Idaho Water Reuse Conference

June 26th & 27th, 2007

The WateReuse Association
- National Database
- Membership

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HDR

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WATEREUSE FOUNDATION

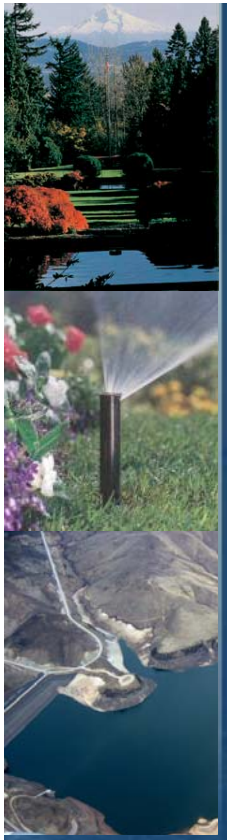
Today's Agenda…

Background

Benefits

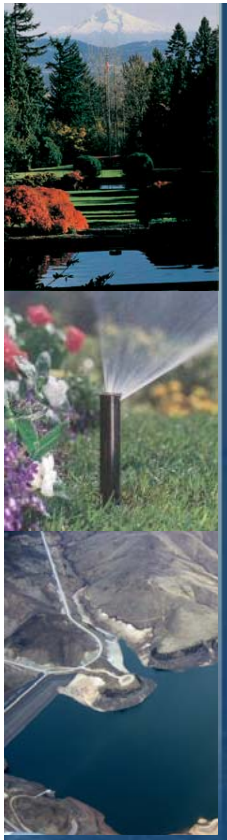
Accessing the Data

Membership



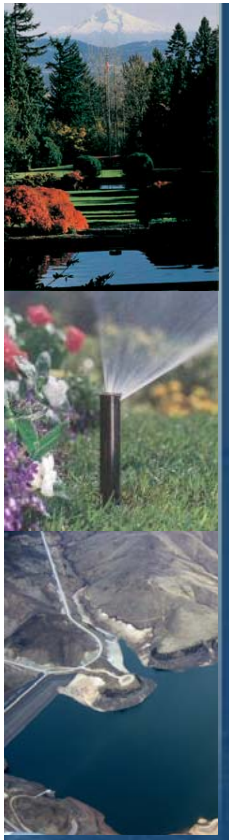
National Reuse Database - Objectives

- Capture reuse-related data
  - Regulatory and utility contacts
  - Reuse facility information
  - Types of reuses
- Create Web-enabled tool for use by broader community



Anticipated Benefits

- Understand and communicate the level of reuse nationwide
- Identify state-of-the-art facilities
- Characterize the economic ‘landscape’
- Compile a comprehensive list of safe end-users
- Help those considering reuse get started



Who Paid For It?

- WateReuse Foundation- $220,000
  - EPA's Office of Water
  - California State Water Resources Control Board
  - California Urban Water Agencies
- Utility Cash Donations - $15,000
- In Kind Contributions:
  - Utilities (26): $169,500
  - State Regulators (4): $25,100
  - Manufacturers (1): $6,000
  - Volunteer Organizations (1): $7,500

Who Did It?

Project Advisory Committee ↔ **WateReuse Foundation**

WateReuse Foundation → **Consultant Team**

Technical Advisory Committee ↔ **Consultant Team** ↔ **Utility Volunteers**

Consultant Team

- Malcolm Pirnie, Inc.
- HDR Engineering, Inc.
- Dr. Jim Crook

Follow up Survey for California: CADMUS & HDR

How Did It Get Done?

Requirements Planning

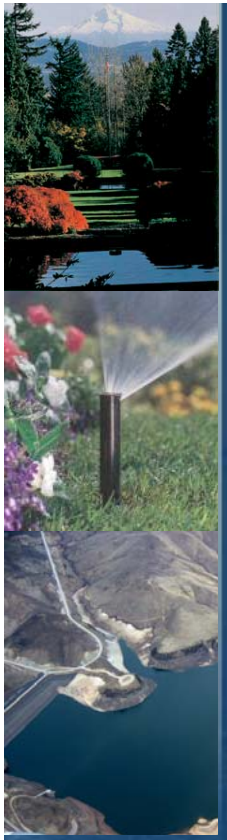
Create Web-Enabled Application:

1. ***Data Structure***
2. ***Survey Instrument***
3. ***Query Instrument***

Beta Test

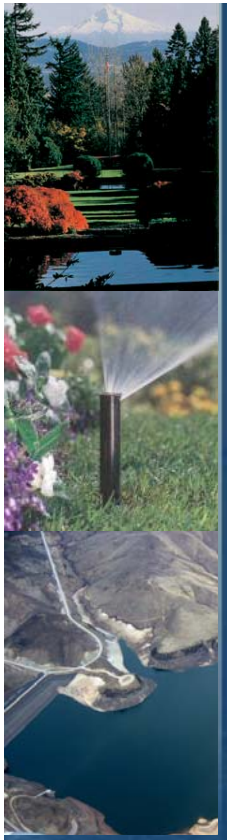
Full Utility Survey and State Data Import

Summarize Findings Deliver to WRF



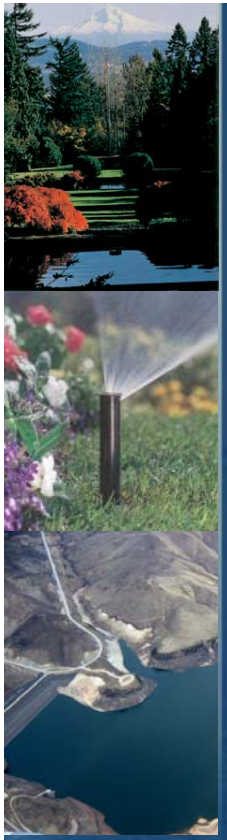
Benefits of Database to Idaho

- Identify treatment technologies associated with reuse applications
- Provide ideas for those considering reuse
- Comprehensive list of safe end users
- Supply potential utilities with references
- Evaluate program elements
  - Cost
  - Management
  - Education



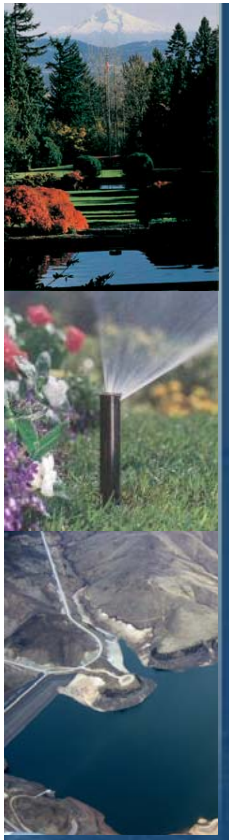
Accessing the Data

- WRA / WRF Members
  - Limited, complementary access
- Anyone Else or Extensive Services
  - Fee
- On-line Information Request Form
  - http://www.watereuse.org/ndwrf/index.htm#access
- Response to Inquiries in 2 days
  - Fee Estimate
  - Time Estimate
  - Usual Turnaround Time is 5 days



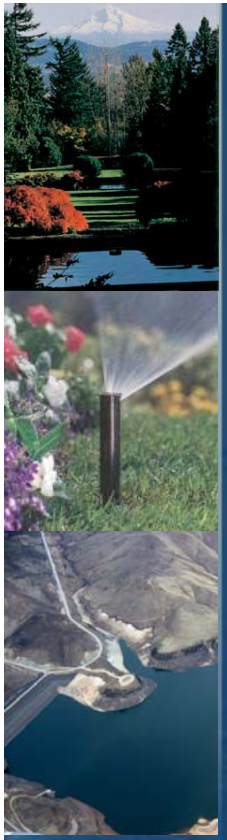
What Can I Discover?

- Utility Level Information
- Facility Level Information
- End Use Level
- Utility contacts that may have additional information on reuse programs



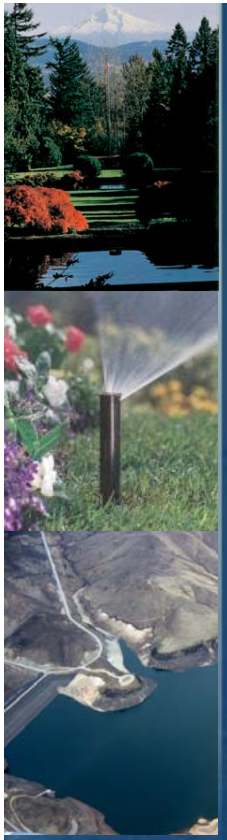
Utility Level Information

- Number and types of facilities
- Percent of demand met by reuse
- Challenges/Feedback
- Program Management
  - Cross Connection
  - Pre-Treatment
  - Public Relations
  - Education
  - Regional Planning



Reuse Facility Information

- Production Facilities (e.g., WWTPs/WRFs)
  - Treatment/Production Capacity
  - Treatment processes employed
  - Cost – Capital and O&M
- Distribution Facilities
  - Distribution Capacity
  - Infrastructure
  - Cost – Capital and O&M



Reuse/End Use Information

- Reuse Category
  - Irrigation
  - Industrial
  - Recharge
- Reuse Demand
- Costs borne by utility

How Much Data Are There?

