Stream 6
08:15 – 09:00 Keynote plenary session Arjun Thapan Philippines			
09:15 – 10:45			
Water–energy linkages in the water industry	Strategies for integrated water resource management including water reuse	Fundamentals of advanced oxidation processes in wastewater treatment	
The water-energy nexus – a review Steven Kenway Australia Energy efficiency in the water industry – a global research project Malcolm Brandt UK Water and energy as inseparable twins for sustainable solutions Jan Hofman Netherlands Rainwater harvesting – environmentally beneficial for the UK? Celia Way UK	Innovation for integrated water management Kunle Akande UK Water reuse for irrigation in Jordan – plant beneficial nutrients, farmers’ awareness and management strategies Gemma Carr UK Strategies for water security – collaboration in the Colorado River basin and comparison with Australia Les Lampe United States IntegTa – a tool for integrative management of dammed water reservoirs for drinking water production Wolfgang Uhl Germany	Radial distribution modelling of liquid-phase phenol concentration in liquid-solid fluidised bed photoreactor Dandan Zhou PR China Chlorine photolysis as an advanced oxidation process – yield of hydroxyl radicals Jing Jin Canada Coupling of membrane separation with photocatalytic slurry reactor for advanced dye wastewater treatment Sheng-Jie You Chinese Taiwan Reactivity of effluent organic matter towards hydroxyl radical as a function of molecular weight and its effects on the application of advanced oxidation Fernando Rosario United States	
10:45 – 11:15 Morning break			
11:15 – 12:45			
Carbon footprint of wastewater treatment plants 1 – reducing GHG emissions	Strategic management of water resources in urban water systems	Advanced oxidation of emerging contaminants	
Methodology for the assessment of the greenhouse gas impact of wastewater sludge treatment Anna Åkerman France DCWASA's certifiable GHG inventory and projected GHG reductions from Cambi™/anaerobic digestion upgrades John Willis United States Nitrous oxide inventories from activated sludge at full-scale wastewater treatment facilities in the US Kartik Chandran United States Development of a simplified methodology for determining greenhouse gas emissions from Canadian biosolids management Mark Teshima Canada	Genetic algorithm-based optimisation of water resources allocation under drought conditions Zhengfu Rao UK EAR methodology – an approach to sustainable urban water management Granger Damien France Strategic environmental assessment application in water resources management Amir Mohammad Yadghar Canada Atlas of metropolitan regions – strategy for water supply planning in large Brazilian urban centers Sérgio R Ayrimoraes Soares Brazil	UV photolysis of perfluorooctanoic acid (PFOA) in dilute aqueous solution Rabindra Raj Giri Japan Effects of ultrasound treatment on 23 emerging contaminants in urban wastewater Vincenzo Naddeo Italy Removal of mixtures of pharmaceuticals from hospital wastewater using UV/H2O2/O3 advanced oxidation process Yaal Lester Israel Removal of antibiotics in water and secondary municipal effluent by ozonation Angela Rodayan Canada	
12:45 – 14:15 Lunch			
14:15 – 15:45			
Carbon footprint of wastewater treatment plants 2 – increasing energy efficiency	Measuring and improving performance and sustainability indicators in benchmarking	Advanced oxidation of industrial chemicals	
From best practices to the plant of the future – the WERF optimisation programme George Crawford Canada Green energy resource – research and learning experiences from wastewater treatment plants Valerie Guimet France Co-location of brown grease to biodiesel fuel production facility at the oceanside wastewater treatment plant in San Francisco Domenec Jolis United States Production of energy by co-fermentation with substrate from fat separators Alexander Wriege-Bechtold Germany	Benchmarking of Indian urban water sector – performance indicator system versus data envelopment analysis Mamata Singh India Assessing the operational performance of water treatment plants – focus on water quality and treatment efficiency Paula Vieira Portugal Life cycle assessment of conventional and source-separation systems for urban wastewater management Christian Remy Germany Adapting the economic level of leakage concept to include the cost of carbon emissions Ian Smout UK	Experimental study on the H2O2/UV process for colour removal from textile wastewaters Cecilia Caretti Italy Advanced treatment of membrane bioreactor (MBR) effluents for effective wastewater reclamation Sarper Sarp Korea Uncatalysed hydrogen transfer reduction of acetone into isopropanol under hydrothermal conditions Zheng Shen PR China Influence of system configuration on the treatment of industrial effluents in a photo-catalytic membrane reactor Marc Pidou UK	
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Khoo Teng Chye Singapore			
18:30 – 19:30 Special event – Canadian Brass at the Notre-Dame Basilica			



W = Workshop

Stream 7		Stream 8	Stream 9
08:15 – 09:00 Keynote plenary session Arjun Thapan Philippines			
09:15 – 10:45			
Biofilm processes	Focusing on what works – service provision solutions in developing countries W	Model development and application 1	
Evaluation of biofilm retention time and biofilm activity in moving-bed biofilm reactor for treating aniline wastewater Sheng Chen PR China Evaluation of biofilm performance as a protective barrier against biocorrosion using an enzyme electrode Banu Ormeci Canada Formation and performance of thin biofilms in an aerobic fluidised bed Shuangshi Dong PR China Process optimisation of H2S removal from biogas in an anoxic biotrickling filter Gabriela Soreanu Canada	This workshop will reprise the lessons learned and the breakthroughs identified from the 1st IWA Development Congress held in Mexico in 2009. It will identify those technical and non-technical opportunities, case studies and initiatives that deserve greater attention and point towards real ‘step changes’ in approach. A moderated discussion will be organised in such a way as to draw out consensus points and provide an entry point for discussions during the 2nd IWA Development Congress to be held in Malaysia in November 2011.	Use of socio-economic typologies for improved integrated management in the data-poor catchments – explorations from the Australian north Silva Larson Australia On the effect of scaling conceptual model complexity on stochastic response for water quality modelling Geoffrey T Parker UK A tool to forecast and warn of real-time flash floods in urban areas Carlos Montero Spain Water resources modelling in the Rift Valley lakes basin, Ethiopia – a tool to define acceptable limits of environmental degradation to underpin economic development strategy Carolyn Faith Francis UK	
10:45 – 11:15 Morning break			
11:15 – 12:45			
Industrial wastewater treatment 1	Focusing on what works – service provision solutions in developing countries W	Model development and application 2	
Biological removal of cationic fission products from nuclear wastewater Evans M Nkhalambayausi-Chirwa South Africa Optimisation of lead (II) biosorption in an aqueous solution using chemically modified aerobic digested sludge Reza Darvishi Cheshmeh Soltani Islamic Replic of Iran Modelling of lead removal by an aquatic moss Ramiro Espinheira Martins Portugal Effects of the cometabolite/growth substrate ratio on the aerobic degradation of 4-monochlorophenol Stefano Milia Italy	Continued	Diffusion and desorption of contaminant in heterogeneous media Guannan Jiang United States Modelling to evaluate the sustainability of a loop-cut channel – a case study of the Matamuhuri River in south-eastern Bangladesh Monirul Islam Canada The use of scenario-based modelling to support the development of a sustainable, integrated water resources plan for south-east England Fida Choudhury UK Relocating groundwater abstraction wells at the drinking water production site ‘Zichem Vinkenbergh’ Belgium Tom Diez Belgium	
12:45 – 14:15 Lunch			
14:15 – 15:45			
Industrial wastewater treatment 2	Monitoring system development and data management	Water allocation and sharing in national and transboundary systems	
Sequestering mechanism of cationic dye (Safranin O) from aqueous phase by dead macro fungus biosorbent Nityanand Singh Maurya India Application of an anaerobic hybrid reactor for petrochemical effluent treatment Mohammad Taghi Jafarzaadeh Islamic Republic of Iran Biosorption of reactive black 5 dye in an up-flow packed bed column Sumathi Suresh India Biosorptive recovery of platinum from refining wastewaters by immobilised Saccharomyces cerevisiae Jo Burgess South Africa	Measurements of aquatic humic substances by simple linear regression based on spectral absorption method Asha Udayamali Meegolle Lokuhewage Japan Issues of drinking water quality of small-scale water services towards global change Olivier Thomas France Monitoring the effects on the water balance of the Garzweiler open pit mine – concepts, methods and experience Bernd Bucher Germany Dynamic changes of the ecological environment in Songhua River basin through remote sensing monitoring Yao Cheng PR China	Environmental water allocation in Australia – multiple paradigms in a vast and complex landscape Tony Church Australia Including environmental flow requirements in water resources planning models Karen Meijer Netherlands Sharing water from international watercourses Stephen Draper United States Who funds water projects where and why? Patterns of donor engagement in international river basins Susanne Schmeier Germany	
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Khoo Teng Chye Singapore			
18:30 – 19:30 Special event – Canadian Brass at the Notre-Dame Basilica			



W = Workshop

Stream 10	Stream 11	Stream 12	Stream 13
08:15 – 09:00 Keynote plenary session Arjun Thapan Philippines			
09:15 – 10:45			
Accelerating innovation in the water sector W	Water, climate and energy – challenges and solutions on a river basin scale W	Cities of the future W	Innovative water partnerships W
Day two Large improvements in innovation or technology development are best achieved through close cooperation between various groups engaged in the water management profession, including academics, regulators, utility managers and private industry. It is this type of interaction that fosters communication between those who innovate and those who use the innovations. Cooperation of this nature needs to be fostered through the coordination of key components of fundamental research, applied	Watershed management currently presents a number of challenges including the need to balance environmental, social and technical challenges. Governance, particularly cross-boundary, and implementation issues add additional challenges to an already complex situation. Climate change will alter these challenges. Some may deepen through increasing competition for scarce resources, increased demand for hydropower and its associated environmental impacts, substantial changes in the response of watersheds and	The confluence of powerful trends – in water technology, global climate change, urban demographics, and the mandate for sustainability – presents our industry with an historic opportunity to join leaders in other disciplines in envisioning and advancing new models in integrated water management and urban planning. In this two-day planning ‘charrette’, we will engage an interdisciplinary community of environmental and water engineers, urban and social planners, architects, landscape designers and city	The public–private partnerships set up in the sector in the 1990s were supposed to bring in the professionalism that was essential for the efficient management of water and sanitation services and guarantee the provision of financing in a competitive environment as well as a virtuous contractual framework that was satisfactory to all parties. In most cases these expectations have not been met although, unlike in previous decades, considerable results have been achieved. It is necessary to take into account local
10:45 – 11:15 Morning break			
11:15 – 12:45			
Accelerating innovation in the water sector W	Water, climate and energy – challenges and solutions on a river basin scale W	Cities of the future W	Innovative water partnerships W
research, technology development and technology application. As key drivers of innovation, start-up companies also need to collaborate early with end users, universities, investors, corporations and regulatory authorities. This workshop will discuss the innovation needs of the water sector, the approach and obstacles to promoting innovation, technology transfer between regions of the world and the sources and metrics for funding innovation in water. It will aim to show that entrepreneurship is essential to bridging the gap	the challenge of managing the uncertainty in climate change predictions. However the challenges of climate change may present an opportunity or the impetus to improve watershed management approaches.	managers in considering the possibilities of cities of the future – and the central role that water management plays in these new models. Day one will set out the main themes of the workshop and establish the drivers, trends and rationale for cities of the future, emphasises the significance of water in new urban models and draw out participant views on goals, desired outcomes and interventions. Selected case studies help to illustrate the principles of cities of the future.	social, political and cultural conditions and to identify counterparts in civil society in order to optimise the dialogue between all concerned stakeholders. As well, the impacts of urbanisation, climate change and population growth can add another layer of complexity by, for example, increasing water scarcity in some areas. These impacts reverberate beyond the water cycle and require cross-sectoral cooperation with stakeholders in industry and agriculture. This workshop will reflect on the lessons learned from previous
12:45 – 14:15 Lunch			
14:15 – 15:45			
Accelerating innovation in the water sector W	Water, climate and energy – challenges and solutions on a river basin scale W	Cities of the future W	Innovative water partnerships W
between ideas and inventions and the innovations that make it to the marketplace.	Continued	Continued	public–private partnerships and build on recent successful case studies to identify effective and appropriate public–private partnerships for the future, whilst considering the role of the wider private sector.
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Khoo Teng Chye Singapore			
18:30 – 19:30 Special event – Canadian Brass at the Notre-Dame Basilica			



