



## 08:15 – 09:00 KEYNOTE ADDRESS

**Cities of the future in today's developing countries** **Bill Cosgrove** Canada *Introduced by* **Michael Norton Halcrow**

**Room 17**

### 09:15 – 10:45 WATER AND HEALTH

**Room 1**

#### Detection methods for microbial hazards

**Chair** **Xingfang Li** Canada

09:15 Introduction

09:20 How dead are 'dead' microbes? A critical discussion **Hans-Curt Flemming** Germany

09:40 Impact of higher organisms on the microbial risk associated with drinking water **Françoise Bichai** Canada

10:00 Residual aluminium in treated drinking water and *Escherichia coli* cultivation **Susan Springthorpe** Canada

10:20 Tools for a better understanding of the risk associated with *Cryptosporidium* oocysts in sources of drinking water **Cindy Lalancette** Canada

10:40 Closing summary

### 09:15 – 10:45 SCIENCE AND APPLICATION OF WATER TREATMENT

**Room 2**

#### Oxidation processes in drinking water 1

**Chair** **Fritz Frimmel** Germany

09:15 Introduction

09:20 Quantitative understanding of advanced oxidation processes for the treatment of emerging contaminants **Daisuke Minakata** US

09:40 Treatment of refractory organic micropollutants by direct and indirect electrochemical oxidation process **Jean-Francois Blais** Canada

10:00 Response surface optimisation for inactivation of copepod zooplankton with ozone **Lin Tao** PR China

10:20 The influence of temperature on full-scale inactivation of aerobic endospores by ozone **Helena Lucas** Portugal

10:40 Closing summary

## 10:45 – 11:15 Morning break

**Exhibition**

### 11:15 – 12:45 WATER AND HEALTH

**Room 1**

#### Faecal source tracking

**Chair** **Georg Reischer** Austria

11:15 Introduction

11:20 Microbial source tracking guided by faecal pollution source profiling and catchment pollution dynamics **Georg Reischer** Austria

11:40 Combining quantitative microbial source tracking with traditional approaches to map water pollution hazards in a river catchment **Huw Taylor** UK

12:00 Tracking the sources of faecal contamination in the Wissahickon Creek watershed using genotypic analytical methods **Joanna Pope** US

12:20 Assessing the beta-glucuronidase gene to track the source of *Escherichia coli* found in water samples **Helen Stratton** Australia

12:40 Closing summary

### 11:15 – 12:45 SCIENCE AND APPLICATION OF WATER TREATMENT

**Room 2**

#### Oxidation processes in drinking water 2

**Chair** **Achim Ried** Germany

11:15 Introduction

11:20 Ozone oxidation of pharmaceuticals during drinking water treatment **Michèle Prévost** Canada

11:40 Efficiency and mechanism of degradation of 2-methylisoborneol by O<sub>3</sub>/H<sub>2</sub>O<sub>2</sub> **Xueyan Li** PR China

12:00 Key criteria for cost-effective ozone generators and inhomogeneous plasma processing of feed gas **Fabio Krogh** Switzerland

12:20 Degradation of pharmaceuticals by catalytic ozonation over  $\beta$ -FeOOH supported on mesoporous alumina **Yulun Nie** PR China

12:40 Closing summary

## 12:45 – 14:15 Lunch

**Exhibition**

### 14:15 – 15:45 WATER AND HEALTH

**Room 1**

#### Sanitation and hygiene

**Chair** **Steve Hruddy** Canada

14:15 Introduction

14:20 Mapping and communicating sewage contributions to global waters **Asli Aslan-Yilmaz** US

14:40 The London Tideway Tunnels – tackling London's Victorian legacy of combined sewage overflows – 21st Century engineering solutions and delivery challenges **David Crawford** UK

15:00 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

15:20 The performance of highly permeable subsoil in removing pathogenic microorganisms from onsite wastewater effluent **Niall O Luanaigh** Ireland

15:40 Closing summary

### 14:15 – 15:45 SCIENCE AND APPLICATION OF WATER TREATMENT

**Room 2**

#### Oxidation processes in drinking water 3

**Chair** **Herve Suty** France

14:15 Introduction

14:20 Biofilm control by advanced oxidation process (AOP) pre-treatment – effect on natural organic matter (NOM) **Anat Lakretz** Israel

14:40 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 **Thunyalux Ratpukdi** US

15:00 SimOx – modelling onsite oxidation units in potable water treatment **Marie Maurel** France

15:20 Advanced oxidation processes (AOP) – comparison of different treatment scenarios based on processes combining ozone, UV and hydrogen peroxide **Achim Ried** Germany

15:40 Closing summary

## 15:45 – 16:15 Afternoon break

**Exhibition**

## 16:15 – 17:00 KEYNOTE ADDRESS

**Recovering water services post-earthquake** **Pedro Pablo Errázuriz** Chile *Introduced by* **Bernard Guirkingier** SUEZ ENVIRONNEMENT