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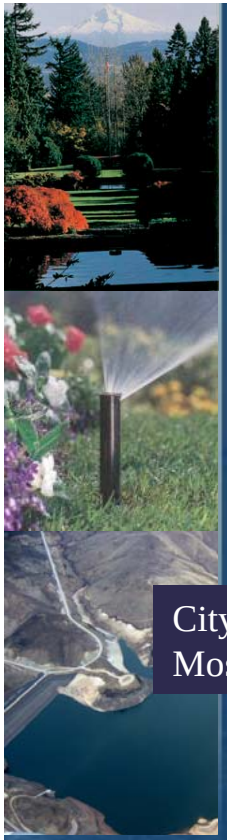
State	Irrigation (Thousand Gallons/Year) (R-T)	Recharge (Thousand Gallons/Year) (R-T)	Industrial (Thousand Gallons/Year) (R-T)	Wholesale (Thousand Gallons/Year) (R-T)	Commercial (Thousand Gallons/Year) (R-T)	Wetlands (Thousand Gallons/Year) (R-T)
Alaska	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Alabama	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Arkansas	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
American Samoa	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Arizona	7892457 (14-105)	2643910 (14-105)	1721857 (14-105)	- (14-105)	- (14-105)	- (14-105)
California	99190447 (59-426)	9621099 (59-426)	19007430 (59-426)	304325 (59-426)	304325 (59-426)	322898 (59-426)
Colorado	1082332 (4-5)	- (4-5)	1830819 (4-5)	- (4-5)	- (4-5)	- (4-5)
Connecticut	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
District of Columbia	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Delaware	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Florida	166445917290 (289-308)	39872000 (289-308)	16496075 (289-308)	- (289-308)	- (289-308)	14847000 (289-308)
Georgia	- (0-1)	- (0-1)	- (0-1)	- (0-1)	- (0-1)	- (0-1)

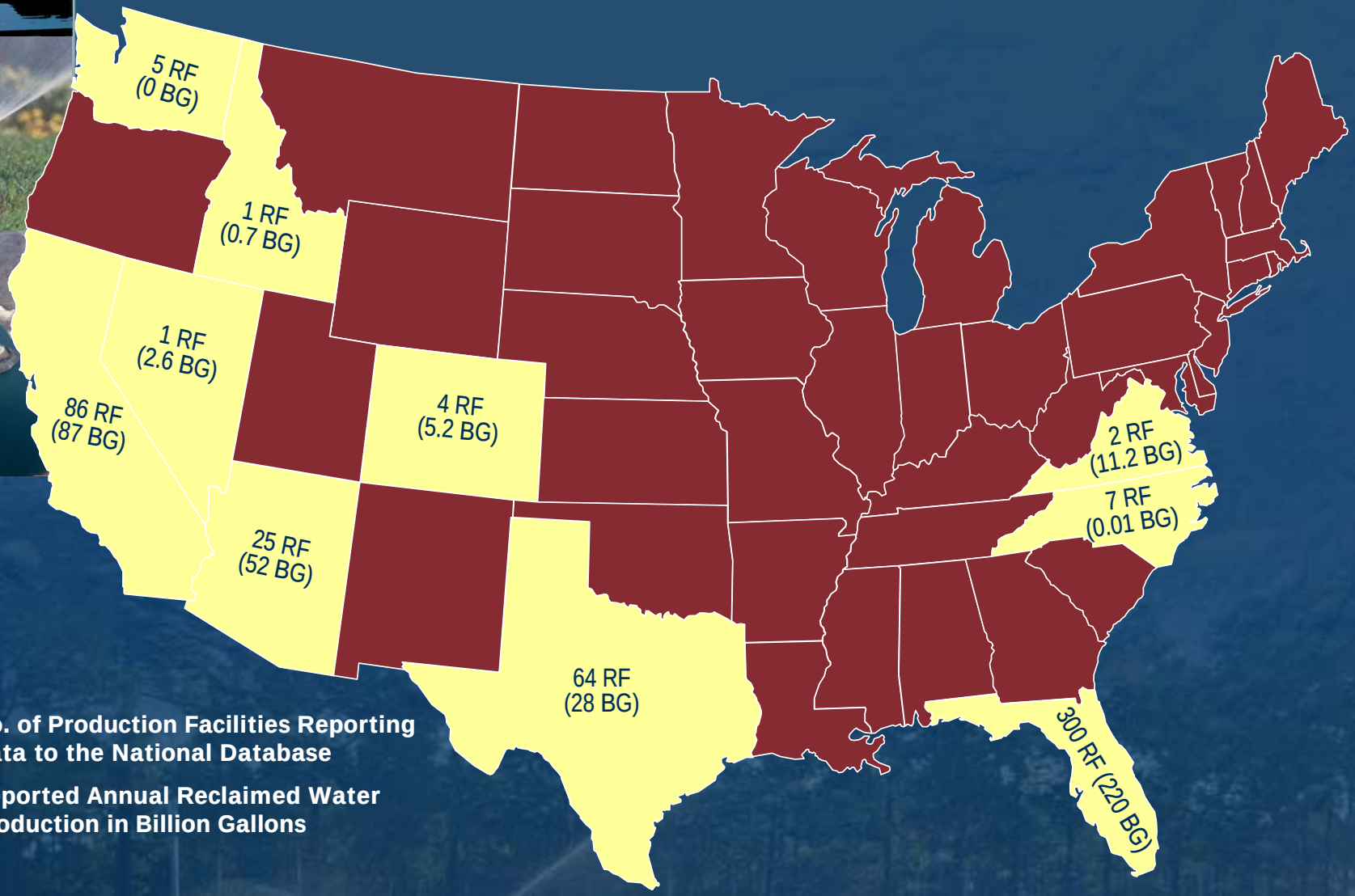


City of Moscow

How Much Data Are There?

State	Irrigation (Thousand Gallons/Year) (R-T)	Recharge (Thousand Gallons/Year) (R-T)	Industrial (Thousand Gallons/Year) (R-T)	Wholesale (Thousand Gallons/Year) (R-T)	Commercial (Thousand Gallons/Year) (R-T)	Wetlands (Thousand Gallons/Year) (R-T)
Guam	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Hawaii	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Iowa	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Idaho	100030 (1-1)	- (1-1)	- (1-1)	- (1-1)	- (1-1)	78525 (1-1)
Illinois	- (0-4)	- (0-4)	- (0-4)	- (0-4)	- (0-4)	- (0-4)
Indiana	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Kansas	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Kentucky	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Louisiana	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Massachusetts	325830 (1-3)	- (1-3)	- (1-3)	- (1-3)	- (1-3)	- (1-3)
Maryland	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)
Maine	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)	- (0-0)

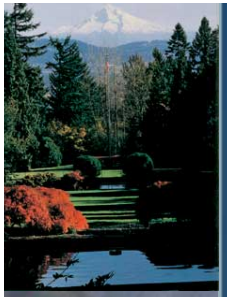
National Database for Water Reuse Facilities



