





WateReuse

Past, Present, and Future

Melissa Meeker, Executive Director WateReuse Colorado August 14, 2014





http://youtu.be/GVm-d-zOxJs









De facto Water Reuse





Indirect Potable Reuse











Potential for Water Reuse

- About 7% of municipal wastewater effluent in the U.S. is reclaimed and beneficially reused
- Israel reuses more than 70%
- Singapore reuses 30%, up from 15% in recent years
- Australia, now at 8%, has a national goal of 30% by 2015







Factors Driving Water Reuse Today

- •Drought
- Population growth
- •Increased municipal, industrial, and agricultural demand
- Dependence on single source of supply
- •TMDLs/Nutrient load caps

No one strategy can solve the future water needs of the state, so the portfolios include different mixes of strategies, such as conservation, reuse, agricultural transfers, and new water supply development. Colorado Water Conservation Board, 2012

WATEREUSE

"Water scarcity"

The time is now

Provides local, climate-independent, sustainable supply for the environment, ag, industry AND people

- The need has never been greater
 - Shift in climate
 - Greater awareness of environmental/downstream concerns
- Existing systems are protective
 - Treatment technologies have been proven
 - Continued technological advancement
 - Significant research to ensure reliability





The time is now

- Across the nation, policies are being enacted at the state level to change terminology
- EPA is starting to talk about the bridge between the CWA and DWA
- Public starting to pay attention

The days of using water once, and thinking of it as a waste stream are behind us.







WateReuse's Mission

Practical Information and Real Solutions



The WateReuse Story: Who We Are, What We Do













Leadership



Leadership

- Policy Advocacy
 - National Aspirational Goal
 - Congressional leadership development
- Policy Advocacy at the local level
 - Legislative Clearinghouse
 - Model legislation, policies, rules
- Funding Support for Infrastructure
 - Administrative Agency Partnership
 - State funding programs
- Convening of key stakeholders





29th Annual WateReuse Symposium

- September 7-10, 2014 | Dallas, TX | www.watereuse.org/symposium29
- Smarter Planet 2.0: Keynote speaker Dr. Sean McKenna, IBM Research Smarter Cities Technology Centre.
- EPA Innovations Blueprint Roundtable
- General Manager Roundtable Discussion and Luncheon
- Food and Beverage Water Reuse
- Reuse and Hydrofracking
- Stories from the Texas Trenches





One Water Innovations – Media Workshop and Gala



- 60 Invited Media
 - Expert Panels/Roundtable
 - Urban water cycle and reuse's role
 - Scholarship no cost
 - Baseline of knowledge
- Gala
 - •Celebration of common, yet unacknowledged reuse in products all around us
 - •Entire meal, wine, beer
 - Recognize innovative partnerships







Research



Research Programs

Solicited Program

- RAC developed, Board approved projects annually
- RFPs are released June November
- Project Advisory Committees (PACs) maintain scientific integrity

Tailored Collaboration Program

- The TC program is reserved for Research Foundation Subscribers
- The Foundation provides matching funds (Subscriber match must be in cash)
- Call for pre-proposals each January: 4 awards for \$135,000 each in 2014



Research Advisory Committee

- RAC is comprised of 32 volunteer members and is responsible for developing a strategic annual research agenda for the Foundation
- RAC's membership is comprised of a broad spectrum of water reuse and desalination experts:
 - ✓ Academia
 - \checkmark Water and wastewater utilities
 - ✓ Consulting firms
 - ✓ Manufacturers
 - \checkmark Federal and state government agencies.
- The RAC meets semi-annually to identify priority research needs and recommend projects to the Board for approval

Research

Since 2000...

- 187 projects commissioned
- Over \$54M in funding leveraged
- •133 published reports
- •45 projects still active

In 2013...

- •13 projects launched
- •\$1.9M in funding awarded
- 32 published reports





Research Categories

- Direct Potable Reuse
- Business Economics/Triple Bottom Line
- Industrial Reuse



- Public Acceptance & Policy
- Desalination







13-02 Public Perception

Polling
Focus groups
Telephone surveys
Northern and Southern California

Fairbank, Maslin, Maullin, Metz & Associates - FM3 Public Opinion Research & Strategy

SANTA MONICA • OAKLAND • MADISON • MEXICO CITY



Most voters do not drink water straight from the tap.

Thinking about the water that you drink at home, do you most often drink?





Bottled water drinkers have a number of misperceptions of its quality.

I am going to read you a list of reasons why people think bottled water is safer than their tap water. Please tell me whether you agree or disagree with the following statements.





Voters are confident that it is *possible* to treat recycled water to drinking water quality standards....

Do you believe that it is possible to further treat recycled water used for irrigation to make the water pure and safe for drinking?





Combining these variables, women over 50 stand out as key opponents.

Initial DPR Support by Gender by Age



13 Total. Would you support or oppose the direct reuse of recycled water in your community?

WATE

Though they are initially opposed, voters quickly become more comfortable with direct potable reuse after information about safety.

