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THE GLOBAL IMPACT OF COVID19 ON WATER UTILITIES

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We believe that the adoption of
technology and innovation will
make the world a better place.

WHAT WE DO

WE BRING
TECHNOLOGIES TO
LIFE



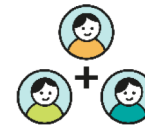
Identifying Challenges

We collaborate with the world's leading utilities and technology end users. After establishing their challenges, we find solutions through the independent sourcing of innovative technologies.



Connecting Technologies

We provide market intelligence to technology providers, enhancing the commercialisation process through increased dialogue and understanding of prospective clients' needs.



Collaborative Evaluation

Our innovation forums collaboratively review emerging technologies in a peer-to-peer environment increasing opportunities for knowledge transfer and shared resources to support the uptake of technology.

THE Covid-19 GROUP ON A PAGE

The group involves **630** people from **363** organisations across **60** different countries as of 27/05/20 at 17:00 BST



Aim of the group:

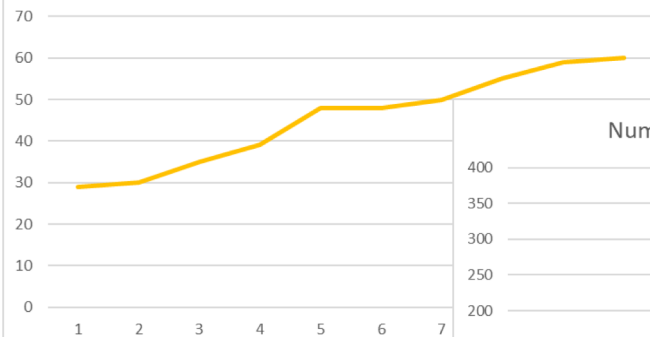
The Group is for utilities (water +) around the world to **share their learnings** and experiences, and to **ask questions**, on how best to handle the current Covid-19 outbreak.

It was launched on Monday 23/03.

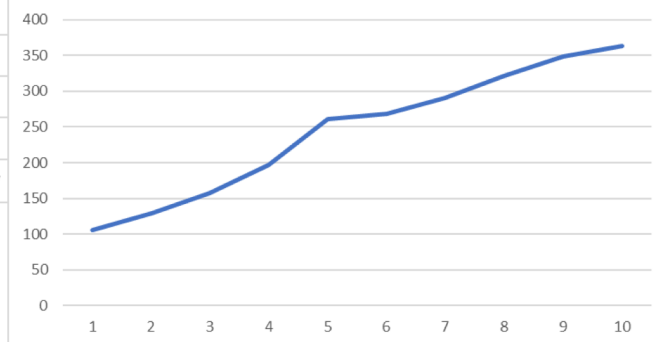
If you want to invite new utilities/municipalities to the WhatsApp group or new members to the Webinar contact Megan at megan.ford@isleutilities.com

The WhatsApp Group

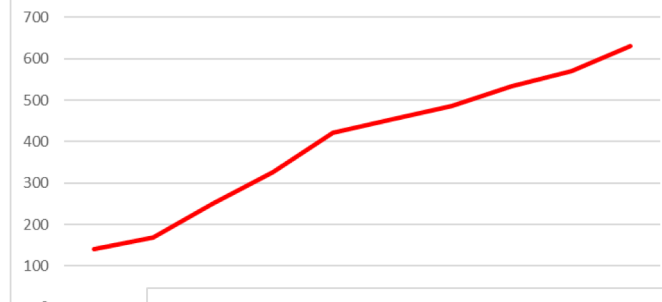
Number of Countries Involved over first 10 weeks



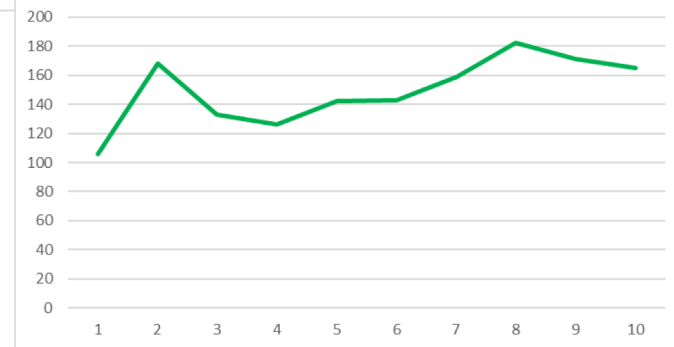
Number of Organisations Involved



Individuals Engaged



Webinar Attendance (total from am and pm)



