Challenges and Opportunities for Irrigation Districts

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Challenges facing Districts

• Volatile market for crops
• Increasing competition from Municipal & Industrial (M&I) water users
• Environmental issues
• Hydrologic connection between surface water and groundwater – management, administrative issues
• Persistent drought
• Permanent shift to a more arid climate
• Downstream obligations, changing equities
Depletions and the Rio Grande Compact

New Mexico’s obligation to “Texas”
Depletion Reduction – A tough pill to take

• Lower water use crops – market driven
• Deficit Irrigation – reduced yield
• Fallowing – reduced production, lost revenue
  • Routine fallowing
  • Motivation for additional fallowing
DROP:
Depletion Reduction and Offset Program

Elephant Butte Irrigation District
The core of the US Complaint in Supreme Court:

“New Mexico has allowed the diversion of surface water and pumping of groundwater that is hydrologically connected to the Rio Grande downstream of Elephant Butte Reservoir by water users who either do not have contracts with the Secretary of the Interior or are using water in excess of contractual amounts.”
DROP in a Nutshell

• M&I users motivated to offset the impact of their groundwater use on the surface water supply of the Rio Grande Project enter into forbearance agreements with farmers.

• Farmers would be paid by the M&I user through EBID to fallow land, eliminating the local hydrologic depletion that would have occurred on that land, taken to be 2.6 acre-feet per acre of fallowed land.

• M&I users continue to use their groundwater wells (or expand groundwater use), having offset their effect on the local hydrologic system and the Rio Grande Project.
Considerations

• Plaintiffs in Texas v. New Mexico seek to protect the Rio Grande Project water supply from depletions by “non-Project contractors.”

• DROP will allow M&I users to become Project contractors.

• Depletion reduction directly addresses effect on interactive surface water-groundwater system and reduces stress on aquifer systems.

• Excessive or poorly planned fallowing can threaten the viability of agriculture.
Contingencies

• Entry by farmers into DROP forbearance agreements is voluntary.
• Land entering program must have been irrigated four of the past five years, and must have surface water and groundwater rights.
• Farmers may enroll up to 20 percent of their land into forbearance agreements, though the EBID board has the ability to waive this limit.
• Lands under forbearance agreements are fallow, and not irrigated with surface water or groundwater.
• Surface water allotted to land under forbearance agreement will stay with the farmer who entered into the program for use on his cultivated land or transfer to other EBID lands.
• Farmers rotate land in the program through entire acreage, with a given parcel being fallowed for no more than three consecutive years.
• Land in the program must be maintained according to a land management plan.
• DROP will last for up to the term of the 2008 Operating Agreement.
DROP Example: 50 acre farm, 12” surface water allotment

20% = 10 acres in DROP forbearance agreement
- No surface water or groundwater use on 10 acres
- Depletion reduction (offset) = 2.6 ft CIR x 10 acres = 26 AF

50 acre account
40 acres in production
- Surface water allotment: 12” to 50 acres (50 AF)
- 15” surface water on 40 acres in production (50 AF)
- 15” – 12” = 3” reduced groundwater use on 40 acres in production (10 AF)
The Bottom Line

• Change of Purpose of Project Water may require compliance with the Sale of Water for Miscellaneous Purposes Act, 43 USC §521.
• Price range to be determined in that process.
• Must be high enough to attract participating farmers – this is a voluntary program.
• Cost borne by M&I users participating in the program.
The Curse of Positive Feedback (AKA Death Spiral):

DR = Diversion Ratio = Project Diversions/Caballo Release
Groundwater Elevation in the Mesilla Valley, 1946-2015

Peggy Johnson, NMT/NMBG 2015
Using Positive Feedback:

Reduced Depletion
Take-home messages

• Operational efficiencies can be improved, but yield little “wet water” from a basin perspective

• Rotational fallowing schemes should be designed to be responsive to water supply fluctuations

• Limited permanent fallowing (Buy and Dry) may be necessary for addressing climate change

• It is critical to maintain a viable economic base and to coordinate fallowing patterns – avoid “checkerboarding”

• Consolidation of operations is likely – less small-farm agriculture