

# 2014 WEC Mexico Summary Conference Programme

Please note that this version has been last updated on May 20th 2014.

## Tuesday, 20<sup>th</sup> May 2014

0800 – 1700 **Technical Tour**  
*Atotonilco Wastewater Treatment Plant*

0900-1700

## Wednesday, 21<sup>st</sup> May 2014

0900-1000

**Plenary 1 – Water & Energy: Water – Energy Efficiency**  
*Room: Don Diego 2 and 3*

Moderator: Victor Alcocer Yamanaka, IMTA, Mexico  
Keynote: Daniel Nolasco, Nolasco Associates, Argentina  
Panellists: Guillermo Bravo, Abengoa, Spain; Fernando R Miralles-Wilhelm, IADB, USA

1000-1030

**Break**

1030-1130

**Opening Ceremony**

1130-1230

**Plenary 2 - Climate Variability & Water Security**  
*Room: Don Diego 2 and 3*

Moderator: Roberto Olivares, ANEAS, Mexico  
Keynote: David Korenfeld, CONAGUA, Mexico  
Panellists: Juan Manuel Caballero, Servicio Meteorológico Nacional (SMN), Mexico; Max Campos, Organization of American States, USA; Ger Bergkamp, IWA, The Netherlands;

1230-1400

**Break**

Exhibition

## Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

### Benchmarking, Monitoring & Measuring Water - Energy Interactions

Room: Don Diego 2

**Chair:** Rubén Morales Pérez, IMTA (Mexico)

- Introduction from the Chair
- Design and implementation of a resource consumption benchmarking system for wastewater treatment plants - [Edelle Doherty, National University of Ireland, Galway \(Ireland\)](#)
- Water Footprint in the food industry: cases studies about ice cream and refrigerated desserts - [Javier Aylwin, Poch Ambiental \(Chile\) \[Original Text in Spanish\]](#)
- An analysis of greenhouse gas (GHG) emission of supply chain activities of a Brazilian water and wastewater company - [Jamile Santos, Universidade Federal da Bahia \(Brazil\)](#)
- Benchmarking On Pumping Energy Efficiencies -- Portugal's Experience 2004 - 2012 - An Exportable Set Up - [Rita Cavaleiro, GIZ Mexico \(Mexico\)](#)

## Workshop

### Young Water Professionals - entrepreneurial approaches to increase water security in peri urban areas

Room: Don Diego 1

(Co-convened by IWA Mexico, IWA YWP & The Water Youth Network)

**Chair:** Ivan Moreno (UNAM)

**Keynote/Panellists:** Luca di Mario (Student-Italy), David Vargas (Isla Urbana - Mexico), Monica Guadalupe Ortega (UNAM), Daniel Nolasco (NOLASCO y Asociados S. A. - Argentina), Alejandra Fonseca (Student at Institute of Ecology, UNAM - Mexico)

### Workshop overview

Water security is becoming one of the largest problems in urban areas worldwide. As a matter of fact urbanization itself is contributing to water stress; population growth, inadequate planning, pollution, poverty, and competing demands. The marginalized in these urban areas are facing the most significant challenges.

Many efforts are taken by Young Leaders, to initiate sustainable (business) projects to address these challenges and increase access to water, enhance planning of water infrastructure, and improve water management in such ways that the urban poor can benefit from them

The session aims to provide an interactive and participatory space for knowledge transfer and sharing experience among the leading young- and senior water professionals, which can result in a greater and better ability to develop projects that provide inputs to increase water security around the world.

## Optimising water cycle management for securing urban and industrial water supplies

### Optimizing storm water opportunities usage for urban development

Room: Don Diego 3

**Chair:** Gunilla Öberg, University of British Columbia (Canada)

- Introduction from the Chair
- Storm water treatment systems in Downtown Monterrey for irrigation and flood mitigation - [Sebastián Serrano, Soluciones Hidropluviales \(Mexico\) \[Original Text in Spanish\]](#)
- Urban Runoff As An Alternative Source Of Municipal Water - [Joyce Ortiz Hernández Ciudad Universitaria \(Mexico\)](#)

## Workshop

### Wastewater Treatment In A Changing Climate Room: Don Genaro

(Convened by AMICA-AIDIS)

**Chair:** Dr. Adalberto Noyola, Instituto de Ingeniería UNAM (México).

### Keynote/Panellists:

- *Municipal wastewater treatment in Latin America: an opportunity for GHG emissions reduction in the region* - Leonor Patricia Güereca, Instituto de Ingeniería UNAM, México.
- *GHG emissions and energy efficiency in the urban water cycl* - Kees Roest, KWR Watercycle Research Institute, The Netherlands.
- *Biogas and other energy carriers as an asset for more sustainable wastewater management* - Alexander Meneses, Universidad Nacional de Colombia, Colombia.
- Panel discussion

### Workshop overview

Wastewater treatment contributes 3 to 5% of global greenhouse gases emissions (GHG). In developing countries, there is a serious lack of municipal wastewater treatment facilities. Sound decisions on selecting treatment technologies must consider not only conventional economic and technical factors, but also social and sustainable criteria. The different carbon footprints associated with each treatment processes and the potential for resource recovery from the wastewater are examples of such criteria.