RF = No. of Production Facilities Reporting Data to the National Database

( ) = Reported Annual Reclaimed Water Production in Billion Gallons

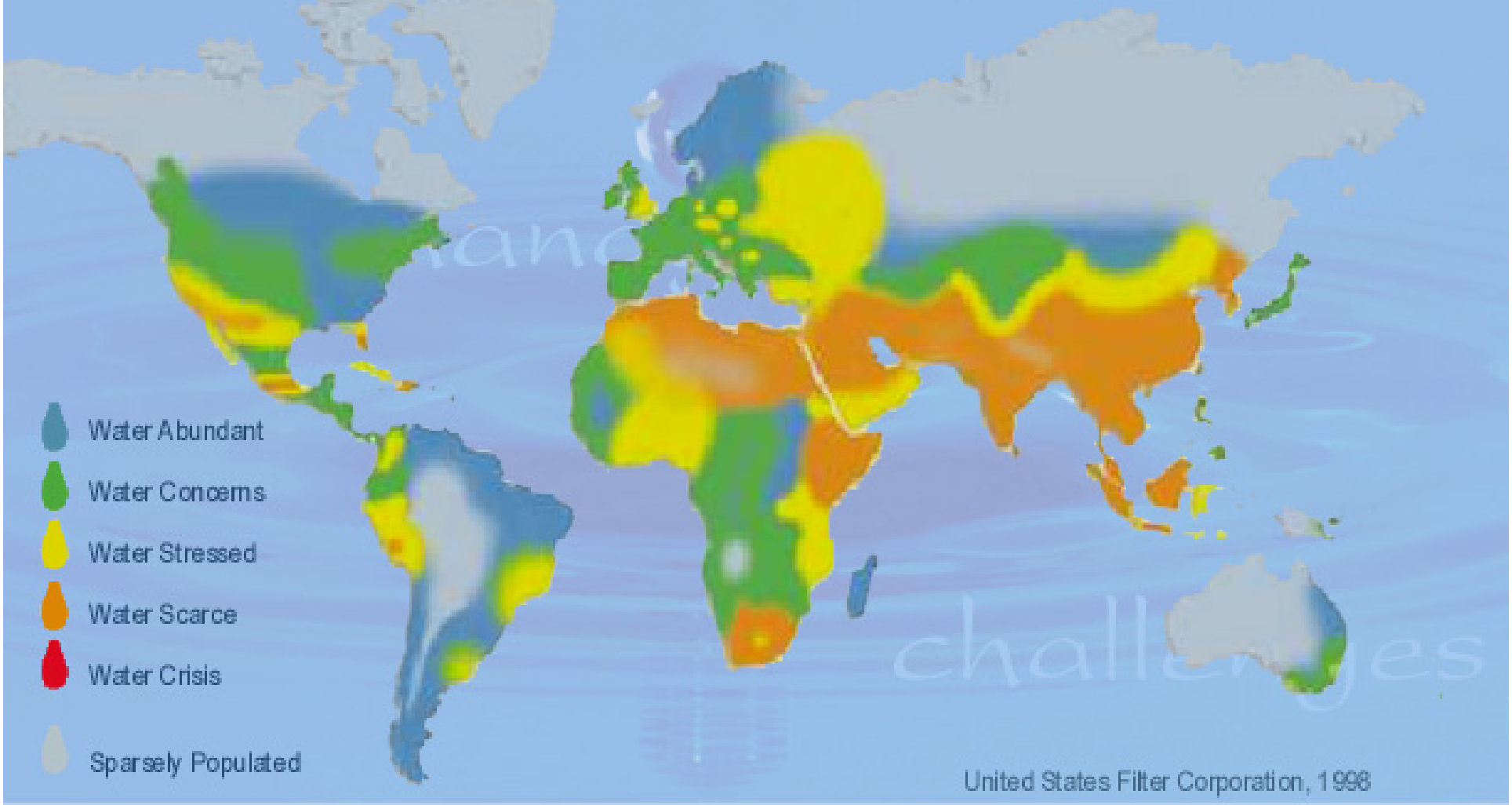
WateReuse Foundation, September 2006



WATEREUSE ASSOCIATION

Areas of Water Stress in 2020

Worldwide Fresh Water Availability in 2020



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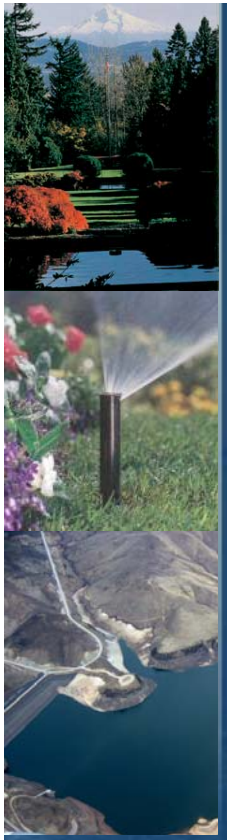

Factors Driving Water Reuse and Desalination

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

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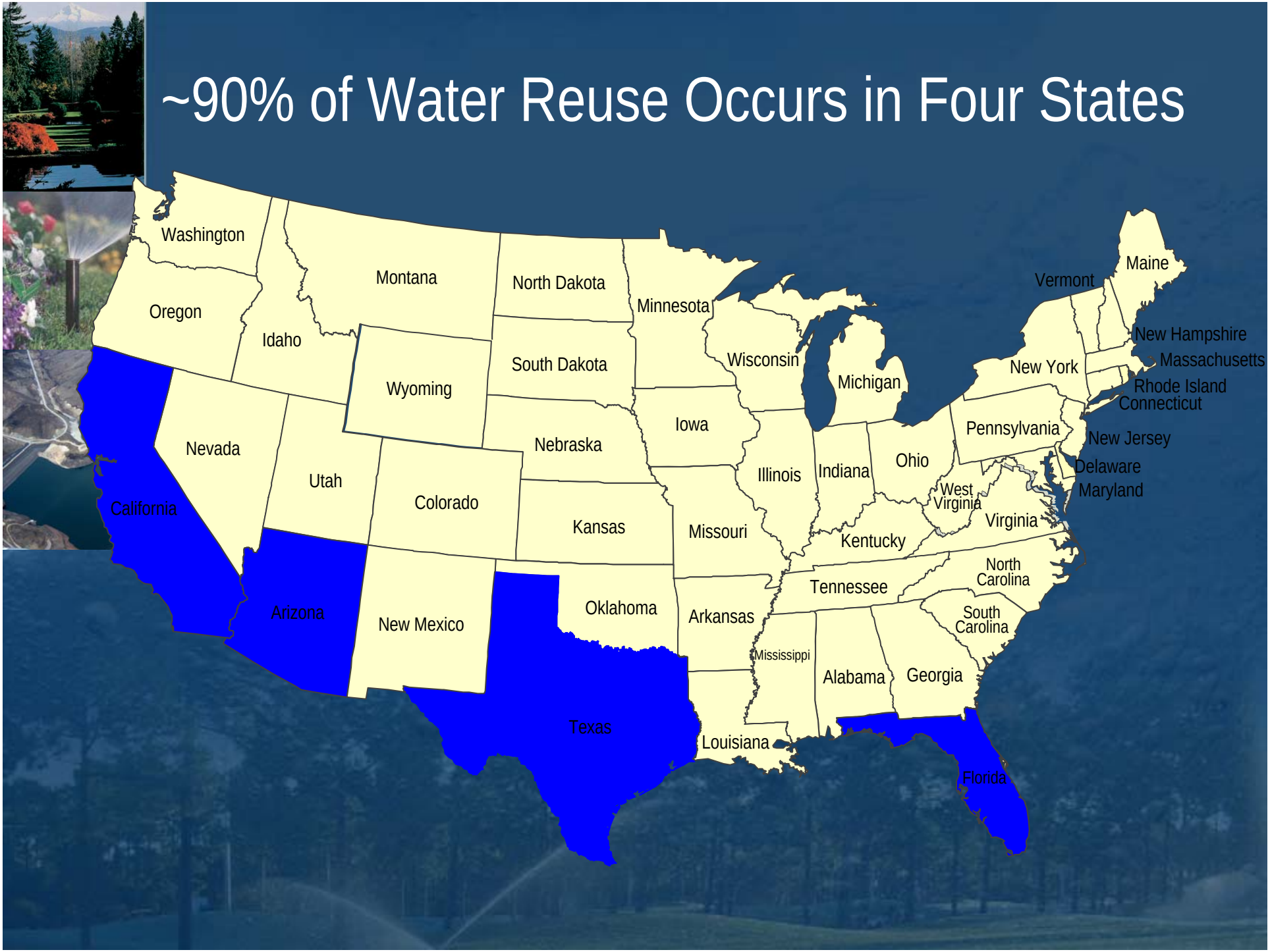
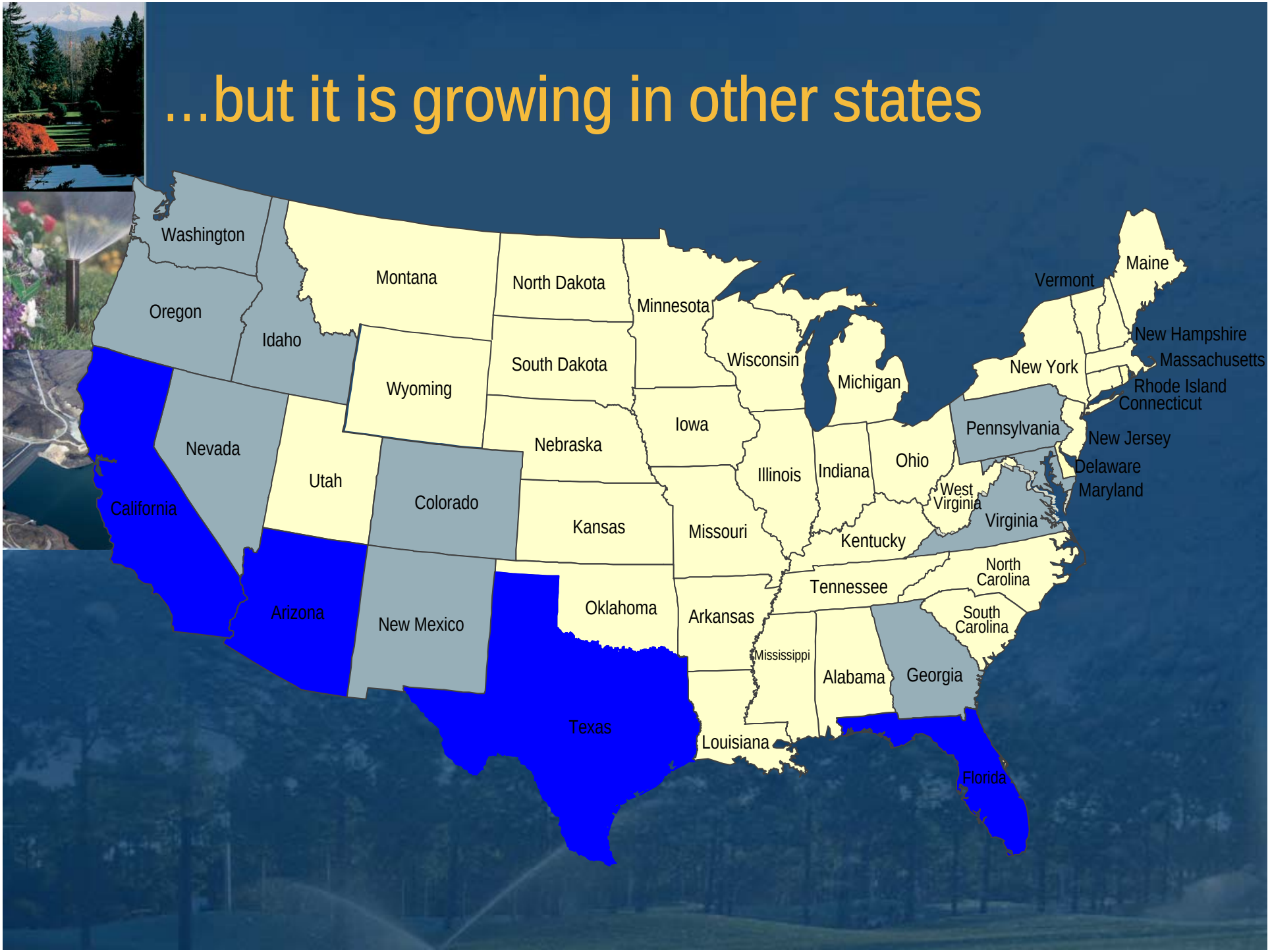
"Water scarcity"