W = Workshop

Stream 14	Stream 15	Stream 16	Stream 17
08:15 – 09:00 Keynote plenary session Arjun Thapan Philippines			
09:15 – 10:45			
Industry forum	Industry forum	Africa / MENA regional forum	Asia-Pacific regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	This regional forum will aim to distill and synthesise key regional drivers and responses from sub-Saharan Africa and Middle East North Africa with a view to sharing lessons between the regions. There will be a focus on identifying and addressing the capacity gaps in each region and the role of regional institutions in this.	This regional forum will reflect on the IWA regional programme for the Asia-Pacific region and include contributions from key partners in the region including ADB, USAID, WSP and others. There will be a particular focus on the WaterLinks programme showcasing successful WOPs between water and sanitation utilities in the region.
10:45 – 11:15 Morning break			
11:15 – 12:45			
Industry forum	Industry forum	Africa / MENA regional forum	Asia-Pacific regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	Continued	Continued
12:45 – 14:15 Lunch			
14:15 – 15:45			
Industry forum	Industry forum	Africa / MENA regional forum	East-Asia regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	Continued	Continued
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Khoo Teng Chye Singapore			
18:30 – 19:30 Special event – Canadian Brass at the Notre-Dame Basilica			

Wednesday preliminary programme



W = Workshop

Stream 1	Stream 2	Stream 3
08:15 – 09:00 Keynote plenary session John Carey Canada		
09:15 – 10:45		
Membrane filtration for removal of particulate matter 2 Design, validation performance and costing of pressurised MF and UF membranes for recycled water in Australia Anthony Wachinski United States Virus removal retention challenge tests performed at laboratory- and pilot-scale during operation of membrane units Hugues Humbert France Performance assessment of functionalised electrospun nanofibres for removal of pathogens Nele Daels Belgium Characterisation and enhancement of water treatment by point-of-use ceramic filters Angela Bielefeldt United States	Disinfection and management of DBPs 1 Dutch secret – stable drinking water without disinfection Jan Vreeburg Netherlands Disinfection by-product control by optimised reservoir operations – the New York City approach William Becker United States Computational study of <i>E. coli</i> inactivation by peracetic acid (PAA) in chlorine contactors Domenico Santoro Canada Influence of low-pressure UV disinfection on the regrowth potential of drinking water Peter Van der Maas Netherlands	Occurrence and behaviour of emerging chemicals Innovative method for prioritising emerging disinfection by-products (DBPs) in drinking water on the basis of their potential impact on public health Armelle Hebert France Perfluorinated compounds (PFCs) in Yodo River system, Japan Binaya Raj Shivakoti Japan Occurrence of N-nitrosodiphenylamine and N-nitrosodimethylamine in 38 drinking water distribution systems in Canada and the US Jessica Boyd Canada Behaviour of brominated and chlorinated flame retardants during drinking water treatment Frank Sacher Germany
10:45 – 11:15 Morning break		
11:15 – 12:45		
Adsorption and ion exchange 1 Super-powdered activated carbon – optimising adsorbent particle size for enhancing taste and odour removal Yoshihiko Matsui Japan Influence of flocculant on micropollution removal by activated carbon powder during the flocculation-coagulation-settling step in drinking water plants Pierre Le Cloirec France The fate and transport of the TiO ₂ nanoparticles in a GAC bed and their impact on TCE adsorption George Sorial United States Preventing trihalomethane formation – the ability of granular activated carbon and brimac media to remove colour and total organic carbons from drinking water in the north-west of Scotland Katherine Mary Courtnadge UK	Disinfection and management of DBPs 2 Quantifying the formation of N-containing DBP in chlorinated water using the absorbance and fluorescence indexes Paolo Roccaro Italy Effects of mixing on the chloramination process Khyati Jain United States Adsorption of dimethylamine from aqueous solutions by manganese dioxide Zhonglin Chen PR China Monochloramine and total haloamine decay after a short prechlorination time in the presence of bromide Gerald Speitel United States	Occurrence and behaviour of PPCPs Assessment of some factors influencing antibiotic resistance gene transfers in activated sludges by quantitative PCR Sophie Courtois France Antibiotic resistance characteristics of environmental bacteria from an oxytetracycline production wastewater treatment plant and the receiving river Dong Li PR China Management of emerging micropollutants – example of a nationwide strategy for pharmaceuticals residues in waters Yves Levi France Occurrence and fate of pharmaceuticals in US drinking waters Shane Snyder United States
12:45 – 14:15 Lunch		
14:15 – 15:45		
Adsorption and ion exchange 2 Mechanism of natural organic matter adsorption on super-powdered activated carbon – observation of internal adsorbed-phase concentration distribution Naoya Ando Japan Synthesis of octyl-modified ordered mesoporous silica as a new nano-sorbent for the removal of 2-chlorophenols from aqueous media Zhonglin Chen China The effect of pH on arsenic adsorption on water treatment residual solids Meaghan Gibbons Canada Sorption of Pb(II) by poly(hydroxamic acid) grafted oil palm empty fruit bunch (OPEFB) Md Jelas Haron Malaysia	Biological treatment processes for drinking water Biomass development and stratification in a drinking water granular activated carbon (GAC) filter Silvana Velten Switzerland Use of biologically active GAC filters for removing DBP precursors and other micro contaminants Zaid Chowdhury United States Removal of Microcystin-LR through biofilters using different filter materials Xin Wu Germany Mathematical modeling of aeration efficiency and dissolved oxygen provided by stepped cascade aeration Ola Diaa El Monayeri Egypt	Toxicity and environmental impacts A real-time cell electronic sensing (RT-CES) method for examining the cytotoxicity of nanomaterials developed for use in water treatment Xing-Fang Li Canada Evaluation of the toxicological interaction of mixtures of xenobiotics with perfluorooctane sulphonate (PFOS) on <i>Pseudokirchneriella subcapitata</i> Roberto Rosal Spain Real-time monitoring of emerging contaminants in water using automated readout of small model organisms Nadine Dumoutier France The organic contamination survey and health risk assessment of 16 source water reservoirs in Haihe River Basin Gao Jijun PR China
15:45 – 16:15 Afternoon break		
16:15 – 17:00 Keynote plenary session Helmut Kroiss Austria		
19:00 – 22:30 IWA Project Innovation Awards (PIA) dinner		

W = Workshop

Stream 4		Stream 5	Stream 6
08:15 – 09:00 Keynote plenary session John Carey Canada			
09:15 – 10:45			
Microbial fuel cells – research and applications	Treatment of wetlands for water quality remediation – state of the art and future directions W	Membrane systems for wastewater treatment – optimising membrane processes	
Conception and optimisation of a membrane electrode assembly microbial fuel cell (MEA-MFC) for treatment of domestic wastewater Olivier Lefebvre Singapore Microbial community dynamics depending on location in the microbial fuel cell and their electrochemical performance Changwon Kim Korea Bioelectricity production using microbial fuel cells in optimised configuration Yunhee Lee United States Rice mill wastewater treatment using microbial fuel cell Makarand Madhao Ghangrekar India	This workshop is designed to expose the participant to the latest information on appropriate applications, configurations, design options and performance expectations of treatment wetlands systems. No longer a one-size-fits-all technology, understanding has advanced to a level that appropriate design varies depending on the treatment objective.	Physico-chemical characterisation versus in-situ microstructural characterisation of membrane fouling in membrane bioreactors Albert Tze Chiang Ng Singapore Characterising hydrodynamics at membrane surface in air sparged submerged membrane systems through direct observation and particle image velocimetry Sepideh Jankhah Canada Real-time monitoring of membrane bioreactors with statistically-based models incorporating 2D-fluorescence data Maria AM Reis Portugal Simulation of membrane fouling considering mixed liquor viscosity and variation of shear stress on membrane surface Hlwan Moe Zaw Japan	
10:45 – 11:15 Morning break			
11:15 – 12:45			
Sludge and biosolids management	Wetlands systems and waste stabilisation ponds	Membrane systems for wastewater treatment – full-scale application of membrane technology	
Case study of the impacts of installing food waste disposers in 50 per cent of households in Surahammar, Sweden Tim Evans UK The effect of microwave receptors on process and products from sewage sludge pyrolysis by microwave Yu Tian PR China Excess sludge stabilisation by enhanced thermophilic digestion using sludge pretreatments Josep Font Spain Investigating the mechanism of sludge reduction in activated sludge with an anaerobic side-stream reactor Chul Park United States	UV disinfection of stabilisation pond effluent – a feasible alternative for areas with land restriction Carlos Chernicharo Brazil The rate constant, k20, for NH3-N with rubber tyre chips (RTCs) as biofilm carrier in subsurface flow constructed wetlands as wastewater treatment and water resource Delia Bantillo Senoro Philippines Hybrid constructed wetland for wastewater treatment and reuse in small communities in Morocco Christopher Brian Kinsley Canada Practical method and its full-scale application for restoration of rather clogged subsurface wetlands by earthworms Sheng Wang PR China	Ten persistent myths and realities of the MBR technology for municipal applications Boris Lesjean Germany Design and implementation of ZeeWeed MBR retrofits Ana Calderon Canada Economical evaluation of decentralised MBRs achieving varying effluent qualities Johan Stueber Germany Treating municipal wastewater with the goal of resource recovery Paul Sutton United States	
12:45 – 14:15 Lunch			
14:15 – 15:45			
Pre-treatment of sludge and biosolids	Wastewater reclamation and reuse – indirect potable reuse	Membrane systems for wastewater treatment – membrane fouling	
Comprehensive review and compilation of pretreatments for mesophilic and thermophilic anaerobic digestion Etienne Louis Bordeleau Canada Evaluation of a sludge homogenisation pre-conditioning process for increased biogas production and reduced sludge yields from anaerobic digestion Julian Sandino United States Evaluation of autohydrolysis pretreatment of secondary sludge Andrea Carvajal Spain Ozonation of endogenous residue and active biomass from a synthetic activated sludge Marc-André Labelle Canada	Possibilities for reuse of treated domestic wastewater in Netherlands Louis Cornelis Rietveld Netherlands Aquifer recharge for securing water resources – the experience in Llobregat River Marta Hernandez Spain The role of indirect potable reuse in water management – a Gwinnett County, GA case study Jeff Peeters Canada Drawing people to water learning – the foundation to enhance acceptance Linda Macpherson United States	Membrane fouling management in wastewater treatment – myths versus lessons learned from operating membrane bioreactor and tertiary filtration systems Zeynep Erdal United States Characteristics of different fractions of microbial flocs and their role in membrane fouling Baoqiang Liao Canada Optimisation of direct osmosis-high salinity cleaning for RO fouling control in water reuse Jian-Jun Qin Singapore Control of membrane fouling in membrane bioreactor with plasma technology In-Soung Chang Korea	
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Helmut Kroiss Austria			
19:00 – 22:30 IWA Project Innovation Awards (PIA) dinner			

Wednesday preliminary programme



W = Workshop

Stream 7	Stream 8	Stream 9
08:15 – 09:00 Keynote plenary session John Carey Canada		
09:15 – 10:45		
Phosphorus removal Could nitrite/FNA favour GAOs over PAOs in enhanced biological phosphorus removal systems? Maite Pijuan Australia Long-term operation of a reactor enriched in Accumulibacter Clade I DPAOs – performance with nitrate, nitrite and oxygen Maria Reis Portugal UF membranes for the achievement of limit of technology effluent phosphorus concentrations Jeff Peeters Canada Phosphate sorption capacities of different substrates in view of application in water treatment systems for ponds Stijn Van Hulle Belgium	Non-revenue water management in low- and middle-income countries W This workshop will focus on challenges and solutions for non-revenue water (NRW) management in low- and middle-income countries. Participants will be encouraged to explain their own experience and the lessons they learned. Topics to be covered include: • introduction to non-revenue water management • reasons for high levels of NRW in developing countries • leadership the key to success – case study.	Review of implementation of the European Water Framework Directive in the different EU member states W This workshop will give operators and stakeholders an opportunity to share knowledge on the Water Framework Directive (WFD) implementation process and to start comparing precise aspects, such as: • the level of involvement of operators in the WFD implementation process • the most significant water management issues emerging from public consultation • big cost drivers • the measures that have been taken to tackle issues
10:45 – 11:15 Morning break		
11:15 – 12:45		
Phosphorus recovery State of the art – phosphorus recovery Peter Cornel Germany P-recovery by crystallisation of calcium phosphates with a pilot plant in batch mode technology Anke Ehbrecht Germany Simulations of ureolytic magnesium ammonium phosphate precipitation from UASB effluent Boudewijn Meesschaert Belgium Speeding up formation of pure struvite at neutral pH – a lab-scale experiment on electrochemical deposition Xiaodi Hao PR China	Non-revenue water management in low- and middle-income countries W Continued	Review of implementation of the European Water Framework Directive in the different EU Members states W Continued
12:45 – 14:15 Lunch		
14:15 – 15:45		
Nitrogen removal The role of colloidal and particulate organic compounds in denitrification and EBPR occurring in a full-scale activated sludge system Jacek Makinia Poland Advanced control on Biostyr® process in simultaneous nitrification denitrification Marie Maurel France Pilot-scale demonstration of sustainable C and N removal from concentrated blackwater Brendo Meulman Netherlands Microalgae cultivation in domestic wastewater – I nutrient removal Carmen Garrido-Perez Spain	Have you lost your water? Water loss management and control Key messages from the Water Loss Task Force Conference in Cape Town Tim Waldron Australia A portable tool to detect leaks in large diameter pipes Ignacio Casals Spain Embarking on the world's largest non-revenue water management project (Manila) Roland Liemberger Philippines Leak modelling in water distribution systems by pressure and flow data optimisation approach Mohammad Hossein Naser Moaddeli Islamic Republic of Iran	Governance and regulation Measuring and improving performance and sustainability – indicators and benchmarking Zaid Chowdhury United States SWITCH project in Birmingham – delivering demand-led research using a learning alliance framework Jennifer Chlebek UK Balancing public versus private water allocation Stephen Draper United States Best practices in worldwide water regulation Pedro Simões Portugal
15:45 – 16:15 Afternoon break		
16:15 – 17:00 Keynote plenary session Helmut Kroiss Austria		
19:00 – 22:30 IWA Project Innovation Awards (PIA) dinner		

