



Managing Water Loss during Lockdown



WEBINAR

11 August 2020
15:00 CEST

IWA SPECIALIST GROUP ON WATER LOSS (WLSG)



Water Loss SG focuses on all treated water that is lost, mostly from underground leaks on mains, and how to reduce those losses through leak detection and hydraulic control.

WLSG Management Committee

 Alexandru Aldea Management Committee	 Mary Ann Dickinson Management Committee	 Gary Wyeth Secretary Group admin	 Will Jernigan Management Committee	 Mahmood Lutaaya Management Committee
 Arsenio Elisio de Revez Mate Management Committee	 Shuming Liu Management Committee	 Josephine Parker Management Committee	 Aravinda Stanley Management Committee	 Roland Liemberger Management Committee
 David Duccini Management Committee	 Stuart Trow Management Committee	 K. Ashok Natarajan Management Committee	 Cristiano Gouveia Management Committee	 Stuart Stapely Management Committee
 JIN JUNWEI Management Committee	 Andrew Donnelly Management Committee	 Mohammed Shafei Management Committee	 Hana Al-Maskati Management Committee	
 Jurica Kovac Management Committee	 Bambos Charalambous Management Committee	 Stuart Hamilton Chair Group admin	 Julian Thornton Management Committee	

Contact the WLSG MC Leaders

Stuart Hamilton, *Chair*
shamilton@hydrotec.co

Gary Wyeth, *Secretary*
garywyeth@me.com

Visit WLSG on IWA Connect:

<https://iwa-connect.org/group/water-loss/timeline>

Join **1,620 water professionals** working across a great variety of different sectors!

AGENDA

- Introduction
Jo Parker
- Water loss management and COVID-19: a multiple utility perspective
Pedro Ramalho
- Managing Water Loss Performance-Based contracts during the COVID-19 period
Milene Aguiar
- Changes to water loss management during the COVID-19 lockdown
Philippe Mappa
- Digital acoustics, data intelligence, communications and virtual appointments to help manage leakage and demand
Gareth Paske
- Q&A Panel Discussion
Pedro Ramalho, Milene Aguiar, Philippe Mappa, Gareth Paske
(Moderated by Jo Parker)



Pedro Ramalho
Administração e
Gestão de Sistemas
de Salubridade
Portugal



Milene Aguiar
Thornton
International
Brazil



Philippe Mappa
Suez
France



Gareth Paske
Welsh Water
UK



Jo Parker
Watershed Associates
UK



Water loss management and COVID-19: a multiple utility perspective

PEDRO RAMALHO

ADMINISTRAÇÃO E GESTÃO DE
SISTEMAS DE SALUBRIDADE, PORTUGAL



POLL 1

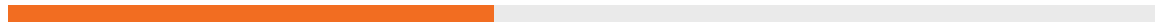
- **Have you seen visible leaks decrease or increase?**
 - Increase
 - Decrease
 - No change
 - Not sure

