

IWA & Isle Emerging Technologies Program at the IWA World Water Congress & Exhibition in Tokyo (Sept. 16-21, 2018)

The water sector faces some key challenges such as rapidly rising customer demand due to population growth and urbanization / industrialization, increasing energy costs and in most regions an aging asset base with minimal available finance to maintain or replace it.

IWA and Isle Utilities cooperate in setting up the IWA-Isle Emerging Technologies & Challenge Exchange Hub (ETP) during the IWA World Water Congress & Exhibition. The Hub facilitates as the meeting point between the Utilities behind the challenges and innovative solution providers. It showcases several unique and innovative best practices of a cooperation between solution provider and utilities. The days are divided into themes Day 1: *Challenges and Opportunities for Deployment of Water treatment World Wide*. Day 2: *Challenges in water recycling from industrial waste water stream*. Day 3: *Practical Insights into Smart Water Deployments*

The Challenge Exchange forum works the other way around by showcasing concrete, relevant and urgent challenges & business cases from the end users being top notch Utilities, Industrial End Users and other stakeholders. The Emerging Program starts on Day 1 & Day 2 with Key Notes from Industry leaders Anglian Water, Suez, Aqualia and BASF presenting actual projects challenges and best practices. An interactive panel discussion will summarize lessons learned and highlight strategies moving forward to accelerate the deployment of global water innovation around the World. The Second part of the program will showcase the most Innovations Technologies Globally through a Pitch session. The final day will focus on Practical Insights into Smart Water Deployments and global Smart water trends through an interactive Round Table Discussion and is organized in joint effort with program partner SWAN, the Smart Water Networks Forum (www.swan-forum.com)

Why a unique concept to present challenges?

- *The Challenge Exchange platform works the other way around by showcasing concrete, relevant and urgent challenges from the end users, being top notch utilities*
- *Visibility of the challenges during a week where the World of Water and multiple solutions providers are together in Tokyo*
- *The pitch sessions and panel discussions facilitates solution providers and other visitors to meet the utilities and pitch their solution*
- *Interactive forum session: Utility challenges will be highlighted in an open workshop session accessible for everyone visiting or exhibiting at IWA Tokyo*



THANK YOU FOR JOINING US

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IWA- ISLE Emerging Technologies Program: AGENDA

Location: Business Forum 2 (behind the Emerging Technologies Pavilion) in the exhibition hall
September 17 – September 19, 2018

Day 1: Monday, September 17

13:30-14:30

ISLE-IWA Emerging Technologies Program

Challenges and Opportunities for Deployment of Water treatment World Wide

Keynote: SMART Assets and Resilient Infrastructure by Anglian Water
Peter Simpson – Chief Executive Officer, Anglian Water Group



(20 min)

SMART Assets and Resilient Infrastructure – As the water industry faces the growing challenges of meeting customer demand and ensuring water availability, there is an ever growing need to for innovation. There are a number of opportunity areas that collectively will help us achieve a more resilient service, including, SMART assets utilising real time data, greater use of natural capital, engaging customers to reduce demand and water recycling, etc.. This combination of technology, customer behaviour and a greater focus on a circular economy will help secure our access to water for the long term future.

Keynote: SUEZ's Solutions in Asia
François Fevrier- CEO Water Asia, SUEZ



(20 min)

Asia, particularly China, has the fastest-growing economy in the world, and is exerting increasing demand on resources and facing the challenge of sustainability. The Shanghai Chemical Industry Park in China, the fourth largest of its kind in the world, is on the quest to stay competitive, attractive and sustainable while respecting the environment and its local residents. SUEZ, a global leader in smart and sustainable management of resources, answered the call by providing the Park with tailored water solutions to fulfill its needs for water and industrial effluent treatment that complies with regulatory standards. It is also taking proactive measures to anticipate the pressure on resources, as well as the trends in environmental regulations and sustainable development.

Panel Discussion

Moderated dialogue that will summarize lessons learned from the Best Practices and case studies presented and highlights strategies moving forward to accelerate the deployment of global water innovation around the World

(15 min)

Moderator: Ben Tam | Head of Business Unit | Strategic Projects, Isle Utilities

- **Anglian Water**
- **Aqualia**
- **PureTerra Ventures**
- **SWAN**
- **SUEZ**

14:30-15:30

IWA-ISLE Emerging Technologies Pitches

Hear from entrepreneurs with innovative solutions to water challenges. Ten minute pitches with Q&A from a distinguished group of judges (SUEZ, Anglian Water, PureTerra Ventures).