Week	1	2	3	4	5	6	7	8	9	10
Date	26th March	2nd April	9th April	16th April	23rd April	30th April	7th May	14th May	21st May	28th May
MAIN GROUP										
Technology										
Wastewater and Sars-Cov2										
WASH Service Affordability										
Comms										

New Groups Proposed: Digital/AI, Asset Management, Customer Service, SDGs, Chemical Free Treatment, Leakage/NRW

It 'went viral'...

We created something Open, Fast and Informative

We are driven by the belief that Open Collaboration and Sharing will help make the world a better place.

- **WhatsApp + Weekly Summary Webinars:** Sorting the gems from the 'chaos'
- **Showcasing Key Documents:** TasWater Board Paper, White House WHO letter, etc
- **Surveys:** Highlighting the similarities and differences
 - Our own in mid April, and then...
 - Sharing results from others (eg ASDWA)
- **Case Studies:** Poland, Mexico, Sweden, NZ, Philpnes, Spain, Aus (+Tas), Brazil, Uganda...
- **Interviews:**
 - Utility frontline (A2A, AMAS),
 - Water Safety Plans (Acque Bresciane),
 - Leading Researchers (KWR)
- **Recommended Reads:** 'Go To' blogs, websites, papers etc; All available on One Drive

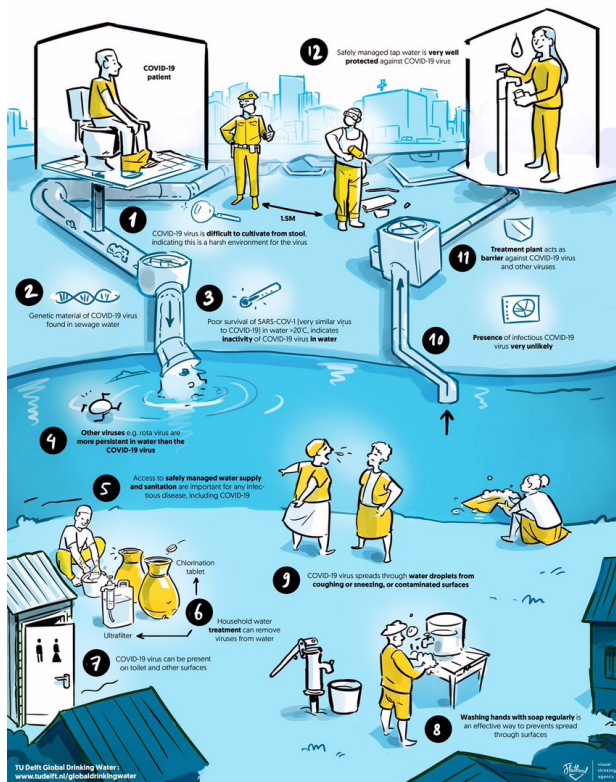
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INFOGRAPHICS