A description of the status of wastewater treatment in Mexico and Latin America will be presented, followed by information of methane emission factors and other environmental impacts from several available treatment technologies. Also, the carbon footprint of the urban water cycle will be discussed together with opportunities for more efficient energy use and GHG mitigation actions in urban areas. Finally, methane, bio-hydrogen and micro-algae will be addressed as an energy resource from waste; transforming an environmental threat into an opportunity for more sustainable wastewater management.

<p>1600-1730</p>	<p><b>Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities</b></p> <p><i>Innovative Technologies &amp; Processes For Urban &amp; Industrial Water</i> Room: Don Diego 2</p> <p><b>Chair :</b> Alejandra Martín Domínguez, IMTA (Mexico)</p> <ul style="list-style-type: none"> <li>• Introduction from the Chair</li> <li>• Towards Energy-positive Wastewater Treatment By High Loaded A-stage And Activated Sludge Retention By Dynamic Filtration At Super-critical Fluxes - <a href="#">Kees Roest, KWR Watercycle Research Institute (Netherlands)</a></li> <li>• Calorific Value Quantification Of Biogas And Methane Produced By A Low-temperature UASB Reactor - <a href="#">Mario Esparza-Soto, Universidad Autonoma del Estado de Mexico (Mexico)</a></li> <li>• Optimization of solid content and microwave power to enhance readily biodegradable organics in the hydrolysis of livestock manure by dielectric heating - <a href="#">Jeongmin Lee, Pusan National University (Republic of Korea)</a></li> <li>• Microalgae In Nabor Carrillo Lake Suitable For Bioenergy Production - <a href="#">María Teresa Orta Ledesma, UNAM (Mexico)</a></li> </ul>	<p><b>Planning and infrastructure for a resilient water sector</b></p> <p><i>Strategies For Adapting The Agricultural Landscape To Changes In Water Availability And Climate</i> Room: Don Diego 1</p> <p>Chair: Katharine Cross, IWA (The Netherlands)</p> <ul style="list-style-type: none"> <li>• Introduction from the Chair</li> <li>• Managing climate change impacts on agriculture in Honduras - <a href="#">Matthew McCandless, International Institute for Sustainable Development (Canada)</a></li> <li>• Hydrologic vulnerability and food production: the case of Jalisco, Mexico- <a href="#">Fabiola Amaya, Universidad de Guadalajara, Centro Universitario de Ciencias Biológicas y Agropecuarias (Mexico) [Original Text in Spanish]</a></li> <li>• Sustainability of irrigated agriculture in the Yaqui River Basin, México - <a href="#">Jose Luis Minjares-Lugo, CONAGUA (Mexico)</a></li> <li>• Modelling the impact of climate on the financial vulnerability of farms –A Hoedspruit Irrigation Farm Case Study - <a href="#">Hamman Oosthuizen, Optimal Agricultural Business Systems [OABS] (South Africa)</a></li> </ul>	<p><b>Optimising water cycle management for securing urban and industrial water supplies</b></p> <p><i>Securing alternative water sources, including rainwater, reclaimed &amp; treated water</i> Room: Don Diego 3</p> <p><b>Chair:</b> Miguel Ángel Córdoba, IMTA (Mexico)</p> <ul style="list-style-type: none"> <li>• Introduction from the Chair</li> <li>• Augmenting Water Availability in High Plains of Mexico - <a href="#">Lucina Equihua, Degremont S.A. de C.V. (Mexico)</a></li> <li>• Alternative water sources for rural areas in Mexico using fog-catching system - <a href="#">Guillermo Cardoso-Landa, Instituto Tecnológico de Chilpancingo (Mexico) [Original Text in Spanish]</a></li> <li>• Urban Side Water Reuse Innovation And Technology Development Review And Future Needs <a href="#">David Smith, Water, Environment and Business for Development (Mexico)</a></li> <li>• Sustainable and renewable increase of groundwater reserves for human consumption to foster regional development and climate change mitigation - <a href="#">Nelson Arizmendi, ALFA (Mexico) [Original Text in Spanish]</a></li> </ul>	<p><b>Workshop</b></p> <p><b>Governance</b></p> <p><i>(Convened by the National Water Commission of Mexico, CONAGUA)</i> Room: Don Genaro</p>
<p>Evening</p>	<p>Reception</p>			

**Thursday, 22<sup>nd</sup> May 2014**

<p>0900-0945</p>	<p><b>Opening Plenary - Energy For Water: Building A Framework For The Future</b> Room: Don Diego 2 y 3</p> <p>Moderator: Ger Bergkamp, IWA, The Netherlands Keynote: Steven Kenway, University of Queensland, Australia Keynote: Enrique Cabrera, Universitat Politècnica de <i>Valencia</i>, Spain</p>				<p>Exhibition</p>
<p>0945-1015</p>	<p><b>Break</b></p>				

### Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

**Water, Energy & Raw Materials Recovery From Urban And Industrial Waste Water 1**  
Room: Don Diego 2

**Chair:** Kees Roest, KWR (The Netherlands)

- Introduction from the Chair
- Operation And Extension Of A Complex And Innovative Energy Recovery And Production System In A WWTP - [Eric FIEVEZ, Degrémont \(France\)](#)
- Methane Emissions By Management And Treatment Of Municipal Wastewater In Mexico: With Emphasis On Activated Sludge With Anaerobic Digestion - [María Paredes, UNAM \(Mexico\) TBC](#)
- Modelling Wastewater Temperature In Sewer Pipes - [Mohamad Abdel-Aal, University of Bradford \(United Kingdom\)](#)
- Temperature Variability In The Melbourne Water Network And The Impact On Residential Energy Use – [Steven Kenway, The University of Queensland \(Australia\)](#)

