Promoting Non-revenue Water Management in the United States: A 30-year Journey

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Interdisciplinary Webinar
Reducing Leakage in a City’s Water Supply System

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Water Supply in the USA: Success – but Challenges!

Great Success in building water supply infrastructure!

- Monumental and extensive water supply infrastructure promoted growth and economic prosperity

Great Challenges!

- High Non-revenue water (NRW) in many systems
- Aging and declining water supply infrastructure, but insufficient renewal investment
- No national policy on efficiency of the water supply
- Over 200 state and regional regulatory agencies set policy for over 50,000 water systems: a fragmented system
  - No water loss reduction regulations
  - The State of California will set targets for some systems in 2021
Successful Non-revenue Water Assessment and Management since 1990

- American Water Works Association (AWWA) Water Audit method and tools
- Water Research Foundation (WRF) research projects
- Innovative technologies
- Progressive regulatory structures in several US states
AWWA’s methods and tools have assisted water systems for many years

AWWA Free Water Audit Software and Compiler Tool (data aggregator) since 2006

AWWA Conferences and Training Seminars on Non-revenue Water Management

• Conference
  - North American Water Loss Conference – biennial event
  - Next: December 2021 Austin, TX, USA

• Training Seminar*
  - Water Audit Analysis – two day in-person seminar
  - Presented twice annually in different North American cities

*currently suspended due to Covid19 pandemic
AWWA Advocacy for Non-revenue Water Management

- **State of Water Loss Control Report (2016)**
  - White Paper report detailing current status of water loss control efforts and regulatory trends in North America
  - Several case studies of successful North American water systems are included
The Water Research Foundation
Funding Research into Successful NRW Management

• Numerous projects totaling over US$2M in research funding since 2004
  − Occurrence of NRW, water audit process, and data validation
  − Leakage and pressure management
  − Advanced Metering Infrastructure and apparent loss control
  − NRW management business case planning
Innovative Technologies

- Innovative technology continues to be developed and implemented by forward-thinking North America water systems, including:
  - Leakage Management
  - Pressure Management
  - Advanced Metering Infrastructure

Source: Badger Meter

Controller Installed - Leakage saved 30 gal per min - 66% Saving 24/7 saving!!
Progressive Regulatory Structures in North America

• Robust NRW auditing & loss control requirements:
  − State of Georgia, USA
  − State of California, USA
  − Province of Quebec, Canada

• Regulatory programs:
  − Annual compilation and submittal of AWWA water audits
  − Training for water system staff in use of the AWWA Free Water Audit Software
  − Level 1 Validation of the water audits upon submittal (three levels of validation are defined by the Water Research Foundation)
Water Audit Data Collection: Primary Focus for NRW Management in the USA at this time

- **The Water Audit**: collects data on volumes and costs of Water Supplied and Water Billed to Customers

- Non-revenue water cannot be successfully managed unless it is first **quantified** and reliably analyzed

“You can’t manage it if you don’t measure it”

- Lord Kelvin, eminent 19th century British physicist

*This presentation continues by describing recent recommendations made by the American Water Works Association ……*