W = Workshop

Stream 10	Stream 11	Stream 12	Stream 13
08:15 – 09:00 Keynote plenary session John Carey Canada			
09:15 – 10:45			
Impact of the 2008–2009 global financial water crisis on water and sanitation services W	Water, climate and energy – riding the tiger – adapting to climate change W	Cities of the future W	New water W
This workshop will focus on the impact of the financial crisis on water and sanitation services. This is both a burning issue and an ambitious subject, which brings to confluence two major crises – the financial crisis and the water crisis. The subject is of particular importance, since the financial crisis is one of the major issues of the international agenda. The workshop will show how the financial and economic crisis has had an immediate impact on water services and in particular the impacts on:	The impacts from climate change are unavoidable and will significantly impact the water sector. Society's adaptation to those challenges will require a paradigm shift as communities transition to more climate-resilient systems. Many parts of the urban water sector are already grappling with climate change impacts and it is clear that solutions will require new responses with increased levels of collaboration and coordination. This workshop will cover the challenges and adaptation approaches that different countries,	Day two The confluence of powerful trends – in water technology, global climate change, urban demographics, and the mandate for sustainability – presents our industry with an historic opportunity to join leaders in other disciplines in envisioning and advancing new models in integrated water management and urban planning. In this two-day planning 'charrette', we will engage an interdisciplinary community of environmental and water engineers, urban and social planners, architects,	The new water approach emphasises acquisition and development of diverse resources, for example surface water, groundwater, reuse, desalination and water conservation (demand management and more efficient use) in an effort to offset risks typically associated with any single resource option (for example, availability, volume and timing of use). New technologies are available; perception issues are certainly extremely important, but consideration of the requirements of the potential users, appropriateness
10:45 – 11:15 Morning break			
11:15 – 12:45			
Impact of the 2008–2009 global financial water crisis on water and sanitation services W	Water, climate and energy – riding the tiger – adapting to climate change W	Cities of the future W	New water W
<ul style="list-style-type: none"> • available finance for utilities • customer behaviour • utility strategies 	cities and utilities are taking. It will explore the issues of transitioning to a climate-resilient city, set up a dialogue between the water sector and the global climate modelling community and explore approaches for making good decisions despite uncertainty.	landscape designers and city managers in considering the possibilities of cities of the future – and the central role that water management plays in these new models. Day one will set out the main themes of the workshop and establish the drivers, trends and rationale for cities of the future, emphasises the significance of water in new urban models and draw out participant views on goals, desired outcomes and interventions. Selected case studies help to illustrate the principles of cities of the future.	of contractual arrangements, comparison of cost / tariff with conventional resources need also to be explored. Membrane technologies in the form of desalination and reuse possibilities offer water professionals one of the truly bright spots in responding to the global challenges ahead. We are now just at the beginning of the large scale application of these technologies and ideas. Two days of workshops will be held around the theme of securing new and traditional water resources
12:45 – 14:15 Lunch			
14:15 – 15:45			
Impact of the 2008–2009 global financial water crisis on water and sanitation services W	Water, climate and energy – riding the tiger – adapting to climate change W	Cities of the future W	New water W
Continued	Continued	Continued	for the future with the aim of understanding the technologies and practices behind new water and the emerging opportunities they provide for water security.
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Helmut Kroiss Austria			
19:00 – 22:30 IWA Project Innovation Awards (PIA) dinner			

Wednesday preliminary programme



W = Workshop

Stream 14	Stream 15	Stream 16	Stream 17
08:15 – 09:00 Keynote plenary session John Carey Canada			
09:15 – 10:45			
Industry forum	Industry forum	North American regional forum	North American regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	This forum will focus on issues important to North America and beyond. A feature will be managing the ecosystems and sustainable use of the Great Lakes–St Lawrence River basin. These resources have enormous economic and livelihood benefits and secure drinking water supply for 30 million people. Other elements will be case studies on different in-situ management technologies in lakes/reservoirs with a wide range of water quality management objectives; assuring safe drinking water and safe disposal of wastewater effluents in small to	This forum will focus on issues important to North America and beyond. A feature will be managing the ecosystems and sustainable use of the Great Lakes–St Lawrence River basin. These resources have enormous economic and livelihood benefits and secure drinking water supply for 30 million people. Other elements will be case studies on different in-situ management technologies in lakes/reservoirs with a wide range of water quality management objectives; assuring safe drinking water and safe disposal of wastewater effluents in small to
10:45 – 11:15 Morning break			
11:15 – 12:45			
Industry forum	Industry forum	North American regional forum	North American regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	very small communities; and the development and application of integrated watershed management practices.	very small communities; and the development and application of integrated watershed management practices.
12:45 – 14:15 Lunch			
14:15 – 15:45			
Industry forum	Industry forum	North American regional forum	North American regional forum
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	Continued	Continued
15:45 – 16:15 Afternoon break			
16:15 – 17:00 Keynote plenary session Helmut Kroiss Austria			
19:00 – 22:30 IWA Project Innovation Awards (PIA) dinner			

Thursday preliminary programme

W = Workshop

Stream 1		Stream 2	Stream 3
08:15 – 09:00 Keynote plenary session Gesner Oliveira Brazil			
09:15 – 10:45			
Membrane filtration for removal of dissolved matter	Basins of the future – visioning resilient water systems for 2050 W	Water safety plans	
Nanofiltration selection for NOM removal – pilot- and full-scale operation Tinghir Amandine France The influence of divalent ions on rejection of carbamazepine in the presence of humic acid removal by nanofiltration Mehdi Janqorban Islamic Republic of Iran Performance of polymeric membranes treating ozonated NOM-containing water – effect of ozone dosage Volodymyr Tarabara United States A solution to remove high concentration of colour and TOC from surface water – the nanofiltration Nicolas Minel Canada	Global change will create many challenges in the next 40 years. Expanding population, economic growth and accelerating urbanisation will place new demands on water systems. Climate change is projected to intensify water stress and hazards, putting pressure on food, water and energy security. River basins will change, and water systems and water resources management will have to provide solutions. This workshop will use multi-disciplinary contributions to envision how technology, urban design, climate change adaptation, water governance and watershed management will combine to create resilient river basins of the future. It will conclude with identification of priorities for near-term action.	Securing executive buy-in for preventative risk management – lessons from water safety plans Corinna Summerill UK From international developments to local practice Germany's dialogue process towards water safety plan implementation Oliver Schmoll Germany Community water planner field guide – developing guidelines and best practice documentation to support water management in remote indigenous communities Michele Dianne Akeroyd Australia Managing uncertainty in the provision of safe drinking water Steve Hrudehy Canada	
10:45 – 11:15 Morning break			
11:15 – 12:45			
Effect of dissolved matter on membrane filtration	Basins of the future – visioning resilient water systems for 2050 W	Drinking water quality management	
Effects of oxidation on natural organic matter and the permeate flux of UF/NF ceramic membranes applying ozone and H2O2/UV AOP Joerg Winter Germany Organic fouling of ultrafiltration membranes by transparent exopolymer particles (TEP) in a seawater UF-RO plant Loreen Villacorte Netherlands Organic fouling in forward osmosis process Venketeswari Parida Singapore Analysis of membrane fouling of the microfiltration of cells – proteins mixtures using MPM image analysis In-Soung Chang Korea	Continued	Facing the challenges of drought and climate change – strategies for the early detection and response to potential issues affecting water quality John Rushton Howard Australia A review and critical reflection on transient induced water quality events in the distribution system Monirul Islam Canada Factors that determine the health impact of rural small-community water supply systems in South Africa Paul Jagals South Africa Dental caries affected by water quality and water treatment Erik Arvin Denmark	
12:45 – 14:15 Lunch			
14:15 – 15:45			
Modified membrane filtration processes	Management and regulation of point and diffuse pollution	Guidelines and regulations for drinking water quality management	
Hybrid membrane process to achieve biostability in drinking water systems Benoit Barbeau Canada Pilot study – treatment of membrane concentrate Nathalie Vigneron-Larosa France Evaluating a UF membrane pre-treatment prior to an RO membrane and screen/disk filter technologies prior to a UF membrane for seawater desalination Rohan Wikramanayake United States Organic fouling development in a long channel RO membrane cell Huajuan Mo Singapore	Stormwater management to comply with total maximum daily loads in the Los Angeles River watershed Mi-Hyun Park UK Sediment nutrient loading and bioavailability in the Lake Winnipeg drainage basin Susan Boyd Watson Canada Treatment of non-point source pollution by vortex type apparatus and filter Kyung-Sok Min Korea A regional assessment of potential measures for Water Framework Directive compliance Bob Crabtree UK	Establishment of a new regulatory framework for quality of piped drinking water – Singapore's experience Ramnath Vaidyanathan Singapore Challenges in addressing variability of lead in domestic plumbing Nathalie Vigneron-Larosa France Lead in drinking water – the need for major improvements to reduce threats to public health Colin Raymond Hayes UK WaSH safety plans – a risk-based approach to protecting public health Robert Sanderson Nepal	
16:00 – 17:00 Closing session and Harremoes lecture – Water and industry Chad Holliday USA			
19:00 until late Gala dinner featuring Cirque Eloise			