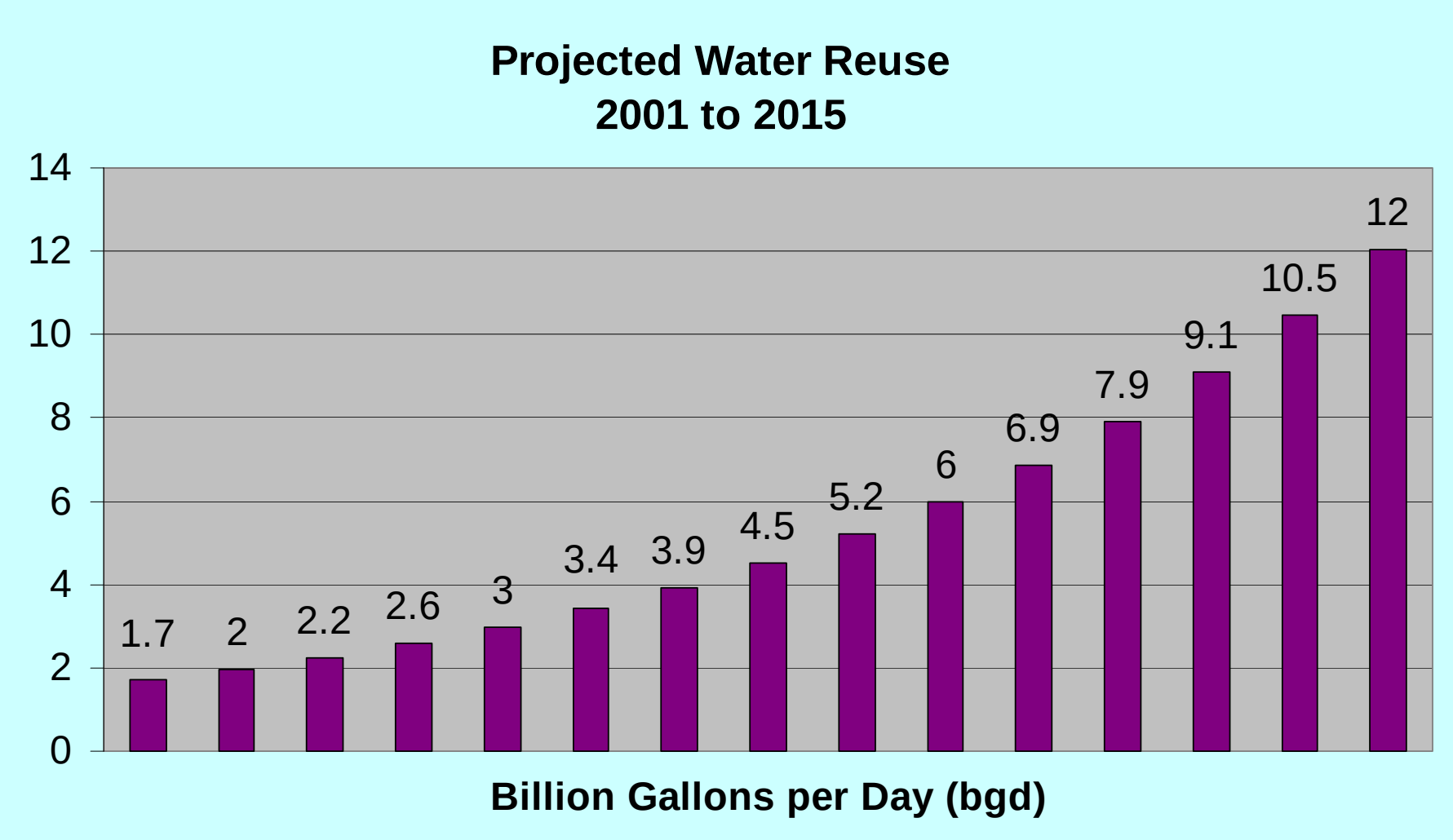
~90% of Water Reuse Occurs in Four States

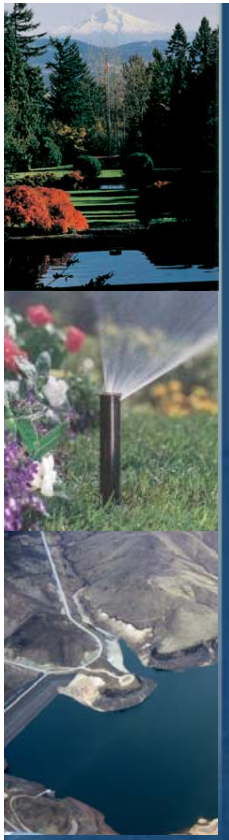


…but it is growing in other states



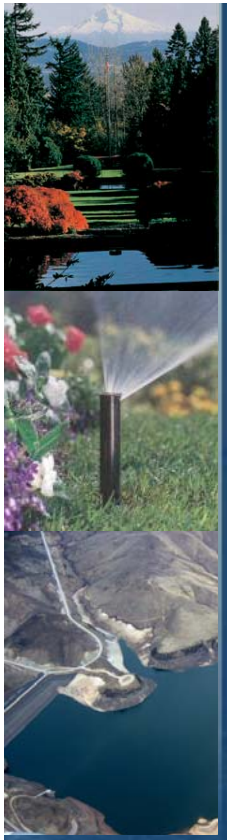
Projected Growth in the U.S.





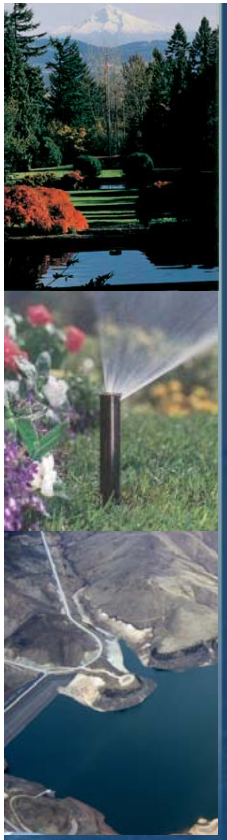
Emerging Issues

- No New Ones – Major Ones have Been Around for Awhile
- Major Issues are:
  - Public Perception/Acceptance
  - Perceived Chemical Risks
  - Poor Differentiation by Public and Politicians of Planned vs. Unplanned Reuse
  - The Media
  - Lack of Political Support
  - More Cost-Effective Technologies
  - Funding
  - Better Understanding of Economics



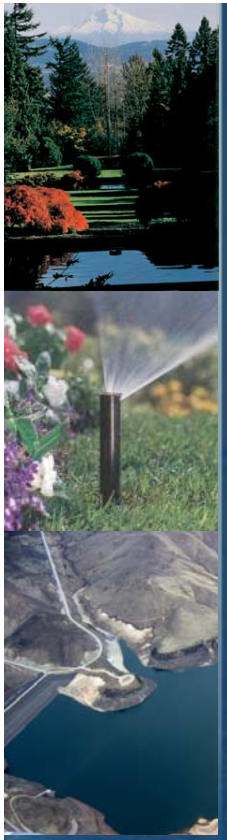
Regulations and Criteria

- No Federal Regulations
- 28 States Have Water Reuse Regulations
- 2004 U.S. EPA Guidelines for Water Reuse:
  - Recommended treatment processes
  - Water quality limits
  - Monitoring frequencies
  - Setback distances
  - Other controls
- www.epa.gov/ORD/NRMRL/pubs/625r04108/625r04108.htm



