



Report

Take away messages and good Chinese and European experiences presented

in

CEWP Webinar Series

April 29th, 2021 – Smart Water managing the whole Urban Water Cycle

Introduction: The webinar followed by more than 65 participants from 16 countries explored the smart water management of the Urban Water Cycle in Europe and China. The webinar presented experiences and case studies and discussed various approaches to management of the urban water cycle and how digital solutions can support this. Smart Water Management implies a substantial upgrading of Water Quality and Water Quantity Data Collection from a large number of sample points. Compared to previous analogue or semi-digitalized monitoring systems, a fully digitalized Water Grid will provide a significantly improved picture. The report presents *take away messages* from the roundtable, the chair and rapporteur of the seminar as well as good experiences presented by the speakers of the webinar. The webinar programme is enclosed as annex to this report and the presentations from the webinar, with more details is available at the CEWP webpage.

Take away messages: China and Europe are both aiming at developing new digitalization solutions to improve the efficiency of their urban water management, however in different contexts. Overall, Chinese cities sees increasing urbanization (with the 14th 5 Year Plan setting a target for 2025 of 65% compared to today's 61%) and construction of new, urban areas, compared to a stronger focus on retrofitting existing urban areas in Europe.

Digitalization in the water sector has a big potential and digital water technology is largely already available and the water sector is already using it and benefitting from digital transformation. To get the full benefit of digitalization human interaction with technology is still very important and training is needed for those who work with and operate the technology.

Digitalization has entered all water subsectors. The webinar presented cases for water quality and water quantity management in water supply and waste water systems, leak detection, flood management and early warning, irrigation systems and catchment management.

Digitalization technology is fast developing at all stages of the water management cycle including monitoring and metering systems of data, data collection systems, data management systems and intelligent information systems. Overall, solutions for industries and utilities seems to be ahead of solutions for public planning. This is due to that the former with their one owner / one decision-maker / one-to-pay and one-to-benefit setup offers much clearer business cases, with Asset Management for Utilities probably being the most straightforward case.



European Chamber
中国欧盟商会



Availability of sensors with a potential for real time monitoring is essential for fast management response both in e.g. flash flood early warning and management and in water quality protection and management. While sensors, analyzers and other technologies are available with mature technologies and reasonable pricing for quantitative as well as simple, chemicals parameters, these are not yet available for all advanced, chemical water quality parameters. New technologies, however, e.g. optical solutions offers promising perspectives, and it is predicted that most parameters can be monitored real-time, on-line within the coming 3-8 years.

Digital solutions may challenge the existence of Silo's among institutions involved in urban water management, as these are sometimes a barrier for efficient solutions, both in terms of lack of appropriate data sharing and adjoined data accessing, as well as inefficient organizational structures. Of particular importance is the connection of the silos for water supply and waste water treatment and the integration among decision makers.

Procurement of digital water solutions may not be well specified in tenders. ISO 55000 and other related standards can be used to make the demand/requirements for the IT water solutions more precise. This is particular important in multistakeholder water management systems like e.g. catchment system with many different management needs.

Intellectual Property Right protection in China is important. It has been experienced that 80% of all SME's that fail in China fail because they did not protect their IP in China. However, it is possible to deal with IP rights in China and minimize the risks for SME's.

From the presentations it appears that European consulting companies with presence in China has a good understanding of the *Chinese market*, has established strong networks and are able to get contracts and bid on tenders. Larger tenders are still primarily won by large Chinese contractors and European technology producers and consultants should aim at building networks and being sub-contractors to these.

Both Chinese and European partners participating in CEWP see a great scope in continuing the cooperation and sharing practices and experiences in China, Europe and globally.

Setting the scene for the webinar

Mr. Henrik Dissing CEWP as chair of the webinar welcomed the participants and set the scene for the webinar in particular the potentials and barriers for digitalization. He had a number of observations on sensors capability of monitoring all water quality parameters on how many sensors will be sufficient to provide an adequate amount of data. How to handle sharing of data and quality assurance? And, not, least how to develop software for utilizing the data for modelling, scenarios, public planning and implementation of investment projects? And how to use digitalization for Asset Management?

Mr. Dragan Savic, KWR Water, The Netherlands had three points he wanted the webinar participants to remember: (i) Digital water technology is largely already available (ii) The water



European Chamber
中国欧盟商会



sector is already using it and benefitting from digital transformation (iii) Humans are still needed and they are an important element in the digital water technology and training is needed for those who work with and operate the technology. Mr. Savic informed about how neural networks had been used for leakage detection. Tools like remote sensing, cloud tools, multi-objective optimization and digital twins had all been used to support leakage management. Using an analogy to self-driving in Tesla cars and autopilots in aeroplanes Mr. Savic stressed that human interaction is still needed and human training is needed to support this interaction.

