Water Forum 2006

Utton Transboundary Resources Center
UNM School of Law

Susan Kelly
Associate Director

October 31, 2006
• Adjudication Ombudsman Program
• History of Water Legislation
• Reservoir Storage Symposium
• Model Interstate Compact
• Regional Water Planning issues
• Energy Water Nexus
• U.S. - Mexico Border projects
New Mexico/Chihuahua Border Commission
Delicias Irrigation District
Location

• 5 hours south of El Paso/Santa Teresa
• 1 hour south of Chihuahua City
Climate

- High Chihuahuan Desert
- Rainfall approximately 12 inches per year
Project Purposes

• Assist in Mexico’s delivery of water to the Lower Rio Grande Basin under the 1944 Treaty

• Water conservation

• Better crop yields
1944 Treaty

• Roughly, two-thirds of the water from Mexican basins is used in Mexico.
• One-third in Texas.
• Mexico must over a 5 year period, deliver a minimum annual average of 350,000 af from its RG tributaries.
Extraordinary Drought:

- If Extraordinary Drought prevents delivery, the debt may be rolled over to the next 5 year period.
- Extraordinary Drought is not defined.
Delicias Irrigation District

- Irrigated area approximately 220,000 acres.
- 12 Modules (user associations) which are separately run divisions.
Cost

$143 million (in U.S. dollars):

• $40 million from NAD Bank

• Balance ($103 million) – funded by Mexican federal government
Improvements included:

- Lining canals / installing pipes
- Rehabilitation of works
- Seal coating of roads
- Installation of modern irrigation systems
- Grading of agricultural land
- Installation of farmland drainage systems
- Procurement of machinery
- Permanent training program for staff.
Status / Results

• 90% complete

• Conversion from flood irrigation

• 34% of consumptive water usage saved
<table>
<thead>
<tr>
<th>Water Saved in District 005</th>
<th>2002-2005 (af)</th>
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</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>14,657,000</td>
</tr>
<tr>
<td>Module 2</td>
<td>8,110,400</td>
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<tr>
<td>Module 3</td>
<td>8,285,500</td>
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<tr>
<td>Module 4</td>
<td>14,541,000</td>
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<td>Module 5</td>
<td>21,612,000</td>
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<td>Module 12</td>
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<tr>
<td><strong>Total Conchos</strong></td>
<td><strong>76,198,000</strong></td>
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<tr>
<td>Module 6</td>
<td>11,399,000</td>
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<tr>
<td>Module 7</td>
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<tr>
<td>Module 8</td>
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<td>Module 9</td>
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<td><strong>Total San Pedro</strong></td>
<td><strong>32,394,000</strong></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>108,592,000</strong></td>
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</tbody>
</table>
Saved water

- 50% belongs the farmer
- 25% transferred to Ciudad Chihuahua for municipal water use (City pays farmer for water rights).
- 25% of the water used for Treaty obligations.
Ownership

• Dams and canals are owned by the federal water agency (CNA – Comisión Nacional del Agua)

• CNA lines and maintains the canals.

• Land ownership is private property.
At the beginning of the irrigation season, CNA assesses the available water in the reservoirs.
• CNA allocates water to each Irrigation District
• District allocates to each Module
• Module allocates to individual farmers.
Withdrawal of Water

- Farmer can either pump water from the ground or take the water from the surface.
- Any water pumped is counted against the annual allocation.
Season:

- March 1 – Sept. 30 for surface irrigation.
- Farmer can continue to grow crops after cutoff, but must use own well.
- Energy costs a big consideration.
Irrigation equipment and improvements:

- Given to the farmers for free.
- Farmer pays for electricity.
Alfalfa:

• Subsurface irrigation (T tape system).

• Filtering systems for water to be used in drip systems.
Technology

Mostly from Israel:
Pecans

Sprinkled - not flooded.

High pressure irrigation systems in Modulo 11 of Irrigation District 005 Delicias. (Photo courtesy of Consultores en Ecosistemas y Tecnología Ambiental, S.C.)
Rio Conchos Basin

<table>
<thead>
<tr>
<th>Reservoirs</th>
<th>06/30/06</th>
<th>09/22/06</th>
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<tbody>
<tr>
<td>Boquilla</td>
<td>689,917</td>
<td>2,113,529</td>
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<td>Madero</td>
<td>115,121</td>
<td>286,993</td>
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<td>Leon</td>
<td>124,850</td>
<td>328,339</td>
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<tr>
<td>Others</td>
<td>98,907</td>
<td>270,779</td>
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<tr>
<td>Total:</td>
<td>858,542</td>
<td>2,999,640</td>
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Reservoirs
Spill !