**Room 17**

## 17:00 – 19:00 Special viewing of poster presentations

**Exhibition**



<b>08:15 – 09:00 KEYNOTE ADDRESS</b> <b>Cities of the future in today's developing countries</b> <b>Bill Cosgrove</b> Canada <i>Introduced by</i> <b>Michael Norton</b> Halcrow		<b>Room 17</b>
<b>09:15 – 10:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 3</b> <b>Improvement of conventional treatment processes for drinking water 1</b> <b>Chair Halvaard Odegaard</b> Norway 09:15 Introduction 09:20 New York City water – treatment for the next millennium <b>William Becker</b> US 09:40 A new vision for drinking water supply to the city of Groningen <b>Wout Kompagnie</b> Netherlands 10:00 Optimising filter operations in drinking water treatment <b>Ian Douglas</b> Canada 10:20 Advanced treatment and control for biostable drinking water <b>Louis Cornelis Rietveld</b> Netherlands 10:40 Closing summary		<b>09:15 – 10:45</b> <b>WATER, CLIMATE AND ENERGY</b> <b>Room 4</b> <b>Climate change and the water industry – from impacts to adaptive strategies</b> <b>Chair Carol Howe</b> Netherlands 09:15 Introduction 09:20 Effects of climate change on water utilities <b>Kenan Ozekin</b> US 09:40 Regional climate change adaptation in water treatment and supply <b>Wolfgang Uhl</b> Germany 10:00 Storm sewer infrastructure planning with climate change risk – a case study <b>Laurens van der Tak</b> US 10:20 Drought forecasting using an aggregated drought index and artificial neural networks <b>Chris Perera</b> Australia 10:40 Closing summary
<b>10:45 – 11:15 Morning break</b>		<b>Exhibition</b>
<b>11:15 – 12:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 3</b> <b>Improvement of conventional treatment processes for drinking water 2</b> <b>Chair Jean-Michele Laine</b> France 11:15 Introduction 11:20 Optimisation of enhanced coagulation facilities in Bergen, Norway <b>Bjørnar Eikebrokk</b> Norway 11:40 Impact of geometric structure of flocculation reactor on flow field and flocculation efficiency <b>Jun Nan</b> PR China 12:00 pH modified photolysis for treatment of micro-pollutants in water <b>Dror Avisar</b> Israel 12:20 Evaluating norovirus removal during drinking water treatment by using recombinant NV-VLPs <b>Taku Matsushita</b> Japan 12:40 Closing summary		<b>11:15 – 12:45</b> <b>WATER, CLIMATE AND ENERGY</b> <b>Room 4</b> <b>Climate change and adaptive water management – case studies</b> <b>Chair Gertjan Zwolsman</b> Netherlands 11:15 Introduction 11:20 Regional roadmap for climate change adaptation in the large metropolitan Ruhr area, Germany <b>Wolf Merkel</b> Germany 11:40 Water resource management and meeting the challenges of climate change in Singapore <b>Chin Hwee Kenneth Chua</b> Singapore 12:00 Projected impact of climate change on agricultural water demand – a case study from Palestine <b>Ziad Mimi</b> Palestine 12:20 Climate variability and water sharing plans – transferability of Australian approaches in Vietnam <b>Nigel Peter Hayball</b> Australia 12:40 Closing summary
<b>12:45 – 14:15 Lunch</b>		<b>Exhibition</b>
<b>14:15 – 15:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 3</b> <b>Innovative wastewater treatment strategies</b> <b>Chair Harro Bode</b> Germany 14:15 Introduction 14:20 The development of the New York City BNR programme <b>Sarah Dailey</b> US 14:40 Activated sludge process design using uncertainty and sensitivity analysis <b>Xavier Flores</b> Canada 15:00 Cost optimisation and minimisation of environmental impact through life cycle analysis of wastewater treatment plant in Bree, Belgium <b>Kris De Gussem</b> Belgium 15:20 Integrating wastewater and biowaste in the city of the future <b>Per-Arne Malmqvist</b> Sweden 15:40 Closing summary		<b>14:15 – 15:45</b> <b>WATER, CLIMATE AND ENERGY</b> <b>Room 4</b> <b>Climate change and water resources management</b> <b>Chair Alan Vicory</b> US 14:15 Introduction 14:20 Effects of a heatwave on water quality of the Rhine and Meuse Rivers <b>Gertjan Zwolsman</b> Netherlands 14:40 Temperature evolution of an experimental salt-gradient solar pond <b>Francisco Suarez</b> US 15:00 Climate change and the future of the electricity production sector – a European study <b>Martina Flörke</b> Germany 15:20 Climate-proof river basin management in The Netherlands <b>Arthur Meuleman</b> Netherlands 15:40 Closing summary
<b>15:45 – 16:15 Afternoon break</b>		<b>Exhibition</b>
<b>16:15 – 17:00 KEYNOTE ADDRESS</b> <b>Recovering water services post-earthquake</b> <b>Pedro Pablo Errázuriz</b> Chile <i>Introduced by</i> <b>Bernard Guirking</b> SUEZ ENVIRONNEMENT		<b>Room 17</b>
<b>17:00 – 19:00 Special viewing of poster presentations</b>		<b>Exhibition</b>



