

## The Preference & Feasibility of Urban Water Conservation along the Rio Grande

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## Research Sponsors

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


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## Rio Grande Urban Water Conservation Study Goals

- Phase I: Develop an inventory of city water conservation practices.
- Phase II: Determine what **city officials** believe are the most **preferred** and **feasible** water conservation practices, and what city officials believe are the **barriers** to the use of these practices.


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## Preference – Feasibility: A Tool for Building Consensus

- Decision-making involves two dimensions
  - **Preference: interest & value driven**
  - **Feasibility: information & data driven**
- Responses for preference & feasibility on 5-point scale

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## Example: Preference

Several water conservation options are available for your community. Please circle your preference for each water conservation option.

	Preference				
	Not at all		Strongly Prefer		
Reuse treated wastewater	1	2	3	4	5
Increase the price of water	1	2	3	4	5

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## Example: Feasibility

Many water conservation options are available to your community. Please circle how feasible you think the following water conservation options are for you community.

	Feasibility				
	Not at all		Strongly Prefer		
Reuse treated wastewater	1	2	3	4	5
Increase the price of water	1	2	3	4	5

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### Values of P-F Study

- Determine education program needs
- Show levels of Agreement/Disagreement
- Promote discussions
- Improve decision-making
- Assist in building consensus

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### Preference-Feasibility Action Grid: Results Display

Preference	higher	Work on improving feasibility	Adopt
	lower	Acceptable but work on both preference and feasibility	Work on improving performance
		lower	higher
		<b>Feasibility</b>	

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### Determine P-F Options

- Determine water conservation options
  - Literature
  - City practices in similar areas
- Review
  - Ease and acceptance
  - Costs and savings

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### Selected Conservation Options

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

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### Determine Barrier & Definition Options

- Review literature & presentations
  - Conservation measures & incentives
  - Economics
  - Policy/administration
- Determine range of potential barriers
- Reduce to manageable number
- Measure on 5-point scale of importance

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### Barriers (& Definitions)

Identify the level of importance for each barrier to the implementation of water conservation programs in your area.

	Not important			Very Important	
Cost to implement	1	2	3	4	5
Public opposition	1	2	3	4	5

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### Study Criteria

- Cities along the Rio Grande in Texas & New Mexico with over 5,000 population
- 30 cities
- Elected Officials
- City Staff: conservation or water managers

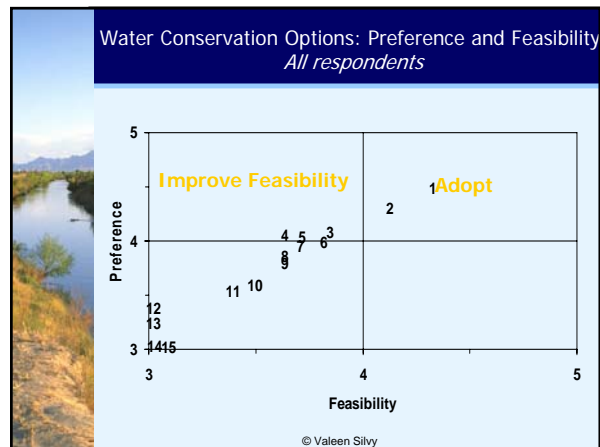
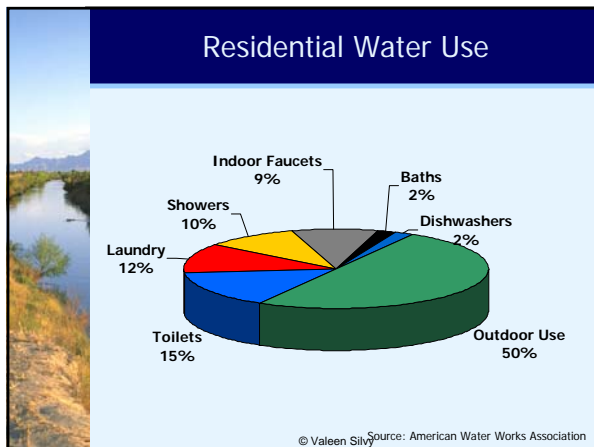
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### Methods