Each week we shared our favourite infographic

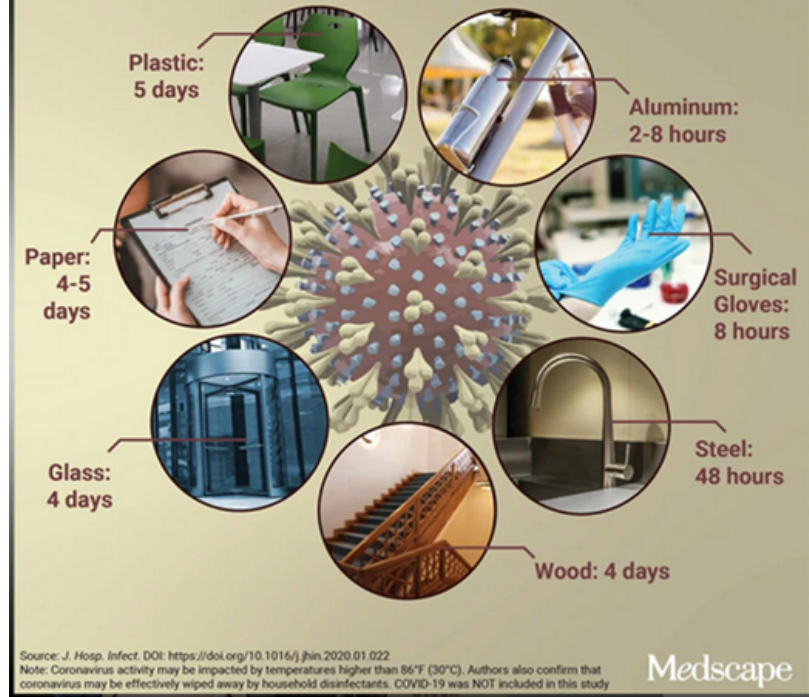
12 FACTS ABOUT COVID-19 VIRUS IN WATER

The importance of water access and hygiene in times of crisis



Source: IHE Delft.

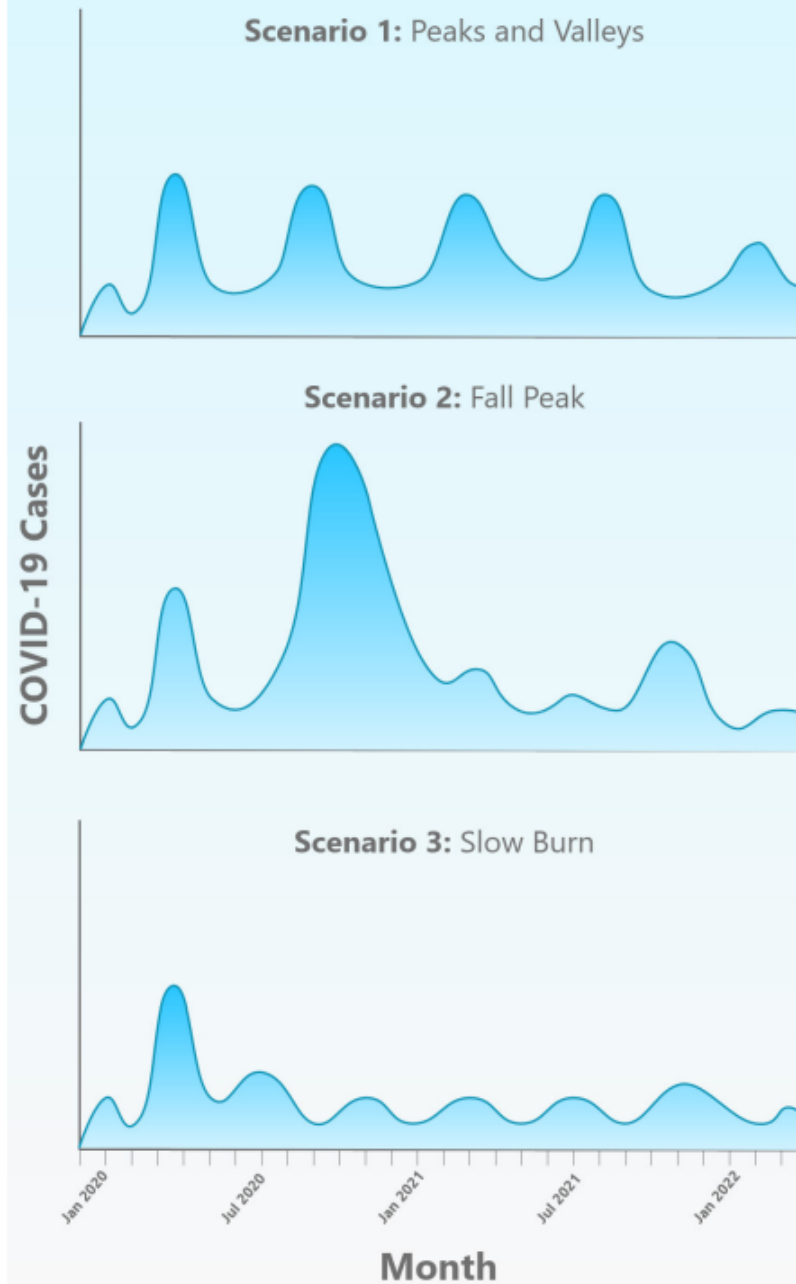
Persistence of Coronaviruses on Surfaces



Source: Luminultra



Possible Pandemic Wave Scenarios for COVID-19



Source: Center for
Infectious Disease
Research and Policy,
University of Minnesota.