W = Workshop

Stream 4	Stream 5	Stream 6
08:15 – 09:00 Keynote plenary session Gesner Oliveira Brazil		
09:15 – 10:45		
Strategic asset management and long-term planning 1	New approaches to monitoring urban water	Modelling and control of water systems
<p>Optimising asset management expenditure – a risk-based approach to capital investment strategy Amit Chanan Australia</p> <p>Leading asset management practices help utilities optimise their asset life cycle cost Linda Blankenship United States</p> <p>Planning for water scarcity results in best practices Pamela Kenel United States</p> <p>Formulating a strategic waterworks development Masato Kakehi Japan</p>	<p>Water network monitoring using a statistical algorithmic solution – a case study in Jerusalem Amitai Armon Israel</p> <p>Suspended particles in wastewater – their optical, sedimentation and acoustical characterisation and modelling Anne Pallares France</p> <p>Developing a public information and engagement urban waterways portal featuring real-time monitoring and modelling of local hydro-ecosystems Thomas Cochrane New Zealand</p> <p>Fluoride monitoring in groundwater resources of Iran Reza Saeedi Islamic Republic of Iran</p>	<p>Quantification of sewage exfiltration by means of hydrodynamic simulations Christian Karpf Germany</p> <p>Improving energy efficiency through optimal control of pumps in water supply and distribution systems Zhengfu Rao UK</p> <p>Practical application of the head-dependent gradient method for water distribution networks Tiku Tanyimboh UK</p> <p>Improved automated control of sewer interception in Montréal – 20 years of experience in innovative real-time control technologies for better CSO control Alain Charron Canada</p>
10:45 – 11:15 Morning break		
11:15 – 12:45		
Strategic asset management and long-term planning 2	Pharmaceuticals and other microconstituents	Modelling treatment processes
<p>Estimation of service life of pipes – alternative measures to prevent blockages and flooding events in the wastewater network in Oslo VAV Rita Maria Ugarelli Italy</p> <p>Asset management in action – asset inventory and condition assessment of pressure pipes/force mains in Hillsborough County, Florida Will Williams United States</p> <p>How can we diagnose and improve the longevity of polyethylene pipes? Magali Rozental France</p> <p>Establishment of leakage accident rate curves for drinking water pipes Yusuke Takahashi Japan</p>	<p>Limiting the emissions of micro-pollutants – what efficiency can we expect from wastewater treatment plants? Samuel Martin Ruel France</p> <p>Occurrence characterisation of pharmaceuticals in raw wastewater from households, livestock farms, hospitals and pharmaceutical manufacturers in Korea Jeong Eun Oh Korea</p> <p>Full-scale MBR treatment of hospital wastewater as a forerunner for hot-spot wastewater treatment solutions in high-density urban areas Silvio Beier Germany</p> <p>Removal of micropollutants in WWTP effluent by biological assisted membrane carbon filtration (BioMAC) Marjoleine Weemaes Belgium</p>	<p>Uncertainty and risk evaluation of the DCWASA Blue Plains AWTP nitrogen removal system Bruce Johnson United States</p> <p>Impact of influent data frequency and model structure on calibration and model output uncertainty Ingmar Nopens Belgium</p> <p>Evaluation of a new model for the reduction of excess sludge production by ozonation of return activated sludge – what solids COD fraction is affected? Dominic Frigon Canada</p> <p>QualViz – a tool for visual representation of water quality models Geoffrey Parker UK</p>
12:45 – 14:15 Lunch		
14:15 – 15:45		
Strategic asset management and long-term planning 3	Endocrine disruptors	Modelling clarifiers
<p>Challenges for achieving the MDGs in the rural water supply of Tanzania Alejandro Jiménez Spain</p> <p>Developing a multi-town CIP for water assets (pipes, pumping stations and reservoirs) using a deterioration modelling and field sampling approach – mission possible Eric Lalonde Canada</p> <p>Linking asset management to sustainability – the role of a decision-making culture David Marlow Australia</p> <p>Introduction of asset management to Bureau of Waterworks Tokyo Metropolitan Government Kazuo Kato Japan</p>	<p>Degradation of endocrine-disrupting chemicals during activated sludge reduction by ozone Zhimin Qiang PR China</p> <p>Elucidating the role of ammonia-oxidising bacteria versus heterotrophic bacteria during the biotransformation of microconstituents Nancy G Love United States</p> <p>Abiotic transformation of estrogens – impact of environmental variables and by-products identification Ruth Marfil-Vega United States</p> <p>Removal and fate of estrogens in an anaerobic-anoxic-oxic activated sludge system Yongmei Li PR China</p>	<p>Integration of wastewater treatment plant simulators and clarifier computation fluid dynamic models to achieve greater modelling confidence Joe Rohrbacher United States</p> <p>Sludge settleability detection using automated SV30 measurement – its application to a field WWTP Changwon Kim Korea</p> <p>Shall we upgrade one-dimensional secondary settler models in WWTP simulators? Benedek Plosz Norway</p> <p>New findings of three-dimensional flow characteristics in circular secondary clarifiers Markus Ahnert Germany</p>
16:00 – 17:00 Closing session and Harremoes lecture – Water and industry Chad Holliday USA		
19:00 until late Gala dinner featuring Cirque Eloise		

W = Workshop

Stream 7	Stream 8	Stream 9
08:15 – 09:00 Keynote plenary session Gesner Oliveira Brazil		
09:15 – 10:45		
Advances in physico-chemical processes and technology	Phosphorus management in the water cycle W	Management of the quality of water resources – regulatory and economic aspects
<p>Electrochemical dechlorination of 2,4-dichlorophenol in aqueous solution on palladium-loaded meshed titanium electrode Ming Gao PR China</p> <p>Electrochemical treatment of wastewater polluted by nitrate – selective reduction to N₂ on boron doped diamond cathode Vincent Georgeaud France</p> <p>Cationic starch as an alternative flocculant for synthetic polymer Sievers Michael Germany</p> <p>Critical aspects of an in-tank flocculation sub-model for rectangular settling tanks using a 3D-CFD model Krishnamurthy Ramalingam United States</p>	<p>This workshop will consider the management of phosphate across the entire water cycle, including:</p> <ul style="list-style-type: none"> • dosing to minimise lead in drinking water • phosphorus removal in sewage treatment • phosphorus targets for receiving waters <p>The combined sessions confront an increasing dilemma in the use of phosphorus for public health protection and the growing pressure to reduce nutrients in environmental waters. The workshop will be of interest to a wide range of scientists, engineers, regulators and health agencies.</p>	<p>Using AnnAGNPS to evaluate the impact of controlled tile drainage on surface water quality in the South Nation River basin, Ontario Ron Droste Canada</p> <p>Monitoring station for water quality assessment of receiving bodies Bruno Barillon France</p> <p>Market solutions for agricultural water scarcity management Andrew Gregson Australia</p> <p>A new approach for monitoring and modelling of organic matter in a Brazilian polluted river – the case study of Iguaçu River Cristovao Vicente Scapulatempo Fernandes Brazil</p>
10:45 – 11:15 Morning break		
11:15 – 12:45		
Innovative water treatment processes and plants 1	Phosphorus management in the water cycle W	Access to water and sanitation W
<p>Organic micropollutant elimination – quantitative structure-activity relationships for process and performance selection and performance monitoring Gary Amy Saudi Arabia</p> <p>Removal of nitrate and perchlorate from polluted drinking water using the ion exchange membrane bioreactor – effect of module configuration Ana Rita Ricardo Portugal</p> <p>Suspended solid abatement in a conical fluidised bed flocculator Shuangshi Dong PR China</p> <p>Dissolved air flotation – an old proven technology expanded to new treatment applications at very high rates John Dyson United States</p>	Continued	<p>The session will present progress in the joint collaboration between UNESCO-IHE and IWA on the topic of Access to WASH. This includes the building of a website, which would provide not only a toolbox, but also a common platform for a network of organisations that take a leadership role in supporting the adoption of better practices internationally, thereby helping to ensure increased human well-being and development and contribute to the MDGs and beyond. The session will also discuss the way forward for the Access to WASH network website and toolbox and invite more partners to the collaboration.</p>
12:45 – 14:15 Lunch		
14:15 – 15:45		
Innovative water treatment processes and plants 2	Phosphorus management in the water cycle W	Access to water and sanitation W
<p>Leading the city of Baltimore into the 21st Century – flexible treatment solutions and integrated raw water management Jennifer Manuszak United States</p> <p>Biocatalytic dechlorination of trichloroethylene with bio-Pd in membrane and fixed bed reactors Tom Hennebel Belgium</p> <p>Softening and conditioning – strategy and case study Martijn Groenendijk Netherlands</p> <p>Catalytic chemical reduction of perchlorate in dilute aqueous solutions Chin-pao Huang United States</p>	Continued	Continued
16:00 – 17:00 Closing session and Harremoes lecture – Water and industry Chad Holliday USA		
19:00 until late Gala dinner featuring Cirque Eloise		



W = Workshop

Stream 10	Stream 11	Stream 12	Stream 13
08:15 – 09:00 Keynote plenary session Gesner Oliveira Brazil			
09:15 – 10:45			
Stakeholder and public engagement for nanotechnology and water W	Water, climate and energy mitigation – the water–energy nexus W	Groundwater management in urban water supply and sanitation systems W	New water W
Nanotechnology has promising opportunities for water and wastewater treatment but it involves risks to human health and ecosystems. Until now research has mainly been at the laboratory and academic scale rather than on commercialisation. This workshop will discuss the issues that manufacturers and utilities will face during the introduction of nanotechnology for water and wastewater treatment. It welcomes all the stakeholders involved – end users, the public, manufacturers, consulting engineers,	Water and energy are two services that are intrinsically linked and essential for service delivery. As energy moves to ‘greener’ fuel sources there are associated implications on water sources and management. The water and wastewater sector represents approximately 3% of global energy consumption, so carbon and energy targets will inevitably impact the sector. This workshop will explore the connections between the water and energy sectors and discuss how to optimise synergies, reduce	At the Vienna congress groundwater was addressed in a workshop as a ‘threatened resource’, whereas in Montréal it could be addressed as a ‘threatened opportunity’ to cope with climate change – because groundwater resources can play a key buffer role during dry spells and droughts; sustainable development challenges – because groundwater management can ensure permanent water inputs for future generations; and the global financial crisis – because groundwater management is less capital-intensive and operations	Day two The new water approach emphasises acquisition and development of diverse resources, for example surface water, groundwater, reuse, desalination and water conservation (demand management and more efficient use) in an effort to offset risks typically associated with any single resource option (for example, availability, volume and timing of use). New technologies are available; perception issues are certainly extremely important, but
10:45 – 11:15 Morning break			
11:15 – 12:45			
Stakeholder and public engagement for nanotechnology and water W	Water, climate and energy mitigation – the water–energy nexus W	Groundwater management in urban water supply and sanitation systems W	New water W
researchers and policy makers. It will cover public worries and scepticism, the safety concerns of utilities researchers and policy makers, systems to control the risks related to operators, water quality, material use and disposal, plus the benefits of the new technology.	greenhouse gas emissions and make the transition from water and wastewater suppliers to energy producers. It will also explore the ideas of public reporting, a common language on emissions and the integration of energy and water impacts into life cycle assessments.	and maintenance more costly than long-distance (usually at lower level) new surface water sources or desalination.	consideration of the requirements of potential users, appropriateness of contractual arrangements, comparison of cost / tariff with conventional resources need also to be explored. Membrane technologies in the form of desalination and reuse possibilities offer water professionals one of the truly bright spots in responding to the global challenges ahead. We are now just at the beginning of the large scale application of these technologies and ideas. Two days of workshops will be held around the theme of securing
12:45 – 14:15 Lunch			
14:15 – 15:45			
Stakeholder and public engagement for nanotechnology and water W	Water, climate and energy mitigation – the water–energy nexus W	Groundwater management in urban water supply and sanitation systems W	New water W
Continued	Continued	Continued	new and traditional water resources for the future with the aim of understanding the technologies and practices behind new water and the emerging opportunities they provide for water security.
16:00 – 17:00 Closing session and Harremoës lecture – Water and industry Chad Holliday USA			
19:00 until late Gala dinner featuring Cirque Eloise			

W = Workshop

Stream 14	Stream 15	Stream 16	Stream 17
08:15 – 09:00 Keynote plenary session Gesner Oliveira Brazil			
09:15 – 10:45			
Industry forum	Industry forum	Latin America and Caribbean regional forum	IWA Women-in-water – underlining the importance of cultivating leadership skills for women in the sector
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	This regional forum will include representations from key regional partners such as the Inter-American Development Bank and AIDIS. Particular attention will be given to the LAC Water Operators Partnership (WOPs) platform, highlighting progress made in the region with twinning between water and sanitation service providers.	IWA recognises the importance of cultivating female water industry leaders. This workshop brings together a diverse group of distinguished women water professionals and leadership experts for dialogue and engagement with a focus on cultivating women's leadership and participation in the sector. Delegates will participate in an interactive workshop-style discussion that aims to identify and discuss some of the key challenges facing women in the sector. It will be
10:45 – 11:15 Morning break			
11:15 – 12:45			
Industry forum	Industry forum	Latin America and Caribbean regional forum	IWA Women-in-water – underlining the importance of cultivating leadership skills for women in the sector
The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	The Industry forum is a series of sessions where delegates can interact with commercial organisations and national delegations to discuss and learn of the new developments (products, services, research, challenges, strategic direction) of single companies or countries.	Continued	followed by the presentation and award ceremony for the 2010 IWA Women in Water Award. The event is directed in particular at female CEOs, senior-level women professionals and young women water professionals but we also encourage men to participate to help encourage a holistic and balanced discussion.
12:45 – 14:15 Lunch			
14:15 – 15:45			
Learning from sewers – community-wide drug testing by sampling wastewater W	Sustainable urban water systems for the future	Latin America and Caribbean regional forum	Wastewater reclamation and reuse technologies
The monitoring of illicit drugs in wastewater is an appealing idea to observe patterns and trends of drug abuse within communities. Empirical data on drug use can be obtained from urban drainage systems in real-time and without the limitations of population surveys. Several key issues remain poorly understood such as chemical degradation in sewers, optimal sampling strategies and appropriate consumption indexes. This workshop will focus on this new, complex, rapidly evolving and potentially controversial topic.	Re-engineering cities as forces for good in the environment: paths of transition to distant future alternatives Bruce Beck United States Role of decentralised systems in the transition of urban water systems Ashok Sharma Australia Sustainable water cycle planning: integrating water and the built environment Andy David McConkey United Kingdom Dynamic virtual infrastructure benchmarking – DynaVIBe Robert Sitzenfrie Austria	Continued	Comparison of different technologies on the reduction of toxicity of re-claimed wastewater Yu Zhang China Removal of bulk organic matter from different wastewater effluents during soil aquifer treatment Saroj Kumar Sharma Netherlands Full-scale trials of lightweight expanded shale aggregates as tertiary filter media for wastewater treatment George Onyullo United States Pilot scale study on salt removal by electrodialysis from ro concentrate with high scaling potential Boudewijn Meesschaert Belgium
16:00 – 17:00 Closing session and Harremoes lecture – Water and industry Chad Holliday USA			
19:00 until late Gala dinner featuring Cirque Eloise			



Modelling activated sludge plants

Friday 17 & Saturday 18 September
École Polytechnique de Montréal,
2900 boul. Edouard-Montpetit

This two-day workshop for people who have no or little experience in activated sludge modelling will provide instruction and hands-on opportunities to learn about the use of mathematical models in the design, operation and control of activated sludge plants. The workshop is organised by the IWA Task Group on 'Good Modelling Practice – Guidelines for Use of Activated Sludge Models' (see <https://iwa-gmp-tg.cemagref.fr/>).