08:15 – 09:00 KEYNOTE ADDRESS Cities of the future in today's developing countries <b>Bill Cosgrove</b> Canada Introduced by <b>Michael Norton</b> Halcrow		Room 17	
09:15 – 10:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 5	09:15 – 10:45 WATER AND HEALTH	Room 6
<b>W Explicitly dealing with uncertainty in WWTP design and operation</b> Chair <b>Peter Vanrolleghem</b> Canada 09:15 The mission statement of the DOUTGroup <b>Evangelina Belia</b> Canada 09:20 How does one currently deal with uncertainty and risk in WWT practice? <b>Brian Karmasin</b> US 09:45 Moderated discussion <b>Bruce Johnson</b> US 10:15 Evaluation of existing methods of uncertainty analysis <b>George Sprouse</b> US 10:30 Moderated discussion <b>Marc Neumann</b> Canada 10:40 Closing summary		<b>W Drinking water safety – households to cities 1 – how safe are global water supplies and what interventions are sustainable?</b> Chair <b>Jamie Bartram</b> US 09:15 Introduction 09:25 The spectrum of interventions currently used to improve drinking water safety, with contributions from an international panel Topics to be discussed are HWTSS, small water enterprises, WSPs, small and community water supplies and regulation. Panelists include: <b>Jennifer De France</b> Belgium <b>Jennifer Mercer</b> Canada <b>Ranjiv Khush</b> US <b>Raquel Sabogal</b> US <b>Kristina Taracha</b> Canada	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 5	11:15 – 12:45 WATER AND HEALTH	Room 6
<b>W Explicitly dealing with uncertainty in WWTP design and operation</b> Chair <b>Peter Vanrolleghem</b> Canada 11:15 Sources of uncertainty relevant to WWTP design and operation <b>Benedek Plosz</b> Denmark 11:30 Moderated discussion <b>Evangelina Belia</b> Canada 11:50 Terms and definitions related to uncertainty <b>Dave Kinnear</b> US 12:00 Moderated discussion <b>Lorenzo Benedetti</b> Italy 12:10 Gaps and inefficiencies in current knowledge and practice related to uncertainty <b>Andy Shaw</b> US 12:20 What can we learn from other water disciplines? <b>Oliver Schraa</b> Canada 12:30 Wrap up – where do we go from here? <b>Peter Vanrolleghem</b> Canada		<b>W Drinking water safety – households to cities 2 – how are we responding to significant current and future challenges?</b> Chair <b>Jamie Bartram</b> US 11:15 An overview of some of the current and future critical global challenges to drinking water safety, with contributions from an international panel Topics to be discussed are climate change impacts on water quality, providing safe water after disasters, operations and maintenance of water systems and monitoring water quality.	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45 WATER, ECOSYSTEMS AND CATCHMENTS	Room 5	14:15 – 15:45 WATER AND HEALTH	Room 6
<b>Protection of natural water resources for drinking purposes</b> Chair <b>Katerina Ruzicka</b> Austria 14:15 Introduction 14:20 Micropollutants in wastewater effluents and soil aquifer treatment (SAT) <b>Irena Pankratov</b> Israel 14:40 Implementation research of phosphorus-free antiscalant 4Aqua BD25 at Dinxperlo, The Netherlands <b>Wilbert van de Ven</b> Netherlands 15:00 The treatment of onsite wastewater effluent by different subsoils in Ireland <b>Laurence William Gill</b> Ireland 15:20 Pilot trials study to demonstrate cost-effective treatment of membrane concentrate <b>Nathalie Vigneron-Larosa</b> France 15:40 Closing summary		<b>W Drinking water safety – households to cities 3 – ensuring consistently safe water supplies for all</b> Chair <b>Jamie Bartram</b> US 14:15 The critical lessons learned from what is working and the significant future challenges that need to be addressed. Topics to be discussed are integrated programming for safe water management and monitoring global water safety. Panelists include: <b>Rick Gelting</b> US, <b>Tom Williams</b> IWA 15:30 Closing remarks <b>Jamie Bartram</b> US	
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00 KEYNOTE ADDRESS Recovering water services post-earthquake <b>Pedro Pablo Errázuriz</b> Chile Introduced by <b>Bernard Guirkingner</b> SUEZ ENVIRONNEMENT		Room 17	
17:00 – 19:00 Special viewing of poster presentations		Exhibition	



08:15 – 09:00 KEYNOTE ADDRESS Cities of the future in today's developing countries <b>Bill Cosgrove</b> Canada Introduced by <b>Michael Norton</b> Halcrow		Room 17	
09:15 – 10:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 7	09:15 – 10:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 8
<b>W</b> Phosphorus management in the water cycle 1 – phosphate dosing to minimise metals in drinking water Chair <b>Colin Hayes</b> UK 09:15 Introduction 09:20 The UK case study – why 95% of water supplies are now dosed with ortho-phosphate to reduce plumbosolvency and how optimisation was achieved <b>Colin Hayes</b> UK 09:40 The European dimension – lead in drinking water has been adopted as a health related target parameter by the UN/WHO Protocol on Water <b>Maria João Benoit</b> Portugal 10:00 The regulations on lead and copper in drinking water in the US are under review and may result in a need for more widespread phosphate dosing <b>Audrey Levine</b> US 10:20 Case study presentations and discussion		Advances in anaerobic treatment Chair <b>Serge Guio</b> Canada 09:15 Introduction 09:20 Performance review of large-scale up-flow anaerobic sludge blanket sewage treatment plants <b>Barry Heffernan</b> Netherlands 09:40 Methane conversion efficiency as a simple control parameter for an anaerobic digester at high loading rates <b>Wipa Charles</b> Australia 10:00 Recovery of dissolved methane gas discharged from a UASB reactor with a degassing membrane <b>Hisashi Satoh</b> Japan 10:20 Determination of biological methane potential using pressure measurement (Oxitop®) <b>Audrey Battimelli</b> France 10:40 Closing summary	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 7	11:15 – 12:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 8
<b>W</b> Phosphorus management in the water cycle 2 – phosphorus removal in small and medium sized sewage treatment plants Chair <b>Frank Rogalla</b> Spain 11:15 Strategy to upgrade existing medium and small sized wastewater treatment plant for P removal and P valorization <b>Florent Chazarenc</b> France 11:45 Costs of P removal for medium and small plants <b>Andreas Neft</b> Germany 12:05 The use of industrial by-products for P removal and recovery: Field scale trials in Northern Europe <b>Margit Koiv</b> Estonia 12:25 The use of natural apatite as a reactive media to remove P from wastewater: a case study in France <b>Samuel Martin</b> France		Anaerobic membrane bioreactor Chair <b>Yves Comeau</b> Canada 11:15 Introduction 11:20 Biopolymer and cation behaviour during waste digestion with an AnMBR process and contribution to membrane fouling <b>Martha Dagnew</b> Canada 11:40 The anaerobic membrane bioreactor (AnMBR) process and the first year of full-scale AnMBR operation treating salad dressing wastewater <b>Peter McCarthy</b> Canada 12:00 Anaerobic membrane bioreactors – turning the activated sludge process system inside out <b>Fernando Fernandez-Polanco</b> Spain 12:20 Anaerobic membrane bioreactors for the treatment of low-strength sewage at low temperature <b>Bruce Jefferson</b> UK 12:40 Closing summary	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45 WATER, ECOSYSTEMS AND CATCHMENTS	Room 7	14:15 – 15:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 8
<b>W</b> Phosphorus management in the water cycle 3 – phosphorus targets for receiving waters Chair <b>Ray Earle</b> Ireland 14:15 <ul style="list-style-type: none"><li>Scientific basis for phosphorus targets</li><li>Ecological objectives</li><li>Diffuse versus point source control – river basin phosphorus accounting</li></ul>		Anaerobic ammonium oxidation Chair <b>Norbert Jordin</b> Germany 14:15 Introduction 14:20 Anammox <b>Bernhard Wett</b> Austria 14:40 Partial nitrification/Anammox process – from two two-step towards one-step process <b>Grzegorz Cema</b> Poland 15:00 Nitrous oxide (N <sub>2</sub> O) emission from partial nitrification and Anammox process treating municipal dewatered sludge liquor (centrate) <b>Sahar Kosari</b> Canada 15:20 Autotrophic nitrogen removal at low temperature <b>Anuska Mosquera-Corral</b> Spain 15:40 Closing summary	
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00 KEYNOTE ADDRESS Recovering water services post-earthquake <b>Pedro Pablo Errázuriz</b> Chile Introduced by <b>Bernard Guirking</b> SUEZ ENVIRONNEMENT		Room 17	
17:00 – 19:00 Special viewing of poster presentations		Exhibition	