Emerging Technologies Pavilion Exhibitors presenting include: **Systema** (Italy); **Hawle Water Technology** Norge (Norway); **PowerTech Water** (USA); **Hydroka** (Belgium); **Hydro-dis** (Australia); **Terraheim** (Korea)



Day 2: Tuesday, Sept 18

13:30-14:30

IWA- ISLE Emerging Technologies Program

Challenges and solutions in water recycling from industrial waste water stream

Keynote: AnMBR Technology: Boosting Circular Economy In Sewage Treatment
Jose Ramon Vazquez Padin- Area Manager at the Department of Innovation of FCC Aqualia SA



(25 min)

In order to demonstrate the potential of Anaerobic Membrane Bioreactor (AnMBR) technology as alternative to traditional aerobic UWW treatment, an industrial prototype with 40 m3 anaerobic reactor and 123 m2 of membrane has been designed and started-up. This AnMBR plant is fitted with industrial-scale hollow-fibre membranes modules and is fed with the effluent from the pre-treatment of the Alcázar de San Juan full-scale WWTP (Alcázar de San Juan, Ciudad Real, Spain). After 390 days of continuous operation without chemical cleaning, results indicated adequate performance of both biological and filtration processes. COD removal of 92% has been obtained with sustained fluxes above 20 LMH. Sewage treatment with net energy production is feasible while obtaining high quality water optimal for reuse. AnMBR technology combined with sewer mining and source separation will arise in the future as a key asset in order to foster circular economy.

Keynote: What makes a technology attractive in the eyes of an investor
Maarten Ter Keurst, Director of Investments, PureTerra Ventures



(15 min)

PureTerra Ventures is a private equity firm focused on investing in disruptive water technologies with a positive social impact. Dutch-managed and based out of Shanghai, China, our fund combines strong entrepreneurial experience, a proven track record in driving sales and distribution in Asia and a vast network in the Asian water technology market to create a unique value proposition for our investors and portfolio companies alike.

Panel Discussion

Moderated dialogue that will summarize lessons learned from the Best Practices and case studies presented and highlights strategies moving forward to accelerate solutions in water recycling from industrial waste water stream

(20 min)

Moderator: Ben Tam | Head of Business Unit | Strategic Projects, Isle Utilities

- **FCC Aqualia SA**
- **PureTerra Ventures**
- **SUEZ**
- **Isle Utilities**

14:30-15:30

IWA-ISLE Emerging Technologies Pitches

Hear from entrepreneurs with innovative (waste) water solutions. Ten minute pitches with Q&A from a distinguished group of judges (BASF, Aqualia, PureTerra Ventures)

Emerging Technologies Exhibitors presenting include: **Blue foot Membranes** (Belgium); **Luminultra** (Australia); **Carex of Sweden** (Sweden); **Aquafortus** (New Zealand); **LG Sonic** (Netherlands)



Day 3: Wednesday, Sept 19

13:00-14:45

Emerging Technologies Program Organized by SWAN

Practical Insights into Smart Water Deployments

Keynote: Introduction to the SWAN Forum and Insights on the Future of Water

Frederick Royan | VP/Global Leader, Global Environment & Water Practice - Frost & Sullivan



(10 min)

The Smart Water Networks Forum (SWAN) is the leading global hub for the smart water sector, accelerating the awareness and adoption of data-driven technologies in water and wastewater networks worldwide. A non-profit organization, SWAN brings together key players in the water sector to collaborate and share knowledge while offering access to cutting-edge research, global networking opportunities, and the ability to proactively influence the future of the water industry.

Strategic Round Table Discussion

Day 3 of ETP will host a series of Strategic Round Table Discussions (2 sessions, 45 min. per session) where cross sector professionals and disciplines from finance, consultancy, technology providers, utilities, NGO's and industrial sector forwarded a new 'circular' perspective on Smart Water.

(2x 45 min)

- **Table 1-3:** "Roundtables led by Smart Water Experts"
- **Table 4:** Importance of Investments in Innovative Water Technologies - Moderated by Maarten Ter Keurst, Director Investments, PureTerra Ventures
- **Table 5:** SMART Assets and Resilient Infrastructure – Moderated by Peter Simpson – Chief Executive Officer, Anglian Water Group

14:45-15:00

ISLE- IWA Emerging Technologies Award Ceremony

The winner of the Emerging Technologies Pitches will be announced by the Executive Director of IWA

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TECHNOLOGY DESCRIPTIONS HUB & PITCHES

Company: Hydro-dis

Speaker: Mark Carey, Chief Executive Officer

Country: Australia

Website: www.hydro-dis.com.au



The Hydro-dis® system is a proven unique water disinfection technique that uses the electrocatalytic break down of water to instantly destroy waterborne micro-organisms including micro-flora, while simultaneously converting chloride ions into chlorine leaving a measured residual disinfection in the treated water.. The Hydro-dis® system replaces traditional disinfection techniques with a cost effective, environmentally friendly, modular and portable system. The Hydro-dis® process has achieved certification to the Australian Standard 4020 which certifies any product used in contact with drinking water in Australia.