### Planning and infrastructure for a resilient water sector

**Managing Water Infrastructure and Technology to adapt to Changes in the Hydrologic Cycle 1**  
Room: Don Diego 1

**Chair:** Armin Munévar, CH2M Hill (USA)

- Introduction from the Chair
- Integrated planning for water infrastructure and urban planning [Original Text in Spanish] - [Francisco García Mier, CONURBA I+D \(Mexico\)](#)
- Evaluation of The Effect of Climate on Pear Crop Yield By Implementing System Of Drip Irrigation In Sesquilé (Colombia) - [Maria Arenas Bautista, Unisangil \(Colombia\)](#)
- Reduction of water over-consumption for irrigation in parks and gardens, ridges, football fields, green areas in public and private schools as for industrial and commercial purposes [Octavio Duran, Grupo Corporativo Ambiental \(Mexico\) \[Original Text in Spanish\] TBC](#)

### Optimising water cycle management for securing urban and industrial water supplies

**Economic challenges and solutions to improving water services**  
Room: Don Diego 3

**Chair:** Rita Cavaleiro de Ferreira (Portugal)

- Introduction from the Chair
- Financial System of Water (Wfs) - [Jorge Ojeda, CONAGUA \(Mexico\)](#)
- Water Efficiency For Economic Growth And Water Security - Case Of Croatia - [Ana-Maria Boromisa, Institute for Development and International Relations \(Croatia\)](#)
- Integrated Water Management to secure alternative sources in Mexico - [Francisco Muñoz, CONAGUA \(Mexico\) \[Original Text in Spanish\]](#)
- The Economic Valuation Of Environmental Services Of The Jungle In The Municipality Of Uxpanapa, Veracruz - [Alfredo Galan Bioeconomis Consultoría y Asesoría S.C.\(Mexico\) TBC](#)

### Workshop

**Energy assessment of pressurized systems (1<sup>st</sup> Part)**  
Room: Don Genaro

**Chair and Convener:** Enrique Cabrera, Professor of Fluid Mechanics, Universidad Politécnica de Valencia (Spain).

#### Workshop overview

Transport and distribution of pressurized water demands a large amount of energy but has potential to be more efficient. In developed countries, energy demand for pressurized water systems is above 2% of the total energy demand, reaching 6% in California and an intermediate value of 4-5% in the agricultural countries of southern Europe. During transport, water and energy losses such as leakage and system inefficiencies can be minimized. Analysing efficiency and assessing improvement margins are the first steps to achieving efficiency.

The workshop will provide information on objectives and concepts on the assessment of water pressurized systems. Participants will be guided in the process of performing calculations that will indicate where are the main energy savings –pumping station, leaks, and friction or, simply, an inconvenient lay out of the system. This will be followed by a hands-on session where the workshop tools will be applied to real case studies that can be supplied by the attendants.

**Important Information:** Participants need to come with a computer. Case studies can be provided by participants if they contact the workshop organisers at least day in advance.

1145-1315

### Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

#### Water, Energy & Raw Materials Recovery From Urban And Industrial Waste Water 2

Room: Don Diego 2

**Chair:** Andrés Rojo, GIZ (Mexico)

- Introduction from the Chair
- Novel treatment of municipal wastewater for water reuse with green coffee bean microbial consortium and Nano-TiO<sub>2</sub>/UV photocatalysis - [Flor Garcia Becerra, CINVESTAV \(Mexico\)](#)
- Ammoniac organic production out of human urine to reduce energy consumption - [Belem Espinosa, Universidad Autónoma Metropolitana \(Mexico\) \[Original Text in Spanish\]](#)
- Bio-hydrogen Production From Industrial Wastewaters - [Iván Moreno-Andrade, Instituto de Ingeniería, UNAM \(Mexico\)](#)
- Energy And Carbon Footprints Of Different Technologies For Energy Recovery From Wastewater Of The Vietnamese Seafood Processing Industry – [Mr Henri Dziomba, Leibniz University Hannover \(Germany\)](#)

### Planning and infrastructure for a resilient water sector

#### Managing Water Infrastructure and Technology to adapt to Changes in the Hydrologic Cycle 2

Room: Don Diego 1

**Chair:** Armin Munévar, CH2M Hill (USA)

- Introduction from the Chair
- Long-term Water Supply Planning With Multi-criteria Decision Analysis - [Lisa Scholten, Eawag: Swiss Federal Institute of Aquatic Science and Technology \(Switzerland\)](#)
- Global Nutrient Emissions Will Increase With Demographic And Economic Growth And Improvement Of Sanitation - [P.J.T.M. Puijenbroek, PBL Netherlands Environmental Assessment Agency \(Netherlands\)](#)
- Hydraulic transients problems for large cities drainage – [Mr Jose Barrera Pérez, Barrera Consultores \(Mexico\) \[Original Text in Spanish\]](#)

### Workshop

#### IWA Mexico: Planning and decision making support tools to improve responses to climate variability including floods and droughts in Mexico

Room: Don Diego 3

(Convened by IWA Mexico)

#### Speakers and Panellists

Adalberto Noyola Robles, Director of Institute of Engineering of National Autonomous University of Mexico (II-UNAM), Judith Dominguez Serrano, Manager of Legal Frame and Public Policies of National Water Comission (CONAGUA), Victor Hugo Alcocer Yamanaka, Hydraulic Coordinator of the Mexican Institute of Water Technology (IMTA).