Preliminary programme

Friday

Introduction – overview of activated sludge modelling and modelling in practice

Background and purpose of the Good Modelling Practice Task Group

Case study – the unified protocol and application matrix applied at the Beenyup WWTP

Walk-through the Good Modelling Practice Guidelines

- Project definition
- Data collection and evaluation

Saturday

Walk-through the Good Modelling Practice Guidelines (cont.)

- Model set-up
- Calibration and validation
- Simulation and results interpretation

Application of activated sludge models to industrial wastewater.

Summary and closing

Registration

Workshop fee: € 340.00 IWA members, € 390.00 non-members. Fee includes handouts, lunch and morning and afternoon teas. Workshop is limited to 25 people on a first-come, first-served basis.

Registration is via the congress registration form or online.

Workshop participants will receive a discount when purchasing a copy of the IWA Scientific and Technical Report, 'Good Modelling Practice.'

Enquiries

Email Gunter.Langergraber@boku.ac.at

Advanced water and wastewater treatment (technology, design, construction and commissioning) **M Reza Alizadehfard** Australia

Silt density index (SDI) implications in ASTM method selection for wastewater reuse **Anthony Wachinski** United States

Three countries, three water sources, three low pressure membrane pilot studies **Anthony Wachinski** United States

Influence of bacterial adhesion on degradation of non-desorbable naphthalene in soil-water system **Jeong-Hun Park** Korea

Forecasting the effects of EU policy measures on the nitrate pollution of groundwater and surface waters **Frank Wendland** Germany

Membrane bioreactor design for low power consumption **Anthony Wachinski** United States

Tracing fine sediment sources as a useful tool for water and soil resources management in catchments **Sadat Feiznia** Islamic Republic of Iran

Sustainable weed control on pavements needed to make the River Meuse a better source for drinking water production **Andre Bannink** Netherlands

How to standardise MBR? **Val Frenkel** United States

Fabrication of chitosan nanofibre adsorbent via electrospinning and application **Xiwang Zhang** Singapore

Developing an alternative water supply strategy for the city of Plantation, Florida **Courtney Licata** United States

Effects of operational parameters on decolourisation of C I Reactive Black 5 in UV/TiO₂ system **Chung-Hsin Wu** Chinese Taiwan

Interface of fluorite with groundwater in parts of India and its health implications **S K Sharma** India

A future challenge – world war for water **Mahmood Ghaheri** Islamic Republic of Iran

Adsorption of arsenic(V) using manganese oxide nanowire as an adsorbent **Tong Zhang** Singapore

Hygienic and toxicological approval of products in contact with drinking water **Willem Van de Meent** Netherlands

Multivariate statistical assessment of river water quality **Vasil Simeonov** Bulgaria

Sustainable use of methane from groundwater **Doeke Schippers** Netherlands

Degradation mechanism of 4-chlorophenol with electrogenerated hydrogen peroxide on a Pd/C gas-diffusion electrode **Hui Wang** PR China

Toxicity and treatability of leachate – application of UASB reactor for leachate treatment from Okhla Landfill, New Delhi **Atul Mittal** India

Apparent losses basically a management issue **Michel Vermersch** France

Distribution and partitioning of phosphorus in sediments in an agricultural watershed in the Yangtze-Huaihe region **Shan Baoqing** PR China

Phosphorus distribution and release risk in the estuarine sediments of Chaohu Lake Valley **Shan Baoqing** PR China

Torque teno virus as an indicator of viral pathogens in source waters **Jeanine Plummer** United States

Evaluation of the optimisation of phosphorus removal in wastewater treatment plants supported by stochastic means **Andreas Neft** Germany

Impacts of climate change on the water industry **Kenan Ozekin** United States

The role and significance of extrapolymeric substances on the properties of aerobic granules **Liang Zhu** PR China

Enhancing the ripening and hydraulic performance of slow sand filters **Kebreab Ghebremichael** Netherlands

Assessing the impact of income variation on household water consumption in Belo Horizonte urban area **Marcelo Libanio** Brazil

Strategic management for water utility enterprises in southern Africa **Bongani Sifanelo Ntshangase** Swaziland

Use of PAC combined with Actiflo and ultrafiltration membrane for enhanced organic matter removal from a high DOC water source **Gaid Kader** France

Enhancing bio-P removal of BNR processes through P-recovery in side stream – experimental study and modelling **Xiaodi Hao** PR China

Introduction of Tokyo High Quality Program (Tokyo version of Water Safety Plan) **Kazuhiko Takahashi** Japan

Seasonal behaviour of eutrophication-related water variables – the case of a tropical oligo-mesotrophic reservoir in Brazil **Davi Cunha** Brazil

Removal of perfluorooctane sulphonate from water by resins – effects of resin surface properties and solution chemistry **Shubo Deng** PR China

A new combined upflow anaerobic sludge blanket (UASB) and membrane bioreactor (MBR) process for wastewater treatment in warm climatic conditions **Yan Pui Moy** Singapore

Agent-based modelling and observation of heterogeneity in wastewater microbe populations **Ferdi Hellweger** United States

Numerical simulation of an anaerobic digester **Thomas Thouvenot** France

On efforts of the technology succession and means of contribution to international society in Tokyo Waterworks **Norihiko Ishida** Japan

Reactive dyes biodecolourisation and laccase production by white-rot fungus *Datronia* sp. KAPI0039 **Pilane Vaithanomsat** Thailand

Analysis of local bottom roughness on transverse mixing coefficient in an open rectangular channel **Alieh Saadatpour** Islamic Republic of Iran

Preliminary study on self-treatment and the quality classification of Karoon River **Malektaj Eskandari Makvand** Islamic Republic of Iran

Ozone treatment of polycyclic aromatic hydrocarbons and nonylphenol in sewage sludge **Josef Lahnsteiner** Austria

Water profiles of the forest products industry and its utility in sustainability assessment **Paul Wiegand** United States

Water, climate and energy – developing strategies for adapting and optimising water services in the context of population growth, climate change and related energy impacts **Zakaria Rashid Al Nabhani** Oman

Establishment of a waterworks technology information station for the Asia-Pacific region **Toru Komiya** Japan

Electricity generation from tapioca wastewater using a microbial fuel cell (MFC) **Tjandra Setiadi** Indonesia

Comparison of Monod and Kincannon-Stover models for kinetic evaluation in an anaerobic baffled reactor (ABR) **Seyyed Mehran Abtahi** Islamic Republic of Iran

An automated system detecting low estrogen concentrations in water using intensities of fluorescence emitted by male transgenic Medaka fish **RJ Xie** Singapore

Water quality management in the context of climate change – importance for adapting critical condition and uncertainty analysis **Harry Zhang** United States

Development and application of a harmonised water quality index **Miguel Angel Lopez Zavala** Mexico

Effect of dosing method on colour removal performance and floc aggregation of polyferric chloride-polyamine dual-coagulant in synthetic dyeing wastewater treatment **Baoyu Gao** Cocos (Keeling) Islands

VFA generation from wasted activated sludge – effect of mixing and temperature **Qiuyan Yuan** Canada

Planning for equity and sustainability – the case of Stellenbosch Municipality **Corrine Cash** Canada

Effect of sludge type on sludge fermentation **Qiuyan Yuan** Canada

Effect of anaerobic HRT and secondary phosphorus release on enhanced biological phosphorus removal **Qiuyan Yuan** Canada

Catalytic dechlorination of trichloroacetic acid by Pd/Fe bimetallic nanoparticles **Xiangyu Wang** PR China

Simultaneous removal of arsenic and fluoride in water via electro-coagulation process **Xu Zhao** PR China

An innovative integrated wastewater bio-treatment system for carbon, sulphur and nitrogen removal based on biological phase-separation **Chunshuang Liu** PR China

Effect of zinc (II) on the characteristics of aerobic granules **Xiaoying Zheng** PR China

Advanced oxidation processes (AOPs) for removal of estrogens **Andreja Žgajnar Gotvajn** Slovenia

Applying a rigorous protocol to the modelling of a complex wastewater treatment plant – problems and solutions **Paul Lessard** Canada

Comparison of surface shear forces induced by intermittent and continuous sparging in submerged hollow fibre membrane systems **Pierre Berube** Canada

Degradation of 4-nitrophenol by gamma radiation **Jun Hu** PR China

Feeding nine billion people in the context of global warming **Felix Bogliolo** France

Fluoride removal from drinking water using novel titanium-based adsorbents **Shubo Deng** PR China

Water and health in rural areas of Romania **Mihaela Vasilescu** Romania

Occurrence, fate and removal of new pesticide metabolites in drinking water supplies **Heinz-Jürgen Brauch** Germany

Kinetic and thermodynamic study of Cu(II) removal from aqueous solution by zero-valent iron **Jianlong Wang** PR China

Treatment of low-strength industrial wastewater using an anaerobic baffled reactor (ABR) **Seyyed Mehran Abtahi** Islamic Republic of Iran

Sampling strategies in urban watersheds **Marie-Noëlle Pons** France



Membrane fouling in tertiary ultrafiltration unit after the Biostry® DN-filtration at Viikinmäki WWTP **Mari Heinonen** Finland

Multi-stakeholder management of national water and wastewater projects **Mahdi Zarghaami** Islamic Republic of Iran

The production of large scale fresh water from salt water/seawater – the AWAP public water supply system **Colin Kish** Australia

Competing targets for optimising the operation of nitrifying activated sludge wastewater treatment plants **Burkhard Teichgräber** Germany

Economics of large diameter seawater RO systems **Antonia von Gottberg** United States

Effect of size of magnetic ion exchange (MIEX®) in effluent organic matter (EfOM) removal **Saravanamuthu Vigneswaran** Australia

Factors leading to instability of extra-low permeability oil-field produced water by water characteristic analysis **Yu Tian** PR China

How seasonal dissolved organic matter characteristics change and impact water treatment **Marc-André Philibert** United States

Investigation of transport and retention of cerium oxide nanoparticles through porous media **George Sorial** United States

Life cycle analysis on the sustainability of an anaerobic wastewater sludge process **Jianpeng Zhou** United States

Success story for reverse osmosis technology – two new plants **Gaid Kader** France

Pilot test operation of biological nitrogen removal of gold mill effluents **Stig Morling** Sweden

Securing drinking water demand using seawater desalination **Jean-Michel Laine** France

Benchmarking uncertainty – why BSM1 is a stochastic model and why it matters **Geoffrey Parker** UK

Application of reversed A²O process on removing nitrogen and phosphorus from municipal wastewater **Liu Changqing** PR China

Determining the re-aeration coefficient and hydrodynamic properties of rivers using inert gas tracers – a modelling approach for interpreting tracer data **James Semuwemba** UK

Effect of magnetic ion exchange (MIEX) and ozonation on disinfection by-product formation **Ryan Kingsbury** United States

A novel multifunctional membrane technology for visual detection and enhanced adsorptive removal of heavy metal ions in water or wastewater **Renbi Bai** Singapore

Adsorption of free chlorine on tetravalent lead dioxide corrosion products **Yi-Pin Lin** Singapore

Anti-biofouling performance of a novel silver-loaded membrane **Renbi Bai** Singapore

Autotrophic denitrification using sulphide as electron donor – kinetic and microbial characterisation **Theo Syrtó** **Octavio de Souza** Brazil

Characteristic and transformation of dissolved organic matter in a full-scale wastewater treatment plant in Harbin **Zhao Qing Liang** PR China

Degradation of pharmaceutical drug in wastewater during sonolysis, ozonation and their simultaneous application – operating conditions effects and processes evaluation **Vincenzo Naddeo** Italy

Effective treatment technologies for colloidal radionuclide removal in water treatment plants **Kathy Traexler** United States

Evaluation of an aerobic-anaerobic fluidised bed bioreactor as a pre-treatment to microfiltration in treating primary treated sewage effluent for reuse **Huu Hao Ngo** Australia