Company: SYSTEA S.p.A.

Speaker: Luca Sanfilippo, Marketing Manager

Country: Italy

Website: <http://www.systea.it>



Easychem TOX Early Warning is an on-line analyser for drinking water and environmental monitoring applications using dried bioluminescent bacteria, automatically rehydrated to ensure long term unattended operation down to 5 minutes frequency. The use of up to 20 industrially prepared dried bacteria vials automatically regenerated and handled by the Easychem TOX Early Warning analyser allow a very fast detection time in case of heavy water pollution. The system design is based on discrete analytical technology, meaning easy and reliable operations in the field by water plants technicians, high reliability, an easy user interface including alarm capabilities, and low maintenance cost.

Company: LG Sonic

Speaker: Yousef Yousef, CEO

Country: The Netherlands

Website: www.lgsonic.com



The MPC-Buoy system controls algae in large water surfaces by using real-time water quality monitoring and remote sensing to analyse current algae and to predict algal blooms. The technology is based on ultrasound, which can effectively control algae by using specific frequencies and amplitudes. Ultrasound controls algae chemically free, without harming other organisms by preventing them from rising up to the water surface. In many cases, the system completely replaces the need to chemically treat lakes or reservoirs. Furthermore, the MPC-Buoy allows reduction of TSS, BOD and operational costs.

Company: Blue Foot Membranes NV

Speaker: Patrick Vanschoubroek, Managing Director

Country: Belgium

Website: www.bluefootmembranes.com



Thanks to the mechanical anchoring of the membrane layer to the fabric structure Integrated Permeate Channel membranes (IPC®) are the first fully back-washable flat sheet membranes at pressures up to 2 bar. The big advantage of these IPC® membranes is that they allow operating waste water units at an extraordinarily higher flux yield, with significant improved fouling control of the membranes. This feature not only gives the membrane better filtration properties, but also makes it more sustainable. The IPC® membranes are built into a module. These modules can immediately be used in water treatment installations around the world. Installed in existing as well as in new MBR's, IPC® membranes can double the output capacity per square meter.

Company: Aquafortus AB
Speaker: Daryl Briggs, CEO
Country: New Zealand
Website: www.aquafortus.com



Aquafortus specializes in high water recovery technologies. Aquafortus has developed a novel continuous, regenerable and non-thermal Zero Liquid Discharge technology, the ABXTM. The ABXTM is used to recover clean water and resources from wastewater containing high levels of salinity.

The ABXTM uses 90% less energy than thermal evaporation technologies in ZLD applications, thus saving users 60% in operating costs. The ABXTM is a novel liquid-to-liquid crystallizer that promotes the formation of salt crystals via a proprietary direct contact crystallization process using Aquafortus' patented materials. When a wastewater brine contacts the Aquafortus material, salts from the wastewater brine instantly crystallize out.

Company: LuminUltra Technologies
Speaker: Pat Whalen, President & CEO,
Country: Australia
Website: www.luminultra.com



LuminUltra is working to change the world's understanding of how microbes impact our water. We strive to help industry and society realize that microbes matter in their daily lives through a best-in-class combination of testing platforms, intelligent software, and unparalleled support. In our presentation, we will be describing how our market-leading 2nd Generation ATP and DNA testing platforms can be applied via our LuminUltra Cloud software to facilitate on-the-spot insights and action guidance for operators of all levels of expertise in any water application to save you time and money.

Company: Terraheim.Co., Ltd.
Speaker: Ms. Lee, CEO
Country: Korea
Website: www.terraheim.co.kr



The HDPE TerraSAN pipe is an anti-biofilm water pipe. It is made by applying TerraSAN to plastic pipe during pipe manufacturing. TerraSAN is a hydroxyapatite(HA) mass with silver nano particles evenly dispersed throughout the pipe. It is sintered at over 1000°C and pulverized into powder. An internal HDPE pipe, containing TerraSAN, and standard HDPE external pipe are extruded together. The 1 mm thick TerraSAN inner layer provides a strong anti-bacterial effect. The HA immobilizes the silver nano particles as a composite so that they would not eluted over time, nor does anti-bacterial performance deteriorate over time.