POLL 1 RESPONSE

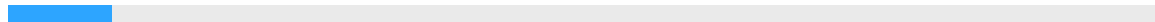
165 voted

1. Have you seen visible leaks decrease or increase?

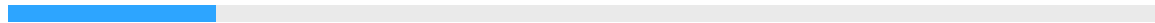
Increase (69) 42%



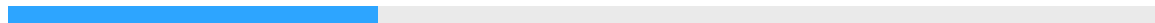
Decrease (15) 9%



No change (30) 18%



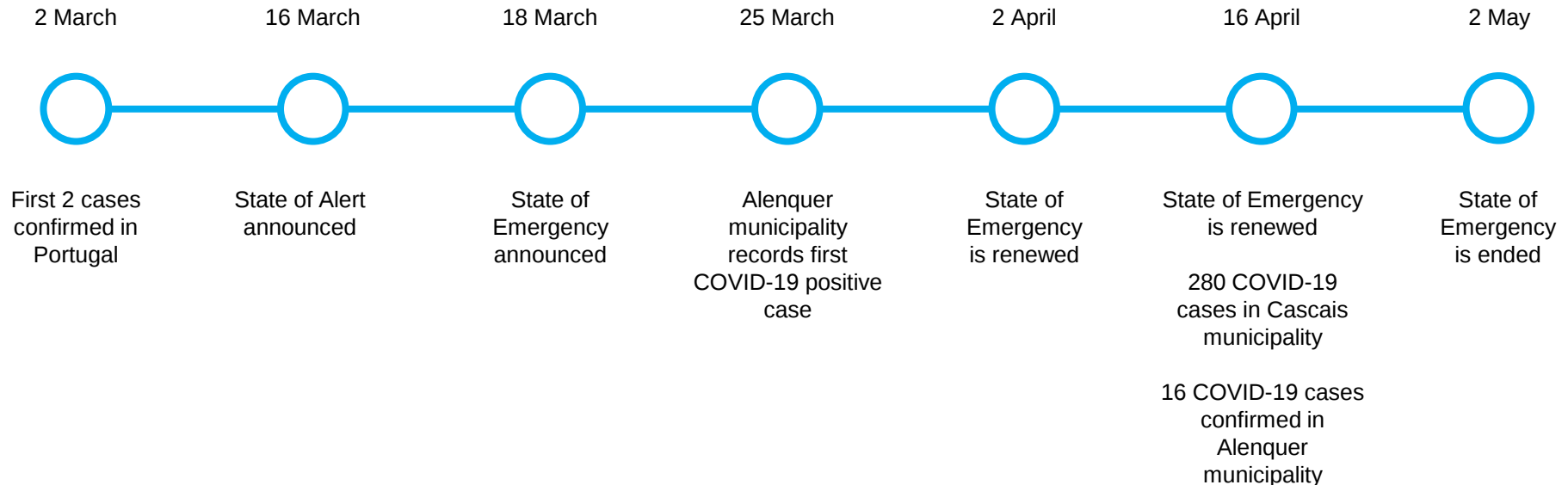
Not sure (52) 32%



1. Water losses challenges during lockdown
2. Solutions for water loss management
3. Final remarks

1. WATER LOSSES CHALLENGES DURING LOCKDOWN

SARS-CoV-2 pandemic evolution in two Portuguese municipalities



1. WATER LOSSES CHALLENGES DURING LOCKDOWN

Changes in water services brought by COVID-19



Continuity of supply
with less manpower



Field works decreased
or suspended



Remote
solutions



Volume of water
consumed



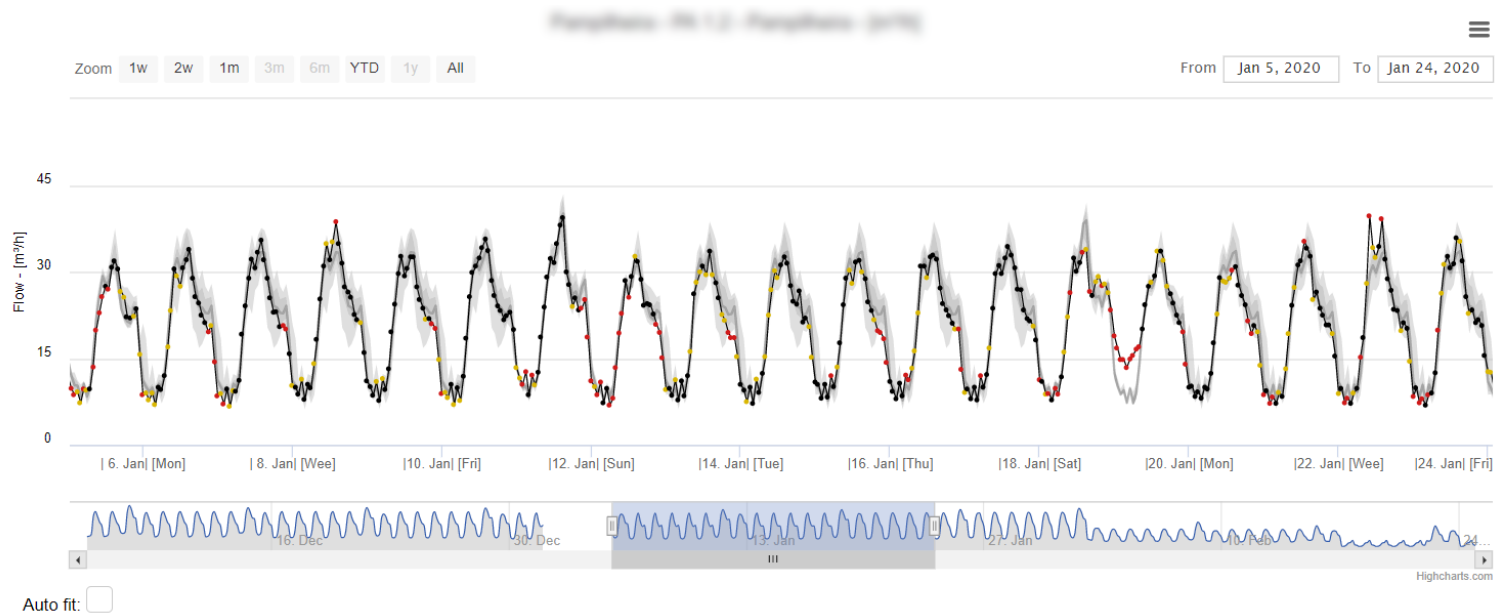
Revenue
water



Consumption
patterns

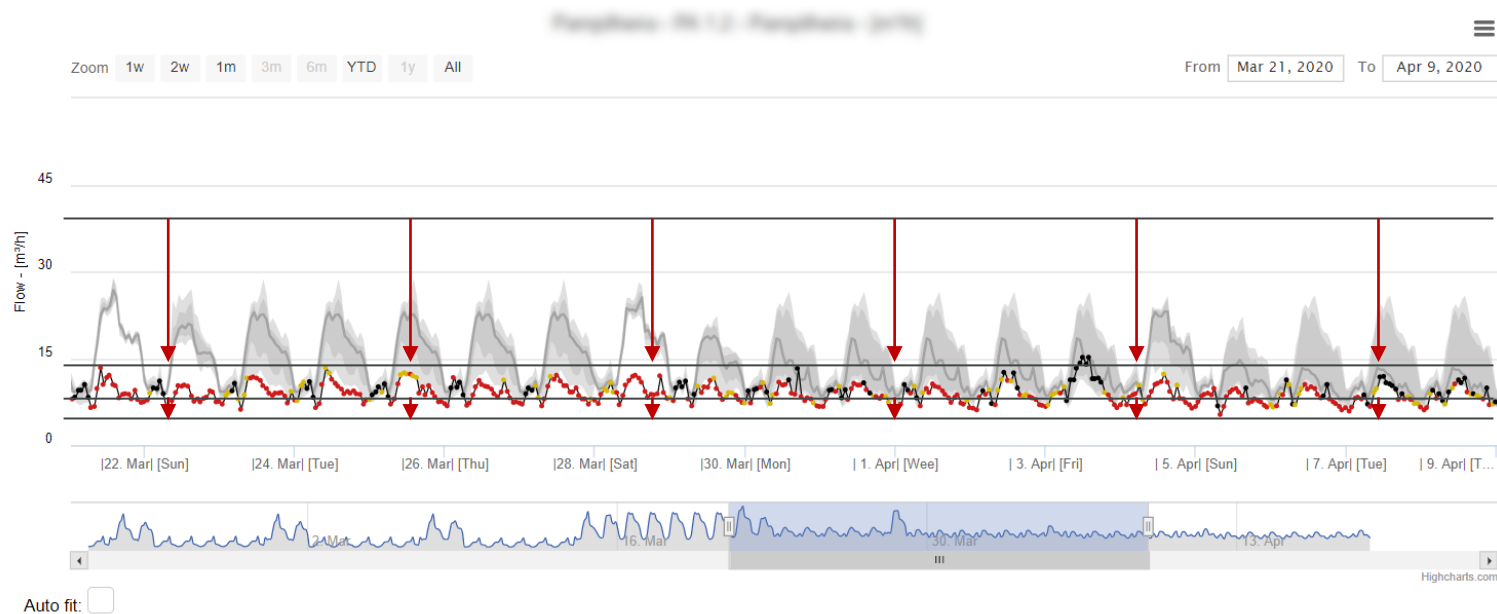
1. WATER LOSSES CHALLENGES DURING LOCKDOWN

Commercial DMA | Before the pandemic



1. WATER LOSSES CHALLENGES DURING LOCKDOWN

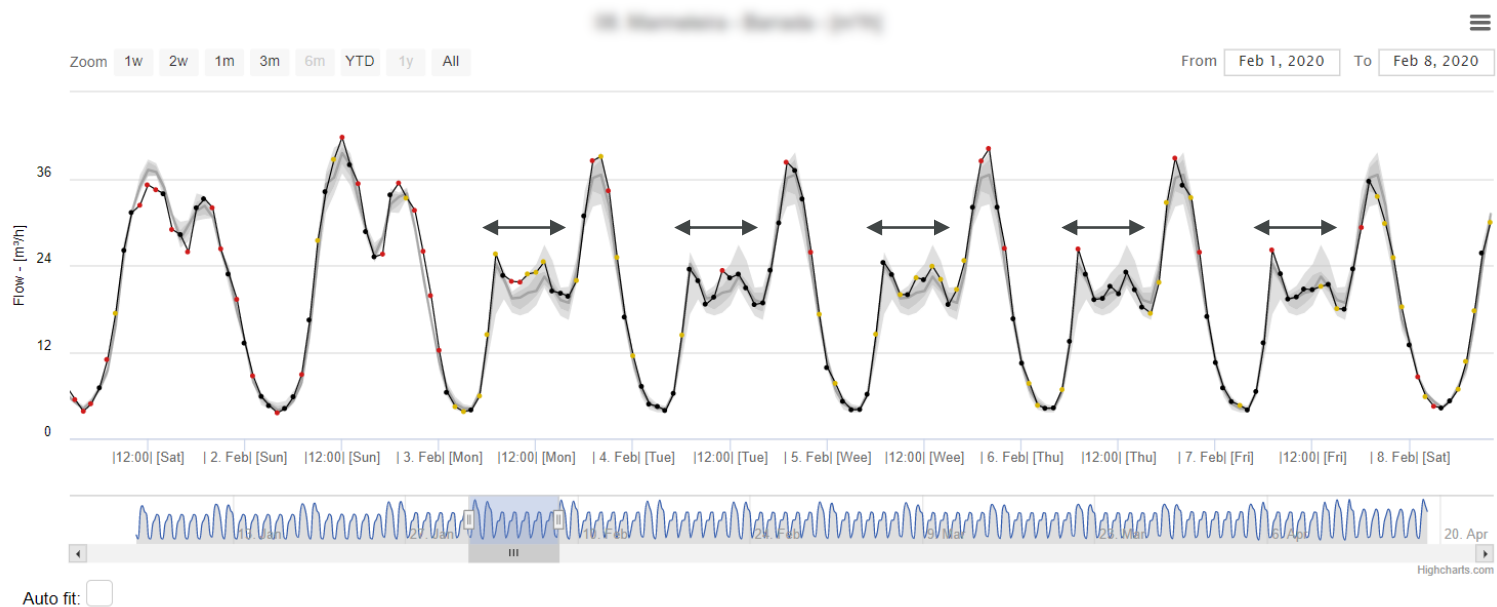
Commercial DMA | During lockdown



- Significant decrease in average flow
- Minimum flow/Average flow ↗
- Decrease in minimum flow
- Minimum flow/service connection ↘

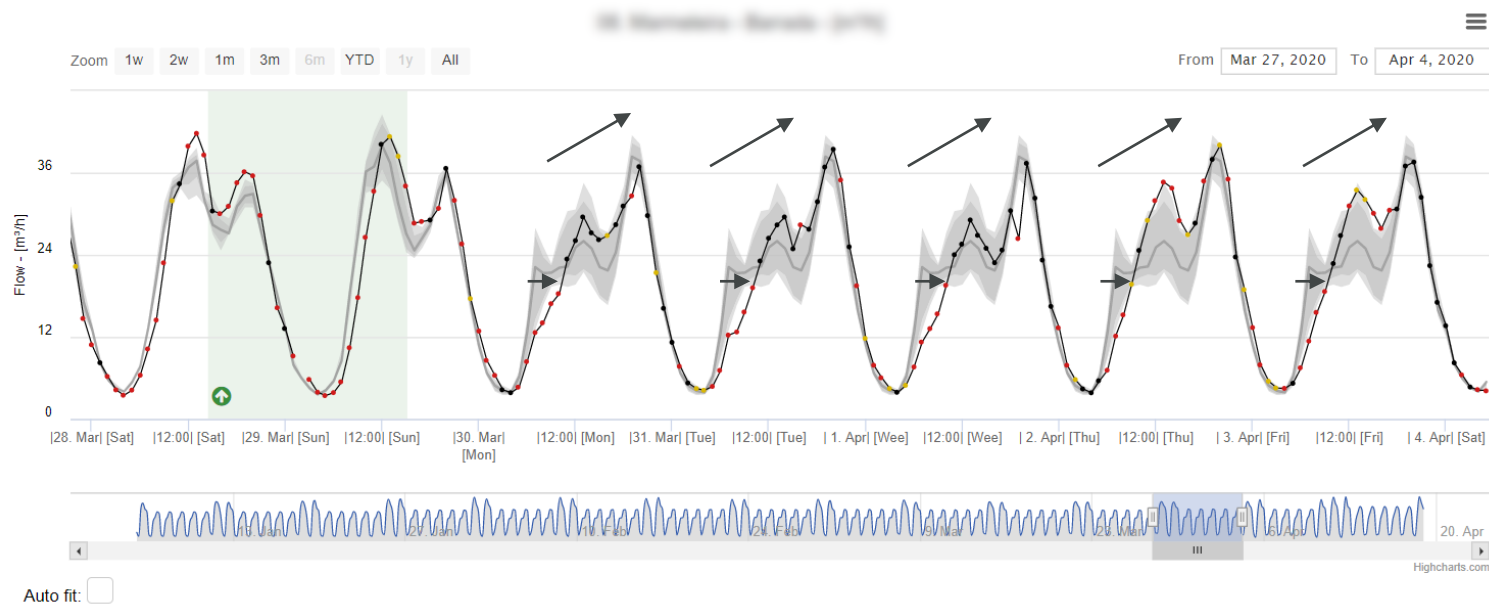
1. WATER LOSSES CHALLENGES DURING LOCKDOWN

