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HKUST 環境研究所 INSTITUTE FOR THE ENVIRONMENT

HKUST JOCKEY CLUB INSTITUTE FOR ADVANCED STUDY

水務署 Water Supplies Department

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Sponsored by

Kingdom of the Netherlands

Building Resilience through Sustainable Urban Water Management

9 April 2019
HKUST Business School Central

EVENT DETAILS

Date:	9 April 2019 (Tuesday)
Time:	14:30 – 17:30 (Reception will start at 14:00 with coffee/tea)
Venue:	HKUST Business School Central
Address:	Room 1501-02, 15/F Hong Kong Club Building, 3A Chater Road (View map)
Registration:	This event is free of charge but registration is needed. Please click this hyperlink or scan the QR code for registration: tinyurl.com/20190409-Water-Management

Society is dependent on water as it is essential for daily living and development. The functions of water are diverse – it is needed for domestic, agricultural, industrial, commercial and recreational purposes – and it is also essential for the discharge of waste; and clean water is vital for the proper function of life and ecosystems. Water is a natural resource that should be used efficiently. Thus, managing every aspect of water well in a dense, high-rise city like Hong Kong is a critical part of managing the city itself, as it has a direct impact on the quality of life of millions of people. While Hong Kong takes it for granted that there is clean water for its diverse activities, much effort goes into supplying that water. There are in fact many challenges to the provision of clean water supply and wastewater removal and treatment. This event looks at how Hong Kong could build greater resilience into its urban water management system through a dynamic exchange of views among experts and policy professionals in Hong Kong, and the Netherlands – a country that has great experience in water management.

PROGRAM

TIME	ITEMS
14:00	Reception with coffee/tea
14:30	**Welcoming remarks** Prof. Jimmy Fung, IENV, HKUST
14:35	**Opening remarks** Ms. Annemieke Ruigrok, Consulate General of the Netherlands
14:40	**Introduction – Hong Kong Challenges** WSD & DSD representatives, HKSAR Government
Session I: Sustainable Wastewater Management – From Waste to Resources (TBC)	
Moderator: Ir Prof. Irene Lo, HKUST	
14:50	**Scene Setting** Ir Prof. Irene Lo, HKUST
15:00	**Presentation 1:** Waste Water Treatment from The Netherlands, recent developments in circular economy Ir Prof. Dr. Merle de Kreuk, Delft University of Technology An overview of new solutions for water treatment, water reuse and resource recovery will be presented. The transition to a bio-based, circular economy is one of the key challenges in the next decades. Water treatment can play a major role in this transition, ranging from energy and resource recovery, as well as reuse of cleaned water. Local small scale waste water treatment plants are currently being developed for water reuse in rapid developing megacities, while a new generation of centralised treatment plants using the Nereda technology has entered the market.
15:20	**Presentation 2:** Coastal water quality management Prof. Joseph Hun-wei Lee, HKUST
15:40	**Panel Discussion / Q&As** Moderated by Ir Prof. Irene Lo, HKUST Panelists: • Ms. Sally Ann Clark, Kingsford Environmental Phils., Inc. • Prof. Joseph Hun-wei Lee, HKUST • Ir Prof. Dr. Merle de Kreuk, Delft University of Technology • DSD representative, HKSAR Government
16:10	Coffee/tea break

PROGRAM

TIME	ITEMS
	Session II: Leakage Challenge in Building Urban Water Resilience (TBC)
	Moderator: Prof. Mohamed Ghidaoui, HKUST
16:30	**Scene Setting** Prof. Mohamed Ghidaoui, HKUST
16:40	**Presentation 3:** Smart Design and Operation of Water Distribution Networks in the Netherlands Ir Dr. Mirjam Blokker, Watercycle Research Institute KWR Ir Dr. M. Blokker will present the concept of Self-Cleaning Networks as a tool to improve the water quality (avoiding discoloration and long residence times) in drinking water networks. Self-Cleaning Networks provide the users with design instructions to ensure the self-cleaning velocity in the tertiary ('last-mile') network is attained at least once a day, on the basis of the pressure in the secondary and primary networks as a result no cleaning costs is required anymore. Ir Dr. Blokker will share the insights on how the drinking water provision in the Netherlands is among the world's best, i.e. leakage in the drinking network is low; around three to five percent and water quality is of high standards.
17:00	**Panel Discussion / Q&As** Moderated by Prof. Mohamed Ghidaoui, HKUST Panelists: • Ir Dr. King Wong, International Institute of Utility Specialists • Ir Dr. Mirjam Blokker, Watercycle Research Institute KWR • Representative from WSD, HKSAR Government
17:30	Closing Remarks & Event Ends

SPEAKERS & MODERATORS

(By last name in alphabetical order)

Ir Dr. Mirjam Blokker is a principal scientist on the drinking water infrastructure team. She is an expert in drinking water demand and developed the SIMDEUM model, which can be used to predict the demand for shower water, toilet flushing water, water consumption etc. With this model, she also did research on the impact of flow speeds and residence times on water quality in the pipeline network and completed her PhD on that topic in 2010. As an extension to this, Mirjam carried out the research and implementation in designing the water network. In recent years, Mirjam researched the temperature in the pipeline network and the microbiological regrowth in the network. In collaboration with her colleagues on the microbiology team, Mirjam developed models for quantitative microbiological risk analysis (QMRA) for collection, purification and in the distribution network. Mirjam's knowledge of statistics came in rather handy in her research on pipeline, valve and fire hydrant failure. Mirjam also stood at the forefront of the introduction of the performance indicator for inadequate supply minutes (OLM). Mirjam owns a few Watershare tools. She is a guest editor for Water, special issue on "Water Quality in Drinking Water Distribution Systems"