08:15 – 09:00 KEYNOTE ADDRESS Cities of the future in today's developing countries <b>Bill Cosgrove</b> Canada Introduced by <b>Michael Norton</b> Halcrow		Room 17	
09:15 – 10:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 9	09:15 – 10:45 MANAGING UTILITIES AND THEIR ASSETS	Room 10
<b>Aerobic granular sludge</b> <b>Chair Jürg Keller</b> Australia 09:15 Introduction 09:20 State of the art – aerobic granular sludge <b>Mark van Loosdrecht</b> Netherlands 09:40 Fractionation of alginate-like exopolysaccharide isolated from aerobic granular sludge <b>Yuemei Lin</b> PR China 10:00 The formation of aerobic granules in a sequencing batch reactor (SBR) using domestic wastewater <b>Jamile Wagner</b> Brazil 10:20 Effect of shear stress on aerobic granulation <b>Xiaoying Zheng</b> PR China 10:40 Closing summary		<b>W Accelerating innovation in the water sector – framing the Issues</b> <b>Chair Sudhir Murthy</b> US, <b>Glen Daigger</b> US 09:15 Framing the issue – why do we need more innovation in the water sector? <b>Sudhir Murthy</b> US 09:25 Overview <b>Sudhir Murthy</b> US 09:30 What we can learn about innovation from others <b>Glen Daigger</b> US 09:50 One utility's journey <b>Peer Kamp</b> Netherlands 10:10 Discussion and summary <b>Sudhir Murthy</b> US	
10:45 – 11:15 Morning break		Exhibition	
11:15 – 12:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 9	11:15 – 12:45 MANAGING UTILITIES AND THEIR ASSETS	Room 10
<b>Advances in biological processes</b> <b>Chair Jiri Wanner</b> Czech Republic 11:15 Introduction 11:20 2,4-D removal via denitrification using volatile fatty acids <b>David Geraint Wareham</b> New Zealand 11:40 Microaerophilic conditions support elevated mixed culture polyhydroxyalkanoate (PHA) yields but result in decreased PHA production rates <b>Alan Werker</b> Australia 12:00 Enhancement of treatment performances of complete-mix activated sludge process using immobilised cell bioaugmentation <b>Eakalak Khan</b> US 12:20 Characterisation and application of mycelium pellet as a biomass carrier in wastewater treatment <b>Fang Ma</b> PR China 12:40 Closing summary		<b>W Accelerating innovation in the water sector – innovation at utilities</b> <b>Chair Diane D'Arras</b> France, <b>Herve Suty</b> France 11:15 Framing the issue – why should utilities promote innovation? <b>Diane D'Arras</b> France 11:25 A research and development programme at a large public utility <b>Harry Seah</b> Singapore 11:40 An entrepreneur's proving ground – a public-private partnership <b>Nate Cullen</b> US 11:55 A university technology park – a utility-university collaboration <b>Bernhard Wett</b> Austria 12:10 Discussion and summary <b>Herve Suty</b> France	
12:45 – 14:15 Lunch		Exhibition	
14:15 – 15:45 SCIENCE AND APPLICATION OF WATER TREATMENT	Room 9	14:15 – 15:45 MANAGING UTILITIES AND THEIR ASSETS	Room 10
<b>Activated sludge population dynamics</b> <b>Chair Norbert Kreuzinger</b> Austria 14:15 Introduction 14:20 Population dynamics in bioaugmented sequencing batch reactors for treatment of biphenyl wastewater <b>Ang Li</b> PR China 14:40 Application of Raman microscopy for simultaneous evaluation of intracellular polymer dynamics in enhanced biological phosphorus removal processes <b>April Z Gu</b> US 15:00 Modification of activated sludge characteristics due to applying direct current (DC) field <b>Sharif Musa Ibeid</b> Canada 15:20 Bauxsol™ pellets bacterial communities and phosphate removal in wastewater treatment <b>Laure Despland</b> Australia 15:40 Closing summary		<b>W Accelerating innovation in the water sector – innovation at utilities</b> <b>Chair Frans Schulting</b> Netherlands, <b>Theo van den Hoven</b> Netherlands 14:15 Framing the issue – how to organise innovation <b>Theo van den Hoven</b> Netherlands 14:25 How to develop a strategic research agenda <b>Mike Farrimond</b> UK 14:40 Ways to support innovation and research collaboration <b>Ross Young</b> Australia 14:55 From knowledge to know-how – the utility practice <b>Jean-Marc Jahn</b> Algeria 15:10 Discussion and summary <b>Frans Schulting</b> Netherlands	
15:45 – 16:15 Afternoon break		Exhibition	
16:15 – 17:00 KEYNOTE ADDRESS Recovering water services post-earthquake <b>Pedro Pablo Errázuriz</b> Chile Introduced by <b>Bernard Guirkingier</b> SUEZ ENVIRONNEMENT		Room 17	
17:00 – 19:00 Special viewing of poster presentations		Exhibition	





