North America Water Industry

Jim Chaffee, P.E., BCEE
Immediate Past President

International Forum On Water Supply
Japan Water Works Association Annual Conference
October 30, 2014
Overview

- North American “Waterscape”
- AWWA State of Water Industry Survey – Top Issues
- Results
  - Health of the industry
  - Top Issues/Concerns
North American Waterscape
Water Industry

Utilities providing water services
- Potable water
- Wastewater
- Stormwater
- Reuse/Reclamation

Water Industry Values
- Safeguard Public Health
- Ensure Community Satisfaction
- Protect the Environment
Population Continues To Increase

Sources: United States Census Bureau, www.statcan.gc.ca, worldpopulationstatistics.com
Regional Population Growth Trends

Source: U.S. Census Bureau
Urbanization

A Small Percentage Of Large Systems Serve Most Of The U.S. Population

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%

<table>
<thead>
<tr>
<th>Percentage of Utilities</th>
<th>Population Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 501</td>
<td># Systems</td>
</tr>
<tr>
<td>501-3,300</td>
<td>Pop. Served</td>
</tr>
<tr>
<td>3,301-10,000</td>
<td></td>
</tr>
<tr>
<td>10,001-100,000</td>
<td></td>
</tr>
<tr>
<td>&gt; 100,000</td>
<td></td>
</tr>
</tbody>
</table>

160,000 Public Water Systems
53,000 “Community” Water Systems

Sources: USEPA SDWIS Database
Urbanization

• Number of systems is declining due to consolidation
• Urban populations are increasing

Sources: USEPA SDWIS Database
Infrastructure Investments Have Not Returned to Pre-Recession Levels

- Total dollar value of construction work in U.S.
- Seasonally adjusted annual rate

Sources: United States Census Bureau
2014 SOTWI Survey Results
AWWA’s State of the Water Industry Survey

- Identifies and tracks significant industry challenges
- Data and results support development of strategies for current/future issues
- Inform decision makers and the public of water industry challenges

Charting the road ahead for the drinking water profession
Top Issues

#1 State of water and sewer infrastructure: 4.57 (63% critical)
#2 Long-term water supply availability: 4.51 (64% critical)
#3 Financing for capital improvements: 4.41 (53% critical)
#4/5 Public understanding of the value of water resources: 4.31 (48% critical)/… value of water systems and services: 4.27 (44% critical)
State of Water and Sewer Infrastructure

Water and sewer systems built and financed by previous generations are approaching or have exceeded their useful lives

- Revenues do not fully cover costs
- Difficulty in financing
- Public acceptance of rate increases
Projections Of Pipe Renewal/Replacement Needs In U.S.

Water and wastewater systems: $1 trillion each over next 25 years
Financing for Capital Improvements

- 34%: Similar to most of the past 5 years
- 36%: Better than any time in the past 5 years
- 12%: Worse than any time in the past 5 years
- 7%: As bad as any time in the past 5 years
- 10%: As good as any time in the past 5 years
Long-term Water Supply Availability

- Short-term water shortages (natural/regulatory conditions or system failure)
- Long-term shortages: population and climate changes
- Groundwater overdraft and lack of management
- Options for constrained supplies
  - Conservation: has momentum, seeing impacts in reduced demand
  - Desalination: expensive, energy intensive, brine management
  - Reuse: public perception
2050 Water Scarcity Considering Population & Climate Change

NRDC 2010 Study Results
Indirect Unplanned Wastewater Reuse
(serving population > 10,000)
“How prepared is your utility to meet its long-term water supply needs”
Public Understanding of the Value of Water

- Industry mission less urgently visible
- Clean water & sanitation are taken for granted
- Lack of public support for sustainable water rates
- Industry needs to attract new talent for a sustainable workforce
Regulatory Environment

• Regulations
  – U.S. EPA Regulations
  – Canada Provincial Regulations

• Regulations have resulted in significant technology development in past 3 decades
  – Filtration, Microbial contaminants, D/DBPs, SOCs and IOCs

• Continued pressure to address unregulated contaminants
  – Chromium, perchlorate, organics, pharmaceuticals
Number of Contaminants Regulated
Thank You!