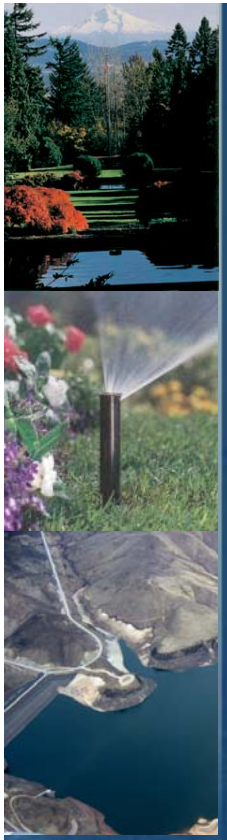
Public Acceptance of Water Reuse

- Public generally strongly supports nonpotable uses
- Uses involving no or minimal contact with reclaimed water (e.g., irrigation) are favored
- Acceptance related to knowledge of reuse (e.g., public education and participation programs)
- Acceptance of indirect potable reuse has been problematic in recent years
- Proposed projects in San Diego, East Valley, Dublin San Ramon, and Tampa have been unsuccessful



Significant Trends in Water Reuse

- Reuse is Gaining in Prominence Around the Globe (e.g., Australia, Singapore, South Africa, Israel, Spain)
- Technology Marches Forward with AOP & MBRs
- Constant Challenge in Public Acceptance Arena
- Research Focus is Now Global
- Reuse Now on Federal “Radar Screen”
- Progress on Indirect Potable Reuse Front



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WATEREUSE

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WATEREUSE ASSOCIATION

WATEREUSE FOUNDATION

WATEREUSE ARIZONA

WATEREUSE CALIFORNIA

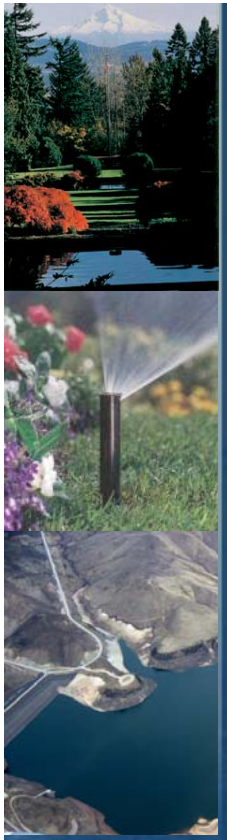
WATEREUSE FLORIDA

WATEREUSE NEVADA

WATEREUSE TEXAS

Management & Administration

Technology Transfer & Research Needs

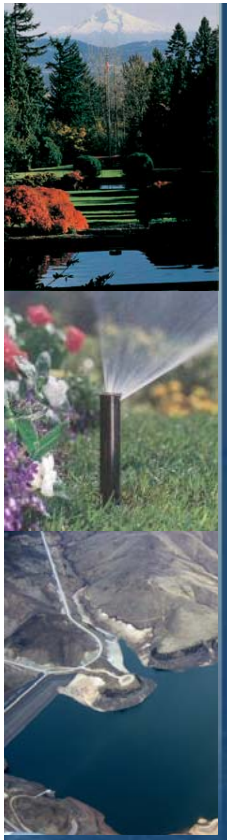


WateReuse Association

A Trade Association

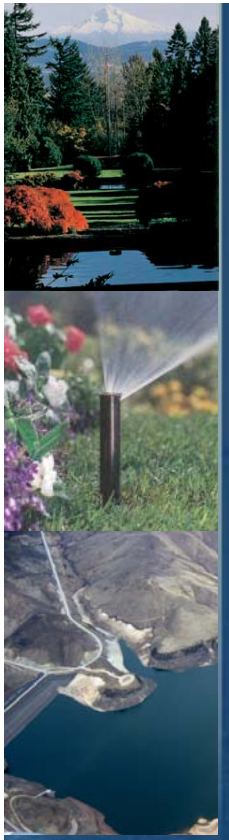
Four Strategic Initiatives

- Advocacy (Lobbying) -- National & State
  - Obtain Funding for Local Projects
  - Obtain Funding for Research
  - Influence National Water Policy
- Research (through WateReuse Foundation)
- Education & Outreach (Publications, Conferences)
- Membership



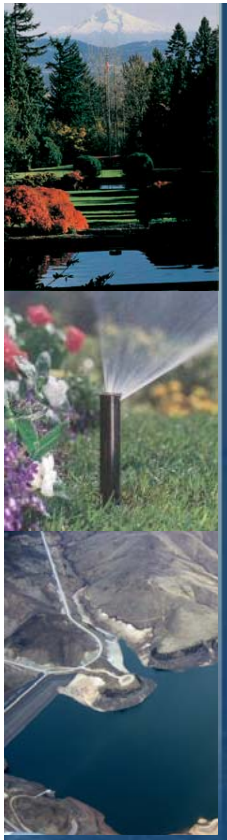
Membership

- A National Association
- Organizational Membership Totals More than 330
- Most Major Utilities in CA, AZ, TX, NV, and CO are Members; growing membership in FL and VA
- Membership Growing at Approximately 10%/Year



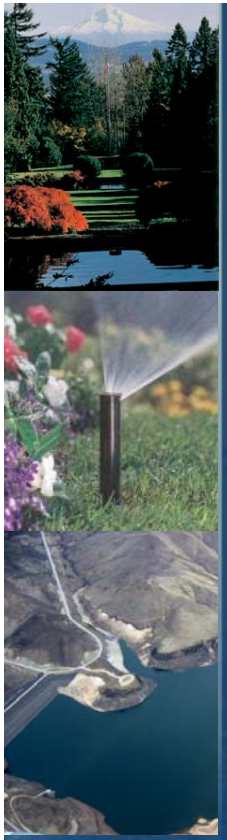
Governance

- 15-Person Elected Board
- Local Sections (CA, NV, TX, AZ & FL) Also Have Representatives
- Officers:
  - Pick Talley, Pinellas County Utilities
  - Rich Atwater, Inland Empire
  - John Shearer, PBS&J
  - Darryl Miller, Irvine Ranch Water District
  - Dave Requa, Dublin San Ramon Services District
  - Mike Gritzuk, Pima County Wastewater Management



Benefits

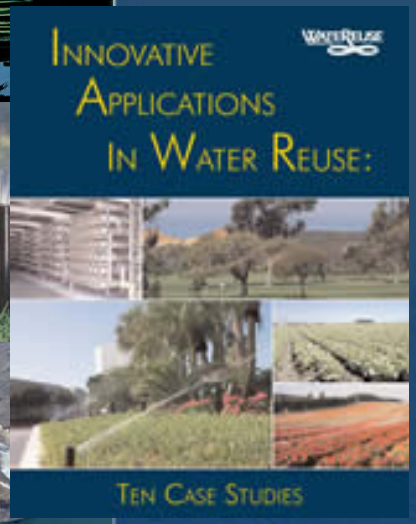
- Access to excellent research reports
- Tap into a network of reuse and desal experts from around the world
- Outstanding federal advocacy
- Opportunity to get involved and help shape policy
- Premier symposia
- State sections bring home funds for local issues



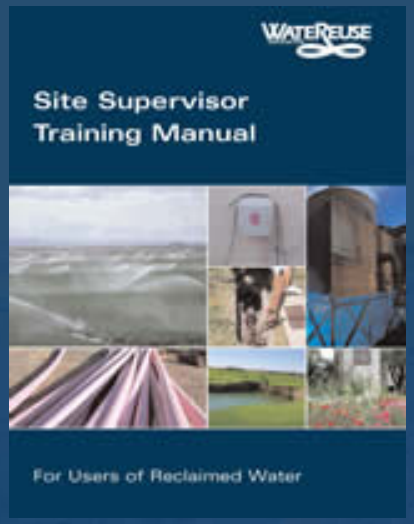
New Initiatives

- Collaborating with AWWA & WEF to Jointly Plan/Convene 2006-2008 WateReuse Symposiums
- Recently Formed WateReuse Florida
- May 2007 – welcomed first Australia utility member. WRA Board has laid framework for forming an Australia Division.
- New partnership with USDA

