

Identifying Institutional Barriers of Water Conservation in the New Mexico Lower Rio Grande Basin

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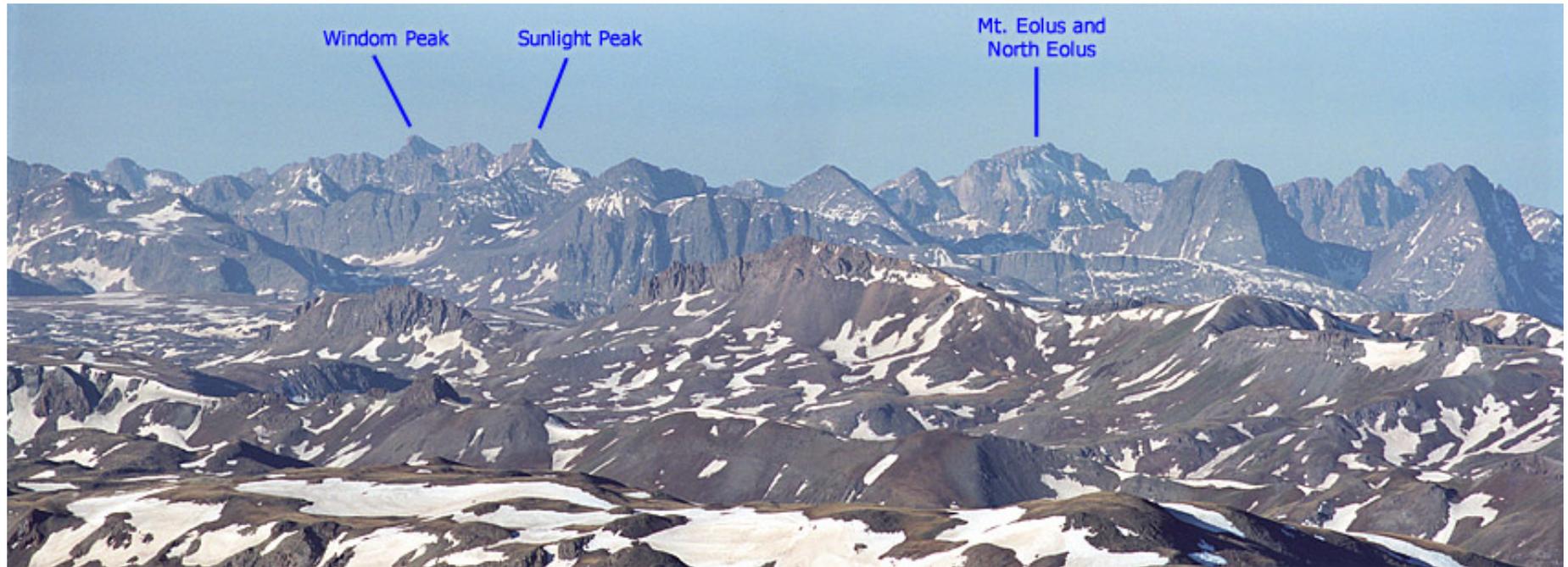
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Story: Lower Rio Grande

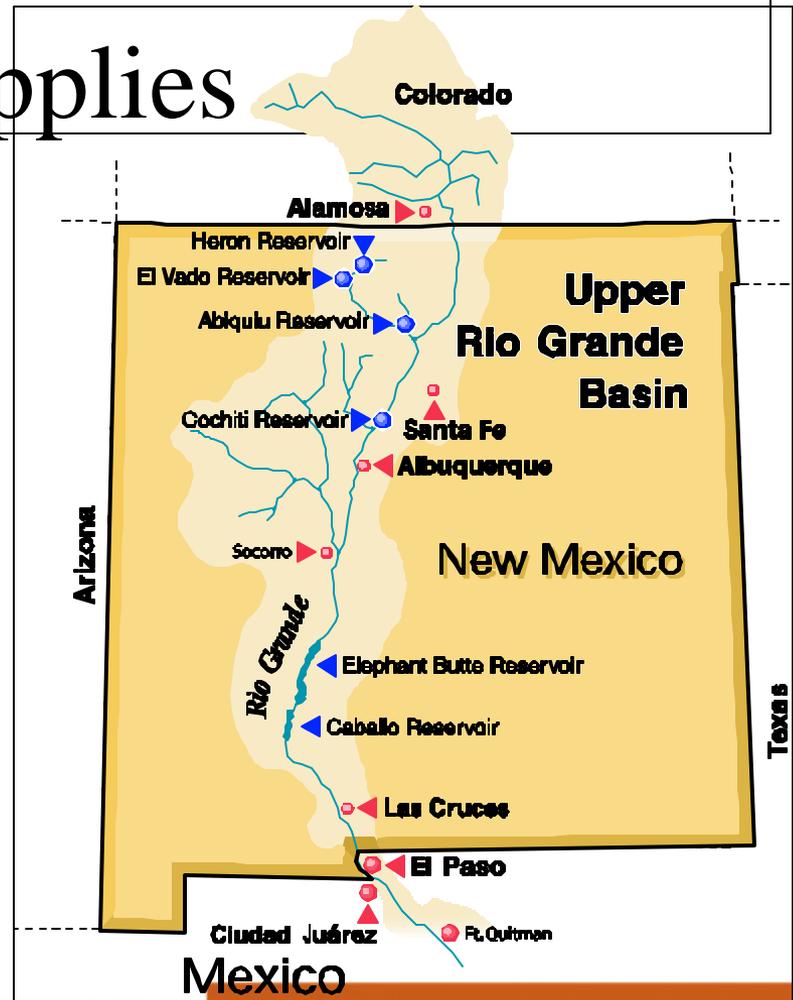
- Limited Research examining Institutional Barriers to Water Conservation
- Scarce supplies
- Climate change
- Growing demands
- Water quality issues
- Most water programs are expensive



