International Water Resources Association

POLICY BRIEF
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COVID-19 challenges the water sector

KEY POLICY MESSAGES

- Water work is essential: do everything to keep people on the job.
- Pandemic response plans must be for the period until COVID-19 is under control, possibly a year or more.
- Wastewater monitoring may provide early warnings of COVID-19 infections in the community.
- Good hygiene and sanitation practices are essential.

The pandemic exposed risks for maintaining vital infrastructure, including to release environmental flows. Jindabyne dam releases into the Snowy River, Australia, 2010.

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An IWRA webinar on Water and COVID-19 on 30 April 2020 provided insights into how the global pandemic has challenged water governance and complicated critical water infrastructure maintenance. COVID-19 has taught the sector valuable lessons in managing disruption.

It's safe to go back in the water, but practice social distancing. Tamarama Beach, Sydney, Australia, 2015.
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WATER IS AN ESSENTIAL PUBLIC HEALTH SERVICE

The global Coronavirus 2019 (COVID-19) pandemic reinforces water's unique role in keeping people safe during infectious disease outbreaks.

The importance of best practice hygiene and sanitation to control transmission was already well understood. But, the pandemic also demonstrates the water sector is an essential service to maintain clean water supplies, manage waste, and monitor the spread of disease.

COVID-19 PUTS WATER GOVERNANCE TO THE STRESS TEST

Respiratory diseases in the past have not disrupted the water industry. The focus instead has been on controlling gastrointestinal, waterborne diseases such as cholera and typhoid (developing regions) and norovirus (global).

But while SARS-CoV-2, the virus causing COVID-19, cannot be caught from treated drinking water, Deere explained the virus surprised the water sector with major implications for water management and infrastructure.

The pandemic's rapid spread and global extent highlighted the importance of clean, safe water for washing hands, clothes, food and contaminated sites, but the increased use of sanitisers and cleaning materials raised the risk of sanitation systems breaking down under an increased load of possibly contaminated waste.

JUST IN CASE YOU WERE WORRIED ...

The expert panel emphasised that treated tap water is safe from SARS-CoV-2, as is recycled water used to irrigate crops. Medema, Rose and Girones explained the virus does not survive in water as well as other pathogens that are killed with disinfectants. So, treatment to inactivate other pathogens also affects SARS-CoV-2.

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In theory, the virus can remain infectious in water, potentially for days to weeks. In practice, it decays with temperature and sunlight. Further, dilution and routine monitoring for other pathogens such as *E. coli* means fresh and seawater bodies affected by sewage are unlikely to be a significant COVID-19 transmission pathway.

Thus, it is safe to go back to the beach and swim in authorised areas, provided social distancing is practised to minimise the risk of human-to-human transmission.

An additional impact is on water utility workforces. Incident response planning needs to consider what would happen if workers become ill, or stay home to care for family or for fear of catching the virus from co-workers in confined working spaces in water and sewage systems, and in vehicles.

Health department staff and laboratories normally working with the water industry to ensure safe drinking water and sanitation systems have also been diverted to COVID-19 response efforts, leaving their normal work understaffed.

COVID HITS THE WATER SECTOR HARD

Water sector experts initially did not think the outbreak would affect other core functions, such as water for irrigation and aquaculture; firefighting; manufacturing; mining; recreation; and, environmental river flows and management.

But water incident response plans are generally designed to last for only a few days or weeks following a disaster like a typhoon. They are not designed to last 12 to 18 months as a pandemic works its way through a population.

Social distancing and travel restrictions will delay vital water infrastructure works, upgrades and repairs, particularly workers getting into remote locations. Sea and air travel disruptions are affecting global supply chains, making it difficult to obtain chemicals for water and waste treatment and to access international technology specialists to advise workers on site.

COVID-19's economic costs will be felt for years in government budgets, where cost cutting may affect spending on water resource protection, wastewater treatment, environmental management and reafforestation.

Water utilities' bottom line will also take a hit. Households suffering job losses may struggle to pay to repair and maintain water and septic tanks, pipes and other infrastructure, or even to pay their water and sewage bills.

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WASTEWATER SOUNDS THE EARLY ALARM

Surveillance mapping can reveal how a pandemic is spreading globally and affecting societies. These tools can help to monitor and anticipate new outbreaks around the world. The Global Water Pathogen Project, *www.waterpathogens.org*, launched six years ago, demonstrates the value of mapping to:

- identify disease hotspots;
- gain a better understanding of transboundary water contamination;
- highlight links between, land use, climate, water quality, and public health; and
- inform decision-making scenarios.

Sewage systems are particularly well suited to the task. Rose said sewage systems were already tested for a wide range of pathogens, although viruses are more difficult to detect than much larger cellular pathogens like bacteria, protozoans and worms.

Girones explained that preliminary research indicates that SARS-CoV-2 excreted in stools has a low ability to transmit the disease, and that its lipid envelope, characteristic of coronaviruses, makes it less likely than other viruses to persist in wastewater.

The concentration of the virus in sewage has already allowed tracking of the extent of asymptomatic, mild and acute infections in a population. These kind of data can identify the speed and extent of spread, second waves, and the impacts of social distancing and reopening cities.

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The COVID-19 virus was detected in a sewage system six days before cases started presenting to the hospital.

UNDERGROUND SURVEILLANCE, ABOVE GROUND REPORTING

The Netherlands has made clear progress in monitoring SARS-CoV-2 in water systems to understand the rate of virus propagation and its impact on populations.

Deere said the methods were not simple or cheap and still not proven at a large scale for the SARS-CoV-2 virus, but Medema said polio and typhoid programs showed that such an approach is feasible for SARS-CoV-2, if supported and properly undertaken.

Medema highlighted the detection of the virus in a Dutch community's sewage system six days before cases started presenting to the hospital. In other areas, increased SARS-CoV-2 RNA concentration in the sewage coincided with a rise in reported cases.

The virus's presence in sewage systems can sound an early warning, enabling authorities to act quickly. It can also inform the rate and pace of easing lockdowns.

OPPORTUNITIES

- **As the global confinement phase ends, sewage and wastewater surveillance can be expanded to evaluate the impacts of soft policies, as well as anticipate future outbreaks.**
- **The high-quality, reliable communications materials already available from health and other authorities must counter fear-mongering misinformation.**
- **Water utility business continuity plans should consider workforce restructuring, such A and B teams, so one healthy team is always available.**
- **Investment in improved water infrastructure will stimulate economies and generate new jobs after the pandemic, and reduce the drain on the public purse from future epidemics.**

WATCH THE WEBINAR

The Water & COVID-19 webinar was IWRA's most successful online event, with more than 440 registered attendees.
It can be viewed online here:
www.iwra.org/waterandcovid19-webinar/

IWRA would like to thank the following:
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