Flotation study on seawater from the Gulf of Oman **Francois Gasnier** France

How to handle carbon and nitrogen discharge limits under winter seasonal peak load in ski-resorts? **Jean-marc Choubert** France

Implementing transboundary water resources management – lessons learnt from the Mekong **Jon Wicks** UK

Low-cost wastewater treatment in rural town by simply-constructed alternating aerated ponds **Sheng Wang** PR China

Nitrogen removal from ammonium-rich digester liquor by combining anammox and partial nitrification process in a single-stage reactor **Sen Qiao** Japan

Effect of dissolved organic matters on fouling in submerged ceramic membrane bioreactors **Le Jin** Singapore

Advanced sewage treatment by iron-carbon internal electrolysis **Lihua Cheng** PR China

High-grade water reclamation using hybrid forward osmosis membrane bioreactor (FO-MBR) with nanofiltration **Chien Hsiang Tan** Singapore

Influence of synthesis temperature on the phosphate adsorption by Zn-Al layered double hydroxides in excess sludge liquor **Dezhi Sun** PR China

Modelling the axial fouling features of the hollow-fibre membrane system **Syed Zaki Abdullah** Canada

Ozone, chlorine dioxide, UV light and electrolytically produced chlorine gas for disinfection of treated wastewater – a comparative study with different preceding treatment techniques **Astrid Bischoff** Germany

Phytoplanktonic primary production seasonal fluctuation – the case of an oligo-mesotrophic multi-purpose reservoir in Brazil **Adriana Cristina Poli Miwa** Brazil

Preparation and application of polyamide thin film composite membrane in forward osmosis process **Wei Duan** Singapore

Quantity and quality of wastewater at unmanaged motorway service areas **Daniel Meyer** Germany

Removal of bromate from water by silver-supported activated carbon **Zi-jun Dong** PR China

Risks, contracts and private sector participation in water utilities **Rui Marques** Portugal

Seasonal variations of dissolved organic matter and disinfection by-product precursors and their removal by coagulation **Zhao Yanmei** PR China

Sequential disinfection of sewage with UV irradiation and chlorination against 'tailing' phenomenon **Wei Liu** PR China

Smooth and porous biofilm carriers for nitrogen removal of landfill leachate **Simon Gonzalez** Mexico

Bacteroides-infecting bacteriophage as an indicator of human- and animal-derived faecal pollution in Thailand's water **Kwanrawee Joy Sirikanchana** Thailand

Co-existence of anammox bacteria and other microorganisms in an upflow anaerobic sludge blanket (UASB) reactor **Chun-Hsiung Hung** United States

17 β -estradiol degrading bacteria isolated from an SBR for swine wastewater treatment **Meixue Chen** PR China

A cutting-edge chlorine dioxide production technology – TwinOxide – the concept, its evaluation for disinfection by-product formation, successful implementation and use in drinking water supply **Mrinal Kanti Ghosh** Netherlands

A fully heterogenised Fenton system using in-situ generated H₂O₂ **Mohammad Sadegh Yalfani** Spain

A novel method for determining membrane fouling potential by multiple membrane array system (MMAS) **Seungkwan Hong** Korea

Adsorption of airborne microorganisms emitted from an integrated oxidation ditch for domestic wastewater treatment **Li Lin** PR China

Application of a magnetic ion exchange resin and powdered activated carbon for the treatment of humic-rich water **Malgorzata Szlachta** Poland

Investigating treatment options to meet a 70 ug/L phosphorus discharge limit for the Boise River in Idaho **John O'Hare** United States

The value of subjective versus objective risk analysis to expedite ranking of functional systems and assets **Marc Yarlott** United States

In-situ treatment of groundwater for arsenic removal in rural areas **Solomon Leung** United States

Zero discharge desalination (ZDD) technology – high recovery of calcium sulphate-rich groundwater significantly reduces brine disposal **Brad Biagini** United States

Wide area water supply system in Japan – the example of Tokyo **Gen Ozeki** Japan

Survival of the fittest – maximising drought security and minimising water supply operating costs by natural selection **John Anderson** Australia

Tabletop exercise tool for drinking water and wastewater systems – climate change scenarios **John Whitler** United States

Trace level determination of 17 polycyclic aromatic hydrocarbons using gas chromatography – tandem mass spectrometry in different aqueous matrices **Luc Zwank** Luxembourg

Sulphur and AOX removal from Kraft pulp mill wastewater treatment using fixed bed anaerobic reactors **Eduardo Cleto Pires** Brazil

Evaluation of a hybrid treatment plant to produce reuse water **Danielle de Bem Luiz** Brazil

Comparison of the different methods used for Indigo Carmine textile dye treatment **Mohammad Ebrahim Olyá** France

Impacts of climate change on water quality and waterborne disease outbreaks **Irfan Gehlen** Canada

Simultaneous removal of chromate and arsenate from contaminated groundwater by ferrous sulphate – batch uptake behaviour **Xiaohong Guan** PR China

Microbial quality of drinking water in rural areas of Tehran Province **Mohamad Reza Mohebbi** Islamic Republic of Iran

Waste, sludge and energy management at large scale – the example of Seine Amont wastewater treatment plant (3.6 million equivalent inhabitants) **Bonardet Pierre** France

Odour emission and establishment of monitoring parameters in sewer pipes **Joo-Yeon Lee** Korea

Treatment of the oil sands naphthenic acids using UV/H₂O₂ – study of the model compounds **Atefeh Afzal** Canada

Water balance and vulnerability analysis of public water supply sources in Sao Paulo Macrometropolis **Sérgio Ayrimorae Soares** Brazil

Conditioning of petroleum production wastewater and seawater for their use in secondary oil recovery **Petia Mijaylova** Mexico

High-efficient phenolic wastewater treatment by complex bacterial and fungal community in aerated biological fluidised tank (ABFT) – performance and microbial characterisation **Yudong Song** PR China

Electrocoagulation-membrane filtration hybrid system for fouling mitigation of secondary effluent **Yuemei Lin** PR China

Effects of initial cultivation pH on biohydrogen production from food-processing wastewater **Yen-Hui Lin** Chinese Taiwan

Performance of orange waste gel for phosphate removal from aqueous solution and waste effluents **Biplob Kumar Biswas** Japan

Evaluation of advanced oxidation processes (AOPs) coupled with biological activated carbon (BAC) for reuse at wastewater refinery **Marcia Dezotti** Brazil

Establishment and study of sediment microbial fuel cell **Tai-Lee Hu** Chinese Taiwan

UV pre-treatment of *Bacillus subtilis* sp. for suppressing biofilm formation in seawater reverse osmosis (SWRO) process **Joon-Wun Kang** Korea

Evaluation of membrane bioreactors (MBR) for treatment of hazardous aromatic substances – influence of shear stress on performances **Mathieu Sperandio** France

Modelling influence of anoxic growth on autotrophic and heterotrophic competition in aerobic granular sludge process **Mathieu Sperandio** France

Listening to consumers – using consumer acceptability data in a water safety plan **Lisa Barrott** UK

Laying a foundation for biofouling control in water MF systems by pre-treatment with silver nanoparticles **Avital Dror-Ehre** Israel

Development of carbon nanotubes-modified electrodes for microbial fuel cell application **Nichanan Thepsuparungsikul** Singapore

Necessity and challenges for water transferring under climate change conditions – case study of Karoun River in Iran **Homayoun Motiee** Islamic Republic of Iran

Source-oriented quantification of microbial contamination to support adapted surface water catchment management **Christiane Schreiber** Germany

Quantitative characterisation of floc size and fractal structure during dynamic flocculation process **Jun Nan** PR China

Trace metal in raw, finished, distributed water and the association with cord blood trace metal levels **Yaw-Huei Hwang** Chinese Taiwan

Development of optimal operation management system for water supply piping network **Taeho Choi** Korea

A case study of the field application of economical analysis and effects with leakage flow rates reduction by water pressure management **Taeho Choi** Korea

Simultaneous saccharification and L-lactate fermentation of an aquatic plant (Trapa) under unsterile condition by *Bacillus coagulans* **Satoshi Akao** Japan

The effect of type preoxidants and coagulants on turbidity and dissolved organics removal **Hsuan-Hsien Yeh** PR China

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Biological treatment of salt-saturated wastewater **Franz-Bernd Frechen** Germany

Practical considerations of applying UV technology to reuse water disinfection **Wayne Lem** Canada

Treatment of greywater and blackwater on board sea-going vessels **Monika Reitz** Germany

A survey of bilge water machinery **Monika Reitz** Germany

Ecosystems, dams and hydropower – friends or enemies in the climate change adaptation debate? **Louise Korsgaard** Denmark

Experimental investigation of oily water treatment by air-lift side-stream membrane bioreactor (ASMBR) system **Nader Samavati** Islamic Republic of Iran

Comparison of models to estimate organic compound emissions from a wastewater treatment plant **Nicolas Lesage** France

Low- and middle-income country focus

The IWA World Water Congress and Exhibition is recognised as **the** reference event on the science and practice of water management globally. To reflect the Association's growing membership base in low- and middle-income countries, the programme in Montréal provides numerous opportunities for water professionals working or interested in developing countries to showcase their experience and learn more about what works in these regions of the world.

Presentations

Keynote speakers such as Arjun Thappan from the Asian Development Bank will talk about development issues. There will also be platform and poster presentations throughout the technical streams of the congress.

IWA Development Corner

The IWA Development Corner is a space in the main exhibition hall that will allow delegates to participate in informal dialogues about the needs of water and sanitation service provision in developing regions and how to make progress towards achieving the Millennium Development Goals (MDGs).

Workshops

Workshops focused on critical development themes are spread across the technical programme. They include:

- urban resiliency in the face of disasters
- water resources and climate change
- what works in service provision in developing countries – lessons from the 1st IWA Development Congress, Mexico, November 2009
- Sanitation 21 – technology options
- innovation in access to water and sanitation.

Regional forums

Regional forums will focus on the specific needs of practitioners in Africa and the Middle East; East Asia; and Latin America and the Caribbean.

Further information

Throughout the congress, staff from the IWA Development Solutions department will be available at the IWA exhibition space and IWA Development Corner to provide further detail on the Association's work in this area.



Sewage sludge application to improve revegetation of nickel mines from New Caledonia **Pagand Pascal** New Caledonia

Assessment of the technical feasibility of applying a copper raw tailing to prepare ion exchange materials for the removal of heavy metals and ammonium **Rosa-Maria Ramirez-Zamora** Mexico

Adaptation of water supply and sanitation systems to cope with climate change **Sveinung Sæggrov** Norway

Capturing stormwater for meeting water supply peak demands **James Scholl** United States

Leak alerts, consumption accounts updated online – automated meter reading for intelligent water consumption **Pierre Sacareau** France

Replacement water pumping systems with variable rotation electrical pumps instead of elevated tanks for earthquake-prone areas **Vali Agha Aghabeygi** Islamic Republic of Iran

An independent water system with maximised wastewater reuse for non-potable purposes – model case for future urban development **Xiaochang C Wang** PR China

A systematic approach to resource-oriented sanitation options – report on the results of a large German working group **Joerg Londong** Germany

Megacity's wastes as a resource treasury for nutrient recovery **Julia Alexeeva-Steiniger** Germany

Countywide onsite sewage disposal system characterisation and selection of appropriate centralised or decentralised treatment options for Anne Arundel County, Maryland **Laurens van der Tak** United States

Upgrading of WWTPs in Beijing – strategy and pilot test results **Jiawei Wang** PR China

Study of the effects of ozonation and flow on corrosion of cement-mortar-lined water pipe **Kathleen Leonard** United States

Reliability assessment of water distribution systems with statistical entropy and other surrogate measures **Tiku Tanyimboh** UK

Optimal pump operation based on simplified hydraulic model using genetic simulated annealing algorithm **Shihu Shu** PR China

Performance-based least-cost design of wastewater collection systems **Massoud Tabesh** Islamic Republic of Iran

A GIS-based water distribution model for Zhengzhou city **Yukun Hou** PR China

Using advanced analytical tools for water network asset management and rehabilitation planning prioritisation – an overall framework **Annie Vanrenterghem Raven** United States

Incidence of faecal contamination in a public drinking water supply in Ratta Amral, Rawalpindi **Imran Hashmi** Pakistan

Building eco-cities on waters – steps for a practical approach to sustainable urban planning and design **Javier Esquillor** Spain

Water-oriented city planning as key impulse for sustainable urban development **Stephan Koester** Germany

Sanitation network – new communication highway **Belen Martin Gallego** Spain

Enhancing the IWA sustainability platform with semantic metadata **Eric Rosenblum** United States

Open innovative cooperation in Eindhoven urban water management **Jos Peters** Netherlands

The eco-design of Mediterranean cities – adapting roofs to rainwater harvesting **Ramon Farreny** Spain