#### Workshop overview

The session main objective is to present different approaches of decision making support tools, methods and projects designed to respond to extreme weather events, such as droughts and flood. The conjunction of these mechanism aims at finding the best solutions to tackle challenges related to climate variability.

### Workshop

#### Energy assessment of pressurized systems (2<sup>nd</sup> Part)

Room: Don Genaro

**Chair and Convener:** Enrique Cabrera, Professor of Fluid Mechanics, Universidad Politécnica de Valencia (Spain).

#### Workshop overview

Transport and distribution of pressurized water demands a large amount of energy but has potential to be more efficient. In developed countries, energy demand for pressurized water systems is above 2% of the total energy demand, reaching 6% in California and an intermediate value of 4-5% in the agricultural countries of southern Europe. During transport, water and energy losses such as leakage and system inefficiencies can be minimized. Analysing efficiency and assessing improvement margins are the first steps to achieving efficiency.

The workshop will provide information on objectives and concepts on the assessment of water pressurized systems. Participants will be guided in the process of performing calculations that will indicate where are the main energy savings –pumping station, leaks, and friction or, simply, an inconvenient lay out of the system. This will be followed by a hands-on session where the workshop tools will be applied to real case studies that can be supplied by the attendants.

**Important Information:** Participants need to come with a computer. Case studies can be provided by participants if they contact the workshop organisers at least day in advance.

1315-1430

Break/ Poster Session

## Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

### Optimization of energy & carbon efficiency in water services 1

Room: Don Diego 2

**Chair:** Daniel Nolasco, Nolasco Associates (Argentina)

- Introduction from the Chair
- Water Efficiency According To The LEED Program - [Carlos Munoz, Universidad de San Pedro Sula/Honduras \(United States\)](#)
- Bi-National Government Agency Promotes Energy Efficiency In Water And Wastewater Treatment - [Robert Lonergan, Tetra Tech, Inc. \(United States\)](#)
- Security In Future Drinking Water Supply And Energy Self-Sufficiency In The Future Waste Water Treatment Plant In Scandinavian's Most Innovative Water Utility - [Peer Locher, VCS Denmark Ltd. \(Denmark\)](#)
- Water, Energy and Ecosystems. The need for operational frameworks in early stages: Projects, Programmes, Policies - [Nelida Barajas, The Nature Conservancy \(Mexico\)](#) [Original Text in Spanish]

## Optimising water cycle management for securing urban and industrial water supplies

### Managing Water Demand To Improve Resource Sustainability Across Catchments And Their Cities

Room: Don Diego 3

**Chair:** Victor Alcocer Yamanaka, IMTA (Mexico)

- Introduction from the Chair
- Analysis Of Tunisia Water Footprint Of Consumption Based On Households Surveys - [Raoudha Gafrej, University Tunis El Manar \(Tunisia\)](#)
- Managing Water Use In Scarce Environments: A Global Catalogue Of Case Studies - [Vincent Lee, Ove Arup and Partners International Ltd \(United Kingdom\)](#)
- The Water Footprint Concept as a Tool to Rethink About Sustainability and Food Production in a Country with Severe Water Shortages - [Rita Vazquez, Water Technology Institute \(Mexico\)](#)
- Virtual Water in an Input-Output Framework in the Basin of Mexico - [Lilia Tapia, Universidad Autónoma Metropolitana \(Mexico\)](#)

## Workshop

### Water-Energy-Food Nexus – A strategy for future water security? (1<sup>st</sup> Part)

Room: Don Genaro

(Convened by IWA and GIZ)

**Chair:** Ger Bergkamp, Executive Director- IWA

#### Keynote/Panellists:

- Opening of the workshop – Dr. Luis Rendón Pimentel, Gerente de Distritos de Riego, CONAGUA
- Providing context – what is the nexus and how can it be a strategy for future water security - Katharine Cross, Programmes Coordinator - IWA
- How CONAGUA addresses the institutional linkages between agriculture, water and energy - Challenges and Opportunities - Dr. Luis Rendón Pimentel, Gerente de Distritos de Riego, CONAGUA
- Nexus in a transboundary context – Exploring the impacts on water security, how strategies also contribute towards climate change mitigation and adaptation - Robert Varady, Deputy Director and Research Professor of Environmental Policy Udall Center for Studies in Public Policy The University of Arizona (Past President, International Water History Association)
- Q&A and Discussion

#### Workshop overview

Addressing resource challenges within supply chains for water, energy and food security (the nexus) requires an approach which enables cross-sector connectivity, coordination and collaboration. Conventional approaches focusing just on water sector planning often are not able to effectively connect with the energy and food sectors. This workshop will examine how the water-energy-food nexus can provide opportunities for institutional collaboration as well as being an effective strategy for climate change mitigation and adaptation. The workshop will then explore practical cases of how coordinated investment and operation of existing and new infrastructure and technology (e.g. in utilities, irrigation schemes) can provide benefits across sectors.

The workshop will create momentum and engage water, energy and agriculture stakeholders in discussion on how institutional collaboration along with investments and operations across sectors can have multiple benefits while being cost effective.