Residential DMA | Before the pandemic



1. WATER LOSSES CHALLENGES DURING LOCKDOWN

Residential DMA | During lockdown



- Increase in daytime consumption
- Later morning peak
- Minimum flow/Average flow ↘
- Minimum flow/service connection ≈

1. WATER LOSSES CHALLENGES DURING LOCKDOWN

Challenges faced by water utilities

- Decrease in **bursts communication** by citizens
- Increased **bursts repair times** in some cases (outsourced)
- Fewer operational **personnel** on the field (mirror teams)
- Increased **network pressure** and higher background leakage
- Limited customer **meters readings**
- Impossibility of **cutting service** due to illegal uses

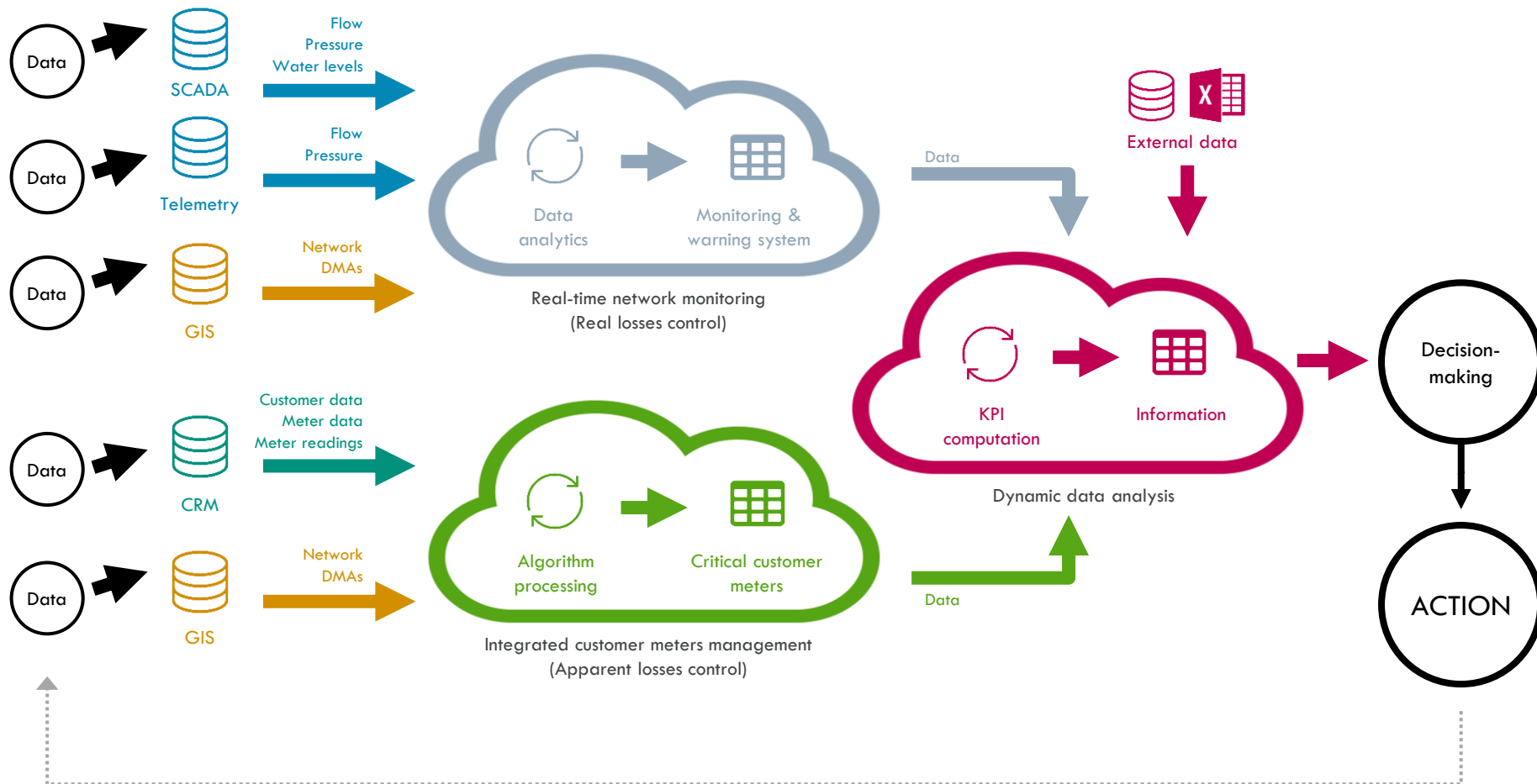
2. SOLUTIONS FOR WATER LOSS MANAGEMENT

New opportunities in water loss management

- **Remote work** for technical management and operational control
- **Opportunity** to do activities that normally wouldn't be possible
- Promote the implementation of **integrated solutions** and **technologies**
- Utilities are more sensible on the adoption of “**smart networks**” through metering, sensing and advanced analytical capabilities
- Demystify the “**fear**” of **digital solutions**

2. SOLUTIONS FOR WATER LOSS MANAGEMENT

From data to information to action



2. SOLUTIONS FOR WATER LOSS MANAGEMENT

Network events detection



2. SOLUTIONS FOR WATER LOSS MANAGEMENT

Understanding people's behaviours



3. FINAL REMARKS

Some ideas...

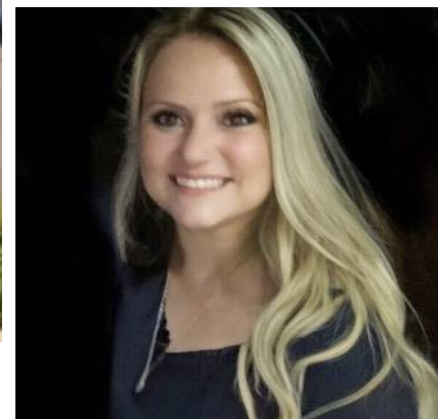
- **Remote solutions** are here to stay
- A thorough and timely **assessment** of systems performance is essential to anticipate problems and take proper measures
- **Technology** can help us understanding COVID-19 impact on water systems and how cities are progressively trying to get “back to normal”



Managing Water Loss Performance-Based contracts during the COVID-19 period

MILENE AGUIAR

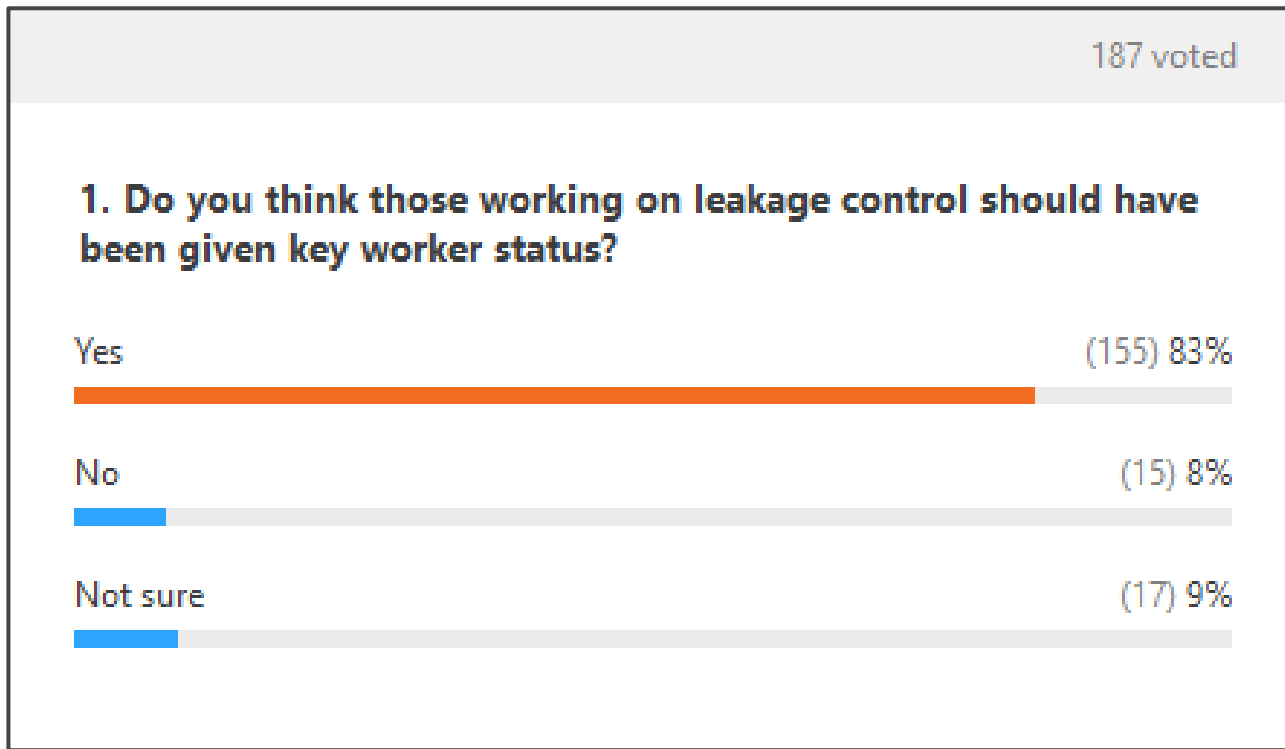
THORNTON INTERNATIONAL, BRAZIL



POLL 2

- **Do you think those working on leakage control should have been given key worker status?**
 - Yes
 - No
 - Not sure