Concentrated versus distributed highway stormwater infiltration basin – a risk evaluation on the effect on groundwater **Arash Massoudieh** United States

Spatial analysis of sea outfall discharges **Patricia Alexandra Ramos** Portugal

Pudong Veolia Water network management **Laurent Pelleiter** PR China

Assessing the impacts of an ebb-staged recycled water release system on estuarine water quality in south-east Queensland **Guillermo Capati** Australia

Assessment of ferrous mains without service outages **Kevin Laven** Canada

Diatomite spheres and physical-chemical parameters of Pirajucara stream, Sao Paulo **Nilce Ortiz** Brazil

Fibre-optic temperature sensing for infiltration/inflow monitoring **Joerg Rieckermann** Switzerland

Development of auto measurement technology by image recognition of musty-odour-generating organisms **Shunsuke Iida** Japan

Source water protection management – a systematic approach for water reuse in consideration of micropollutants **Christopher Stacklin** United States

Potential and challenges of aquifer artificial recharge to develop groundwater resources and strengthen water supply at Dhaka City, Bangladesh **Mohammad Azizur Rahman** Germany

Water saving potential in tourist resorts **Demet Antakyali** Germany

Domestic dual reticulation end use model **Rachelle Willis** Australia

Cost-benefit analysis of greywater reuse model planning in new housing developments in a water-scarce region **Miriam Julieta Salamanca Sanchez** Mexico

Study of rainwater reclamation at Sao Paulo International Airport **Elaine Nolasco Ribeiro** Brazil

Combining sustainability with the need for high efficiency water transportation systems in the Middle East where some of the world's most extensive construction projects are being undertaken **Anthonie Lombard** United States

How to control both the effluent quality and the energy consumption of a conventional activated sludge tank? **David Thauré** France

Wastewater master plan and implementation for Mumbai **Alan Perks** Canada

Case study – can air and water temperature variations explain pipe breakage frequency? **Yehuda Kleiner** Canada

NRW short-term action plan in Bordeaux **Christophe Anselme** France

Cast iron trunk mains – are past practices responsible for today's failures? **Balvant Rajani** Canada

Guidelines for capacity-reducing gas pockets in wastewater mains **Ivo Pothof** Netherlands

Modelling of the Midgard Serpent, an urban drainage project in downtown Oslo **Geir Lindholm** Norway

Shortest-path and minimum-impact calculations for piping networks using ACO **Symeon Eteoclis Christodoulou** Cyprus

Water, energy and sustainability – what does the future hold for integrated systems modelling? **Shawn Dent** United States

Adding the component of social behaviour to urban water management modelling **Branislava Mackovic** Germany

Operational control of the nets of water in the Sabesp – division of operation of Northern Water (MN), Sao Paulo **Aldo Roberto Silva Diniz** Brazil

Mapping and analysis of corrosion pits in ductile iron pipes exhumed by three water utilities **Yehuda Kleiner** Canada

Particle settling and discolouration events **Jan Vreeburg** Netherlands

A new source of NDMA in potable water supplies **Rolando Fabris** Australia

FRP super laminates – the future in pipe renovation **Mohammad Ehsani** United States

Achilles approach to identify vulnerabilities in urban water infrastructure for operation and emergency management **Michael Möderl** Austria

OPTISM – new application for water resources management for private water supply utilities **Luis Miguel Nunes** Portugal

Development of environment-friendly pavement system to control stormwater runoff and heat island phenomena **Sangho Lee** Korea

Asset control – combining reliable wastewater transport systems and meeting WFD goals **Christof Lubbers** Netherlands

Fire-fighting water and drinking water – a stressful relationship resolved **Jan Vreeburg** Netherlands

Growth characteristics of heterotrophic bacteria and control of heterotrophic plate count in piped distribution systems **Shinsuke Kasahara** Japan

Graph theoretic analysis of complex networks to evaluate water system robustness **Alireza Yazdani** United Kingdom

Lessons learned from a measurement campaign in an Alpine catchment with highly distributed rainfall **Carolina Engelhard** Austria

Satellite versus regional treatment for reuse – a new tool for decision-making **Stephen Davis** United States

Development of a decision support system to select sustainable in-home drinking water treatment systems **Mohamed A Hamouda** Canada

Transmission main water loss reduction in urban centres **Kevin Laven** Canada

Decision support tool for sewer rehabilitation planning in a Mediterranean city **Ignacio Casals** Spain

US EPA methodologies and tools for SSO analysis and planning **Carl Chan** United States

Dynamic modelling of H₂S production in sewers – a new, efficient tool for design and operation **Lynne Bouchy** Spain

Emerging contaminants – monitoring dynamic wastewater systems **Christoph Ort** Australia

In-situ water loss modelling and detection **Agathoklis Agathokleous** Cyprus

Operation and maintenance of house connections and drains in Austria **Florian Kretschmer** Austria

Using stormwater for potable use in greenfield developments can deliver better results for the environment and for the community – Kalkallo case study **Francis Pamminer** Australia

Domestic rainwater harvesting systems for rural communities – experience from Sri Lanka **Vijitha Ediriweera** Sri Lanka

Identification of humic-acid-like and fulvic-acid-like natural organic matter in river water using fluorescence spectroscopy **Ramila Peiris** Canada

From vision to reality – implementing sustainable recycled water management on the northern Gold Coast **Guillermo Capati** Australia

Effects of hydraulic analysis and quality constraints on optimisation of water distribution systems **Massoud Tabesh** Islamic Republic of Iran

Using a break prediction model for drinking water networks asset management – from research to practice **Eddy Renaud** France

Sustainable urban water systems – lessons learnt from some Australian studies **Tony Priestley** Australia

A comprehensive measurement campaign to characterise combined sewage and combined sewer overflows in a rehabilitated drainage area in Berlin (R&D Project MIME) **Bernd Heinzmann** Germany

Innovative technologies for off-shore storage and decentralised treatment of combined sewer overflows **Kathrin Gantner** Germany

Enhanced and accelerated biological monitoring using second generation ATP test protocols – a collection of case studies **David Tracey** Canada

Local water cycle concepts as adaptive measures for sustainable drinking water supply in urban areas? **Gerard van den Berg** Netherlands

Technical and economic assessment of management strategies for WWTP screening wastes **Bruno Barillon** France

Challenges for planning and design of the harbour area treatment scheme stage 2A upgrading works **Harry Hoi Wai Lee** Hong Kong

The case for intelligent pressure management **Stuart Trow** UK

Saving the environment by reducing leakage **Dewi Rogers** Italy

Global, optimal and predictive real-time control of the sewerage system in Bordeaux to prevent CSOs during rainfall events **Christophe Anselme** France

Nowcasting rainfall and urban drainage adaptation at Seattle public utilities **Paul Fleming** United States

Israel's case study on water security as a useful resource – the Israeli holistic approach **Rani Weinberg** Israel

Priority organic pollutants in the urban water cycle, Toulouse **Caroline Sablayrolles** France

Urban stormwater treatment – use of a steel industry by-product for heavy metals removal **Severine Ladislav** France

Bisphenol A point sources and fate in WWTPs **Maria Fürhacker** Austria

Phosphorus fractions in sediments and soluble phosphorus concentration in interstitial water in Nansi Lake **Zhang Zhibin** PR China

Establishment and application of water quality assessment model for Jiaozhou Bay Basin **Hui Yuan** PR China

Large-diameter, low-pressure leak detection and location **Stewart Day** Canada

Water governance considerations for sustainable energy management **Steve Conrad** Canada

Aesthetic assessment of blends between desalinated waters and conventional resources **Ricard Devesa** Spain

Monitoring wisely – a user's guide to microbiological monitoring program design **Joanne O'Toole** Australia

Survival of somatic coliphage family type strains in environmental water **Hee Suk Lee** United States

Water quality and wastewater generation in Class I cities of India **Rajiva Prasad** India

Hybrid process by in-line coagulation and flocculation with micro-bubbles in hydrocyclone for drinking water production **Christelle Guigui** France

Performance of the largest high-rate clarification system for CSO control in North America **Temple Ballard** United States

Wet-weather treatment upgrade scenarios with sensitivity and uncertainty analysis at the Eindhoven WWTP **Lorenzo Benedetti** Belgium

Development of a novel ultraviolet system for barnacle growth control under field conditions **RJ Xie** Singapore

Sustainability and asset management – carbon footprinting a capital improvement program (CIP) **Will Williams** United States

Ceramic water filters impregnated with silver nanoparticles for point-of-use water treatment – results of field studies in Guatemala and South Africa **Vinka Craver** United States

Effects of extremely acidic mine drainage dilutions on the growth response of common duckweed *Lemna minor* L. **Roland Leduc** Canada

Efficient irrigation – the largest water savings at the lowest cost – California, Spain and Australia case study **Ana Cristina Manero Ruiz** Australia

The names given are those of the submitting authors and not necessarily those of the presenting authors. All sessions and presentations are subject to change.



Building the urban water supply sector in Afghanistan – a case study for nations emerging from conflict **Dad Mohammad Baheer** Afghanistan

Sustainable solution for safe drinking water in saline affected coastal zone through community-based integrated water resource management **Md Rafiqul Haque** Bangladesh

The application of reliability-centred maintenance at a biosolids handling facility **William James Fahey** United States

The integrated asset management model and its implications in the corporate management of EPAL **Ana Luis** Portugal

Future scenarios for wastewater reuse at the metropolitan area of Monterrey, Mexico **Miguel Angel Lopez Zavala** Mexico

Implementation of a ceramic water filter manufacturing process at the Songhai Center – a case study in Benin **Bradley Striebig** United States

Improving water demand management in Barcelona through customer segmentation and water uses identification **Jordi Zubelzu** Spain

Redefining the process of engagement in delegated management contracts in water supply and sanitation **Jan Janssens** Switzerland

Water emergency programme – mitigation measures facing Cutzamala system cuts by the lack of rain in Mexico City **Nuri Sanchez** Mexico

Full-scale assessment of the sustainability of phosphorus removal by apatite for small communities in horizontal flow constructed wetlands **Samuel Martin Ruel** France

Towards sustainable sanitation for the city of Almere **Sjoerd Kerstens** Netherlands

Environmental conflict and injustice in sewage treatment stations – the case of Belo Horizonte **Priscila Luiza Silva** Brazil

The feasibility of gravity-driven ultrafiltration for decentralised water treatment **Wouter Pronk** Switzerland

Water for the community – making potable water accessible and affordable for poor families in the Philippines **Rene D Almendras** Philippines

Application of a financial model for determining optimal management of non-revenue water in developing countries **Alan Wyatt** United States

The role of pricing for sustainable urban water supply in Ghana **Kwabena Nyarko** Ghana

Integrated urban water management in China – progress and challenges **Olivia Jensen** PR China

IWA specialist groups

IWA specialist groups represent the core vehicle for issue-based interaction on scientific, technical and management topics. These groups facilitate cooperation, networking and knowledge generation, primarily through regular conferences and publications. Task groups are generally formed by specialist groups to perform a defined task such as the production of IWA Scientific and Technical Reports, manuals of best practice and position papers.

Meetings of IWA specialist groups will be held at the congress. All delegates are welcome to attend these meetings in order to meet the members of the groups and their management committees and have a say in their activities. Details of the dates and times of the specialist group meetings will be made available on the IWA website and in the final congress programme.



International
Water Association



Would you like to benefit from **discounted registration rates** and **enhance your experience** as a delegate at our World Congress & Exhibition in Montreal this September?

Then **JOIN** IWA as an **individual member** online **NOW** at iwahq.org
Or email members@iwahq.org for an application form



All tours are on Friday 24 September and depart from and return to Viger Terminal, Palais des congrès.

Please wear trousers and closed-in walking shoes.

The organisers reserve the right to cancel or limit attendance at any tour with monies refunded subject to minimum and maximum registration numbers.

Montréal Charles-J. Des Baillets drinking water plant



Departs 09:00 and returns approx 12:30

The Charles-J. Des Baillets drinking water plant, one of the seven that Montréal has, began operations in 1978. Today, its daily drinking water production capacity is 1,136,000 m³ (13,2 m³/s), well under its design capacity of double that figure. This plant was the first one in North America to disinfect water using ozone. The treatment system has been simplified through the excellent quality of raw water supplied by the St-Lawrence River and consists of filtration, ozonation and chlorination. A vast upgrading program is currently underway consisting of a full overhaul of the ozonation process, replacement of the chlorine gas disinfection process with an 0.8% sodium hypochlorite production process, implementation of UV disinfection and part-time filter coagulation to control spikes in the level of turbidity. All these modifications are to be completed in 2012.