1600-1630 Break

1630-1800

### Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

**Optimization of energy & carbon efficiency in water services 2**  
Room: Don Diego 2

**Chair:** Daniel Nolasco, Nolasco Associates (Argentina)

- Introduction from the Chair
- A High-Resolution Approach To Mapping Energy Flows through Water Infrastructure Systems - [Edward Spang, University of California Davis \(United States\)](#)
- Energy Cogeneration and Water Efficiency - [Hector de la O, Techmat \(Mexico\) \[Original Text in Spanish\]](#)
- A Tool For Minimizing The Energy Demand Of Drinking Water Well Fields - [Victor Philippon, Kompetenzzentrum Wasser Berlin gGmbH \(Germany\)](#)

### Policy and finance for energy and carbon neutrality

**Business Opportunities In Improving Water Efficiency & Water-Energy Efficiency In Industries & Cities**  
Room: Don Diego 1

**Chair:** Steven Kenway, University of Queensland (Australia)

- Introduction from the Chair
- Developing A Mexico Water, Energy, & Emissions Efficiency Program In Mexico: Experience & Lessons Learned - [Daniel White, Cambio Azul \(Mexico\)](#)
- Modelling Material And Substance Flows To Evaluate The Validity Of Business Models For Scaling Up Resource Recovery And Reuse In Cities In Developing Countries - [Luca Di Mario, University of Cambridge \(United Kingdom\)](#)
- Energy Conservation In Water Pumping: Pump Testing & Monitoring - [Fabian Papa, HydraTek & Associates Inc. \(Canada\)](#)

### Optimising water cycle management for securing urban and industrial water supplies

**Addressing water quality to secure water for multiple use**  
Room: Don Diego 3

**Chair:** Gabriela Mantilla, IMTA (Mexico)

- Introduction from the Chair
- Long-term Evaluation Of Eutrophication And Environmental Factors In Downstream Of The Nakdong River, South Korea - [Young woo Kim, Pusan National University \(Republic of Korea\)](#)
- Eutrophication feature extraction downstream of the Nakdong River according to change in hydraulic conditions - [Jisung Lim, Pusan National University \(Korea, Republic of\) TBC](#)
- Physical-chemical and bacteriological quality of rain water in UAM-AZc. Mexico City - [Clementina Ramirez-Cortina, Universidad Autonoma Metropolitana \(Mexico\) \[Original Text in Spanish\]](#)

### Workshop

**Water-Energy-Food Nexus – A strategy for future water security? (2<sup>nd</sup> Part)**  
Room: Don Genaro

(Convened by IWA and GIZ)

**Chair:** Ger Bergkamp, Executive Director- IWA

#### Keynote/Panellists:

- How utilities are addressing the Water-Energy-Food Nexus (e.g. energy efficiency, resource recovery, etc) - [Ricardo Sandoval](#)
- Water- Energy Nexus: Practical examples of water-energy cost effective technology and processes - [Manuel Contijoch, Vice President Strategic Relations North America](#)
- The costs and benefits of different agriculture and irrigation technologies and the impact on water, food and energy - [Olga Xóchitl Cisneros Estrada – IMTA](#)
- Panel discussion
- Conclusions – Way forward

#### Workshop overview

Addressing resource challenges within supply chains for water, energy and food security (the nexus) requires an approach which enables cross-sector connectivity, coordination and collaboration. Conventional approaches focusing just on water sector planning often are not able to effectively connect with the energy and food sectors. This workshop will examine how the water-energy-food nexus can provide opportunities for institutional collaboration as well as being an effective strategy for climate change mitigation and adaptation. The workshop will then explore practical cases of how coordinated investment and operation of existing and new infrastructure and technology (e.g. in utilities, irrigation schemes) can provide benefits across sectors.

The workshop will create momentum and engage water, energy and agriculture stakeholders in discussion on how institutional collaboration along with investments and operations across sectors can have multiple benefits while being cost effective.

2000-2200 Conference Gala Dinner

Friday, 23<sup>rd</sup> May 2014

## Opening Plenary - Adaptation to climate variability and change in the water sector in Latin America

Room: Don Diego 2 y 3

0900-0945

Moderator: Ricardo Sandoval Minero, Mexico

Keynote: Zelmira May, UNESCO

Panellists: Armin Munevar, CH2M Hill, USA; Eleanor Allen, ARCADIS, USA, Ramón Aguirre, SACMEX, Mexico

0945-1015

Break

1015-1145

### Planning and infrastructure for a resilient water sector

#### Modelling trends in hydro-climatic variables & responses to extreme climatic events

Room: Don Diego 1

Chair: Ray Earle, EBRD (Ireland)

- Introduction from the Chair
- Climate Change Scenarios Of Coastal Aquifer Systems in Northwest Mexico - Jaime Garatuza-Payan, Instituto Tecnológico de Sonora (Mexico)
- Using High Resolution Precipitation Fields To Assess The Impacts Of Climate Change On The Mountain Front Recharge In The Transboundary Santa Cruz And San Pedro River Basins - Agustin Robles-Morua, Instituto Tecnológico de Sonora [ITSON] (Mexico)
- Integrated Yautepec River Basin Management With Reduction Of Water Related Carbon Footprints - Ursula Oswald Spring, Regional Center for Multidisciplinary Research, UNAM (Mexico)

### Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities

#### Advances in energy recovery from wastewater

Room: Don Diego 2

Chair: Marco Garzón, IMTA (Mexico)