Company: Hydroka
Speaker: Jan Van Cappellen, COO
Country: Belgium
Website: www.hydroka.com



HydroKonekt Smart Valve is the combination of a static, ultrasonic watermeter and a remote-controlled valve working in synergy. This stand-alone solution registers daily- and hourly consumption and meter-alerts directly into a database using LPWAN-radio technology. The valve can be remotely controlled to an open, closed or throttled position. A closed loop regulation allows for a – pressure independent- maximum flow regulation. The device is battery operated with a minimum lifetime of 16 years.

A cloud-based console enables the management of a large quantity of devices. Integration with customer specific applications is available through an API.

Company: Carex of Sweden
Speaker: Dr Stanislaw Lazarek , CEO
Country: Sweden
Website: www.carexofsweden.com



TREWELL System Solution is an interdisciplinary ecosystem-based small-scale solution for treatment of variety of wastewaters and reuse of regenerated water. It has been invented and continuously modified over the last 30 years. It imitates microstructure and microbial processes in undisturbed aquatic ecosystems and plant-microbial food webs. The system is thermostatic and suitable to any climatic conditions and any community. It converts residential sewage into usable water of highest health quality without any additives or technical polishing. It's simple and extremely energy-efficient and can operate as off-the-grid solution. For real estates, it offers freedom of housing development outside the municipal central infrastructure. It brings a continuous new water resource for recharging local aquifers.

Company: Hawle Water Technology Norge AS
Speaker: Mr. Tom Sangster, Downley Consultants Ltd
Country: Norway
Website: www.h-wtech.no



The Hawle Water Technology NoDig System is the first technology that enables reinstatement of service connections to water mains that have been lined or replaced by pipe bursting with no excavation whatsoever. The system was the winner of the Oslo VAV NoDig Challenge. Technologies based on directional drilling and pipe robotics have been developed and combined to create a system that can install a new service pipe from the property to the main and connect it to the main using a specially-developed watertight fitting placed from inside the main itself. The technology is at an advanced stage of development and the prototype has been successfully demonstrated in field conditions.

The system enables water utilities to implement completely excavation-free replacement of ageing water mains and service pipes in congested urban areas with significant savings in cost and in community impact and disruption. Several water utilities in Scandinavia have confirmed their intention to adopt it when development is complete.

Company: PowerTech Water (PTW)
Speaker: Cameron Lippert, Co-Founder & CEO
Country: USA
Website: www.powertechwater.com



PowerTech Water (PTW) is a cleantech company providing innovative solutions to water treatment through an environmentally friendly electrochemical technology platform. PTW develops and commercializes technologies converging on water & energy. PTW is currently focused on three (3) product offerings: We currently have three product offerings for the residential, commercial, and industrial markets: (1) INCLON[®], a membrane-free capacitive deionization system to remove total dissolved solids (TDS – Salts, Minerals, & Metals); (2) Advanced electro dialysis reversal (EDR) electrodes to replace metal incumbants, and (3) A capacitive coagulation[™] cell to remove metals, chlorine/chloramine, VOCs, and biologicals for residential and industrial applications. The PTW systems operate without the use of membranes, chemicals, or consumables providing a significant advantage over the competition.

BIO SPEAKER, PANEL MEMBERS & MODERATORS



Peter Simpson | Chief Executive of Anglian Water Group

Peter's career in the water industry has covered eight countries across three continents, including Regional Director for Europe and South America based in the Czech Republic, and Senior VP based in the USA.

He has been Chief Executive of Anglian Water Group since October 2013, and was previously MD of Anglian Water from January 2010, and Chief Operating Officer from 2004. He was Chairman of Water UK from April 2012-October 2013, and is a Past President of the Institute of Water.

Peter is a member of Cambridge University's 'Programme for Sustainability Leadership' Climate Change Leaders Group. This influences at a national, EU and global level to reduce carbon emissions, and to champion resource efficiency in water, energy and other natural resources.

Peter also works with Business in the Community as Chair of the Well-being leadership team (focussed on improving employee wellbeing) and Chairs the Water Taskforce as well as being part of the BiTC Circular Economy Team.

Peter is a Chartered Water and Environmental Manager, a Chartered Scientist and Chartered Environmentalist. In 2016 he was made an Honorary Fellow of the Society of the Environment and an Honorary Fellow of the Chartered Institution of Water and Environmental Management, as well as Companion of the Chartered Management Institute. He holds an MBA from Warwick Business School.