1. Mailed survey to 237 addresses-30 cities
2. Mailed post card for electronic survey
3. Follow-up with third survey request

- Thirty cities
  - 165 Texas: 125 elected, 40 staff
  - 72 New Mexico: 59 elected, 13 staff
- **City response: 27 / 30 cities**
- **90% of all cities responded**
  - **100% New Mexico**
  - **73 % Texas**

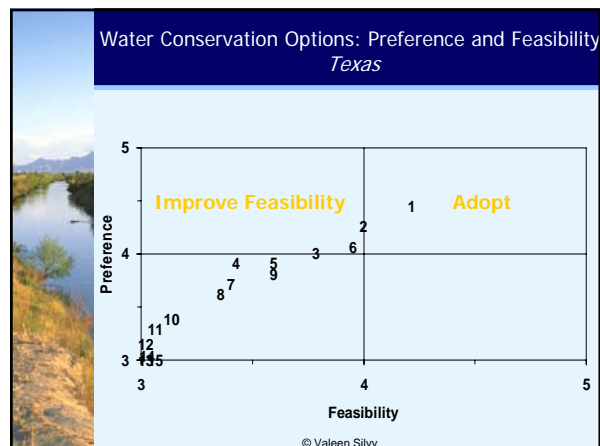
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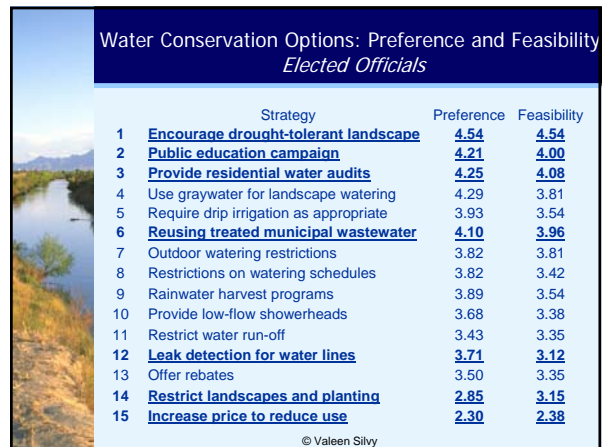
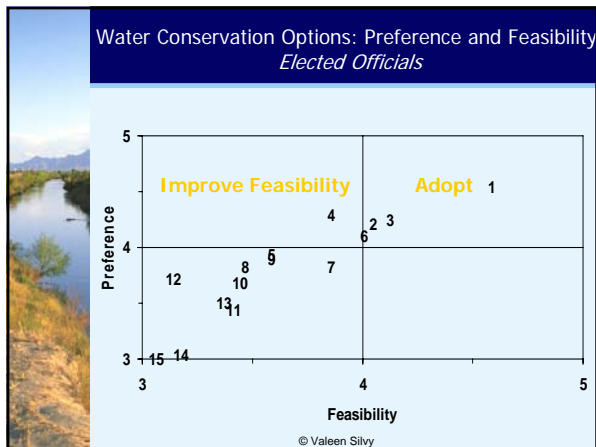
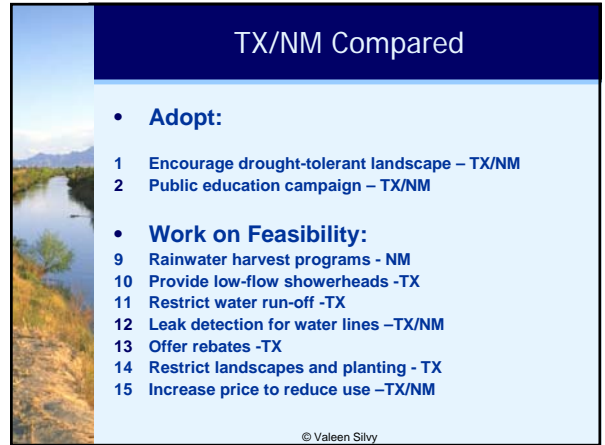
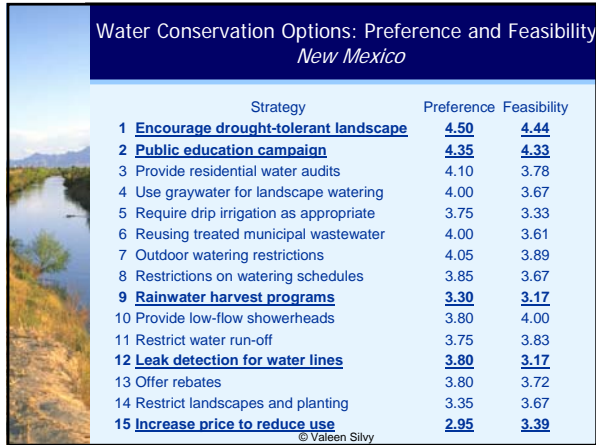
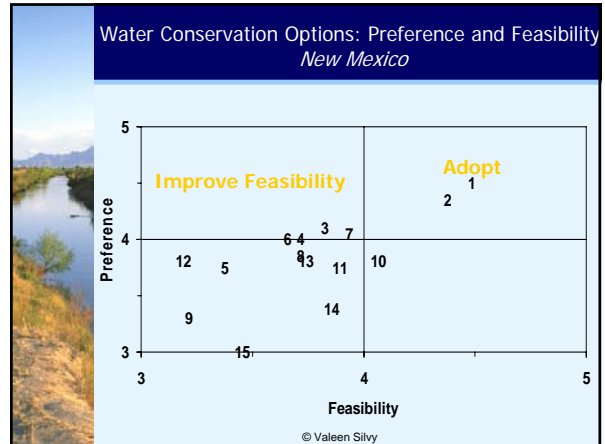
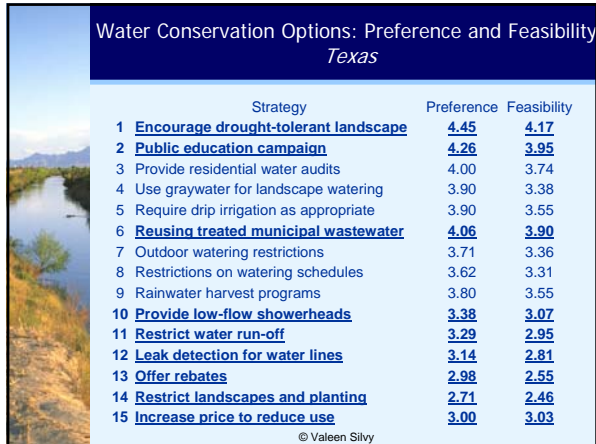