Prof. Mohamed S. Ghidaoui, born in Tunisia, received the BASc, MASc and Ph.D. in civil engineering from University of Toronto, Canada. Since 1993, he is with the Department of Civil & Environmental Engineering, Hong Kong University of Science & Technology (HKUST), where he currently holds the Chair Professor position. Ghidaoui is a Member of IAHR and of ASCE. He is the Chair of the IAHR Fluid Mechanics section. He served as the chairman of the IAHR-Hong Kong Chapter from 2004 to 2007 and was one of its founding members. He is the Associate Editor of the Journal of Hydraulic Research (2003-present); the Journal of Hydro-environment Research, IAHR-APD Journal (2007-present); and the Journal of Hydraulic Engineering, ASCE (2014-present). He served as an Editorial Board Member of the Journal of Hydroinformatics, IAHR (2000-2013). He leads an RGC theme based research grant on Smart Urban Water Supply Systems. His awards include the Arthur Ippen Award (2007), Erskine Fellowship, University of Canterbury, NZ, and the Albert Berry Memorial Award, American Water Works Association.

Ms. Sally Ann Clark is VP-Operations of Kingsford Environmental Phils., Inc. Sally is a science graduate from The University of Queensland, Australia. She has worked with Kingsford Environmental since 1995 first in Hong Kong, and then in Philippines since 1997, where she is responsible for marketing, consultancy services, overseeing project design and implementation, and contract and project management in the Philippines. She also provides consultancy services for the company in Hong Kong and Malaysia, when required. Kingsford Environmental provides, consultancy and design and build services for sewage and wastewater treatment. She also has extensive presentation and training seminars experiences in Hong Kong, Philippines and Asia-Pacific region.

Ir Prof. Dr. Merle de Kreuk started her career in 1997 at IHC Holland, a shipyard for dredging vessels, where, with her colleagues, she worked on an innovative technology for the separation of contaminated soil and the clean sand fraction. This so-called jig-technology was later applied in many soil remediation projects. Prof. de Kreuk obtained her PhD in environmental biotechnology at Delft University of Technology, the Netherlands, in 2006. During her PhD work, she joined with two other scientists to research and develop the aerobic granular sludge technology Nereda, currently brought to the market by Royal HaskoningDHV. The Nereda technology is characterized by the granular growth of the biomass used in wastewater treatment. The use of this single-tank Nereda system makes wastewater treatment plants compact, energy efficient, and cheap. She won several prestigious awards for this technology and was a finalist with her fellow researchers for the European Inventor Award 2012 for the Nereda.

SPEAKERS & MODERATORS

(By last name in alphabetical order)

After earning her PhD, Prof. de Kreuk spent a few years bridging academic research with full-scale development of Nereda at Royal HaskoningDHV. Beginning in 2009 , she worked for almost three years at a Dutch Water Authority, where she started a project on the application of Anammox in the mainstream of a wastewater treatment plant. While there, she was part of the "wastewater treatment-plant of the future" studies, that led to the resource factory concept, in which technologies are developed and applied to produce energy-producing sewage treatment, as well as to secure the recovery of resources as nutrients and water. In 2011, she returned to TU Delft, where she focuses on granule formation processes (aerobic and anaerobic) and hydrolysis processes in anaerobic digestion. Furthermore, she is still interested in the product formation from waste streams by means of mixed microbial processes.

Prof. Joseph Hun-wei Lee is Elman Family Professor of Engineering and Public Policy and Chair Professor of Civil and Environmental Engineering at HKUST. He is the Chief Editor of the Journal of Hydro-environment Research and past Vice-President and Honorary Member of the International Association for Hydro-environment Engineering and Research (IAHR). He was the first Asia-based academic to receive the American Society of Civil Engineers Hunter Rouse Hydraulic Engineering Award (2009) and has received numerous other awards including the Croucher Senior Research Fellowship (1998) and the 2010 China State Scientific and Technological Progress Award. He is a Fellow of the Royal Academy of Engineering of the UK, and the Hong Kong Academy of Engineering Sciences. Prof. Lee has served on many international advisory bodies and as an independent expert on numerous hydro-environmental projects, including the Commission of Inquiry into Excess Lead Found in Drinking Water (2015) in Hong Kong. Prof. Lee has served as Pro-ViceChancellor and Vice-President (Staffing) at the University of Hong Kong (2004-2010) and Vice-President for Research at HKUST (2010-2016).

Ir Prof. Irene M. C. Lo is currently a Chair Professor in the Department of Civil and Environmental Engineering and Director of Environmental Engineering and Management Program at The Hong Kong University of Science and Technology (HKUST). She has been joining HKUST since 1992. Prof. Lo is an elected Academician of the European Academy of Sciences and Arts (EASA). She is an elected Fellow of the Hong Kong Institution of Engineers (FHKIE), and elected Fellow of the American Society of Civil Engineers (FASCE), She received her Ph.D. degree in Civil (Environmental) Engineering from the University of Texas at Austin in 1992. She was also Adjunct Professor of Tongji University, Tianjin University, Jilin University and Harbin Institute of Technology in China. She had been Visiting Professor of Technical University of Denmark and the University of Wisconsin at Madison. Prof. Lo was the recipient of the 2004 ASCE James Croes Medal, the 2007 ASCE Samuel Arnold Greeley Award, the 2008 EWRI Best Practice-Oriented Paper Award, the 2009 ASCE Wesley W Horner Award, and the 2012 ASCE EWRI Best Practice-Oriented Paper Award. Her research areas include magnetic nano-particles and nano-photocatalysts for environmental applications; food waste and solid waste treatment and management; remediation technologies for river sediment, contaminated soils and groundwater.