Jose Ramon Vazquez-Padin | Innovation Manager of FCC Aqualia

Jose Ramon Vazquez-Padin is head of quality in the R&D department of the Spanish global water company FCC Aqualia (www.aqualia.com). He obtained his PhD degree by the University of Santiago de Compostela in 2009 and he has now more than 10 years of experience in advanced technologies for water treatment. The efforts are now focused on decentralized sanitation, resource recovery and water reuse in the quest for a sustainable circular economy in the water cycle. He is co-author of several patents and articles in international peer-reviewed journals, Anaerobic Membrane Bioreactors and ELAN[®]ammox processes are examples of technologies developed from lab to full scale.



Maarten Ter Keurst | Director of Investments, PureTerra Ventures

Maarten is Director of Investments of PureTerra Ventures, a Venture Capital firm with offices in The Netherlands and Shanghai. PureTerra Ventures invests in innovative water technology companies with the aim of actively helping them expand sales in the global market. Maarten believes that in today's market the "old school" style of simplistic monetary investing no longer applies. The need for a more hands on approach with investment stewardship coupled with being able to effectively apply market penetration is paramount to successful commercialization. Maarten joined the parent company of PureTerra Ventures, CHC Group, in 2013. Since 1998 CHC group has founded and grown numerous companies which are exceptionally successful at selling to the Chinese market. Maarten is an expert in deal structuring, managing sales networks, advantageous partner selection and Chinese business practices. He is acutely aware of the vast array of issues facing Western companies doing business in China and has an intimate knowledge of the Chinese environmental technology sector. Maarten holds an MSc in Economics from Tilburg University.



Ben Tam | Head of Business Unit | Strategic Projects, Isle Utilities

Ben is a water sector professional with a background in science and innovation. Starting with a PhD in biochemistry he has since worked in the water industry fulfilling a variety of managerial and technical roles. At a large UK water utility he worked in Water Supply Operations, through which he gained in-depth knowledge of water treatment and drinking water quality management. He also managed a wide portfolio of innovation projects and was also responsible for the strategic design of an innovation demonstration site, which showcased new technologies and developments in water and wastewater treatment, smart networks, catchment management and customer engagement. At Isle, Ben has focused on strategic consultancy projects in the UK to manage technical projects for water utility clients and also deliver industry research projects. As Head of Business Unit for Strategic projects his aim is to develop new growth areas for Isle utilizing core expertise to enter new markets. Ben is captivated by the challenge of working with clients to manage the complexities of technology adoption or investment.



Frederick Royan | VP/Global Leader, Global Environment & Water Practice - Frost & Sullivan

Leader of the Global Environment & Water Practice at Frost & Sullivan which offers market intelligence and advisory services in various vertical and application sectors of the Global Water and Waste Management Markets. More than 15 years of Environmental Management research and consulting experience with specific expertise in market assessment/due diligence, geographic expansion, technology and competitive strategies and partner/merger/acquisition identification. Passionate about innovative means of delivering strategic market knowledge and identifying new market opportunities and business models that deliver impact on the businesses of clients. Proficiency in water & waste recycling markets and its trends across geographies and application segments with a strong interest in sustainable opportunities linked to the synergies between water, energy and material resources. Was the 2001-02 Shell Scholar at the University of Edinburgh and completed my Masters in Environmental Management and also have a first bachelor's degree in Environmental Science from Bangalore University.



Francois Fevrier | CEO Water ASIA – SUEZ ASIA

Mr. François Fevrier has been appointed as the CEO of SUEZ Asia's Water Asia since July 2015. During François Fevrier's 29 years with SUEZ, he has played a vital role in building the company's successful portfolio and is a force driver behind SUEZ's outstanding growth. François Fevrier currently oversees the operation and management of all water businesses of SUEZ in South East Asia as well as SUEZ NWS Limited in Greater China.

He has previously held several executive positions which include Sales Director for Operation and Maintenance and Sales Director for Eastern Europe in the Standard Product Division at the Group's Treatment Infrastructure business, formerly known as Degrémont. He also served as Managing Director of the Group's Water and Wastewater Treatment Equipment brand, previously known as ozonia®, in Zurich, where he also led the establishment of Degrémont Technologies. In September 2008, François was appointed Executive Vice President of Business Operation of Degrémont, where he focused on the Middle East, Dubai, Delhi, Beijing and Sydney markets.

François Fevrier earned his Bachelor's degrees at Ecole Nationale Supérieure des Industries Agricoles et Alimentaires and the Institut De Contrôle De Gestion in France.