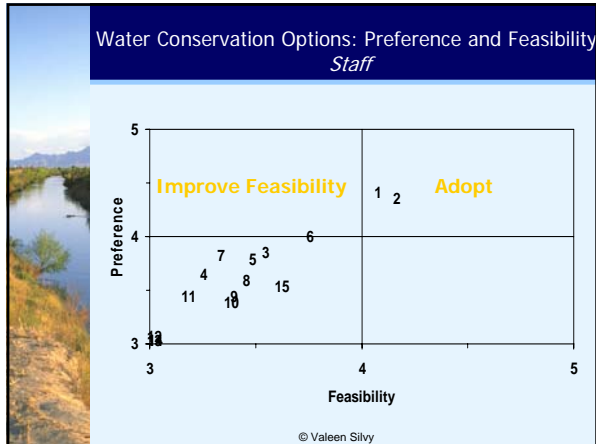
### Water Conservation Options: Preference and Feasibility *All respondents*

Strategy	Preference	Feasibility
1 <u>Encourage drought-tolerant landscape</u>	<u>4.49</u>	<u>4.28</u>
2 <u>Public education campaign</u>	<u>4.30</u>	<u>4.08</u>
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 <u>Leak detection for water lines</u>	<u>3.37</u>	<u>2.93</u>
13 <u>Offer rebates</u>	<u>3.24</u>	<u>2.90</u>
14 <u>Restrict landscapes and planting</u>	<u>3.02</u>	<u>2.93</u>
15 <u>Increase price to reduce use</u>	<u>3.00</u>	<u>3.03</u>

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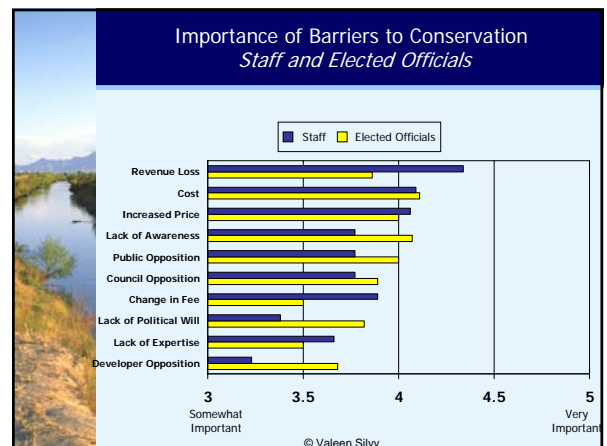
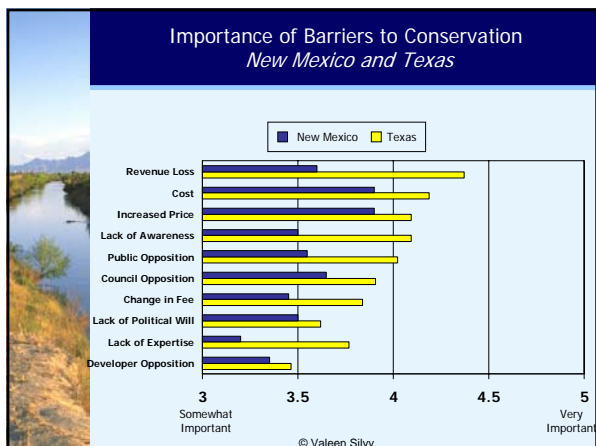
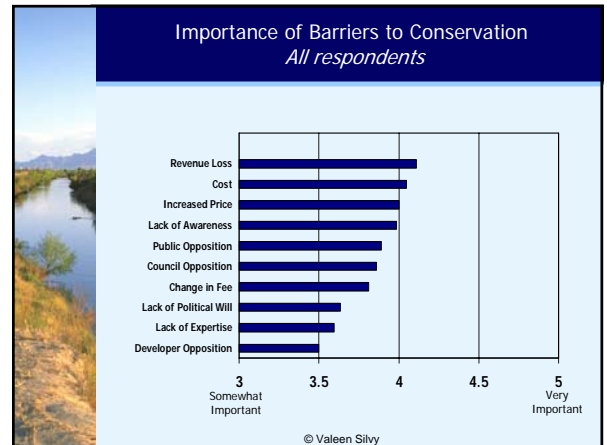


### Water Conservation Options: Preference and Feasibility Staff

Strategy	Preference	Feasibility
1 <u>Encourage drought-tolerant landscape</u>	4.41	4.03
2 <u>Public education campaign</u>	4.35	4.12
3 Provide residential water audits	3.85	3.50
4 Use graywater for landscape watering	3.65	3.21
5 Require drip irrigation as appropriate	3.79	3.44
6 Reusing treated municipal wastewater	4.00	3.71
7 Outdoor watering restrictions	3.82	3.29
8 Restrictions on watering schedules	3.59	3.41
9 Rainwater harvest programs	3.44	3.35
10 Provide low-flow showerheads	3.38	3.32
11 Restrict water run-off	3.44	3.12
12 <u>Leak detection for water lines</u>	3.06	2.76
13 <u>Offer rebates</u>	3.03	2.56
14 <u>Restrict landscapes and planting</u>	2.97	2.58
15 Increase price to reduce use	3.53	3.56