POLL 2 RESPONSE



BENEFITS OF PERFORMANCE BASED CONTRACTS IN BRAZIL

1 **Reduction of deadlines – conventional hiring requires 3 contracts**

Audit and Project; Infrastructure Works; Implementation of the Water Loss Reduction Program.

2 **Innovative Service Hiring Solution**

Long-term benefits.

3 **Success cases in all contracts**

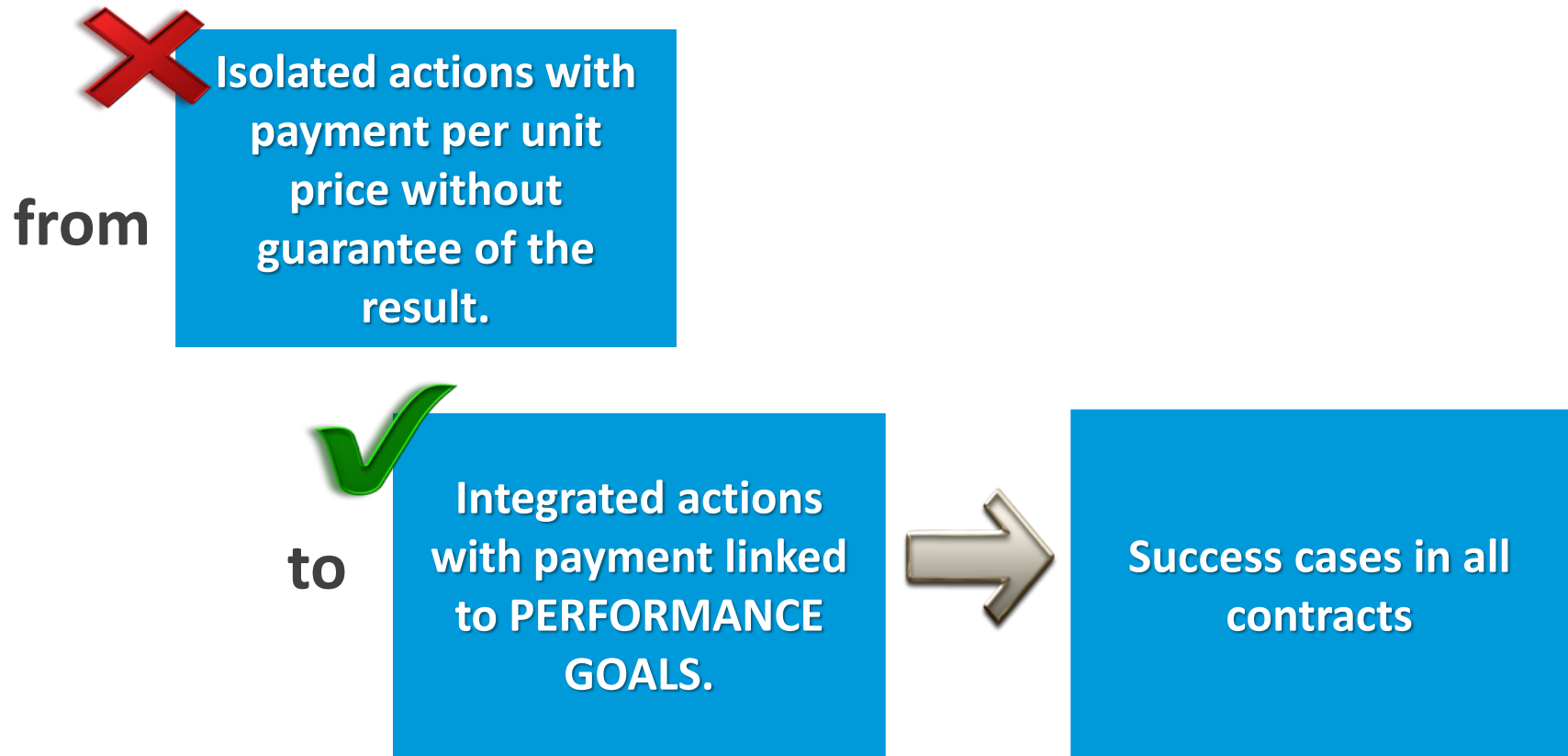
Attractive for the market.

4 **Optimizes the management process**

Management of a single contract with infrastructure deployment, loss control, monitoring, etc

PERFORMANCE BASED CONTRACTS

- Changing focus of action



CONTRACTS BY RESULT – DIFFERENTIALS

Combine several types of services and works in the same contract. (mix of solutions)



Commitment to the result.

Greater agility in hiring



Encourage innovative and efficient solutions.

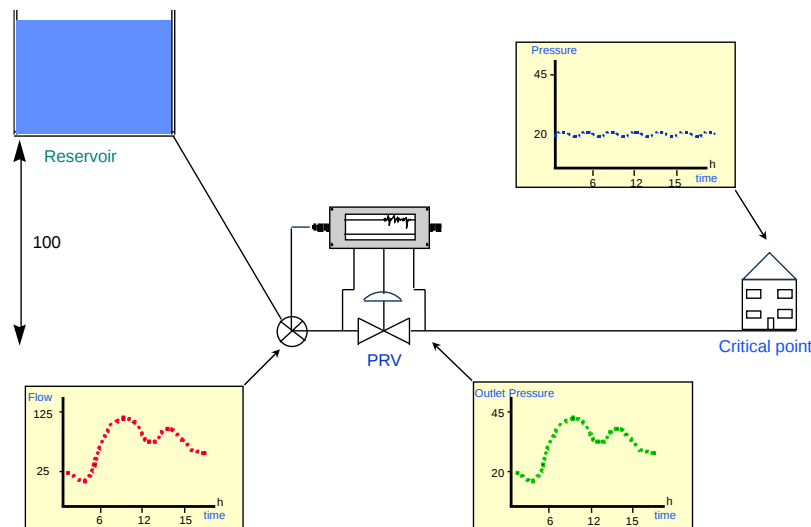
PERFORMANCE-BASED CONTRACTS DURING THE COVID-19 PERIOD - SAO PAULO



- Water distribution activities:
 - Considered essential activity
 - Field works were not paralyzed
- Schedules were not delayed
 - Needs for adjustments of the teams and schedules