Mr. Liam Jia, liam.jia@eusmecentre.org.cn, EU-SME Centre, a project supported by EU, presented the four services which are free of charge to European Small and Medium Sized companies: Knowledge Centre, Advice Centre, Training Centre and SME Advocacy Platform. Mr. Jia informed that they would organize a customized exhibition in the upcoming Aquatech Meeting in June in Shanghai, matchmaking meetings, on-line workshops. Linkup between European and Chinese SME's, and that he could be contacted for more information.

<https://www.eusmecentre.org.cn/>

Mr. Bruno Lhopiteau, Siveco, bruno.lhopiteau@sivecochina.com, a company founded in France in 1986 and presence in China since 2004 and a larger number of projects undertaken in China. He presented cases of smart water asset management in China. He stressed that digitalization tools are available and that there is a large scope for updating lifecycle management of assets in China. Mr. Lhopiteau presented how Siveco assisted Jiangsu Sino French, Sewage Water Division in optimizing its asset management using the ISO 55000 standard (Asset Management Strategy and System) as the basis for the optimization. Using the standard helped the client to focus their work. In Hong Kong Siveco assisted SanWai Sewage Treatment system in using the ISO 55000 to drive a project building a new waste water treatment plant.

In the webinar chat information was given that there is an update of the standard 55001 and that a guideline has also been developed.

Ms. Helena Alegre, Head of Hydraulics and Environment Department in LNEC the Portuguese National Laboratory of Civil Engineering and applied research institute with 600 employees, highlighted the many challenges of urban water management and their experience in solving these in cooperation with a total of 170 Portuguese water companies and research organizations. A case study focusing on water losses and energy management in water supply systems developed diagnostic and decision tools and plans to improve efficiency led to 20% water savings and 16% reduction in energy use. Similar tools were used to improve the energy efficiency of urban water systems, waste water treatment and irrigation systems. LNEC also has undertaken a number of projects with new membrane technologies for water treatment and water reuse and mentioned the ISO Standard ISO/TC 282 as a good support for their work.

Mr. Olli Kaukola from KEYPRO a Finnish company specialized in browser based digital systems with no installation on site needed. KEYPRO has developed a system KEYAQUA with GIS interface, network inventory, network analysis tools and communication tools. In a case with Kyren Vesi Water Company KEYAQUA was used to import all data from the water company. No special expertise needed from users to use the system and data efficiently to improve water company



European Chamber
中国欧盟商会



overall performance. Mr. Kaukola informed that Using modern solutions water companies can more efficiently manage their network, improve drinking water quality, improve customer satisfaction, fulfill regulations and reduce operating expenses. Mr. Kaukola stressed the importance of a detailed discussion and get agreement on expectations with the clients prior to the design of digital solutions.

Ms. Helika Jürgensen, China IP SME Helpdesk, question@china-iprhelpdesk.eu, an EU supported project aimed to help European Companies solve Intellectual Problems in China. They provide free of charge services to SME's including a helpline, training workshops, webinars, website and Blog, guides and factsheets. Ms Jürgensen informed that according to their experience 80% of all SME's that fail in China fail because they did not protect their IP in China. Ms. Jürgensen informed that it is possible to deal with IP rights in China and minimize the risks for SME's. She urges the SME's to contact their helpdesk and informed that the helpdesk would be present in the Aquatec Shanghai event for further consultation.

Mr. Xiao Li: S::can, lxiao@s-can.cn, www.s-can.at, an Austrian company present in China specializing in water quality monitoring in water systems including urban water systems. S::can's technology is based on on-line spectrometry as a surrogate method to measure organics, nutrients and solids. They offer a full range of optical and electrochemical water quality monitoring sensors, systems and software for drinking-, environmental-, waste-, and industrial water applications. In a case from Belgian s::can has showed that using digital monitoring sensors the city authorities are able to get real time readings real time data validation and event detection and early warning system available. The event can be detected and alarmed immediately. Mr. Xiao Li stressed that according to their experience UV spectrometry was often the most sensitive system to detect changes in water quality.

Mr. Michael Sommer, Sommer Messtechnik, an Austrian company specializing in measurement equipment in hydrology and meteorology, with more than 10 years' experience in China presented their technology based on non-contact radar measurement. The offer technology for flood measurement including snow, rain, water level which can be used for early detection of flash floods (case from Falls Creek, USA) and for storm water management in Beijing. The business model of Sommer Messtechnik in China is that they sell their sensor in China and that local Chinese companies make the installations.

Mr. David Yang, daya@kamstrup.com, Kamstrup a Danish Company specializing in smart water meters, data collection systems, data management and systems for water intelligence presented how Kamstrup technology can be used for non-revenue water reduction and water loss reduction. Installations of water meters and water intelligence system in the Danish city of Birkerød led to identification of leaks and 83% reduction in water losses. Installations in Karlskrona in Sweden aimed at supporting a reduction in water loss from 16% to 3% and in Söderhamn up to 100 leakages being identified. Mr. Yang looked forward to share the successes from USA and Europe with China.