- Introduction from the Chair
- Comparative LCA To Elucidate Opportunities For Biogas From Wastewaters In Colombia - Alexander Meneses, Universidad Nacional de Colombia - Sede Medellín (Colombia)
- Use of sewage sludge in the generation of biogas and fermented substrate to close the urban water cycle: The case of Pitar Nuevo Laredo, Tamaulipas - Perla Blanco, Colegio de la Frontera Norte (Mexico) [Original Text in Spanish]
- Biohydrogen Production From Tequila Vinasse Using A Fixed Bed Reactor - Prof. Zhang Axue, Universidad Nacional Autonoma de Mexico (Mexico)
- Energy recovery out of Organic Fraction of Municipal Solid Waste (OFMSW) and municipal wastewater (MWW) - Reyna Rodríguez, Universidad Autónoma Metropolitana (Mexico) [Original Text in Spanish]

### Workshop

#### Energy efficiency and non-revenue water

Room: Don Diego 3

(Convened by the InterAmerican Development Bank)

Chair: Maria Eugenia de la Peña (IDB)

Keynote/Panellists: Sergio Campos (Division Chief Water & Sanitation, IDB, Washington), Rodrigo Riquelme (Water & Sanitation Senior Specialist, IDB, Washington), Arturo Pedraza (Executive Director, Watergy, México)

#### Workshop overview

The purpose of this session is to present the benefits of optimizing the operation of water and sanitation systems to improve finances of the water operator and to improve the service that the end users receive, as well as the contribution of these actions to mitigate greenhouse gas emissions. Additionally, the importance of considering *non-revenue* water reduction in energy efficiency projects in order to use water efficiently will be mentioned.

### Workshop

#### Multiple Facets Of Climate Adaptation For Cities: Sea Level Rise, Water Supply & Energy Use (1<sup>st</sup> Part)

Room: Don Genaro

(Convened by ARCADIS)

Chair: Eleanor Allen (Director Global Water, ARCADIS)

Keynote/Panellists:

- Flood Risk Management: An Integrated Approach for Tabasco - David Rodriguez (Minister of Economic Development & Tourism, Villahermosa, Tabasco, Mexico),
- Climate Change and Urban Growth Impacts for Water Supplies - Melissa Moran (Global Leader Treatment, ARCADIS),
- Reducing Utility Energy Consumption to Save Money While Reducing GHG Emissions: Case Study from the Puerto Rico Water & Sewer Authority - Eleanor Allen (Global Business Leader - Water, ARCADIS)

#### Workshop overview

Climate change and our need for water are inextricably linked. The rising sea levels threatened some of the world's most densely populated areas with too much water, while shifting weather patterns are changing the availability of our water supplies. At the same time, pumping water – one of the most important tools for managing water – is one of the most energy-intensive investments in urban areas today.

As leaders in the water industry, we will need to help determine where it is best to help mitigate climate change, and when we must prepare to adapt to climate change. The panel discussion will be designed to discuss ideas for both approaches (mitigation and adaptation) and develop a list of approaches to water management that cities might undertake to adapt, mitigate or both.



1145-1315

**Planning and infrastructure for a resilient water sector**

**Tools & decision support systems to improve responses to climate impacts 1**  
Room: Don Diego 1

**Chair:** Carlos Mariano Romero , IMTA (Mexico)

- Introduction from the Chair
- Analysis Of Climate Variability In The Central Basin Of The Gulf Of Mexico - [Bianca García, Universidad Veracruzana \(Mexico\)](#) TBC
- Collaborative Water Resources Decision-Making Through Participatory Modelling In The Rio Sonora Basin, Mexico - [Alex Mayer, Michigan Technological University \(United States\)](#)
- Kalman Filter Applied In Watersheds To Climatic Variability - [Ricardo Perez Indoval, Universidad Veracruzana \(Mexico\)](#) TBC
- Environmental Flow For The Integrated Catchment Management With Climate Change - [Rebeca Gonzalez-Villela, Mexican Institute of Water Technology \(Mexico\)](#)

**Urban Water – Energy Neutrality Through Efficient Utilities, Industries And Cities**

**Exploring The Water-Energy Nexus**  
Room: Don Diego 2

**Chair:** Andrés Rojo, GIZ (Mexico)

- Introduction from the Chair
- Solar power implementation in the water sector in 'Los Alisos' case study - [Luis López Ortiz, CONAGUA \(Mexico\)](#) [Original Text in Spanish]
- Modelling Residential Water, Energy, Carbon Footprint And Costs In California - [Alvar Escriva-Bou, UC DAVIS – UPV \(United States\)](#)
- Brine management - [Mónica López-Ortega, UNAM \(Mexico\)](#) .[Original Text in Spanish]

**Optimising water cycle management for securing urban and industrial water supplies**

**Managing water demand and trade-offs for multiple uses**  
Room: Don Diego 3

**Chair:** Robert Varady, University of Arizona (USA)

- Introduction from the Chair
- Colorado River Basin Supply And Demand Study -- Integrating Climate, Water, Energy, And The Environment In Long-Term Planning In The Face Of Uncertainty - [Armin Munevar, CH2M HILL \(United States\)](#)
- Forecasting Seasonal Water Supply Risk To Electric Power Generation In The Kankakee Basin - [Eugene Brantly, RTI International \(United States\)](#)
- Integrated Urban Water Management Capacity Building To Empower The Local Action In Latin America - [Edgar Villaseñor, ICLEI-Gobiernos Locales por la Sustentabilidad \(Mexico\)](#)