<b>08:15 – 09:00 KEYNOTE ADDRESS</b> <b>Cities of the future in today's developing countries</b> <b>Bill Cosgrove</b> Canada <i>Introduced by</i> <b>Michael Norton</b> Halcrow		<b>Room 17</b>
<b>09:15 – 10:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 11</b> <b>W Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes 1</b> <b>Chair</b> <b>Zbigniew Lewandowski</b> US 09:15 Biofilm fundamentals <b>Zbigniew Lewandowski</b> US 09:35 Biofilm-related microbial ecology <b>Stefan Wuerzt</b> US 09:55 Undesirable formation of biofilms – the role of biofilms in membrane biofouling <b>Roger Ben Aim</b> France 10:15 Discussion		<b>09:15 – 10:45</b> <b>MANAGING UTILITIES AND THEIR ASSETS</b> <b>Room 12</b> <b>Consumer concerns and economic considerations</b> <b>Chair</b> <b>Renato Parena</b> Italy 09:15 Introduction 09:20 Safe, better tasting tap water project – succession of safe and better tasting water to the next generation <b>Masato Okuhara</b> Japan 09:40 House buyer perceptions – the value of water and greywater recycling systems <b>Melanie Muro</b> UK 10:00 Simulating the impact of pricing policies on urban water demand – a southern France case study <b>Rinaudo Jean-Daniel</b> France 10:20 Savings sharing and performance-based contracts for water efficiency – finding the appropriate technical and financial resources to improve water supplies <b>Jan G Janssens</b> Switzerland 10:40 Closing summary
<b>10:45 – 11:15 Morning break</b>		<b>Exhibition</b>
<b>11:15 – 12:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 11</b> <b>W Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes 2</b> <b>Chair</b> <b>Joshua Boltz</b> US 11:15 Mechanisms for emerging biofilm control paradigm – quorum signal mediated dispersion <b>Chung-Hak Lee</b> Korea 11:35 Biofilm models for the practitioner <b>Eberhard Morgenroth</b> Switzerland 11:55 15 years of additional advances in aerobic biofilm reactors <b>Valentine Lazarova</b> France 12:15 Discussion		<b>11:15 – 12:45</b> <b>MANAGING UTILITIES AND THEIR ASSETS</b> <b>Room 12</b> <b>Demand management, water conservation and metering</b> <b>Chair</b> <b>Francis Cubillo</b> Spain 11:15 Introduction 11:20 Water loss programmes to reduce real losses in the City of Johannesburg <b>Etienne Hugo</b> South Africa 11:40 Domestic water demand forecasting based on questionnaire and measurement survey in Japan <b>Toshiyuki Shimizu</b> Japan 12:00 Providing water services rather than water for cities <b>Daniel Villessot</b> France 12:20 A comprehensive approach for estimating non-revenue water in urban water supply systems <b>Harrison Emmanuel Mutikanga</b> Uganda 12:40 Closing summary
<b>12:45 – 14:15 Lunch</b>		<b>Exhibition</b>
<b>14:15 – 15:45</b> <b>SCIENCE AND APPLICATION OF WATER TREATMENT</b> <b>Room 11</b> <b>W Biofilms in engineered systems – ecological fundamentals and perspectives on the design and operation of reactor and membrane processes 3</b> <b>Chair</b> <b>Zbigniew Lewandowski</b> US 14:15 MBBR and IFAS processes <b>Joshua Boltz</b> US 14:35 Aerobic biofilters <b>Kim Sorensen</b> France 14:55 Denitrification filters <b>Chris deBarbadillo</b> US 15:15 Discussion		<b>14:15 – 15:45</b> <b>SECURING NEW AND TRADITIONAL WATER RESOURCES FOR THE FUTURE</b> <b>Room 12</b> <b>Water conservation and reuse</b> <b>Chair</b> <b>Franciso Cubillo</b> Spain 14:15 Introduction 14:20 Role and sustainability of bank filtration and artificial recharge for drinking water production in a partially closed water cycle <b>Gesche Joy Gruetzmacher</b> Germany 14:40 Water and energy link in the cities of the future – achieving a net zero carbon and pollution emissions footprint <b>Vladimir Novotny</b> US 15:00 Benchmark study on a novel integrated assessment methodology of urban water reuse <b>Huu Hao Ngo</b> Australia 15:20 From vision to reality – implementing sustainable recycled water management on the northern Gold Coast <b>Guillermo Capati</b> Australia 15:40 Closing summary
<b>15:45 – 16:15 Afternoon break</b>		<b>Exhibition</b>
<b>16:15 – 17:00 KEYNOTE ADDRESS</b> <b>Recovering water services post-earthquake</b> <b>Pedro Pablo Errázuriz</b> Chile <i>Introduced by</i> <b>Bernard Guirkingner</b> SUEZ ENVIRONNEMENT		<b>Room 17</b>
<b>17:00 – 19:00 Special viewing of poster presentations</b>		<b>Exhibition</b>