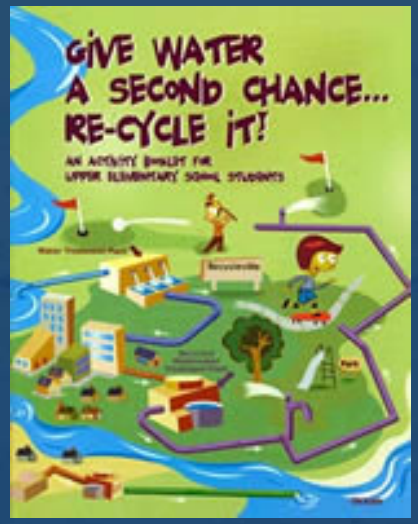
WateReuse Association Products



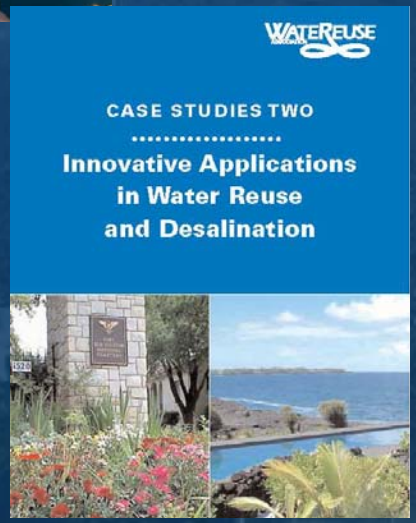
2004



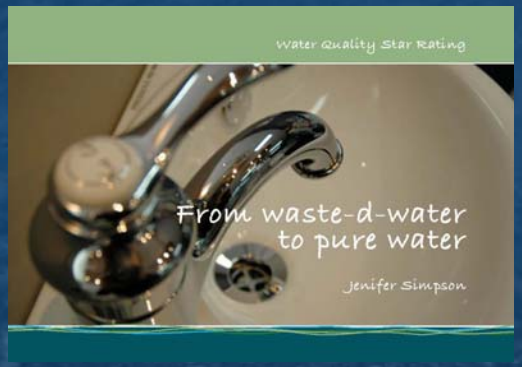
2006



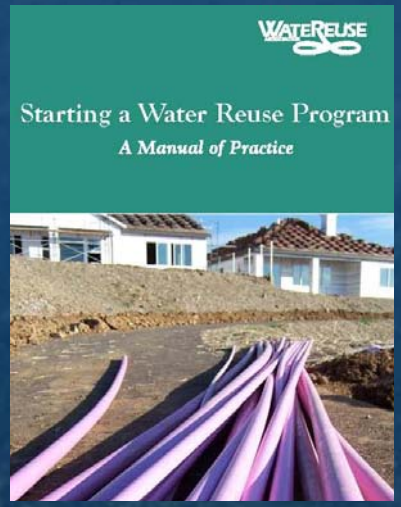
2006



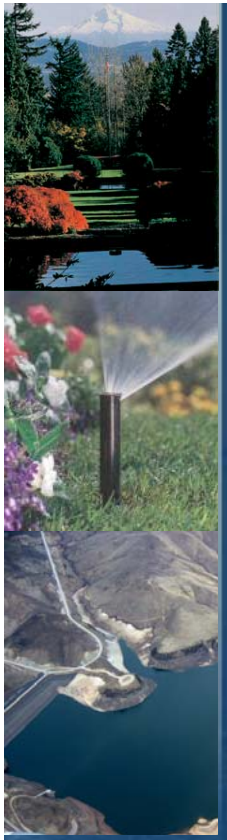
2007



2007



2008



WATEREUSE

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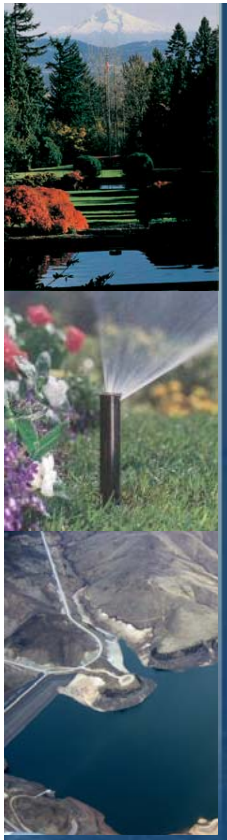
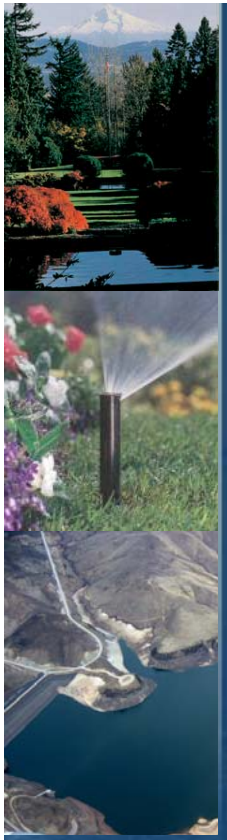
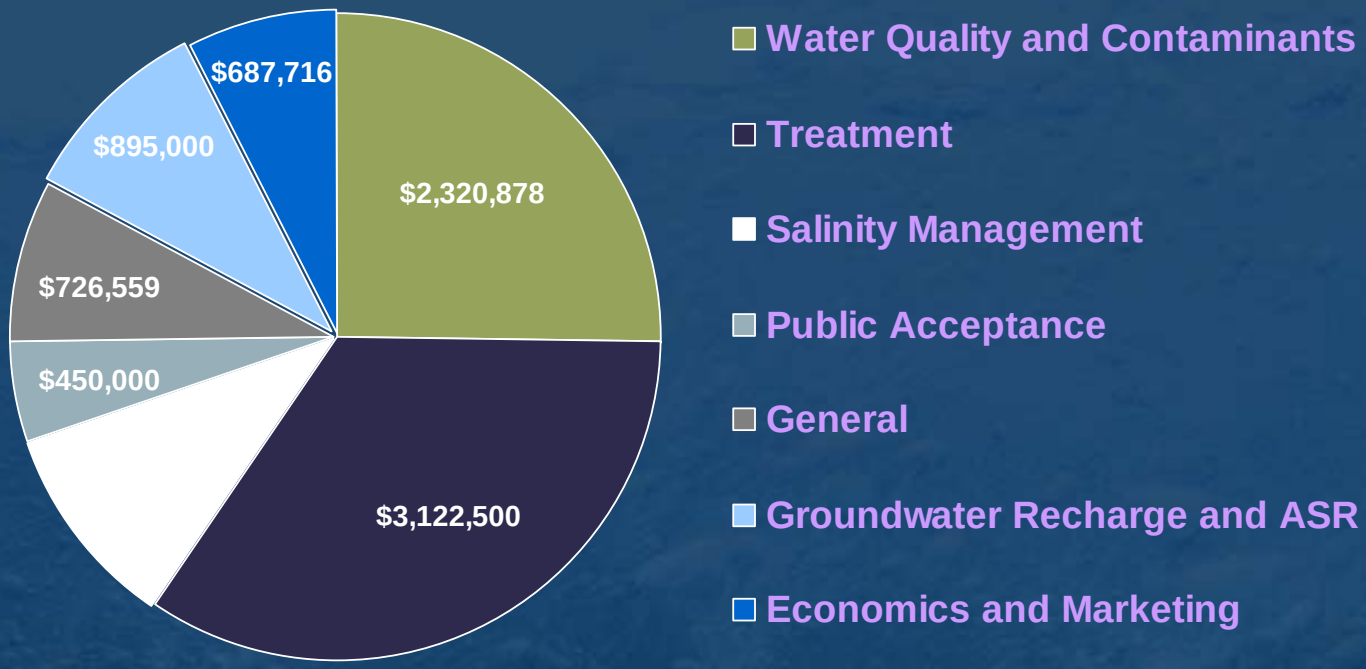


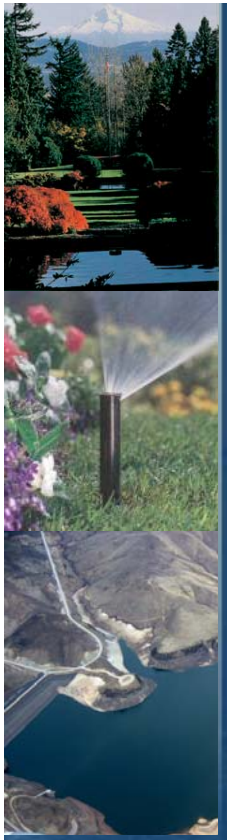
WateReuse Foundation's Mission

"The mission of the WateReuse Foundation is to conduct and promote applied research on the reuse, reclamation, recycling, and desalination of water."



WRF Projects by Research Dollars





Research Program Timeline

Number of Reports Completed

2001:
7 Projects

2002:
12 Projects

2003:
1 Report

2004:
5 Reports

2005:
6 Reports

2006:
15 Reports*

Number of Project Starts

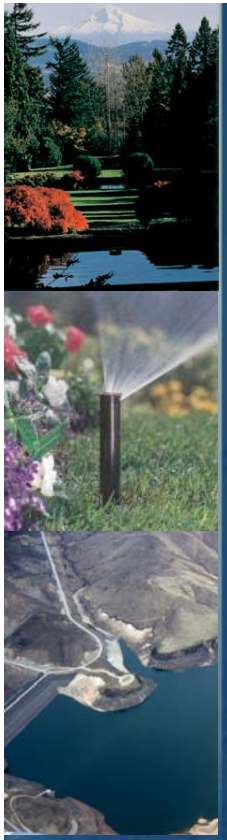
2003:
12 Projects

2004:
14 Projects

2005:
16 Projects

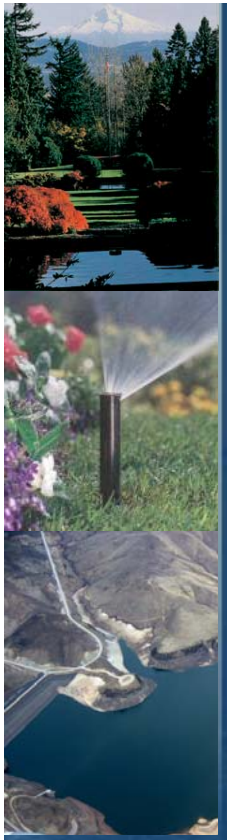
2006*:
16 Projects

* Projected



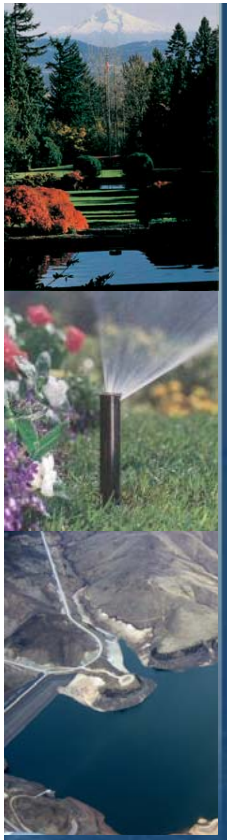
Recently Published Reports

- Marketing Nonpotable Recycled Water: A Guidebook for Successful Public Outreach & Customer Marketing
- An Economic Framework for Evaluating the Benefits & Costs of Water Reuse
- Irrigation of Parks, Playgrounds, & Schoolyards with Reclaimed Water: Extent and Safety
- Effects of Recycled Water on Turfgrass Quality Maintained Under Golf Course Fairway Conditions
- Removal and Destruction of NDMA and NDMA Precursors during Wastewater Treatment