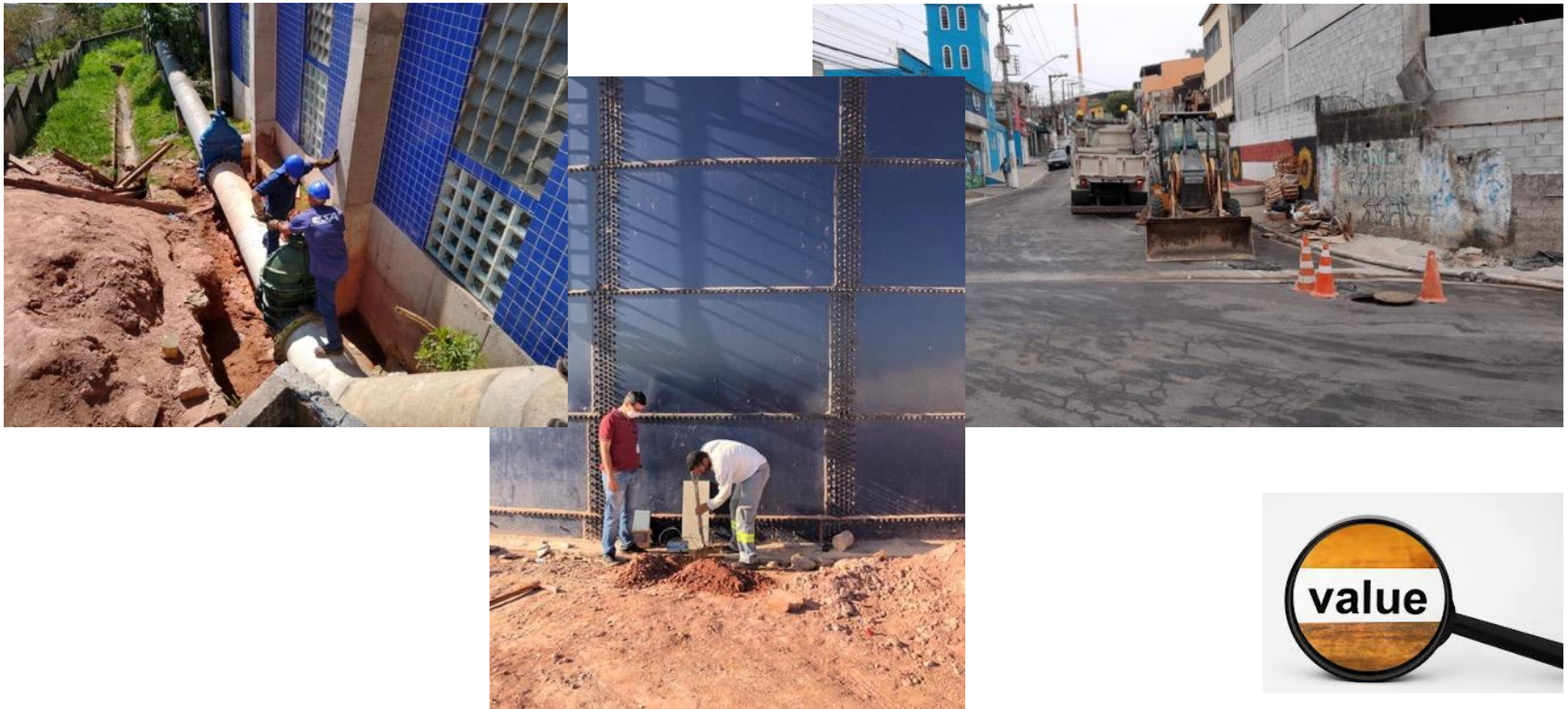
PERFORMANCE-BASED CONTRACTS DURING THE COVID-19 PERIOD

- Main changes:
 - Changes in water consumption in residential areas: need for adjustments in the pressure control



PERFORMANCE-BASED CONTRACTS DURING THE COVID-19 PERIOD

- Main changes:
 - Adjustments of schedules and teams working in the field



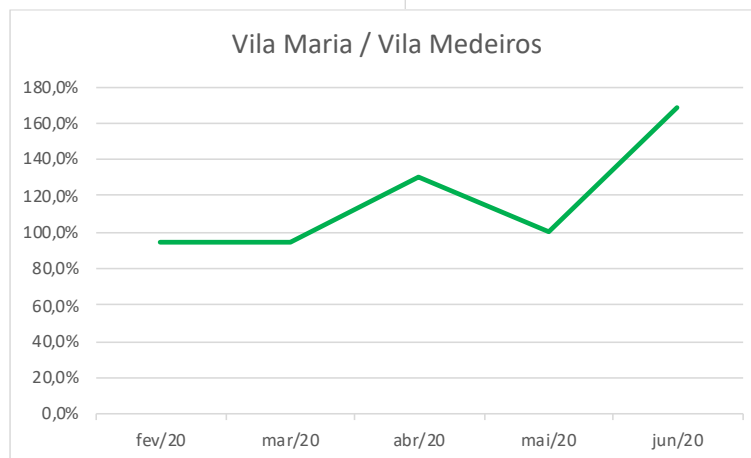
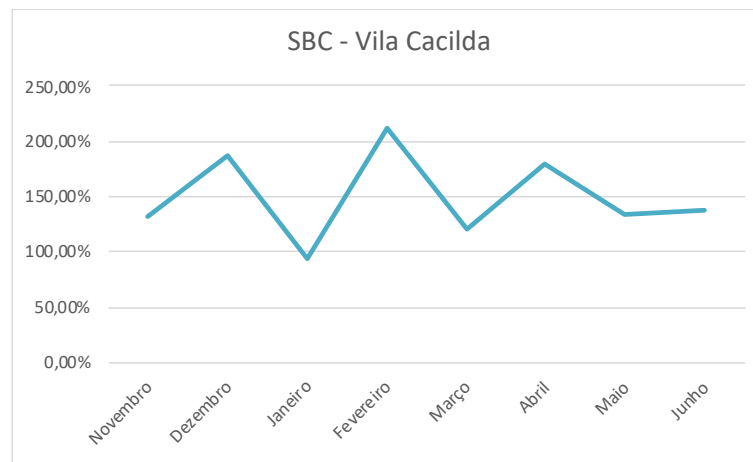
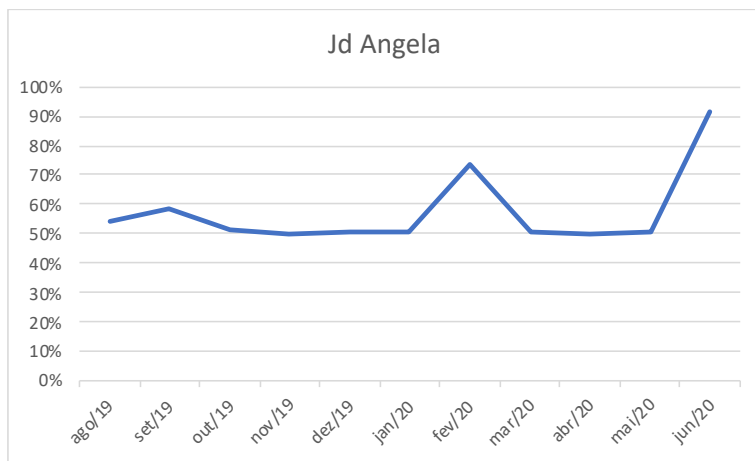
PERFORMANCE-BASED CONTRACTS DURING THE COVID-19 PERIOD

- Main changes:
 - Less traffic in the streets: immediate releases for execution of works



WATER LOSS INDICATORS

- Water loss indicators were not affected during this period.



Changes to water loss management during the COVID-19 lockdown

PHILIPPE MAPPA
SUEZ, FRANCE



POLL 3

- **Did the government in your country give any recognition of the important role of access to clean water in managing COVID-19?**
 - Yes
 - No
 - Not sure

POLL 3 RESPONSE

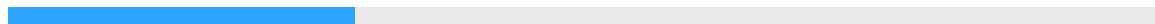
185 voted

1. Did the government in your country give any recognition of the important role of access to clean water in managing COVID-19?