Rio Grande Headwaters, Colorado



Competition for Water: Scares Supplies



Rio Grande Dynamics

- Depletable reservoirs / aquifers
- Pumping affects current and lagged flows
- Continued population growth
- Endangered Species flow requirements
- Adjudication
- Agricultural Use 80 ~ 90%

Reservoir Levels: Normal v. Drought

Elephant Butte Reservoir on Rio Grande



Policy Question Facing Rio Grande Basin's Water Planners

- **Four instruments for dealing with shortages**
 - **International Treaties (US – Mexico of 1906)**
 - **Federal Law: Endangered Species Act**
 - **Regional Agreement (RG Compact)**
 - **Interstate Agreement (NM –TX allocation for RGP)**

Purpose of Study

- Examine Institutional Barriers to Water Conservation
- Identify institutional innovations that could circumvent those barriers while identifying challenges and opportunities to promote water conservation in agriculture

Approach

- Examine selected organizations, laws, and system operations that act as institutional barriers to water conservation
- Identify conservation attitudes toward reduced water use
- Education/Extension Activities

What is Water Conservation?

- Very old question
- Attractive – Can be molded into a concept that is attractive to anyone
- Definitions

Definitions

- (Unacceptable) Water Conservation is simple technical efficiency in consumptive water use
- (Acceptable) Action of reducing water without disproportionately increasing the use of other resources. (Economical)
 - Beneficial effects of the reduced water use must be greater than the adverse effects associated with the use of other resources required to support conservation

Overriding Principle

Voluntary water conservation and water transfer requires the potential for economic gain

Potential Institutional Barriers to Agricultural Water Conservation (Incentives and Disincentives)

- Overriding role of economic incentives
 1. On farm savings that saves no water basin-wide
 2. Water Banking
 3. Groundwater substitution for conserved surface water
 4. Lack of clear titles to water rights
 5. Common property carryover storage
 6. Interstate compact constraints
 7. The buying/selling price of water

Water Conservation Attitudes

- Survey Method
 - Survey designed to identify attitudes that discourage irrigators from reducing water use.
 - Survey distributed in the Elephant Butte Irrigation District
 - Survey irrigation season 2002 (Full) and 2003 (Drought)
 - Sample size 200 from 3500 accounts with a 70% response rate

Survey Results

- Farm Structure
 - Owners (35%) vs Renters (65%)
 - Parcels disbursed and small
 - Culture and traditions
- Knowledge of the irrigation system
- Lack of control

Education/Extension Activities

- Educational Seminars with EBID constituents
 - Law of the River
 - Hydrology
 - Ordering Process
 - Metering Program
- Booklet (New Residents)
 - Distributed over 1500

Education/Extension Activities

- Website
 - Farm Accounts
 - Irrigation History
 - Irrigation Calculator
 - Rental Agreements
- Train Ditch Riders
 - Flow meters
 - Manual
- Small Tract/Flat Rate
 - Ditch Associations

Future and Present Work

- Middle Rio Grande Conservancy District
- Acequia's
 - Acequia Association
 - Acequia Booklet
 - Acequia Survey

Questions

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- Thank You