[Link](#)

Entering and Exiting Lockdown

Early Learnings from Italy

“Timing is paramount”. Possible measures (depending on local circumstances) include:

- smart working, close offices to non-strategic external suppliers,
- define strategic suppliers/goods and arrange emergency cover,
- define access criteria and checking procedures,
- acquire and distribute PPE to all operatives, shift manage operations,
- inform customers re postponing payments (if this applies),
- help national protection services according to needs and internal availability

Have robust scenario plans: Australian desktop pandemic scenario undertaken just before Christmas.

- They assumed a much worse pandemic than Covid-19 (e.g. Smallpox)
- The practice pandemic led to a full close-down of the economy including **no shipping**.
- One of the first problems they ran into was the **impossibility to supply Chlorine for disinfectant**. All Australian chlorine is imported (as could be the case for many countries).
- This shortage of chlorine could lead to **potential water borne deceases** on top of the pandemic.

Recommendation: Utilities should update their Pandemic Response Plans (or including them in their WSP), and **assume a much worse scenario than Covid-19**, to really test their supply lines and other support systems

Water Safety Plans

WSPs should be modified to reflect latest knowledge, and updated as understanding of the virus grows.

- Drinking Water: **Water is safe for human consumption**. This conclusion is based on known evidence for more resistant coronaviruses, and on multi-barrier control measures validated in the water supply chain.
- There are some **risks indirectly related to the pandemic emergency and lockdown** that could impact water quality and continuity of supply. Prevention models within the WSPs should be updated
- Particularly critical is the **increase in local water consumption** which compromises aquifer recharge (esp in drought) => water supply restrictions and service shifts => consequent health impacts (especially if the lockdown continues/returns)
- Wastewater: The **current purification practices are effective in inactivating the virus**, using standard RTs combined with environmental conditions that impair the virus (sunlight, high pH, biological activity). Final disinfection phase enables complete removal of viruses before water is released into the environment.
- In conclusion, the risk analysis of exposure to SARS-CoV-2 via water and sanitation indicates that **high levels of health protection exist at present**.

However, similar to contamination by other chemicals or pathogens, the critical hazards related to the possible spread of Covid-19 through exposure to WATER MATRICES should be flagged and monitored. Typical critical hazards include wastewater, surface water used for bathing or irrigation purposes, stand-alone water supplies.



DETECTION & TESTS



REMOVAL OR DEACTIVATION



REMOTE MONITORING / CONTROL / RESILIENCE



CONTINGENCY OPTIONS

Technology outreach

We asked for technology companies to come forward

- Do you have a technology that can help water utilities with managing the effects of Covid-19?
- Tell us how your technology could help
- Isle reached out to more than **2500** companies and received more than **50** qualified responses
- « Solutions fell into these categories »
- There was a fantastic level of response from organisations across the globe, with enthusiasm to help
- Technologies have not been verified by Isle

TECHNOLOGY OUTREACH



DETECTION & TEST TECHNOLOGIES

EXAMPLE: Luminultra

“Rapid test for the
detection of Covid-19
Virus on hard surfaces in
all applications and
environments”



Who responded

Aqua Metrology, Luminultra
Chelsea Technologies, Praecautio
Aqua Q, Proteus Instruments
Charm Science, ITS Europe
Orbxyz, Bluephage
Waterlab, Southsea STS

Range of solutions

- Rapid portable test kits
- Real-time sampling of micropollutants in wastewater
- Quantification of Coronavirus in waste water
- Online water quality analysers
- Laboratory test capability

Initial take-aways

- Solutions require technical verification
- Few technologies are directly measuring Sars-CoV-2
- Real world market testing may be required

