

EVENT SNAPSHOT

One ADB Knowledge Sharing Session: Water Supply and Wastewater Detection, Warning, and Treatment in the Age of COVID-19

Event Details

Date and Time

3 June, 4:00–5:30 p.m.

Venue

MS Teams

Related water sub-themes (based on Water Advisory Teams)

x	Water supply, sanitation, and wastewater		Flood/drought risk management and resilience
	Irrigation and productivity		Water governance and finance
	IWRM, storage, water-food-energy nexus	x	Water and health

Under a One ADB approach, the Water and Health Sector Groups (led by the Water and Health Advisory Team), and the Procurement, Portfolio and Financial Management Department (PPFD) have convened experts from the health, wastewater, and water supply industries to discuss the implications of the coronavirus disease (COVID-19) on the wastewater and water supply systems and the potential of wastewater-based epidemiology.

The session focused on the ongoing research and surveillance on the presence of the virus in wastewater and water supply systems, related risks, testing, treatment options for deactivation/elimination of the virus, and the feasibility and benefits of setting up an early warning system to identify the virus and other pathogens.

This 90-minute webinar included the following speakers and topics:

Annelise Avril of Suez outlined the overall effects of the COVID-19 pandemic from a water utility perspective, as well as the company's current activities in monitoring and investigating the presence of the pathogen and its potential infectiousness.

Frederic Béen of the KWR Water Research Institute presented the options for testing the virus in wastewater and water supply systems, and opportunities for trend analysis and development of associated early warning systems.

Thérèse Dooley and Evariste Kouassi Komlan from UNICEF shared the health and epidemiological perspectives associated with water and wastewater systems in a post-COVID-19 world.

Lastly, **Piers Clark of Isle Utilities** provided the overall global impacts and policy implications to the wastewater and water supply industry, as well as lessons learned from entering and exiting lockdowns and the role technology has to play in this sphere.

Key Takeaways

COVID-19 has had a significant impact on water utilities' employees, operations, and customers. Key challenges included implementing business continuity plans over an exceptionally long period of time, addressing employees' fatigue, maintaining contact with customers remotely, billing and cost recovery while supporting local communities, and taking conservative measures (e.g. sludge sanitization).

Post-COVID-19, there will likely be follow-on effects on water utilities' operations, infrastructures, and processes. These follow-on effects may include developing advanced treatment for wastewater and sludge (including nature-based solutions), biosolids increased traceability, online monitoring of emerging pollutants, digital tools to support robust and efficient operations, and increased mobile and online customer transactions.

Assessing how long SARS-CoV-2 remains infectious in wastewater and sludge is key to drive our way forward. The genetic material of SARS-CoV-2 has been found in raw and treated wastewater in various places. It is critical to establish how long the virus remains infectious in wastewater and sludge – for instance, with current European utility-university partnerships in research and development or other research efforts – to define the adequate treatment process moving forward.

Sewage surveillance for viruses is not new; but in the case of the COVID-19 pandemic, ongoing studies and monitoring can serve as an early warning system for future recurrences or hotspots. In a study in the Netherlands, traces of the virus were detected in wastewater before the first hospitalizations. Additionally, in five cities, increase in reported cases coincided with increase in concentration in wastewater. There are now various institutes worldwide planning or with ongoing sewage surveillance. Based on current (limited) research, traces of the virus shed in stool is “not very” infectious.

Frequent and proper hand hygiene is one of the most important prevention measures, and has many co-benefits, including preventing many other infectious diseases. UNICEF refers to handwashing as the “free vaccine”, as it can easily help reduce the disease burden attributed to inadequate WASH services. Still, based on the JMP report pre-COVID-19, 40% of the world's population are not able to wash their hands with soap and water at home. With current heightened awareness now, how can the practice be sustained?

“We already have a large disease burden from water.”