Price: € 25.00 per person

Montréal Jean-R. Marcotte wastewater treatment plant



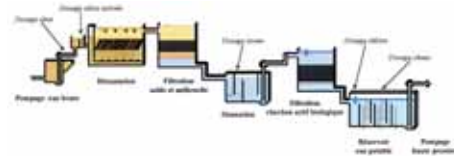
Departs 08:30 and returns approx 12:30

The Montréal wastewater treatment plant treats a volume of water representing 50% of the wastewaters treated in the Province of Québec. With a capacity of about 7.6 million cubic metres (2 billion US gallons) per day,

it is currently the largest primary physico-chemical treatment plant in America. Wastewater arriving at the plant via the northern interceptor, 27 metres deep, and the south-eastern interceptor, 43 metres deep, is raised to ground level at the pumping station. It should be noted that 60% of the territory is developed in a combined system. After years of analyses and experiments, a major step has been taken to improve the quality of the St-Lawrence River water with the decision to add disinfection to the treatment process. Ozonation was approved as the only appropriate technological choice to disinfect Montréal wastewater. The disinfection project is scheduled to take place over a five-year period.

Price: € 25.00 per person

Sainte-Rose drinking water plant and Centre d'interprétation de l'eau (CIEAU), Laval



Departs 13:00 and returns approx 16:30

Raw water from the Mille-Îles River runs into the Sainte-Rose drinking water treatment plant. The water is treated with aluminum sulphate before passing into dynamic settling tanks for sedimentation and filtration on sand and anthracite. Ozone destroys bacteria and viruses and eliminates undesirable tastes and odours and the water is filtered using activated carbon. It is then disinfected using chlorine and the pH is adjusted to reduce corrosion in the distribution network. Since the Mille-Îles river is subject to variations in water quality and to a low minimum annual flow rate, making it less suitable as a drinking water source, it was decided in the early 1980s to equip the Sainte-Rose plant with a second filtration stage using biological activated carbon (BAC). These filters operate in biological mode, which means that assimilable organic matter is removed by useful bacteria attached to the activated carbon.

After this behind-the-scenes tour of the Sainte-Rose plant, you will visit the Centre d'interprétation de l'eau exhibition – a major tourist drawcard – to see how the public are educated on water issues in Québec.

Price: € 25.00 per person

Boisbriand wastewater treatment plant



Depart 13:00 and return approx 16:30

The city of Boisbriand is a suburb of Montréal that has seen rapid population growth – from 19,000 to 27,000 people – in the past 20 years. This has meant that its wastewater treatment plant needed upgrading to meet environmental requirements. The resulting treatment train consists of a biologically aerated filter for BOD, ammonia and TSS removal; high-rate ballasted flocculation for tertiary treatment of phosphorus; high-rate ballasted flocculation for secondary sludge thickening; and thermal (85° C) and vacuum sludge dewatering. This 25,000 m³/d wastewater treatment plant represents the state-of-the-art of compact and efficient wastewater treatment in the province of Québec.

Price: € 25.00 per person

Useful information

Airport transfers

For information on how to get from the Aéroport international Montréal-Trudeau into the city please see <http://www.admtl.com/passager/home.aspx>.

Electricity

The main voltage in Canada is 110 V.

Insurance

You are advised to arrange your own travel insurance to cover medical expenses and all other risks. The organisers will not be held liable for damage or loss of luggage or personal belongings or for injury, loss or damage of any nature caused to participants.

Passport and visa requirements – allow six weeks for visas

Please check the event website under the heading 'Registration and bookings' for passport and visa requirements.

Weather

Montréal's temperature in September ranges from a low of 9° C to a high of 20° C (from 48° F to 69° F).

Partner programme Sightseeing tours

IWA welcomes delegates' partners at many of the social functions that are part of the congress. There are also sightseeing tours for partners during the event.

Meet-n-greet

Monday 20 September 10 am
Poolside, Hilton Montréal Bonaventure
900 de La Gauchetière West

The 'meet-n-greet' morning is the kick-off event for the partners programme. It gives partners a chance to make and renew friendships with other partners and plan the rest of the week's activities.

Please note this function is not at the convention centre but at the address given above.

Partner registration

Partner registration includes attendance at:

- Sunday opening ceremony
- Sunday welcome reception
- Monday meet-n-greet
- delegate's presentation (if applicable)
- Thursday closing ceremony
- Thursday gala dinner
- morning and afternoon refreshments in the exhibition hall Monday to Thursday.

There is also the option to purchase tickets for the sightseeing tours.

How do partners register?

You can register your partner at the same time as you register yourself as a delegate.

In order to avoid disappointment it is advisable to pre-book any tours you and your partner would like to go on.

The partner registration fee is € 150.00. Booking is via the registration form or online.

Disclaimers

The information contained in this brochure is believed to be correct at the time of publication. The organisers reserve the right to alter or delete from the programme as circumstances dictate and take no responsibility for any errors, omissions or changes. The organisers assume no responsibility for opinions or facts expressed by contributors to the program.

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All tours will depart from and return to Viger Terminal, Palais des congrès.

IWA has developed these sightseeing tours especially for congress participants and partners. We recommend that you book tickets for your partner and yourself when you register for the congress using the registration form or online.

Return times of tours are approximate and the organisers reserve the right to cancel or limit attendance at any tour with deposits refunded subject to minimum and maximum registration numbers.

SUNDAY

Bonjour Montréal – the classic tour

Sunday 19 September 09:00–13:00 (4 hours)



If you are a first-time visitor to Montréal this tour will introduce you to the vibrant history and passionate culture of this cosmopolitan city. It will show you Charming Old Montréal, the site of Montréal's founding in 1642, the Notre-Dame Basilica, Sainte-Hélène and Notre-Dame Islands, the 'Golden Square Mile' on Sherbrooke Street and Mount Royal for a beautiful view of the city and the Latin Quarter, with its renovated Victorian houses and unique outdoor staircases. A guided tour of Pointe-à-Callière Museum is included.

Price: € 47.50 per person including coach, guide and admission fee.

MONDAY

Underground walking tour

Monday 20 September 13:00–16:00 (3 hours)



This tour will take you through the labyrinth of what can justly be called North America's largest underground city. Below office towers, major thoroughfares, parks and sidewalks the ground is honeycombed with almost 30 km of pedestrian walkways, connecting the city's universities, hotels, shops and buildings. You will travel on Montréal's 'metro' or subway system to visit different points of interest such as the Place Ville-Marie, Complexe Desjardins, Place des Arts and Place de la Cathédrale.

Price: € 31.00 per person including guide and subway transport.

TUESDAY

Lunch at a sugar shack – a truly sweet Canadian experience

Tuesday 21 September 10:30–14:30 (4 hours)



This is a chance to discover Québécois tradition at its best! On this tour you will join in a hearty

French Canadian feast at La Sucrerie de la Montagne, a maple sugar farm situated atop Mont-Rigaud amidst 40 acres of spectacular wooded trails, just 55 minutes from Montréal. At this rustic site you will see authentic log cabins, immense wood-burning ovens in which fresh bread is baked, and the sugar shack where real maple syrup is made.

Price: € 73.50 per person including coach and lunch.

WEDNESDAY

Quebec day trip – a date with history

Wednesday 22 September 07:30–18:30 (11 hours)



Take a step back in time to visit the only walled city in North America. With its narrow, cobble streets, historic buildings and 'old world' ambience, Vieux-Québec (Old Québec City) is listed by UNESCO as

a World Heritage Treasure. On this long day trip you will visit historic and cultural sites such as Place Royale, the National Assembly, Plains of Abraham and Le Petit Champlain, and have free time to walk around the older sections of the city.

Price: € 59.50 per person including coach and guide. Lunch not included.

THURSDAY

Green Montréal – Biodome and Botanical Gardens

Thursday 23 September 09:00–13:00 (4 hours)



At 180 acres, the Montréal Botanical Gardens is second in size only to Kew Gardens in London.

If you are a plant lover this visit will delight you, with its outstanding rose garden, Chinese and Japanese gardens, arboretum and First Nations garden. Then, at the Montréal Biodome, you will experience four different ecosystems of the Americas, ranging from the tropical rainforest to icy polar extremes, and see the lynx, porcupines, anacondas, monkeys, penguins and puffins who live there.

Price: € 48.00 per person including coach, guide and entrance fees.



Exhibition open hours

Monday 09:30 – 18:00
Tuesday 09:30 – 18:00
Wednesday 09:30 – 18:00
Thursday 09:30 – 15:00

The exhibition and congress will take place concurrently and present many opportunities for delegates and exhibitors to meet each other and share experiences. The following features will be located inside the exhibition to offer maximum networking opportunities over the four days.

• Lunch and breaks

All lunches and morning and afternoon breaks will be held inside the exhibition to maximise the time that delegates and exhibitors will spend together finding solutions to water problems.

• Press and media centre

The international and national media will be based inside the exhibition, giving delegates a chance to stay in touch with the leading publications in the global water industry.

• Internet café

An internet café is provided free of charge so that you can keep up with work commitments while you are taking breaks from the conference sessions.

• Poster sessions

Poster sessions will provide an added visual aspect to the conference programme.

• One-to-one meetings

All delegates and exhibitors will be invited to register their name and company name into a match-making software tool that will enable you to make contact with each other more easily and efficiently. Once registered, you will be able to search online to identify individuals, companies and institutions you wish to contact for a one-to-one meeting.

• YWP pavilion

Young water professionals will have a central meeting point where they can congregate during the event.

• IWA Development Corner

The IWA Development Corner is a space for informal, interactive debate and dialogue focused on the needs of water and sanitation service provision in low- and middle-income countries. Located beside relevant exhibition spaces, the IWA Development Corner will have a daily program of discussions aimed at finding ways to make better progress towards achieving the Millennium Development Goals (MDGs).

• Leading global water industry players

Delegates will be treated to a select exhibition of the water industry's top global players. These companies and institutions will be happy to help you find solutions to any water-related challenges you may have.

Exhibitors as at April 2010*

Country pavilions

Austria
Canada Government
Canada industry
China
Denmark
France
Germany
Japan
Korea
Netherlands
Norway
Portugal
Singapore
Taiwan
United Kingdom
USA

Companies and institutions

A Single Drop [USA](#)
ACE Events [UK](#)
Acuro Inc [Canada](#)
Amec Earth & Environmental [USA](#)
AMEPA (Moroccan Association of Drinking Water and Sanitation) [Morocco](#)
Aquatabs – Global Hydration [Ireland](#)
Aquatech [Canada](#)
Aquatic Informatics [Canada](#)
Atlas Copco [USA](#)
AWWA [USA](#)
BDEW (Bundesverband der Energie- und Wasserwirtschaft e.V.) [Germany](#)
Bekaert Progressive Composite [USA](#)
Bentley Systems [USA](#)
Bergen Water & Sewage Works [Norway](#)

*including optional bookings

BERMAD CS [Israel](#)
Berson UV Techniek [Netherlands](#)
Biodetection Systems BV [Netherlands](#)
Borealis [Austria](#)
Bray Controls Canada Corporation [Canada](#)
Busan Metropolitan City Government [Korea](#)
Calgon Carbon Corporation [USA](#)
Canadian Union of Public Employees [Canada](#)
Canadian Utilities [Canada](#)
CDM [USA](#)
CH2M HILL [USA](#)
Chemline Plastics [Canada](#)
CNIGuard [UK](#)
CSI Ingenieros [Uruguay](#)
CWWA [Canada](#)
D.M.Valve & Controls [Canada](#)
Dassyloi [Canada](#)
Development Corner [Global](#)
Doosan Heavy Industries and Corp [Korea](#)
Dorot [USA](#)
DVGW (Deutscher Verein des Gas- und Wasserfaches e.V.) [Germany](#)
EH Wachs [USA](#)
EIMCO/GLV [Canada](#)
Elster Metering [UK](#)
Environment Canada [Canada](#)
Environmental Operating Solutions [USA](#)
Epcor [Canada](#)
ESRI [USA](#)
Festo [Canada](#)
Flow-Tek [USA](#)
Fugro [Netherlands](#)
GE Power & Water [USA](#)
Genesys International [UK](#)
Grundfos Management [Denmark](#)
Gutermann [Switzerland](#)
GWI [UK](#)
H2O Innovation [Canada](#)
Halcrow [UK](#)
Harmsco Filtration Products [USA](#)
Hawle Agenturen [Germany](#)
H-TEC [USA](#)
Idexx Laboratories [USA](#)
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The Canadian Water and Wastewater Association (CWWA) was established in 1986 to represent the common interest of Canada's municipal water and wastewater systems to federal and inter-provincial bodies with respect to policies, programs, national codes, standards and legislation. CWWA's membership has expanded to include other than municipal systems, giving our members an even stronger voice in Ottawa.

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