<b>08:15 – 09:00 KEYNOTE ADDRESS</b> <b>Cities of the future in today's developing countries</b> <b>Bill Cosgrove</b> Canada <i>Introduced by</i> <b>Michael Norton</b> Halcrow		<b>Room 17</b>
<b>09:15 – 10:45</b> <b>WATER, CLIMATE AND ENERGY</b> <b>Room 13</b> <b>Safety and security, including flooding</b> <b>Chair</b> <b>Karsten Arnbjerg-Nielsen</b> Denmark 09:15 Introduction 09:20 Developing a new approach to the management of urban drainage systems – the UK response to recent severe surface water flooding <b>Elliot Gill</b> UK 09:40 A comprehensive, city-wide platform for accessing data and communicating with security and water quality monitoring systems <b>Dan Kroll</b> US 10:00 Emergency planning for traffic management in case of disruption caused by floods <b>Nilo de Oliveira Nascimento</b> Brazil 10:20 Israel's case study on water security as a useful resource – the Israeli holistic approach <b>Rani Weinberg</b> Israel 10:40 Closing summary		
	<b>09:15 – 10:45</b> <b>MANAGING UTILITIES AND THEIR ASSETS</b> <b>Room 14</b> <b>W Workforce development – an international perspective</b> <b>Chair</b> <b>Cheryl Davis</b> US, <b>Tobias Barnard</b> South Africa 09:15 Opening and introduction <b>Cheryl Davis</b> US 09:20 Young water professionals' expectations of the water sector <b>Rita Henderson</b> Australia 09:40 Mind the gap! Do we have the skills to meet the MDG targets in Asia and Africa? Initial findings <b>Darren Saywell</b> Netherlands 09:45 Questions from the floor 09:55 Water utility workforce development in the US <b>Linda Reekie</b> US 10:05 What is Spain doing to develop its workforce? <b>Francisco Cubillo</b> Spain 10:15 Developing water utility human resources – latest trends in Australia <b>Glenn Wilson</b> Australia, <b>Tom Mollenkopf</b> Australia 10:25 Workforce development in South Africa – Rand Water's initiative <b>Hamanth Kasan</b> South Africa 10:35 Panel discussion	
<b>10:45 – 11:15 Morning break</b>		<b>Exhibition</b>
<b>11:15 – 12:45</b> <b>MANAGING UTILITIES AND THEIR ASSETS</b> <b>Room 13</b> <b>Disaster preparedness – training and education</b> <b>Chair</b> <b>Conceicao Almeida</b> Portugal 11:15 Introduction 11:20 Emergency response for water supply utilities based on management by objectives after earthquake disasters <b>Nagahisa Hirayama</b> Japan 11:40 The water paradigm shift – challenges and tools for young and experienced water professionals <b>Jose C Porro</b> US 12:00 An operative warning system of rainfall-triggered landslides at Manizales, Colombia <b>Jorge Julián Vélez</b> Colombia 12:20 Jordan's successful training and certification program <b>Kenneth Donald Kerri</b> US 12:40 Closing summary		
	<b>11:15 – 12:45</b> <b>MANAGING UTILITIES AND THEIR ASSETS</b> <b>Room 14</b> <b>W Workforce development – an international perspective</b> <b>Chair</b> <b>Cheryl Davis</b> US, <b>Tobias Barnard</b> South Africa 11:15 Welcome back and highlights of part 1 <b>Cheryl Davis</b> US 11:30 Break-out group discussions of workforce development strategies: <ul style="list-style-type: none"> <li>• developing, finding and retaining the right people</li> <li>• providing staff with the information they need to do quality work</li> <li>• modifying work processes to optimise use of staff</li> <li>• maximising cost-effectiveness of workforce development efforts through collaboration.</li> </ul> 12:15 Report back 12:35 Next steps and close <b>Cheryl Davis</b> US	
<b>12:45 – 14:15 Lunch</b>		<b>Exhibition</b>
<b>14:15 – 15:45</b> <b>SECURING NEW AND TRADITIONAL WATER RESOURCES FOR THE FUTURE</b> <b>Room 13</b> <b>Drinking stormwater – a feasible path?</b> <b>Chair</b> <b>Mooyoung Han</b> Korea 14:15 Introduction 14:20 Twenty years of stormwater harvesting in urban catchments – Singapore's experience <b>Mong Hoo Lim</b> Singapore 14:40 Stormwater harvesting to augment drinking water in a regional town of Australia <b>Martin Haege</b> Australia 15:00 Centralised urban stormwater harvesting for potable reuse <b>Ebony Heslop</b> Australia 15:20 Effects of rainwater harvesting on centralised urban water supply utilities <b>Camille Grandet</b> France 15:40 Closing summary		
	<b>14:15 – 15:45</b> <b>INDUSTRY FORUM PRESENTED BY HALCROW</b> <b>Room 14</b> <b>Sustainable investment in infrastructure assets</b> 14:15 Globally there is increasing pressure on capital and operational budgets for water and wastewater utilities. In the US, this is set within the context of increasing concern over the current and future state of the country's infrastructure assets. Utilities have to become smarter about their investment decisions, balancing capital and operational expenditure, identifying and targeting sustainable investment at the right projects and delivering levels of service whilst putting increasing pressure on the existing asset base. This Forum will discuss best practice for investment optimization, exploring the approaches, techniques and tools available and identifying their range of application.	
<b>15:45 – 16:15 Afternoon break</b>		<b>Exhibition</b>
<b>16:15 – 17:00 KEYNOTE ADDRESS</b> <b>Recovering water services post-earthquake</b> <b>Pedro Pablo Errázuriz</b> Chile <i>Introduced by</i> <b>Bernard Guirkingner</b> SUEZ ENVIRONNEMENT		<b>Room 17</b>
<b>17:00 – 19:00 Special viewing of poster presentations</b>		<b>Exhibition</b>