TECHNOLOGY OUTREACH



REMOVAL OR DEACTIVATION TECHNOLOGIES



Example: Dryden Aqua
Activated Filter Media -
replacement for sand
filtration



Who responded

Xylem, Dryden Aqua, OzolInnovations
Apsu, Trans Tech, Makro Organics,
Clean Water technologies LLC, Kria
Ionizer, VDH Water Technologies,
Aquastry, Instituto Tecnológico de
Galicia, BCR Environmental Corp,
Thermal Process Systems

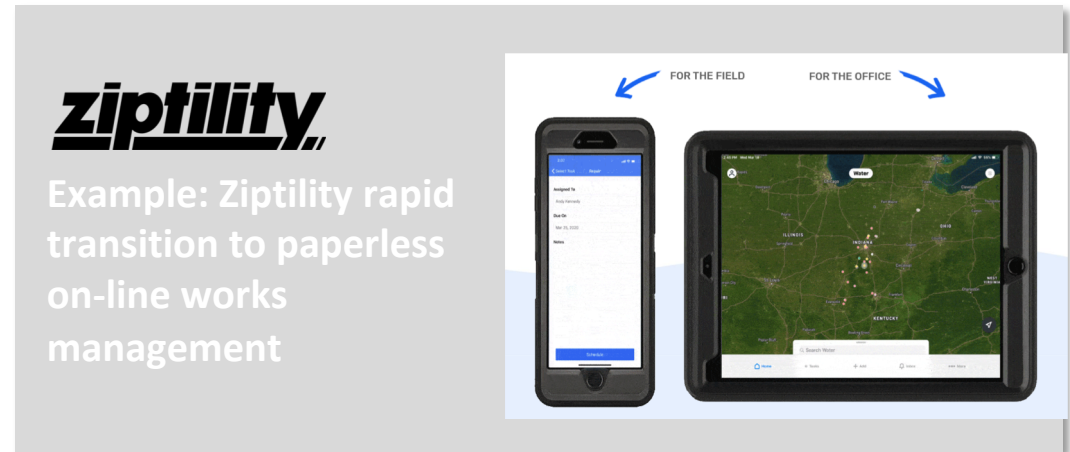
Range of solutions

- On-site disinfectant creation
- Air ionization
- Removal through filters
- UV-C disinfection for drinking water
- Waste water and sludge disinfection options

Initial takeaways

- Most technologies are not yet verified for Sars-COV-2
- There is an emerging link between virus in waste water effluent and societal levels of transmission
- Is there interest in air-borne contamination risk for water operators?

TECHNOLOGY OUTREACH



Who responded

Movus, Realiteq, Ziptility
Smart Valve, Intellitect
Lutra, RealTech Inc
Digital Mentor, Royal Haskoning
DHV, Xylem, IDT, APEM Ltd

Range of solutions

- Cloud based remote control systems
- Realtime monitoring of water/waste water treatment
- Rapid on-line works management
- Aircraft mounted site-safety surveys
- De-ragging pumps (additional wipes in sewerage system)

Initial takeaways

- Wide variety of options for water utilities
- Some longterm solutions that will help post-pandemic
- How quickly can these solutions be deployed and integrated?

TECHNOLOGY OUTREACH



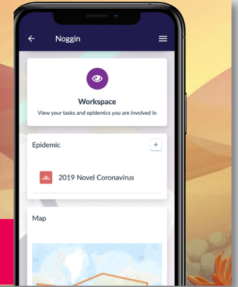
CONTINGENCY OPTIONS



Example: NOGGIN incident
management platform

Noggin
Integrated
Safety and
Security
Platform

[Free Noggin COVID-19
Healthcare & Business Software](#)



Who responded

Baseform
Water Direct
Primusline
PIPA
Noggin

Range of solutions

- Incident management platform (free)
- Emergency water supply options
- Emergency waste water transmission

Initial takeaways

- More solutions needed in this space
- Some solutions geographically constrained
- The supply chain needs more guidance to be helpful in with this subject

So what did we learn?