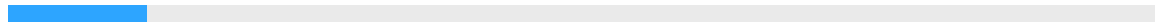
Yes (106) 57%



No (56) 30%



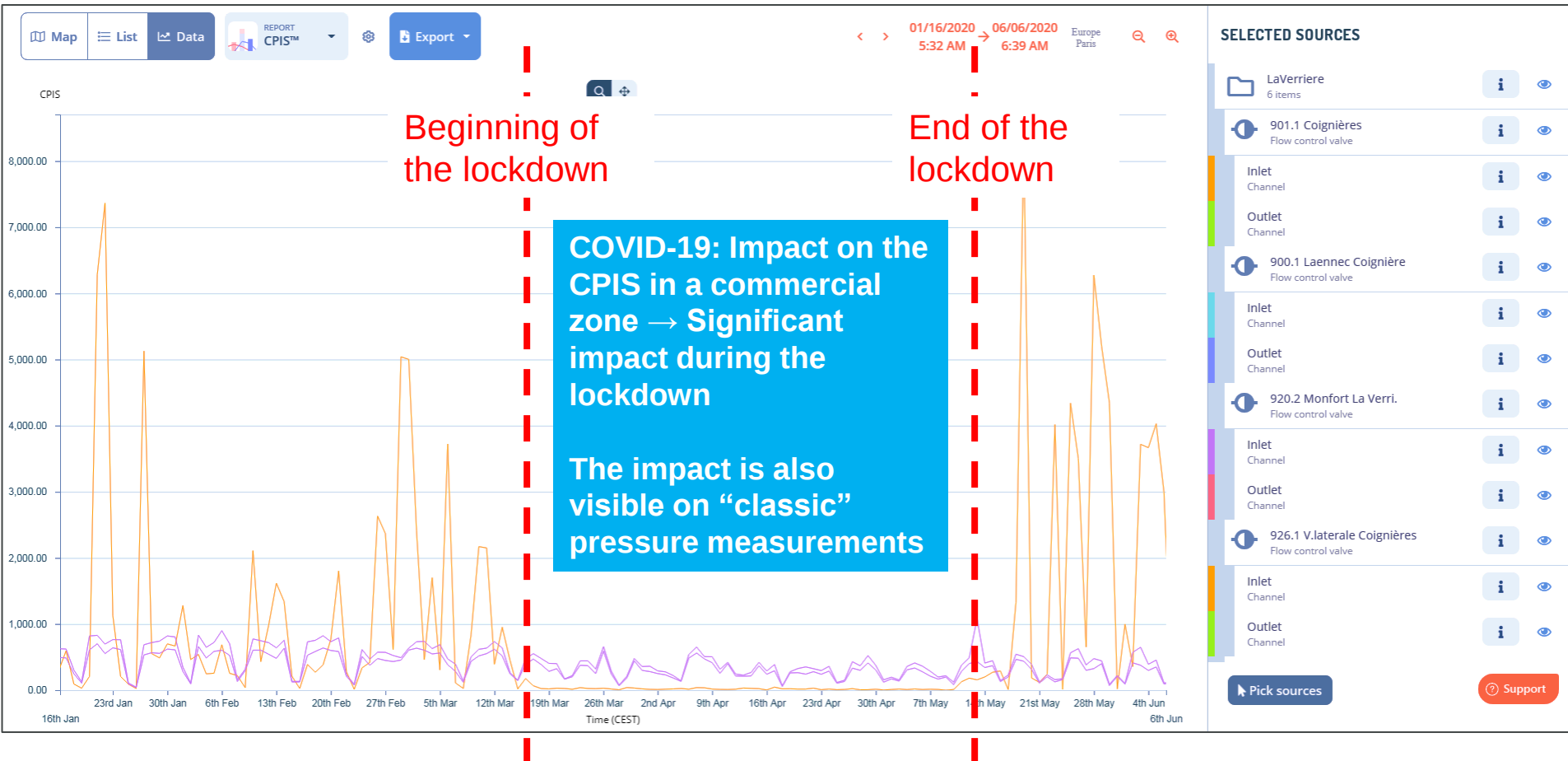
Not sure (23) 12%



AN EXCEPTIONAL SITUATION



AN EXCEPTIONAL SITUATION



AN EXCEPTIONAL SITUATION

- Continuity Plan implemented (minimum service)
- Some field activities have been put on hold (see below)



WHAT ARE THE LESSONS LEARNED ?



Very resilient water system

- No interruption of service



Calmer network

- Less “loadings / constraints” on the pipes, accessories and service connections



Less leaks and bursts reported

- OPEX reduction



Revenue losses

- Potential impact on investment capacity



And finally...

- A need to reassess our way of operating the network

FOCUS ON WATER LOSS MANAGEMENT

Central Monitoring Center must be 100% operational.



Sensors must be 100% operational



Minimum sectorization or pre-localization systems are needed



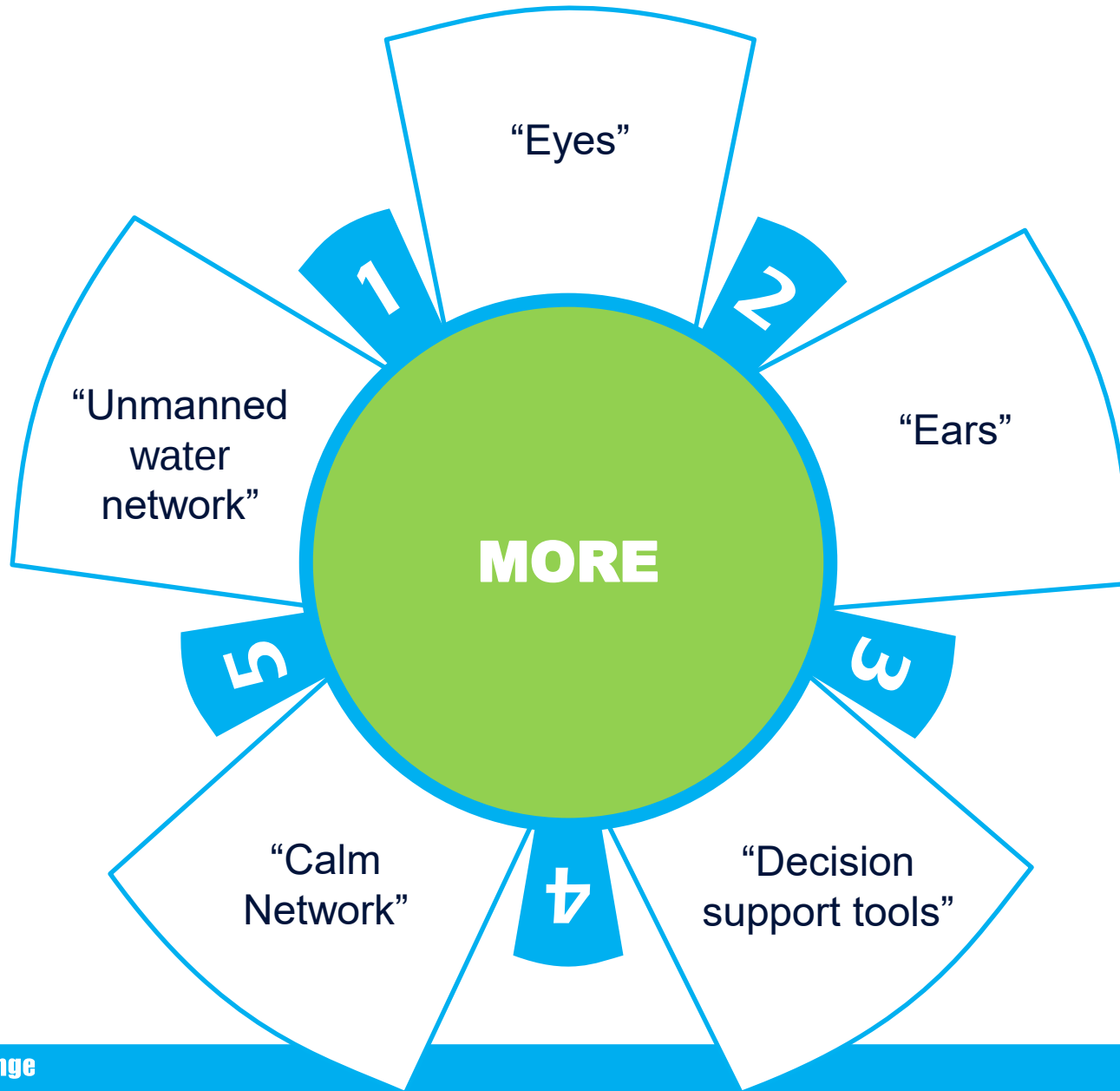
Measurement of night consumption is important



Telemetry of big customers is also important



WHAT ARE THE OPERATORS WISHES?





Digital acoustics, data intelligence, communications and virtual appointments to help manage leakage and demand

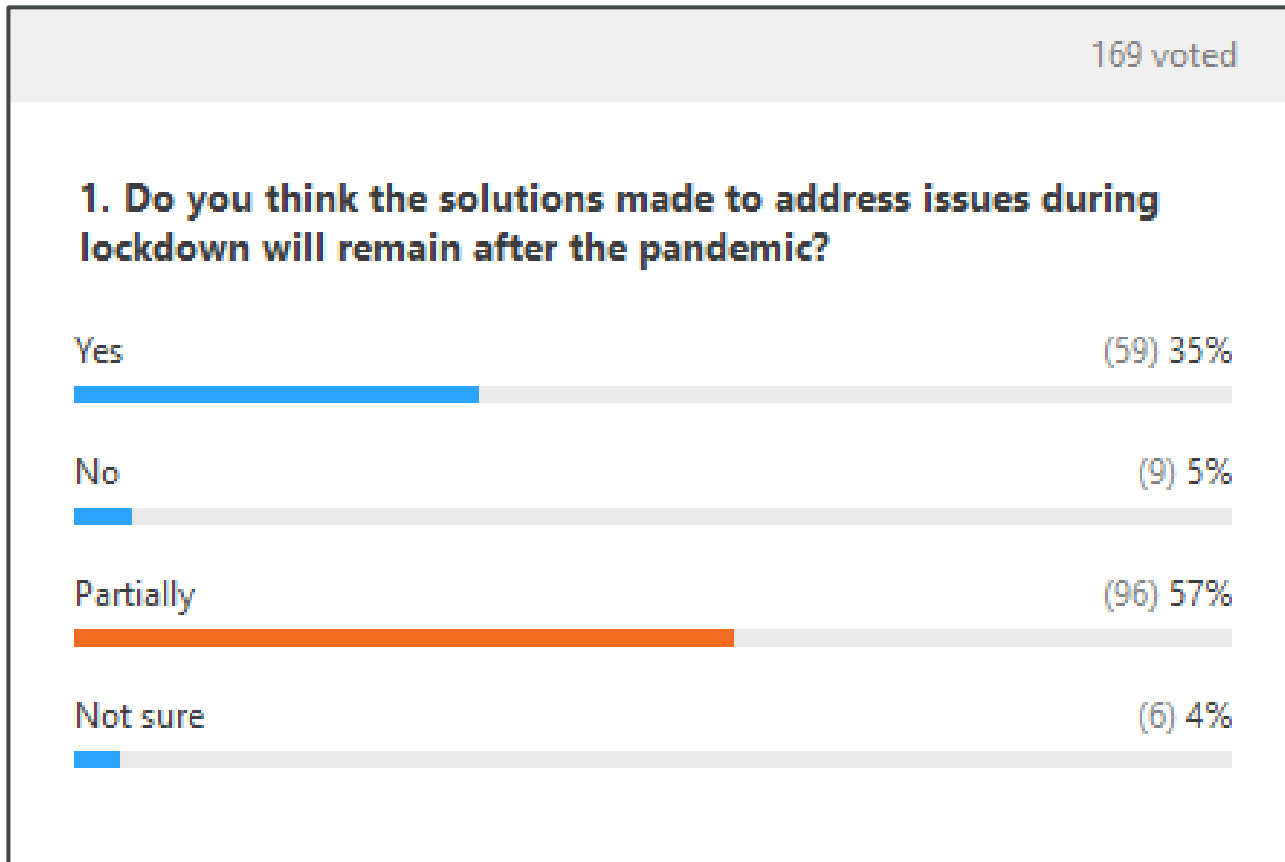
GARETH PASKE
WELSH WATER, UK



POLL 4

- **Do you think the solutions made to address issues during lockdown will remain after the pandemic?**
 - Yes
 - No
 - Partially
 - Not sure