<b>08:15 – 09:00 KEYNOTE ADDRESS</b> <b>Cities of the future in today's developing countries</b> <b>Bill Cosgrove</b> <i>Canada</i> <i>Introduced by</i> <b>Michael Norton</b> <i>Halcrow</i>		<b>Room 17</b>
<b>09:15 – 10:45</b> <b>WATER, ECOSYSTEMS AND CATCHMENTS</b> <b>Room 15</b> <b>Assessment of anthropogenic impacts 1</b> <b>Chair</b> <b>Harry Zhang</b> <i>US</i> 09:15 Introduction 09:20 Social benchmarking to improve river ecosystems <b>John Cary</b> <i>Australia</i> 09:40 Simplification of sampling macroinvertebrates for urban drainage purposes and its uncertainties <b>Gabriela Stastna</b> <i>Czech Republic</i> 10:00 Hydrologic, seasonal and management controls on phosphorus transfers in agricultural watersheds <b>Aubert Raymond Michaud</b> <i>Canada</i> 10:20 Use of anthropogenic gadolinium as a tracer for bank filtrate in drinking water wells <b>David Schwesig</b> <i>Germany</i> 10:40 Closing summary		<b>09:15 – 10:45</b> <b>INVITATION ONLY</b> <b>Room 16</b> <b>The challenges of sustainable metropolitan water utilities in the 21st Century – sustainability challenges facing metropolitan water governance</b> <b>Chair</b> <b>Ilan Juran</b> <i>US</i> 09:00 Introduction <b>Ilan Juran</b> <i>US</i> 09:05 Opening address 09:20 The emerging water-related imperatives that will shape the future of utilities and cities 09:35 Keynote – how the city should work to support a sustainable utility 09:45 Keynote – how the utility should work to support a sustainable city 09:55 Panel discussion – dialogue on emerging metropolitan priorities and sustainability policy 10:40 Closing summary
<b>10:45 – 11:15 Morning break</b>		<b>Exhibition</b>
<b>11:15 – 12:45</b> <b>WATER, ECOSYSTEMS AND CATCHMENTS</b> <b>Room 15</b> <b>Assessment of anthropogenic impacts 2</b> <b>Chair</b> <b>Maria Fürhacker</b> <i>Austria</i> 11:15 Introduction 11:20 Assessment of environmental flow alterations from 1961 to 2000 in the Yarlung Zangbo River, Tibet <b>He Chen</b> <i>PR China</i> 11:40 Spectrophotometric characterisation of human-impacted surface waters in the Moselle watershed <b>Marie-Noëlle Pons</b> <i>France</i> 12:00 Material flow of the river basin Moskva <b>Tatyana Rogozina</b> <i>Germany</i> 12:20 Simulated changes in water flows of the Mekong River from potential dam operations on an adjacent tributary <b>Thomas Cochrane</b> <i>New Zealand</i> 12:40 Closing summary		<b>11:15 – 12:45</b> <b>INVITATION ONLY</b> <b>Room 16</b> <b>The challenges of sustainable metropolitan water utilities in the 21st Century 2 – adaptation strategies and benchmarking measures</b> <b>Chair</b> <b>Ilan Juran</b> <i>US</i> 11:00 GHG mitigation – can the urban water system meet greenhouse gas mitigation targets? 11:20 Climate adaptation – can we adapt urban water systems for climate change? 11:45 Building cities with a broader range of objectives to meet climate change and water quality realities 11:40 Panel discussion – challenges and potential solutions 12:10 Financing urban water challenges to come – do we need a new business model? 12:40 Closing summary
<b>12:45 – 14:15 Lunch</b>		<b>Exhibition</b>
<b>14:15 – 15:00</b> <b>INDUSTRY FORUM PRESENTED BY GENESYS</b> <b>Room 15</b> <b>Recent innovations to keep membranes clean</b>  <b>15:00 – 15:45</b> <b>INDUSTRY FORUM PRESENTED BY SUEZ</b> <b>Room 15</b> <b>Towards contractual commitment for environmental performance</b> <b>Chair</b> <b>Henry Saint Bris</b> <i>France</i> Context Edelway, SUEZ ENVIRONNEMENT Commitment to improving environmental performance Tools CityBiose – Safège and O2C – Degrémont Experiences and success stories Degrés Bleus, Lyonnaise des Eaux; Fontainebleau, France, Degrémont		<b>14:15 – 15:45</b> <b>INVITATION ONLY</b> <b>Room 16</b> <b>The challenges of sustainable metropolitan water utilities in the 21st Century 3 – promoting innovative solutions and risk management strategies</b> <b>Chair</b> <b>Ilan Juran</b> <i>US</i> Panel discussion – focus on challenges ahead and strategic agenda 13:30 Ministerial panel discussion 14:00 Mixed panel of city officials 14:30 Roundtable discussion – groups will formulate recommendations for the way forward 15:15 Report back from mixed working groups with recommendations for the way forward by panels of mayors, finance executives and utility leaders Recommendations for path ahead in the context of the strategic agenda: <ul style="list-style-type: none"> <li>• promoting metropolitan priorities</li> <li>• benchmarking best practices to smart utility management</li> <li>• next meetings and workshops.</li> </ul> Closing comments
<b>15:45 – 16:15 Afternoon break</b>		<b>Exhibition</b>
<b>16:15 – 17:00 KEYNOTE ADDRESS</b> <b>Recovering water services post-earthquake</b> <b>Pedro Pablo Errázuriz</b> <i>Chile</i> <i>Introduced by</i> <b>Bernard Guirkingier</b> <i>SUEZ ENVIRONNEMENT</i>		<b>Room 17</b>
<b>17:00 – 19:00 Special viewing of poster presentations</b>		<b>Exhibition</b>