**Workshop**

**Multiple Facets Of Climate Adaptation For Cities: Sea Level Rise, Water Supply & Energy Use (2<sup>nd</sup> Part)**  
Room: Don Genaro

(Convened by ARCADIS)

**Chair:** Eleanor Allen (Director Global Water, ARCADIS)

**Keynote/Panellists:**

- Flood Risk Management: An Integrated Approach for Tabasco - David Rodriguez (Minister of Economic Development & Tourism, Villahermosa, Tabasco, Mexico),
- Climate Change and Urban Growth Impacts for Water Supplies - Melissa Moran (Global Leader Treatment, ARCADIS),
- Reducing Utility Energy Consumption to Save Money While Reducing GHG Emissions: Case Study from the Puerto Rico Water & Sewer Authority - Eleanor Allen (Global Business Leader - Water, ARCADIS)

**Workshop overview**

Climate change and our need for water are inextricably linked. The rising sea levels threatened some of the world's most densely populated areas with too much water, while shifting weather patterns are changing the availability of our water supplies. At the same time, pumping water – one of the most important tools for managing water – is one of the most energy-intensive investments in urban areas today.

As leaders in the water industry, we will need to help determine where it is best to help mitigate climate change, and when we must prepare to adapt to climate change. The panel discussion will be designed to discuss ideas for both approaches (mitigation and adaptation) and develop a list of approaches to water management that cities might undertake to adapt, mitigate or both.

1315-1430

**Break**

1430-1600

**Planning and infrastructure for a resilient water sector**

**Tools & Decision Support Systems to Improve Responses to Climate Impacts 2**  
Room: Don Diego 1

**Chair:** M. A. Raúl Saavedra Horita - IMTA (Mexico)

- Introduction from the Chair
- Implementation of integrated methodology for analysis of flooding from overflowing rivers - [Guillermo Cardoso-Landa, Instituto Tecnológico de Chilpancingo \(Mexico\)](#) [Original Text in Spanish]
- Drought Impacts And The Security Of Wyoming's Future Water Resources: Online Decision Making Tools For Multiple Water Use Sectors - [Christopher Nicholson, University of Wyoming \(United States\)](#)
- Global Model (MOHYSE) A New Tool To Assess The Effect Of Hydro-meteorological Phenomena In Tropical Zones - [Sara Ibarra, Universidad Veracruzana \(Mexico\)](#) TBC

**Workshop**

**North American Climate Service Partnership (NACSP)-Drought Monitor**  
Room: Don Genaro

(Convened by CONAGUA, NOAA)

**Co-Chairs:** Mercedes Andrade (CONAGUA), Brenda Bello (CONAGUA), Héctor Robles (CONAGUA), Meredith Muth (NOAA)

**Keynote/Panellists:** Jorge Luis Vázquez (assistant director of National Meteorological Service from Mexico), Reynaldo Pascual (project manager of National Meteorological Service from Mexico), Adelina Albanil (project manager of National Meteorological Service from Mexico), Carlos Dobler (Agri-food and Fisheries Service Information from Mexico .)

To address the growing need of climate services at the North American scale, a Statement of Intent (SOI) was signed in January 2012 between the United States National Oceanic and Atmospheric Administration (NOAA), the Meteorological Service of Canada and the National Meteorological Service of Mexico. This SOI established the North American Climate Services Partnership (NACSP). The intention of the NACSP is to facilitate the exchange of information, technology and management practices related to the development of climate information and the delivery of integrated climate services for North America.

The purpose of this seminar is to introduce the NACSP project to the different communities related with water resources. It is focused on highlighting how Mexico benefits (and contributes to) trans-boundary partnerships for planning and preparedness in the water sector, in particular to the drought. So, the expected outcomes is add more partnerships, the give to known the Mexican expert work in the theme and feedbacks to improve the mechanisms of collaboration and get more efficiency.

**Optimising water cycle management for securing urban and industrial water supplies**

**Governance And Institutional Arrangements For Urban & Watershed Drainage**  
Room: Don Diego 2

**Chair:** Judith Domínguez Serrano, CONAGUA (Mexico)

- Introduction from the Chair
- Solutions For Future Water Security: Integrated Water Resources Management Under A New Global Scenario - [Andrea Salinas, United Nations Environment Programme \(Panama\)](#)
- Assessing The Implementation Of The IWRM In The Basin Of Mexico: Advances, Obstacles, Challenges And Gaps - [Fabiola Sosa Rodriguez, Metropolitan Autonomous University \(Mexico\)](#)
- Integrated Development for water sustainability in the urban Mexican-West region - [José Elías Chedid, Fundación para el Desarrollo Sustentable, A.C. \(Mexico\)](#) [Original Text in Spanish]

**Policy and finance for energy and carbon neutrality**

**Policy and institutions to support the transition to cutting edge water/energy solutions**  
Room: Don Diego 3

**Chair:** Carolina Latorre, IWA (The Netherlands)

- Introduction from the Chair
- Environmental Policies To Climate Change In The State Of Oaxaca - [Oscar Mijangos-Ricárdez, Universidad de la Sierra Juárez \(Mexico\)](#)
- Mexico: An Open Market For Ontario Water Technologies? - [Jonathan Grant, WaterTAP Ontario \(Canada\)](#)
- Aquifer Management, Renewable Energy And Desalination For Baja Region, Mexico - [Andres Aranda, Aarhus University and University of Calgary \(Canada\)](#)