— Therese Dooley, UNICEF,

on noting the disability-adjusted life years or DALYs related to water and sanitation

The response to COVID-19 in WASH environments consists of four areas: safe drinking water, safely managed sanitation services, hygiene promotion, and waste. Drinking water safety for viruses is long-established and based on knowledge about the removal of viruses (more robust than SARS-CoV-2) by water treatment processes. There is also similar guidance on safe management along every point of the sanitation chain. Monitoring wastewater can help predict community infection. There is an opportunity to develop a quick testing kit to support countries with low capacities. For hand hygiene, it is crucial that infrastructure and resource are available, as well as training people to do it the right way at the right time. Proper WASH must be reinforced in health care facilities, and increasing waste must also be managed safely.

Utilities need to prepare for a smooth transition from lockdown, and for future recurrences of the virus. To ensure a smooth exit from lockdown, utilities and operators need to know how to prioritize their key actions. Having a robust and workable water safety plan is critical. In addition, water safety plans must be updated to reflect pandemic scenarios, noting that COVID-19 is “actually relatively” mild compared to many pandemic models.

Technologies have proven to be necessary tools for utility operations during a pandemic. Technology helps ensure a resilient and robust continuity of service for customers. This includes technologies for virus detection and decontamination, but in particular, technologies that enable utilities to become digitized and, thus, less dependent upon a manual workforce.

“This is one of the most interesting sessions from this COVID period, with lots to learn and apply from the presentations.”

— Jingmin Huang, ADB

About the Speakers

Annelise Avril

Group Senior Vice President (Research, Innovation & Digital Transformation), Suez
annelise.avril@suez.com

Annelise leads the Suez Group's Research and Innovation division, spearheading digitalization in the areas of operations, customer experience, new products, and services. She also chairs the Corporate Ventures Capital Fund.

Xavier Litrico

Chief Research and Science Officer, Suez
xavier.litrico@suez.com

Xavier has been with Suez since 2011, first as the director of LyRE, the research and development (R&D) center of Suez in Bordeaux University dedicated to water management research. In 2017, he became the Scientific Director of the Suez Group, in charge of intellectual property, standardization, and scientific partnerships across all activities. In 2019, he was appointed Chief Research and Science Officer, in charge of the R&D centers in addition to responsibilities under his previous role. He is the author of more than 100 scientific publications, with more than 50 in peer-reviewed journals. He is the co-author of two books and several book chapters.

Frederic Béen

Scientific Researcher, KWR
frederic.been@kwrwater.nl

Frederic works as a researcher in the Chemical Water Quality and Health team. His research activities focus on the implementation of analytical and sampling techniques to monitor emerging contaminants in the water cycle. He has been active in the field of sewage surveillance/wastewater-based epidemiology for the last decade and is a core member of the Sewage Analysis CORE group Europe (SCORE).

Therese Dooley

Regional Water, Sanitation, and Hygiene (WASH) Advisor, UNICEF Regional Office for South Asia (ROSA)
tdooley@unicef.org

Therese has 20 years of international work experience in the areas of water, sanitation, and hygiene. With a background in environmental health, she has worked in Ethiopia, Afghanistan, Mozambique, Zimbabwe, and Lesotho and for Ireland Aid in Zambia and South Africa.

Evariste Kouassi Komlan

Regional WASH Advisor, UNICEF East Asia and Pacific Regional Office
ekouassikomlan@unicef.org

Evariste supports 14 countries in East Asia and 14 other countries, states, and territories in the Pacific. Before joining the regional office, he deputized the Global WASH Chief in UNICEF Headquarters in New York and acted as associate director for the Chief WASH. Evariste has 30 years of professional experience in WASH, including consulting, institutional strengthening, innovative financing, and fundraising. He holds MSc degrees in utility management and financing from Delft (Netherlands).

Piers Clark

Chairman, Isle Group
piers.clark@isleutilities.com

Piers has more than 25 years of experience in the water, waste, and utilities sectors. He is the Founder and Chairman of the Isle Group Ltd, a technical, strategy, and innovation consultancy which serves over 200 utilities around the world. Piers was previously Asset Management Director and Commercial Director at Thames Water, one of Europe's largest water and wastewater companies.