<b>08:15 – 09:00 KEYNOTE ADDRESS</b> <b>Cities of the future in today's developing countries</b> <b>Bill Cosgrove</b> Canada <i>Introduced by</i> <b>Michael Norton</b> Halcrow		<b>Room 17</b>
<b>09:15 – 10:45 WATER AND HEALTH</b> <b>W Challenging conventional paradigms of wastewater management – investing in wastewater management systems – societal and environmental benefits</b> <b>Chair</b> <b>Gerard Payen</b> France 09:15 Introduction 09:25 The imperative to manage wastewater – an international finance institute perspective <b>Graham Alabaster</b> Kenya 09:45 Sick water? The central role of wastewater management in sustainable development <b>David Osborne</b> Kenya 10:05 Fighting diarrheal diseases in developing countries – scaling up promising approaches <b>Alix Zwane</b> US 10:25 Moderated panel discussion	<b>Room 17</b>	<b>09:15 – 10:45 MENA REGIONAL FORUM</b> <b>Room 18</b> <b>Middle East and North Africa – regional and topical reviews</b> <b>Chair</b> <b>Phillipe Marin</b> World Bank 09:15 Introduction and MENA overview <b>Phillipe Marin</b> World Bank 09:35 Reflecting on a decade of evolution in the Moroccan water sector <b>Fouad Djerrari</b> Morocco 09:55 Demand management in the Middle East <b>Jim Franckiewicz</b> US 10:15 Non-revenue water reduction in MENA <b>Phillipe Marin</b> World BANK 10:25 Panel discussion
<b>10:45 – 11:15 Morning break</b>		<b>Exhibition</b>
<b>11:15 – 12:45 WATER AND HEALTH</b> <b>W Challenging conventional paradigms of wastewater management – integrated management of sanitation and water systems</b> <b>Moderator</b> <b>Piers Cross</b> South Africa 11:15 Introduction 11:25 Wastewater management systems in cities of the future <b>Kala Vairavamoorthy</b> UK 11:45 Ensuring that sanitation technologies meet local priorities in developing countries <b>Markus Starkl</b> Austria 12:05 Urban sanitation and wastewater reuse in agriculture – an urban planning perspective <b>Mark Redwood</b> Canada 12:25 Moderated panel discussion	<b>Room 17</b>	<b>11:15 – 12:45 MENA REGIONAL FORUM</b> <b>Room 18</b> <b>Middle East and North Africa – knowledge development and capacity building</b> <b>Chair</b> <b>Fouad Djerrari</b> Morocco 11:15 Introduction 11:20 Establishing a Middle East Regional Centre of Excellence on Water <b>John Wilson</b> US 11:35 Peer-to-peer capacity building between MENA utilities using WOPs <b>Faraj Al'Ewar</b> UNHABITAT 11:50 The KAUST Water Desalination and Reuse Centre – developing a strategic research agenda for the GCC and MENA regions <b>Gary Amy</b> Saudi Arabia 12:05 The importance of the Mediterranean Initiative for capacity development efforts in the MENA region <b>Fernando Rayon</b> Spain 12:20 Panel discussion
<b>12:45 – 14:15 Lunch</b>		<b>Exhibition</b>
<b>14:15 – 15:45 WATER AND HEALTH</b> <b>W Challenging conventional paradigms of wastewater management – integrated management of sanitation and water systems</b> <b>Moderator</b> <b>Jan Janssen</b> Switzerland 14:15 Introduction 14:25 Opportunities for decentralised wastewater management and reuse in eThekweni municipality, South Africa <b>Neil Macleod</b> South Africa 14:45 Practical uptake of resource-oriented approaches towards sustainable sanitation and wastewater management – experiences from the ROSA project <b>Gunter Langergraber</b> Austria 15:05 Innovative regulatory framework for incentivising wastewater treatment operators in Brazil <b>Marcos von Sperling</b> Brazil 15:25 Moderated panel discussion	<b>Room 17</b>	<b>14:15 – 15:00 INDUSTRY FORUM PRESENTED BY CANADIAN UTILITIES</b> <b>Room 18</b> <b>Regional and topical reviews</b> <b>Chair</b> <b>Duncan Ellison</b> Canada 14:15 Introduction – Canada's water and wastewater utilities – challenges and opportunities 14:25 Roundtable discussion with representatives of Canada's leading utilities
<b>15:45 – 16:15 Afternoon break</b>		<b>Exhibition</b>
<b>16:15 – 17:00 KEYNOTE ADDRESS</b> <b>Recovering water services post-earthquake</b> <b>Pedro Pablo Errázuriz</b> Chile <i>Introduced by</i> <b>Bernard Guirking</b> SUEZ ENVIRONNEMENT		<b>Room 17</b>
<b>17:00 – 19:00 Special viewing of poster presentations</b>		<b>Exhibition</b>