1600-1630

**Break**

**Closing Plenary - Mexico Water / Energy Optimization: Next Steps**

*Room: Don Diego 2 y 3*

**Moderator:** Ger Bergkamp, IWA

**Keynote Speaker:** Emiliano Rodríguez Briceño, CONAGUA

**Panel discussions**

Arturo Pedraza, Watergy  
Enrique Torres, SAPAL León  
Katharine Cross, IWA

**Closing speech**

Miguel Ángel Mancera, Mayor of Mexico City

1630-1800

Evening

### **Technical Tour - Atotonilco Wastewater Treatment Plant**

Date of Tour: Tuesday, May 20<sup>th</sup>, 2014

Time of Tour: 0800-1700

Pick up Location: Hotel Hilton Reforma

Duration of the tour: 3 hrs. Expected time from Hotel Hilton Reforma to the site: 2 hrs

Atotonilco Wastewater treatment plant is the largest in the country and Latin America. It will have a 23m<sup>3</sup>/s treatment capacity through Conventional Primary Processes (TPC, Spanish acronym) during the dry season and Chemical Processes (TPQ, Spanish acronym) during rainy season, and an additional module to treat 12 m<sup>3</sup>/s. This work will offer the following benefits:

- Improve the environmental and living conditions for the inhabitants of Hidalgo.
- Enable the treated water use in agriculture (retaining nutrients from wastewater but eliminating contaminants).
- Sanitation of soils in about 80,000 hectares of arable land in the Irrigation Districts.
- The gradual sanitation of the underlying aquifer in the irrigation area will be achieved for its possible use as a new source of drinking water.
- Increase the real state value of land and constructions located within the area of influence of the raw wastewater channels to be sanitised with the project.
- The plant will generate 70 percent of the electricity it consumes using methane gas produced in the wastewater treatment process.
- Reduction of greenhouse gas emissions.
- Generate 8,880 direct and 7,820 indirect jobs.

The preparation of the final design, construction, electromechanical equipment, testing, operation, conservation and maintenance of the treatment plant will be undertaken by: Civil Engineers Associates (ICA, Spanish acronym), Promoter of Development and Employment in Latin America (IDEAL, Spanish acronym), Controladora de Operaciones de Infraestructura, Atletec, Acciona Agua, Desarrollo y Construcciones Urbanas, and Green Gas Pioneer Crossing Energy, LCC for 25 years for the wastewater treatment in the Valley of Mexico.

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# Posters

Title	Name	Company	Country
Improvement Of Fermentative Hydrogen Production In A Fixed Bed Reactor Supported With Polyethylene Carriers Via PH Control Using CaCO <sub>3</sub>	German Buitron	National Autonomous university of Mexico	Mexico
Hydrogeological Study Of Shallow And Deep Aquifers In Balaju-Boratar Area, Kathmandu, Central Nepal	Hitendra Joshi	Tri-chandra college, Tribhvan University	Nepal
Runoff Water Harvesting Optimization by Using Rs, Gis and Watershed Modeling: Wadi El-Arish, Sinai Case Study	Hossam Elewa	National Authority for Remote Sensing & Space Sciences (NARSS)	Egypt
Eutrophication feature extraction downstream of the Nakdong River according to change in hydraulic conditions	Mr Jisung Lim	Pusan National University	Korea, Republic of
Monitoring Water Use In Agricultural Fields Of Saudi Arabia Using Eddy Covariance And Surface Layer Scintillometer Systems	V.C. Patil	King Saud University	Saudi Arabia
Fodder Production and Livestock Rearing in Relation to Climate Change and Possible Adaptation Measures in The Manaslu Conservation Area, Nepal	Bhojan Dhakal	Institute of Agriculture and Animal Science, IAAS, Tribhuvan University, Nepal	Nepal
Brine management.[Original Text in Spanish]	Mónica López-Ortega	UNAM	Mexico
Optimization Of Biofilm Pre-treatment Process For Polluted Drinking Water Via Carbon Utilization Enhancement	Liang Zhu	Zhejiang University	China

Title	Name	Company	Country
Reduction of water over-consumption for irrigation in parks and gardens, ridges, football fields, green areas in public and private schools as for industrial and commercial purposes up to 80%. [Original Text in Spanish]	Octavio Duran	Grupo Corporativo Ambiental	Mexico
Municipal sludge recovery through intensive forestry (MSRIF). [Original Text in Spanish]	Aaron Sosa	Universidad Mexico Americana del Norte (UMAN)	Mexico
Water Security – IWA Water, Energy and Climate 2014: Solutions for Future Water Security. [Original Text in Spanish]	Galia Maria De Lourdes	Apast Tultitlan	Mexico
Enhancement Of Dielectric Heating Of Microwave Irradiation With Addition Of Strong Acid And Ionic Material In Hydrolysis Of Waste Activated Sludge	Jaeho Lee	Pusan National University	Korea, Republic of
Determination of the toxicity "in vivo" of a comercial herbicide and its chemical compounds - diuron and hexazinone - oxidized in the presence of chlorine. [Original Text in Spanish]	Luciana Rezende Alves de Oliveira	Universidade de Ribeirão Preto	Brazil
Pre-investigations For Groundwater District Cooling System Using ATES, In An Area With Multiple Groundwater Interests	Bibi Neuman Gondwe	Ramboll	Denmark