

Water Conservation Policy Issues: Challenges and Opportunities

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Background

- **Growing Population**
- **Emerging Environmental Demands/Values**
- **Climate Change**
- **No New Water Supplies**
- **Many water uses are from non-renewable sources**

Gated Pipe Irrigation



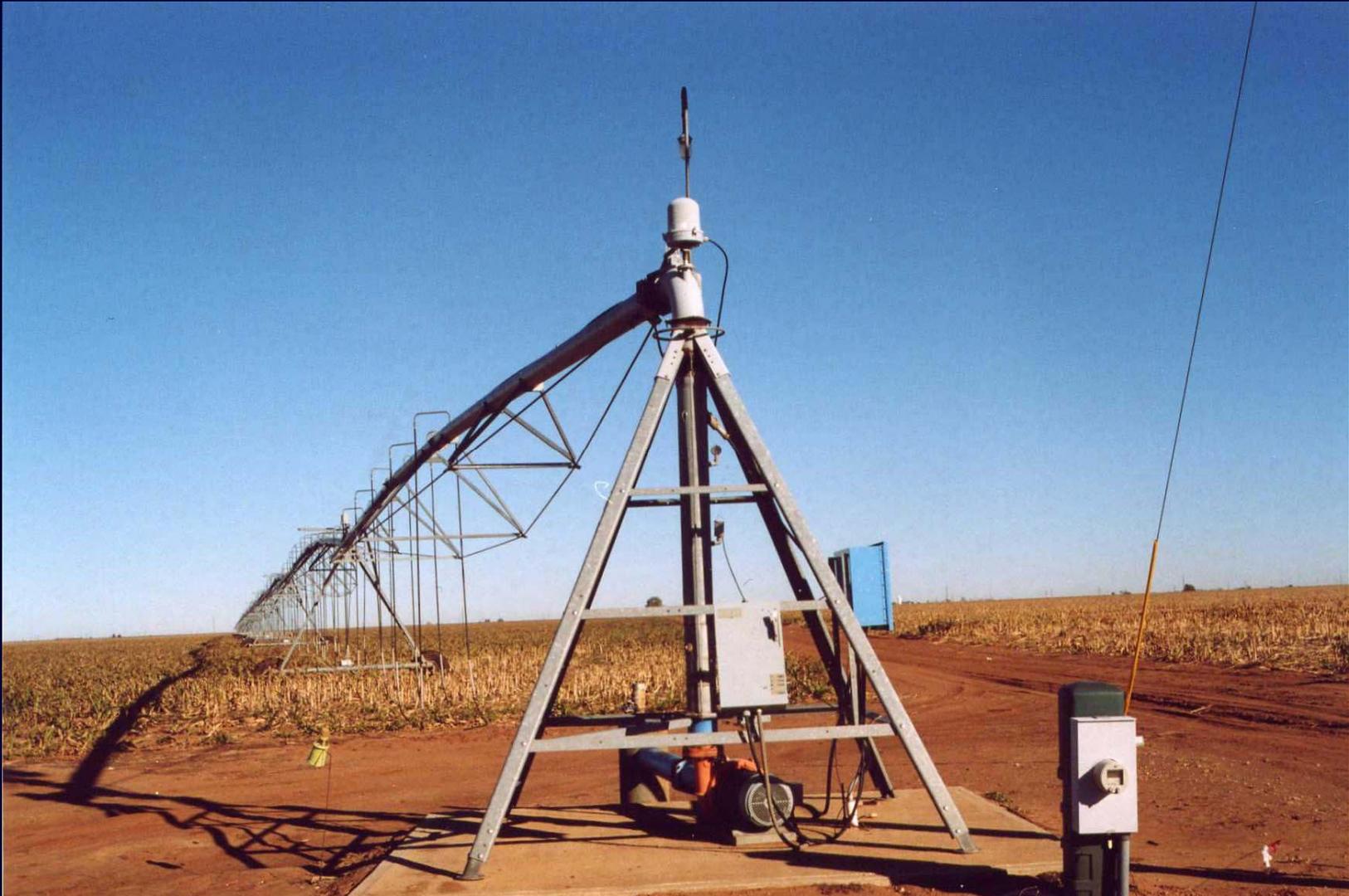
Flood Irrigation



Wheel Line Irrigation



Center Pivot



Urban Water Use



Urban Water Conservation



Minimum Instream Flows



Will Elephant Butte be this High Again?



Top Water Issues in NM for Future Teaching, Research, and Service

- Improve existing supply enhancing technologies.
- Assess levels of vulnerability of New Mexico aquifers.
- Examine cost effective methods to promote water conservation.
- Improve water use efficiency and increase economic returns for water used.
- Increase safety of wastewater treated for use as drinking water.
- Promote conjunctive use of surface water and groundwater.
- Develop better measures for reducing water pollution.
- Understand what influences water use by agriculture, municipal, industrial, and environmental users.
- Understand effects of land use changes on water pollution.

Overarching Principle

- **People practice water conservation voluntarily only if they see a potential for economic gain.**
- **Water conservation barriers come from lack of economic gain.**
- **Reducing barriers to wc comes from increasing the economic gain produced by conservation.**

Barriers to Water Conservation

- **Irrigation: Lack of clear titles to water saved**
 - Discourages transfers
 - Discourages conservation investments
 - Encourages heavy use in case future titles are based on current use

Barriers to Water Conservation

- **Water Transfer Restrictions: Hard to transfer water outside agriculture**
 - Reduces the market for water currently used in agriculture.
 - Will fear of 'non-beneficial use' impair security of water right?
 - Discourages on-farm water conservation investments.

Barriers to water conservation

- Insecure rights to conserved water
 - Intercepting one's return flows is not a net savings, since it reduces downstream supply.
 - Preventing seepage to uneconomical depths or to saline aquifers is a net savings.
 - Economically sound policies will avoid making it too expensive to show a net savings

Barriers to water conservation

- Uncertain Duty of Water
 - Adjudications of water started in the lower Rio Grande in late 1990s.
 - Defining a water right to a set amount of irrigated acreage helps clear land titles.
 - Nobody knows quantity of water per acre that will be assigned to each irrigated acre (uncertain duty of water).
 - Uncertain duty gives incentive for high current use to get a hoped for high future duty of water.

Barriers to water conservation

- **Common Property Carryover Storage**
 - Common property carryover at EB – 57% (NM), 43% (TX)
 - This year's saved water is shared by all next year

Institutional Barriers: Interstate Compacts

- **RGR Compact makes no provision for CO or NM to rent surplus water below Elephant Butte (under-deliver for cash)**
- **1906 U.S. Mexico Treaty makes no provision for NM/TX to over-deliver to Mexico for cash.**

Institutional Barriers: The Price of Water

- **Cheap water discourages water conservation, no matter what political forces encourage it.**
- **What is cheap water?**
 - **Low price charged to users**
 - **Low price received by user/owner who sells or rents**

What Discourages Ag Water Conservation, RG Basin, NM

Reasons for not conserving		
	Own	Rent
Water conservation costs \$	69	60
Incomplete stream adjudications	88	75
Conservation takes labor	76	70
No buyers for saved water	96	100
No financial incentive to reduce use	85	65
Water distribution system restricts conserving	90	93
Reduced water use builds up soil salts	79	67

Summary

- **Conservation Barriers**
 - **Difficulty of rights to conserved water**
 - **Groundwater substitution for conserved surface water**
 - **Clouded titles to water rights**
 - **Uncertain duty of water**
 - **Common property carryover storage**
 - **Interstate compact constraints**
 - **Price**