(1 of 2)

My 12 Key Take-Aways:

- **Lockdown:** ‘Timing is paramount’; keep Asset Registers up to date, think about supply chains
- **PPE:** Reusing PPE is of limited value. Social distancing trumps all.
- **Operations:** Isolate your shift teams (and have one spare!)
- **WASH:** We must help the disadvantaged communities.
 - More financing + more political engagement is required.
 - Mega-slums = infection hot-spots.
 - Simple solutions exist and must be activated (eg mobile handwashing stations)
- **Impact of Technology** will be significant (for resilience, automation, facilitating the ‘new normal’...). Build resilience through decision intelligence.
- **Scenario Planning:** If it tells you something important, act on it!
- **A funding crisis is coming**, some utilities will not survive (up to 90% drop in revenues)

So what did we learn?

(2 of 2)

- **Water Use:** Domestic up by 5–25%, industrial down by 20–50%. Usage pattern shifts. Revenue implications depend on individual customer mix and metering strategy
- **Supporting the Customer:** Utilities should preserve their social duty to supply water to everyone, but target support to those most in need (social tariffs vs blanket provisions)
- **Politics Matter:** Poland vs Canada vs UK vs Sweden (vs Brazil vs Mexico vs USA....).
- **Communications matter:** Agree key messages, identify key stakeholders, clarify policy messages,. Get it right and the positive upside is huge. Get it wrong....
- **SARS-Cov2 in Wastewater:** Transmission risk is very low
 - Inactive RNA can be detected in raw sewage within 3 days of infection.
 - Asymptomatic cases are detectable.
 - No real time sensor yet but 24 hours still gives us 10 days headroom.
 - Questions remain over
 - Interpreting community infection from RNA concentrations
 - Does increased viral load increase transmission risk

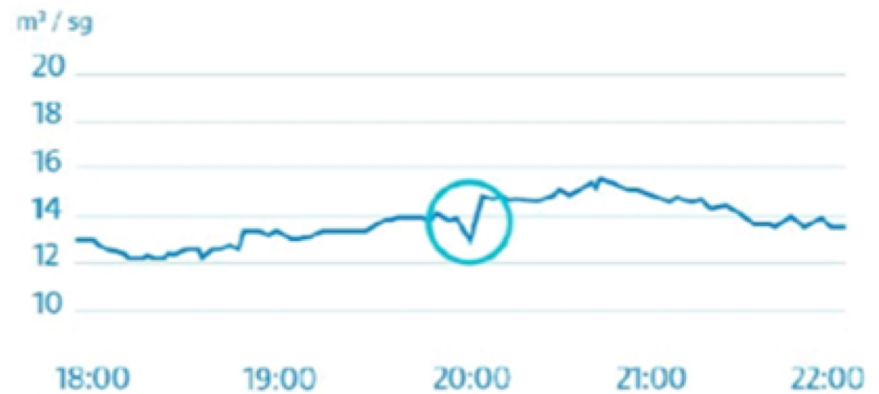
My favourite graph

In Spain, they have been able to detect a 10%+ drop in water usage at 8pm.

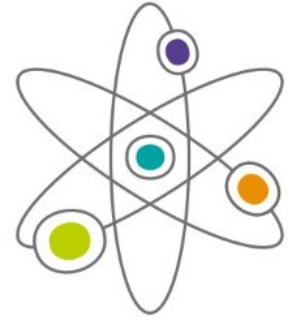
This coincides with when the public are clapping and singing and generally celebrating the Spain's health workers



Consumo de agua



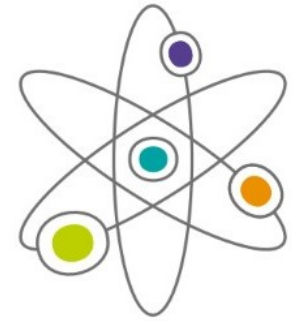
Where next? The Water Action Platform



The new platform will be open to all and free. Its core goal will be to facilitate collaboration and sharing, with a strong innovation seam running through it.

- The WhatsApp groups will continue as currently, but with **new groups for other topics-of-interest** (not necessarily related to Covid-19 eg biosolids, asset management digitisation, water quality).
- Isle will continue to 'sort the chaos' and drive out the gems of wisdom.
- Alongside the WhatsApp group we will also have a dedicated webpage where people can share documents/experiences. This **webpage will include podcasts/interviews/case studies** etc. Easy to access and digest!
- As required everyone in the network will be sent an email with the links to recent 'hot topics'.
- There will also be a **monthly summary webinar**, in which the highlights from the previous month will be summarised (just like the weekly Covid-19 webinars now).

