WESTERN WATER IN THE 21ST CENTURY

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THE PROBLEM

- INCREASING DEMAND
  - Environmental Needs
  - Energy Nexus
  - Native American Federal Reserved Water Rights
  - Population Growth
THE PROBLEM

DECLINING SUPPLIES

- Drought
- Climate Change
HOW STATES WILL BE AFFECTED BY CLIMATE CHANGE
THE PROBLEM

- LEGAL AND INSTITUTIONAL
  - Prior Appropriation
  - State/Regional Differences
TOOLS FOR A SOLUTION

- CONSERVATION AND REUSE
  - In Basin Problem

- WATER MARKETS
  - Legal & Institutional
  - Environment
  - In Basin Problem
    - Agriculture Important
    - Rural Economies
TOOLS FOR A SOLUTION

- HABITAT CONVERSATION PLANS/RIVER RESTORATION
  - Time and Expense

- INDIAN WATER RIGHTS SETTLEMENT
  - Time and expense
  - Legal and Institutional

- DESALINATION
  - Expense
  - Environment
TOOLS FOR A SOLUTION

- STORAGE
  - Expense
  - Environment

- AUGMENTATION
  - Expense
  - Environment
  - Legal and Institutional
EXAMPLE

COLORADO RIVER

Problem

- Drought/CC, Population, Energy, Environment, Tribal, Legal & Institutional

Solutions

- Water Markets, Conservation & Reuse, Desalination, HCP, Augmentation, Indian Water Right Settlements
EXAMPLE

RIO GRANDE

PROBLEMS
• Drought/CC, Population, Environment, Tribal, Legal & Institutional

SOLUTIONS
• Conservation & Reuse, HCP, Water Markets, Indian Water Right Settlements
EXAMPLE

CALIFORNIA

- PROBLEMS
  - Drought/CC, Population, Legal & Institutional, Environment, Energy

- SOLUTIONS
  - Storage, Conservation & Reuse, Water Markets, HCP, Desalination
EXAMPLE

- TEXAS
  - Problems
    - Same as California
  - Solutions
    - Same as California
EXAMPLE

- COLUMBIA RIVER
  - Problems
    - Environment, Population
  - Solutions
    - HCP, Limited Storage, Conservation, Water Markets
EXAMPLE

MISSOURI RIVER BASIN

- Problems
  - Drought/CC, Population, Indian Reserved Water Claims, Environment, Legal and Institutional

- Solutions
  - HCP, Infrastructure, Indian Water Settlements
EXAMPLE

GREAT BASIN

- Problems
  - All
- Solutions
  - Conservation & Reuse, HCP, Water Markets
OBSERVATIONS

- SOLUTIONS TAKE TIME
- NECESSITY IS THE MOTHER OF INVENTION
- RELATIONSHIPS ARE IMPORTANT
- NO COOKIE CUTTERS
- LEADERSHIP IS CRITICAL
THANK YOU