

Solutions Super Session: The Safety Sustainability Nexus

So What? Where do we go from here? Bold Predictions? Action Items?



Agenda

- Context of Water Challenge from US Perspective
- So What?
- Where Do We Go From Here?
- Bold Predictions for the Future
- Action Items



21st Century Plumbing Challenges:

Waterborne Pathogens



75% of Legionella Outbreaks originated from Premise Plumbing System



Hospitals, Hotels/Motels, and then Long-Term Care Facilities are three most common types of buildings with Legionella outbreaks



2019 had 10,000 cases, but due to misdiagnosis, true number of cases are estimated to exceed 100,000



Cost of Waterborne Pathogen Healthcare Acquired Infections = \$8.52B annually



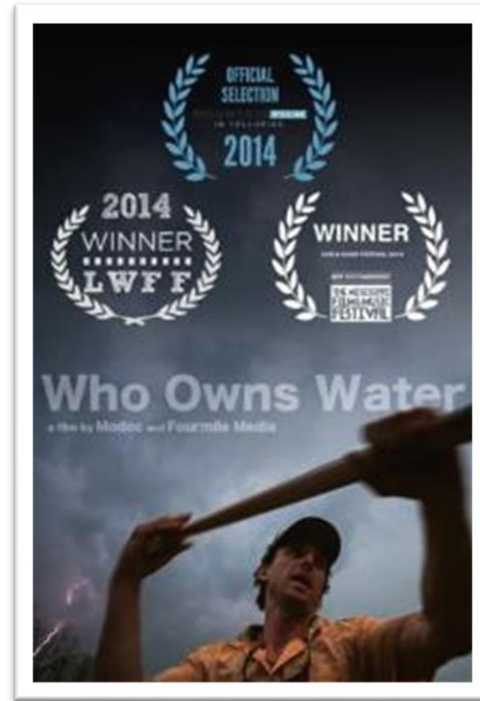
Plumbing System Costs likely less than 5% of total construction costs



For each HAI eliminated, \$1.5M in revenue can be generated.

21st Century Water Challenges:

Droughts



Atlanta water issues could mean about

\$250 million economic cost per day without water

amount to us is afternoon.

A study commissioned by the city found that a day without water in Atlanta has an economic impact of about \$250 million, factoring in the effects on businesses and salaries, Powell said.

Boil-water advisories are an inconvenience to people who have to abruptly change their habits. The city warned people to brush their teeth with boiled water, throw out all ice made with tap water and use disposable plates, cups and utensils until the situation was remedied. But for businesses, such an advisory can also mean an interruption in daily operations — and taking a hit financially.

The Atlanta Journal-Constitution

Washington Examiner

Colorado River water shortage significant for Arizona

Dent said Arizona's farmers would see the brunt of the reductions, limiting their supply from the river by 65%.

65% Reduction

Nov 1, 2022, 2:20 AM

Worsening Drought in Deep South Seen as Spurring Legal Friction

Bobby McGill Reporter

The basin—which is mainly in Georgia, tapped by the growing Atlanta area for drinking water, and flows into Apalachicola Bay on Florida's Gulf Coast—was the subject of a decades-long water fight that the Supreme Court settled last year in *Florida v. Georgia*.

Florida said Georgia farmers used too much water from the river basin, leaving insufficient freshwater for oysters in Apalachicola Bay. Georgia argued that Florida was to blame for the oyster industry's recent collapse. The court ruled that Florida hadn't demonstrated sufficient injury for the justices to rule in its favor.

...obtain sufficient water from the Apalachicola-Chattahoochee-Flint River basin

As Atlanta grows and the drought worsens, less water could be available for Alabama water users, inflaming a water fight between Alabama and Georgia.