How it will be funded?



The WAP will be sponsored by organisations who share our belief that through collaboration and open sharing we can make the world a better place.

IFIs, Utilities, Associations, Academia, Corporations, Consultants and Investors...



THE WORLD BANK



ATKINS

Member of the SNC-Lavalin Group



World Water
Innovation Fund



Conclusions

- To ensure a smooth exit from lockdown, utilities and operators need prioritize key actions. A robust and workable Water Safety Plan is critical. WSPs must be updated to reflect likely pandemic scenarios, (noting COVID19 is actually relatively mild)
- 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.
- We cannot predict when the next pandemic will occur. Organisations that are **flexible and adaptable** will **thrive!** It is a CULTURAL issue as much as an INFRASTRUCTURE one

‘Be like water, adapt to your surroundings’

CONTACT US



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[Linkedin.com/company/isle-utilities](https://www.linkedin.com/company/isle-utilities)



Appendix

Supporting information

ABOUT ISLE

Isle is an independent technology and innovation consultancy that brings together technical and commercial specialists to facilitate relationships.

Our team are highly skilled engineers and scientists with extensive and diverse consulting expertise. We use this valuable expertise to identify technology deal-flow, undertake due diligence, provide market intelligence, and work with investors.

Isle's core capabilities lie in:



We believe that the adoption of
technology and innovation will
make the world a better place.

WHAT

We are a global team of trusted advisors partnering with our clients to accelerate innovation in their organizations

HOW

We facilitate peer to peer collaboration and help stakeholders identify, evaluate and adopt the best technologies and management practices through our independent consultancy services

WHY

Water is life's most precious resource. Accelerating the adoption of innovative solutions will improve communities, environment, and protect public health around the world.

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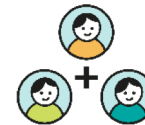
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4 REASONS TO PARTNER WITH US

1

150+ GLOBAL CLIENTS

Our ongoing relationship with over **150** water utilities across the globe, including Australia, the UK, Europe, North America, the Middle East, South-East Asia, New Zealand and Africa. This offers us insight into who is doing what, in each market.

2

SECTOR KNOWLEDGE

Our technical experience in the water, energy and built environment markets, combined with our knowledge of existing and emerging technologies in the global market.

3

INNOVATION SUPPORT

Our experience of supporting innovative companies through feasibility and due diligence studies, technical trials and business plans specifically for water utilities based on real performance and operational data.

4

ONLINE TOOLS

Our online tools provide an accessible platform to showcase qualified emerging solutions and best practices to a global network of end users.