Do you support or oppose direct reuse of recycled water in your community for all household purposes, including drinking?



Focus group participants preferred "purified water" or "certified water" as descriptors.

(Participants Allowed to Select Up to Three From List)

DPR Names	Sunnyvale	San Diego	Total
Purified Water	13	14	27
Certified Water	10	12	22
Advanced Treated Water	6	5	11
Renewed Water	3	4	7
Recycled Drinking Water	3	3	6
Refreshed Water	4	1	5
New Water	1	2	3
Supplemented Natural Water	2	1	3
Cyclical Water	0	1	1
Blended Drinking Water	1	0	1
Reused Potable Water	0	1	1
Reclaimed Water	0	1	1
Reused Water	1	0	1
Renovated Water	0	1	1
Rescued Water	0	0	0



Top messengers are generally those with scientific expertise.

I am going to read you a list of people and organizations that may provide information about recycled water. Please tell me if you would generally trust that person's or organization's opinion on this issue, or if you would be suspicious of it.









Outreach and Education



Outreach and Education

- Informed program development
- Required for success
- National campaign urban water cycle
- Local campaign Support small to medium agencies/utilities by providing road map and tools
- Web-based platform
 - Interactive Map where is it happening and what are they doing?
 - Expert interviews/quotes
 - Videos, fact sheets, etc.
 - How to develop a communications plan (where to start and what to do)
 - Water Reuse 101, 201, 301 webinars/on line courses
 - Research results for the lay person



Outreach tools – future focus

• Ways of Water







Special Initiatives: Direct Potable Reuse (DPR)

An Overview



Research Path to Achieve DPR Initiative Goal

To overcome the regulatory, scientific, technical, and attitudinal barriers to DPR by undertaking three main tasks:

- Conduct rigorous scientific research
- Communicate the research findings through public awareness programs
- Work with regulatory authorities to facilitate DPR implementation by local water utilities
- US \$5.4 million raised to date



Barriers to DPR

Regulatory Concerns

• How to achieve treatment and process reliability through redundancy, robustness, and resilience

Utility Concerns

• Address economic, technical, and operational issues

Community Concerns

• Awareness, education, and acceptance



WRRF Research is Addressing the Concerns



WRRF DPR research program worth over \$7.3M is underway to address these concerns, and regularly interacts with the CDPH Expert Panel on the feasibility of DPR

WATEREUSE

In Summary

- •Leadership
 - •Strong, tenacious advocacy
- Research
 - •Applied answers to critical questions
- Education and Outreach
 - Tools to make implementation a reality





Thank You!

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Information on the news and from community organizations is most likely to gain attention.

I am going to read you a list of ways someone might try to get in touch with you with more information about recycled water. Please tell me if you would definitely pay attention, probably pay attention, or would not pay attention to that method of communicating with you.





Of those who do *not* drink tap water, safety and taste are the most significant reasons they avoid it.

I am going to read some reasons other people have given for not usually drinking water directly from the tap. Please indicate whether each item is a major reason why <u>you</u> don't drink unfiltered tap water, a minor reason, or not a reason.







Industrial Water Reuse

The Future is Now



Industrial Reuse Research

- WRRF-12-03: Analysis of Technical and Organizational Issues in the Development and Implementation of Industrial Reuse Projects
- WRRF-13-04: Drivers, Successes, Challenges and Opportunities for Onsite Industrial Water Reuse: a Path Forward for Collaboration and Growth
- WRRF-14-04: A Framework for the Successful Implementation of Onsite Industrial Water Reuse
- WRRF-14-05: Current use and trends of reuse in the Hydraulic Fracturing Industry (white paper)



WRRF-12-03 (External Reuse)

- **Purpose:** Develop a framework and practical knowledge base that water providers & industrial customers can use to implement successful reuse projects
- Current Critical Findings:
 - Communication between water providers & industrial customers is key.
 - Topics of concern
 - 1. Project Drivers & Objective
 - 2. Views of Time & Money
 - 3. Metrics & Measures of Success
 - 4. Decision Making Processes & Styles
 - 5. Regulatory Landscape
 - 6. Language & Terminology





WRRF-12-03 (External Reuse)

- **Purpose:** Develop a 'research roadmap' that:
 - •Identifies priority industry sectors, opportunities, and challenges for onsite reuse
 - Provides commonalities and differences of sector needs
 - •Outlines a research program and Foundation's role

• Research Approach:



2014 Projects

WRRF-14-04: A Framework for the Successful Implementation of Onsite Industrial Water Reuse

The goals of this project are:

- 1. Support on-site industrial water reuse opportunities by providing a framework
- 2. Develop detailed criteria on how to develop specifications that will enable the design construction and operation of an on-site Industrial water reuse facility

WRRF-14-05: Current use and trends of reuse in the Hydraulic Fracturing Industry (white paper)

Looking at the state of the science for water reuse in hydraulic fracturing as well as future trends and research needs.