Mr. *Toni Laurila*, SENSMET, a Finnish start-up company stressed the importance of real-time monitoring of water quality to support water quality management. SENSMET has developed a multi-parameter water analyzer using optical emission spectroscopy. The analyzer can deliver results in 5-20 minutes and measure 50 parameters including 30 metals (detection limit 0,1 mg/l) and organic species and key water parameters such as COD/BOD/DOC/TOC, nitrates, total hydrocarbons, turbidity and many more.

Roundtable

Henrik Dissing introduced the roundtable asking all speakers to name their take away messages and topics for further discussion at the workshops to be organized on urban water during the Aquatech Shanghai Event in June.

Toni Laurila: Digitalization has a big potential in the water sector and much is already going on.

Helena Alegre: We need to move from water smart to more intelligent management and learn how asset management can contribute to this.

Michael Sommer: Digitalization can help build bridges between people. We need to simplify technology to ensure that data are used correctly.

Xiao Li: Data based on IA can make them available for water management, IP is very important.

Liam Jia: Differences on procurement in China and Europe will be discussed more in the Shanghai event in June.

Helika Jürgensen: A lot of amazing technologies were presented in the webinar. IP will play an important role when such technologies are presented in the Chinese market. How to protect IP can be discussed further in the Shanghai event in June.

Bruno Lhopiteau: In China vendors of digital technology solutions promises everything. ISO 55000 can be used to make the demand/requirements for the IT water solutions more precise. Market procurement opportunities are in my view quite efficient.

David Yang: The technology needs to develop further and we need to prove the value to the customers. There are many business rules in China which differs from Europe. There is a need to find the right partners for business.

Henrik Dissing: Digitalization has a big potential in the water sector. A lot of technology is available. However, what is important is the people/stakeholders and their specific needs for data for management of water. It is particular difficult in multistakeholder management situations like river basins and catchments. Lack of appropriate data sharing and adjoined data sharing may hamper utilizing the potential of digitalization.

Closing session of the webinar

Mr. *Henrik Dissing*, hedis@mst.dk, CEWP closed the webinar and thanked RAI Amsterdam for their assistance in organizing the event and the interpreters for their work during the event. The slides from the event and a short report would be made available after the webinar on the CEWP webpage. He urged the participants to register to the seminars and that the next would be on 29th April. He also hoped that participants who had the possibility would participate in the events during the upcoming Aquatech meeting in Shanghai and would also come to the IWA Conference



in Copenhagen in September 2022 to continue the discussion and sharing of experience in Urban Water Management.

<https://www.cewp.eu/waterurban>

Rapporteur: Mr. Palle Lindgaard-Jorgensen, In-Water, plj@in-water.dk



CEWP Webinar Series

April 29th – Smart Water managing the whole Urban Water Cycle

Smart Water Management implies a substantial upgrading of Water Quality and Water Quantity Data Collection from a large number of sample points. Compared to previous analogue or semi-digitalized monitoring systems, a fully digitalized Water Grid will provide a significantly improved picture. This raises a number of questions: When can we expect to have sensors capable of monitoring all water quality parameters? How many sensors will be sufficient to provide an adequate amount of data? How to compile, store and ensure quality assurance of data from many different sources? How to handle sharing of data? And, not, least how to develop software for utilizing the data for modelling, scenarios, public planning and implementation of investment projects? And how to use digitalization for Asset Management?

Program - Chinese Time/European Time

- 14:00/08:00 Welcome remarks, Henrik Dissing, CEWP
- 14:05/08:05 Setting the Scene – Digitalization: Potentials and Challenges – Henrik Dissing, CEWP
- 14:18/08:18 Setting the Scene – Dragan Savic, KWR Water, NL
- 14:31/08:31 CEWP and EU SME Centre activities @Aquatech Shanghai – Liam Jia, EU SME Centre
- 14:35/08:35 Case studies of Asset Management Digitalization in the Chinese Water Market - Bruno Lhopiteau, Siveco China
- 14:44/08:44 Leveraging innovation for a smart management of the whole urban water cycle - Helena Alegria, LNEC, PT
- 14:53/08:53 Managing water network and IoT data using GIS solution – Olli Kaukala, Keypro, FIN
- 15:02/09:02 China IP SME Helpdesk: Project Introduction - Helika Jorgensen, IP SME Helpdesk
- 15:06/09:06 Company presentation – Xiao Li, s:can, AUT
- 15:15/09:15 Company presentation – Michael Sommer, Sommer GmbH, AUT
- 15:24/09:24 Smart Metering Solutions – David Yang, Kamstrup, DK
- 15:33/09:33 Comprehensive real-time water quality data transforms water management – Toni Laurila, Sensmet, FIN
- 15:42/09:42 Roundtable
- 16:05/10:05 Closing remarks, Henrik Dissing CEWP