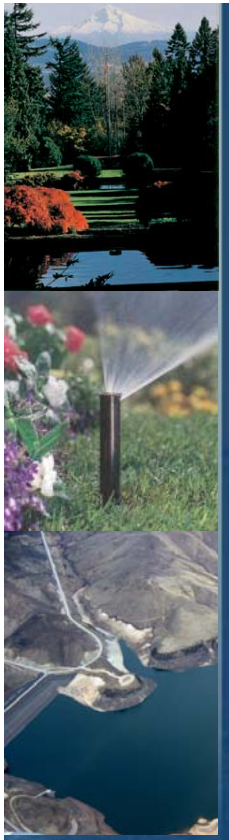


Exciting New Research Projects

- *Water Reuse in 2030*
- Assessing the Performance of MBRs Around the World over the Past Decade
- Nine new Desalination Projects (e.g., feasibility of offshore production, next generation membranes, etc.)
- Addressing Public Perception Issue by Looking at “Mental Models”

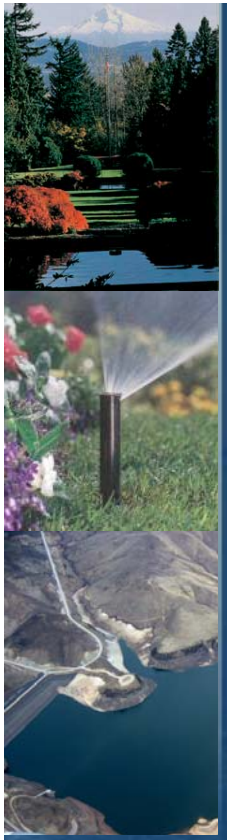


What Does the Future Hold…?



The Future

- Indirect Potable Reuse is Inevitable
- Increased Desalination – both Brackish Groundwater and Seawater – Also is Inevitable
- Education & Outreach/Stakeholder Involvement is Key to Acceptance
- Efficacy of Technology is Not an Issue
- Concerns About EDCs/PhACs, Other "Microconstituents" Must be Addressed

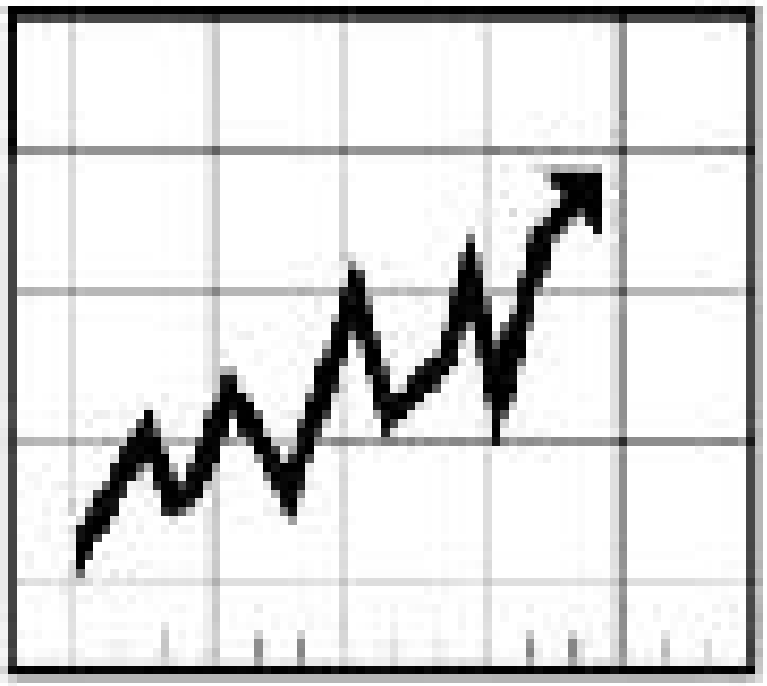


Challenges

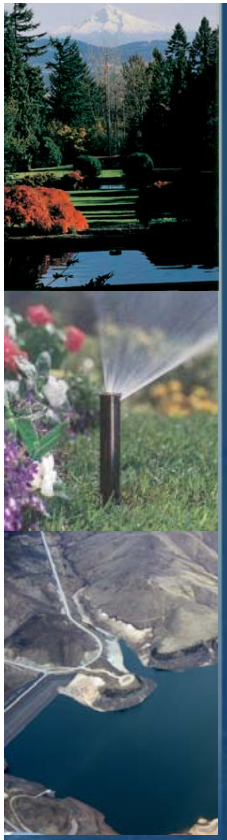
Education/Outreach/Communication

- ✓ Agree on Terminology – get away from terms such as "sewage," "drinking recycled sewage," "wastewater reuse," etc.
- ✓ Develop a Positive Brand – "Toilet to Tap" is not a winning brand; NEWater is
- ✓ Learn how to Communicate Risk – must be able to answer difficult questions posed by media
- ✓ Educate the Politicians – political support is crucial to success of a project
- ✓ Embrace all Stakeholders – only a handful of community activists can defeat a project
- ✓ Educate Public on the Value of Water – "We know the value of water when the well is dry."

Summary & Conclusions



- Water Reuse is Growing in Importance
- Need Means to Overcome Barriers (Public Perception, Perceived Chemical Risks, etc.)
- Need Additional Research
- Need Support from Governments/Politicians
- The WateReuse Association Can Help!



WATER REUSE & DESALINATION

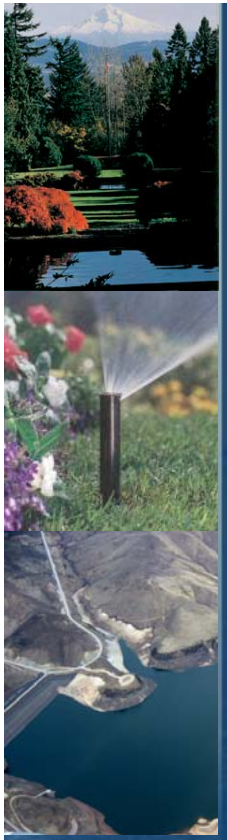
BRIGHT AS THE FLORIDA SUN

22nd Annual WateReuse Symposium

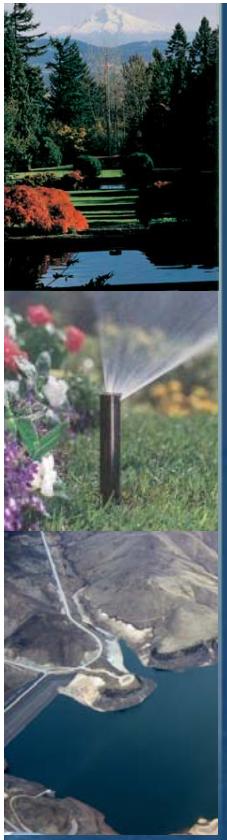
Tampa Marriott Waterside Hotel & Marina

Tampa, Florida

September 9-12, 2007



Questions???