POLL 4 RESPONSE



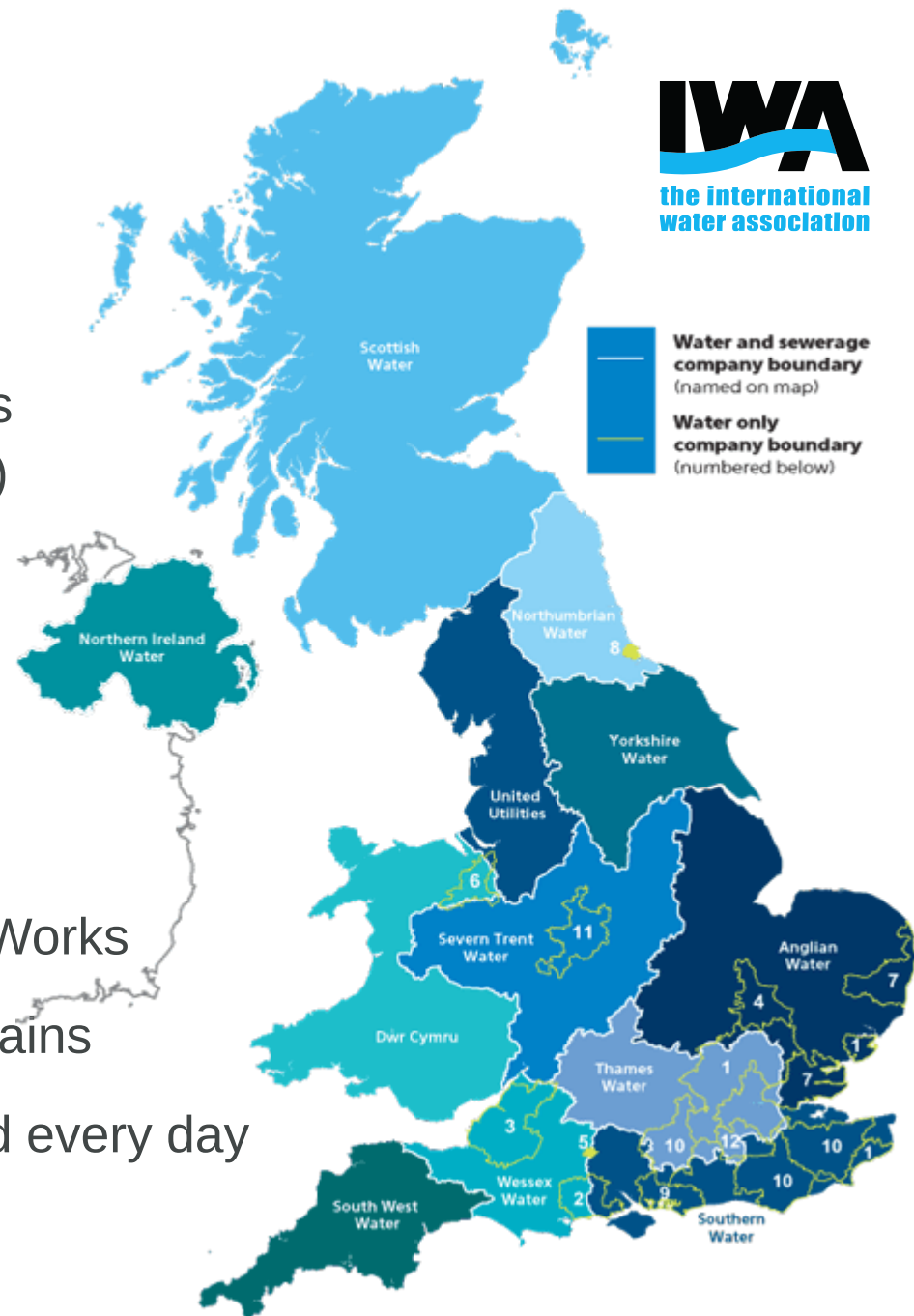
OUR WATER BUSINESS

Serving

- 1.4 million homes and businesses (50% metered and manually read)
- 3 million people in most of Wales and Herefordshire.

Assets

- Looking after 92 reservoirs
- Maintaining 65 Water Treatment Works
- Maintaining 27,500km of water mains
- 846 million litres of water supplied every day



LOCKDOWN

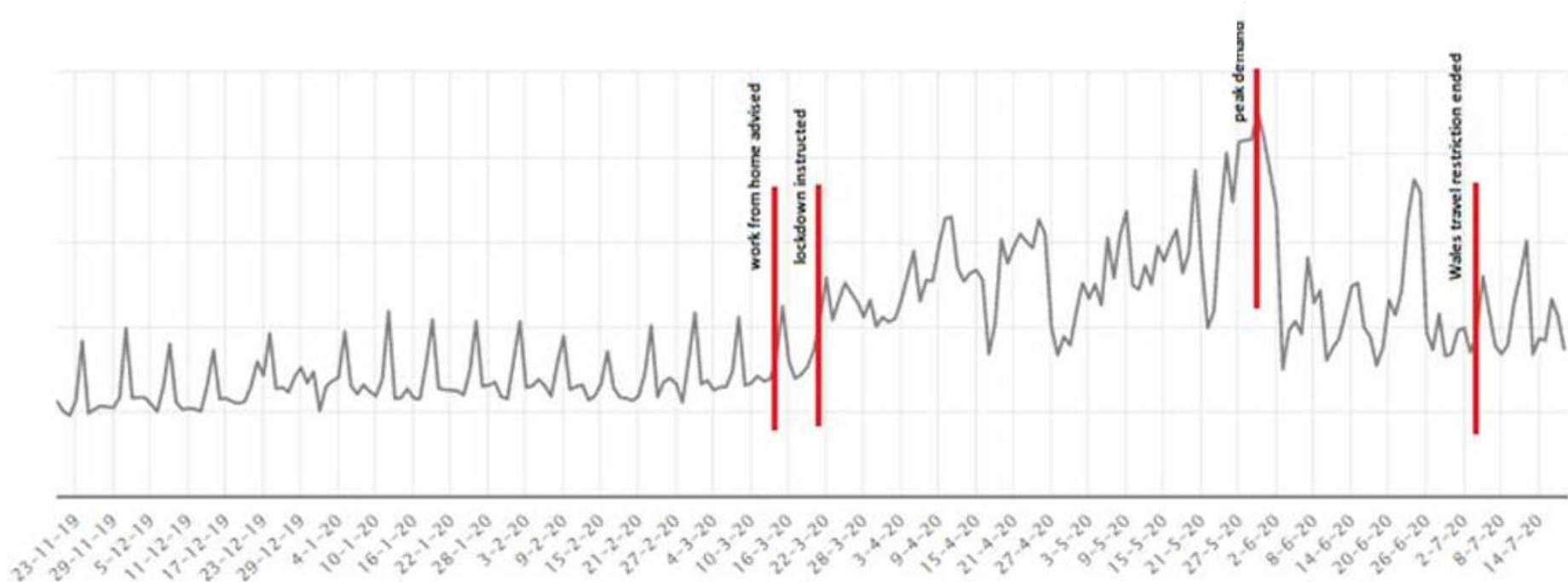
- On 16 March 2020, the Prime Minister Boris Johnson advised everyone in the UK against "non-essential" travel and contact with others and work from home if possible.
- Our Business took the necessary steps to plan for all eventualities to keep staff safe and customers in supply.
- Gold Incident Command was initiated and continues to this day.
- Everyone that could work from home did work from home.
- **We obtained essential worker status for staff and supply chain**

- Multiple programmes of work were suspended in line with guidance issued, specifically those programmes that required a planned customer appointment.
 - Customer side leakage
 - Customer side lead pipe renewals
 - Customer meter reading team