21st Century Plumbing Challenges: Smart Building Technology (SBT) Shortfall Impacts R&D Capabilities

According to Endeavor Media Study on SBT Utilization:

- **Plumbing 16th place out 18 on SBT Utilization:** Only 19% of buildings currently use SBT for Plumbing Systems. This is well short of >60% SBT Utilization for HVAC, Lighting each.
- **Plumbing SBT Utilization Lower than Irrigation:** Residential, Office, Mixed Use, and Data Centers SBT Utilization for Plumbing is lower than Irrigation. Only in Medical buildings does Plumbing SBT slightly beat our Irrigation.
- **Plumbing 17th place out of 17 on SBT Implementation Plans:** Only 8% of building owners surveyed plan on installing SBT on their Plumbing Systems, with 63% having absolutely no current plan to install SBT.



Management of *Legionella* in Water Systems

Low-flow fixtures should not be allowed in hospitals and long-term care facilities because of these buildings' high-risk occupant populations. Low-flow fixtures have been promoted to conserve water and, in some cases, energy. Because of their lower flow, however, these fixtures, primarily low-flow faucets but also showers, increase water age and restrict disinfectant levels, including the disinfection provided by elevated water temperatures. As such, low-flow fixtures present a greater risk for *Legionella* development in the plumbing systems that feed them.

Committee on Management of *Legionella* in Water Systems
Water Science and Technology Board
Board on Life Sciences
Board on Population Health and Public Health Practice
Division on Earth and Life Studies
Health and Medicine Division
A Consensus Study Report of
The National Academies of
SCIENCES • ENGINEERING • MEDICINE

THE NATIONAL ACADEMIES PRESS
Washington, DC
www.nap.edu

Engineering Methodologies to
Reduce the Risk of *Legionella* in
Premise Plumbing Systems

