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Managing Water in the West

Bureau of Reclamation Advanced Water Treatment Technology Research Programs

**Multi-State Salinity Coalition
January 17-18, 2008
Las Vegas, NV**



U.S. Department of the Interior
Bureau of Reclamation

Outline

- Reclamation advanced water treatment technology (AWTT) R&D programs
- Level of expenditures
- Focus of expenditures
- Ways to support R&D

AWTT Research

- **Desalination and Water Purification (DWPR)
Desalination Act of 1996**
- **Title XVI: Water Recycling and Reuse**
- **Science and Technology Program**
- **Colorado River Salinity Control Act: Title I –
Yuma WQIC**
- **Water 2025**

Research Focus Areas

- Membrane Processes
- Thermal Processes
- Non-Traditional & Alternative Processes
- Water Recycling and Reuse
- Economic Improvements
- Concentrate Disposal
- Pilot Projects
- Demonstrations
- Technology Transfer

FY05 Expenditures

Program	FY05 Enacted
Water 2025	\$2,200,000
Title XVI - Reuse	\$1,000,000
Desalination and Water Purification R&D	\$6,500,000
S&T – Reclamation projects	\$1,100,000
Title 1–Yuma WQIC research facility	\$781,000
Total	\$11,581,000

Federal R&D Guiding Principles

- **Relevance**
- **Quality**
- **Performance**

Long-term Support for Research Based Upon:

- Mission relevance
- Legal authorities and requirements
- Meets OMB and Administration R&D objectives:
 - Cost sharing with partners
 - Good return on R&D investment
 - Research funding based on competition and independent merit review
 - Focus on high-risk R&D
 - Coordination with related programs

Focus of R&D Expenditures is Guided by:

1. State of the Science
2. Agency Priorities
3. State and Regional Priorities

State of the Science

1. Universities

2. Other Federal Agencies & National Labs

**3. Research, Industry, and User Association
Conferences and Reports**

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Agency Priorities

1. Legal mandates, e.g, Colorado River Salinity Control Act, Yuma RO facility
2. Agency missions: e.g.,
 1. Water supply
 2. Agricultural drain water management
 3. Rural Water Program

State and Regional Priorities

Some examples:

- **Multi-State Salinity Coalition**
- **Affordable Desalination Collaboration**
- **California Prop 50**
- **WaterReuse Foundation**
- **Colorado River Water Users Association**
- **Western States Water Council**

2003 Desalination and Water Purification Technology Roadmap

- **Indiana University**
- **Arizona State University**
- **Separation Consultants, Inc.**
- **Sandia National Laboratories**
- **Phoenix Water Department**
- **Aqua Resources International**
- **Pacific Institute**
- **Membrane Technologies**

- **Emory University**
- **Bureau of Reclamation**
- **Texas Water Development Board**
- **CH2M Hill**
- **San Diego County Water Authority**
- **Alternative/Thermal Technologies**
- **NSF International**
- **National Water Research Institute**
- **Ionics Inc.**

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- **Reuse/Recycling Technologies**
- **WaterReuse Foundation**
- **Water Environment Research Foundation**
- **Pinellas (FL) County Utilities**
- **Concentrate Management Technologies**
- **Metropolitan Water District of S Cal**
- **Mickley and Associates**
- **McGoran & Associates**
- **Office of Senator Harry Reid**

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More Roadmapping...

- **2004 National Academy of Sciences review of Roadmap**
- **2008 National Academy of Sciences report: Advancing Desalination Technology (January?)**

Ways to Contribute

- **Participate in development of current statements of AWTT problems, gaps, opportunities, and priorities**
- **Promote regional and national coordination of priorities for research and demonstration projects**

Ways to Contribute

- **Communicate technical findings to researchers, the public, and officials.**
- **Promote sound principles of Federal R&D:**
 - **competitive, merit-based selection**
 - **clear need for Federal involvement**
 - **research quality and performance**
 - **coordinated programs**

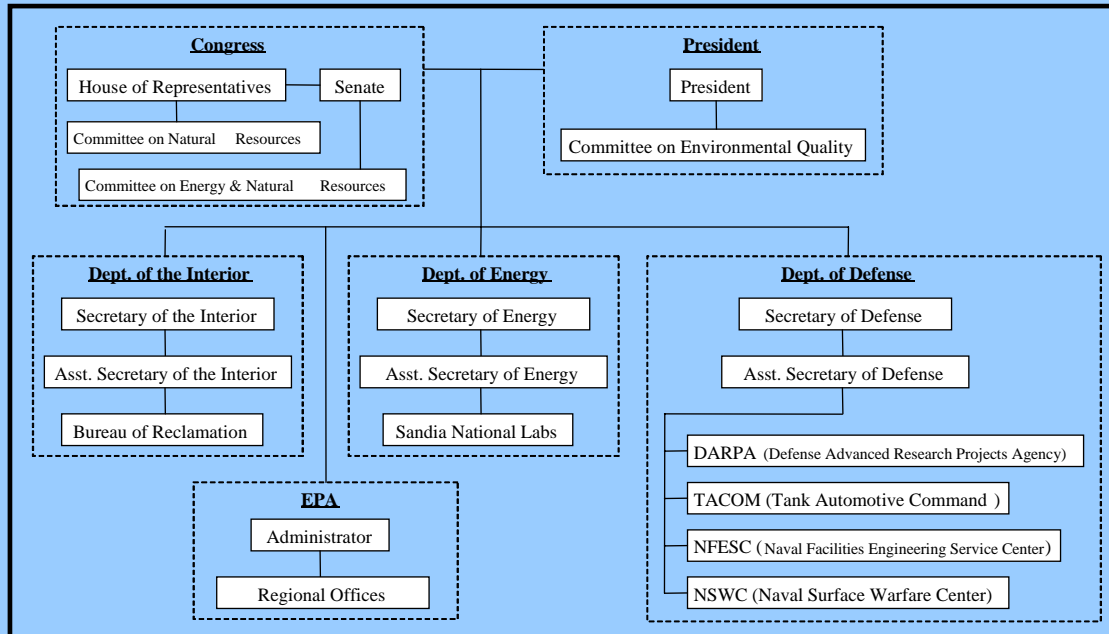
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The Major Players in United States Water Treatment & Water