- **Important factor – We were keen to keep supply chain and internal staff occupied on essential work.**

DEMAND

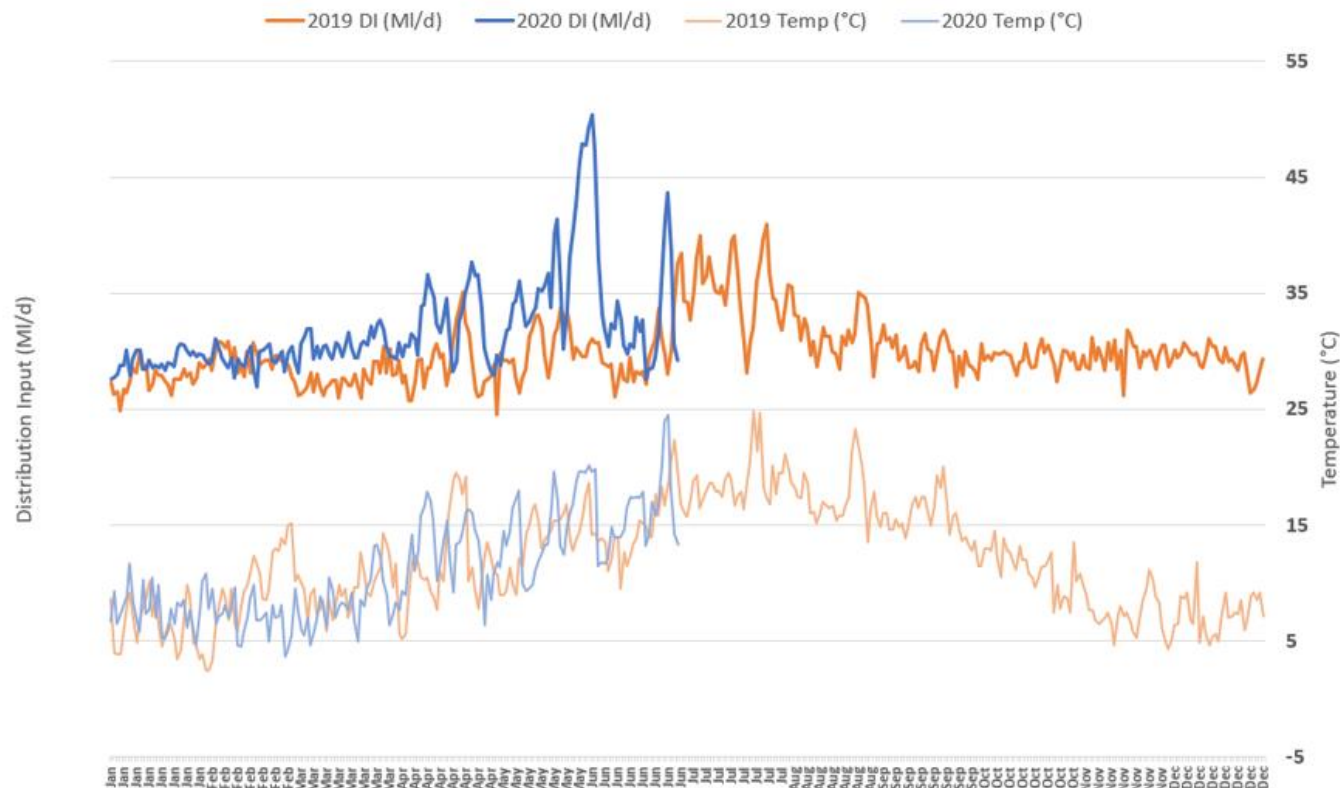
- The water we were putting into the system increased dramatically, consumption increased – At the same time as lockdown introduced (Litres per person per day).



Data derived from our strategically deployed consumption monitors

DEMAND

- The water we were putting into the system increased dramatically.



ESSENTIAL SERVICE

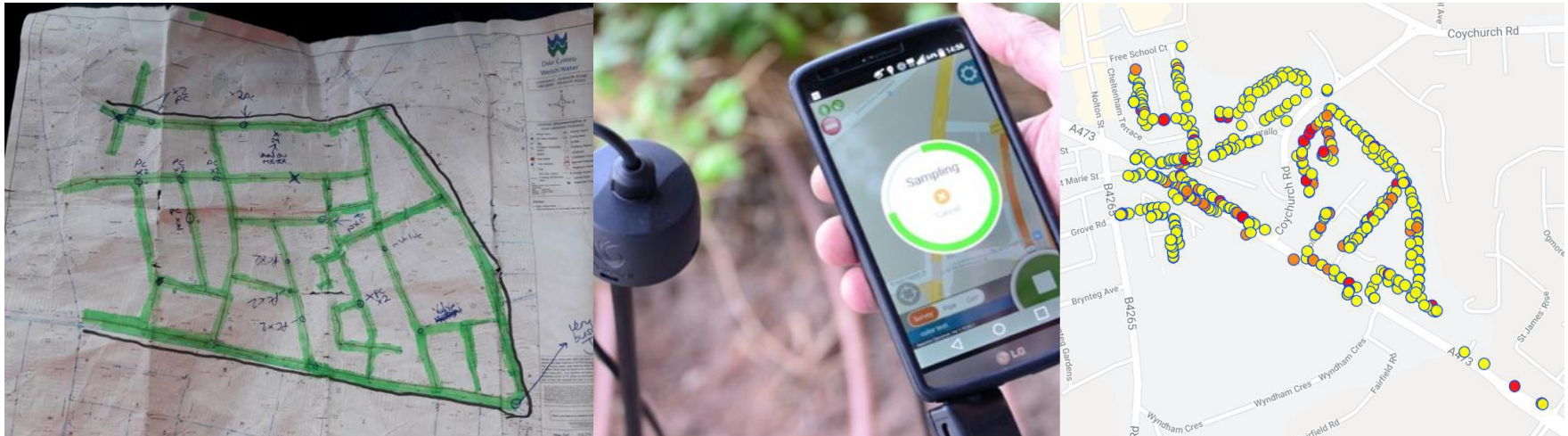
- Leakage detection and pipeline repair is seen as a fundamental in keeping our customers in supply. Without this activity water losses would have quickly deteriorated.
- Using water wisely is also seen as a fundamental in helping us protect this vital resource.

WHAT WE CHANGED

- Redeployed staff from the programmes impacted by the lockdown onto leakage detection activity.
- Created a Welsh Water wide campaign asking public to help us find leaks.
- Mobilised a 'virtual' customer water efficiency project that utilised phone app technology to engage, audit and offer advice and products to our customers.
- Created a Welsh Water wide water efficiency campaign, followed by a data driven campaign towards areas of risk.

LEAKAGE DETECTION

- 30+ staff impacted from lockdown restrictions joined the leakage detection team.
- Socially distanced training occurred on digital leakage detection devices in less than 1 week.
- Previously untrained staff were safely deployed to site and finding leaks within a few days.



LEAKAGE DETECTION INTERNAL STAFF

- Almost quarter of a million acoustic sound files recorded within 2 months
- 2,000 km walked
- 10% of all properties supplied were checked for leaks
- Over 950 Points of Interest (POI) produced
- **Kept internal staff occupied on essential services**



LEAKAGE DETECTION SUPPLY CHAIN

- Moved supply chain resource from customer appointments to upfront survey work
- 20,000 properties surveyed since lockdown
- Stop Tap cleanout, basic survey ahead of digital technology deployment
- Kept supply chain occupied on essential services



SPOT A LEAK

- Big push on social media to ask public for support – Data driven and targeted communications.

SPOT A LEAK?

This could be a trickle, a puddle or a stream of water.



24 HOUR HOTLINE:

0800 052 0130

WEBCHAT ON:

dwrcymru.com



SAFEGUARDING SUPPLY

- Virtual Audits with our customer introduced using phone app technology.
- Agile technology development and customer rollout within 1 month.



WATER EFFICIENCY

- Big push on social media to ask public for support - Data driven and targeted communications



OUR ESSENTIAL SERVICE

- Is being maintained to a high standard
- Supply Chain and Internal Resource were kept active
- Leakage and Water Demand are doing OK (Considering!)
- We now have extra eyes on the ground that can spot leaks
- We have learned that we can safely train and deploy previously unskilled staff to site in less than a week
- Feedback from our customers on the virtual approach has be fantastic
- **Majority of changes made during lockdown are here to stay...**

Q&A Discussion

**PEDRO RAMALHO, MILENE AGUIAR, PHILIPPE MAPPA,
GARETH PASKE**

(MODERATED BY JO PARKER)

Join our network of water professionals!



IWA brings professionals from many disciplines together to accelerate the science, innovation and practice that can make a difference in addressing water challenges.

Use code **IWALRN0811**

for a **20% discount off** new membership.

Join at:

www.iwa-connect.org

inspiring change

<http://www.iwa-network.org/iwa-learn/>