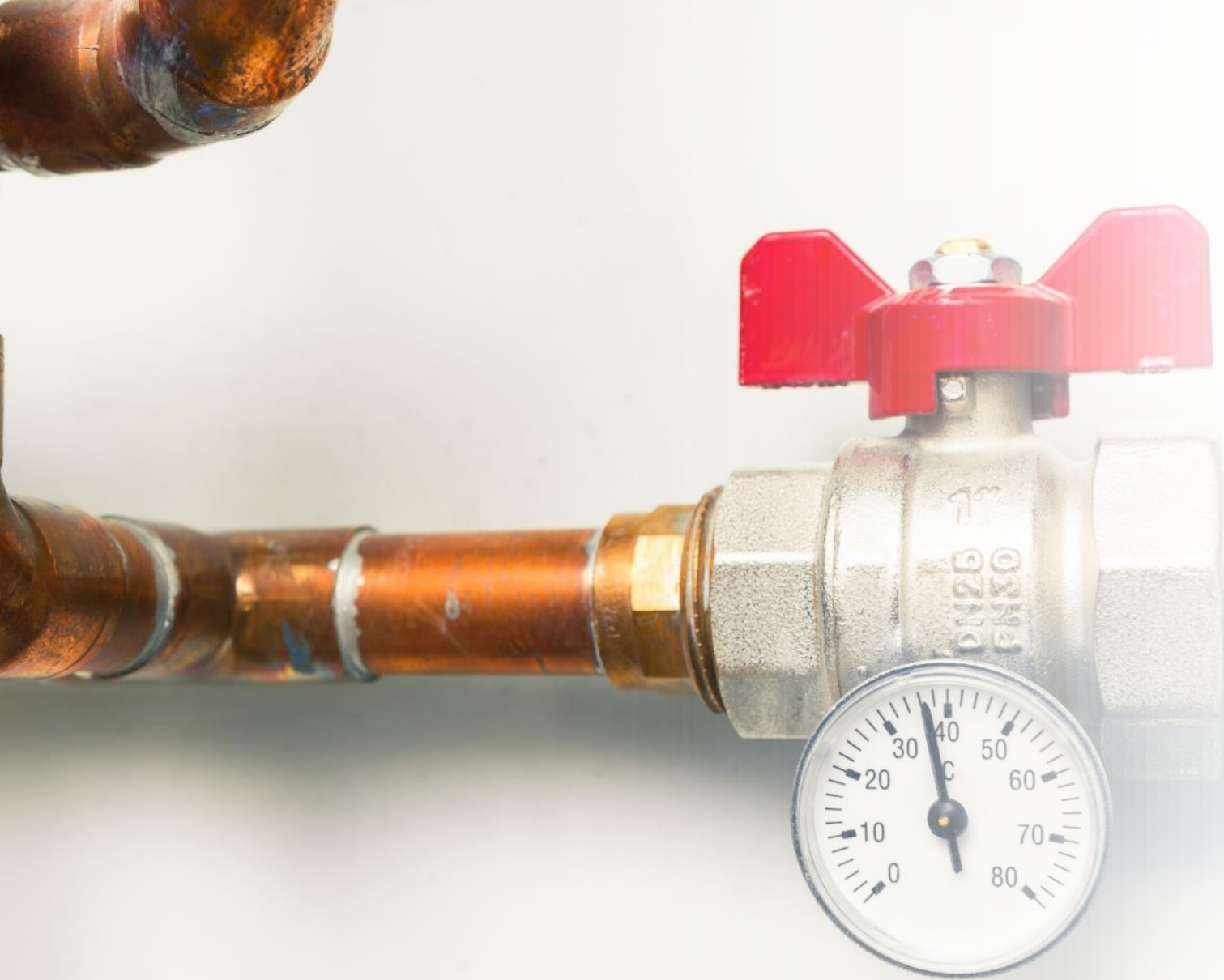
3.9.3. Low-Flow Supply Fixtures

3.9.3.1. The use of low-flow supply fixtures should be discouraged in buildings that fall under this guideline, particularly those with immunocompromised populations such as hospitals and long-term memory care³⁵.

ASPE
American Society of
Plumbing Engineers

Competing Water Needs?

Water Conservation vs. Public Health/Safety



“People think that water is simple, but it is highly complicated.”

- *David LaFrance*
CEO AWWA



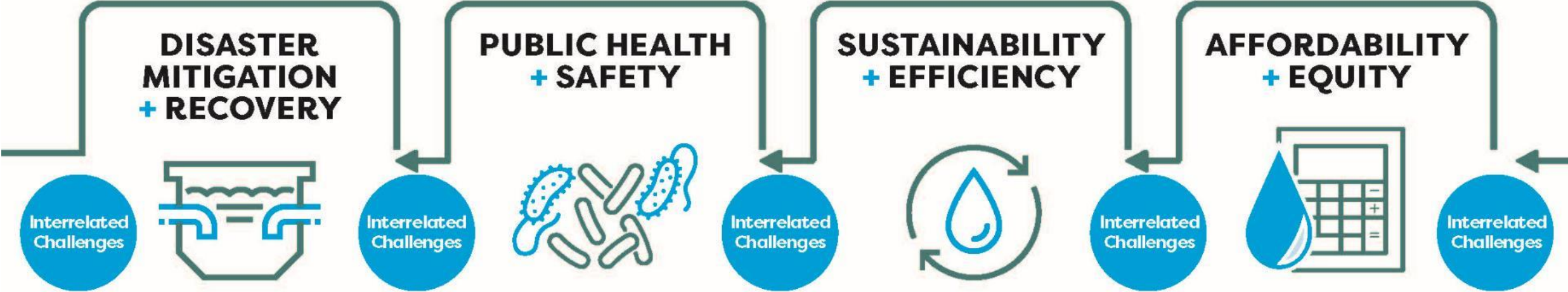
Why Water-Focused Organizations and Water-Specialists Matter for Innovation.