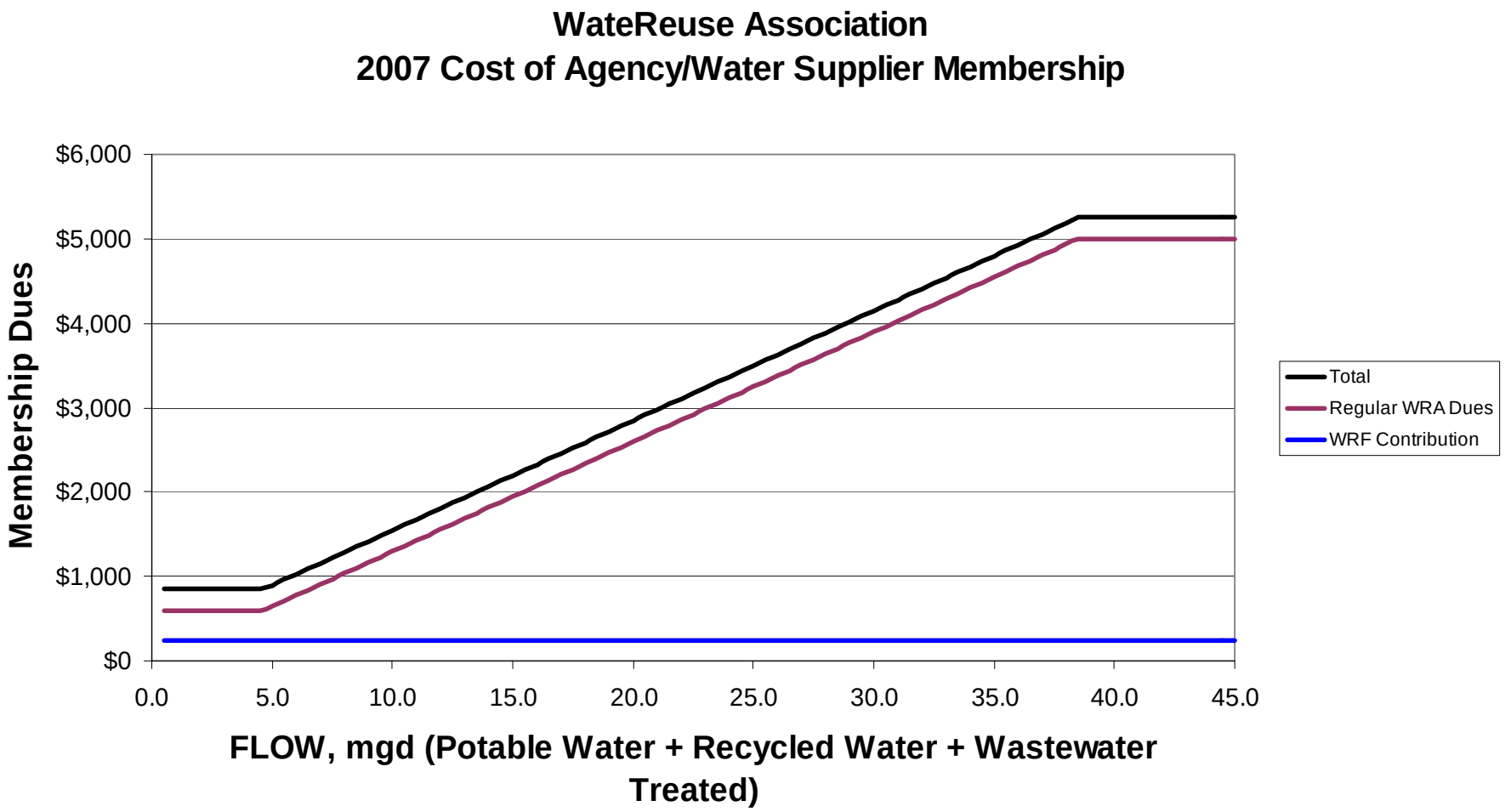
Contact Information

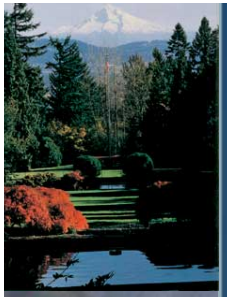
WateReuse Association

(703) 548-0880

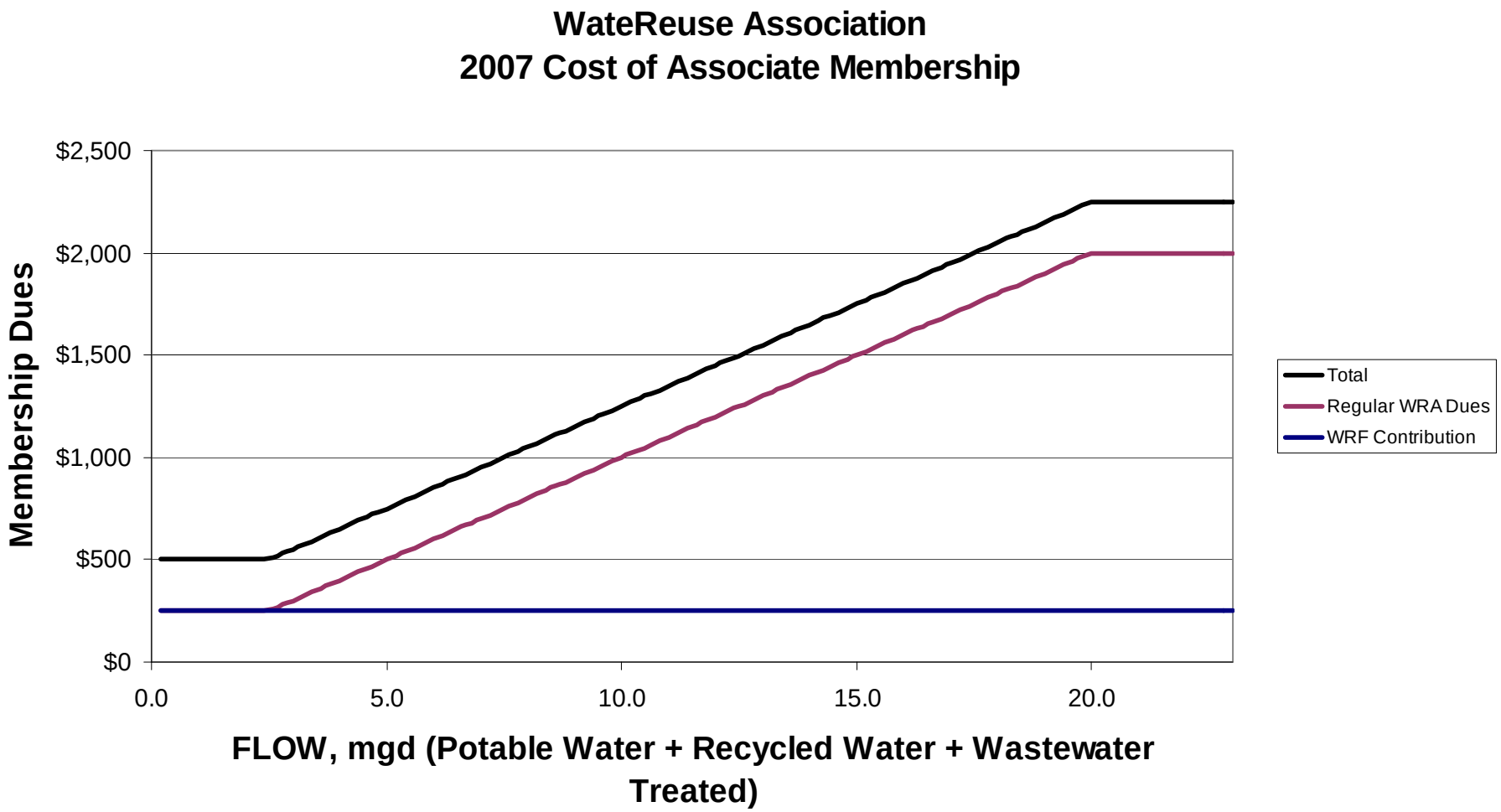
www.WateReuse.org

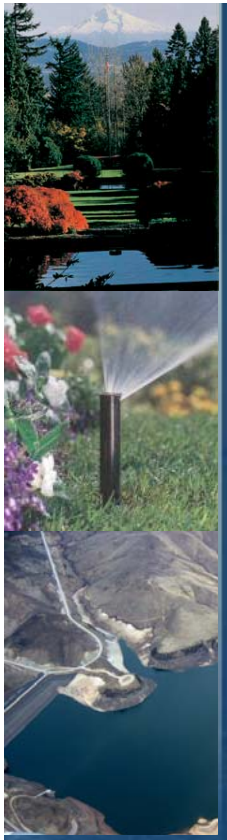
Cost of Membership in the WateReuse Association – Agency/Water Suppliers





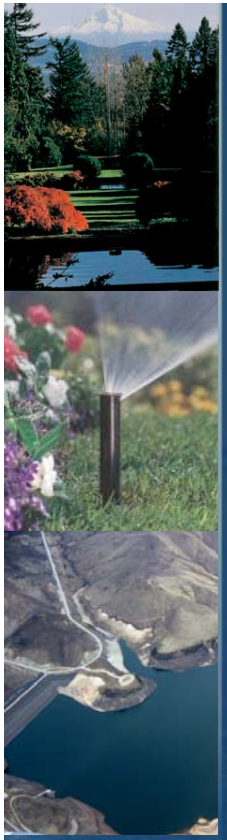
Cost of Membership in the WateReuse Association – Consultants, Suppliers, etc.





Cost of Membership in the WateReuse Association

- Affiliate Members
  - $250 for membership
  - $250 for WRF contribution
- Includes universities, schools, departments and agencies of federal, state, county, and local governments which do not qualify as an Agency/Water Supplier.



Benefits of Reuse

- Dependable Source of Supply
- Locally Controlled
- Environmentally Friendly
- Low or No Capital Costs
- Augments Existing Supplies