

Urban Water Conservation along the Rio Grande

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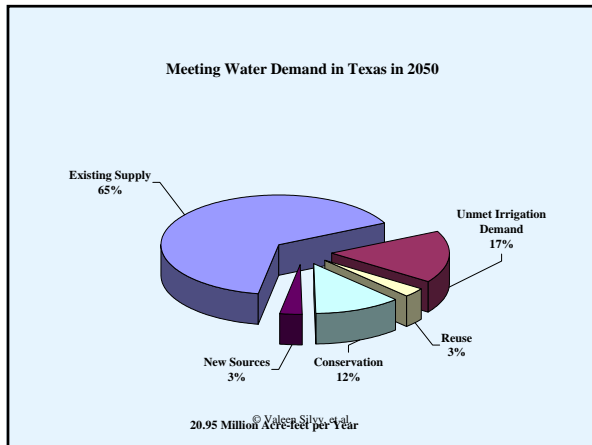
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Research Sponsors

- Rio Grande Basin Initiative
 - US Department of Agriculture
- Texas Water Resources Institute
- Texas A&M University System
- New Mexico State University

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Water Demand – Key Findings for 2000-2050

From 16.5 to 20.95 million acre-feet/year

- Per capita water use decreases from 181 to 159 gallons/capita/day (22)
- Municipal water demand increases 67%
- Manufacturing water use increases 47%
- Irrigation demand declines by 12%

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Rio Grande Urban Water Conservation Study Goals

- Phase I: Develop an inventory of city water conservation practices.
- Phase II: Determine:
 - Definitions of water conservation
 - Barriers to water conservation &
 - Preferences of water conservation strategies.

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Survey

- 30 Rio Grande cities
Texas & New Mexico
- Mayors, City Councils &
City Staff - conservation or water managers

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Survey Questions

- Definitions: Do you agree or disagree?
- Barriers: Are these important or not important?
- Preference: Is this a preferred conservation strategy and is it feasible?

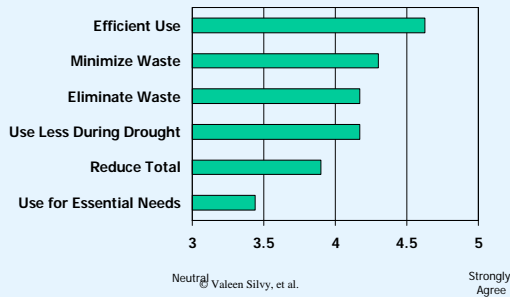
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Define Water Conservation

- Use water more efficiently
- Eliminate waste
- Minimize waste
- Reduce total amount used
- Use water for essential needs
- Use less water during droughts

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Definition Response



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Definition: Results

- Highest Agreement
- Efficient use
 - Minimize waste
 - Eliminate waste
- Lower Agreement
- Reduced total
 - Essential needs

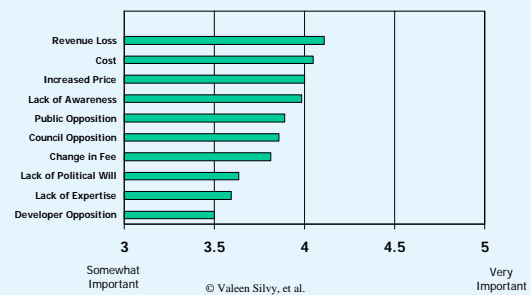
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Barriers to Conservation

- Cost to implement
- Increases price of water
- Loss of revenue
- Lack of expertise
- Public opposition
- Lack of political will
- Developer/ opposition
- Lack of public awareness
- Requires change in fee structure

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Barriers to Conservation: Response



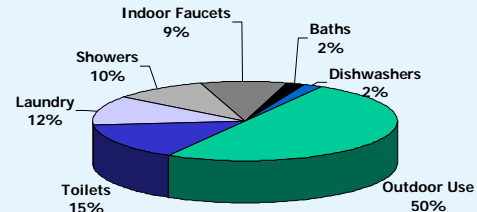
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Barriers: Results

- Revenue Loss
- Cost of program
- Increased price of water
- Lack of awareness
- Public opposition

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Residential Water Use



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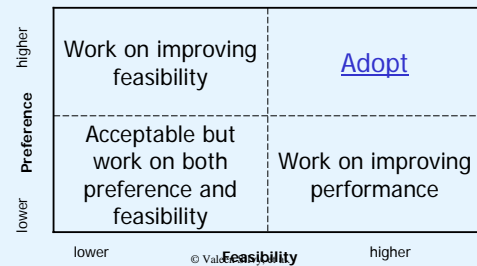
Source: American Water Works Association

Selected Conservation Options

- Water audits
- Increase price
- Offer rebates
- Leak detection program
- Public education
- Reuse wastewater
- Restrict landscapes
- Residential graywater
- Irrigation schedules
- Require drip irrigation
- Rainwater harvest
- Outdoor water-use restriction
- Drought tolerant landscapes
- Fugitive water

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Preference-Feasibility Grid: Results Display



Water Conservation Options: Preference and Feasibility

Strategy	Preference	Feasibility
1 Encourage drought-tolerant landscape	4.49	4.28
2 Public education campaign	4.30	4.08
3 Provide residential water audits	4.08	3.80
4 Use graywater for landscape watering	4.05	3.59
5 Require drip irrigation as appropriate	4.03	3.67
6 Reusing treated municipal wastewater	3.99	3.77
7 Outdoor watering restrictions	3.95	3.66
8 Restrictions on watering schedules	3.86	3.59
9 Rainwater harvest programs	3.79	3.59
10 Provide low-flow showerheads	3.59	3.43
11 Restrict water run-off	3.54	3.33
12 Leak detection for water lines	3.37	2.93
13 Offer rebates	3.24	2.90
14 Restrict landscapes and planting	3.02	2.93
15 Increase price to reduce use	3.00	3.03

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Results

Adopt

- Encourage drought-tolerant landscape
- Public education campaign

Less Feasible

- Provide low-flow showerheads
- Restrict water run-off
- Leak detection for water lines
- Offer rebates
- Restrict landscapes and planting
- Increase price to reduce use

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Staff/Elected Officials Compared

Adopt

Encourage drought-tolerant landscape
Public education campaign
Provide residential water audits – E
Reusing treated municipal wastewater – E

Work on Feasibility

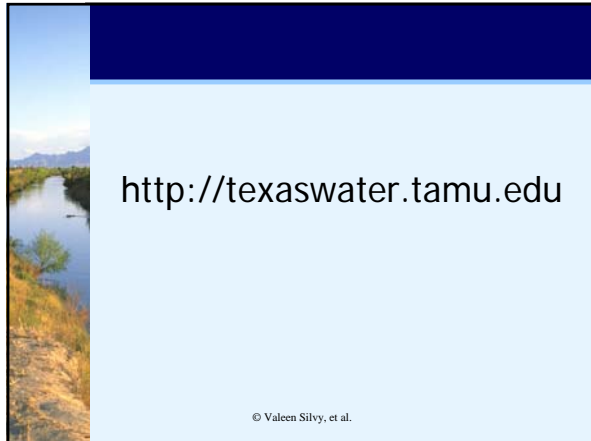
Leak detection for water lines
Offer rebates - S
Restrict landscapes and planting
Increase price to reduce use - E

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Summary

- Define Water Conservation:
 - Efficient use
- Barriers to Water Conservation:
 - Financial
- Most acceptable programs:
 - Voluntary
- Greatest water savings: Landscapes

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