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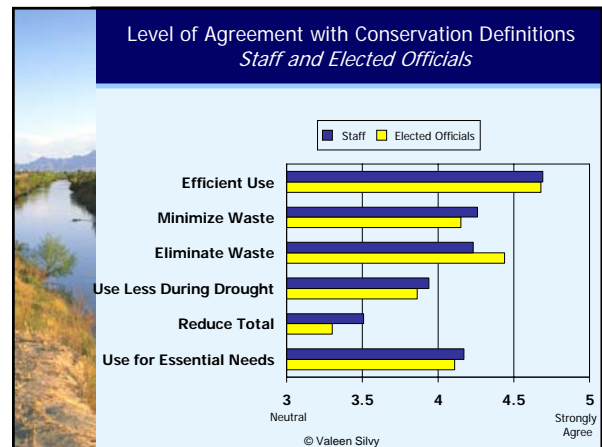
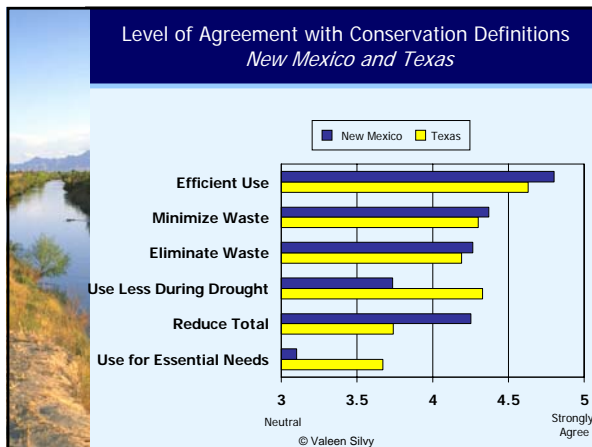
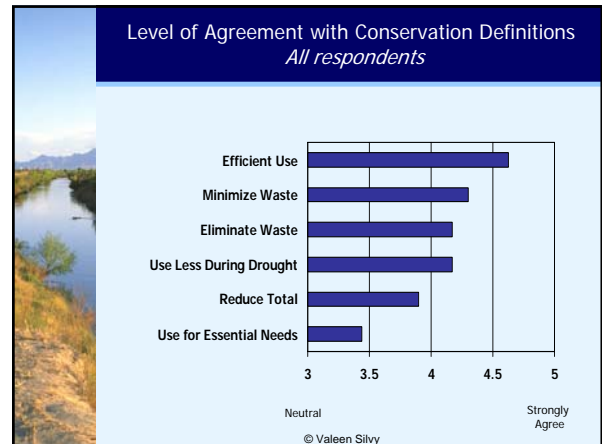
- ### Staff/Elected Officials Compared
- Adopt**
    - Encourage drought-tolerant landscape – E/S
    - Public education campaign – E/S
    - Provide residential water audits – E
    - Reusing treated municipal wastewater – E
  - Work on Feasibility**
    - Leak detection for water lines – E/S
    - Offer rebates - S
    - Restrict landscapes and planting – E/S
    - Increase price to reduce use - E
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### Barriers

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

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### Definitions

Most support

- Efficient use
- Minimize waste
- Eliminate waste

Least support

- Reduced total

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### Some Implications

- ▶ **Biggest Areas for Savings**  
Leak detection  
Outside: Landscaping 50%  
Indoors: Showers 10%; Toilets 15%
- ▶ **Strongest adoptability = Education**
- ▶ **Improving Feasibility = Restrictions**
- ▶ **Barriers = Financial**  
Loss of Revenue from less water used  
Cost to Implement  
User opposition to price increases

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**YOUR THOUGHTS**

- ▶ **Where to Focus**
- ▶ **Education vs. Regulation**
- ▶ **Information Needs for Decision-makers**

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