The COVID19 Utilities Survey – April 2020



18 responses from 11 countries





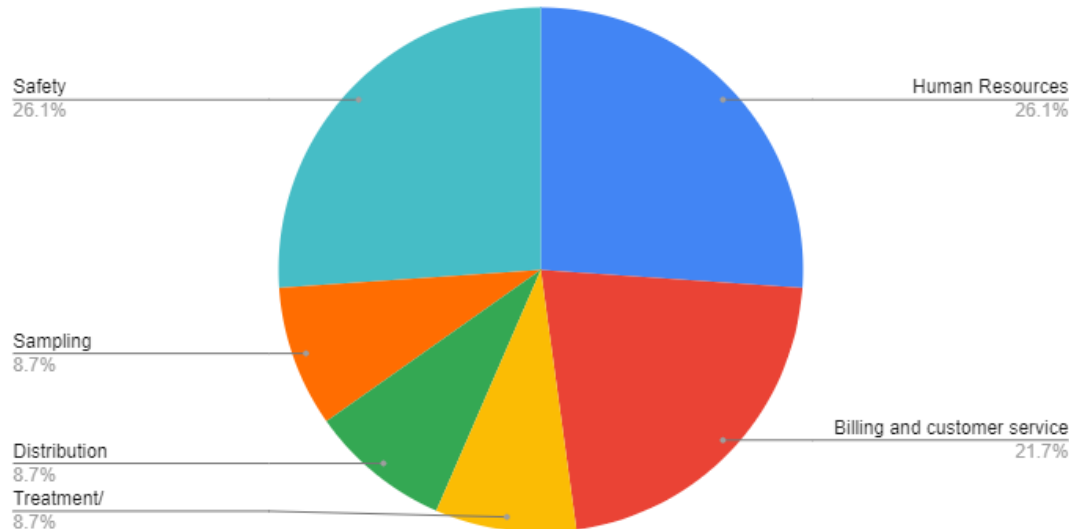
Challenges

Challenges

- Social distancing during work activities (e.g. sampling)
- Risk of burn outs, staff morale
- Keeping good financial balance
- Hard to obtain PPE for staff
- Hard to obtain reagents, chemicals and other resources for operation
- Payment and money collection challenges
- Increased calls to service lines
- Cancelation of infrastructure projects

What strengths helped you in these times?

- A tried and routinely tested Business Continuity Plan.
- A great team commitment
- Crisis management preparedness
- Water Relief Subsidy Program to our water clients from low income communities
- Cape Town's drought crisis experience has been helpful in developing a rapid response to the crisis
- Hurricane and disaster planning.
- Smart working and modern IT tools

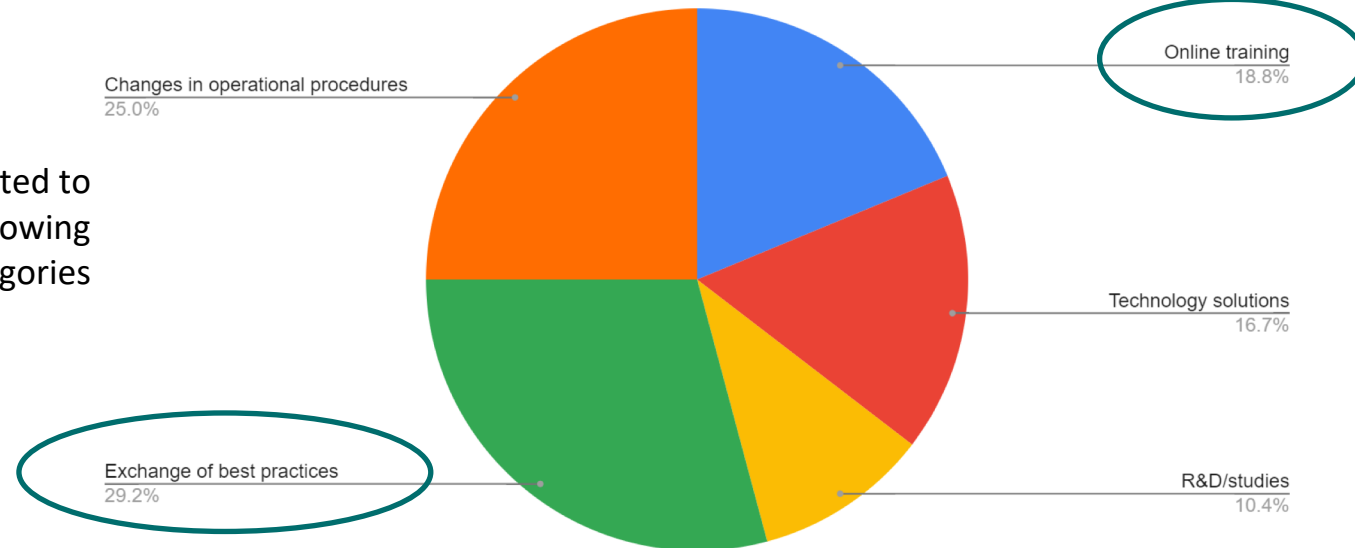


Respondents indicated “many” or “serious” challenges related to these activities in their organisation: (on the scale of: none, few, many, serious, unacceptable)

Support/solutions



Respondents indicated to seek support in the following categories



*“Exchange of best practice allows for rapid learning and adaption, including changes to operational procedures. This may be more helpful through creation of **focus groups on different topics**, and for grouping of utilities in more similar contexts (eg development countries with large informal settlements)”*

“I would like to know which are the best procedures to carry out the work safely on the water distribution networks and what are the activities that can be carried out without limitations during the lock down or gradual reopening.”