Security Issues

1/07/03 (Dundorf)

United States Government



Water & Wastewater Organizations

National Water Organizations

AWWA (American Water Works Association)

AWWARF (American Water Works Research Foundation)

NWRI (National Water Research Institute)

NRWA (National Rural Water Association)

Wastewater Organizations

WEF (Water Environment Federation)

WERF (Water Environment Research Foundation)

Water Reuse Organizations

WRF (Water Reuse Foundation)

Membrane Organizations

NAMS (North American Membrane Society)

AMTA (American Membrane Technology Association)

Regional Water Organizations

SEDA (Southeast Desalting Association)

International Water Organizations

IDA (International Desalination Association)

Water & Wastewater Utilities

Public Drinking Water Utilities

Private Drinking Water Utilities

Public Wastewater Utilities

Private Wastewater Utilities

Private Sector

Civil / Environmental Engineering Consulting Firms

Equipment Manufacturers

Public - Private Partnerships

University Centers

State Agencies

CA Dept of Water Resources

TWDB (Texas Water Development Board)

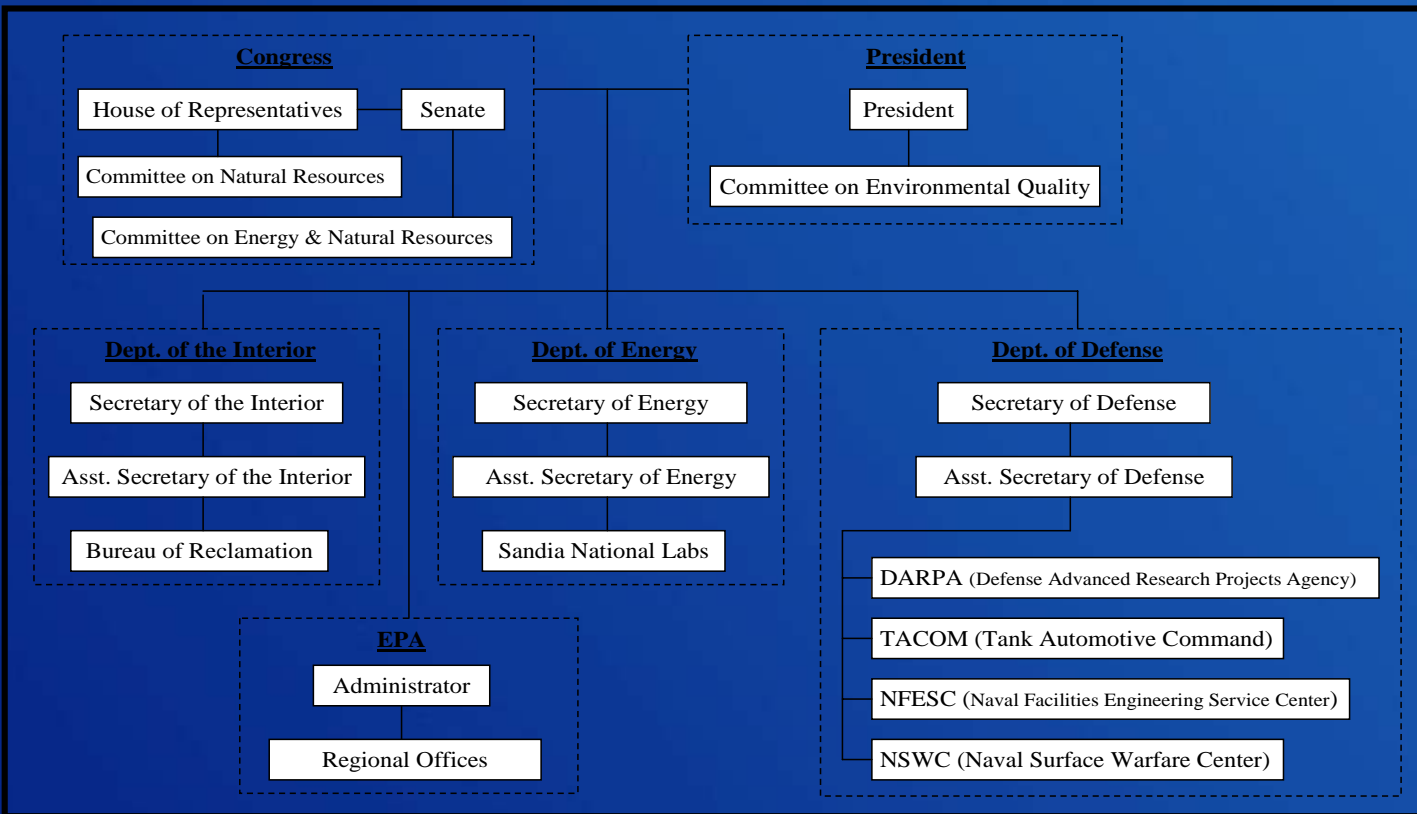
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Water Reuse Organizations

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International Water Organizations

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Water & Wastewater Utilities

- Public Drinking Water Utilities
- Private Drinking Water Utilities
- Public Wastewater Utilities
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Private Sector

- Civil / Environmental Engineering Consulting Firms
- Equipment Manufacturers
- Public – Private Partnerships
- University Centers

State Agencies

- CA Dept of Water Resources
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