“In a knowledge-based economy (that is an economy which is directly based on production, distribution and use of knowledge and information) requires knowledge-based workers... and that knowledge work is effective if only it is highly specialized (e.g., what makes a brain surgeon effective is that he is highly specialized in brain surgery, but by the same token couldn't repair a damaged knee and would probably be helpless if confronted with a tropical parasite in the blood). This is true for all knowledge work. Generalists... are of limited use in a knowledge economy. In fact, they are productive only they themselves become specialists in managing knowledge and knowledge workers. The knowledge needed in any activity has become highly specialized. It is therefore increasingly expensive and difficult to maintain enough critical mass for every major task in an enterprise. **And because knowledge rapidly deteriorates unless it is used constantly, maintaining within an organization an activity that is used only intermittently guarantees incompetence.**”

- Peter Drucker, On Management, 1974

Plumbing Resiliency: What It Is

PLUMBING IS THE FOUNDATION OF RESILIENCY



Panel Discussion – Audience Poll

Join at
slido.com
#2772 265





Panel Discussion

The Safety Sustainability Nexus:

So What?

Where do we go from here?

Bold Predictions?

Action Items?

Public Water Systems

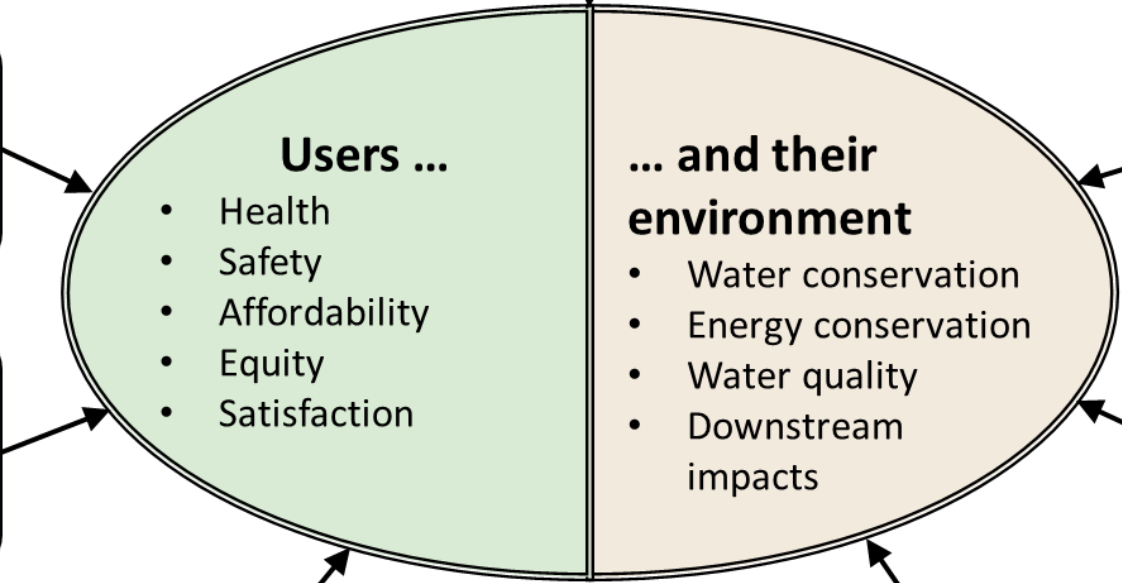
- Regulatory compliance
- Preservatives and beneficial constituents
- Communication & partnership

Modelers & Data Analysts

- Prediction
- Assessment
- Troubleshooting

Industry

- Treatment
- Pipes, fittings, valves
- Appliances



Designers, Installers & Operators

- Plumbers & contractors
- Owners & Operators
- Architects & designers

Regulation

- Codes
- Standards
- Regulations
- Goals

Research

- Academic
- Industry
- Government

Instrumentation & Measurement

- Devices/Tech
- Communication & data mgmt

Thank you!!!

... and Additional Resources

If you enjoyed this discussion, keep the conversation going:

- LinkedIn Newsletter
- Authority Podcast

